$Emacs\ TeQ:\ (T_{\hbox{\footnotesize E}}X\ +\ Quail)$

Input Method written in Quail for entering \LaTeX math expressions

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1	\mathbf{A}	lphabet related stuff:	
1.	1 (Greek	
gi	fs/ex	cample-greek.gif	

Table 1: Main Greek letters						
key	sym	latex (lower greek)	key	sym	latex (upper greek)	
a.	α	\alpha	Α.	A	A	
b.	β	\beta	В.	B	В	
c.	ψ	\psi	C.	Ψ	\Psi	
d.	δ	\delta	D.	Δ	\Delta	
e.	ϵ	\epsilon	E.	E	E	
f.	ϕ	\phi	F.	Φ	\Phi	
g.	γ	\gamma	G.	Γ	\Gamma	
h.	η	\eta	Н.	H	Н	
i.	ι	\iota	I.	I	I	
j.	ξ	\xi	J.	Ξ	\Xi	
k.	κ	\kappa	K.	K	K	
1.	λ	\lambda	L.	Λ	\Lambda	
m.	μ	\mu	M.	M	M	
n.	ν	\nu	N.	N	N	
0.	o	0	0.	O	0	
p.	π	\pi	Р.	Π	\Pi	
r.	ho	\rho	R.	P	P	
s.	σ	\sigma	S.	\sum	\Sigma	
t.	au	\tau	T.	T	T	
th.	θ	\theta	Th.	Θ	\Theta	
u.	v	\upsilon	U.	Υ	\Upsilon	
W.	ω	\omega	W.	Ω	\Omega	
x.	χ	\chi	Х.	X	X	
z.	ζ	\zeta	Z.	Z	Z	

Table 2: Variation Greek letters				
key	sym	latex (lower greek)		
е	ε	\varepsilon		
f	φ	\varphi		
s	ς	\varsigma		
t	ϑ	\vartheta		
r	ϱ	\varrho		
p	ϖ	\varpi		
k	\varkappa	\varkappa		

1.2 Matrix (aka bold)

Um

Vm

Wm

 \mathtt{Xm}

Ym

Zm

 Om

 \mathbf{U}

 \mathbf{V}

 \mathbf{W}

 \mathbf{X}

Y

 \mathbf{Z}

0

 \mathbf{U}

 $\verb|\mathbf{V}|$

 $\verb|\mathbf{W}|$

 \mathbf{X}

 \mathbf{Y}

 \mathbf{Z}

 $\mathbf{0}$

key	sym	latex (upper bold)	key	sym	latex (lower bold)
Am	A	\mathbf{A}	am	a	\mathbf{a}
Bm	${f B}$	\mathbf{B}	bm	b	\mathbf{b}
Cm	\mathbf{C}	\mathbf{C}	cm	\mathbf{c}	\mathbf{c}
Dm	\mathbf{D}	\mathbf{D}	dm	\mathbf{d}	\mathbf{d}
Em	${f E}$	\mathbf{E}	em	\mathbf{e}	\mathbf{e}
Fm	${f F}$	\mathbf{F}	fm	\mathbf{f}	\mathbf{f}
Gm	${f G}$	\mathbf{G}	gm	${f g}$	\mathbf{g}
Hm	\mathbf{H}	\mathbf{H}	hm	\mathbf{h}	\mathbf{h}
Im	Ι	\mathbf{I}	im	i	\mathbf{i}
Jm	${f J}$	\mathbf{J}	jm	j	\mathbf{j}
Km	\mathbf{K}	\mathbf{K}	km	\mathbf{k}	\mathbf{k}
Lm	${f L}$	\mathbf{L}	lm	1	1
Mm	${f M}$	\mathbf{M}	mm	\mathbf{m}	\mathbf{m}
Nm	\mathbf{N}	\mathbf{N}	nm	\mathbf{n}	\mathbf{n}
Om	O	$\mathbb{0}$	om	O	\mathbf{o}
Pm	\mathbf{P}	\mathbf{P}	pm	\mathbf{p}	\mathbf{p}
Qm	${f Q}$	$Mathbf\{Q\}$	qm	${f q}$	\mathbf{q}
Rm	\mathbf{R}	\mathbf{R}	rm	${f r}$	\mathbf{r}
Sm	\mathbf{S}	\mathbf{S}	sm	\mathbf{s}	\mathbf{s}
Tm	${f T}$	\mathbf{T}	tm	\mathbf{t}	\mathbf{t}

 \mathbf{u}

 $\verb|\mathbf{v}|$

 $\verb|\mathbf{w}|$

 \mathbf{x}

 \mathbf{y}

 \mathbf{z}

 $\mathbf{0}$

 \mathbf{u}

 \mathbf{v}

 \mathbf{w}

 \mathbf{x}

 \mathbf{y}

 \mathbf{Z}

 $\mathbf{0}$

um

vm

wm

xm

ym

zm

 ${\tt Om}$

Table 3: Matrix

1.3 Vector & Hat

		Table 4: Vect	tors a	nd Hat	S
key	sym	latex (vec)	key	sym	latex (hat)
av	\vec{a}	\vec{a}	ah	\hat{a}	\hat{a}
bv	$ec{b}$	\vec{b}	bh	\hat{b}	\hat{b}
cv	$ec{c}$	\vec{c}	ch	\hat{c}	$\hat\{c\}$
dv	\vec{d}	\vec{d}	dh	\hat{d}	\hat{d}
ev	$ec{e}$	\vec{e}	eh	\hat{e}	\hat{e}
fv	$ec{f}$	\vec{f}	fh	\hat{f}	\hat{f}
gv	$ec{g}$	\vec{g}	gh	\hat{g}	$\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ $
hv	$ec{ec{g}} {ec{h}}$	$\operatorname{\vec}\{h\}$	hh	\hat{h}	\hat{h}
iv	$ec{i}$	\vec{i}	ih	\hat{i}	\hat{i}
jv	$ec{j} \over ec{k}$	\vec{j}	jh	$\hat{j} \ \hat{k}$	\hat{j}
kv		\vec{k}	kh		\hat{k}
lv	$ec{l}$	$\sqrt{2}$	lh	\hat{l}	$\hat{1}$
mv	\vec{m}	\vec{m}	mh	\hat{m}	$\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ $
nv	\vec{n}	$\operatorname{vec}\{n\}$	nh	\hat{n}	$\ \hat\{n\}$
ov	\vec{o}	\vec{o}	oh	\hat{o}	\hat{o}
pv	$ec{p}$	\vec{p}	ph	\hat{p}	$\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ $
qv	$ec{q}$	\vec{q}	qh	\hat{q}	$\ \hat{q}$
rv	$ec{r}$	\vec{r}	rh	\hat{r}	\hat{r}
sv	\vec{s}	\vec{s}	sh	\hat{s}	\hat{s}
tv	$ec{t}$	\vec{t}	th	\hat{t}	\hat{t}
uv	\vec{u}	\vec{u}	uh	\hat{u}	\hat{u}
vv	\vec{v}	\vec{v}	vh	\hat{v}	$\hat\{v\}$
WV	$ec{w}$	\vec{w}	wh	\hat{w}	\hat{w}
xv	\vec{x}	\vec{x}	xh	\hat{x}	\hat{x}
yv	$ec{y}$	\vec{y}	yh	\hat{y}	\hat{y}
zv	$ec{z}$	\vec{z}	zh	\hat{z}	\hat{z}

1.4 Dots

Table 5: Dots					
key	sym	latex (vec)	key	sym	latex (hat)
ad	\dot{a}	$\det\{a\}$	Ad	\dot{a}	\dot{A}
bd	\dot{b}	$\det\{b\}$	Bd	\dot{b}	\dot{B}
cd	\dot{c}	$\det\{c\}$	Cd	\dot{c}	\dot{C}
dd	\dot{d}	$\det\{d\}$	Dd	\dot{d}	\dot{D}
ed	\dot{e}	\dot{e}	Ed	\dot{e}	\dot{E}
fd	\dot{f}	$\det\{f\}$	Fd	\dot{f}	\dot{F}
gd	$\dot{g} \ \dot{h}$	$\det\{g\}$	Gd	\dot{g}	\dot{G}
hd		$\det\{h\}$	Hd	\dot{h}	\dot{H}
id	\dot{i}	\dot{i}	Id	\dot{i}	\dot{I}
jd	\dot{j}	\dot{j}	Jd	\dot{j}	\dot{J}
kd	\dot{k}	$\det\{k\}$	Kd	\dot{k}	\dot{K}
ld	İ	$\det\{1\}$	Ld	į	\dot{L}
md	\dot{m}	$\det\{m\}$	Md	\dot{m}	\dot{M}
nd	\dot{n}	$\det\{n\}$	Nd	\dot{n}	\dot{N}
od	\dot{o}	\dot{o}	Od	\dot{o}	$\det\{0\}$
pd	\dot{p}	$\det\{p\}$	Pd	\dot{p}	\dot{P}
qd	\dot{q}	\det{q}	Qd	\dot{q}	\dot{Q}
rd	\dot{r}	$\det\{r\}$	Rd	\dot{r}	\dot{R}
sd	\dot{s}	\dot{s}	Sd	\dot{s}	\dot{S}
td	\dot{t}	\dot{t}	Td	\dot{t}	\dot{T}
ud	\dot{u}	$\det\{u\}$	Ud	\dot{u}	\dot{U}
vd	\dot{v}	\dot{v}	Vd	\dot{v}	\dot{V}
wd	\dot{w}	\dot{w}	Wd	\dot{w}	\dot{W}
xd	\dot{x}	\dot{x}	Xd	\dot{x}	\dot{X}
yd	\dot{y}	\dot{y}	Yd	\dot{y}	\dot{Y}
zd	\dot{z}	$\det\{z\}$	Zd	\dot{z}	\det{Z}

