fmocdmac — FM's OCD LaTeX Macro[*]

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Abstract

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

1   Implementation & Usage

1 ⟨*package⟩

Required external packages:

```
2
3 \RequirePackage{etoolbox}
4
5 \RequirePackage{xargs}
6 \RequirePackage{xspace}
7 \RequirePackage{stringstrings}
8
9 \RequirePackage{amsmath}
10 \RequirePackage{amssymb}
11 \interdisplaylinepenalty=2500
12
```

Package options:

```
13
14 %% Text macro generation
15 \newif\iftxtgen@ \txtgen@false
16 \DeclareOption{txtgen}{\txtgen@true}
17 \DeclareOption{notxtgen}
18   {\txtgen@false\text@false\com@false\gam@false\log@false\aut@false}
19
20 %% Math macro generation
21 \newif\ifmthgen@ \mthgen@false
22 \DeclareOption{mthgen}{\mthgen@true}
23 \DeclareOption{nomthgen}
24   {\mthgen@false\math@false\gam@false\log@false\aut@false}
25
26 %% Elementary macros for text
27 \newif\iftext@ \text@false
28 \DeclareOption{text}{\text@true\txtgen@true}
29 \DeclareOption{notext}{\text@false}
30
31 %% Elementary macros for math
32 \newif\ifmath@ \math@false
33 \DeclareOption{math}{\math@true\mthgen@true}
34 \DeclareOption{nomath}{\math@false}
35
36 %% Macros for computational-complexity classes
```

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

```latex
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\ifhypref@ \hypref@true
99 \DeclareOption{nohypref}{\hypref@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 %%***********************************************************************%%
```

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

```
127 \ifdef{\mathbbo}{}{\DeclareMathAlphabet{\mathbbo}{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 ⟨B⟩, if Argument ⟨A⟩ is empty, and to Argument ⟨A⟩ 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 ⟨AB⟩ of the two arguments, if Argument ⟨B⟩ 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 ⟨AB⟩ of the two arguments, if Argument ⟨A⟩ 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 ⟨ABC⟩ of the three arguments, if Argument ⟨B⟩ is non-empty, and to the empty string, otherwise.

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

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

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

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

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]` = "$\text{Name}_{\text{sub}}^{\text{sup}}\text{Ext}$"
- `\newtxt[\sffamily]{Name}[sub][sup][Ext]` = "$\mathsf{Name}_{\mathsf{sub}}^{\mathsf{sup}}\mathsf{Ext}$"
- `\newtxt[\ttfamily]{Name}[sub][sup][Ext]` = "$\mathtt{Name}_{\mathtt{sub}}^{\mathtt{sup}}\mathtt{Ext}$"

204 `\newcommandx{\newtxt}[5][1=, 3=, 4=, 5=]`
205   `{\text{#1#2\txtsubsup[#1]{#3}{#4}#5}\xspace}`

\newtxtsty   ... to do!

- `\newtxtsty{\rmfamily}{Name}[sub][sup][Ext]` = "$\text{Name}_{\text{sub}}^{\text{sup}}\text{Ext}$"
- `\newtxtsty{\rmfamily}[\sffamily]{Name}[sub][sup][Ext]` = "$\mathsf{Name}_{\mathsf{sub}}^{\mathsf{sup}}\mathsf{Ext}$"
- `\newtxtsty{\rmfamily}[\ttfamily]{Name}[sub][sup][Ext]` = "$\mathtt{Name}_{\mathtt{sub}}^{\mathtt{sup}}\mathtt{Ext}$"

206 `\newcommandx{\newtxtsty}[2][2=]`
207   `{\newtxt[\defval{#2}{#1}]}`

\newtxtarg   ... to do!

- `\newtxtarg[\rmfamily]{Name}[sub][sup][Ext1]{Arg}[Ext2]` = "$\text{Name}_{\text{sub}}^{\text{sup}}\text{Ext1}(\text{Arg})\text{Ext2}$"
- `\newtxtarg[\sffamily]{Name}[sub][sup][Ext1]{Arg}[Ext2]` = "$\mathsf{Name}_{\mathsf{sub}}^{\mathsf{sup}}\mathsf{Ext1}(\mathsf{Arg})\mathsf{Ext2}$"
- `\newtxtarg[\ttfamily]{Name}[sub][sup][Ext1]{Arg}[Ext2]` = "$\mathtt{Name}_{\mathtt{sub}}^{\mathtt{sup}}\mathtt{Ext1}(\mathtt{Arg})\mathtt{Ext2}$"

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]` = "$\text{Name}_{\text{sub}}^{\text{sup}}\text{Ext1}(\text{Arg})\text{Ext2}$"
- `\newtxtargsty{\rmfamily}[\sffamily]{Name}[sub][sup][Ext1]{Arg}[Ext2]` = "$\mathsf{Name}_{\mathsf{sub}}^{\mathsf{sup}}\mathsf{Ext1}(\mathsf{Arg})\mathsf{Ext2}$"
- `\newtxtargsty{\rmfamily}[\ttfamily]{Name}[sub][sup][Ext1]{Arg}[Ext2]` = "$\mathtt{Name}_{\mathtt{sub}}^{\mathtt{sup}}\mathtt{Ext1}(\mathtt{Arg})\mathtt{Ext2}$"

210 `\newcommandx{\newtxtargsty}[2][2=]`
211   `{\newtxtarg[\defval{#2}{#1}]}`

\newtxtoarg   ... to do!

- `\newtxtoarg[\rmfamily]{Name}[sub][sup][Arg]` = "$\text{Name}_{\text{sub}}^{\text{sup}}(\text{Arg})$"
- `\newtxtoarg[\sffamily]{Name}[sub][sup][Arg]` = "$\mathsf{Name}_{\mathsf{sub}}^{\mathsf{sup}}(\mathsf{Arg})$"
- `\newtxtoarg[\ttfamily]{Name}[sub][sup][Arg]` = "$\mathtt{Name}_{\mathtt{sub}}^{\mathtt{sup}}(\mathtt{Arg})$"

212 `\newcommandx{\newtxtoarg}[5][1=, 3=, 4=, 5=]`
213   `{\newtxtarg[#1]{#2}[#3][#4][]{#5}[]}`

\newtxtoargsty   ... to do!

- `\newtxtoargsty{\rmfamily}{Name}[sub][sup][Arg]` = "$\text{Name}_{\text{sub}}^{\text{sup}}(\text{Arg})$"
- `\newtxtoargsty{\rmfamily}[\sffamily]{Name}[sub][sup][Arg]` = "$\mathsf{Name}_{\mathsf{sub}}^{\mathsf{sup}}(\mathsf{Arg})$"
- `\newtxtoargsty{\rmfamily}[\ttfamily]{Name}[sub][sup][Arg]` = "$\mathtt{Name}_{\mathtt{sub}}^{\mathtt{sup}}(\mathtt{Arg})$"

214 `\newcommandx{\newtxtoargsty}[2][2=]`
215   `{\newtxtoarg[\defval{#2}{#1}]}`

\newtxtpar   ... to do!

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

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

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

\newtxtopar   ... to do!

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

```
220 \newcommandx{\newtxtopar}[5][1=, 3=, 4=, 5=]
221   {\newtxtpar[#1]{#2}[#3][#4][]{#5}[]}
```

\newtxtoparsty   ... to do!

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

```
222 \newcommandx{\newtxtoparsty}[2][2=]
223   {\newtxtopar[\defval{#2}{#1}]}
```

\txtsubsup   ... to do!

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

```
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] = "Name$_{\text{sub}}^{\text{sup}}$Ext"
- \txt[\scshape]{Name}[sub][sup][Ext] = "Name$_{\text{sub}}^{\text{sup}}$Ext"
- \txt[\bfseries]{Name}[sub][sup][Ext] = "**Name$_{\text{sub}}^{\text{sup}}$Ext**"

```
227 \newcommand{\txt}
228   {\newtxtsty{\txtsty}}
```

\txtarg   ... to do!

- \txtarg{Name}[sub][sup][Ext1]{Arg}[Ext2] = "Name$_{\text{sub}}^{\text{sup}}$Ext1(Arg)Ext2"
- \txtarg[\scshape]{Name}[sub][sup][Ext1]{Arg}[Ext2] = "Name$_{\text{sub}}^{\text{sup}}$Ext1(Arg)Ext2"
- \txtarg[\bfseries]{Name}[sub][sup][Ext1]{Arg}[Ext2] = "**Name$_{\text{sub}}^{\text{sup}}$Ext1(Arg)Ext2**"

```
229 \newcommand{\txtarg}
230   {\newtxtargsty{\txtsty}}
```

\txtoarg   ... to do!

- \txtoarg{Name}[sub][sup][Arg] = "Name$_{\text{sub}}^{\text{sup}}$(Arg)"
- \txtoarg[\scshape]{Name}[sub][sup][Arg] = "Name$_{\text{sub}}^{\text{sup}}$(Arg)"
- \txtoarg[\bfseries]{Name}[sub][sup][Arg] = "**Name$_{\text{sub}}^{\text{sup}}$(Arg)**"

```
231 \newcommand{\txtoarg}
232   {\newtxtoargsty{\txtsty}}
```

\txtpar   ... to do!

- \txtpar{Name}[sub][sup][Ext1]{Par}[Ext2] = "Name$_{\text{sub}}^{\text{sup}}$Ext1[Par]Ext2"
- \txtpar[\scshape]{Name}[sub][sup][Ext1]{Par}[Ext2] = "Name$_{\text{sub}}^{\text{sup}}$Ext1[Par]Ext2"
- \txtpar[\bfseries]{Name}[sub][sup][Ext1]{Par}[Ext2] = "**Name$_{\text{sub}}^{\text{sup}}$Ext1[Par]Ext2**"

```
233 \newcommand{\txtpar}
234   {\newtxtparsty{\txtsty}}
```

\txtopar   ... to do!

- $\texttt{\textbackslash txtopar\{Name\}[sub][sup][Par]} = $ "$\text{Name}^{\text{sup}}_{\text{sub}}[\text{Par}]$"
- $\texttt{\textbackslash txtopar[\textbackslash scshape]\{Name\}[sub][sup][Par]} = $ "$\textsc{Name}^{\textsc{sup}}_{\textsc{sub}}[\textsc{Par}]$"
- $\texttt{\textbackslash txtopar[\textbackslash bfseries]\{Name\}[sub][sup][Par]} = $ "$\mathbf{Name}^{\mathbf{sup}}_{\mathbf{sub}}[\mathbf{Par}]$"

```
235 \newcommand{\txtopar}
236   {\newtxtoparsty{\txtsty}}
```

\txtsty ... to do!

```
237 \newcommand{\txtsty}
238   {\mdseries\upshape\rmfamily}
```

```
239 %%********************************************************************%%
```

\cmdtxt ... to do!

- $\texttt{\textbackslash cmdtxt\{NewCmd\};\ \textbackslash newcommand\{txtstyNewCmd\}\{\textbackslash scshape\textbackslash ttfamily\};}$
  $\texttt{\textbackslash txtNewCmd\{Name\}[sub][sup][Ext]} = \textsc{Name}^{\textsc{sup}}_{\textsc{sub}}\textsc{Ext}$

```
240 \newcommand{\cmdtxt}[1]
241   {\csdef{txt#1}{\newtxtsty{\csname txtsty#1\endcsname}}}
```

\cmdtxtarg ... to do!

- $\texttt{\textbackslash cmdtxtarg\{NewCmd\};\ \textbackslash newcommand\{txtstyNewCmd\}\{\textbackslash scshape\textbackslash ttfamily\};}$
  $\texttt{\textbackslash txtargNewCmd\{Name\}[sub][sup][Ext1]\{Arg\}[Ext2]} = \textsc{Name}^{\textsc{sup}}_{\textsc{sub}}\textsc{Ext1}(\textsc{Arg})\textsc{Ext2}$

```
242 \newcommand{\cmdtxtarg}[1]
243   {\csdef{txtarg#1}{\newtxtargsty{\csname txtsty#1\endcsname}}}
```

\cmdtxtoarg ... to do!

- $\texttt{\textbackslash cmdtxtoarg\{NewCmd\};\ \textbackslash newcommand\{txtstyNewCmd\}\{\textbackslash scshape\textbackslash ttfamily\};}$
  $\texttt{\textbackslash txtoargNewCmd\{Name\}[sub][sup][Arg]} = \textsc{Name}^{\textsc{sup}}_{\textsc{sub}}(\textsc{Arg})$

```
244 \newcommand{\cmdtxtoarg}[1]
245   {\csdef{txtoarg#1}{\newtxtoargsty{\csname txtsty#1\endcsname}}}
```

\cmdtxtpar ... to do!

