

fmocdmac — FM's OCD L^AT_EX Macro*

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Abstract

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

1 Implementation & Usage

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

*This document describes version v0.1 of the fmocdmac package, last revised 2021/01/02.

```

37
38 %% Macros for computational-complexity classes
39 \newif\ifcom@ \com@false
40 \DeclareOption{com}{\com@true\txtgen@true}
41 \DeclareOption{nocom}{\com@false}
42
43 %% Macros for games
44 \newif\ifgam@ \gam@false
45 \DeclareOption{gam}{\gam@true\txtgen@true\mthgen@true}
46 \DeclareOption{nogam}{\gam@false}
47
48 %% Macros for logics
49 \newif\iflog@ \log@false
50 \DeclareOption{log}{\log@true\txtgen@true\mthgen@true}
51 \DeclareOption{nolog}{\log@false}
52
53 %% Macros for automata
54 \newif\ifaut@ \aut@false
55 \DeclareOption{aut}{\aut@true\txtgen@true\mthgen@true}
56 \DeclareOption{noaut}{\aut@false}
57
58 %% Format-related tricks
59 \newif\iffm@ \frm@false
60 \DeclareOption{frm}{\frm@true}
61 \DeclareOption{nofrm}{\frm@false}
62
63 %% Figure-related tricks
64 \newif\iffig@ \fig@false
65 \DeclareOption{fig}{\fig@true}
66 \DeclareOption{nofig}{\fig@false}
67
68 %% Table-related tricks
69 \newif\iftab@ \tab@false
70 \DeclareOption{tab}{\tab@true}
71 \DeclareOption{notab}{\tab@false}
72
73 %% Algorithm-related tricks
74 \newif\ifalg@ \alg@false
75 \DeclareOption{alg}{\alg@true}
76 \DeclareOption{noalg}{\alg@false}
77
78 %% Auxiliary tricks
79 \newif\ifaux@ \aux@false
80 \DeclareOption{aux}{\aux@true}
81 \DeclareOption{noaux}{\aux@false}
82
83 %% Camera-ready version
84 \newif\ifcrv@ \crv@false
85 \DeclareOption{crv}{\crv@true}
86
87
88 \bgroup
89
90 \bgroup
91
92 \bgroup
93
94 %%*****
95 %%** Auxiliary Font Declarations *****
96 %%*****

```

Option-processing code:

```

87
88 \DeclareOption*{\PackageWarning{fmocdmac}{Unknown~\CurrentOption}}%
89
90 \ExecuteOptions{txtgen,mthgen,text,math,com,gam,log,aut,aux}%
91
92 \ProcessOptions\relax%
93
94 %%*****
95 %%** Auxiliary Font Declarations *****
96 %%*****

```

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

```

97 \ifdef{\matheus}{\DeclareMathAlphabet{\matheus}{U}{eus}{m}{n}}

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

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

100 %%*****%
101 %%*****%
102 %%** Auxiliary Alphabet Letters *****%
103 %%*****%

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

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

109 %%*****%
110 %%*****%
111 %%** Tools *****%
112 %%*****%

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


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


113 \newcommand{\empchk}[2]
114 {\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”


115 \newcommand{\defval}[2]
116 {\if#1&#2\else#1\fi}

117 %%*****%

\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”


118 \newcommand{\arglef}[2]
119 {\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”


120 \newcommand{\argrig}[2]
121 {\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”

```

122 \newcommand{\argmid}[3]
123   {\empchk{#2}{#1\allowbreak#2\allowbreak#3}}

```

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

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

```

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

```

126 %*****%

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

```

127 \newcommand{\varcmd}[6]
128   {\expandafter\newcommand\csname gobble#1arg\endcsname[2]
129     {\csname check#1arg\endcsname{\argsep{##1}{#4}{##2}}}%
130   \expandafter\newcommand\csname check#1arg\endcsname[1]
131     {\csname @ifnextchar\endcsname%
132       \bgroup\csname gobble#1arg\endcsname{##1}{#2{##1#5#6}}}%
133   \expandafter\newcommand\csname#1\endcsname[1]
134     {\csname check#1arg\endcsname{#3##1}}}

```

135 %*****%

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

```

136 \newcommand{\seqoftag}[3]
137   {\newforeach \itr in {#1}%
138     {\expandafter\csedef{\itr#2}%
139       {\noexpand\csname #3\endcsname{\itr}}}}

```

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

```

140 \newcommand{\seqofcmd}[3]
141   {\newforeach \itr in {#1}%
142     {\expandafter\csedef{\itr#2}%
143       {\noexpand\csname #3\endcsname{\csname \itr\endcsname}}}}

```

144 %*****%

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

```

145 \newcommand{\seqoflatlow}
146   {\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!`

```

147 \newcommand{\seqoflatupp}
148   {\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!`

```

149 \newcommand{\seqoflatlet}[2]
150   {\seqoflatlow{#1}{#2}\seqoflatupp{#1}{#2}}

```

151 %*****%

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

```

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

```

```

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

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

162 %%*****%

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

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

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

169 %%*****%
170 %%*****%
171 %** Text Meta Commands *****%
172 %%*****%

\newtxt ... to do!


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


173 \newcommandx{\newtxt}[5][1=, 3=, 4=, 5=]
174   {\text{#1#2\textsubsup{#1}{#3}{#4}{#5}\xspace}}

\newtxtsty ... to do!


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


175 \newcommandx{\newtxtsty}[2][2=]
176   {\newtxt[\defval{#2}{#1}]}

\newtxtarg ... to do!


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


177 \newcommandx{\newtxtarg}[7][1=, 3=, 4=, 5=, 7=]
178   {\newtxt{#1}{#2}{#3}{#4}{#5\argmid{#6}{#7}}}}

\newtxtargsty ... to do!


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


179 \newcommandx{\newtxtargsty}[2][2=]
180   {\newtxtarg[\defval{#2}{#1}]}

\newtxtoarg ... to do!

```

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

181 $\backslash\text{newcommandx}\{\text{newtxtoarg}\}[5][1=, 3=, 4=, 5=]$

182 $\{\backslash\text{newtxtarg}[\#1][\#2][\#3][\#4][\#5][\#6][\#7]\}$

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

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

183 $\backslash\text{newcommandx}\{\text{newtxtoargsty}\}[2][2=]$

184 $\{\backslash\text{newtxtoarg}[\backslash\text{defval}\{\#2\}\{\#1\}]\}$

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

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

185 $\backslash\text{newcommandx}\{\text{newtxtpar}\}[7][1=, 3=, 4=, 5=, 7=]$

186 $\{\backslash\text{newtxt}[\#1][\#2][\#3][\#4][\#5\backslash\text{argmid}\{\}\{\#6\}\{\#7\}]\}$

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

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

187 $\backslash\text{newcommandx}\{\text{newtxtparsty}\}[2][2=]$

188 $\{\backslash\text{newtxtpar}[\backslash\text{defval}\{\#2\}\{\#1\}]\}$

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

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

189 $\backslash\text{newcommandx}\{\text{newtxtopar}\}[5][1=, 3=, 4=, 5=]$

190 $\{\backslash\text{newtxtpar}[\#1][\#2][\#3][\#4][\#5][\#6][\#7]\}$

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

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

191 $\backslash\text{newcommandx}\{\text{newtxtoparsty}\}[2][2=]$

192 $\{\backslash\text{newtxtopar}[\backslash\text{defval}\{\#2\}\{\#1\}]\}$

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

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

193 $\backslash\text{newcommand}\{\text{txtsubsup}\}[3][\#1][\#2][\#3]$

194 $\{\backslash\text{ensurmath}\{\backslash\text{empchk}\{\#2\}\{\text{#1}\}\}\backslash\text{empchk}\{\#3\}\{\text{#1}\}\}\}$

195 $\%*****\%$

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

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

```

196 \newcommand{\txt}
197   {\newtxtsty{\txtsty}}

\txtgarg ... to do!


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


198 \newcommand{\txtgarg}
199   {\newtxtgargsty{\txtsty}}

\txtoarg ... to do!


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


200 \newcommand{\txtoarg}
201   {\newtxtoargsty{\txtsty}}

\txtpar ... to do!


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


202 \newcommand{\txtpar}
203   {\newtxtparsty{\txtsty}}

\txtopar ... to do!


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


204 \newcommand{\txtopar}
205   {\newtxtoparsty{\txtsty}}

\txtsty ... to do!
206 \newcommand{\txtsty}
207   {\mdseries\upshape\rmfamily}

208 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

\cmdtxt ... to do!


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

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


209 \newcommand{\cmdtxt}[1]
210   {\csdef{txt#1}{\newtxtsty{\csname txtsty#1\endcsname}}}

\cmdtxtgarg ... to do!


- \cmdtxtgarg{NewCmd}; \newcommand{txtstyNewCmd}{\scshape\ttfamily};  

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


211 \newcommand{\cmdtxtgarg}[1]
212   {\csdef{txtgarg#1}{\newtxtgargsty{\csname txtsty#1\endcsname}}}

\cmdtxtoarg ... to do!


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

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


213 \newcommand{\cmdtxtoarg}[1]
214   {\csdef{txtoarg#1}{\newtxtoargsty{\csname txtsty#1\endcsname}}}

\cmdtxtpar ... to do!

```

```

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

\cmdtxtopar ... to do!
    • \cmdtxtopar{NewCmd}; \newcommand{txtstyNewCmd}{\scshape\ttfamily};
      \txtoparNewCmd{Name}[sub][sup][Par] = NAMESUB[PAR]
217 \newcommand{\cmdtxtopar}[1]
218   {\csdef{txtopar#1}{\newtxtoparsty{\csname txtsty#1\endcsname}}}

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

221 %%*****%

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

224 %%*****%
225 %%*****%
226 %%** Math Meta Commands *****%
227 %%*****%

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

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

\newmtharg ... to do!
    • \newmtharg[mathrm]{Name}[sub][sup][Ext1]{Arg}[Ext2] = "NamesubExt1(Arg)Ext2"
    • \newmtharg[mathsf]{Name}[sub][sup][Ext1]{Arg}[Ext2] = "NamesubExt1(Arg)Ext2"
    • \newmtharg[mathtt]{Name}[sub][sup][Ext1]{Arg}[Ext2] = "NamesubExt1(Arg)Ext2"
232 \newcommandx{\newmtharg}[7][1=, 3=, 4=, 5=, 7=]
233   {\newmth{#1}{#2}{#3}{#4}{#5}\argmid{\!\left(){#6}{\right)}\!}{#7}}

```



```

\newmthargsty ... to do!
    • \newmthargsty{\mathrm}{Name}[sub][sup][Ext1]{Arg}[Ext2] = "NamesupsubExt1(Arg)Ext2"
    • \newmthargsty{\mathrm}{mathsf}{Name}[sub][sup][Ext1]{Arg}[Ext2] = "NamesupsubExt1(Arg)Ext2"
    • \newmthargsty{\mathrm}{mathtt}{Name}[sub][sup][Ext1]{Arg}[Ext2] = "NamesupsubExt1(Arg)Ext2"
234 \newcommandx{\newmthargsty}[2][2=]
235   {\newmtharg[\defval{#2}{#1}]}

\newmthoarg ... to do!
    • \newmthoarg{\mathrm}{Name}[sub][sup][Arg] = "Namesupsub(Arg)"
    • \newmthoarg{\mathrm}{mathsf}{Name}[sub][sup][Arg] = "Namesupsub(Arg)"
    • \newmthoarg{\mathrm}{mathtt}{Name}[sub][sup][Arg] = "Namesupsub(Arg)"
236 \newcommandx{\newmthoarg}[5][1=, 3=, 4=, 5=]
237   {\newmtharg[#1]{#2}{#3}{#4}[] {#5}[] }

\newmthoargsty ... to do!
    • \newmthoargsty{\mathrm}{Name}[sub][sup][Arg] = "Namesupsub(Arg)"
    • \newmthoargsty{\mathrm}{mathsf}{Name}[sub][sup][Arg] = "Namesupsub(Arg)"
    • \newmthoargsty{\mathrm}{mathtt}{Name}[sub][sup][Arg] = "Namesupsub(Arg)"
238 \newcommandx{\newmthoargsty}[2][2=]
239   {\newmthoarg[\defval{#2}{#1}]}

\newmthpar ... to do!
    • \newmthpar{\mathrm}{Name}[sub][sup][Ext1]{Par}[Ext2] = "NamesupsubExt1[Par]Ext2"
    • \newmthpar{\mathrm}{mathsf}{Name}[sub][sup][Ext1]{Par}[Ext2] = "NamesupsubExt1[Par]Ext2"
    • \newmthpar{\mathrm}{mathtt}{Name}[sub][sup][Ext1]{Par}[Ext2] = "NamesupsubExt1[Par]Ext2"
240 \newcommandx{\newmthpar}[7][1=, 3=, 4=, 5=, 7=]
241   {\newmth[#1]{#2}{#3}{#4}{#5\argmid{\!\left[] {#6}{\right]\!}}{#7}}

\newmthparsty ... to do!
    • \newmthparsty{\mathrm}{Name}[sub][sup][Ext1]{Par}[Ext2] = "NamesupsubExt1[Par]Ext2"
    • \newmthparsty{\mathrm}{mathsf}{Name}[sub][sup][Ext1]{Par}[Ext2] = "NamesupsubExt1[Par]Ext2"
    • \newmthparsty{\mathrm}{mathtt}{Name}[sub][sup][Ext1]{Par}[Ext2] = "NamesupsubExt1[Par]Ext2"
242 \newcommandx{\newmthparsty}[2][2=]
243   {\newmthpar[\defval{#2}{#1}]}

\newmthopar ... to do!
    • \newmthopar{\mathrm}{Name}[sub][sup][Par] = "Namesupsub[Par]"
    • \newmthopar{\mathrm}{mathsf}{Name}[sub][sup][Par] = "Namesupsub[Par]"
    • \newmthopar{\mathrm}{mathtt}{Name}[sub][sup][Par] = "Namesupsub[Par]"
244 \newcommandx{\newmthopar}[5][1=, 3=, 4=, 5=]
245   {\newmthpar[#1]{#2}{#3}{#4}[] {#5}[] }

\newmthoparsty ... to do!
    • \newmthoparsty{\mathrm}{Name}[sub][sup][Par] = "Namesupsub[Par]"
    • \newmthoparsty{\mathrm}{mathsf}{Name}[sub][sup][Par] = "Namesupsub[Par]"
    • \newmthoparsty{\mathrm}{mathtt}{Name}[sub][sup][Par] = "Namesupsub[Par]"
246 \newcommandx{\newmthoparsty}[2][2=]
247   {\newmthopar[\defval{#2}{#1}]}