1.5 DDots

	Table 6: DDots					
key	sym	latex (vec)	key	sym	latex (hat)	
ad.	\ddot{a}	\dot{a}	Ad.	\ddot{a}	\ddot{A}	
bd.	\ddot{b}	\dot{b}	Bd.	\ddot{b}	\ddot{B}	
cd.	\ddot{c}	\ddot{c}	Cd.	\ddot{c}	\ddot{C}	
dd.	\ddot{d}	\dot{d}	Dd.	\ddot{d}	\ddot{D}	
ed.	\ddot{e}	\ddot{e}	Ed.	\ddot{e}	\ddot{E}	
fd.	\ddot{f}	\dot{f}	Fd.	\ddot{f}	\ddot{F}	
gd.	\ddot{g}	\dot{g}	Gd.	$\ddot{\ddot{g}}$	\ddot{G}	
hd.	h	$\displaystyle \dot\{h\}$	Hd.	\ddot{h}	\ddot{H}	
id.	\ddot{i}	\ddot{i}	Id.	\ddot{i}	\ddot{I}	
jd.	\ddot{j}	\ddot{j}	Jd.	$\ddot{j} \ \ddot{k}$	\ddot{J}	
kd.	\ddot{k}	\dot{k}	Kd.		\ddot{K}	
ld.	\ddot{l}	$\dot{1}$	Ld.	\ddot{l}	\ddot{L}	
md.	\ddot{m}	$\dot\{m\}$	Md.	\ddot{m}	\ddot{M}	
nd.	\ddot{n}	$\displaystyle \dot\{n\}$	Nd.	\ddot{n}	\ddot{N}	
od.	\ddot{o}	\ddot{o}	Od.	\ddot{o}	\ddot{0}	
pd.	\ddot{p}	$\displaystyle \dot{p}$	Pd.	\ddot{p}	\ddot{P}	
qd.	\ddot{q}	\dot{q}	Qd.	\ddot{q}	\ddot{Q}	
rd.	\ddot{r}	\dot{r}	Rd.	\ddot{r}	\ddot{R}	
sd.	\ddot{s}	\ddot{s}	Sd.	\ddot{s}	\ddot{S}	
td.	\ddot{t}	\dot{t}	Td.	\ddot{t}	\ddot{T}	
ud.	\ddot{u}	$\displaystyle \dot\{u\}$	Ud.	\ddot{u}	\ddot{U}	
vd.	\ddot{v}	\dot{v}	Vd.	\ddot{v}	\ddot{V}	
wd.	\ddot{w}	\dot{w}	Wd.	\ddot{w}	\ddot{W}	
xd.	\ddot{x}	\dot{x}	Xd.	\ddot{x}	\ddot{X}	
yd.	\ddot{y}	$\displaystyle \texttt{\ddot}\{y\}$	Yd.	\ddot{y}	\ddot{Y}	
zd.	\ddot{z}	\ddot{z}	Zd.	\ddot{z}	\ddot{Z}	

2 Function Expansion

Table 7: Keys that will execute some elisp functions

key	trans	sym	description
/	quail-TeQ-frac		fraction on previous
eq	quail-TeQ-equation		equation environment
al	quail-TeQ-aligned		aligned environment
el	quail-TeQ-endofline		end of line

3 Symbols:

3.1 Dots related

Table 8: Multiple Dots Related

key	trans	sym	description
	\dots		3 dots
.v	\vdots	:	vertical dots
.d	\ddots	٠	diagonale dots
.1	\ldots		low dots

3.2 Geometry

Table 9:

Table 9.							
key	trans	sym	description				
perp	\perp						
perpn	\perp	1					
para	\parallel						
paran	\nparallel	#					
ang	\angle	_					
ang.	\measuredangle	4					

3.3 Letter like

Table 10: Letter-like Symbold

key	trans	sym	description
inf	\infty	∞	
ex	$\ensuremath{\texttt{\c v}}$	\exists	
ex.	\nexists	∄	
fa	\forall	\forall	
hb	\hbar	\hbar	
hb.	\hslash	\hbar	
dd	\mathbf{d}	d	
dd.	$\operatorname{\mathtt{ar{p}artial}}$	∂	
ii	$\$ imath	\imath	
jj	$\$ jmath	J	
nab	\nabla	∇	
cm	\checkmark	✓	

3.4 Spaces

Table 11: Space Symbold

	Table 11.	Space	by mbora
key	trans	sym	description
qu			
quu	\qquad		

3.5 Arrows:

3.5.1 Single:

Table 12: Single Line arrows

	Table 12. Single Line arrows					
key	trans	sym	description			
<-	\leftarrow	\leftarrow	left arrow			
->	\rightarrow	\rightarrow	right arrow			
-^	\uparrow	\uparrow	up arrow			
-v	\downarrow	\downarrow	down arrow			
<->	$\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ $	\leftrightarrow	left-right arrow			
<-n	\nleftarrow	₩	not left arrow			
->n	\nrightarrow	$\rightarrow \rightarrow$	not right arrow			
-^n	\nuparrow	7	not up arrow			
-vn	\ndownarrow	ŧ	not down arrow			
<->	\nleftrightarrow	$\leftrightarrow\!$	not left-right arrow			
>	\longrightarrow	\longrightarrow				
<	$\label{longleftarrow}$	\leftarrow				
->	$\mbox{\tt mapsto}$	\mapsto				

3.5.2 Double:

Table 13: Double Line arrows

	Table 13. Double Line arrows					
key	trans	sym	description			
<=	\Leftarrow	\Leftarrow	left arrow			
=>	\Rightarrow	\Rightarrow	right arrow			
=^	\Uparrow	\uparrow	up arrow			
=v	\Downarrow	\Downarrow	down arrow			
<=>	\Leftrightarrow	\Leftrightarrow	left-right arrow			
iff	\Leftrightarrow	\Leftrightarrow	left-right arrow			
<=n	\nLeftarrow	#	left arrow			
=>n	\n Rightarrow	\Rightarrow	right arrow			
<=>n	\n	\Leftrightarrow	left-right arrow			
iffn	\n	⇔	left-right arrow			
<==>	\Longleftrightarrow	\iff	left-right arrow			
<==	\Longleftarrow	$ \leftarrow $	left-right arrow			
==>	\Longrightarrow	\Longrightarrow	left-right arrow			

3.5.3 Long arrow with top-bottom entries

Table 14: Long arrow Line arrows

	10010 11. 20116		
key	trans	sym	description
<	<pre>\xleftarrow[]{ }</pre>	-	
>	<pre>\xrightarrow[]{}</pre>	$\xrightarrow{\square}$	
===>	<pre>\xRightarrow[]{ }</pre>	\Rightarrow	mathtools lib required
<===	<pre>\xLeftarrow[]{ }</pre>	-	mathtools lib required

4 Symbol Modification

4.1 Accents (variable decoration?)

	Table	15:	
key	trans	sym	description
vec			
bar		$\bar{\Box}$	
hat	$\hat{\}$	$\hat{\Box}$	
dot		$\dot{\Box}$	
dot.		$\ddot{\Box}$	
dot	$\dot{ddot}{}$		
dot		<u> </u>	
dag	^\dagger	□ [†]	
dag.	$^\delta$	□ ‡	
*	^*	□*	
deg	^\circ	□°	
tr	^T	\Box^T	
tr.	^{-T}	\Box^{-T}	

4.2 Superscripts & Subsripts (power & lower)

Table 16:					
key	sym	trans	key	sym	trans
^		^{	_		_{
pp		^{	11		_{
p0	\Box^0	^ 0	10	\square_0	_0
p1	\Box^1	^1	11	\square_1	_1
p2	\Box^2	^2	12	\square_2	_2
р3	\square^3	^3	13	\square_3	_3
p4	\Box^4	^4	14	\square_4	_4
pn	\Box^n	^n	lnn	\square_n	_n
px	\Box^x	^x	li	\Box_i	_i
		<pre>{ }</pre>	^^		{ }
		<pre>_{ } }</pre>	^^.		^{ }
		<pre></pre>	^^		

5 Binary Operation Symbols

5.1 Simple Arithmetics:

Table 17: Simple Arithmetics operations

key	trans	sym
+-	\pm	±
-+	\mp	干
*x	\times	×
::	\div	÷
**	\cdot	•

5.2 Binary Relations:

	Table 18:					
key	trans	sym	description			
=n	\neq	\neq				
=.	\equiv	≡				
=?	\stackrel{?}{=}	<u>?</u>				
= y	\stackrel{\checkmark}{=}	<u>√</u>				
3=	\equiv	\equiv				
=:	\coloneqq	:=				
:=	\coloneqq	\coloneqq				
~.	\sim	~				
~n	\nsim	~				
~~	\approx	\approx				
<n< td=""><td>\nless</td><td>\$</td><td></td></n<>	\nless	\$				
<.	\leq	\leq				
<.n	\nleq	≰				
</td <td>\stackrel{?}{<}</td> <td>?</td> <td></td>	\stackrel{?}{<}	?				
<у	\stackrel{\checkmark}{<}					
<.?	\stackrel{?}{\leq}	? <u><</u>				
<.y	\stackrel{\checkmark}{\leq}	<u><</u>				
«	\11	«				
≪?	$\stackrel{?}{\ll}$? ≪				
≪y	\stackrel{\checkmark}{\ll}	$\stackrel{\checkmark}{\ll}$				
>n	\ngtr	*				
>.	\geq	\geq				
>.n	\ngeq	≱				
>?	\stackrel{?}{>}	?				
>y	\stackrel{\checkmark}{>}	>				
>.?	\stackrel{?}{\geq}	?				
>.y	\stackrel{\checkmark}{\geq}	✓ ≥				
»	\gg	>>				
»?	\stackrel{?}{\gg}	? ≫				
≫y	\stackrel{\checkmark}{\gg}	√ ≫				