- $\texttt{\textbackslash cmdtxtpar\{NewCmd\};\ \textbackslash newcommand\{txtstyNewCmd\}\{\textbackslash scshape\textbackslash ttfamily\};}$
  $\texttt{\textbackslash txtparNewCmd\{Name\}[sub][sup][Ext1]\{Par\}[Ext2]} = \textsc{Name}^{\textsc{sup}}_{\textsc{sub}}\textsc{Ext1}[\textsc{Par}]\textsc{Ext2}$

```
246 \newcommand{\cmdtxtpar}[1]
247   {\csdef{txtpar#1}{\newtxtparsty{\csname txtsty#1\endcsname}}}
```

\cmdtxtopar ... to do!

- $\texttt{\textbackslash cmdtxtopar\{NewCmd\};\ \textbackslash newcommand\{txtstyNewCmd\}\{\textbackslash scshape\textbackslash ttfamily\};}$
  $\texttt{\textbackslash txtoparNewCmd\{Name\}[sub][sup][Par]} = \textsc{Name}^{\textsc{sup}}_{\textsc{sub}}[\textsc{Par}]$

```
248 \newcommand{\cmdtxtopar}[1]
249   {\csdef{txtopar#1}{\newtxtoparsty{\csname txtsty#1\endcsname}}}
```

\cmdtxtall ... to do!

- $\texttt{\textbackslash cmdtxtall\{NewCmd\};\ \textbackslash newcommand\{txtstyNewCmd\}\{\textbackslash scshape\textbackslash ttfamily\};}$
  $\texttt{\textbackslash txtNewCmd\{Name\}[sub][sup][Ext]} = \textsc{Name}^{\textsc{sup}}_{\textsc{sub}}\textsc{Ext}$
  $\texttt{\textbackslash txtargNewCmd\{Name\}[sub][sup][Ext1]\{Arg\}[Ext2]} = \textsc{Name}^{\textsc{sup}}_{\textsc{sub}}\textsc{Ext1}(\textsc{Arg})\textsc{Ext2}$
  $\texttt{\textbackslash txtoargNewCmd\{Name\}[sub][sup][Arg]} = \textsc{Name}^{\textsc{sup}}_{\textsc{sub}}(\textsc{Arg})$
  $\texttt{\textbackslash txtparNewCmd\{Name\}[sub][sup][Ext1]\{Par\}[Ext2]} = \textsc{Name}^{\textsc{sup}}_{\textsc{sub}}\textsc{Ext1}[\textsc{Par}]\textsc{Ext2}$
  $\texttt{\textbackslash txtoparNewCmd\{Name\}[sub][sup][Par]} = \textsc{Name}^{\textsc{sup}}_{\textsc{sub}}[\textsc{Par}]$

```
250 \newcommand{\cmdtxtall}[1]
251   {\cmdtxt{#1}\cmdtxtarg{#1}\cmdtxtoarg{#1}\cmdtxtpar{#1}\cmdtxtopar{#1}}
```

```
252 %%********************************************************************%%
```

\usrtxt ... to do!

- $\texttt{\textbackslash usrtxt\{cmdName\}\{Suf\}\{\};\ \textbackslash cmdNameSuf} = \text{cmdName}$
  $\texttt{\textbackslash usrtxt\{cmdName\}\{Suf\}\{arg\};\ \textbackslash cmdNameSuf\{Arg\}} = \text{cmdName(Arg)}$
  $\texttt{\textbackslash usrtxt\{cmdName\}\{Suf\}\{par\};\ \textbackslash cmdNameSuf\{Par\}} = \text{cmdName[Par]}$

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

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]` $=$ "$\mathrm{Name}_{sub}^{sup}Ext$"
- `\newmthsty{mathrm}[mathsf]{Name}[sub][sup][Ext]` $=$ "$\mathsf{Name}_{sub}^{sup}Ext$"
- `\newmthsty{mathrm}[mathtt]{Name}[sub][sup][Ext]` $=$ "$\mathtt{Name}_{sub}^{sup}Ext$"

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

`\newmtharg`   ... to do!

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

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

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

`\newmthoarg`   ... to do!

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

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

`\newmthoargsty`   ... to do!

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

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

`\newmthpar`   ... to do!

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

9

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

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

\newmthparsty   ... to do!

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

273 \newcommandx{\newmthparsty}[2][2=]
274   {\newmthpar[\defval{#2}{#1}]}

\newmthopar   ... to do!

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

275 \newcommandx{\newmthopar}[5][1=, 3=, 4=, 5=]
276   {\newmthpar[#1]{#2}[#3][#4][]{#5}[]}

\newmthoparsty   ... to do!

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

277 \newcommandx{\newmthoparsty}[2][2=]
278   {\newmthopar[\defval{#2}{#1}]}

\mthsubsup   ... to do!

279 \newcommand{\mthsubsup}[2]
280   {\empchk{#1}{_{#1}}\empchk{#2}{^{#2}}}

281 %%**%%

\mth   ... to do!

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

282 \newcommand{\mth}
283   {\newmthsty{\mthsty}}

\mtharg   ... to do!

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

284 \newcommand{\mtharg}
285   {\newmthargsty{\mthsty}}

\mthoarg   ... to do!

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

286 \newcommand{\mthoarg}
287   {\newmthoargsty{\mthsty}}

\mthpar   ... to do!

- \mthpar{Name}[sub][sup][Ext1]{Par}[Ext2] = "$Name_{sub}^{sup}Ext1[Par]Ext2$"

10

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

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

\mthopar   ... to do!

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

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

\mthsty   ... to do!

```
292 \newcommand{\mthsty}
293   {}
```

```
294 %%************************************************************************%%
```

\cmdmth   ... to do!

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

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

\cmdmtharg   ... to do!

- \cmdmtharg{NewCmd}; \newcommand{mthstyNewCmd}{\mathtt};
  \mthargNewCmd{Name}[sub][sup][Ext1]{Arg}[Ext2] = Name$_{sub}^{sup}Ext1(Arg)Ext2$

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

\cmdmthoarg   ... to do!

- \cmdmthoarg{NewCmd}; \newcommand{mthstyNewCmd}{\mathtt};
  \mthoargNewCmd{Name}[sub][sup][Arg] = Name$_{sub}^{sup}(Arg)$

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

\cmdmthpar   ... to do!

- \cmdmthpar{NewCmd}; \newcommand{mthstyNewCmd}{\mathtt};
  \mthparNewCmd{Name}[sub][sup][Ext1]{Par}[Ext2] = Name$_{sub}^{sup}Ext1[Par]Ext2$

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

\cmdmthopar   ... to do!

- \cmdmthopar{NewCmd}; \newcommand{mthstyNewCmd}{\mathtt};
  \mthoparNewCmd{Name}[sub][sup][Par] = Name$_{sub}^{sup}[Par]$

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

\cmdmthall   ... to do!

- \cmdmthall{NewCmd}; \newcommand{mthstyNewCmd}{\mathtt};
  \mthNewCmd{Name}[sub][sup][Ext] = Name$_{sub}^{sup}Ext$
  \mthargNewCmd{Name}[sub][sup][Ext1]{Arg}[Ext2] = Name$_{sub}^{sup}Ext1(Arg)Ext2$
  \mthoargNewCmd{Name}[sub][sup][Arg] = Name$_{sub}^{sup}(Arg)$
  \mthparNewCmd{Name}[sub][sup][Ext1]{Par}[Ext2] = Name$_{sub}^{sup}Ext1[Par]Ext2$
  \mthoparNewCmd{Name}[sub][sup][Par] = Name$_{sub}^{sup}[Par]$

```
305 \newcommand{\cmdmthall}[1]
306   {\cmdmth{#1}\cmdmtharg{#1}\cmdmthoarg{#1}\cmdmthpar{#1}\cmdmthopar{#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] $= Name_{\mathrm{sub}}^{\mathrm{sup}} Ext$

- \txtargdef{Name}[sub][sup][Ext1]{Arg}[Ext2] $= Name_{\mathrm{sub}}^{\mathrm{sup}} Ext1(Arg)Ext2$

- \txtpardef{Name}[sub][sup][Ext1]{Par}[Ext2] $= Name_{\mathrm{sub}}^{\mathrm{sup}} Ext1[Par]Ext2$

```
334 %% Style for Definitions
335 \cmdtxtall{def}\newcommand{\txtstydef}{\bfseries\em}
```

`\cmdtxtdef` ... to do!

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

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

336 `\newcommandx{\cmdtxtdef}[2][2=]`
337   `{\usrtxt{#1}{}{def}[#2]}`

`\cmdtxtargdef` ... to do!

- `\cmdtxtargdef{cmdName}`;
  `\cmdName[sub][sub][ext1]{arg}[ext2]` $= cmdName_{\mathrm{sub}}^{\mathrm{sub}}ext1(arg)ext2$

- `\cmdtxtargdef{cmdName}[newName]`;
  `\cmdName[sub][sub][ext1]{arg}[ext2]` $= newName_{\mathrm{sub}}^{\mathrm{sub}}ext1(arg)ext2$

338 `\newcommandx{\cmdtxtargdef}[2][2=]`
339   `{\usrtxt{#1}{}{argdef}[#2]}`

`\cmdtxtoargdef` ... to do!

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

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

340 `\newcommandx{\cmdtxtoargdef}[2][2=]`
341   `{\usrtxt{#1}{}{oargdef}[#2]}`

`\cmdtxtpardef` ... to do!

- `\cmdtxtpardef{cmdName}`;
  `\cmdName[sub][sub][ext1]{par}[ext2]` $= cmdName_{\mathrm{sub}}^{\mathrm{sub}}ext1[par]ext2$

- `\cmdtxtpardef{cmdName}[newName]`;
  `\cmdName[sub][sub][ext1]{par}[ext2]` $= newName_{\mathrm{sub}}^{\mathrm{sub}}ext1[par]ext2$

342 `\newcommandx{\cmdtxtpardef}[2][2=]`
343   `{\usrtxt{#1}{}{pardef}[#2]}`

`\cmdtxtopardef` ... to do!

- `\cmdtxtopardef{cmdName}`;
  `\cmdName[sub][sub][par]` $= cmdName_{\mathrm{sub}}^{\mathrm{sub}}[par]$

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

344 `\newcommandx{\cmdtxtopardef}[2][2=]`
345   `{\usrtxt{#1}{}{opardef}[#2]}`

`\txtabr, ...` ... to do!

- `\txtabr{Name}[sub][sup][Ext]` $= Name_{\mathrm{sub}}^{\mathrm{sup}}Ext$
- `\txtargabr{Name}[sub][sup][Ext1]{Arg}[Ext2]` $= Name_{\mathrm{sub}}^{\mathrm{sup}}Ext1(Arg)Ext2$
- `\txtparabr{Name}[sub][sup][Ext1]{Par}[Ext2]` $= Name_{\mathrm{sub}}^{\mathrm{sup}}Ext1[Par]Ext2$

346 `%% Style for Abbreviations`
347 `\cmdtxtall{abr}\newcommand{\txtstyabr}{\em}`

`\cmdtxtabr` ... to do!

- `\cmdtxtabr{cmdName}`;
  `\cmdName[sub][sub][ext]` $= cmdName_{\mathrm{sub}}^{\mathrm{sub}}ext$

- `\cmdtxtabr{cmdName}[newName]`;
  `\cmdName[sub][sub][ext]` $= newName_{\mathrm{sub}}^{\mathrm{sub}}ext$

348 `\newcommandx{\cmdtxtabr}[2][2=]`
349   `{\usrtxt{#1}{}{abr}[#2]}`

`\cmdtxtargabr` ... to do!

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

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

```
350 \newcommandx{\cmdtxtargabr}[2][2=]
351    {\usrtxt{#1}{}{argabr}[#2]}
```

\cmdtxtoargabr ... to do!

- `\cmdtxtoargabr{cmdName}`;
  `\cmdName[sub][sub][arg]` $= cmdName^{\text{sub}}_{\text{sub}}(arg)$

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

```
352 \newcommandx{\cmdtxtoargabr}[2][2=]
353    {\usrtxt{#1}{}{oargabr}[#2]}
```

\cmdtxtparabr ... to do!

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

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

```
354 \newcommandx{\cmdtxtparabr}[2][2=]
355    {\usrtxt{#1}{}{parabr}[#2]}
```

\cmdtxtoparabr ... to do!

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

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

```
356 \newcommandx{\cmdtxtoparabr}[2][2=]
357    {\usrtxt{#1}{}{oparabr}[#2]}
```

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

\txtname, ... to do!

- `\txtname{Name}[sub][sup][Ext]` $= \textsc{Name}^{\text{sup}}_{\text{sub}}\textsc{Ext}$
- `\txtargname{Name}[sub][sup][Ext1]{Arg}[Ext2]` $= \textsc{Name}^{\text{sup}}_{\text{sub}}\textsc{Ext1}(\textsc{Arg})\textsc{Ext2}$
- `\txtparname{Name}[sub][sup][Ext1]{Par}[Ext2]` $= \textsc{Name}^{\text{sup}}_{\text{sub}}\textsc{Ext1}[\textsc{Par}]\textsc{Ext2}$