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

250 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

```

```

\mth ... to do!
    • \mth{Name}[sub][sup][Ext] = "NamesubExt"
    • \mth[mathbf]{Name}[sub][sup][Ext] = "NamesubExt"
    • \mth[mathtt]{Name}[sub][sup][Ext] = "NamesubExt"
251 \newcommand{\mth}
252 {\newmthsty{\mthsty}}

\mtharg ... to do!
    • \mtharg{Name}[sub][sup][Ext1]{Arg}[Ext2] = "NamesubExt1(Arg)Ext2"
    • \mtharg[mathbf]{Name}[sub][sup][Ext1]{Arg}[Ext2] = "NamesubExt1(Arg)Ext2"
    • \mtharg[mathtt]{Name}[sub][sup][Ext1]{Arg}[Ext2] = "NamesubExt1(Arg)Ext2"
253 \newcommand{\mtharg}
254 {\newmthargsty{\mthsty}}

\mthoarg ... to do!
    • \mthoarg{Name}[sub][sup][Arg] = "Namesub(Arg)"
    • \mthoarg[mathbf]{Name}[sub][sup][Arg] = "Namesub(Arg)"
    • \mthoarg[mathtt]{Name}[sub][sup][Arg] = "Namesub(Arg)"
255 \newcommand{\mthoarg}
256 {\newmthoargsty{\mthsty}}

\mthpar ... to do!
    • \mthpar{Name}[sub][sup][Ext1]{Par}[Ext2] = "NamesubExt1[Par]Ext2"
    • \mthpar[mathbf]{Name}[sub][sup][Ext1]{Par}[Ext2] = "NamesubExt1[Par]Ext2"
    • \mthpar[mathtt]{Name}[sub][sup][Ext1]{Par}[Ext2] = "NamesubExt1[Par]Ext2"
257 \newcommand{\mthpar}
258 {\newmthparsty{\mthsty}}

\mthopar ... to do!
    • \mthopar{Name}[sub][sup][Par] = "Namesub[Par]"
    • \mthopar[mathbf]{Name}[sub][sup][Par] = "Namesub[Par]"
    • \mthopar[mathtt]{Name}[sub][sup][Par] = "Namesub[Par]"
259 \newcommand{\mthopar}
260 {\newmthoparsty{\mthsty}}

\mthsty ... to do!
261 \newcommand{\mthsty}
262 {}

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

\cmdmth ... to do!
    • \cmdmth{NewCmd}; \newcommand{mthstyNewCmd}{\mathtt};
      \mthNewCmd{Name}[sub][sup][Ext] = NamesubExt
264 \newcommand{\cmdmth}[1]
265 {\csdef{mth#1}{\newmthsty{mthsty#1}}}

\cmdmtharg ... to do!
    • \cmdmtharg{NewCmd}; \newcommand{mthstyNewCmd}{\mathtt};
      \mthargNewCmd{Name}[sub][sup][Ext1]{Arg}[Ext2] = NamesubExt1(Arg)Ext2
266 \newcommand{\cmdmtharg}[1]
267 {\csdef{mtharg#1}{\newmthargsty{mthsty#1}}}

\cmdmthoarg ... to do!
    • \cmdmthoarg{NewCmd}; \newcommand{mthstyNewCmd}{\mathtt};
      \mthoargNewCmd{Name}[sub][sup][Arg] = Namesub(Arg)

```

```

268 \newcommand{\cmdmthoarg}[1]
269   {\csdef{mthoarg#1}{\newmthoargsty{mthsty#1}}}

\cmdmthpar ... to do!


- \cmdmthpar{NewCmd}; \newcommand{mthstyNewCmd}{\mathtt{t};
  \mthparNewCmd{Name}[sub][sup][Ext1]{Par}[Ext2] = NamesubExt1[Par]Ext2


270 \newcommand{\cmdmthpar}[1]
271   {\csdef{mthpar#1}{\newmthparsty{mthsty#1}}}

\cmdmthopar ... to do!


- \cmdmthopar{NewCmd}; \newcommand{mthstyNewCmd}{\mathtt{t};
  \mthoparNewCmd{Name}[sub][sup][Par] = Namesub[Par]


272 \newcommand{\cmdmthopar}[1]
273   {\csdef{mthopar#1}{\newmthoparsty{mthsty#1}}}

\cmdmthall ... to do!


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


274 \newcommand{\cmdmthall}[1]
275   {\cmdmth{#1}\cmdmtharg{#1}\cmdmthoarg{#1}\cmdmthpar{#1}\cmdmthopar{#1}}

276 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

\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]


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

279 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

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

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

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

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

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

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

```

```

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

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

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

298 %%*****%
299 %%*****%
300 %%** Text Macro Generators *****%
301 %%*****%
302 \iftxtgen@

\txtdef, ... ... to do!
    • \txtdef{Name}[sub][sup][Ext] =  $Name_{sub}^{sup}Ext$ 
    • \txtargdef{Name}[sub][sup][Ext1]{Arg}[Ext2] =  $Name_{sub}^{sup}Ext1(Arg)Ext2$ 
    • \txtpardef{Name}[sub][sup][Ext1]{Par}[Ext2] =  $Name_{sub}^{sup}Ext1[Par]Ext2$ 
303 %% Style for Definitions
304 \cmdtxtall{def}\newcommand{\txtstydef}{\bfseries\em}

\cmdtxtdef ... to do!
    • \cmdtxtdef{cmdName};
      \cmdName[sub][sub][ext] =  $cmdName_{sub}^{sub}ext$ 
    • \cmdtxtdef{cmdName}[newName];
      \cmdName[sub][sub][ext] =  $newName_{sub}^{sub}ext$ 
305 \newcommandx{\cmdtxtdef}[2][2=]
306   {\usrtxt{#1}{\}{def}[#2]}

\cmdtxtargdef ... to do!
    • \cmdtxtargdef{cmdName};
      \cmdName[sub][sub][ext1]{arg}[ext2] =  $cmdName_{sub}^{sub}ext1(arg)ext2$ 
    • \cmdtxtargdef{cmdName}[newName];
      \cmdName[sub][sub][ext1]{arg}[ext2] =  $newName_{sub}^{sub}ext1(arg)ext2$ 
307 \newcommandx{\cmdtxtargdef}[2][2=]
308   {\usrtxt{#1}{\}{argdef}[#2]}

\cmdtxtoargdef ... to do!
    • \cmdtxtoargdef{cmdName};
      \cmdName[sub][sub][arg] =  $cmdName_{sub}^{sub}(arg)$ 
    • \cmdtxtoargdef{cmdName}[newName];
      \cmdName[sub][sub][arg] =  $newName_{sub}^{sub}(arg)$ 
309 \newcommandx{\cmdtxtoargdef}[2][2=]
310   {\usrtxt{#1}{\}{oargdef}[#2]}

\cmdtxtpardef ... to do!
    • \cmdtxtpardef{cmdName};
      \cmdName[sub][sub][ext1]{par}[ext2] =  $cmdName_{sub}^{sub}ext1[par]ext2$ 
    • \cmdtxtpardef{cmdName}[newName];
      \cmdName[sub][sub][ext1]{par}[ext2] =  $newName_{sub}^{sub}ext1[par]ext2$ 
311 \newcommandx{\cmdtxtpardef}[2][2=]
312   {\usrtxt{#1}{\}{pardef}[#2]}

\cmdtxtopardef ... to do!

```

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

313 `\newcommandx{\cmdtxtopardef}[2][2=]`
314 `{\usrtxt{#1}{\opardef}[#2]}`

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

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

315 `%% Style for Abbreviations`
316 `\cmdtxtall{abr}\newcommand{\txtstyabr}{\em}`

`\cmdtxtabr` ... to do!

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

317 `\newcommandx{\cmdtxtabr}[2][2=]`
318 `{\usrtxt{#1}{\abr}[#2]}`

`\cmdtxtargabr` ... to do!

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

319 `\newcommandx{\cmdtxtargabr}[2][2=]`
320 `{\usrtxt{#1}{\argabr}[#2]}`

`\cmdtxtoargabr` ... to do!

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

321 `\newcommandx{\cmdtxtoargabr}[2][2=]`
322 `{\usrtxt{#1}{\oargabr}[#2]}`

`\cmdtxtparabr` ... to do!

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

323 `\newcommandx{\cmdtxtparabr}[2][2=]`
324 `{\usrtxt{#1}{\parabr}[#2]}`

`\cmdtxtoparabr` ... to do!

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

325 `\newcommandx{\cmdtxtoparabr}[2][2=]`
326 `{\usrtxt{#1}{\oparabr}[#2]}`

327 `%%*****`

`\txtname, ...` ... to do!

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

```

328 %% Style for Names
329 \cmdtxtall{name}\newcommand{\txtstyname}{\mdseries\scshape\sffamily}

\cmdtxtname ... to do!


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


330 \newcommandx{\cmdtxtname}[2][2=]
331 {\usrtxt{#1}{-}{name}{#2}}

\cmdtxtargname ... to do!


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


332 \newcommandx{\cmdtxtargname}[2][2=]
333 {\usrtxt{#1}{-}{argname}{#2}}

\cmdtxtoargname ... to do!


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


334 \newcommandx{\cmdtxtoargname}[2][2=]
335 {\usrtxt{#1}{-}{oargname}{#2}}

\cmdtxtparname ... to do!


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


336 \newcommandx{\cmdtxtparname}[2][2=]
337 {\usrtxt{#1}{-}{parname}{#2}}

\cmdtxtoparname ... to do!


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


338 \newcommandx{\cmdtxtoparname}[2][2=]
339 {\usrtxt{#1}{-}{oparname}{#2}}

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


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


340 %% Style for Complexities
341 \cmdtxtall{com}\newcommand{\txtstycom}{\mdseries\scshape\rmfamily}

\cmdtxtcom ... to do!


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

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    • \cmdtxtcom{cmdName}[newName];
      \cmdName[sub][sub][ext] = NEWNAMESUBSUBEXT
342 \newcommandx{\cmdtxtcom}[2][2=]
343   {\usrtxt{#1}{-}{com}[#2]}

\cmdtxtargcom ... to do!
    • \cmdtxtargcom{cmdName};
      \cmdName[sub][sub][ext1]{arg}[ext2] = CMDNAMESUBSUBEXT1(ARG)EXT2
    • \cmdtxtargcom{cmdName}[newName];
      \cmdName[sub][sub][ext1]{arg}[ext2] = NEWNAMESUBSUBEXT1(ARG)EXT2
344 \newcommandx{\cmdtxtargcom}[2][2=]
345   {\usrtxt{#1}{-}{argcom}[#2]}

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

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

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

352 \fi
353 %*****%
354 %*****%
355 %** Math Macro Generators *****%
356 %*****%
357 \ifmthgen@

\mthname, ... ... to do!
    • \mthname{NAME}[sub][sup][Ext] =  $\mathcal{E}_{sub}^{sup}Ext$ 
    • \mthargname{NAME}[sub][sup][Ext1]{Arg}[Ext2] =  $\mathcal{E}_{sub}^{sup}Ext1(Arg)Ext2$ 
    • \mthparname{NAME}[sub][sup][Ext1]{Par}[Ext2] =  $\mathcal{E}_{sub}^{sup}Ext1[Par]Ext2$ 
358 %% Style for Names
359 \cmdmthall{name}\newcommand{\mthstynname}{\mathcal}

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

\cmdmthname ... to do!
    • \cmdmthname{CMDNAME};
      \CMDNAMEname[sub][sub][ext] =  $CMD\mathcal{E}_{sub}^{sup}ext$ 

```

- $\backslash\text{cmdmthname}\{\text{cmdName}\}[\text{NEWNAME}]$;
 $\backslash\text{cmdNameName}[\text{sub}][\text{sub}][\text{ext}] = \mathcal{N}\mathcal{E}\mathcal{W}\mathcal{N}\mathcal{A}\mathcal{M}\mathcal{E}_{\text{sub}}^{\text{sub}}\text{ext}$

```

361 \newcommandx{\cmdmthname}[2][2=]
362   {\usrmth{\#1}\{Name\}\{name\}[\#2]}

```

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

- $\backslash\text{cmdmthargname}\{\text{CMDNAME}\}$;
 $\backslash\text{CMDNAMEName}[\text{sub}][\text{sub}][\text{ext1}]\{\text{arg}\}[\text{ext2}] = \mathcal{C}\mathcal{M}\mathcal{D}\mathcal{N}\mathcal{A}\mathcal{M}\mathcal{E}_{\text{sub}}^{\text{sub}}\text{ext1}(\text{arg})\text{ext2}$
- $\backslash\text{cmdmthargname}\{\text{cmdName}\}[\text{NEWNAME}]$;
 $\backslash\text{cmdNameName}[\text{sub}][\text{sub}][\text{ext1}]\{\text{arg}\}[\text{ext2}] = \mathcal{N}\mathcal{E}\mathcal{W}\mathcal{N}\mathcal{A}\mathcal{M}\mathcal{E}_{\text{sub}}^{\text{sub}}\text{ext1}(\text{arg})\text{ext2}$

```

363 \newcommandx{\cmdmthargname}[2][2=]
364   {\usrmth{\#1}\{Name\}\{argname\}[\#2]}

```

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

- $\backslash\text{cmdmthoargname}\{\text{CMDNAME}\}$;
 $\backslash\text{CMDNAMEName}[\text{sub}][\text{sub}][\text{arg}] = \mathcal{C}\mathcal{M}\mathcal{D}\mathcal{N}\mathcal{A}\mathcal{M}\mathcal{E}_{\text{sub}}^{\text{sub}}(\text{arg})$
- $\backslash\text{cmdmthoargname}\{\text{cmdName}\}[\text{NEWNAME}]$;
 $\backslash\text{cmdNameName}[\text{sub}][\text{sub}][\text{arg}] = \mathcal{N}\mathcal{E}\mathcal{W}\mathcal{N}\mathcal{A}\mathcal{M}\mathcal{E}_{\text{sub}}^{\text{sub}}(\text{arg})$

```

365 \newcommandx{\cmdmthoargname}[2][2=]
366   {\usrmth{\#1}\{Name\}\{oargname\}[\#2]}

```

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

- $\backslash\text{cmdmthparname}\{\text{CMDNAME}\}$;
 $\backslash\text{CMDNAMEName}[\text{sub}][\text{sub}][\text{ext1}]\{\text{par}\}[\text{ext2}] = \mathcal{C}\mathcal{M}\mathcal{D}\mathcal{N}\mathcal{A}\mathcal{M}\mathcal{E}_{\text{sub}}^{\text{sub}}\text{ext1}[\text{par}]\text{ext2}$
- $\backslash\text{cmdmthparname}\{\text{cmdName}\}[\text{NEWNAME}]$;
 $\backslash\text{cmdNameName}[\text{sub}][\text{sub}][\text{ext1}]\{\text{par}\}[\text{ext2}] = \mathcal{N}\mathcal{E}\mathcal{W}\mathcal{N}\mathcal{A}\mathcal{M}\mathcal{E}_{\text{sub}}^{\text{sub}}\text{ext1}[\text{par}]\text{ext2}$