5.3 Set symbols

Table 19:

Table 19:						
key	trans	sym	description			
in	\in	\in				
in.	\ni	\ni				
ni	\ni	\ni				
inn	\n	∉				
0/	\emptyset	Ø				
nsr	\mathbb{R}	\mathbb{R}				
nsc	\mathbb{C}	\mathbb{C}				
nsn	\mathbb{N}	\mathbb{N}				
nsp	\mathbb{P}	\mathbb{P}				
nsz	\mathbb{Z}	$\mathbb Z$				
nsi	\mathbb{I}	${\mathbb I}$				
sub	\subset	\subset				
subn	\nssubseteq	⊈				
sub=	\subseteq	\subseteq				
sub=n	\nsubseteq	⊈				
subn=	\nsubseteq	⊈				
sup	\supset	\supset				
supn	\nsupseteq	#=##>#=##				
sup=	\supeseteq	\supseteq				
sup=n	\nsupseteq	$ ot \geq$				
supn=	\nsupseteq	⊉				

5.4 Logic

Table 20:

Table 20.						
key	trans	sym	description			
or	\lor	V				
and	\lnd	\wedge				
not	\neg	\neg				
or.	<pre>\text{ or }</pre>	or				
and.	and	and				
not.	<pre>\text{ not }</pre>	not				

6 Functions

6.1 Function

Table 21:

key	trans	sym	description
rank	\mathrm{rank}	rank	
arg	\arg	arg	
det	\det	det	
dim	\dim	\dim	
exp	\exp(\exp	
Im	\mathrm{Im}(${ m Im}$	
Re	\mathrm{Re}(Re	
ln	$\ln($	\ln	
log	\log(\log	
max	$\max($	max	
min	\min(\min	
dim	\dim(\dim	
sqrt	\sqrt(∇	
mod	\pmod($ \square \pmod{\square}$	
mod.	\mod	$\square \mod \square$	
mod	\bmod	$\square \mod \square$	

6.2 Trignometry: function

Table 22:

key	sym	trans	key	sym	trans
cos	$\cos(\Box)$	\cos(cosh	$\cosh(\Box)$	\cosh(
sin	$\sin(\Box)$	$\sin($	sinh	$\sinh(\Box)$	\sinh(
tan	$\tan(\Box)$	an(tanh	$tanh(\Box)$	anh(
cot	$\cot(\Box)$	\cot(coth	$\coth(\Box)$	\coth(
acos	$\arccos(\Box)$	\arccos(cos.	$\arccos(\Box)$	\arccos(
asin	$\arcsin(\Box)$	$\arcsin($	sin.	$\arcsin(\Box)$	\arcsin(
atan	$\arctan(\Box)$	\arctan(tan.	$\arctan(\Box)$	\arctan(

6.3 Iterative-like operation:

Table 23: Integrals, Sums, Products

key	trans	sym	description
il	\limits_{ }		1
il	\limits_{ }^{ }	\sum_{\square}	
lim	\lim	lim	
sum	\sum	$ \begin{array}{c} \sum \\ \prod \\ \int \end{array} $	
prod	\prod	$\prod_{\mathbf{a}}$	
int	\int	\int_{Ω}	
inti	\iint		
intii	\iiint		
intiii	\iiiint	ŢŢŢŢ	
into	\oint	∮	
sum.	$\sum_{i=1}^{n} $	$\frac{\oint}{\sum_{i=1}^{n}}$ \prod	
prod.	$\prod\limits_{ i=1 }^{ n }$	i=1	
int.	$\int \int \int \int dx dx dx dx$	$\int\limits_{\Box}$	
int	\int\limits_{ 0 }^{ +\infty }	$\int\limits_{0}^{+\infty}$	
int	$\label{limits_{-infty}^{+infty}} $$ \left(-\right)^{-1} + \left(-\right)^{-1} .$	$\int_{-\infty}^{+\infty}$	
inti.	\iint\limits_{ }	$\int\limits_{C}^{\widetilde{\int}}$	
intii.	\iiint\limits_{ }	$reve{\int}_C \int \int$	
intiii.	\iiiint\limits_{ }	ĬIJſ	
into.	\oint\limits_{ }	\oint_C	

7 Structural:

7.1 Parenthesis Related

Table 24:

	Table 24:		
key	trans	sym	description
().	<pre>\left(\right)</pre>	(\Box)	parenthesis
()	<pre>\left(\middle\vert \right)</pre>	$(\Box \Box)$	parenthesis
[].	<pre>\left[\right]</pre>	$[\Box]$	parenthesis
[]	<pre>\left[\middle\vert \right]</pre>	$[\Box \Box]$	parenthesis
[].c	\lceil \rceil		parenthesis (ceil)
[].f	\lfloor \rfloor		parenthesis (floor)
{}.	<pre>\left\{ \right\}</pre>	$\{\Box\}$	parenthesis
{}	<pre>\left\{ \middle\vert \right\}</pre>	$\{\Box \Box\}$	parenthesis (set maker)
<>.	<pre>\left< \right></pre>	$\langle\Box\rangle$	parenthesis
<>	<pre>\left< \middle\vert \right></pre>	$\langle \Box \Box \rangle$	parenthesis
.	\left\vert \right\vert		parenthesis (abs)
	<pre>\left\Vert \right\Vert</pre>	$\ \Box\ $	parenthesis (abs)
(.	\left((half-parenthesis
).	\right)	\Box)	half-parenthesis
[.	\left[$[\Box$	half-parenthesis
].	\right]		half-parenthesis
{.	\left\{	${\Box}$	half-parenthesis
}.	\right\}	\square }	half-parenthesis
<.	\left<	$\langle \Box$	half-parenthesis
>.	\right>	$\Box\rangle$	half-parenthesis
		1	
.	\Bigg\vert_{ }^{ }		definite integral range

7.2 Texts:

Table 25:

key	trans	sym	description
te		$\Box + \text{text}$	normal text
tr	\mathbf{mathrm}	$\Box + \mathrm{mathrm}$	math roman (used for sin,cos,tan)
tb	\mathbf{mathbf}	$\Box + \mathbf{mathbf}$	math bold
ti	\mathbf{mathit}	$\Box + mathit$	math italics

7.3 Misc.

Table 26: description key trans sym \binom{}{ Binom binom Putting box around object \boxed{}{ box \frac{}{ Fractions fr \cancel can &=\n\\\\ &= &=\n\\\\

7.4 xy Diagram related

Table 27:							
key	trans	sym	description				
ху	\xymatrix{\n\n}						
bu	\bullet	•					
ar	\ar						