```
359 %% Style for Names
360 \cmdtxtall{name}\newcommand{\txtstyname}{\mdseries\scshape\sffamily}
```

\cmdtxtname ... to do!

- `\cmdtxtname{cmdName}`;
  `\cmdName[sub][sub][ext]` $= \textsc{cmdName}^{\text{SUB}}_{\text{SUB}}\textsc{ext}$

- `\cmdtxtname{cmdName}[newName]`;
  `\cmdName[sub][sub][ext]` $= \textsc{newName}^{\text{SUB}}_{\text{SUB}}\textsc{ext}$

```
361 \newcommandx{\cmdtxtname}[2][2=]
362    {\usrtxt{#1}{}{name}[#2]}
```

\cmdtxtargname ... to do!

- `\cmdtxtargname{cmdName}`;
  `\cmdName[sub][sub][ext1]{arg}[ext2]` $= \textsc{cmdName}^{\text{SUB}}_{\text{SUB}}\textsc{ext1}(\textsc{arg})\textsc{ext2}$

- `\cmdtxtargname{cmdName}[newName]`;
  `\cmdName[sub][sub][ext1]{arg}[ext2]` $= \textsc{newName}^{\text{SUB}}_{\text{SUB}}\textsc{ext1}(\textsc{arg})\textsc{ext2}$

```
363 \newcommandx{\cmdtxtargname}[2][2=]
364    {\usrtxt{#1}{}{argname}[#2]}
```

\cmdtxtoargname ... to do!

- \cmdtxtoargname{cmdName};
  \cmdName[sub][sub][arg] $= \mathrm{CMDNAME}_{\mathrm{SUB}}^{\mathrm{SUB}}(\mathrm{ARG})$

- \cmdtxtoargname{cmdName}[newName];
  \cmdName[sub][sub][arg] $= \mathrm{NEWNAME}_{\mathrm{SUB}}^{\mathrm{SUB}}(\mathrm{ARG})$

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

\cmdtxtparname   ... to do!

- \cmdtxtparname{cmdName};
  \cmdName[sub][sub][ext1]{par}[ext2] $= \mathrm{CMDNAME}_{\mathrm{SUB}}^{\mathrm{SUB}}\mathrm{EXT1}[\mathrm{PAR}]\mathrm{EXT2}$

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

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

\cmdtxtoparname   ... to do!

- \cmdtxtoparname{cmdName};
  \cmdName[sub][sub][par] $= \mathrm{CMDNAME}_{\mathrm{SUB}}^{\mathrm{SUB}}[\mathrm{PAR}]$

- \cmdtxtoparname{cmdName}[newName];
  \cmdName[sub][sub][par] $= \mathrm{NEWNAME}_{\mathrm{SUB}}^{\mathrm{SUB}}[\mathrm{PAR}]$

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

\txtcom, ... to do!

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

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

\cmdtxtcom   ... to do!

- \cmdtxtcom{cmdName};
  \cmdName[sub][sub][ext] $= \mathrm{CMDNAME}_{\mathrm{SUB}}^{\mathrm{SUB}}\mathrm{EXT}$

- \cmdtxtcom{cmdName}[newName];
  \cmdName[sub][sub][ext] $= \mathrm{NEWNAME}_{\mathrm{SUB}}^{\mathrm{SUB}}\mathrm{EXT}$

```
373 \newcommandx{\cmdtxtcom}[2][2=]
374   {\usrtxt{#1}{}{com}[#2]}
```

\cmdtxtargcom   ... to do!

- \cmdtxtargcom{cmdName};
  \cmdName[sub][sub][ext1]{arg}[ext2] $= \mathrm{CMDNAME}_{\mathrm{SUB}}^{\mathrm{SUB}}\mathrm{EXT1}(\mathrm{ARG})\mathrm{EXT2}$

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

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

\cmdtxtoargcom   ... to do!

- \cmdtxtoargcom{cmdName};
  \cmdName[sub][sub][arg] $= \mathrm{CMDNAME}_{\mathrm{SUB}}^{\mathrm{SUB}}(\mathrm{ARG})$

- \cmdtxtoargcom{cmdName}[newName];
  \cmdName[sub][sub][arg] $= \mathrm{NEWNAME}_{\mathrm{SUB}}^{\mathrm{SUB}}(\mathrm{ARG})$

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

\cmdtxtparcom   ... to do!

- \cmdtxtparcom{cmdName};
  \cmdName[sub][sub][ext1]{par}[ext2] $= \mathrm{CMDNAME}_{\mathrm{SUB}}^{\mathrm{SUB}}\mathrm{EXT1}[\mathrm{PAR}]\mathrm{EXT2}$

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

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

\cmdtxtoparcom   ... to do!

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

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

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

383 \fi
384 %%**%%

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

\mthname, ... to do!

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

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

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

391 \seqoflatupp{Name}{mthname}

\cmdmthname   ... to do!

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

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

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

\cmdmthargname   ... to do!

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

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

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

\cmdmthoargname   ... to do!

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

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

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

\cmdmthparname   ... to do!

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

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

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

\cmdmthoparname   ... to do!

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

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

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

\mthfam, ... to do!

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

402 %% Style for Families
403 \cmdmthall{fam}\newcommand{\mthstyfam}{\mathscr}

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

404 \seqoflatupp{Fam}{mthfam}

\cmdmthfam   ... to do!

- \cmdmthfam{CMDNAME};
  \CMDNAMEFam[sub][sub][ext] $= \mathscr{CMDNAME}^{sub}_{sub}ext$

- \cmdmthfam{cmdName}[NEWNAME];
  \cmdNameFam[sub][sub][ext] $= \mathscr{NEWNAME}^{sub}_{sub}ext$

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

\cmdmthargfam   ... to do!

- \cmdmthargfam{CMDNAME};
  \CMDNAMEFam[sub][sub][ext1]{arg}[ext2] $= \mathscr{CMDNAME}^{sub}_{sub}ext1(arg)ext2$

- \cmdmthargfam{cmdName}[NEWNAME];
  \cmdNameFam[sub][sub][ext1]{arg}[ext2] $= \mathscr{NEWNAME}^{sub}_{sub}ext1(arg)ext2$

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

\cmdmthoargfam   ... to do!

- \cmdmthoargfam{CMDNAME};
  \CMDNAMEFam[sub][sub][arg] $= \mathscr{CMDNAME}^{sub}_{sub}(arg)$

- \cmdmthoargfam{cmdFam}[NEWNAME];
  \cmdFamFam[sub][sub][arg] $= \mathscr{NEWNAME}^{sub}_{sub}(arg)$

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

\cmdmthparfam   ... to do!

- \cmdmthparfam{CMDNAME};
  \CMDNAMEFam[sub][sub][ext1]{par}[ext2] $= \mathscr{CMDNAME}^{sub}_{sub}ext1[par]ext2$

- \cmdmthparfam{cmdName}[NEWNAME];
  \cmdNameFam[sub][sub][ext1]{par}[ext2] $= \mathscr{NEWNAME}^{sub}_{sub}ext1[par]ext2$

411 \newcommandx{\cmdmthparfam}[2][2=]
412   {\usrmth{#1}{Fam}{parfam}[#2]}

\cmdmthoparfam   ... to do!

- \cmdmthoparfam{CMDNAME};
  \CMDNAMEFam[sub][sub][par] $= \mathscr{CMDNAME}^{sup}_{sub}[par]$

- \cmdmthoparfam{cmdFam}[NEWNAME];
  \cmdFamFam[sub][sub][par] $= \mathscr{NEWNAME}^{sup}_{sub}[par]$

```
413 \newcommandx{\cmdmthoparfam}[2][2=]
414   {\usrmth{#1}{Fam}{oparfam}[#2]}
```

\mthcls, ... to do!

- \mthcls{NAME}[sub][sup][Ext] $= \mathcal{NAME}^{sup}_{sub}Ext$
- \mthargcls{NAME}[sub][sup][Ext1]{Arg}[Ext2] $= \mathcal{NAME}^{sup}_{sub}Ext1(Arg)Ext2$
- \mthparcls{NAME}[sub][sup][Ext1]{Par}[Ext2] $= \mathcal{NAME}^{sup}_{sub}Ext1[Par]Ext2$

```
415 %% Style for Classes
416 \cmdmthall{cls}\newcommand{\mthstycls}{\matheus}
```

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

```
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!

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

```
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] $= \mathfrak{N}ame_{sub}^{sup}Ext$
- \mthargstr{Name}[sub][sup][Ext1]{Arg}[Ext2] $= \mathfrak{N}ame_{sub}^{sup}Ext1(Arg)Ext2$
- \mthparstr{Name}[sub][sup][Ext1]{Par}[Ext2] $= \mathfrak{N}ame_{sub}^{sup}Ext1[Par]Ext2$

19

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

\aStr, ... to do!

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

```
443 \seqoflatlet{Str}{mthstr}\seqofgrklow{Str}{mthstr}
```

\cmdmthstr   ... to do!

- \cmdmthstr{cmdName};
  \cmdNameStr[sub][sub][ext] $= \mathfrak{cmdName}_{sub}^{sub}ext$

- \cmdmthstr{cmdName}[NewName];
  \cmdNameStr[sub][sub][ext] $= \mathfrak{NewName}_{sub}^{sub}ext$

```
444 \newcommandx{\cmdmthstr}[2][2=]
445   {\usrmth{#1}{Str}{str}[#2]}
```

\cmdmthargstr   ... to do!

- \cmdmthargstr{cmdName};
  \cmdNameStr[sub][sub][ext1]{arg}[ext2] $= \mathfrak{cmdName}_{sub}^{sub}ext1(arg)ext2$

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

```
446 \newcommandx{\cmdmthargstr}[2][2=]
447   {\usrmth{#1}{Str}{argstr}[#2]}
```

\cmdmthoargstr   ... to do!

- \cmdmthoargstr{cmdName};
  \cmdNameStr[sub][sub][arg] $= \mathfrak{cmdName}_{sub}^{sub}(arg)$

- \cmdmthoargstr{cmdStr}[NewName];
  \cmdStrStr[sub][sub][arg] $= \mathfrak{NewName}_{sub}^{sub}(arg)$

```
448 \newcommandx{\cmdmthoargstr}[2][2=]
449   {\usrmth{#1}{Str}{oargstr}[#2]}
```

\cmdmthparstr   ... to do!

- \cmdmthparstr{cmdName};
  \cmdNameStr[sub][sub][ext1]{par}[ext2] $= \mathfrak{cmdName}_{sub}^{sub}ext1[par]ext2$

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

```
450 \newcommandx{\cmdmthparstr}[2][2=]
451   {\usrmth{#1}{Str}{parstr}[#2]}
```

\cmdmthoparstr   ... to do!

- \cmdmthoparstr{cmdName};
  \cmdNameStr[sub][sub][par] $= \mathfrak{cmdName}_{sub}^{sub}[par]$

- \cmdmthoparstr{cmdStr}[NewName];
  \cmdStrStr[sub][sub][par] $= \mathfrak{NewName}_{sub}^{sub}[par]$

```
452 \newcommandx{\cmdmthoparstr}[2][2=]
453   {\usrmth{#1}{Str}{oparstr}[#2]}
```

\mthset, ... to do!

- \mthset{Name}[sub][sup][Ext] $= \mathrm{Name}_{sub}^{sup}Ext$
- \mthargset{Name}[sub][sup][Ext1]{Arg}[Ext2] $= \mathrm{Name}_{sub}^{sup}Ext1(Arg)Ext2$
- \mthparset{Name}[sub][sup][Ext1]{Par}[Ext2] $= \mathrm{Name}_{sub}^{sup}Ext1[Par]Ext2$

```
454 %% Style for Sets
455 \cmdmthall{set}\newcommand{\mthstyset}{\mathrm}
```

`\aSet, ...`	... to do!

a, b, c, d, e, f, g, h, i, j, k, l, m, n, o, p, q, r, s, t, u, v, w, x, y, z

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

α, β, γ, δ, ϵ, ε, ζ, η, θ, ϑ, ι, κ, $\varkappa$, λ, μ, ν, ξ, o, π, ϖ, ρ, ϱ, σ, ς, τ, υ, ϕ, φ, χ, ψ, ω

A, B, Γ, Δ, E, E, Z, H, Θ, Θ, I, K, K, Λ, M, N, Ξ, O, Π, Π, P, P, Σ, Σ, T, Υ, Φ, Φ, X, Ψ, Ω

```
456 \seqoflet{Set}{mthset}
```

`\cmdmthset` ... to do!

- `\cmdmthset{cmdName}`;
  `\cmdNameSet[sub][sub][ext]` $= \mathrm{cmdName}^{sub}_{sub}ext$

- `\cmdmthset{cmdName}[NewName]`;
  `\cmdNameSet[sub][sub][ext]` $= \mathrm{NewName}^{sub}_{sub}ext$