```

367 \newcommandx{\cmdmthparname}[2][2=]
368   {\usrmth{\#1}\{Name\}\{parname\}[\#2]}

```

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

- $\backslash\text{cmdmthoparname}\{\text{CMDNAME}\}$;
 $\backslash\text{CMDNAMEName}[\text{sub}][\text{sub}][\text{par}] = \mathcal{C}\mathcal{M}\mathcal{D}\mathcal{N}\mathcal{A}\mathcal{M}\mathcal{E}_{\text{sub}}^{\text{sub}}[\text{par}]$
- $\backslash\text{cmdmthoparname}\{\text{cmdName}\}[\text{NEWNAME}]$;
 $\backslash\text{cmdNameName}[\text{sub}][\text{sub}][\text{par}] = \mathcal{N}\mathcal{E}\mathcal{W}\mathcal{N}\mathcal{A}\mathcal{M}\mathcal{E}_{\text{sub}}^{\text{sub}}[\text{par}]$

```

369 \newcommandx{\cmdmthoparname}[2][2=]
370   {\usrmth{\#1}\{Name\}\{oparname\}[\#2]}

```

$\backslash\text{mthfam}$, to do!

- $\backslash\text{mthfam}\{\text{NAME}\}[\text{sub}][\text{sup}][\text{Ext}] = \mathcal{N}\mathcal{A}\mathcal{M}\mathcal{E}_{\text{sub}}^{\text{sup}}\text{Ext}$
- $\backslash\text{mthargfam}\{\text{NAME}\}[\text{sub}][\text{sup}][\text{Ext1}]\{\text{Arg}\}[\text{Ext2}] = \mathcal{N}\mathcal{A}\mathcal{M}\mathcal{E}_{\text{sub}}^{\text{sup}}\text{Ext1}(\text{Arg})\text{Ext2}$
- $\backslash\text{mthparfam}\{\text{NAME}\}[\text{sub}][\text{sup}][\text{Ext1}]\{\text{Par}\}[\text{Ext2}] = \mathcal{N}\mathcal{A}\mathcal{M}\mathcal{E}_{\text{sub}}^{\text{sup}}\text{Ext1}[\text{Par}]\text{Ext2}$

```

371 %% Style for Families
372 \cmdmthall{fam}\newcommand{\mthstyfam}{\mathscr}

```

$\backslash\text{AFam}$, to do!

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

```

373 \seqoflatupp{Fam}\{mthfam\}

```

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

- $\backslash\text{cmdmthfam}\{\text{CMDNAME}\}$;
 $\backslash\text{CMDNAMEFam}[\text{sub}][\text{sub}][\text{ext}] = \mathcal{C}\mathcal{M}\mathcal{D}\mathcal{N}\mathcal{A}\mathcal{M}\mathcal{E}_{\text{sub}}^{\text{sub}}\text{ext}$
- $\backslash\text{cmdmthfam}\{\text{cmdName}\}[\text{NEWNAME}]$;
 $\backslash\text{cmdNameFam}[\text{sub}][\text{sub}][\text{ext}] = \mathcal{N}\mathcal{E}\mathcal{W}\mathcal{N}\mathcal{A}\mathcal{M}\mathcal{E}_{\text{sub}}^{\text{sub}}\text{ext}$

```

374 \newcommandx{\cmdmthfam}[2][2=]
375   {\usrmth{\#1}\{Fam\}\{fam\}[\#2]}

```

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

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

376 $\backslash\text{newcommandx}\{\backslash\text{cmdmthargfam}\}[2][2=]$
377 $\{\backslash\text{usrmth}\{\#1\}\{\text{Fam}\}\{\text{argfam}\}[\#2]\}$

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

- $\backslash\text{cmdmthoargfam}\{\text{CMDNAME}\};$
 $\backslash\text{CMDNAMEFam}[\text{sub}][\text{sub}][\text{arg}] = \mathcal{CMDNAME}_{\text{sub}}^{\text{sub}}(\text{arg})$
- $\backslash\text{cmdmthoargfam}\{\text{cmdFam}\}[\text{NEWNAME}];$
 $\backslash\text{cmdFamFam}[\text{sub}][\text{sub}][\text{arg}] = \mathcal{NEWNAME}_{\text{sub}}^{\text{sub}}(\text{arg})$

378 $\backslash\text{newcommandx}\{\backslash\text{cmdmthoargfam}\}[2][2=]$
379 $\{\backslash\text{usrmth}\{\#1\}\{\text{Fam}\}\{\text{oargfam}\}[\#2]\}$

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

- $\backslash\text{cmdmthparfam}\{\text{CMDNAME}\};$
 $\backslash\text{CMDNAMEFam}[\text{sub}][\text{sub}][\text{ext1}]\{\text{par}\}[\text{ext2}] = \mathcal{CMDNAME}_{\text{sub}}^{\text{sub}}\text{ext1}[\text{par}]\text{ext2}$
- $\backslash\text{cmdmthparfam}\{\text{cmdName}\}[\text{NEWNAME}];$
 $\backslash\text{cmdNameFam}[\text{sub}][\text{sub}][\text{ext1}]\{\text{par}\}[\text{ext2}] = \mathcal{NEWNAME}_{\text{sub}}^{\text{sub}}\text{ext1}[\text{par}]\text{ext2}$

380 $\backslash\text{newcommandx}\{\backslash\text{cmdmthparfam}\}[2][2=]$
381 $\{\backslash\text{usrmth}\{\#1\}\{\text{Fam}\}\{\text{parfam}\}[\#2]\}$

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

- $\backslash\text{cmdmthoparfam}\{\text{CMDNAME}\};$
 $\backslash\text{CMDNAMEFam}[\text{sub}][\text{sub}][\text{par}] = \mathcal{CMDNAME}_{\text{sub}}^{\text{sub}}[\text{par}]$
- $\backslash\text{cmdmthoparfam}\{\text{cmdFam}\}[\text{NEWNAME}];$
 $\backslash\text{cmdFamFam}[\text{sub}][\text{sub}][\text{par}] = \mathcal{NEWNAME}_{\text{sub}}^{\text{sub}}[\text{par}]$

382 $\backslash\text{newcommandx}\{\backslash\text{cmdmthoparfam}\}[2][2=]$
383 $\{\backslash\text{usrmth}\{\#1\}\{\text{Fam}\}\{\text{oparfam}\}[\#2]\}$

$\backslash\text{mthcls}$, to do!

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

384 %% Style for Classes
385 $\backslash\text{cmdmthall}\{\text{cls}\}\backslash\text{newcommand}\{\backslash\text{mthstcls}\}\{\backslash\text{matheus}\}$

$\backslash\text{ACls}$, to do!

$A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, Z$
386 $\backslash\text{seqoflatupp}\{\text{Cls}\}\{\text{mthcls}\}$

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

- $\backslash\text{cmdmthcls}\{\text{CMDNAME}\};$
 $\backslash\text{CMDNAMECls}[\text{sub}][\text{sub}][\text{ext}] = \mathcal{CMDNAME}_{\text{sub}}^{\text{sub}}\text{ext}$
- $\backslash\text{cmdmthcls}\{\text{cmdName}\}[\text{NEWNAME}];$
 $\backslash\text{cmdNameCls}[\text{sub}][\text{sub}][\text{ext}] = \mathcal{NEWNAME}_{\text{sub}}^{\text{sub}}\text{ext}$

387 $\backslash\text{newcommandx}\{\backslash\text{cmdmthcls}\}[2][2=]$
388 $\{\backslash\text{usrmth}\{\#1\}\{\text{Cls}\}\{\text{cls}\}[\#2]\}$

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

- $\backslash\text{cmdmthargcls}\{\text{CMDNAME}\};$
 $\backslash\text{CMDNAMECls}[\text{sub}][\text{sub}][\text{ext1}]\{\text{arg}\}[\text{ext2}] = \mathcal{CMDNAME}_{\text{sub}}^{\text{sub}}\text{ext1}(\text{arg})\text{ext2}$
- $\backslash\text{cmdmthargcls}\{\text{cmdName}\}[\text{NEWNAME}];$
 $\backslash\text{cmdNameCls}[\text{sub}][\text{sub}][\text{ext1}]\{\text{arg}\}[\text{ext2}] = \mathcal{NEWNAME}_{\text{sub}}^{\text{sub}}\text{ext1}(\text{arg})\text{ext2}$

389 $\backslash\text{newcommandx}\{\backslash\text{cmdmthargcls}\}[2][2=]$
390 $\{\backslash\text{usrmth}\{\#1\}\{\text{Cls}\}\{\text{argcls}\}[\#2]\}$

```

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

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

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

\mthsig, ... ... to do!
    • \mthsig{Name}[sub][sup][Ext] = \Name_{sub}^{sup}Ext
    • \mthargsig{Name}[sub][sup][Ext1]{Arg}[Ext2] = \Name_{sub}^{sup}Ext1(Arg)Ext2
    • \mthparsig{Name}[sub][sup][Ext1]{Par}[Ext2] = \Name_{sub}^{sup}Ext1[Par]Ext2
397 %% Style for Signatures
398 \cmdmthall{sig}\newcommand{\mthstysig}{\mathpzc}

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

\cmdmthsig ... to do!
    • \cmdmthsig{cmdName};
      \cmdNameSig[sub][sub][ext] = cmd\Name_{sub}^{sub}ext
    • \cmdmthsig{cmdName}{NewName};
      \cmdNameSig[sub][sub][ext] = \New\Name_{sub}^{sub}ext
400 \newcommandx{\cmdmthsig}[2][2=]
401   {\usrmth{#1}{Sig}{sig}[#2]}

\cmdmthargsig ... to do!
    • \cmdmthargsig{cmdName};
      \cmdNameSig[sub][sub][ext1]{arg}[ext2] = cmd\Name_{sub}^{sub}ext1(arg)ext2
    • \cmdmthargsig{cmdName}{NewName};
      \cmdNameSig[sub][sub][ext1]{arg}[ext2] = \New\Name_{sub}^{sub}ext1(arg)ext2
402 \newcommandx{\cmdmthargsig}[2][2=]
403   {\usrmth{#1}{Sig}{argsig}[#2]}

\cmdmthoargsig ... to do!
    • \cmdmthoargsig{cmdName};
      \cmdNameSig[sub][sub][arg] = cmd\Name_{sub}^{sub}(arg)

```

```

    • \cmdmthoargsig{cmdSig}[NewName];
      \cmdSigSig[sub][sub][arg] =  $\mathcal{N}ew\mathcal{N}ame_{sub}^{sub}(arg)$ 
404 \newcommandx{\cmdmthoargsig}[2][2=]
405   {\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] =  $\mathcal{N}ew\mathcal{N}ame_{sub}^{sub}ext1[par]ext2$ 
406 \newcommandx{\cmdmthparsig}[2][2=]
407   {\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] =  $\mathcal{N}ew\mathcal{N}ame_{sub}^{sub}[par]$ 
408 \newcommandx{\cmdmthoparsig}[2][2=]
409   {\usrmth{#1}{Sig}{oparsig}[#2]}

\mthstr, ... ... to do!
    • \mthstr{Name}[sub][sup][Ext] =  $\mathcal{N}ame_{sub}^{sup}Ext$ 
    • \mthargstr{Name}[sub][sup][Ext1]{Arg}[Ext2] =  $\mathcal{N}ame_{sub}^{sup}Ext1(Arg)Ext2$ 
    • \mthparstr{Name}[sub][sup][Ext1]{Par}[Ext2] =  $\mathcal{N}ame_{sub}^{sup}Ext1[Par]Ext2$ 
410 %% Style for Structures
411 \cmdmthall{str}\newcommand{\mthstyst}{\mathfrak{str}}

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

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

\cmdmthargstr ... to do!
    • \cmdmthargstr{cmdName};
      \cmdNameStr[sub][sub][ext1]{arg}[ext2] =  $cmd\mathcal{N}ame_{sub}^{sub}ext1(arg)ext2$ 
    • \cmdmthargstr{cmdName}[NewName];
      \cmdNameStr[sub][sub][ext1]{arg}[ext2] =  $\mathcal{N}ew\mathcal{N}ame_{sub}^{sub}ext1(arg)ext2$ 
415 \newcommandx{\cmdmthargstr}[2][2=]
416   {\usrmth{#1}{Str}{argstr}[#2]}

\cmdmthoargstr ... to do!
    • \cmdmthoargstr{cmdName};
      \cmdNameStr[sub][sub][arg] =  $cmd\mathcal{N}ame_{sub}^{sub}(arg)$ 
    • \cmdmthoargstr{cmdStr}[NewName];
      \cmdStrStr[sub][sub][arg] =  $\mathcal{N}ew\mathcal{N}ame_{sub}^{sub}(arg)$ 
417 \newcommandx{\cmdmthoargstr}[2][2=]
418   {\usrmth{#1}{Str}{oargstr}[#2]}

```

```

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

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

\mthset, ... ... to do!
    • \mthset{Name}[sub][sup][Ext] = NamesupsubExt
    • \mthargset{Name}[sub][sup][Ext1]{Arg}[Ext2] = NamesupsubExt1(Arg)Ext2
    • \mthparset{Name}[sub][sup][Ext1]{Par}[Ext2] = NamesupsubExt1[Par]Ext2
423 %% Style for Sets
424 \cmdmthall{set}\newcommand{\mthstyset}{\mathrm}

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

\cmdmthset ... to do!
    • \cmdmthset{cmdName};
      \cmdNameSet[sub][sub][ext] = cmdNamesubsubext
    • \cmdmthset{cmdName}[NewName];
      \cmdNameSet[sub][sub][ext] = NewNamesubsubext
426 \newcommandx{\cmdmthset}[2][2=]
427   {\usrmth{#1}{Set}{set}[#2]}

\cmdmthargset ... to do!
    • \cmdmthargset{cmdName};
      \cmdNameSet[sub][sub][ext1]{arg}[ext2] = cmdNamesubsubext1(arg)ext2
    • \cmdmthargset{cmdName}[NewName];
      \cmdNameSet[sub][sub][ext1]{arg}[ext2] = NewNamesubsubext1(arg)ext2
428 \newcommandx{\cmdmthargset}[2][2=]
429   {\usrmth{#1}{Set}{argset}[#2]}