8 Formatting Table into Elisp

```
def format_table_to_elisp_type6col(headcomment, table):
    print(f";; {headcomment}")
    table = table[1:]
    for line in table:
        key, sym, trans, key1, sym, trans1 = line
        key = repr(key).replace("\'", "\"").replace("\"", "")
        key1 = repr(key1).replace("\'", "\"").replace("\"", "")
        trans = repr(trans).replace("\'", "\"").replace("\"", "")
        trans1 = repr(trans1).replace("\'", "\"").replace("\"", "")

        print(f"({key:<7} [{trans:<17}]) ({key1:<7} [{trans1:<17}])")

def format_table_to_elisp_type3col_type1(headcomment, table):
        print(f";; {headcomment}")
        table = table[1:]
        for line in table:
            key, trans, sym, description = line</pre>
```

```
= repr(key).replace("\'", "\"").replace("~", "")
        trans = repr(trans).replace("\'", "\"").replace("~", "")
        print(f"({key:<8} [{trans:<22}]) ; {description}")</pre>
def format_table_to_elisp_type3col_type2(headcomment, table):
    print(f";; {headcomment}")
    table = table[1:]
    for line in table:
        key, trans, sym, description = line
        key = repr(key).replace("\'", "\"").replace("~", "")
        trans = trans.replace("~", "")
        print(f"({key:<8} {trans:<22}) ; {description}")</pre>
format_table_to_elisp_type6col("Greek", tbl_1_greek)
format_table_to_elisp_type6col("Matrix", tbl_1_matrix)
format_table_to_elisp_type6col("Vector & Hat", tbl_1_vec)
format_table_to_elisp_type6col("Dot", tbl_alphabet_dot_6column)
format_table_to_elisp_type6col("DDot", tbl_alphabet_ddot_6column)
format_table_to_elisp_type3col_type2("Expanding Func", tbl2_exec_func)
format_table_to_elisp_type3col_type1("Symbols-dots", tbl_3_sym_dots)
format_table_to_elisp_type3col_type1("Symbols-geo", tbl_3_sym_geo)
format_table_to_elisp_type3col_type1("Symbols", tbl_3_sym_letter)
format_table_to_elisp_type3col_type1("Symbols spaces", tbl_3_sym_spc)
format_table_to_elisp_type3col_type1("Symbols arrow1", tbl_3_sym_arrow_1)
format_table_to_elisp_type3col_type1("Symbols arrow2", tbl_3_sym_arrow_2)
format_table_to_elisp_type3col_type1("Symbols arrow3", tbl_3_sym_arrow_3)
format_table_to_elisp_type3col_type1("Symbols arrow3", tbl_4_sym_mod_1)
format_table_to_elisp_type3col_type1("Operation: arith", tbl_5_op_arith)
format_table_to_elisp_type3col_type1("Operation: arith", tbl_5_op_bin)
format_table_to_elisp_type3col_type1("Operation: arith", tbl_5_op_set)
format_table_to_elisp_type3col_type1("Operation: arith", tbl_5_op_logic)
format_table_to_elisp_type3col_type1("Func: main", tbl_6_func)
format_table_to_elisp_type6col("Func: Trig", tbl_6_func_trig_6col)
```

```
format_table_to_elisp_type3col_type1("Func: iter", tbl_6_func_iter)
format_table_to_elisp_type3col_type1("Structural: Parenthesis", tbl_7_parenthesis)
format_table_to_elisp_type3col_type1("Structural: Text", tbl_7_text)
format_table_to_elisp_type3col_type1("Structural: Text", tbl_7_text)
format_table_to_elisp_type6col("Structural: Sub-sup-scripts", tbl_7_supsubscripts)
format_table_to_elisp_type3col_type1("Structural: misc", tbl_7_misc)
format_table_to_elisp_type3col_type1("Structural: xy", tbl_7_xy)
;; Greek
                                            Γ"A"
("a."
           ["\\alpha"
                                 ("A."
                                                               ])
                             1)
("b."
           ["\\beta"
                             ])
                                 ("B."
                                            ["B"
                                                               ])
                                 ("C."
                                                               ])
("c."
           ["\\psi"
                             ])
                                            ["\\Psi"
("d."
           ["\\delta"
                             1)
                                  ("D."
                                            ["\\Delta"
                                                               1)
("e."
           ["\\epsilon"
                             ])
                                 ("E."
                                            \Gamma^{\mu}E^{\mu}
                                                               ])
("f."
                                            ["\\Phi"
           ["\\phi"
                             ])
                                 ("F."
                                                               ])
("g."
           ["\\gamma"
                             ])
                                 ("G."
                                            ["\\Gamma"
                                                               ])
           ["\\eta"
                                 ("H."
                                            ["H"
                                                               ])
("h."
                             ])
("i."
           ["\\iota"
                             ])
                                 ("I."
                                            ["I"
                                                               ])
("j."
           ["\\xi"
                             1)
                                 ("J."
                                            ["\\Xi"
                                                               1)
                                            ["K"
("k."
           ["\\kappa"
                             1)
                                  ("K."
                                                               1)
("1."
           ["\\lambda"
                             1)
                                 ("L."
                                            ["\\Lambda"
                                                               1)
("m."
           ["\\mu"
                             ])
                                 ("M."
                                            ["M"
                                                               ])
("n."
           ["\\nu"
                             1)
                                 ("N."
                                            ["N"
                                                               1)
("o."
           ["o"
                             ])
                                 ("0."
                                            Γ"0"
                                                               ])
           ["\\pi"
                                                               ])
("p."
                             ])
                                 ("P."
                                            ["\\Pi"
("r."
                                            ["P"
                                                               ])
           ["\\rho"
                             ])
                                 ("R."
("s."
                             ])
                                  ("S."
                                                               ])
           ["\\sigma"
                                             ["\\Sigma"
                                            ["T"
("t."
           ["\\tau"
                             1)
                                 ("T."
                                                               ])
("th."
           ["\\theta"
                             ])
                                 ("Th."
                                            ["\\Theta"
                                                               ])
                                                               ])
("u."
           ["\\upsilon"
                             ])
                                 ("U."
                                            ["\\Upsilon"
("w."
           ["\\omega"
                             ])
                                 ("W."
                                            ["\\Omega"
                                                               ])
("x.")
           ["\\chi"
                                 ("X."
                                            ["X"
                                                               ])
                             ])
("z."
           ["\\zeta"
                             ])
                                 ("Z."
                                            ["Z"
                                                               ])
;; Matrix
("Am"
           ["\\mathbf{A}"
                             1)
                                  ("am"
                                            ["\\mathbf{a}"
                                                               1)
("Bm"
           ["\\mathbf{B}"
                                  ("bm"
                                            ["\\mathbf{b}"
                                                               1)
                             1)
("Cm"
           ["\\mathbf{C}"
                             1)
                                  ("cm"
                                            ["\\mathbf{c}"
                                                               ])
                                  ("dm"
("Dm"
           ["\\mathbf{D}"
                             1)
                                            ["\\mathbf{d}"
                                                               1)
```

]) ("em"

])

["\\mathbf{e}"

("Em"