```
457 \newcommandx{\cmdmthset}[2][2=]
458   {\usrmth{#1}{Set}{set}[#2]}
```

`\cmdmthargset` ... to do!

- `\cmdmthargset{cmdName}`;
  `\cmdNameSet[sub][sub][ext1]{arg}[ext2]` $= \mathrm{cmdName}^{sub}_{sub}ext1(arg)ext2$

- `\cmdmthargset{cmdName}[NewName]`;
  `\cmdNameSet[sub][sub][ext1]{arg}[ext2]` $= \mathrm{NewName}^{sub}_{sub}ext1(arg)ext2$

```
459 \newcommandx{\cmdmthargset}[2][2=]
460   {\usrmth{#1}{Set}{argset}[#2]}
```

`\cmdmthoargset` ... to do!

- `\cmdmthoargset{cmdName}`;
  `\cmdNameSet[sub][sub][arg]` $= \mathrm{cmdName}^{sub}_{sub}(arg)$

- `\cmdmthoargset{cmdSet}[NewName]`;
  `\cmdSetSet[sub][sub][arg]` $= \mathrm{NewName}^{sub}_{sub}(arg)$

```
461 \newcommandx{\cmdmthoargset}[2][2=]
462   {\usrmth{#1}{Set}{oargset}[#2]}
```

`\cmdmthparset` ... to do!

- `\cmdmthparset{cmdName}`;
  `\cmdNameSet[sub][sub][ext1]{par}[ext2]` $= \mathrm{cmdName}^{sub}_{sub}ext1[par]ext2$

- `\cmdmthparset{cmdName}[NewName]`;
  `\cmdNameSet[sub][sub][ext1]{par}[ext2]` $= \mathrm{NewName}^{sub}_{sub}ext1[par]ext2$

```
463 \newcommandx{\cmdmthparset}[2][2=]
464   {\usrmth{#1}{Set}{parset}[#2]}
```

`\cmdmthoparset` ... to do!

- `\cmdmthoparset{cmdName}`;
  `\cmdNameSet[sub][sub][par]` $= \mathrm{cmdName}^{sub}_{sub}[par]$

- `\cmdmthoparset{cmdSet}[NewName]`;
  `\cmdSetSet[sub][sub][par]` $= \mathrm{NewName}^{sub}_{sub}[par]$

```
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]` $= Name^{sup}_{sub}Ext$

- `\mthargrel{Name}[sub][sup][Ext1]{Arg}[Ext2]` $= Name^{sup}_{sub}Ext1(Arg)Ext2$

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

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

\aRel, ... to do!

$a, b, c, d, e, f, g, h, i, j, k, l, m, n, o, p, q, r, s, t, u, v, w, x, y, z$

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

$\alpha, \beta, \gamma, \delta, \epsilon, \varepsilon, \zeta, \eta, \theta, \vartheta, \iota, \kappa, \varkappa, \lambda, \mu, \nu, \xi, o, \pi, \varpi, \rho, \varrho, \sigma, \varsigma, \tau, \upsilon, \phi, \varphi, \chi, \psi, \omega$

$A, B, \Gamma, \Delta, E, E, Z, H, \Theta, \Theta, I, K, K, \Lambda, M, N, \Xi, O, \Pi, \Pi, P, P, \Sigma, \Sigma, T, \Upsilon, \Phi, \Phi, X, \Psi, \Omega$

```
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] $= cmdName_{sub}^{sub}[par]$

- \cmdmthoparrel{cmdRel}[NewName];
  \cmdRelRel[sub][sub][par] $= NewName_{sub}^{sub}[par]$

```
482 \newcommandx{\cmdmthoparrel}[2][2=]
483   {\usrmth{#1}{Rel}{oparrel}[#2]}
```

\mthfun, ... to do!

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

```
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

$\alpha, \beta, \gamma, \delta, \epsilon, \varepsilon, \zeta, \eta, \theta, \vartheta, \iota, \kappa, \varkappa, \lambda, \mu, \nu, \xi, o, \pi, \varpi, \rho, \varrho, \sigma, \varsigma, \tau, \upsilon, \phi, \varphi, \chi, \psi, \omega$

$A, B, \Gamma, \Delta, E, E, Z, H, \Theta, \Theta, I, K, K, \Lambda, M, N, \Xi, O, \Pi, \Pi, P, P, \Sigma, \Sigma, T, \Upsilon, \Phi, \Phi, X, \Psi, \Omega$

486 `\seqoflet{Fun}{mthfun}`

\cmdmthfun   ... to do!

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

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

487 `\newcommandx\cmdmthfun}[2][2=]`
488   `{\usrmth{#1}{Fun}{fun}[#2]}`

\cmdmthargfun   ... to do!

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

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

489 `\newcommandx\cmdmthargfun}[2][2=]`
490   `{\usrmth{#1}{Fun}{argfun}[#2]}`

\cmdmthoargfun   ... to do!

- `\cmdmthoargfun{cmdName};`
  `\cmdNameFun[sub][sub][arg]` $= \mathsf{cmdName}_{sub}^{sub}(arg)$

- `\cmdmthoargfun{cmdFun}[NewName];`
  `\cmdFunFun[sub][sub][arg]` $= \mathsf{NewName}_{sub}^{sub}(arg)$

491 `\newcommandx\cmdmthoargfun}[2][2=]`
492   `{\usrmth{#1}{Fun}{oargfun}[#2]}`

\cmdmthparfun   ... to do!

- `\cmdmthparfun{cmdName};`
  `\cmdNameFun[sub][sub][ext1]{par}[ext2]` $= \mathsf{cmdName}_{sub}^{sub}ext1[par]ext2$

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

493 `\newcommandx\cmdmthparfun}[2][2=]`
494   `{\usrmth{#1}{Fun}{parfun}[#2]}`

\cmdmthoparfun   ... to do!

- `\cmdmthoparfun{cmdName};`
  `\cmdNameFun[sub][sub][par]` $= \mathsf{cmdName}_{sub}^{sub}[par]$

- `\cmdmthoparfun{cmdFun}[NewName];`
  `\cmdFunFun[sub][sub][par]` $= \mathsf{NewName}_{sub}^{sub}[par]$

495 `\newcommandx\cmdmthoparfun}[2][2=]`
496   `{\usrmth{#1}{Fun}{oparfun}[#2]}`

\mthsym, ... to do!

- `\mthsym{Name}[sub][sup][Ext]` $= \mathsf{Name}_{sub}^{sup}Ext$
- `\mthargsym{Name}[sub][sup][Ext1]{Arg}[Ext2]` $= \mathsf{Name}_{sub}^{sup}Ext1(Arg)Ext2$
- `\mthparsym{Name}[sub][sup][Ext1]{Par}[Ext2]` $= \mathsf{Name}_{sub}^{sup}Ext1[Par]Ext2$

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

$\alpha, \beta, \gamma, \delta, \epsilon, \varepsilon, \zeta, \eta, \theta, \vartheta, \iota, \kappa, \varkappa, \lambda, \mu, \nu, \xi, o, \pi, \varpi, \rho, \varrho, \sigma, \varsigma, \tau, \upsilon, \phi, \varphi, \chi, \psi, \omega$

$A, B, \Gamma, \Delta, E, E, Z, H, \theta, \Theta, I, K, K, \Lambda, M, N, \Xi, O, \Pi, \Pi, P, P, \Sigma, \Sigma, T, \Upsilon, \Phi, \Phi, X, \Psi, \Omega$

499 `\seqoflet{Sym}{mthsym}`

23

\cmdmthsym ... to do!

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

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

```
500 \newcommandx\cmdmthsym}[2][2=]
501    {\usrmth{#1}{Sym}{sym}[#2]}
```

\cmdmthargsym ... to do!

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

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

```
502 \newcommandx\cmdmthargsym}[2][2=]
503    {\usrmth{#1}{Sym}{argsym}[#2]}
```

\cmdmthoargsym ... to do!

- \cmdmthoargsym{cmdName};
  \cmdNameSym[sub][sub][arg] = $\mathtt{cmdName}_{sub}^{sub}(arg)$

- \cmdmthoargsym{cmdSym}[NewName];
  \cmdSymSym[sub][sub][arg] = $\mathtt{NewName}_{sub}^{sub}(arg)$

```
504 \newcommandx\cmdmthoargsym}[2][2=]
505    {\usrmth{#1}{Sym}{oargsym}[#2]}
```

\cmdmthparsym ... to do!

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

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

```
506 \newcommandx\cmdmthparsym}[2][2=]
507    {\usrmth{#1}{Sym}{parsym}[#2]}
```

\cmdmthoparsym ... to do!

- \cmdmthoparsym{cmdName};
  \cmdNameSym[sub][sub][par] = $\mathtt{cmdName}_{sub}^{sub}[par]$

- \cmdmthoparsym{cmdSym}[NewName];
  \cmdSymSym[sub][sub][par] = $\mathtt{NewName}_{sub}^{sub}[par]$

```
508 \newcommandx\cmdmthoparsym}[2][2=]
509    {\usrmth{#1}{Sym}{oparsym}[#2]}
```

\mthelm, ... to do!

- \mthelm{Name}[sub][sup][Ext] = $Name_{sub}^{sup}Ext$
- \mthargelm{Name}[sub][sup][Ext1]{Arg}[Ext2] = $Name_{sub}^{sup}Ext1(Arg)Ext2$
- \mthparelm{Name}[sub][sup][Ext1]{Par}[Ext2] = $Name_{sub}^{sup}Ext1[Par]Ext2$

```
510 %% Style for Elements
511 \cmdmthall{elm}\newcommand{\mthstyelm}{\mathnormal}
```

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

```
512 \seqoflet{Elm}{mthelm}
```

\cmdmthelm ... to do!

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

24

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

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] $=$ cmdName$_{sub}^{sub}(arg)$
  \cmdNameElm[sub][sub][arg] $= cmdName_{sub}^{sub}(arg)$

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

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

\cmdmthparsymelm   ... to do!

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

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

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

\cmdmthoparsymelm   ... to do!

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

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

```
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] $= cmdName_{sub}^{sub} ext$

- \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] $= cmdName_{sub}^{sub}\, ext$

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

```
546 \newcommandx\cmdmthlrel}[2][2=]
547   {\usrmth{#1}{Rel}{lrel}[#2]}
```

```
548 %%*********************************************************************%%
```

\mthsnt, ... to do!

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

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

\aSnt, ... to do!

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

```
551 \seqoflet{Snt}{mthsnt}
```

\cmdmthsnt   ... to do!

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

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

```
552 \newcommandx\cmdmthsnt}[2][2=]
553   {\usrmth{#1}{Snt}{snt}[#2]}
```

\cmdmthargsnt   ... to do!

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

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

```
554 \newcommandx\cmdmthargsnt}[2][2=]
555   {\usrmth{#1}{Snt}{argsnt}[#2]}
```

\cmdmthoargsnt   ... to do!

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

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

```
556 \newcommandx\cmdmthoargsnt}[2][2=]
557   {\usrmth{#1}{Snt}{oargsnt}[#2]}
```

\cmdmthparsnt   ... to do!

- \cmdmthparsnt{cmdName};
  \cmdNameSnt[sub][sub][ext1]{par}[ext2] $= \mathsf{cmdName}_{sub}^{sub}ext1[par]ext2$

- \cmdmthparsnt{cmdName}[NewName];
  \cmdNameSnt[sub][sub][ext1]{par}[ext2] $= \mathsf{NewName}_{sub}^{sub}ext1[par]ext2$

```
558 \newcommandx\cmdmthparsnt}[2][2=]
559   {\usrmth{#1}{Snt}{parsnt}[#2]}
```

\cmdmthoparsnt   ... to do!

- \cmdmthoparsnt{cmdName};
  \cmdNameSnt[sub][sub][par] $= \mathsf{cmdName}_{sub}^{sub}[par]$

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

```
560 \newcommandx\cmdmthoparsnt}[2][2=]
561    {\usrmth{#1}{Snt}{oparsnt}[#2]}
```

\mthfrm, ... to do!

- \mthfrm{Name}[sub][sup][Ext] $= Name_{sub}^{sup}Ext$
- \mthargfrm{Name}[sub][sup][Ext1]{Arg}[Ext2] $= Name_{sub}^{sup}Ext1(Arg)Ext2$
- \mthparfrm{Name}[sub][sup][Ext1]{Par}[Ext2] $= Name_{sub}^{sup}Ext1[Par]Ext2$

```
562 %% Style for Formulae
563 \cmdmthall{frm}\newcommand{\mthstyfrm}{\mathit}
```

\aFrm, ... to do!

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

```
564 \seqoflet{Frm}{mthfrm}
```

\cmdmthfrm   ... to do!

- \cmdmthfrm{cmdName};
  \cmdNameFrm[sub][sub][ext] $= cmdName_{sub}^{sub}ext$
- \cmdmthfrm{cmdName}[NewName];
  \cmdNameFrm[sub][sub][ext] $= NewName_{sub}^{sub}ext$