\cmdmthoargset ... to do!
    • \cmdmthoargset{cmdName};
      \cmdNameSet[sub][sub][arg] = cmdNamesubsub(arg)
    • \cmdmthoargset{cmdSet}[NewName];
      \cmdSetSet[sub][sub][arg] = NewNamesubsub(arg)
430 \newcommandx{\cmdmthoargset}[2][2=]
431   {\usrmth{#1}{Set}{oargset}[#2]}

\cmdmthparset ... to do!
    • \cmdmthparset{cmdName};
      \cmdNameSet[sub][sub][ext1]{par}[ext2] = cmdNamesubsubext1[par]ext2

```

```

    • \cmdmthparset{cmdName}[NewName];
      \cmdNameSet[sub][sub][ext1]{par}[ext2] = NewNamesubext1[par]ext2
432 \newcommandx{\cmdmthparset}[2][2=]
433   {\usrmth{#1}{Set}{parset}[#2]}

\cmdmthoparset ... to do!
    • \cmdmthoparset{cmdName};
      \cmdNameSet[sub][sub][par] = cmdNamesubpar
    • \cmdmthoparset{cmdSet}[NewName];
      \cmdSetSet[sub][sub][par] = NewNamesubpar
434 \newcommandx{\cmdmthoparset}[2][2=]
435   {\usrmth{#1}{Set}{oparset}[#2]}

\cmdmthsetext ... to do!
436 \newcommandx{\cmdmthsetext}[3][2=, 3=]
437   {\cmdmthset{#1}[#2]\caselower[q]{#1}%
438   \usrmthlet{\thestring}{Sym}{sym}[\defval{#3}{\lowercase{#2}}]%
439   \usrmthlet{\thestring}{Elm}{elm}[\defval{#3}{\lowercase{#2}}]}

\mthrel, ... ... to do!
    • \mthrel{Name}[sub][sup][Ext] = NamesupsubExt
    • \mthargrel{Name}[sub][sup][Ext1]{Arg}[Ext2] = NamesupsubExt1(Arg)Ext2
    • \mthparrel{Name}[sub][sup][Ext1]{Par}[Ext2] = NamesupsubExt1[Par]Ext2
440 %% Style for Relations
441 \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, S, T, U, V, W, X, Y, Z
α, β, γ, δ, ε, ζ, η, θ, ϑ, ι, κ, λ, μ, ν, ξ, ο, π, ϖ, ρ, ϑ, σ, ς, τ, υ, φ, ϕ, χ, ψ, ω
A, B, Γ, Δ, E, E, Z, H, Θ, Θ, I, K, K, Λ, M, N, Ξ, O, Π, Π, P, P, Σ, Σ, T, Τ, Φ, Φ, X, Ψ, Ω
442 \seqoflet{Rel}{mthrel}

\cmdmthrel ... to do!
    • \cmdmthrel{cmdName};
      \cmdNameRel[sub][sub][ext] = cmdNamesubsubext
    • \cmdmthrel{cmdName}[NewName];
      \cmdNameRel[sub][sub][ext] = NewNamesubsubext
443 \newcommandx{\cmdmthrel}[2][2=]
444   {\usrmth{#1}{Rel}{rel}[#2]}

\cmdmthargrel ... to do!
    • \cmdmthargrel{cmdName};
      \cmdNameRel[sub][sub][ext1]{arg}[ext2] = cmdNamesubsubext1(arg)ext2
    • \cmdmthargrel{cmdName}[NewName];
      \cmdNameRel[sub][sub][ext1]{arg}[ext2] = NewNamesubsubext1(arg)ext2
445 \newcommandx{\cmdmthargrel}[2][2=]
446   {\usrmth{#1}{Rel}{argrel}[#2]}

\cmdmthoargrel ... to do!
    • \cmdmthoargrel{cmdName};
      \cmdNameRel[sub][sub][arg] = cmdNamesubsub(arg)
    • \cmdmthoargrel{cmdRel}[NewName];
      \cmdRelRel[sub][sub][arg] = NewNamesubsub(arg)
447 \newcommandx{\cmdmthoargrel}[2][2=]
448   {\usrmth{#1}{Rel}{oargrel}[#2]}

\cmdmthparrel ... to do!

```

```

    • \cmdmthparrel{cmdName};
      \cmdNameRel[sub][sub][ext1]{par}[ext2] = cmdNamesubext1[par]ext2
    • \cmdmthparrel{cmdName}[NewName];
      \cmdNameRel[sub][sub][ext1]{par}[ext2] = NewNamesubext1[par]ext2
449 \newcommandx{\cmdmthparrel}[2][2=]
450   {\usrmth{#1}{Rel}{parrel}{#2}}

\cmdmthoparrel ... to do!
    • \cmdmthoparrel{cmdName};
      \cmdNameRel[sub][sub][par] = cmdNamesub[par]
    • \cmdmthoparrel{cmdRel}[NewName];
      \cmdRelRel[sub][sub][par] = NewNamesub[par]
451 \newcommandx{\cmdmthoparrel}[2][2=]
452   {\usrmth{#1}{Rel}{oparrel}{#2}}

\mthfun, ... ... to do!
    • \mthfun{Name}[sub][sup][Ext] = NamesupsubExt
    • \mthargfun{Name}[sub][sup][Ext1]{Arg}[Ext2] = NamesupsubExt1(Arg)Ext2
    • \mthparfun{Name}[sub][sup][Ext1]{Par}[Ext2] = NamesupsubExt1[Par]Ext2
453 %% Style for Functions
454 \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
α, β, γ, δ, ε, ζ, η, θ, ϑ, ι, κ, λ, μ, ν, ξ, ο, π, ϖ, ρ, ϱ, σ, ς, τ, υ, φ, ϕ, χ, ψ, ω
Α, Β, Γ, Δ, Ε, Ζ, Η, Θ, ϸ, Ι, Κ, Λ, Μ, Ν, Ξ, Ο, Π, ΙΙ, Ρ, Σ, Ϛ, Τ, Υ, Φ, ϥ, Χ, Ψ, Ω
455 \seqoflet{Fun}{mthfun}

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

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

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

\cmdmthparfun ... to do!
    • \cmdmthparfun{cmdName};
      \cmdNameFun[sub][sub][ext1]{par}[ext2] = cmdNamesubext1[par]ext2
    • \cmdmthparfun{cmdName}[NewName];
      \cmdNameFun[sub][sub][ext1]{par}[ext2] = NewNamesubext1[par]ext2

```

```

462 \newcommandx{\cmdmthparfun}[2][2=]
463   {\usrmth{#1}\Fun\parfun}{#2}}

\cmdmthoparfun ... to do!
  • \cmdmthoparfun{cmdName};
    \cmdNameFun[sub][sub][par] = cmdNamesubsub[par]
  • \cmdmthoparfun{cmdFun}[NewName];
    \cmdFunFun[sub][sub][par] = NewNamesubsub[par]
464 \newcommandx{\cmdmthoparfun}[2][2=]
465   {\usrmth{#1}\Fun\oparfun}{#2}}

\mthsym, ... ... to do!
  • \mthsym{Name}[sub][sup][Ext] = NamesupsubExt
  • \mthargsym{Name}[sub][sup][Ext1]{Arg}[Ext2] = NamesupsubExt1(Arg)Ext2
  • \mthparsym{Name}[sub][sup][Ext1]{Par}[Ext2] = NamesupsubExt1[Par]Ext2
466 %% Style for Symbols
467 \cmdmthall{sym}\newcommand{\mthstysym}{\mathhtt}

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

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

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

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

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

\cmdmthoparsym ... to do!

```

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

477 `\newcommandx{\cmdmthoparsym}[2][2=]`
478 `{\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`

479 `%% Style for Elements`
480 `\cmdmthall{elm}\newcommand{\mthstyelm}{\mathnormal}`

`\aElm, ...` ... to do!

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

481 `\seqoflet{Elm}{mthelm}`

`\cmdmthelm ...` to do!

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

482 `\newcommandx{\cmdmthelm}[2][2=]`
483 `{\usrmth{#1}{Elm}{elm}{#2}}`

`\cmdmthargelm ...` to do!

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

484 `\newcommandx{\cmdmthargelm}[2][2=]`
485 `{\usrmth{#1}{Elm}{argelm}{#2}}`

`\cmdmthoargelm ...` to do!

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

486 `\newcommandx{\cmdmthoargelm}[2][2=]`
487 `{\usrmth{#1}{Elm}{oargelm}{#2}}`

`\cmdmthparelm ...` to do!

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

488 `\newcommandx{\cmdmthparelm}[2][2=]`
489 `{\usrmth{#1}{Elm}{parelm}{#2}}`

`\cmdmthoparelm ...` to do!

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


```

490 \newcommandx{\cmdmthoparelm}[2][2=]
491   {\usrmth{#1}{Elm}{oparelm}[#2]}

492 %%*****%

```

\cmdmthsymelm ... to do!

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

```

493 \newcommandx{\cmdmthsymelm}[2][2=]
494   {\cmdmthsym{#1}[#2]}%
495   \cmdmthelm{#1}[#2]}

```

\cmdmthargsymelm ... to do!

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

```

496 \newcommandx{\cmdmthargsymelm}[2][2=]
497   {\cmdmthargsym{#1}[#2]}%
498   \cmdmthargelm{#1}[#2]}

```

\cmdmthoargsymelm ... to do!

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

```

499 \newcommandx{\cmdmthoargsymelm}[2][2=]
500   {\cmdmthoargsym{#1}[#2]}%
501   \cmdmthoargelm{#1}[#2]}

```

\cmdmthparsymelm ... to do!

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

```

502 \newcommandx{\cmdmthparsymelm}[2][2=]
503   {\cmdmthparsym{#1}[#2]}%
504   \cmdmthparelm{#1}[#2]}

```

\cmdmthoparsymelm ... to do!

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

```

505 \newcommandx{\cmdmthoparsymelm}[2][2=]
506   {\cmdmthoparsym{#1}[#2]}%
507   \cmdmthoparelm{#1}[#2]}

```

508 %%*****%

\mthsnt, ... to do!

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

509 %% Style for Sentences

510 \cmdmthall{snt}\newcommand{\mthstysnt}{\mathsf}

\aSnt, ... to do!

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

511 \seqoflet{Snt}{mthsnt}

\cmdmthsnt ... to do!

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

512 \newcommandx{\cmdmthsnt}[2][2=]

513 {\usrmth{#1}{Snt}{snt}[#2]}

\cmdmthargsnt ... to do!

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

514 \newcommandx{\cmdmthargsnt}[2][2=]

515 {\usrmth{#1}{Snt}{argsnt}[#2]}

\cmdmthoargsnt ... to do!

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

516 \newcommandx{\cmdmthoargsnt}[2][2=]

517 {\usrmth{#1}{Snt}{oargsnt}[#2]}

\cmdmthparsnt ... to do!

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

518 \newcommandx{\cmdmthparsnt}[2][2=]

519 {\usrmth{#1}{Snt}{parsnt}[#2]}

\cmdmthoparsnt ... to do!

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

520 \newcommandx{\cmdmthoparsnt}[2][2=]

521 {\usrmth{#1}{Snt}{oparsnt}[#2]}

\mthfrm, ... to do!

- \mthfrm{Name}[sub][sup][Ext] = $Name_{sub}^{sup}Ext$

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

522 %% Style for Formulae

523 \cmdmthall{frm}\newcommand{\mthstyfrm}{\mathit}

\aFrm, ... to do!

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

524 \seqoflet{Frm}{mthfrm}

\cmdmthfrm ... to do!

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

525 \newcommandx{\cmdmthfrm}[2][2=]

526 {\usrmth{#1}{Frm}{frm}[#2]}

\cmdmthargfrm ... to do!

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

527 \newcommandx{\cmdmthargfrm}[2][2=]

528 {\usrmth{#1}{Frm}{argfrm}[#2]}

\cmdmthoargfrm ... to do!

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

529 \newcommandx{\cmdmthoargfrm}[2][2=]

530 {\usrmth{#1}{Frm}{oargfrm}[#2]}

\cmdmthparfrm ... to do!

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

531 \newcommandx{\cmdmthparfrm}[2][2=]

532 {\usrmth{#1}{Frm}{parfrm}[#2]}

\cmdmthoparfrm ... to do!

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

533 \newcommandx{\cmdmthoparfrm}[2][2=]

534 {\usrmth{#1}{Frm}{oparfrm}[#2]}

535 %*****

\mthmat, ... to do!

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

```

536 %% Style for Matrices
537 \cmdmthall{mat}\newcommand{\mthstymat}[1]{\boldsymbol{\mathsf{#1}}}

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

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

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

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

\cmdmthparmat ... to do!
• \cmdmthparmat{cmdName};
  \cmdNameMat[sub][sub][ext1]{par}[ext2] =  $\text{cmdName}_{sub}^{sub}ext1[par]ext2$ 
• \cmdmthparmat{cmdName}[NewName];
  \cmdNameMat[sub][sub][ext1]{par}[ext2] =  $\text{NewName}_{sub}^{sub}ext1[par]ext2$ 
545 \newcommandx{\cmdmthparmat}[2][2=]
546 {\usrmth{#1}{Mat}{parmat}{#2}}

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

\mthvec, ... ... to do!
• \mthvec{Name}[sub][sup][Ext] =  $\text{Name}_{sub}^{sup}Ext$ 
• \mthargvec{Name}[sub][sup][Ext1]{Arg}[Ext2] =  $\text{Name}_{sub}^{sup}Ext1(Arg)Ext2$ 
• \mthparvec{Name}[sub][sup][Ext1]{Par}[Ext2] =  $\text{Name}_{sub}^{sup}Ext1[Par]Ext2$ 
549 %% Style for Vectors
550 \cmdmthall{vec}\newcommand{\mthstyvec}[1]{\boldsymbol{\mathit{#1}}}
```

```

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

\cmdmthvec ... to do!
• \cmdmthvec{cmdName};
  \cmdNameVec[sub][sub][ext] =  $cmdName_{sub}^{sub}ext$ 
• \cmdmthvec{cmdName}[NewName];
  \cmdNameVec[sub][sub][ext] =  $NewName_{sub}^{sub}ext$ 
552 \newcommandx{\cmdmthvec}[2][2=]
553   {\usrmth{#1}{Vec}{vec}[#2]}

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

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

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

\cmdmthoparvec ... to do!
• \cmdmthoparvec{cmdName};
  \cmdNameVec[sub][sub][par] =  $cmdName_{sub}^{sub}[par]$ 
• \cmdmthoparvec{cmdName}[NewName];
  \cmdNameVec[sub][sub][par] =  $NewName_{sub}^{sub}[par]$ 
560 \newcommandx{\cmdmthoparvec}[2][2=]
561   {\usrmth{#1}{Vec}{oparvec}[#2]}