["\\mathbf{E}"

```
("Fm"
                        ["\mbox{\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{}\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{
                                                                              ("fm"
                                                                                                      ["\mbox{\mbox{$m$}athbf{f}"}
                                                                   ])
                                                                                                                                                 ])
("Gm"
                        ["\\mathbf{G}"
                                                                   ])
                                                                              ("gm"
                                                                                                      ["\mathbf{g}"
                                                                                                                                                 ])
                                                                                                                                                 ])
("Hm"
                        ["\\mathbf{H}"
                                                                   1)
                                                                              ("hm"
                                                                                                      ["\mbox{\mbox{$m$}athbf{$h$}"}
("Im"
                        ["\mathbf{I}"
                                                                   1)
                                                                             ("im"
                                                                                                      ["\\mathbf{i}"
                                                                                                                                                 ])
("Jm"
                        ["\\mathbf{J}"
                                                                   ])
                                                                              ("jm"
                                                                                                      ["\mbox{\mbox{$m$}athbf{j}$}"
                                                                                                                                                 ])
("Km"
                        ["\\mathbf{K}"
                                                                   1)
                                                                              ("km"
                                                                                                      ["\\mathbf{k}"
                                                                                                                                                 ])
                        ["\\mathbf{L}"
                                                                                                                                                 ])
("Lm"
                                                                   1)
                                                                              ("lm"
                                                                                                      ["\\mathbf{1}"
("Mm"
                        ["\\mathbf{M}"
                                                                   ])
                                                                             ("mm"
                                                                                                      ["\\mathbf{m}"
                                                                                                                                                 ])
("Nm"
                        ["\\mathbf{N}"
                                                                   1)
                                                                              ("nm"
                                                                                                      ["\mathbf{n}"
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("Om"
                        ["\\mathbf{0}"
                                                                   1)
                                                                              ("om"
                                                                                                      ["\\mathbf{o}"
                                                                                                                                                 ])
("Pm"
                        ["\\mathbf{P}"
                                                                   ])
                                                                             ("pm"
                                                                                                      ["\mathbf{p}"
                                                                                                                                                 ])
                        ["\\mathbf{Q}"
                                                                   ])
                                                                                                      ["\mbox{mathbf}{q}"
                                                                                                                                                 ])
("Qm"
                                                                              ("qm"
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                        ["\\mathbf{R}"
                                                                   ])
                                                                              ("rm"
                                                                                                      ["\mathbf{r}"
                                                                                                                                                 ])
                        ["\\mathbf{S}"
                                                                   ])
                                                                              ("sm"
                                                                                                      ["\mbox{\mbox{$m$}athbf{s}}"
                                                                                                                                                 ])
("Sm"
                                                                                                      ["\mbox{\mbox{$m$}athbf{t}"}
                                                                                                                                                 ])
("Tm"
                        ["\\mathbf{T}"
                                                                   ])
                                                                             ("tm"
("Um"
                        ["\\mathbf{U}"
                                                                   ])
                                                                             ("um"
                                                                                                      ["\\mathbf{u}"
                                                                                                                                                 ])
("Vm"
                        ["\\mathbf{V}"
                                                                   1)
                                                                              ("vm"
                                                                                                      ["\\mathbf{v}"
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("Wm"
                        ["\\mathbf{W}"
                                                                   1)
                                                                             ("wm"
                                                                                                      ["\\mathbf{w}"
                                                                                                                                                 ])
("Xm"
                        ["\\mathbf{X}"
                                                                   1)
                                                                              ("xm"
                                                                                                      ["\mathbf{x}]"
                                                                                                                                                 ])
("Ym"
                        ["\\mathbf{Y}"
                                                                   ])
                                                                              ("ym"
                                                                                                      ["\\mathbf{y}"
                                                                                                                                                 ])
("Zm"
                        ["\\mathbf{Z}"
                                                                   ])
                                                                              ("zm"
                                                                                                      ["\mathbf{z}"
                                                                                                                                                 ])
                                                                                                      ["\\mathbf{0}"
                                                                                                                                                 ])
("Om"
                        ["\\mathbf{0}"
                                                                   1)
                                                                             ("Om"
;; Vector & Hat
                                                                                                                                                 ])
("av"
                        ["\\vec{a}"
                                                                   1)
                                                                              ("ah"
                                                                                                      ["\\ hat{a}"
("bv"
                        ["\\vec{b}"
                                                                   ])
                                                                             ("bh"
                                                                                                      ["\\hat{b}"
                                                                                                                                                 ])
("cv"
                        ["\\vec{c}"
                                                                   ])
                                                                             ("ch"
                                                                                                      ["\\hat{c}"
                                                                                                                                                 ])
("dv"
                        ["\\vec{d}"
                                                                   ])
                                                                             ("dh"
                                                                                                      ["\\hat{d}"
                                                                                                                                                 ])
                        ["\\vec{e}"
                                                                                                                                                 ])
("ev"
                                                                   ])
                                                                              ("eh"
                                                                                                      ["\\hat{e}"
("fv"
                        ["\\vec{f}"
                                                                   ])
                                                                             ("fh"
                                                                                                      ["\\ hat{f}"
                                                                                                                                                 ])
                                                                                                                                                 ])
                        ["\\vec{g}"
                                                                   ])
                                                                                                      ["\\hat{g}"
("gv"
                                                                             ("gh"
("hv"
                        ["\\vec{h}"
                                                                   ])
                                                                             ("hh"
                                                                                                      ["\\hat{h}"
                                                                                                                                                 ])
                                                                                                                                                 ])
("iv"
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                                                                   ])
                                                                             ("ih"
                                                                                                      ["\\hat{i}"
("jv"
                        ["\\vec{j}"
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                                                                             ("jh"
                                                                                                      ["\\hat{j}"
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("kv"
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                                                                             ("kh"
                                                                                                      ["\\hat{k}"
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                        ["\vec{1}"
("lv"
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                                                                             ("lh"
                                                                                                                                                 ])
                                                                                                      ["\\hat{1}"
("mv"
                        ["\\vec{m}"
                                                                   ])
                                                                             ("mh"
                                                                                                                                                 ])
                                                                                                      ["\\hat{m}"
                                                                                                                                                 ])
("nv"
                        ["\vec{n}"]
                                                                   ])
                                                                             ("nh"
                                                                                                      ["\\ hat{n}"
                                                                                                                                                 ])
("ov"
                        ["\\vec{o}"
                                                                   ])
                                                                             ("oh"
                                                                                                      ["\\hat{o}"
                                                                                                      ["\\hat{p}"
("pv"
                        ["\\vec{p}"
                                                                   ])
                                                                              ("ph"
                                                                                                                                                 ])
("qv"
                        ["\\vec{q}"
                                                                   ])