```
565 \newcommandx\cmdmthfrm}[2][2=]
566    {\usrmth{#1}{Frm}{frm}[#2]}
```

\cmdmthargfrm   ... to do!

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

```
567 \newcommandx\cmdmthargfrm}[2][2=]
568    {\usrmth{#1}{Frm}{argfrm}[#2]}
```

\cmdmthoargfrm   ... to do!

- \cmdmthoargfrm{cmdName};
  \cmdNameFrm[sub][sub][arg] $= cmdName_{sub}^{sub}(arg)$
- \cmdmthoargfrm{cmdName}[NewName];
  \cmdNameFrm[sub][sub][arg] $= NewName_{sub}^{sub}(arg)$

```
569 \newcommandx\cmdmthoargfrm}[2][2=]
570    {\usrmth{#1}{Frm}{oargfrm}[#2]}
```

\cmdmthparfrm   ... to do!

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

```
571 \newcommandx\cmdmthparfrm}[2][2=]
572    {\usrmth{#1}{Frm}{parfrm}[#2]}
```

\cmdmthoparfrm   ... to do!

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

```
573 \newcommandx\cmdmthoparfrm}[2][2=]
574    {\usrmth{#1}{Frm}{oparfrm}[#2]}
```

`\mthmat, ...`   ... to do!

- `\mthmat{Name}[sub][sup][Ext]` $= \textbf{Name}^{sup}_{sub}Ext$

- `\mthargmat{Name}[sub][sup][Ext1]{Arg}[Ext2]` $= \textbf{Name}^{sup}_{sub}Ext1(Arg)Ext2$

- `\mthparmat{Name}[sub][sup][Ext1]{Par}[Ext2]` $= \textbf{Name}^{sup}_{sub}Ext1[Par]Ext2$

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

578 `\seqoflet{Mat}{mthmat}`

`\cmdmthmat`   ... to do!

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

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

579 `\newcommandx\cmdmthmat}[2][2=]`
580   `{\usrmth{#1}{Mat}{mat}[#2]}`

`\cmdmthargmat`   ... to do!

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

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

581 `\newcommandx\cmdmthargmat}[2][2=]`
582   `{\usrmth{#1}{Mat}{argmat}[#2]}`

`\cmdmthoargmat`   ... to do!

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

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

583 `\newcommandx\cmdmthoargmat}[2][2=]`
584   `{\usrmth{#1}{Mat}{oargmat}[#2]}`

`\cmdmthparmat`   ... to do!

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

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

585 `\newcommandx\cmdmthparmat}[2][2=]`
586   `{\usrmth{#1}{Mat}{parmat}[#2]}`

`\cmdmthoparmat`   ... to do!

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

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

587 `\newcommandx\cmdmthoparmat}[2][2=]`
588   `{\usrmth{#1}{Mat}{oparmat}[#2]}`

`\mthvec, ...`   ... to do!

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

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

```
589 %% Style for Vectors
590 \cmdmthall{vec}\newcommand{\mthstyvec}[1]{\boldsymbol{\mathit{#1}}}
```

\aVec, ... to do!

$a, b, c, d, e, f, g, h, i, j, k, l, m, n, o, p, q, r, s, t, u, v, w, x, y, z$

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

$\alpha, \beta, \gamma, \delta, \epsilon, \varepsilon, \zeta, \eta, \theta, \vartheta, \iota, \kappa, \varkappa, \lambda, \mu, \nu, \xi, o, \pi, \varpi, \rho, \varrho, \sigma, \varsigma, \tau, \upsilon, \phi, \varphi, \chi, \psi, \omega$

$A, B, \Gamma, \Delta, E, E, Z, H, \Theta, \Theta, I, K, K, \Lambda, M, N, \Xi, O, \Pi, \Pi, P, P, \Sigma, \Sigma, T, \Upsilon, \Phi, \Phi, X, \Psi, \Omega$

```
591 \seqoflet{Vec}{mthvec}
```

\cmdmthvec ... to do!

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

```
592 \newcommandx{\cmdmthvec}[2][2=]
593   {\usrmth{#1}{Vec}{vec}[#2]}
```

\cmdmthargvec ... to do!

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

```
594 \newcommandx{\cmdmthargvec}[2][2=]
595   {\usrmth{#1}{Vec}{argvec}[#2]}
```

\cmdmthoargvec ... to do!

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

```
596 \newcommandx{\cmdmthoargvec}[2][2=]
597   {\usrmth{#1}{Vec}{oargvec}[#2]}
```

\cmdmthparvec ... to do!

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

```
598 \newcommandx{\cmdmthparvec}[2][2=]
599   {\usrmth{#1}{Vec}{parvec}[#2]}
```

\cmdmthoparvec ... to do!

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

```
600 \newcommandx{\cmdmthoparvec}[2][2=]
601   {\usrmth{#1}{Vec}{oparvec}[#2]}

602 \fi
603 %%********************************************************************%%

604 %%********************************************************************%%
605 %%** Elementary Macros for Text **************************************%%
606 %%********************************************************************%%
607 \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]

31

\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}}
```

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

688 %%********************************************************************%%
```

```
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}}}
```

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

700 %%********************************************************************%%
```

```
701 \varcmd{enumeration}{\mth}{}{,}{}{}
702 \varcmd{enumerationx}{\mth}{}{;}{}{}
```

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

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

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

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

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

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

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

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

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

719 %%********************************************************************%%
```

```
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 %%************************************************************************%%
```

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

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

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

735 %%** Functions ********************************************************%%
```

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

738 %%************************************************************************%%
```

```
739 \DeclareMathOperator{\pto}
740   {\ensuremath{\rightharpoonup}}
741 \DeclareMathOperator{\pmapsto}
742   {\ensuremath{\mathrel{\raisebox{0.5ex}{\footnotesize$\{\llcorner}$}}%
743     \kern-1.5ex\rightharpoonup}}
744 %%************************************************************************%%
```

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

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

```
753 \DeclareRobustCommand{\Aomicron}
754   {\mthargset{\omicron}}
755 \DeclareRobustCommand{\AOmicron}
756   {\mthargset{\Omicron}}

757 %%** Numbers ********************************************************%%
```

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

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

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

```
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]}
```

```
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]}
```

```
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]}
```

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

794 %%********************************************************************%%
```

```
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] $= \textsc{CompClass}_{\textsc{sub}}^{\textsc{sup}}\textsc{ext}$;
  \CoCompClass[sub][sup][ext] $= \textsc{CoCompClass}_{\textsc{sub}}^{\textsc{sup}}\textsc{ext}$
  \CompClassE[sub][sup][ext] $= \textsc{CompClass-easy}_{\textsc{sub}}^{\textsc{sup}}\textsc{ext}$;
  \CoCompClassE[sub][sup][ext] $= \textsc{CoCompClass-easy}_{\textsc{sub}}^{\textsc{sup}}\textsc{ext}$
  \CompClassH[sub][sup][ext] $= \textsc{CompClass-hard}_{\textsc{sub}}^{\textsc{sup}}\textsc{ext}$;

\CoCompClassH[sub][sup][ext] = $\text{CoCompClass-Hard}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
\CompClassC[sub][sup][ext] = $\text{CompClass-Complete}_{\text{SUB}}^{\text{SUP}}\text{EXT}$;
\CoCompClassC[sub][sup][ext] = $\text{CoCompClass-Complete}_{\text{SUB}}^{\text{SUP}}\text{EXT}$

\NCompClass[sub][sup][ext] = $\text{NCompClass}_{\text{SUB}}^{\text{SUP}}\text{EXT}$;
\CoNCompClass[sub][sup][ext] = $\text{CoNCompClass}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
\NCompClassE[sub][sup][ext] = $\text{NCompClass-Easy}_{\text{SUB}}^{\text{SUP}}\text{EXT}$;
\CoNCompClassE[sub][sup][ext] = $\text{CoNCompClass-Easy}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
\NCompClassH[sub][sup][ext] = $\text{NCompClass-Hard}_{\text{SUB}}^{\text{SUP}}\text{EXT}$;
\CoNCompClassH[sub][sup][ext] = $\text{CoNCompClass-Hard}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
\NCompClassC[sub][sup][ext] = $\text{NCompClass-Complete}_{\text{SUB}}^{\text{SUP}}\text{EXT}$;
\CoNCompClassC[sub][sup][ext] = $\text{CoNCompClass-Complete}_{\text{SUB}}^{\text{SUP}}\text{EXT}$

\UCompClass[sub][sup][ext] = $\text{UCompClass}_{\text{SUB}}^{\text{SUP}}\text{EXT}$;
\CoUCompClass[sub][sup][ext] = $\text{CoUCompClass}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
\UCompClassE[sub][sup][ext] = $\text{UCompClass-Easy}_{\text{SUB}}^{\text{SUP}}\text{EXT}$;
\CoUCompClassE[sub][sup][ext] = $\text{CoUCompClass-Easy}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
\UCompClassH[sub][sup][ext] = $\text{UCompClass-Hard}_{\text{SUB}}^{\text{SUP}}\text{EXT}$;
\CoUCompClassH[sub][sup][ext] = $\text{CoUCompClass-Hard}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
\UCompClassC[sub][sup][ext] = $\text{UCompClass-Complete}_{\text{SUB}}^{\text{SUP}}\text{EXT}$;
\CoUCompClassC[sub][sup][ext] = $\text{CoUCompClass-Complete}_{\text{SUB}}^{\text{SUP}}\text{EXT}$

\ACompClass[sub][sup][ext] = $\text{ACompClass}_{\text{SUB}}^{\text{SUP}}\text{EXT}$;
\CoACompClass[sub][sup][ext] = $\text{CoACompClass}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
\ACompClassE[sub][sup][ext] = $\text{ACompClass-Easy}_{\text{SUB}}^{\text{SUP}}\text{EXT}$;
\CoACompClassE[sub][sup][ext] = $\text{CoACompClass-Easy}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
\ACompClassH[sub][sup][ext] = $\text{ACompClass-Hard}_{\text{SUB}}^{\text{SUP}}\text{EXT}$;
\CoACompClassH[sub][sup][ext] = $\text{CoACompClass-Hard}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
\ACompClassC[sub][sup][ext] = $\text{ACompClass-Complete}_{\text{SUB}}^{\text{SUP}}\text{EXT}$;
\CoACompClassC[sub][sup][ext] = $\text{CoACompClass-Complete}_{\text{SUB}}^{\text{SUP}}\text{EXT}$

- \defcomcls{CompClass}[NewClass];

\CompClass[sub][sup][ext] = $\text{NewClass}_{\text{SUB}}^{\text{SUP}}\text{EXT}$;
\CoCompClass[sub][sup][ext] = $\text{CoNewClass}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
\CompClassE[sub][sup][ext] = $\text{NewClass-Easy}_{\text{SUB}}^{\text{SUP}}\text{EXT}$;
\CoCompClassE[sub][sup][ext] = $\text{CoNewClass-Easy}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
\CompClassH[sub][sup][ext] = $\text{NewClass-Hard}_{\text{SUB}}^{\text{SUP}}\text{EXT}$;
\CoCompClassH[sub][sup][ext] = $\text{CoNewClass-Hard}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
\CompClassC[sub][sup][ext] = $\text{NewClass-Complete}_{\text{SUB}}^{\text{SUP}}\text{EXT}$;
\CoCompClassC[sub][sup][ext] = $\text{CoNewClass-Complete}_{\text{SUB}}^{\text{SUP}}\text{EXT}$

\NCompClass[sub][sup][ext] = $\text{NNewClass}_{\text{SUB}}^{\text{SUP}}\text{EXT}$;
\CoNCompClass[sub][sup][ext] = $\text{CoNNewClass}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
\NCompClassE[sub][sup][ext] = $\text{NNewClass-Easy}_{\text{SUB}}^{\text{SUP}}\text{EXT}$;
\CoNCompClassE[sub][sup][ext] = $\text{CoNNewClass-Easy}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
\NCompClassH[sub][sup][ext] = $\text{NNewClass-Hard}_{\text{SUB}}^{\text{SUP}}\text{EXT}$;
\CoNCompClassH[sub][sup][ext] = $\text{CoNNewClass-Hard}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
\NCompClassC[sub][sup][ext] = $\text{NNewClass-Complete}_{\text{SUB}}^{\text{SUP}}\text{EXT}$;
\CoNCompClassC[sub][sup][ext] = $\text{CoNNewClass-Complete}_{\text{SUB}}^{\text{SUP}}\text{EXT}$