562 \fi
563 %*****
564 %*****
565 %** Elementary Macros for Text *****
566 %*****
567 \iftext@
568 %** Latin Abbreviations *****

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

```

`\afortiori` • `\afortiori = a fortiori`
570 `\cmdtxtabr{afortiori}[a fortiori]`

`\apriori` • `\apriori = a priori`
571 `\cmdtxtabr{apriori}[a priori]`

`\cf` • `\cf = cf.`
572 `\cmdtxtabr{cf}[cf.]`

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

`\viz` • `\viz = viz.`
588 `\cmdtxtabr{viz}[viz.]`

589 `%%*****%`

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

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

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

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

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

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

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

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

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

599 `%%** Italian Abbreviations *****%%`
...
600 `%%*****%%`
...
601 `%%** French Abbreviations *****%%`

`\role` • `\role = rôle`
602 `\cmdtxtabr{role}[r\^{o}le]`
603 `%%*****%%`

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

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

`\contd` • `\contd = contd.`
607 `\cmdtxtabr{contd}[contd.]`

`\iff` • `\iff = iff`
608 `\cmdtxtabr{iff}`

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

`\resp` • `\resp = resp.`
610 `\cmdtxtabr{resp}[resp.]`

```

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

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

613 %%*****

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

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

616 \fi
617 %%*****

618 %%*****
619 %** Elementary Macros for Math *****
620 %%*****
621 \ifmath@
622 %** General Notation *****

\implies, ... ...
623 \DeclareRobustCommand{\implies}
624   {\ensuremath{\rightarrow}}
625 \DeclareRobustCommand{\coimplies}
626   {\ensuremath{\rightarrowtail}}

627 %%*****

\defeq, \seteq ...
628 \DeclareMathOperator{\defeq}
629   {\ensuremath{\triangleq}}
630 \DeclareMathOperator{\seteq}
631   {\ensuremath{:\!=\,}}

632 %%*****

\cmodels, ... ...
633 \DeclareRobustCommand{\cmodels}
634   {\mth{\, \models}}
635 \DeclareRobustCommand{\notcmodels}
636   {\mth{\, \not\models}}

\cequiv, ... ...
637 \DeclareRobustCommand{\cequiv}
638   {\mth{\, \equiv}}
639 \DeclareRobustCommand{\notcequiv}
640   {\mth{\, \not\equiv}}

641 %%*****

\dual, \adj, ... ...
642 \DeclareRobustCommand{\dual}[1]
643   {\mth{\overline{\#1}}}
644 \DeclareRobustCommand{\adj}[1]
645   {\mth{\mathring{\#1}}}
646 \DeclareRobustCommand{\der}[1]
647   {\mth{\widehat{\#1}}}
648 \DeclareRobustCommand{\trn}[1]
649   {\mth{\widetilde{\#1}}}

```



```

\vec ...
650 \let\oldvec\vec
651 \DeclareRobustCommand{\vec}[1]
652   {\mth{\oldvec{#1}}}

653 %%*****

\enumeration, ... ...
654 \varcmd{enumeration}{\mth}{\left[{}{,}{\right]}{}}
655 \varcmd{enumerationx}{\mth}{\left[{}{;}{\right]}{}}

\sequence, ... ...
656 \varcmd{sequence}{\mth}{\left[{}{,}{\right]}{}}
657 \varcmd{sequencex}{\mth}{\left[{}{;}{\right]}{}}

\tuple, ... ...
658 \varcmd{tuple}{\mth}{\left\langle{}{,}{\right\rangle}{}}
659 \varcmd{tuplex}{\mth}{\left\langle{}{;}{\right\rangle}{}}

660 %%** Sets *****

\set ...
661 \DeclareRobustCommand{\set}[2]
662   {\mth{\argmid{\set{,}}{\argsep{#1}{\allowbreak\mid\allowbreak}{#2}}{\set{,}}}}

\card ...
663 \DeclareRobustCommand{\card}[1]
664   {\mth{\argmid{\lvert}{#1}{\rvert}}}}

\denot ...
665 \DeclareRobustCommand{\denot}[1]
666   {\mth{\argmid{\lVert}{#1}{\rVert}}}}

\pow ...
667 \DeclareRobustCommand{\pow}[1]
668   {\ensuremath{2^{\defval{#1}{\cdot}}}}}

669 %%** Relations *****

\emptyrel ...
670 \DeclareRobustCommand{\emptyrel}
671   {\mth{\varnothing}}

672 %%*****

\dom, \cod, ... ...
673 \DeclareRobustCommand{\dom}
674   {\mthargfun{dom}}
675 \DeclareRobustCommand{\cod}
676   {\mthargfun{cod}}
677 \DeclareRobustCommand{\rng}
678   {\mthargfun{rng}}
679 \DeclareRobustCommand{\img}
680   {\mthargfun{img}}

681 %%*****

\prj ...
682 \DeclareRobustCommand{\prj}
683   {\mthargfun{prj}}

\rst ...
684 \DeclareMathOperator{\rst}
685   {\ensuremath{\upharpoonright}}

```

```

\cmp ...
686 \DeclareMathOperator{\cmp}
687   {\ensuremath{\circ}}

688 %%** Functions *****%%

\emptyfun ...
689 \DeclareRobustCommand{\emptyfun}
690   {\mth{\varnothing}}

691 %%*****%%

\pto, \pmapsto ...
692 \DeclareMathOperator{\pto}
693   {\ensuremath{\rightharpoonup}}
694 \DeclareMathOperator{\pmapsto}
695   {\ensuremath{\mathrel{\raisebox{0.5ex}{\footnotesize$\llcorner$}}}%
696     \kern-1.5ex\rightharpoonup}}

697 %%*****%%

\Aomega, \AOmega ...
698 \DeclareRobustCommand{\Aomega}
699   {\mthargset{\omega}}
700 \DeclareRobustCommand{\AOmega}
701   {\mthargset{\Omega}}

\Atheta, \ATheta ...
702 \DeclareRobustCommand{\Atheta}
703   {\mthargset{\theta}}
704 \DeclareRobustCommand{\ATheta}
705   {\mthargset{\Theta}}

\Aomicron, ... ...
706 \DeclareRobustCommand{\Aomicron}
707   {\mthargset{\omicron}}
708 \DeclareRobustCommand{\AOmicron}
709   {\mthargset{\Omicron}}

710 %%** Numbers *****%%

\SetB ...
711 \DeclareRobustCommand{\SetB}
712   {\mthset[mathbb]{B}}

\SetF ...
713 \DeclareRobustCommand{\SetF}
714   {\mthset[mathbb]{F}}

\SetN, ... ...
715 \DeclareRobustCommand{\SetN}
716   {\mthset[mathbb]{N}}
717 \DeclareRobustCommand{\SetNI}[1] []
718   {\SetN[\infty #1]}

\SetZ, ... ...
719 \DeclareRobustCommand{\SetZ}
720   {\mthset[mathbb]{Z}}
721 \DeclareRobustCommand{\SetZI}[1] []
722   {\SetZ[\pm\infty #1]}
723 \DeclareRobustCommand{\SetZPI}[1] []
724   {\SetZ[+\infty #1]}
725 \DeclareRobustCommand{\SetZNI}[1] []
726   {\SetZ[-\infty #1]}

```

```

\SetQ, ... ...
727 \DeclareRobustCommand{\SetQ}
728   {\mthset[mathbb]{Q}}
729 \DeclareRobustCommand{\SetQI}[1] []
730   {\SetQ[\pm\infty #1]}
731 \DeclareRobustCommand{\SetQPI}[1] []
732   {\SetQ[+\infty #1]}
733 \DeclareRobustCommand{\SetQNI}[1] []
734   {\SetQ[-\infty #1]}

\SetR, ... ...
735 \DeclareRobustCommand{\SetR}
736   {\mthset[mathbb]{R}}
737 \DeclareRobustCommand{\SetRI}[1] []
738   {\SetR[\pm\infty #1]}
739 \DeclareRobustCommand{\SetRPI}[1] []
740   {\SetR[+\infty #1]}
741 \DeclareRobustCommand{\SetRNI}[1] []
742   {\SetR[-\infty #1]}

\SetC, ... ...
743 \DeclareRobustCommand{\SetC}
744   {\mthset[mathbb]{C}}
745 \DeclareRobustCommand{\SetCI}[1] []
746   {\SetC[\infty #1]}
747 %%*****%

\num, ... ...
748 \DeclareRobustCommand{\num}[1]
749   {\mth{[#1]}}
750 \DeclareRobustCommand{\numcc}[2]
751   {\mth{[\argsep{#1}{,}{#2}]}}
752 \DeclareRobustCommand{\numco}[2]
753   {\mth{[\argsep{#1}{,}{#2})}}
754 \DeclareRobustCommand{\numoc}[2]
755   {\mth{(\argsep{#1}{,}{#2})}}
756 \DeclareRobustCommand{\numoo}[2]
757   {\mth{(\argsep{#1}{,}{#2}))}}
758 %%*****%

\floor, \ceil ...
759 \DeclareRobustCommand{\floor}[1]
760   {\mth{\argmid{\left\lfloor}{#1}{\right\rfloor}}}
761 \DeclareRobustCommand{\ceil}[1]
762   {\mth{\argmid{\left\lceil}{#1}{\right\rceil}}}
763 %%*****%

\arg ...
764 \DeclareRobustCommand{\arg}
765   {\mthfun{arg}}

\evn, \odd ...
766 \DeclareRobustCommand{\evn}
767   {\mthfun{evn}}
768 \DeclareRobustCommand{\odd}
769   {\mthfun{odd}}

\bst, ... ...
770 \DeclareRobustCommand{\bst}
771   {\mthfun{bst}}
772 \DeclareRobustCommand{\argbst}
773   {\mthfun{arg bst}}

```

```

\min, \max, ... ...
774 \DeclareRobustCommand{\min}
775   {\mthfun{min}}
776 \DeclareRobustCommand{\max}
777   {\mthfun{max}}
778 \DeclareRobustCommand{\argmin}
779   {\mthfun{arg min}}
780 \DeclareRobustCommand{\argmax}
781   {\mthfun{arg max}}

\inf, \sup ...
782 \DeclareRobustCommand{\inf}
783   {\mthfun{inf}}
784 \DeclareRobustCommand{\sup}
785   {\mthfun{sup}}

786 %** Sequences *****%

\fst, \lst ...
787 \DeclareRobustCommand{\fst}
788   {\mthargfun{fst}}
789 \DeclareRobustCommand{\lst}
790   {\mthargfun{lst}}

791 \fi
792 %*****%
793 %*****%
794 %** Macros for Computational-Complexity Classes *****%
795 %*****%
796 \ifcom@

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

    \CompClass[sub][sup][ext] = COMPCLASSSUBEXT;
    \CoCompClass[sub][sup][ext] = CoCOMPCLASSSUBEXT
    \CompClassE[sub][sup][ext] = COMPCLASS-EASYSUBEXT;
    \CoCompClassE[sub][sup][ext] = CoCOMPCLASS-EASYSUBEXT
    \CompClassH[sub][sup][ext] = COMPCLASS-HARDSUBEXT;
    \CoCompClassH[sub][sup][ext] = CoCOMPCLASS-HARDSUBEXT
    \CompClassC[sub][sup][ext] = COMPCLASS-COMPLETESUBEXT;
    \CoCompClassC[sub][sup][ext] = CoCOMPCLASS-COMPLETESUBEXT

    \NCompClass[sub][sup][ext] = NCOMPCLASSSUBEXT;
    \CoNCompClass[sub][sup][ext] = CoNCOMPCLASSSUBEXT
    \NCompClassE[sub][sup][ext] = NCOMPCLASS-EASYSUBEXT;
    \CoNCompClassE[sub][sup][ext] = CoNCOMPCLASS-EASYSUBEXT
    \NCompClassH[sub][sup][ext] = NCOMPCLASS-HARDSUBEXT;
    \CoNCompClassH[sub][sup][ext] = CoNCOMPCLASS-HARDSUBEXT
    \NCompClassC[sub][sup][ext] = NCOMPCLASS-COMPLETESUBEXT;
    \CoNCompClassC[sub][sup][ext] = CoNCOMPCLASS-COMPLETESUBEXT

    \UCompClass[sub][sup][ext] = UCOMPCLASSSUBEXT;
    \CoUCompClass[sub][sup][ext] = CoUCOMPCLASSSUBEXT
    \UCompClassE[sub][sup][ext] = UCOMPCLASS-EASYSUBEXT;
    \CoUCompClassE[sub][sup][ext] = CoUCOMPCLASS-EASYSUBEXT
    \UCompClassH[sub][sup][ext] = UCOMPCLASS-HARDSUBEXT;
    \CoUCompClassH[sub][sup][ext] = CoUCOMPCLASS-HARDSUBEXT
    \UCompClassC[sub][sup][ext] = UCOMPCLASS-COMPLETESUBEXT;
    \CoUCompClassC[sub][sup][ext] = CoUCOMPCLASS-COMPLETESUBEXT

    \ACompClass[sub][sup][ext] = ACOMPCLASSSUBEXT;
    \CoACompClass[sub][sup][ext] = CoACOMPCLASSSUBEXT
    \ACompClassE[sub][sup][ext] = ACOMPCLASS-EASYSUBEXT;

```

```

\CoACompClassE[sub][sup][ext] = CoACOMPCLASS-EASYSUBEXT
\ACompClassH[sub][sup][ext] = ACOMPCLASS-HARDSUBEXT;
\CoACompClassH[sub][sup][ext] = CoACOMPCLASS-HARDSUBEXT
\ACompClassC[sub][sup][ext] = ACOMPCLASS-COMPLETESUBEXT;
\CoACompClassC[sub][sup][ext] = CoACOMPCLASS-COMPLETESUBEXT

```

• \defcomcls{CompClass}[NewClass];

```

\CompClass[sub][sup][ext] = NEWCLASSSUBEXT;
\CoCompClass[sub][sup][ext] = CoNEWCLASSSUBEXT
\CompClassE[sub][sup][ext] = NEWCLASS-EASYSUBEXT;
\CoCompClassE[sub][sup][ext] = CoNEWCLASS-EASYSUBEXT
\CompClassH[sub][sup][ext] = NEWCLASS-HARDSUBEXT;
\CoCompClassH[sub][sup][ext] = CoNEWCLASS-HARDSUBEXT
\CompClassC[sub][sup][ext] = NEWCLASS-COMPLETESUBEXT;
\CoCompClassC[sub][sup][ext] = CoNEWCLASS-COMPLETESUBEXT

```