                                                                             ("qh"
                                                                                                      ["\\hat{q}"
                                                                                                                                                 ])
```

```
["\\vec{r}"
                                   ("rh"
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                                                                  ])
("rv"
                               ])
                                                                  ])
("sv"
           ["\\vec{s}"
                               ])
                                   ("sh"
                                               ["\\hat{s}"
           ["\\vec{t}"
                                   ("th"
                                               ["\\hat{t}"
                                                                  ])
("tv"
                               ])
("uv"
           ["\\vec{u}"
                               1)
                                   ("uh"
                                               ["\\hat{u}"
                                                                  ])
("vv")
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                               ])
                                   ("vh"
                                               ["\\hat{v}"
                                                                  ])
                                                                  ])
           ["\\vec{w}"
                               1)
                                   ("wh"
                                               ["\\hat{w}"
"vw")
                                                                  ])
("xv")
           ["\vec{x}"]
                               ])
                                   ("xh"
                                               ["\\ hat{x}"
                                                                  ])
("yv"
           ["\\vec{y}"
                               ])
                                   ("yh"
                                               ["\\hat{y}"
           ["\\vec{z}"
                                                                  ])
("zv"
                               ])
                                   ("zh"
                                               ["\\ hat{z}"
;; Dot
           ["\\dot{a}"
                                   ("Ad")
                                               ["\\dot{A}"
                                                                  ])
("ad"
                               ])
("bd"
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                               ])
                                   ("Bd"
                                               ["\\dot{B}"
                                                                  ])
("cd"
           ["\\dot{c}"
                               ])
                                   ("Cd"
                                               ["\\dot{C}"
                                                                  ])
                                                                  ])
           ["\\dot{d}"
                               ])
                                   ("Dd")
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("dd"
                                                                  ])
("ed"
           ["\\dot{e}"
                               ])
                                   ("Ed"
                                               ["\\dot{E}"
           ["\\dot{f}"
                                   ("Fd"
                                               ["\\dot{F}"
                                                                  ])
("fd"
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                                                                  ])
("gd"
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                               1)
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                                               ["\\dot{G}"
                                               ["\\dot{H}"
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                               ])
                                   ("Hd")
                                                                  ])
("id"
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                                   ("Id"
                                               ["\\dot{I}"
                                                                  ])
("jd"
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                               ])
                                   ("Jd"
                                               ["\\dot{J}"
                                                                  ])
                                                                  ])
("kd"
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                               ])
                                   ("Kd"
                                               ["\\dot{K}"
                                   ("Ld"
           ["\\dot{1}"
                                               ["\\dot{L}"
                                                                  ])
("ld"
                               ])
           ["\\dot{m}"
                               ])
                                   ("Md"
                                               ["\\dot{M}"
                                                                  ])
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                               1)
                                                                  1)
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                                   ("Nd"
                                               ["\\dot{N}"
("od"
           ["\\dot{o}"
                               ])
                                   ("Od"
                                               ["\\dot{0}"
                                                                  ])
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                                                                  ])
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                                   ("Td"
                                               ["\\dot{T}"
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                               ])
                                   ("Ud"
                                               ["\\dot{U}"
                                                                  ])
                                                                  ])
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                               ])
                                   ("Vd"
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           ["\\dot{w}"
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                                                                  ])
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                               ])
                                   ("Xd"
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           ["\\dot{y}"
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                                   ("Yd"
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                                                                  ])
("yd"
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                               ])
                                   ("Zd"
                                               ["\\dot{Z}"
                                                                  ])
;; DDot
           ["\\ddot{a}"
                              ])
                                   ("Ad."
                                               ["\\ddot{A}"
                                                                  ])
("ad."
("bd."
           ["\\ddot{b}"
                               1)
                                   ("Bd."
                                               ["\\ddot{B}"
                                                                  ])
("cd."
           ["\\ddot{c}"
                               ])
                                   ("Cd."
                                               ["\\ddot{C}"
                                                                  ])
```

```
("dd."
                                  ("Dd."
                                                                 ])
           ["\\ddot{d}"
                              ])
                                             ["\\ddot{D}"
("ed."
           ["\\ddot{e}"
                              ])
                                  ("Ed."
                                             ["\\ddot{E}"
                                                                 ])
                                                                 ])
("fd."
           ["\\ddot{f}"
                              1)
                                  ("Fd."
                                             ["\\ddot{F}"
("gd."
           ["\\ddot{g}"
                              1)
                                  ("Gd."
                                             ["\\ddot{G}"
                                                                 ])
("hd."
           ["\\ddot{h}"
                              ])
                                  ("Hd."
                                             ["\\ddot{H}"
                                                                 ])
("id."
           ["\\ddot{i}"
                              1)
                                  ("Id."
                                                                 1)
                                             ["\\ddot{I}"
           ["\\ddot{j}"
                                  ("Jd."
                                             ["\\ddot{J}"
                                                                 ])
("jd."
                              1)
("kd."
           ["\\ddot{k}"
                              ])
                                  ("Kd."
                                             ["\\ddot{K}"
                                                                 ])
("ld."
           ["\\ddot{1}"
                              1)
                                  ("Ld."
                                             ["\\ddot{L}"
                                                                 1)
("md."
           ["\\ddot{m}"
                              1)
                                  ("Md."
                                             ["\\ddot{M}"
                                                                 1)
                                                                 ])
("nd."
           ["\\ddot{n}"
                              ])
                                  ("Nd."
                                             ["\\ddot{N}"
("od."
           ["\\ddot{o}"
                              ])
                                  ("Od."
                                             ["\\ddot{0}"
                                                                 ])
("pd."
           ["\\ddot{p}"
                              ])
                                  ("Pd."
                                             ["\\ddot{P}"
                                                                 ])
           ["\\ddot{q}"
                              ])
                                                                 ])
("qd."
                                  ("Qd."
                                             ["\\ddot{Q}"
           ["\\\dot{r}"
                                                                 ])
("rd."
                              ])
                                  ("Rd."
                                             ["\\ddot{R}"
                                                                 ])
("sd."
           ["\\ddot{s}"
                              ])
                                  ("Sd."
                                             ["\\ddot{S}"
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("td."
           ["\\ddot{t}"
                              1)
                                  ("Td."
                                             ["\\ddot{T}"
("ud."
           ["\\ddot{u}"
                              1)
                                  ("Ud."
                                             ["\\ddot{U}"
                                                                 ])
("vd."
           ["\\ddot{v}"
                              1)
                                  ("Vd."
                                             ["\\ddot{V}"
                                                                 ])
("wd."
           ["\\ddot{w}"
                              ])
                                  ("Wd."
                                             ["\\ddot{W}"
                                                                 ])
("xd."
           ["\\ddot{x}"
                              ])
                                  ("Xd."
                                             ["\\ddot{X}"
                                                                 ])
                                                                 ])
("yd."
           ["\\ddot{y}"
                              1)
                                  ("Yd."
                                             ["\\ddot{Y}"
("zd."
           ["\\\dot{z}"
                              ])
                                  ("Zd."
                                                                 ])
                                             ["\\ddot{Z}"
;; Expanding Func
("/"
                                   )
           quail-TeQ-frac
                                       ; fraction on previous
                                       ; equation environment
("eq"
           quail-TeQ-equation
("al"
                                       ; aligned environment
                                   )
           quail-TeQ-aligned
("el"
                                       ; end of line
           quail-TeQ-endofline
;; Symbols-dots
("..."
            ["\\dots"
                                    ])
                                         : 3 dots
(".v"
            ["\\vdots"
                                    ])
                                         ; vertical dots
(".d"
            ["\\ddots"
                                    ])
                                         ; diagonale dots
(".1"
            ["\\ldots"
                                    1)
                                         ; low dots
;; Symbols-geo
("perp"
                                    ])
            ["\\perp"
            ["\\perp"
                                    ])
("perpn"
                                    ])
("para"
            ["\\parallel"
                                    ])
("paran"
            ["\\nparallel"
("ang"
            ["\\angle"
                                    ])
("ang."
            ["\\measuredangle"
                                    ])
```

```
;; Symbols
("inf"
           ["\\infty"
                                    ])
("ex"
           ["\\exists"
                                    1)
("ex."
           ["\\nexists"
                                    1)
("fa"
           ["\\forall"
                                    ])
("hb"
                                    1)
           ["\\hbar"
                                    1)
("hb."
           ["\\hslash"
                                    ])
("dd"
           ["\\mathrm{d}"
                                    1)
("dd."
            ["\\partial"
("ii"
           ["\\imath"
                                    1)
("jj"
                                    ])
           ["\\jmath"
("nab"
            ["\\nabla"
                                    ])
("cm"
           ["\\checkmark"
                                    ])
;; Symbols spaces
                                    ])
("qu"
            ["\\quad"
("quu"
                                    ])
           ["\\qquad"
;; Symbols arrow1
("<-"
           ["\\leftarrow"
                                    ])
                                         ; left arrow
("->"
            ["\\rightarrow"
                                    ])
                                         ; right arrow
("-^"
            ["\\uparrow"
                                    ])
                                         ; up arrow
("-v"
           ["\\downarrow"
                                    ])
                                         ; down arrow
("<->"
                                    ])
           ["\\leftrightarrow"
                                         ; left-right arrow
("<-n"
           ["\\nleftarrow"
                                    ])
                                         ; not left arrow
("->n"
                                    1)
           ["\\nrightarrow"
                                         ; not right arrow
           ["\\nuparrow"
("-^n"
                                    1)
                                         ; not up arrow
("-vn"
            ["\\ndownarrow"
                                    ])
                                         ; not down arrow