\UCompClass[sub][sup][ext] = $\text{UNewClass}_{\text{SUB}}^{\text{SUP}}\text{EXT}$;
\CoUCompClass[sub][sup][ext] = $\text{CoUNewClass}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
\UCompClassE[sub][sup][ext] = $\text{UNewClass-Easy}_{\text{SUB}}^{\text{SUP}}\text{EXT}$;
\CoUCompClassE[sub][sup][ext] = $\text{CoUNewClass-Easy}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
\UCompClassH[sub][sup][ext] = $\text{UNewClass-Hard}_{\text{SUB}}^{\text{SUP}}\text{EXT}$;
\CoUCompClassH[sub][sup][ext] = $\text{CoUNewClass-Hard}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
\UCompClassC[sub][sup][ext] = $\text{UNewClass-Complete}_{\text{SUB}}^{\text{SUP}}\text{EXT}$;
\CoUCompClassC[sub][sup][ext] = $\text{CoUNewClass-Complete}_{\text{SUB}}^{\text{SUP}}\text{EXT}$

\ACompClass[sub][sup][ext] = $\text{ANewClass}_{\text{SUB}}^{\text{SUP}}\text{EXT}$;
\CoACompClass[sub][sup][ext] = $\text{CoANewClass}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
\ACompClassE[sub][sup][ext] = $\text{ANewClass-Easy}_{\text{SUB}}^{\text{SUP}}\text{EXT}$;
\CoACompClassE[sub][sup][ext] = $\text{CoANewClass-Easy}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
\ACompClassH[sub][sup][ext] = $\text{ANewClass-Hard}_{\text{SUB}}^{\text{SUP}}\text{EXT}$;