```

\NCompClass[sub][sup][ext] = NNEWCLASSSUBEXT;
\CoNCompClass[sub][sup][ext] = CoNNEWCLASSSUBEXT
\NCompClassE[sub][sup][ext] = NNEWCLASS-EASYSUBEXT;
\CoNCompClassE[sub][sup][ext] = CoNNEWCLASS-EASYSUBEXT
\NCompClassH[sub][sup][ext] = NNEWCLASS-HARDSUBEXT;
\CoNCompClassH[sub][sup][ext] = CoNNEWCLASS-HARDSUBEXT
\NCompClassC[sub][sup][ext] = NNEWCLASS-COMPLETESUBEXT;
\CoNCompClassC[sub][sup][ext] = CoNNEWCLASS-COMPLETESUBEXT

```

```

\UCompClass[sub][sup][ext] = UNEWCLASSSUBEXT;
\CoUCompClass[sub][sup][ext] = CoUNEWCLASSSUBEXT
\UCompClassE[sub][sup][ext] = UNEWCLASS-EASYSUBEXT;
\CoUCompClassE[sub][sup][ext] = CoUNEWCLASS-EASYSUBEXT
\UCompClassH[sub][sup][ext] = UNEWCLASS-HARDSUBEXT;
\CoUCompClassH[sub][sup][ext] = CoUNEWCLASS-HARDSUBEXT
\UCompClassC[sub][sup][ext] = UNEWCLASS-COMPLETESUBEXT;
\CoUCompClassC[sub][sup][ext] = CoUNEWCLASS-COMPLETESUBEXT

```

```

\ACompClass[sub][sup][ext] = ANEWCLASSSUBEXT;
\CoACompClass[sub][sup][ext] = CoANEWCLASSSUBEXT
\ACompClassE[sub][sup][ext] = ANEWCLASS-EASYSUBEXT;
\CoACompClassE[sub][sup][ext] = CoANEWCLASS-EASYSUBEXT
\ACompClassH[sub][sup][ext] = ANEWCLASS-HARDSUBEXT;
\CoACompClassH[sub][sup][ext] = CoANEWCLASS-HARDSUBEXT
\ACompClassC[sub][sup][ext] = ANEWCLASS-COMPLETESUBEXT;
\CoACompClassC[sub][sup][ext] = CoANEWCLASS-COMPLETESUBEXT

```

```

797 \newcommandx{\defcomcls}[2][2=]
798   {\defcomclssem{#1}{\defval{#2}{#1}}}%
799   \defcomclssem{#1}{\defval{#2}{#1}}[Co]}
800 \newcommandx{\defcomclssem}[3][3=]
801   {\defcomclsred{#3#1}{#2}{#3}%
802   \defcomclsred{#3N#1}{#2}{#3N}%
803   \defcomclsred{#3U#1}{#2}{#3U}%
804   \defcomclsred{#3A#1}{#2}{#3A}}
805 \newcommandx{\defcomclsred}[3][3=]
806   {\defcomclscmd{#1}{#2}{#3}%
807   \defcomclscmd{#1E}{#2}{#3}[-easy]%
808   \defcomclscmd{#1H}{#2}{#3}[-hard]%
809   \defcomclscmd{#1C}{#2}{#3}[-complete]]%
810 \newcommandx{\defcomclscmd}[4][3=, 4=]
811   {\csdef{#1}{\txtcom{#3#2#4}}}

```

812 %%

```

\Time, ... • \Time[sub][sup][ext] = TIMESUBEXT
\TimeE[sub][sup][ext] = TIME-EASYSUBEXT
\TimeH[sub][sup][ext] = TIME-HARDSUBEXT
\TimeC[sub][sup][ext] = TIME-COMPLETESUBEXT

```

```
813 \defcomcls{Time}
```

```
814 \defcomcls{Space}
```

```
815 \defcomcls{LogTime}
```


- $\backslash \text{ExpTime}[\text{sub}][\text{sup}][\text{ext}] = \text{AExpTime}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
- $\backslash \text{ExpTimeE}[\text{sub}][\text{sup}][\text{ext}] = \text{AExpTime-EASY}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
- $\backslash \text{ExpTimeH}[\text{sub}][\text{sup}][\text{ext}] = \text{AExpTime-HARD}_{\text{SUB}}^{\text{SUP}}\text{EXT}$
- $\backslash \text{ExpTimeC}[\text{sub}][\text{sup}][\text{ext}] = \text{AExpTime-COMplete}_{\text{SUB}}^{\text{SUP}}\text{EXT}$

819 \defcomcls{ExpTime}

\ExpSpace, ...

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

820 \defcomcls{ExpSpace}

821 %*****%

...

822 \fi

823 %*****%

824 %*****%

825 %** Macros for Games *****%

826 %*****%

827 \ifgam@

828 %** Logic Games *****%

\SATG,

829 %% Satisfiability Games

830 \cmdtxtopname{SATG}[Sat]

831

832 %% Validity Games

833 \cmdtxtopname{VALG}[Val]

834

835 %% Evaluation Games

836 \cmdtxtopname{EVLG}[Evl]

837

838 %% Synthesis Games

839 \cmdtxtopname{SYNG}[Syn]

840

841 %% Model-Checking Games

842 \cmdtxtopname{MCG}[MC]

843

844 %% Ehrenfeucht-Fraisse Games

845 \cmdtxtopname{EFG}[EF]

846 %** Syntax *****%

\PlrSym, \OppSym ...

847 \newcommand{\plrSym}{E}

848 \cmdmthsym{Plr}[\plrSym]

849 \newcommand{\oppSym}{A}

850 \cmdmthsym{Opp}[\oppSym]


```

\ArenaName, ... ...
851 \newcommand{\arenaname}{A}
852 \usrmthlatupp{Arena}{Name}{name}[\arenaname]

\PosSet, ... ...
853 \newcommand{\possym}{v}
854 \newcommand{\posset}{Ps}
855 \cmdmthsetext{Pos}[\posset][\possym]
856 \cmdmthsymelm{ipos}[\possym_{I}]
857 \cmdmthsymelm{fpos}[\possym_{F}]
858 \cmdmthset{PPos}[\posset_{\PlrSym}]
859 \cmdmthsymelm{ppos}[\possym_{\PlrSym}]
860 \cmdmthset{OPos}[\posset_{\OppSym}]
861 \cmdmthsymelm{opos}[\possym_{\OppSym}]

\MovRel ... ...
862 \newcommand{\movrel}{Mv}
863 \cmdmthrel{Mov}[\movrel]

\GameName, ... ...
864 \newcommand{\gamename}{\Game}
865 \usrmthlatupp{Game}{Name}{name}[\gamename]

\WinSet ... ...
866 \newcommand{\winset}{Wn}
867 \cmdmthset{Win}[\winset]

\ObsSet, \obsFun ... ...
868 \newcommand{\obsset}{Ob}
869 \cmdmthset{Obs}[\obsset]
870 \cmdmthfun{obs}

871 %%** Semantics *****%%

\PthSet, \pthFun ... ...
872 \newcommand{\pthsym}{\pi}
873 \newcommand{\pthset}{Pth}
874 \cmdmthsetext{Pth}[\pthset][\pthsym]
875 \cmdmthfun{pth}

\HstSet, ... ...
876 \newcommand{\hstsym}{\rho}
877 \newcommand{\hstset}{Hst}
878 \cmdmthsetext{Hst}[\hstset][\hstsym]
879 \cmdmthset{PHst}[\hstset_{\PlrSym}]
880 \cmdmthsymelm{phst}[\hstsym_{\PlrSym}]
881 \cmdmthset{OHst}[\hstset_{\OppSym}]
882 \cmdmthsymelm{ohst}[\hstsym_{\OppSym}]
883 \cmdmthfun{hst}

\PlaySet, \playFun ... ...
884 \newcommand{\playsym}{\pi}
885 \newcommand{\playset}{Play}
886 \cmdmthsetext{Play}[\playset][\playsym]
887 \cmdmthfun{play}

\StrSet, ... ...
888 \newcommand{\strsym}{\sigma}
889 \newcommand{\strset}{Str}
890 \cmdmthsetext{Str}[\strset][\strsym]
891 \cmdmthset{PStr}[\strset_{\PlrSym}]
892 \cmdmthsymelm{pstr}[\strsym_{\PlrSym}]
893 \cmdmthset{OStr}[\strset_{\OppSym}]
894 \cmdmthsymelm{ostr}[\strsym_{\OppSym}]

```

```

\PrfSet, \prfFun ...
    895 \newcommand{\prfsym}{\xi}
    896 \newcommand{\prfset}{Prf}
    897 \cmdmthsetext{Prf}[\prfset][\prfsym]

\prdFun, \sucFun ...
    898 \cmdmthfun{prd}
    899 \cmdmthfun{suc}

\atrFun, \rchFun ...
    900 \cmdmthfun{atr}
    901 \cmdmthfun{rch}

\solFun ...
    902 \cmdmthfun{sol}

    903 %** Qualitative Games on Graph *****%

\BG, ... ...
    904 %% Buchi Games
    905 \cmdtxtoparname{BG}
    906
    907 %% Co-Buchi Games
    908 \cmdtxtoparname{CG}
    909
    910 %% Parity Games
    911 \cmdtxtoparname{PG}
    912
    913 %% Rabin Games
    914 \cmdtxtoparname{RG}
    915
    916 %% Streett Games
    917 \cmdtxtoparname{SG}
    918
    919 %% Muller Games
    920 \cmdtxtoparname{MG}

    921 %** Syntax *****%

\PrtSet, \prtFun ...
    922 \newcommand{\prtsym}{p}
    923 \newcommand{\prtset}{Pr}
    924 \cmdmthsetext{Prt}[\prtset][\prtsym]
    925 \cmdmthfun{prt}[pr]

    926 %** Semantics *****%

    ...

    927 %** Quantitative Games on Graph *****%

\EG, ... ...
    928 %% Energy Games
    929 \cmdtxtoparname{EG}
    930
    931 %% Mean-Payoff Games
    932 \cmdtxtoparname{MPG}
    933
    934 %% Discounted-Payoff Games
    935 \cmdtxtoparname{DPG}

    936 %** Syntax *****%

```

```

\WghSet, \wghFun ...
    937 \newcommand{\wghsym}{w}
    938 \newcommand{\wghset}{Wg}
    939 \cmdmthsetext{Wgh}[\wghset][\wghsym]
    940 \cmdmthfun{wgh}[wg]

    941 %** Semantics *****%
    ...
    942 \fi
    943 %*****%
    944 %*****%
    945 %** Macros for Logics *****%
    946 %*****%
    947 \iflog@
    948 %** Propositional Logics *****%

\BF, \QBF, ... ...
    949 % Boolean Formulae
    950 \cmdtxtoparname{BF}
    951
    952 % Quantified Boolean Formulae
    953 \DeclareRobustCommand{\QBF}
    954   {\txtname{Q}\BF}
    955 \DeclareRobustCommand{\EBF}
    956   {\ensuremath{\exists}\BF}
    957 \DeclareRobustCommand{\UBF}
    958   {\ensuremath{\forall}\BF}

    959 %** Syntax *****%

\LogSig, ... ...
    960 \newcommand{\logsig}{L}
    961 \usrmthlatupp{Log}{Sig}{sig}[\logsig]

\Tt, \Ff ...
    962 \newcommand{\ttsym}{\top}
    963 \usrmth{Tt}{}{sym}[\ttsym]
    964 \newcommand{\ffsym}{\bot}
    965 \usrmth{Ff}{}{sym}[\ffsym]

\APSet, ... ...
    966 \newcommand{\apsym}{p}
    967 \newcommand{\apset}{AP}
    968 \cmdmthsetext{AP}[\apset][\apsym]
    969 \cmdmthfun{ap}\usrmth{ap}{}{argfun}

\Cnt ...
    970 \usrmth{Cnt}{}{sym}[Cn]

\sub ...
    971 \usrmth{sub}{}{argfun}

\Qnt, \QntSet, ... ...
    972 \usrmth{Qnt}{}{sym}[Qn]
    973
    974 \newcommand{\qntsym}{\wp}
    975 \newcommand{\qntset}{Qn}
    976 \cmdmthsetext{Qnt}[\qntset][\qntsym]

\free ...
    977 \usrmth{free}{}{argfun}

```

```

\dep, \alt ...
    978 \usrmth{dep}{-}{argfun}
    979 \usrmth{alt}{-}{argfun}

    980 %** Semantics *****%

\LogStr, ... ...
    981 \newcommand{\logstr}{L}
    982 \usrmthlatupp{Log}{Str}{str}[\logstr]

\ValSet, ... ...
    983 \newcommand{\valsym}{\xi}
    984 \newcommand{\valset}{Val}
    985 \cmdmthsetext{Val}[\valset][\valsym]

\AsgSet, ... ...
    986 \newcommand{\asgsym}{\chi}
    987 \newcommand{\asgset}{Asg}
    988 \cmdmthsetext{Asg}[\asgset][\asgsym]

    989 %** First-Order Logics I *****%

\FOL, ... ...
    990 % First-Order Logic
    991 \cmdtxtoparname{FOL}[Fol]
    992
    993 % Monadic First-Order Logic
    994 \DeclareRobustCommand{\MFOL}
    995   {\{\txname{M}\}\FOL}

    996 %** Syntax *****%

\VarSig, ... ...
    997 \newcommand{\varsig}{V}
    998 \usrmthlatupp{Var}{Sig}{sig}[\varsig]
    999 \newcommand{\varsym}{x}
    1000 \newcommand{\varset}{Vr}
    1001 \cmdmthsetext{Var}[\varset][\varsym]
    1002 \usrmth{var}{-}{argfun}[vr]
    1003 \cmdmthfun{dim}[dm]\usrmth{dim}{-}{argfun}[dm]

\ConSig, ... ...
    1004 \newcommand{\consig}{C}
    1005 \usrmthlatupp{Con}{Sig}{sig}[\consig]
    1006 \newcommand{\consym}{c}
    1007 \newcommand{\conset}{Cn}
    1008 \cmdmthsetext{Con}[\conset][\consym]
    1009 \usrmth{con}{-}{argfun}[cn]

\FunSig, ... ...
    1010 \newcommand{\funsig}{F}
    1011 \usrmthlatupp{Fun}{Sig}{sig}[\funsig]
    1012 \newcommand{\funsym}{f}
    1013 \newcommand{\funset}{Fn}
    1014 \cmdmthsetext{Fun}[\funset][\funsym]
    1015 \usrmth{fun}{-}{argfun}[fn]
    1016 \cmdmthfun{art}[ar]\usrmth{art}{-}{argfun}[ar]