("<->"
            ["\\nleftrightarrow"
                                    ])
                                         ; not left-right arrow
("-->"
                                    ])
            ["\\longrightarrow"
("<--"
           ["\\longleftarrow"
                                    ])
("\\vert ->"
              ["\\mapsto"
                                       ])
                                           ;
;; Symbols arrow2
           ["\\Leftarrow"
("<="
                                    ])
                                         ; left arrow
("=>"
            ["\\Rightarrow"
                                    ])
                                         ; right arrow
("=~"
            ["\\Uparrow"
                                    1)
                                         ; up arrow
("=v"
           ["\\Downarrow"
                                    1)
                                         ; down arrow
("<=>"
           ["\\Leftrightarrow"
                                    ])
                                         ; left-right arrow
                                    ])
("iff"
           ["\\Leftrightarrow"
                                         ; left-right arrow
                                    ])
("<=n"
           ["\\nLeftarrow"
                                         ; left arrow
("=>n"
           ["\\nRightarrow"
                                    1)
                                         ; right arrow
("<=>n"
           ["\\nLeftrightarrow"
                                    ])
                                         ; left-right arrow
```

```
("iffn"
           ["\\nLeftrightarrow"
                                        ; left-right arrow
                                   ])
("<==>"
           ["\\Longleftrightarrow"])
                                        ; left-right arrow
("<=="
           ["\\Longleftarrow"
                                   ])
                                        ; left-right arrow
("==>"
           ["\\Longrightarrow"
                                   1)
                                        ; left-right arrow
;; Symbols arrow3
("<---"
           ["\\xleftarrow[]{}"
                                   ])
("--->"
           ["\\xrightarrow[]{}"])
           ["\xRightarrow[]{}"])
                                          \tilde{mathtools} lib required
("===>"
("<==="
           ["\\xLeftarrow[]{}"
                                          ~mathtools~ lib required
;; Symbols arrow3
("vec"
           ["\\vec{"
                                   ])
("bar"
           ["\\bar{"
                                   ])
("hat"
           ["\\hat{"
                                   ])
                                   ])
("dot"
           ["\\dot{"
                                   ])
("dot."
           ["\\ddot{"
("dot.."
           ["\\dddot{"
                                   ])
                                   1)
("dot..."
           ["\\ddddot{"
("dag"
           ["^\\dagger"
                                   ])
("dag."
           ["^\\ddagger"
                                   ])
("*.."
           ["^*"
                                   ])
           ["^\\circ"
                                   ])
("deg"
("tr"
           ["^T"
                                   ])
("tr."
           ["^{-T}"
                                   ])
;; Operation: arith
("+-"
           ["\\pm"
                                   ])
("-+")
           "qm//"]
                                   ])
("*x")
           ["\\times"
                                   ])
("::"
           ["\\div"
                                   ])
("**"
           ["\\cdot"
                                   ])
;; Operation: arith
("=n"
           ["\\neq"
                                   ])
("=."
                                   ])
           ["\\equiv"
("=?"
           ["\\stackrel{?}{=}"
                                   ])
           ["\\stackrel{\\checkmark}{=}"])
("=y"
("3="
           ["\\equiv"
                                   ])
("=:"
           ["\\coloneqq"
                                   ])
(":="
                                   ])
           ["\\coloneqq"
("=.="
           ["\\sim"
                                   ])
("=n="
           ["\\nsim"
                                   ])
(""
                                   ])
           ["\\approx"
```

```
("<n"
           ["\\nless"
                                    ])
("<."
                                    ])
           ["\\leq"
("<.n"
                                    ])
           ["\\nleq"
("<?"
           ["\\stackrel{?}{<}"
                                    1)
("<y"
           ["\\stackrel{\\checkmark}{<}"])</pre>
("<.?"
           ["\\stackrel{?}{\\leq}"])
("<.y"
           ["\\stackrel{\\checkmark}{\\leq}"])
("<<"
           ["\\11"
                                    ])
("<<?"
           ["\\stackrel{?}{\\ll}" ])
("<<y"
           ["\\stackrel{\\checkmark}{\\ll}"]) ;
(">n"
           ["\\ngtr"
                                    ])
(">."
           ["\\geq"
                                    ])
(">.n"
           ["\\ngeq"
                                    ])
(">?"
                                    ])
           ["\\stackrel{?}{>}"
(">y"
           ["\\stackrel{\\checkmark}{>}"])
(">.?"
            ["\\stackrel{?}{\\geq}"])
(">.y"
           ["\\stackrel{\\checkmark}{\\geq}"])
(">>"
           ["\\gg"
                                    ])
(">>?"
           ["\\stackrel{?}{\\gg}" ])
(">>y"
           ["\\stackrel{\\checkmark}{\\gg}"]) ;
;; Operation: arith
("in"
           ["\\in"
                                    ])
("in."
           ["\\ni"
                                    ])
                                    1)
("ni"
           ["\\ni"
                                    ])
("inn"
           ["\\notin"
("0/"
            ["\\emptyset"
                                    ])
                                    ])
("nsr"
           ["\\mathbb{R}"
("nsc"
                                    ])
           ["\\mathbb{C}"
("nsn"
           ["\\mathbb{N}"
                                    ])
                                    ])
("nsp"
            ["\\mathbb{P}"
("nsz"
           ["\\mathbb{Z}"
                                    ])
                                    ])
("nsi"
           ["\\mathbb{I}"
("sub"
           ["\\subset"
                                    ])
                                    ])
("subn"
           ["\\nssubseteq"
("sub="
           ["\\subseteq"
                                    ])
("sub=n"
           ["\\nsubseteq"
                                    ])
           ["\\nsubseteq"
("subn="
                                    ])
                                    ])
("sup"
           ["\\supset"
("supn"
           ["\\nsupseteq"
                                    ])
                                    ])
("sup="
           ["\\supeseteq"
```

```
("sup=n"
            ["\\nsupseteq"
                                    ])
("supn="
                                    ])
            ["\\nsupseteq"
;; Operation: arith
("or"
            ["\\lor"
                                    ])
("and"
            ["\\lnd"
                                    ])
("not"
                                    ])
            ["\\neg"
            ["\\text{ or }"
("or."
                                    ])
                                    ])
("and."
            ["\\text{ and }"
("not."
            ["\\text{ not }"
                                    ])
;; Func: main
("rank"
            ["\\mathrm{rank}"
                                    ])
("arg"
            ["\\arg"
                                    ])
("det"
            ["\\det"
                                    ])
                                    ])
("dim"
            ["\\dim"
                                    ])
("exp"
            ["\\exp("
            ["\\mathrm{Im}("
("Im"
                                    ])
                                    ])
            ["\\mathrm{Re}("
("Re"
("ln"
            ["\\ln("
                                    ])
("log"
            ["\\log("
                                    ])
("max"
            ["\\max("
                                    ])
("min"
                                    ])
            ["\\min("
("dim"
                                    ])
            ["\\dim("
("sqrt"
            ["\\sqrt("
                                    ])
                                    1)
("mod"
            ["\\pmod("
                                    ])
("mod."
            ["\\mod"
("mod.."
            ["\\bmod"
                                    ])
;; Func: Trig
("cos"
           ["\\cos("
                                  ("cosh"
                                              ["\\cosh("
                                                                 ])
                              ])
                                  ("sinh"
("sin"
           ["\\sin("
                              ])
                                              ["\\sinh("
                                                                 ])
           ["\\tan("
                              ])
                                                                 ])
("tan"
                                  ("tanh"
                                              ["\\tanh("
("cot"
           ["\\cot("
                              ])
                                   ("coth"
                                              ["\\coth("
                                                                 ])
           ["\\arccos("
                              ])
                                   ("cos."
                                                                 ])
("acos"
                                              ["\\arccos("
("asin"
           ["\\arcsin("
                              ])
                                   ("sin."
                                              ["\\arcsin("
                                                                 ])
                                   ("tan."
                                                                 ])
("atan"
          ["\\arctan("
                              1)
                                              ["\\arctan("
;; Func: iter
("il"
            ["\\limits_{ }"
                                    ])
("il"
            ["\\limits_{ }^{ }"
                                    ])
                                    ])
("lim"
            ["\\lim"
("sum"
            ["\\sum"
                                    ])
                                    ])
("prod"
            ["\\prod"
```

```
("int"
          ["\\int"
                                 ]) ;
                                 1) :
("inti"
          ["\\iint"
          ["\\iiint"
                                 1)
("intii"
("intiii"
          ["\\iiiint"
                                 1)
("into"
          ["\\oint"
                                 ])
          ["\\sum\\limits_{ i=1 }^{ n }"]) ;
("sum."
          ["\\prod\\limits_{ i=1 }^{ n }"]) ;
("prod."
          ["\\int\\limits_{ }^{ }"])
("int."
          ["\\int\\limits_{ 0 }^{ +\\infty }"]) ;
("int.."
("int..." ["\\int\\limits_{ -\\infty }^{ +\\infty }"]) ;
          ["\\iint\\limits_{ }" ])
("inti."
("intii." ["\\iint\\limits_{ }" ])
("intiii." ["\\iiint\\limits_{ }"]) ;
("into."
          ["\\oint\\limits_{ }" ]) ;
;; Structural: Parenthesis
("()."
          ["\\left(\\right)"
                                 ]) ; parenthesis
("().."
          ["\\left( \\middle\\vert \\right)"]) ; parenthesis
("[]."
          ["\\left[ \\right]"
                                 ]) ; parenthesis
("[].."
          ["\\left[ \\middle\\vert \\right]"]) ; parenthesis
("[].c"
          ["\\lceil \\rceil"
                                 ])
                                    ; parenthesis (ceil)
("[].f"
          ["\\lfloor \\rfloor"
                                 ])
                                     ; parenthesis (floor)
                                    ; parenthesis
("{}."
          ["\\left\\{ \\right\\}"])
("{}.."
          ["\\left\\{ \\middle\\vert \\right\\}"]) ; parenthesis (set maker)
("<>."
          ["\\left< \\right>"
                                 ])
                                    ; parenthesis
("<>.."
          ["\\left< \\middle\\vert \\right>"]) ; parenthesis
("\vert\vert ." ["\\left\\vert \\right\\vert"]) ; parenthesis (abs)
("\\vert\\vert .." ["\\left\\Vert \\right\\Vert"]) ; parenthesis (abs)
("(."
          ["\\left("
                                 ]) ; half-parenthesis
(")."
          ["\\right)"
                                 ])
                                     ; half-parenthesis
("[."
          ["\\left["
                                 ])
                                    ; half-parenthesis
("]."
          ["\\right]"
                                 ])
                                    ; half-parenthesis
("{."
          ["\\left\\{"
                                 ]) ; half-parenthesis
("}."
          ["\\right\\}"
                                 ])
                                    ; half-parenthesis
("<."
          ["\\left<"
                                 ])
                                    ; half-parenthesis
          ["\\right>"
(">."
                                     ; half-parenthesis
                                 ])
("\\vert ." ["\\Bigg\\vert_{ }^{ }"]) ; definite integral range
;; Structural: Text
("te"
          ["\\text{"
                                 ]) ; normal text
          ["\\mathrm{"
("tr"
                                 ]) ; math roman (used for sin, cos, tan ...)
("tb"
          ["\\mathbf{"
                                 1)
                                    ; math bold
```

```
("ti"
           ["\\mathit{"
                                   ]) ; math italics
;; Structural: Text
("te"
           ["\\text{"
                                   ])
                                        ; normal text
("tr"
           ["\\mathrm{"
                                   1)
                                        ; math roman (used for sin, cos, tan ...)
("tb"
           ["\\mathbf{"
                                   ])
                                        ; math bold
                                   1)
("ti"
           ["\\mathit{"
                                        ; math italics
;; Structural: Sub-sup-scripts
("^"
          ["^{"
                             ]) ("_"
                                            ["_{"
                                                               ])
          ["^{"
                             1)
                                                               1)
("pp"
                                 ("11"
                                            [" {"
("p0"
          ["^0"
                             1)
                                 ("10"
                                            ["_0"
                                                               1)
          ["^1"
                                            ["_1"
                                                               ])
("p1"
                             ]) ("11"
          ["^2"
("p2"
                             ])
                                 ("12"
                                            ["_2"
                                                               ])
("p3"
          ["^3"
                             ])
                                 ("13"
                                            ["_3"
                                                               ])
          ["^4"
("p4"
                             ])
                                 ("14"
                                            ["_4"
                                                               ])
          ["^n"
                                            ["_n"
                                                               ])
("pn"
                             ])
                                 ("lnn"
          [ " ^X"
                                            ["_i"
("px"
                             ])
                                 ("li"
                                                               ])
("__"
          ["\\underset{ }{ }"]) ("^~"
                                             ["\\overset{ }{ }"])
("__."
          ["\\underbrace{ }_{ }"]) ("^^."
                                                ["\\overbrace{ }^{ }"])
          ["\\underline{ }" ]) ("^^.." ["\\overline{ }" ])
("__.."
;; Structural: misc
           ["\\binom{}{"
("binom"
                                   ])
                                        : Binom
           ["\\boxed{}{"
                                   ])
                                        ; Putting box around object
("box"
("fr"
           ["\\frac{}{"
                                   ])
                                        ; Fractions
                                   1)
("can"
           ["\\cancel"
("&="
           ["&=\\n\\\\\"
                                   ])
("=&"
           ["&=\\n\\\\\"
                                   ])
;; Structural: xy
("xy"
           ["\\xymatrix{\\n\\n}"
                                   ])
("bu"
           ["\\bullet"
                                   ])
("ar"
           ["\\ar"
                                   ])
```