$$\texttt{\textbackslash CoACompClassH[sub][sup][ext]} = \text{COANEWCLASS-HARD}_{\text{SUB}}^{\text{SUP}}\text{EXT}$$
$$\texttt{\textbackslash ACompClassC[sub][sup][ext]} = \text{ANEWCLASS-COMPLETE}_{\text{SUB}}^{\text{SUP}}\text{EXT};$$
$$\texttt{\textbackslash CoACompClassC[sub][sup][ext]} = \text{COANEWCLASS-COMPLETE}_{\text{SUB}}^{\text{SUP}}\text{EXT}$$

```
844 \newcommandx{\defcomcls}[2][2=]
845   {\defcomclssem{#1}{\defval{#2}{#1}}%
846   \defcomclssem{#1}{\defval{#2}{#1}}[Co]}
847 \newcommandx{\defcomclssem}[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, ...

- $\texttt{\textbackslash Time[sub][sup][ext]} = \text{TIME}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  $\texttt{\textbackslash TimeE[sub][sup][ext]} = \text{TIME-EASY}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  $\texttt{\textbackslash TimeH[sub][sup][ext]} = \text{TIME-HARD}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  $\texttt{\textbackslash TimeC[sub][sup][ext]} = \text{TIME-COMPLETE}_{\text{SUB}}^{\text{SUP}}\text{EXT}$

- $\texttt{\textbackslash NTime[sub][sup][ext]} = \text{NTIME}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  $\texttt{\textbackslash NTimeE[sub][sup][ext]} = \text{NTIME-EASY}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  $\texttt{\textbackslash NTimeH[sub][sup][ext]} = \text{NTIME-HARD}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  $\texttt{\textbackslash NTimeC[sub][sup][ext]} = \text{NTIME-COMPLETE}_{\text{SUB}}^{\text{SUP}}\text{EXT}$

- $\texttt{\textbackslash UTime[sub][sup][ext]} = \text{UTIME}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  $\texttt{\textbackslash UTimeE[sub][sup][ext]} = \text{UTIME-EASY}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  $\texttt{\textbackslash UTimeH[sub][sup][ext]} = \text{UTIME-HARD}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  $\texttt{\textbackslash UTimeC[sub][sup][ext]} = \text{UTIME-COMPLETE}_{\text{SUB}}^{\text{SUP}}\text{EXT}$

- $\texttt{\textbackslash ATime[sub][sup][ext]} = \text{ATIME}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  $\texttt{\textbackslash ATimeE[sub][sup][ext]} = \text{ATIME-EASY}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  $\texttt{\textbackslash ATimeH[sub][sup][ext]} = \text{ATIME-HARD}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  $\texttt{\textbackslash ATimeC[sub][sup][ext]} = \text{ATIME-COMPLETE}_{\text{SUB}}^{\text{SUP}}\text{EXT}$

860 `\defcomcls{Time}`

\Space, ...

- $\texttt{\textbackslash Space[sub][sup][ext]} = \text{SPACE}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  $\texttt{\textbackslash SpaceE[sub][sup][ext]} = \text{SPACE-EASY}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  $\texttt{\textbackslash SpaceH[sub][sup][ext]} = \text{SPACE-HARD}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  $\texttt{\textbackslash SpaceC[sub][sup][ext]} = \text{SPACE-COMPLETE}_{\text{SUB}}^{\text{SUP}}\text{EXT}$

- $\texttt{\textbackslash NSpace[sub][sup][ext]} = \text{NSPACE}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  $\texttt{\textbackslash NSpaceE[sub][sup][ext]} = \text{NSPACE-EASY}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  $\texttt{\textbackslash NSpaceH[sub][sup][ext]} = \text{NSPACE-HARD}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  $\texttt{\textbackslash NSpaceC[sub][sup][ext]} = \text{NSPACE-COMPLETE}_{\text{SUB}}^{\text{SUP}}\text{EXT}$

- $\texttt{\textbackslash USpace[sub][sup][ext]} = \text{USPACE}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  $\texttt{\textbackslash USpaceE[sub][sup][ext]} = \text{USPACE-EASY}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  $\texttt{\textbackslash USpaceH[sub][sup][ext]} = \text{USPACE-HARD}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  $\texttt{\textbackslash USpaceC[sub][sup][ext]} = \text{USPACE-COMPLETE}_{\text{SUB}}^{\text{SUP}}\text{EXT}$

- $\texttt{\textbackslash ASpace[sub][sup][ext]} = \text{ASPACE}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  $\texttt{\textbackslash ASpaceE[sub][sup][ext]} = \text{ASPACE-EASY}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  $\texttt{\textbackslash ASpaceH[sub][sup][ext]} = \text{ASPACE-HARD}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  $\texttt{\textbackslash ASpaceC[sub][sup][ext]} = \text{ASPACE-COMPLETE}_{\text{SUB}}^{\text{SUP}}\text{EXT}$

861 `\defcomcls{Space}`

\LogTime, ...

- $\texttt{\textbackslash LogTime[sub][sup][ext]} = \text{LOGTIME}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  $\texttt{\textbackslash LogTimeE[sub][sup][ext]} = \text{LOGTIME-EASY}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  $\texttt{\textbackslash LogTimeH[sub][sup][ext]} = \text{LOGTIME-HARD}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
  $\texttt{\textbackslash LogTimeC[sub][sup][ext]} = \text{LOGTIME-COMPLETE}_{\text{SUB}}^{\text{SUP}}\text{EXT}$

- \NLogTime[sub][sup][ext] $= \mathrm{NLogTime}_{\mathrm{SUB}}^{\mathrm{SUP}}\mathrm{EXT}$
  \NLogTimeE[sub][sup][ext] $= \mathrm{NLogTime\text{-}EASY}_{\mathrm{SUB}}^{\mathrm{SUP}}\mathrm{EXT}$
  \NLogTimeH[sub][sup][ext] $= \mathrm{NLogTime\text{-}HARD}_{\mathrm{SUB}}^{\mathrm{SUP}}\mathrm{EXT}$
  \NLogTimeC[sub][sup][ext] $= \mathrm{NLogTime\text{-}COMPLETE}_{\mathrm{SUB}}^{\mathrm{SUP}}\mathrm{EXT}$

- \ULogTime[sub][sup][ext] $= \mathrm{ULogTime}_{\mathrm{SUB}}^{\mathrm{SUP}}\mathrm{EXT}$
  \ULogTimeE[sub][sup][ext] $= \mathrm{ULogTime\text{-}EASY}_{\mathrm{SUB}}^{\mathrm{SUP}}\mathrm{EXT}$
  \ULogTimeH[sub][sup][ext] $= \mathrm{ULogTime\text{-}HARD}_{\mathrm{SUB}}^{\mathrm{SUP}}\mathrm{EXT}$
  \ULogTimeC[sub][sup][ext] $= \mathrm{ULogTime\text{-}COMPLETE}_{\mathrm{SUB}}^{\mathrm{SUP}}\mathrm{EXT}$

- \ALogTime[sub][sup][ext] $= \mathrm{ALogTime}_{\mathrm{SUB}}^{\mathrm{SUP}}\mathrm{EXT}$
  \ALogTimeE[sub][sup][ext] $= \mathrm{ALogTime\text{-}EASY}_{\mathrm{SUB}}^{\mathrm{SUP}}\mathrm{EXT}$
  \ALogTimeH[sub][sup][ext] $= \mathrm{ALogTime\text{-}HARD}_{\mathrm{SUB}}^{\mathrm{SUP}}\mathrm{EXT}$
  \ALogTimeC[sub][sup][ext] $= \mathrm{ALogTime\text{-}COMPLETE}_{\mathrm{SUB}}^{\mathrm{SUP}}\mathrm{EXT}$

862 \defcomcls{LogTime}

\LogSpace, ...

- \LogSpace[sub][sup][ext] $= \mathrm{LogSpace}_{\mathrm{SUB}}^{\mathrm{SUP}}\mathrm{EXT}$
  \LogSpaceE[sub][sup][ext] $= \mathrm{LogSpace\text{-}EASY}_{\mathrm{SUB}}^{\mathrm{SUP}}\mathrm{EXT}$
  \LogSpaceH[sub][sup][ext] $= \mathrm{LogSpace\text{-}HARD}_{\mathrm{SUB}}^{\mathrm{SUP}}\mathrm{EXT}$
  \LogSpaceC[sub][sup][ext] $= \mathrm{LogSpace\text{-}COMPLETE}_{\mathrm{SUB}}^{\mathrm{SUP}}\mathrm{EXT}$

- \NLogSpace[sub][sup][ext] $= \mathrm{NLogSpace}_{\mathrm{SUB}}^{\mathrm{SUP}}\mathrm{EXT}$
  \NLogSpaceE[sub][sup][ext] $= \mathrm{NLogSpace\text{-}EASY}_{\mathrm{SUB}}^{\mathrm{SUP}}\mathrm{EXT}$
  \NLogSpaceH[sub][sup][ext] $= \mathrm{NLogSpace\text{-}HARD}_{\mathrm{SUB}}^{\mathrm{SUP}}\mathrm{EXT}$
  \NLogSpaceC[sub][sup][ext] $= \mathrm{NLogSpace\text{-}COMPLETE}_{\mathrm{SUB}}^{\mathrm{SUP}}\mathrm{EXT}$

- \ULogSpace[sub][sup][ext] $= \mathrm{ULogSpace}_{\mathrm{SUB}}^{\mathrm{SUP}}\mathrm{EXT}$
  \ULogSpaceE[sub][sup][ext] $= \mathrm{ULogSpace\text{-}EASY}_{\mathrm{SUB}}^{\mathrm{SUP}}\mathrm{EXT}$
  \ULogSpaceH[sub][sup][ext] $= \mathrm{ULogSpace\text{-}HARD}_{\mathrm{SUB}}^{\mathrm{SUP}}\mathrm{EXT}$
  \ULogSpaceC[sub][sup][ext] $= \mathrm{ULogSpace\text{-}COMPLETE}_{\mathrm{SUB}}^{\mathrm{SUP}}\mathrm{EXT}$

- \ALogSpace[sub][sup][ext] $= \mathrm{ALogSpace}_{\mathrm{SUB}}^{\mathrm{SUP}}\mathrm{EXT}$
  \ALogSpaceE[sub][sup][ext] $= \mathrm{ALogSpace\text{-}EASY}_{\mathrm{SUB}}^{\mathrm{SUP}}\mathrm{EXT}$
  \ALogSpaceH[sub][sup][ext] $= \mathrm{ALogSpace\text{-}HARD}_{\mathrm{SUB}}^{\mathrm{SUP}}\mathrm{EXT}$
  \ALogSpaceC[sub][sup][ext] $= \mathrm{ALogSpace\text{-}COMPLETE}_{\mathrm{SUB}}^{\mathrm{SUP}}\mathrm{EXT}$

863 \defcomcls{LogSpace}

\PTime, ...

- \PTime[sub][sup][ext] $= \mathrm{PTime}_{\mathrm{SUB}}^{\mathrm{SUP}}\mathrm{EXT}$
  \PTimeE[sub][sup][ext] $= \mathrm{PTime\text{-}EASY}_{\mathrm{SUB}}^{\mathrm{SUP}}\mathrm{EXT}$
  \PTimeH[sub][sup][ext] $= \mathrm{PTime\text{-}HARD}_{\mathrm{SUB}}^{\mathrm{SUP}}\mathrm{EXT}$
  \PTimeC[sub][sup][ext] $= \mathrm{PTime\text{-}COMPLETE}_{\mathrm{SUB}}^{\mathrm{SUP}}\mathrm{EXT}$

- \NPTime[sub][sup][ext] $= \mathrm{NPTime}_{\mathrm{SUB}}^{\mathrm{SUP}}\mathrm{EXT}$
  \NPTimeE[sub][sup][ext] $= \mathrm{NPTime\text{-}EASY}_{\mathrm{SUB}}^{\mathrm{SUP}}\mathrm{EXT}$
  \NPTimeH[sub][sup][ext] $= \mathrm{NPTime\text{-}HARD}_{\mathrm{SUB}}^{\mathrm{SUP}}\mathrm{EXT}$
  \NPTimeC[sub][sup][ext] $= \mathrm{NPTime\text{-}COMPLETE}_{\mathrm{SUB}}^{\mathrm{SUP}}\mathrm{EXT}$

- \UPTime[sub][sup][ext] $= \mathrm{UPTime}_{\mathrm{SUB}}^{\mathrm{SUP}}\mathrm{EXT}$
  \UPTimeE[sub][sup][ext] $= \mathrm{UPTime\text{-}EASY}_{\mathrm{SUB}}^{\mathrm{SUP}}\mathrm{EXT}$
  \UPTimeH[sub][sup][ext] $= \mathrm{UPTime\text{-}HARD}_{\mathrm{SUB}}^{\mathrm{SUP}}\mathrm{EXT}$
  \UPTimeC[sub][sup][ext] $= \mathrm{UPTime\text{-}COMPLETE}_{\mathrm{SUB}}^{\mathrm{SUP}}\mathrm{EXT}$

- \APTime[sub][sup][ext] $= \mathrm{APTime}_{\mathrm{SUB}}^{\mathrm{SUP}}\mathrm{EXT}$
  \APTimeE[sub][sup][ext] $= \mathrm{APTime\text{-}EASY}_{\mathrm{SUB}}^{\mathrm{SUP}}\mathrm{EXT}$
  \APTimeH[sub][sup][ext] $= \mathrm{APTime\text{-}HARD}_{\mathrm{SUB}}^{\mathrm{SUP}}\mathrm{EXT}$
  \APTimeC[sub][sup][ext] $= \mathrm{APTime\text{-}COMPLETE}_{\mathrm{SUB}}^{\mathrm{SUP}}\mathrm{EXT}$

864 \defcomcls{PTime}

\PSpace, ...

- \PSpace[sub][sup][ext] $= \mathrm{PSpace}_{\mathrm{SUB}}^{\mathrm{SUP}}\mathrm{EXT}$
  \PSpaceE[sub][sup][ext] $= \mathrm{PSpace\text{-}EASY}_{\mathrm{SUB}}^{\mathrm{SUP}}\mathrm{EXT}$
  \PSpaceH[sub][sup][ext] $= \mathrm{PSpace\text{-}HARD}_{\mathrm{SUB}}^{\mathrm{SUP}}\mathrm{EXT}$
  \PSpaceC[sub][sup][ext] $= \mathrm{PSpace\text{-}COMPLETE}_{\mathrm{SUB}}^{\mathrm{SUP}}\mathrm{EXT}$

- \NPSpace[sub][sup][ext] $= \mathrm{NPSpace}_{\mathrm{SUB}}^{\mathrm{SUP}}\mathrm{EXT}$
  \NPSpaceE[sub][sup][ext] $= \mathrm{NPSpace\text{-}EASY}_{\mathrm{SUB}}^{\mathrm{SUP}}\mathrm{EXT}$
  \NPSpaceH[sub][sup][ext] $= \mathrm{NPSpace\text{-}HARD}_{\mathrm{SUB}}^{\mathrm{SUP}}\mathrm{EXT}$
  \NPSpaceC[sub][sup][ext] $= \mathrm{NPSpace\text{-}COMPLETE}_{\mathrm{SUB}}^{\mathrm{SUP}}\mathrm{EXT}$

- \UPSpace[sub][sup][ext] $= \mathrm{UPSPACE}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  \UPSpaceE[sub][sup][ext] $= \mathrm{UPSPACE\text{-}EASY}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  \UPSpaceH[sub][sup][ext] $= \mathrm{UPSPACE\text{-}HARD}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  \UPSpaceC[sub][sup][ext] $= \mathrm{UPSPACE\text{-}COMPLETE}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$

- \APSpace[sub][sup][ext] $= \mathrm{APSPACE}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  \APSpaceE[sub][sup][ext] $= \mathrm{APSPACE\text{-}EASY}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  \APSpaceH[sub][sup][ext] $= \mathrm{APSPACE\text{-}HARD}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  \APSpaceC[sub][sup][ext] $= \mathrm{APSPACE\text{-}COMPLETE}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$

865 \defcomcls{PSpace}

\QPTime, ...
- \QPTime[sub][sup][ext] $= \mathrm{QPTIME}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  \QPTimeE[sub][sup][ext] $= \mathrm{QPTIME\text{-}EASY}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  \QPTimeH[sub][sup][ext] $= \mathrm{QPTIME\text{-}HARD}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  \QPTimeC[sub][sup][ext] $= \mathrm{QPTIME\text{-}COMPLETE}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$

- \NQPTime[sub][sup][ext] $= \mathrm{NQPTIME}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  \NQPTimeE[sub][sup][ext] $= \mathrm{NQPTIME\text{-}EASY}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  \NQPTimeH[sub][sup][ext] $= \mathrm{NQPTIME\text{-}HARD}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  \NQPTimeC[sub][sup][ext] $= \mathrm{NQPTIME\text{-}COMPLETE}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$

- \UQPTime[sub][sup][ext] $= \mathrm{UQPTIME}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  \UQPTimeE[sub][sup][ext] $= \mathrm{UQPTIME\text{-}EASY}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  \UQPTimeH[sub][sup][ext] $= \mathrm{UQPTIME\text{-}HARD}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  \UQPTimeC[sub][sup][ext] $= \mathrm{UQPTIME\text{-}COMPLETE}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$

- \AQPTime[sub][sup][ext] $= \mathrm{AQPTIME}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  \AQPTimeE[sub][sup][ext] $= \mathrm{AQPTIME\text{-}EASY}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  \AQPTimeH[sub][sup][ext] $= \mathrm{AQPTIME\text{-}HARD}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  \AQPTimeC[sub][sup][ext] $= \mathrm{AQPTIME\text{-}COMPLETE}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$

866 \defcomcls{QPTime}

\QPSpace, ...
- \QPSpace[sub][sup][ext] $= \mathrm{QPSPACE}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  \QPSpaceE[sub][sup][ext] $= \mathrm{QPSPACE\text{-}EASY}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  \QPSpaceH[sub][sup][ext] $= \mathrm{QPSPACE\text{-}HARD}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  \QPSpaceC[sub][sup][ext] $= \mathrm{QPSPACE\text{-}COMPLETE}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$

- \NQPSpace[sub][sup][ext] $= \mathrm{NQPSPACE}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  \NQPSpaceE[sub][sup][ext] $= \mathrm{NQPSPACE\text{-}EASY}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  \NQPSpaceH[sub][sup][ext] $= \mathrm{NQPSPACE\text{-}HARD}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  \NQPSpaceC[sub][sup][ext] $= \mathrm{NQPSPACE\text{-}COMPLETE}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$

- \UQPSpace[sub][sup][ext] $= \mathrm{UQPSPACE}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  \UQPSpaceE[sub][sup][ext] $= \mathrm{UQPSPACE\text{-}EASY}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  \UQPSpaceH[sub][sup][ext] $= \mathrm{UQPSPACE\text{-}HARD}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  \UQPSpaceC[sub][sup][ext] $= \mathrm{UQPSPACE\text{-}COMPLETE}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$

- \AQPSpace[sub][sup][ext] $= \mathrm{AQPSPACE}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  \AQPSpaceE[sub][sup][ext] $= \mathrm{AQPSPACE\text{-}EASY}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  \AQPSpaceH[sub][sup][ext] $= \mathrm{AQPSPACE\text{-}HARD}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  \AQPSpaceC[sub][sup][ext] $= \mathrm{AQPSPACE\text{-}COMPLETE}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$

867 \defcomcls{QPSpace}

\ExpTime, ...
- \ExpTime[sub][sup][ext] $= \mathrm{EXPTIME}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  \ExpTimeE[sub][sup][ext] $= \mathrm{EXPTIME\text{-}EASY}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  \ExpTimeH[sub][sup][ext] $= \mathrm{EXPTIME\text{-}HARD}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  \ExpTimeC[sub][sup][ext] $= \mathrm{EXPTIME\text{-}COMPLETE}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$

- \NExpTime[sub][sup][ext] $= \mathrm{NEXPTIME}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  \NExpTimeE[sub][sup][ext] $= \mathrm{NEXPTIME\text{-}EASY}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  \NExpTimeH[sub][sup][ext] $= \mathrm{NEXPTIME\text{-}HARD}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  \NExpTimeC[sub][sup][ext] $= \mathrm{NEXPTIME\text{-}COMPLETE}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$

- \UExpTime[sub][sup][ext] $= \mathrm{UEXPTIME}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  \UExpTimeE[sub][sup][ext] $= \mathrm{UEXPTIME\text{-}EASY}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  \UExpTimeH[sub][sup][ext] $= \mathrm{UEXPTIME\text{-}HARD}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$
  \UExpTimeC[sub][sup][ext] $= \mathrm{UEXPTIME\text{-}COMPLETE}^{\mathrm{SUP}}_{\mathrm{SUB}}\mathrm{EXT}$

- $\bullet$ `\AExpTime[sub][sup][ext]` $= \mathrm{AExpTime}_{\mathrm{SUB}}^{\mathrm{SUP}}\mathrm{EXT}$
  `\AExpTimeE[sub][sup][ext]` $= \mathrm{AExpTime\text{-}Easy}_{\mathrm{SUB}}^{\mathrm{SUP}}\mathrm{EXT}$
  `\AExpTimeH[sub][sup][ext]` $= \mathrm{AExpTime\text{-}Hard}_{\mathrm{SUB}}^{\mathrm{SUP}}\mathrm{EXT}$
  `\AExpTimeC[sub][sup][ext]` $= \mathrm{AExpTime\text{-}Complete}_{\mathrm{SUB}}^{\mathrm{SUP}}\mathrm{EXT}$

868 `\defcomcls{ExpTime}`

`\ExpSpace, ...`
- $\bullet$ `\ExpSpace[sub][sup][ext]` $= \mathrm{ExpSpace}_{\mathrm{SUB}}^{\mathrm{SUP}}\mathrm{EXT}$
  `\ExpSpaceE[sub][sup][ext]` $= \mathrm{ExpSpace\text{-}Easy}_{\mathrm{SUB}}^{\mathrm{SUP}}\mathrm{EXT}$
  `\ExpSpaceH[sub][sup][ext]` $= \mathrm{ExpSpace\text{-}Hard}_{\mathrm{SUB}}^{\mathrm{SUP}}\mathrm{EXT}$
  `\ExpSpaceC[sub][sup][ext]` $= \mathrm{ExpSpace\text{-}Complete}_{\mathrm{SUB}}^{\mathrm{SUP}}\mathrm{EXT}$

- $\bullet$ `\NExpSpace[sub][sup][ext]` $= \mathrm{NExpSpace}_{\mathrm{SUB}}^{\mathrm{SUP}}\mathrm{EXT}$
  `\NExpSpaceE[sub][sup][ext]` $= \mathrm{NExpSpace\text{-}Easy}_{\mathrm{SUB}}^{\mathrm{SUP}}\mathrm{EXT}$
  `\NExpSpaceH[sub][sup][ext]` $= \mathrm{NExpSpace\text{-}Hard}_{\mathrm{SUB}}^{\mathrm{SUP}}\mathrm{EXT}$
  `\NExpSpaceC[sub][sup][ext]` $= \mathrm{NExpSpace\text{-}Complete}_{\mathrm{SUB}}^{\mathrm{SUP}}\mathrm{EXT}$

- $\bullet$ `\UExpSpace[sub][sup][ext]` $= \mathrm{UExpSpace}_{\mathrm{SUB}}^{\mathrm{SUP}}\mathrm{EXT}$
  `\UExpSpaceE[sub][sup][ext]` $= \mathrm{UExpSpace\text{-}Easy}_{\mathrm{SUB}}^{\mathrm{SUP}}\mathrm{EXT}$
  `\UExpSpaceH[sub][sup][ext]` $= \mathrm{UExpSpace\text{-}Hard}_{\mathrm{SUB}}^{\mathrm{SUP}}\mathrm{EXT}$
  `\UExpSpaceC[sub][sup][ext]` $= \mathrm{UExpSpace\text{-}Complete}_{\mathrm{SUB}}^{\mathrm{SUP}}\mathrm{EXT}$

- $\bullet$ `\AExpSpace[sub][sup][ext]` $= \mathrm{AExpSpace}_{\mathrm{SUB}}^{\mathrm{SUP}}\mathrm{EXT}$
  `\AExpSpaceE[sub][sup][ext]` $= \mathrm{AExpSpace\text{-}Easy}_{\mathrm{SUB}}^{\mathrm{SUP}}\mathrm{EXT}$
  `\AExpSpaceH[sub][sup][ext]` $= \mathrm{AExpSpace\text{-}Hard}_{\mathrm{SUB}}^{\mathrm{SUP}}\mathrm{EXT}$
  `\AExpSpaceC[sub][sup][ext]` $= \mathrm{AExpSpace\text{-}Complete}_{\mathrm{SUB}}^{\mathrm{SUP}}\mathrm{EXT}$

869 `\defcomcls{ExpSpace}`

870 `%%*********************************************************************%%`

   ...

871 `\fi`
872 `%%*********************************************************************%%`

873 `%%*********************************************************************%%`
874 `%%** Macros for Games ************************************************%%`
875 `%%*********************************************************************%%`
876 `\ifgam@`

877 `%%** Logic Games *****************************************************%%`

`\SATG, ...` ...

878 `%% Satisfiability Games`
879 `\cmdtxtoparname{SATG}[Sat]`
880
881 `%% Validity Games`
882 `\cmdtxtoparname{VALG}[Val]`
883
884 `%% Evaluation Games`
885 `\cmdtxtoparname{EVLG}[Evl]`
886
887 `%% Synthesis Games`
888 `\cmdtxtoparname{SYNG}[Syn]`
889
890 `%% Model-Checking Games`
891 `\cmdtxtoparname{MCG}[MC]`
892
893 `%% Ehrenfeucht-Fraisse Games`
894 `\cmdtxtoparname{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 \cmdtxtoparname{BG}
968
969 %% Co-Buchi Games
970 \cmdtxtoparname{CG}
971
972 %% Parity Games
973 \cmdtxtoparname{PG}
974
975 %% Rabin Games
976 \cmdtxtoparname{RG}
977
978 %% Streett Games
979 \cmdtxtoparname{SG}
980
981 %% Muller Games
982 \cmdtxtoparname{MG}

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

\PrtSet, \prtFun   ...