\TerSig, ... ...
    1017 \newcommand{\tersig}{T}
    1018 \usrmthlatupp{Ter}{Sig}{sig}[\tersig]
    1019 \newcommand{\tersym}{t}
    1020 \newcommand{\terset}{Tr}
    1021 \cmdmthsetext{Ter}[\terset][\tersym]
    1022 \usrmth{ter}{-}{argfun}

```

```

\RelSig, ... ...
1023 \newcommand{\relsig}{R}
1024 \usrmthlatupp{Rel}{Sig}{sig}[\relsig]
1025 \newcommand{\relsym}{r}
1026 \newcommand{\relset}{Rl}
1027 \cmdmthsetext{Rel}{\relset}[\relsym]
1028 \usrmth{rel}{\}{argfun}[rl]

\skm ...
1029 \usrmth{skm}{\}{argfun}

1030 %** Semantics *****%%

\ConStr, ... ...
1031 \newcommand{\constr}{C}
1032 \usrmthlatupp{Con}{Str}{str}[\constr]

\FunStr, ... ...
1033 \newcommand{\funstr}{F}
1034 \usrmthlatupp{Fun}{Str}{str}[\funstr]

\TerStr, ... ...
1035 \newcommand{\terstr}{T}
1036 \usrmthlatupp{Ter}{Str}{str}[\terstr]

\RelStr, ... ...
1037 \newcommand{\relstr}{R}
1038 \usrmthlatupp{Rel}{Str}{str}[\relstr]

1039 %** First-Order Logics II *****%%
...
1040 %** Syntax *****%%
...
1041 %** Semantics *****%%
...
1042 %** Second-Order Logics I *****%%

\SOL, ... ...
1043 % Second-Order Logic
1044 \cmdtxttoparname{SOL}[Sol]
1045
1046 % Monadic Second-Order Logic
1047 \DeclareRobustCommand{\MSOL}
1048 {\{\txtname{M}\}\SOL}

1049 %** Syntax *****%%

\FVarSet, ... ...
1050 \newcommand{\fvarsym}{x}
1051 \newcommand{\fvarset}{FVr}
1052 \cmdmthsetext{FVar}{\fvarset}[\fvarsym]

\SVarSet, ... ...
1053 \newcommand{\svarsym}{X}
1054 \newcommand{\svarset}{SVr}
1055 \cmdmthsetext{SVar}{\svarset}[\svarsym]

1056 %** Semantics *****%%
...
1057 %** Second-Order Logics II *****%%

```

```

\TL, \PL, ... ...
1058 % Tree Logic
1059 \cmdtxttoparname{TL}
1060
1061 % Monadic Tree Logic
1062 \DeclareRobustCommand{\MTL}
1063   {\txtname{M}}\TL}
1064
1065 % Path Logic
1066 \cmdtxttoparname{PL}
1067
1068 % Monadic Path Logic
1069 \DeclareRobustCommand{\MPL}
1070   {\txtname{M}}\PL}

1071 %** Syntax *****%

...

1072 %** Semantics *****%

...

1073 %** Modal Logics I *****%

\ML, \QML, ... ...
1074 % Modal Logic
1075 \cmdtxttoparname{ML}
1076
1077 % Quantified Modal Logic
1078 \DeclareRobustCommand{\QML}
1079   {\txtname{Q}}\ML}
1080 \DeclareRobustCommand{\EML}
1081   {\ensuremath{\exists}\ML}
1082 \DeclareRobustCommand{\UML}
1083   {\ensuremath{\forall}\ML}

1084 %** Syntax *****%

\Opr ...
1085 \usrmth{Opr}{\sym}[Op]

\DMod, \BMod ...
1086 \usrmth{DMod}{\sym}[\Diamond]
1087 \usrmth{BMod}{\sym}[\Box]

\Exs, \All ...
1088 \DeclareRobustCommand{\Exs}[1]
1089   {\mth{\defval{\argmid{\langle}\#1{\rangle}}{\DMod}}}
1090 \DeclareRobustCommand{\All}[1]
1091   {\mth{\defval{\argmid{\left[\#1{\right]}}{\BMod}}}

1092 %** Semantics *****%

\KrpStr, ... ...
1093 \newcommand{\krpstr}{K}
1094 \usrmthlatupp{Krp}{Str}{str}[\krpstr]

\WrlSet, ... ...
1095 \newcommand{\wrlsym}{w}
1096 \newcommand{\wrlset}{W}
1097 \cmdmthsetext{Wrl}{\wrlset}[\wrlsym]
1098 \cmdmthsymelm{iwrl}{\wrlsym_{I}}

```

```

\AccRel, \TrnRel ...
1099 \newcommand{\accsym}{R}
1100 \cmdmthrel{Acc}[\accsym]
1101 \cmdmthrel{Trn}[\accsym]

\labFun ...
1102 \newcommand{\labsym}{\lambda}
1103 \cmdmthfun{lab}[\labsym]

\PthSet, \pthFun ...
1104 \providecommand{\pthsym}{\pi}
1105 \providecommand{\pthset}{Pth}
1106 \cmdmthsetext{Pth}[\pthset][\pthsym]
1107 \cmdmthfun{pth}

1108 %** Modal Logics II *****%%

\MC, \QMC, ... ...
1109 % Mu Calculus
1110 \cmdtxtoparname{MC}[\ensuremath{\mu}-Calculus]
1111
1112 % Quantified Modal Logic
1113 \DeclareRobustCommand{\QMC}
1114   {\{\textrm{Q}\}\MC}
1115 \DeclareRobustCommand{\EMC}
1116   {\ensuremath{\exists}\MC}
1117 \DeclareRobustCommand{\UMC}
1118   {\ensuremath{\forall}\MC}

1119 %** Syntax *****%%
...
1120 %** Semantics *****%%
...
1121 %** Temporal Logics I *****%%

\PTL, \LTL, ... ...
1122 % Propositional Temporal Logic
1123 \cmdtxtoparname{PTL}
1124
1125 % Quantified Propositional Temporal Logic
1126 \DeclareRobustCommand{\QPTL}
1127   {\{\textrm{Q}\}\PTL}
1128 \DeclareRobustCommand{\EPTL}
1129   {\ensuremath{\exists}\PTL}
1130 \DeclareRobustCommand{\UPTL}
1131   {\ensuremath{\forall}\PTL}
1132
1133 % Linear Temporal Logic
1134 \cmdtxtoparname{LTL}
1135
1136 % Quantified Linear Temporal Logic
1137 \DeclareRobustCommand{\QLTL}
1138   {\{\textrm{Q}\}\LTL}
1139 \DeclareRobustCommand{\ELTL}
1140   {\ensuremath{\exists}\LTL}
1141 \DeclareRobustCommand{\ULTL}
1142   {\ensuremath{\forall}\LTL}

1143 %** Syntax *****%%

```

```

\X, ... ...
1144 \usrmth{X}{-}{sym}
1145 \usrmth{F}{-}{sym}
1146 \usrmth{G}{-}{sym}
1147 \usrmth{U}{-}{sym}
1148 \usrmth{R}{-}{sym}

\Y, ... ...
1149 \usrmth{Y}{-}{sym}
1150 \usrmth{P}{-}{sym}\let\SavePilcrow\P
1151 \usrmth{H}{-}{sym}\let\SaveDoubleAcute\H
1152 \usrmth{S}{-}{sym}\let\SaveSectionSymbol\S
1153 \usrmth{B}{-}{sym}

1154 %** Semantics *****%
...

1155 %** Temporal Logics II *****%

\CTL, ... ...
1156 % Computation Tree Logic
1157 \cmdtxtopname{CTL}
1158
1159 % Quantified Computation Tree Logic
1160 \DeclareRobustCommand{\QCTL}
1161   {\ttxname{Q}\CTL}
1162 \DeclareRobustCommand{\ECTL}
1163   {\ensuremath{\exists}\CTL}
1164 \DeclareRobustCommand{\UCTL}
1165   {\ensuremath{\forall}\CTL}
1166
1167 % Improved Computation Tree Logic
1168 \cmdtxtopname{CTLP}[CTL$^{+}$]
1169
1170 % Quantified Improved Computation Tree Logic
1171 \DeclareRobustCommand{\QCTLP}
1172   {\ttxname{Q}\CTLP}
1173 \DeclareRobustCommand{\ECTLP}
1174   {\ensuremath{\exists}\CTLP}
1175 \DeclareRobustCommand{\UCTLP}
1176   {\ensuremath{\forall}\CTLP}
1177
1178 % Full Computation Tree Logic
1179 \cmdtxtopname{CTLS}[CTL*]
1180
1181 % Quantified Full Computation Tree Logic
1182 \DeclareRobustCommand{\QCTLS}
1183   {\ttxname{Q}\CTLS}
1184 \DeclareRobustCommand{\ECTLS}
1185   {\ensuremath{\exists}\CTLS}
1186 \DeclareRobustCommand{\UCTLS}
1187   {\ensuremath{\forall}\CTLS}

1188 %** Syntax *****%

\E, \A ...
1189 \usrmth{E}{-}{sym}
1190 \usrmth{A}{-}{sym}

1191 %** Semantics *****%
...

1192 %** Strategic Logics I *****%

```



```

\ATL, ... ...
1193 % Alternating Temporal Logic
1194 \cmdtxtoparname{ATL}
1195
1196 % Quantified Alternating Temporal Logic
1197 \DeclareRobustCommand{\QATL}
1198   {\{\txtname{Q}\}\ATL}
1199 \DeclareRobustCommand{\EATL}
1200   {\ensuremath{\exists}\ATL}
1201 \DeclareRobustCommand{\UATL}
1202   {\ensuremath{\forall}\ATL}
1203
1204 % Improved Alternating Temporal Logic
1205 \cmdtxtoparname{ATLP}[ATL$^{+}$]
1206
1207 % Quantified Improved Alternating Temporal Logic
1208 \DeclareRobustCommand{\QATLP}
1209   {\{\txtname{Q}\}\ATLP}
1210 \DeclareRobustCommand{\EATLP}
1211   {\ensuremath{\exists}\ATLP}
1212 \DeclareRobustCommand{\UATLP}
1213   {\ensuremath{\forall}\ATLP}
1214
1215 % Full Alternating Temporal Logic
1216 \cmdtxtoparname{ATLS}[ATL*]
1217
1218 % Quantified Full Alternating Temporal Logic
1219 \DeclareRobustCommand{\QATLS}
1220   {\{\txtname{Q}\}\ATLS}
1221 \DeclareRobustCommand{\EATLS}
1222   {\ensuremath{\exists}\ATLS}
1223 \DeclareRobustCommand{\UATLS}
1224   {\ensuremath{\forall}\ATLS}
1225 %** Syntax *****%

\EEs, \AA11 ...
1226 \DeclareRobustCommand{\EEs}[1]
1227   {\mth{\argmid{\langle!\rangle}{\defval{#1}{\emptyset}}{\rangle!\rangle}}
1228 \DeclareRobustCommand{\AA11}[1]
1229   {\mth{\argmid{\left[\left[\defval{#1}{\emptyset}]{\right]\right}}}}
1230 %** Semantics *****%

\CGS ...
1231 \cmdtxtname{CGS}

\CGSStr, ... ...
1232 \newcommand{\cgsstr}{G}
1233 \usrmthlatupp{CGS}{Str}{str}[\cgsstr]

\AgnSet, ... ...
1234 \newcommand{\agnsym}{a}
1235 \newcommand{\agnset}{Ag}
1236 \cmdmthsetext{Agn}[\agnset][\agnsym]

\PosSet, ... ...
1237 \providecommand{\possym}{v}
1238 \providecommand{\posset}{Ps}
1239 \cmdmthsetext{Pos}[\posset][\possym]
1240 \cmdmthsymelm{ipos}[\possym_{I}]
1241 \cmdmthsymelm{fpos}[\possym_{F}]
1242 \cmdmthset{PPos}[\posset_{PlrSym}]

```

```

1243 \cmdmthsymelm{ppos}[\possym_{\PlrSym}]
1244 \cmdmthset{OPos}[\posset_{\OppSym}]
1245 \cmdmthsymelm{opos}[\possym_{\OppSym}]

\SttSet, ... ...
1246 \newcommand{\sttsym}{s}
1247 \newcommand{\sttset}{St}
1248 \cmdmthsetext{Stt}[\sttset][\sttsym]
1249 \cmdmthset{IStt}[\sttset_{I}]
1250 \cmdmthsymelm{istt}[\sttsym_{I}]
1251 \cmdmthset{FStt}[\sttset_{F}]
1252 \cmdmthsymelm{fstt}[\sttsym_{F}]

\ActSet, ... ...
1253 \newcommand{\actsym}{c}
1254 \newcommand{\actset}{Ac}
1255 \cmdmthsetext{Act}[\actset][\actsym]

\DecSet, ... ...
1256 \newcommand{\decsym}{d}
1257 \newcommand{\decset}{Dc}
1258 \cmdmthsetext{Dec}[\decset][\decsym]

\movFun ... ...
1259 \newcommand{\movsym}{\tau}
1260 \cmdmthfun{mov}[\movsym]

\HstSet, ... ...
1261 \providecommand{\hstsym}{\rho}
1262 \providecommand{\hstset}{Hst}
1263 \cmdmthsetext{Hst}[\hstset][\hstsym]
1264 \cmdmthset{PHst}[\hstset_{\PlrSym}]
1265 \cmdmthsymelm{phst}[\hstsym_{\PlrSym}]
1266 \cmdmthset{OHst}[\hstset_{\OppSym}]
1267 \cmdmthsymelm{ohst}[\hstsym_{\OppSym}]
1268 \cmdmthfun{hst}

\PlaySet, \playFun ... ...
1269 \providecommand{\playsym}{\pi}
1270 \providecommand{\playset}{Play}
1271 \cmdmthsetext{Play}[\playset][\playsym]
1272 \cmdmthfun{play}

\StrSet, ... ...
1273 \providecommand{\strsym}{\sigma}
1274 \providecommand{\strset}{Str}
1275 \cmdmthsetext{Str}[\strset][\strsym]
1276 \cmdmthset{PStr}[\strset_{\PlrSym}]
1277 \cmdmthsymelm{pstr}[\strsym_{\PlrSym}]
1278 \cmdmthset{OStr}[\strset_{\OppSym}]
1279 \cmdmthsymelm{ostr}[\strsym_{\OppSym}]

\PrfSet, \prfFun ... ...
1280 \providecommand{\prfsym}{\xi}
1281 \providecommand{\prfset}{Prf}
1282 \cmdmthsetext{Prf}[\prfset][\prfsym]

1283 %** Strategic Logics II *****%

\SL, ... ...
1284 % Strategy Logic
1285 \cmdtxtoparname{SL}
1286

```

```

1287 \DeclareRobustCommand{\ESL}
1288   {\ensuremath{\exists}\SL}
1289 \DeclareRobustCommand{\USL}
1290   {\ensuremath{\forall}\SL}
1291
1292 \DeclareRobustCommand{\FSL}
1293   {\{\textname{F}\}\SL}
1294
1295 \DeclareRobustCommand{\EFSL}
1296   {\ensuremath{\exists}\FSL}
1297 \DeclareRobustCommand{\UFSL}
1298   {\ensuremath{\forall}\FSL}
1299
1300 % One-Goal Strategy Logic
1301 \DeclareRobustCommandx{\OGSL}[3][1=, 2=, 3=]
1302   {\SL[#1][#2][lg\arglef{,}{#3}]}
1303
1304 \DeclareRobustCommand{\EOGSL}
1305   {\ensuremath{\exists}\OGSL}
1306 \DeclareRobustCommand{\UOGSL}
1307   {\ensuremath{\forall}\OGSL}
1308
1309 \DeclareRobustCommand{\FOGSL}
1310   {\{\textname{F}\}\OGSL}
1311
1312 \DeclareRobustCommand{\EFOGSL}
1313   {\ensuremath{\exists}\FOGSL}
1314 \DeclareRobustCommand{\UFOGSL}
1315   {\ensuremath{\forall}\FOGSL}
1316
1317 % Conjunctive-Goal Strategy Logic
1318 \DeclareRobustCommandx{\CGSL}[3][1=, 2=, 3=]
1319   {\SL[#1][#2][cg\arglef{,}{#3}]}
1320
1321 \DeclareRobustCommand{\ECGSL}
1322   {\ensuremath{\exists}\CGSL}
1323 \DeclareRobustCommand{\UCGSL}
1324   {\ensuremath{\forall}\CGSL}
1325
1326 \DeclareRobustCommand{\FCGSL}
1327   {\{\textname{F}\}\CGSL}
1328
1329 \DeclareRobustCommand{\EFCGSL}
1330   {\ensuremath{\exists}\FCGSL}
1331 \DeclareRobustCommand{\UFCGSL}
1332   {\ensuremath{\forall}\FCGSL}
1333
1334 % Disjunctive-Goal Strategy Logic
1335 \DeclareRobustCommandx{\DGPL}[3][1=, 2=, 3=]
1336   {\SL[#1][#2][dg\arglef{,}{#3}]}
1337
1338 \DeclareRobustCommand{\EDGPL}
1339   {\ensuremath{\exists}\DGPL}
1340 \DeclareRobustCommand{\UDGPL}
1341   {\ensuremath{\forall}\DGPL}
1342
1343 \DeclareRobustCommand{\FDGPL}
1344   {\{\textname{F}\}\DGPL}
1345
1346 \DeclareRobustCommand{\EFDGPL}
1347   {\ensuremath{\exists}\FDGPL}
1348 \DeclareRobustCommand{\UFDGPL}
1349   {\ensuremath{\forall}\FDGPL}

```

```

1350
1351 % Alternating-Goal Strategy Logic
1352 \DeclareRobustCommand{\AGSL}[3][1=, 2=, 3=]
1353   {\SL[#1][#2][ag\arglef{,}{#3}]}
1354
1355 \DeclareRobustCommand{\EAGSL}
1356   {\ensuremath{\exists}\AGSL}
1357 \DeclareRobustCommand{\UAGSL}
1358   {\ensuremath{\forall}\AGSL}
1359
1360 \DeclareRobustCommand{\FAGSL}
1361   {\{\textname{F}\}\xGSL}
1362
1363 \DeclareRobustCommand{\EFAGSL}
1364   {\ensuremath{\exists}\FAGSL}
1365 \DeclareRobustCommand{\UFAGSL}
1366   {\ensuremath{\forall}\FAGSL}
1367
1368 % Extended-Goal Strategy Logic
1369 \DeclareRobustCommand{\EGSL}[3][1=, 2=, 3=]
1370   {\SL[#1][#2][eg\arglef{,}{#3}]}
1371
1372 \DeclareRobustCommand{\EEGSL}
1373   {\ensuremath{\exists}\EGSL}
1374 \DeclareRobustCommand{\UEGSL}
1375   {\ensuremath{\forall}\EGSL}
1376
1377 \DeclareRobustCommand{\FEGSL}
1378   {\{\textname{F}\}\xGSL}
1379
1380 \DeclareRobustCommand{\EFEGSL}
1381   {\ensuremath{\exists}\FEGSL}
1382 \DeclareRobustCommand{\UFEGSL}
1383   {\ensuremath{\forall}\FEGSL}
1384
1385 % Boolean-Goal Strategy Logic
1386 \DeclareRobustCommand{\BGSL}[3][1=, 2=, 3=]
1387   {\SL[#1][#2][bg\arglef{,}{#3}]}
1388
1389 \DeclareRobustCommand{\EBGSL}
1390   {\ensuremath{\exists}\BGSL}
1391 \DeclareRobustCommand{\UBGSL}
1392   {\ensuremath{\forall}\BGSL}
1393
1394 \DeclareRobustCommand{\FBGSL}
1395   {\{\textname{F}\}\xGSL}
1396
1397 \DeclareRobustCommand{\EFBGSL}
1398   {\ensuremath{\exists}\FBGSL}
1399 \DeclareRobustCommand{\UFBGSL}
1400   {\ensuremath{\forall}\FBGSL}
1401
1402 % Nested-Goal Strategy Logic
1403 \DeclareRobustCommand{\NGSL}[3][1=, 2=, 3=]
1404   {\SL[#1][#2][ng\arglef{,}{#3}]}
1405
1406 \DeclareRobustCommand{\ENGSL}
1407   {\ensuremath{\exists}\NGSL}
1408 \DeclareRobustCommand{\UNGSL}
1409   {\ensuremath{\forall}\NGSL}
1410
1411 \DeclareRobustCommand{\FNGSL}
1412   {\{\textname{F}\}\xGSL}

```

```

1413
1414 \DeclareRobustCommand{\EFNGSL}
1415   {\ensuremath{\exists}\FNGSL}
1416 \DeclareRobustCommand{\UFNGSL}
1417   {\ensuremath{\forall}\FNGSL}
1418
1419 % Undefined-Goal Strategy Logic
1420 \DeclareRobustCommandx{\XGSL}[3][1=, 2=, 3=]
1421   {\SL[#1][#2][xg\arglef{,}{#3}]}
1422
1423 \DeclareRobustCommand{\EXGSL}
1424   {\ensuremath{\exists}\XGSL}
1425 \DeclareRobustCommand{\UXGSL}
1426   {\ensuremath{\forall}\XGSL}
1427
1428 \DeclareRobustCommand{\FXGSL}
1429   {\{\txtname{F}\}\xGSL}
1430
1431 \DeclareRobustCommand{\EFXGSL}
1432   {\ensuremath{\exists}\FXGSL}
1433 \DeclareRobustCommand{\UFXGSL}
1434   {\ensuremath{\forall}\FXGSL}
1435 %** Syntax *****%

```

\BndSet,

```

1436 \newcommand{\bndsym}{\flat}
1437 \newcommand{\bndset}{Bn}
1438 \cmdmthsetext{Bnd}[\bndset][\bndsym]
1439 \usrmth{bnd}{\}{argfun}

```

\psn ...

```

1440 \usrmth{psn}{\}{argfun}

```

```

1441 %** Semantics *****%

```

\nxtFun ...

```

1442 \cmdmthfun{nxt}

1443 \fi
1444 %*****%
1445 %*****%
1446 %** Macros for Automata *****%
1447 %*****%
1448 \ifaut@
1449 %** Finite Word Automata *****%

```

\DWA,

```

1450 \cmdtxtoparname{DWA}\cmdtxtoparname{NWA}\cmdtxtoparname{UWA}\cmdtxtoparname{AWA}
1451
1452 \cmdtxtoparname{DFW}\cmdtxtoparname{NFW}\cmdtxtoparname{UFW}\cmdtxtoparname{AFW}
1453 \cmdtxtoparname{DBW}\cmdtxtoparname{NBW}\cmdtxtoparname{UBW}\cmdtxtoparname{ABW}
1454 \cmdtxtoparname{DCW}\cmdtxtoparname{NCW}\cmdtxtoparname{UCW}\cmdtxtoparname{ACW}
1455 \cmdtxtoparname{DPW}\cmdtxtoparname{NPW}\cmdtxtoparname{UPW}\cmdtxtoparname{APW}
1456 \cmdtxtoparname{DRW}\cmdtxtoparname{NRW}\cmdtxtoparname{URW}\cmdtxtoparname{ARW}
1457 \cmdtxtoparname{DSW}\cmdtxtoparname{NSW}\cmdtxtoparname{USW}\cmdtxtoparname{ASW}
1458 \cmdtxtoparname{DMW}\cmdtxtoparname{NMW}\cmdtxtoparname{UMW}\cmdtxtoparname{AMW}

```

\GFG, \PD,

```

1459 \cmdtxtoparname{GFG}
1460
1461 \cmdtxtoparname{PD}
1462
1463 % % ...

```

```

1464 %** Syntax ****

\AutName, ... ...
1465 \newcommand{\autname}{A}
1466 \usrmthlatupp{Aut}{Name}{name}[\autname]
1467 \newcommand{\autset}{Aut}
1468 \cmdmthset{Aut}[\autset]

\WAutSet ...
1469 \newcommand{\wautset}{WAut}
1470 \cmdmthset{WAut}[\wautset]

\SttSet, ... ...
1471 \def\sttsym{q}
1472 \def\sttset{Q}
1473 \cmdmthsetext{Stt}[\sttset][\sttsym]
1474 \cmdmthset{IStt}[\sttset_{I}]
1475 \cmdmthsymelm{istt}[\sttsym_{I}]
1476 \cmdmthset{FStt}[\sttset_{F}]
1477 \cmdmthsymelm{fstt}[\sttsym_{F}]

\SymSet, ... ...
1478 \newcommand{\symsym}{\sigma}
1479 \newcommand{\symset}{\Sigma}
1480 \cmdmthsetext{Sym}[\symset][\symsym]

\trnFun ...
1481 \newcommand{\trnsym}{\delta}
1482 \cmdmthfun{trn}[\trnsym]

1483 %** Semantics ****

\LangFun ...
1484 \cmdmthfun{Lang}[L]

\WrdSet, ... ...
1485 \newcommand{\wrdsym}{w}
1486 \newcommand{\wrdset}{Wr}
1487 \cmdmthsetext{Wrd}[\wrdset][\wrdsym]

1488 %** Finite Tree Automata ****

\DTA, ... ...
1489 \cmdtxtoparname{DTA}\cmdtxtoparname{NTA}\cmdtxtoparname{UTA}\cmdtxtoparname{ATA}
1490
1491 \cmdtxtoparname{DFT}\cmdtxtoparname{NFT}\cmdtxtoparname{UFT}\cmdtxtoparname{AFT}
1492 \cmdtxtoparname{DBT}\cmdtxtoparname{NBT}\cmdtxtoparname{UBT}\cmdtxtoparname{ABT}
1493 \cmdtxtoparname{DCT}\cmdtxtoparname{NCT}\cmdtxtoparname{UCT}\cmdtxtoparname{ACT}
1494 \cmdtxtoparname{DPT}\cmdtxtoparname{NPT}\cmdtxtoparname{UPT}\cmdtxtoparname{APT}
1495 \cmdtxtoparname{DRT}\cmdtxtoparname{NRT}\cmdtxtoparname{URT}\cmdtxtoparname{ART}
1496 \cmdtxtoparname{DST}\cmdtxtoparname{NST}\cmdtxtoparname{UST}\cmdtxtoparname{AST}
1497 \cmdtxtoparname{DMT}\cmdtxtoparname{NMT}\cmdtxtoparname{UMT}\cmdtxtoparname{AMT}

1498 %** Syntax ****

\TAutSet ...
1499 \newcommand{\tautset}{TAut}
1500 \cmdmthset{TAut}[\tautset]

\DirSet, ... ...
1501 \newcommand{\dirsym}{d}
1502 \newcommand{\dirset}{\Lambda}
1503 \cmdmthsetext{Dir}[\dirset][\dirsym]

```

```

1504 %%** Semantics *****%%

\TreeSet, ... ...
1505 \newcommand{\treesym}{T}
1506 \newcommand{\treeset}{Tr}
1507 \cmdmthsetext{Tree}[\treeset][\treesym]

\wotFun ...
1508 \cmdmthfun{wot}

1509 \fi
1510 %*****%%
1511 %*****%%
1512 %%** Format Tricks *****%%
1513 %*****%%
1514 \iffirm@

... ...
1515 %...

1516 \fi
1517 %*****%%
1518 %*****%%
1519 %%** Figure Tricks *****%%
1520 %*****%%
1521 \iffig@

... ...
1522 %...

1523 \fi
1524 %*****%%
1525 %*****%%
1526 %%** Table Tricks *****%%
1527 %*****%%
1528 \iftab@

... ...
1529 %...

1530 \fi
1531 %*****%%
1532 %*****%%
1533 %%** Algorithm Tricks *****%%
1534 %*****%%
1535 \ifalg@

1536 \RequirePackage[ruled,vlined]{algorithm2e}
1537 \DontPrintSemicolon

\Signature ...
1538 \SetKw{Signature}{signature}

\Macro, ... ...
1539 \SetKwFor{Macro}{macro}{}{}
1540 \SetKwFor{Function}{function}{}{}
1541 \SetKwFor{Procedure}{procedure}{}{}

\Let ...
1542 \SetKwFor{Let}{let}{in}{}

```

```

\GoTo, ... ...
1543 \SetKw{GoTo}{goto}
1544 \SetKw{Break}{break}
1545 \SetKw{Continue}{continue}

\MIf, ... ...
1546 \SetKwIF{MIf}{MElseIf}{MElse}{\#if}{\#then}{\#else \#if}{\#else}{\#endif}

\nlr ...
1547 \DeclareRobustCommand{\nlr}[1]
1548   {\addtocounter{AlgoLine}{1}%
1549   \nlset{\arabic{AlgoLine}-\addtocounter{AlgoLine}{#1}\arabic{AlgoLine}}}

1550 \fi
1551 %%*****
1552 %%*****
1553 %%** Auxiliary Tricks *****
1554 %%*****
1555 \ifaux@

... ...
1556 %%...

1557   \ifcrv@

... ...
1558     %%...

1559   \else

... ...
1560     %%...

1561   \fi
1562 \fi
1563 %%*****
1564 \endinput
1565 \</package>

```


2 Change History

v0.0

General: First public release 1

v0.1

General: Algorithm tricks 1

3 Index

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