```
984 \newcommand{\prtsym}{p}
985 \newcommand{\prtset}{Pr}
986 \cmdmthsetext{Prt}[\prtset][\prtsym]
987 \cmdmthfun{prt}[pr]

988 %%** Semantics ***************************************************************%%
```

44

```
              ...
        989 %%** Quantitative Games on Graph ******************************************%%

  \EG, ...   ...
        990 %% Energy Games
        991 \cmdtxtoparname{EG}
        992
        993 %% Mean-Payoff Games
        994 \cmdtxtoparname{MPG}
        995
        996 %% Discounted-Payoff Games
        997 \cmdtxtoparname{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 \cmdtxtoparname{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   {{\txtname{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]
```

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```
\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 ***************************************************%%
```

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```
          ...
     1108 %%** Semantics ****************************************************%%
          ...
     1109 %%** Second-Order Logics I ****************************************%%
\SOL, ...  ...
     1110 % Second-Order Logic
     1111 \cmdtxtoparname{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 \cmdtxtoparname{TL}
     1127
     1128 % Monadic Tree Logic
     1129 \DeclareRobustCommand{\MTL}
     1130   {{\txtname{M}}\TL}
     1131
     1132 % Path Logic
     1133 \cmdtxtoparname{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 \cmdtxtoparname{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}
```

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```
                   1151 %%** Syntax *********************************************************%%

        \Opr    ...
                   1152 \usrmth{Opr}{}{sym}[O]

  \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   {{\txtname{Q}}\MC}
                   1182 \DeclareRobustCommand{\EMC}
                   1183   {\ensuremath{\exists}\MC}
                   1184 \DeclareRobustCommand{\UMC}
                   1185   {\ensuremath{\forall}\MC}

                   1186 %%** Syntax *********************************************************%%

                       ...

                   1187 %%** Semantics ******************************************************%%

                       ...

                   1188 %%** Temporal Logics I *********************************************%%
```

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```
\PTL, \LTL, ...    ...
            1189 % Propositional Temporal Logic
            1190 \cmdtxtoparname{PTL}
            1191
            1192 % Quantified Propositional Temporal Logic
            1193 \DeclareRobustCommand{\QPTL}
            1194   {{\txtname{Q}}\PTL}
            1195 \DeclareRobustCommand{\EPTL}
            1196   {\ensuremath{\exists}\PTL}
            1197 \DeclareRobustCommand{\UPTL}
            1198   {\ensuremath{\forall}\PTL}
            1199
            1200 % Linear Temporal Logic
            1201 \cmdtxtoparname{LTL}
            1202
            1203 % Quantified Linear Temporal Logic
            1204 \DeclareRobustCommand{\QLTL}
            1205   {{\txtname{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 \cmdtxtoparname{PDL}
            1226
            1227 % Computation Tree Logic
            1228 \cmdtxtoparname{CTL}
            1229
            1230 % Quantified Computation Tree Logic
            1231 \DeclareRobustCommand{\QCTL}
            1232   {{\txtname{Q}}\CTL}
            1233 \DeclareRobustCommand{\ECTL}
            1234   {\ensuremath{\exists}\CTL}
            1235 \DeclareRobustCommand{\UCTL}
            1236   {\ensuremath{\forall}\CTL}
            1237
            1238 % Improved Computation Tree Logic
            1239 \cmdtxtoparname{CTLP}[CTL$^{+}$]
            1240
```

```
1241 % Quantified Improved Computation Tree Logic
1242 \DeclareRobustCommand{\QCTLP}
1243   {{\txtname{Q}}\CTLP}
1244 \DeclareRobustCommand{\ECTLP}
1245   {\ensuremath{\exists}\CTLP}
1246 \DeclareRobustCommand{\UCTLP}
1247   {\ensuremath{\forall}\CTLP}
1248
1249 % Full Computation Tree Logic
1250 \cmdtxtoparname{CTLS}[CTL*]
1251
1252 % Quantified Full Computation Tree Logic
1253 \DeclareRobustCommand{\QCTLS}
1254   {{\txtname{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 \cmdtxtoparname{ATL}
1266
1267 % Quantified Alternating Temporal Logic
1268 \DeclareRobustCommand{\QATL}
1269   {{\txtname{Q}}\ATL}
1270 \DeclareRobustCommand{\EATL}
1271   {\ensuremath{\exists}\ATL}
1272 \DeclareRobustCommand{\UATL}
1273   {\ensuremath{\forall}\ATL}
1274
1275 % Improved Alternating Temporal Logic
1276 \cmdtxtoparname{ATLP}[ATL$^{+}$]
1277
1278 % Quantified Improved Alternating Temporal Logic
1279 \DeclareRobustCommand{\QATLP}
1280   {{\txtname{Q}}\ATLP}
1281 \DeclareRobustCommand{\EATLP}
1282   {\ensuremath{\exists}\ATLP}
1283 \DeclareRobustCommand{\UATLP}
1284   {\ensuremath{\forall}\ATLP}
1285
1286 % Full Alternating Temporal Logic
1287 \cmdtxtoparname{ATLS}[ATL*]
1288
1289 % Quantified Full Alternating Temporal Logic
1290 \DeclareRobustCommand{\QATLS}
1291   {{\txtname{Q}}\ATLS}
1292 \DeclareRobustCommand{\EATLS}
1293   {\ensuremath{\exists}\ATLS}
1294 \DeclareRobustCommand{\UATLS}
1295   {\ensuremath{\forall}\ATLS}
```

```
1296 %%** Syntax ***********************************************************%%
```

\EExs, \AAll ...
```
1297 \DeclareRobustCommand{\EExs}[1]
1298   {\mth{\argmid{\langle\!\langle}{\defval{#1}{\emptyset}}{\rangle\!\rangle}}}
1299 \DeclareRobustCommand{\AAll}[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 \cmdtxtoparname{SL}
                   1357
                   1358 \DeclareRobustCommand{\ESL}
                   1359   {\ensuremath{\exists}\SL}
                   1360 \DeclareRobustCommand{\USL}
                   1361   {\ensuremath{\forall}\SL}
                   1362
                   1363 \DeclareRobustCommand{\FSL}
                   1364   {{\txtname{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   {{\txtname{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}\CGSL}
1396
1397 \DeclareRobustCommand{\FCGSL}
1398   {{\txtname{F}}\xGSL}
1399
1400 \DeclareRobustCommand{\EFCGSL}
1401   {\ensuremath{\exists}\FCGSL}
1402 \DeclareRobustCommand{\UFCGSL}
1403   {\ensuremath{\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}\DGSL}
1411 \DeclareRobustCommand{\UDGSL}
1412   {\ensuremath{\forall}\DGSL}
1413
1414 \DeclareRobustCommand{\FDGSL}
1415   {{\txtname{F}}\xGSL}
1416
1417 \DeclareRobustCommand{\EFDGSL}
1418   {\ensuremath{\exists}\FDGSL}
1419 \DeclareRobustCommand{\UFDGSL}
1420   {\ensuremath{\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}\AGSL}
1428 \DeclareRobustCommand{\UAGSL}
1429   {\ensuremath{\forall}\AGSL}
1430
1431 \DeclareRobustCommand{\FAGSL}
1432   {{\txtname{F}}\xGSL}
1433
1434 \DeclareRobustCommand{\EFAGSL}
1435   {\ensuremath{\exists}\FAGSL}
1436 \DeclareRobustCommand{\UFAGSL}
1437   {\ensuremath{\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}\EGSL}
1445 \DeclareRobustCommand{\UEGSL}
1446   {\ensuremath{\forall}\EGSL}
1447
1448 \DeclareRobustCommand{\FEGSL}
1449   {{\txtname{F}}\xGSL}
1450
1451 \DeclareRobustCommand{\EFEGSL}
1452   {\ensuremath{\exists}\FEGSL}
1453 \DeclareRobustCommand{\UFEGSL}
1454   {\ensuremath{\forall}\FEGSL}
1455
1456 % Boolean-Goal Strategy Logic
1457 \DeclareRobustCommandx{\BGSL}[3][1=, 2=, 3=]
```

```
1458    {\SL[#1][#2][bg\arglef{,}{#3}]}
1459
1460 \DeclareRobustCommand{\EBGSL}
1461    {\ensuremath{\exists}\BGSL}
1462 \DeclareRobustCommand{\UBGSL}
1463    {\ensuremath{\forall}\BGSL}
1464
1465 \DeclareRobustCommand{\FBGSL}
1466    {{\txtname{F}}\xGSL}
1467
1468 \DeclareRobustCommand{\EFBGSL}
1469    {\ensuremath{\exists}\FBGSL}
1470 \DeclareRobustCommand{\UFBGSL}
1471    {\ensuremath{\forall}\FBGSL}
1472
1473 % Nested-Goal Strategy Logic
1474 \DeclareRobustCommandx{\NGSL}[3][1=, 2=, 3=]
1475    {\SL[#1][#2][ng\arglef{,}{#3}]}
1476
1477 \DeclareRobustCommand{\ENGSL}
1478    {\ensuremath{\exists}\NGSL}
1479 \DeclareRobustCommand{\UNGSL}
1480    {\ensuremath{\forall}\NGSL}
1481
1482 \DeclareRobustCommand{\FNGSL}
1483    {{\txtname{F}}\xGSL}
1484
1485 \DeclareRobustCommand{\EFNGSL}
1486    {\ensuremath{\exists}\FNGSL}
1487 \DeclareRobustCommand{\UFNGSL}
1488    {\ensuremath{\forall}\FNGSL}
1489
1490 % Undefined-Goal Strategy Logic
1491 \DeclareRobustCommandx{\XGSL}[3][1=, 2=, 3=]
1492    {\SL[#1][#2][xg\arglef{,}{#3}]}
1493
1494 \DeclareRobustCommand{\EXGSL}
1495    {\ensuremath{\exists}\XGSL}
1496 \DeclareRobustCommand{\UXGSL}
1497    {\ensuremath{\forall}\XGSL}
1498
1499 \DeclareRobustCommand{\FXGSL}
1500    {{\txtname{F}}\xGSL}
1501
1502 \DeclareRobustCommand{\EFXGSL}
1503    {\ensuremath{\exists}\FXGSL}
1504 \DeclareRobustCommand{\UFXGSL}
1505    {\ensuremath{\forall}\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{\wrdset}{Wr}
      1560 \cmdmthsetext{Wrd}[\wrdset][\wrdsym]

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

  \DTA, ...

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

      1577 %%** Semantics **%%

\TreeSet, ...

      1578 \newcommand{\treesym}{T}
      1579 \newcommand{\treeset}{Tr}
      1580 \cmdmthsetext{Tree}[\treeset][\treesym]

  \wotFun   ...

      1581 \newcommand{\wotfun}{wot}
      1582 \cmdmthfun{wot}[\wotfun]

      1583 \fi
      1584 %%***%%

      1585 %%***%%
      1586 %%** Format Tricks **%%
      1587 %%***%%
      1588 \iffrm@

  ...   ...

      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
```

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```latex
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 \ifhypref@
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

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.