9 Executable elisp function definition

```
(defun quail-func-init ()
  (quail-delete-region)
  (setq quail-current-str nil
          quail-converting nil
           quail-conversion-str ""))
```

```
(defun quail-func-end ()
 (throw 'quail-tag nil))
(defun quail-TeQ-equation (key idx)
  (quail-func-init)
 (insert "\begin{equation}\n\n\end{equation}")
 (previous-line)
  (quail-func-end))
(defun quail-TeQ-aligned (key idx)
  (quail-func-init)
 (insert "\\begin{aligned}\n\n\\end{aligned}")
  (previous-line)
  (quail-func-end))
(defun quail-TeQ-endofline (key idx)
  (quail-func-init)
 (end-of-line)
 (insert "\\\\n")
  (quail-func-end))
(defun quail-TeQ-frac (key idx)
  (quail-func-init)
  (backward-sexp) (kill-sexp)
  (if (looking-back "[a-zA-Z]" 0)
     (progn
       (backward-word)
       (if (= (preceding-char) ?\\ )
           (progn (message "yes") (kill-word 1)
                  (backward-delete-char 1) (insert "\\frac{\\")
                  (yank 1) (yank 2) (insert "}{}"))
         (progn (message "no") (forward-word)
                (insert "\\frac{") (yank) (insert "}{}")))
       )
   (progn (message "no")
                                      ; (forward-word)
          (insert "\\frac{") (yank) (insert "}{}"))
   )
```

```
(backward-char)
 (quail-func-end))
Making the el
(require 'quail)
(defun quail-func-init ()
 (quail-delete-region)
 (setq quail-current-str nil
     quail-converting nil
     quail-conversion-str ""))
(defun quail-func-end ()
 (throw 'quail-tag nil))
(defun quail-TeQ-equation (key idx)
 (quail-func-init)
 (insert "\begin{equation}\n\n\\end{equation}")
 (previous-line)
 (quail-func-end))
(defun quail-TeQ-aligned (key idx)
 (quail-func-init)
 (insert "\begin{aligned}\n\n\\end{aligned}")
 (previous-line)
 (quail-func-end))
(defun quail-TeQ-endofline (key idx)
 (quail-func-init)
 (end-of-line)
 (insert "\\\\n")
 (quail-func-end))
```

```
(defun quail-TeQ-frac (key idx)
 (quail-func-init)
 (backward-sexp) (kill-sexp)
 (if (looking-back "[a-zA-Z]" 0)
     (progn
      (backward-word)
      (if (= (preceding-char) ?\\ )
          (progn (message "yes") (kill-word 1)
                (backward-delete-char 1) (insert "\\frac{\\")
                (yank 1) (yank 2) (insert "}{}"))
        (progn (message "no") (forward-word)
              (insert "\\frac{") (yank) (insert "}{}")))
      )
   (progn (message "no")
                                   ; (forward-word)
         (insert "\\frac{") (yank) (insert "}{}"))
   )
 (backward-char)
 (quail-func-end))
(quail-define-package
"TeQ-Math" "Emacs-Teq-Latex" "TeQ-" t
"TeQ-Math input"
nil t t t t nil nil nil nil nil t)
(quail-define-rules
   ;; Greek Alphabets
   ;; Greek
   ("a."
            ["\\alpha"
                           ]) ("A."
                                        ["A"
                                                       ])
   ("b."
            ["\\beta"
                           ]) ("B."
                                        Г"В"
                                                       ])
   ("c."
            ["\\psi"
                           ]) ("C."
                                                       ])
                                        ["\\Psi"
   ("d."
            ["\\delta"
                           ]) ("D."
                                        ["\\Delta"
                                                       1)
   ("e."
            ["\\epsilon"
                           ]) ("E."
                                        I"E"
                                                       1)
```

```
("f."
           ["\\phi"
                               ])
                                    ("F."
                                               ["\\Phi"
                                                                   ])
                               ])
                                                                   ])
("g."
           ["\\gamma"
                                    ("G."
                                               ["\\Gamma"
                               ])
                                    ("H."
                                               ["H"
                                                                   ])
("h."
           ["\\eta"
                                                                   ])
("i."
           ["\\iota"
                               ])
                                    ("I."
                                               ["I"
("j."
           ["\\xi"
                               ])
                                    ("J."
                                               ["\\Xi"
                                                                   ])
                                    ("K."
                                               ["K"
                                                                   ])
("k."
                               ])
           ["\\kappa"
                                               ["\\Lambda"
("1."
                                    ("L."
                                                                   ])
           ["\\lambda"
                               ])
                                                                   ])
("m."
           ["\\mu"
                               ])
                                    ("M."
                                               ["M"
           ["\\nu"
                                                                   ])
("n."
                               ])
                                    ("N."
                                               ["N"
("o."
           ["o"
                               ])
                                    ("0."
                                               ["0"
                                                                   ])
           ["\\pi"
                                               ["\\Pi"
("p."
                               ])
                                    ("P."
                                                                   ])
("r."
           ["\\rho"
                               ])
                                    ("R."
                                               ["P"
                                                                   ])
("s."
           ["\\sigma"
                               ])
                                    ("S."
                                               ["\\Sigma"
                                                                   ])
                                               ["T"
                                                                   ])
("t."
           ["\\tau"
                               ])
                                    ("T."
           ["\\theta"
                               ])
                                                                   ])
("th."
                                    ("Th."
                                               ["\\Theta"
                               ])
                                    ("U."
                                                                   ])
("u."
           ["\\upsilon"
                                               ["\\Upsilon"
                                                                   ])
("w."
           ["\\omega"
                               ])
                                    ("W."
                                               ["\\Omega"
("x."
           ["\\chi"
                               ])
                                    ("X."
                                               ["X"
                                                                   ])
                                    ("Z."
                                               ["Z"
                                                                   ])
("z."
           ["\\zeta"
                               ])
;; Matrix
                                                                   ])
("Am"
           ["\\mathbf{A}"
                               ])
                                    ("am"
                                               ["\\mathbf{a}"
           ["\\mathbf{B}"
                                               ["\\mathbf{b}"
                                                                   ])
("Bm"
                               ])
                                    ("bm"
("Cm"
           ["\\mathbf{C}"
                               ])
                                    ("cm"
                                               ["\\mathbf{c}"
                                                                   ])
                                                                   ])
("Dm"
           ["\mathbf{D}]"
                               1)
                                    ("dm"
                                               ["\\mathbf{d}"
("Em"
           ["\\mathbf{E}"
                               ])
                                    ("em"
                                               ["\\mathbf{e}"
                                                                   ])
("Fm"
           ["\\mathbf{F}"
                               ])
                                    ("fm"
                                               ["\\mathbf{f}"
                                                                   ])
("Gm"
           ["\\mathbf{G}"
                               ])
                                               ["\\mathbf{g}"
                                                                   ])
                                    ("gm"
("Hm"
                               ])
                                                                   ])
           ["\\mathbf{H}"
                                    ("hm"
                                               ["\\mathbf{h}"
("Im"
                               ])
                                    ("im"
                                               ["\\mathbf{i}"
                                                                   ])
           ["\mathbf{I}"]
                                                                   ])
("Jm"
           ["\\mathbf{J}"
                               ])
                                    ("jm"
                                               ["\mathbf{j}"
("Km"
           ["\\mathbf{K}"
                               ])
                                    ("km"
                                               ["\\mathbf{k}"
                                                                   ])
                                                                   ])
("Lm"
           ["\\mathbf{L}"
                               ])
                                    ("lm"
                                               ["\\mathbf{1}"
("Mm"
           ["\\mathbf{M}"
                               ])
                                    ("mm"
                                               ["\\mathbf{m}"
                                                                   ])
("Nm"
           ["\\mathbf{N}"
                               ])
                                    ("nm"
                                               ["\\mathbf{n}"
                                                                   ])
("Om"
           ["\\mathbf{0}"
                               ])
                                               ["\\mathbf{o}"
                                                                   ])
                                    ("om"
("Pm"
           ["\\mathbf{P}"
                               ])
                                    ("pm"
                                               ["\mbox{\mbox{$m$}athbf{$p$}"}
                                                                   ])
                                    ("qm"
                                                                   ])
("Qm"
           ["\\mathbf{Q}"
                               ])
                                               ["\mathbf{q}"
                                                                   ])
                               ])
                                               ["\mathbf{r}]"
("Rm"
           ["\mathbf{R}]"
                                    ("rm"
("Sm"
           ["\\mathbf{S}"
                               ])
                                    ("sm"
                                               ["\\mathbf{s}"
                                                                   ])
("Tm"
           ["\\mathbf{T}"
                               ])
                                    ("tm"
                                               ["\mathbf{t}]"
                                                                   ])
```

```
["\\mathbf{U}"
                               ])
                                               ["\\mathbf{u}"
                                                                  ])
("Um"
                                   ("um"
                                                                  ])
("Vm"
           ["\\mathbf{V}"
                               ])
                                   ("vm"
                                               ["\\mathbf{v}"
           ["\\mathbf{W}"
                                                                  ])
("Wm"
                               ])
                                   ("wm"
                                              ["\\mathbf{w}"
                                                                  ])
("Xm"
           ["\\mathbf{X}"
                               ])
                                   ("xm"
                                              ["\mathbf{x}]"
("Ym"
           ["\\mathbf{Y}"
                               ])
                                   ("ym"
                                              ["\\mathbf{y}"
                                                                  ])
                                                                  ])
("Zm"
           ["\\mathbf{Z}"
                               ])
                                               ["\mbox{mathbf}{z}"
                                   ("zm"
("Om"
                                                                  ])
           ["\\mathbf{0}"
                               ])
                                   ("Om"
                                               ["\\mathbf{0}"
;; Vector & Hat
           ["\\vec{a}"
                                              ["\\hat{a}"
                                                                  ])
("av"
                               ])
                                   ("ah"
("bv"
           ["\\vec{b}"
                               ])
                                   ("bh"
                                              ["\\hat{b}"
                                                                  ])
           ["\\vec{c}"
                               ])
                                              ["\\hat{c}"
                                                                  ])
("cv"
                                   ("ch"
("dv"
           ["\\vec{d}"
                               ])
                                   ("dh"
                                              ["\\hat{d}"
                                                                  ])
("ev"
           ["\\vec{e}"
                               ])
                                   ("eh"
                                              ["\\hat{e}"
                                                                  ])
                                                                  ])
("fv"
           ["\\vec{f}"
                               ])
                                   ("fh"
                                              ["\\hat{f}"
           ["\\vec{g}"
                               ])
                                                                  ])
("gv"
                                   ("gh"
                                              ["\\hat{g}"
                               ])
                                                                  ])
("hv"
           ["\\vec{h}"
                                   ("hh"
                                              ["\\hat{h}"
                               ])
                                                                  ])
("iv"
           ["\\vec{i}"
                                   ("ih"
                                              ["\\hat{i}"
("jv"
           ["\\vec{j}"
                               ])
                                   ("jh"
                                              ["\\hat{j}"
                                                                  ])
                                                                  ])
("kv"
           ["\\vec{k}"
                               ])
                                   ("kh"
                                              ["\\hat{k}"
("lv"
           ["\\vec{1}"
                               ])
                                   ("lh"
                                              ["\\hat{1}"
                                                                  ])
                                                                  ])
("mv"
           ["\\vec{m}"
                               ])
                                   ("mh"
                                              ["\\hat{m}"
                               ])
                                   ("nh"
                                                                  ])
("nv"
           ["\vec{n}"]
                                              ["\\ hat{n}"
("ov"
           ["\\vec{o}"
                               ])
                                   ("oh"
                                              ["\\hat{o}"
                                                                  ])
           ["\\vec{p}"
                               ])
                                                                  ])
("pv"
                                   ("ph"
                                              ["\\hat{p}"
("qv"
           ["\\vec{q}"
                               ])
                                   ("qh"
                                              ["\\hat{q}"
                                                                  ])
("rv"
           ["\\vec{r}"
                               ])
                                   ("rh"
                                              ["\\hat{r}"
                                                                  ])
("sv"
           ["\\vec{s}"
                               ])
                                   ("sh"
                                              ["\\hat{s}"
                                                                  ])
           ["\\vec{t}"
                               ])
                                              ["\\hat{t}"
                                                                  ])
("tv"
                                   ("th"
("uv"
           ["\\vec{u}"
                               ])
                                   ("uh"
                                              ["\\hat{u}"
                                                                  ])
                                                                  ])
("vv")
           ["\\vec{v}"
                               ])
                                   ("vh"
                                              ["\\hat{v}"
("wv"
           ["\\vec{w}"
                               ])
                                   ("wh"
                                              ["\\hat{w}"
                                                                  ])
                                                                  ])
("xv")
           ["\\vec{x}"
                               ])
                                   ("xh"
                                              ["\\hat{x}"
("yv"
           ["\\vec{y}"
                               ])
                                   ("yh"
                                              ["\\hat{y}"
                                                                  ])
("zv"
           ["\\vec{z}"
                               ])
                                   ("zh"
                                              ["\\ hat{z}"
                                                                  ])
;; Dot
("ad"
           ["\\dot{a}"
                              ])
                                   ("Ad"
                                              ["\\dot{A}"
                                                                  ])
           ["\\dot{b}"
                               ])
                                              ["\\dot{B}"
                                                                  ])
("bd"
                                   ("Bd"
                               ])
                                                                  ])
("cd"
           ["\\dot{c}"
                                   ("Cd"
                                              ["\\dot{C}"
("dd"
           ["\\dot{d}"
                               ])
                                   ("Dd")
                                               ["\\dot{D}"
                                                                  ])
("ed"
           ["\\dot{e}"
                               ])
                                   ("Ed"
                                              ["\\dot{E}"
                                                                  ])
```

```
("fd"
           ["\\dot{f}"
                              ])
                                   ("Fd"
                                              ["\\dot{F}"
                                                                  ])
                                                                  ])
("gd"
           ["\\dot{g}"
                              ])
                                   ("Gd"
                                              ["\\dot{G}"
           ["\\dot{h}"
                              ])
                                   ("Hd"
                                              ["\\dot{H}"
                                                                  ])
("hd"
                                                                  ])
("id"
           ["\\dot{i}"
                              ])
                                   ("Id"
                                              ["\\dot{I}"
("jd"
           ["\\dot{j}"
                              ])
                                   ("Jd"
                                              ["\\dot{J}"
                                                                  ])
                              ])
                                   ("Kd"
                                                                  ])
("kd"
           ["\\dot{k}"
                                              ["\\dot{K}"
("ld"
           ["\\dot{1}"
                              ])
                                   ("Ld"
                                              ["\\dot{L}"
                                                                  ])
                                                                  ])
("md"
           ["\\dot{m}"
                              ])
                                   ("Md"
                                              ["\\dot{M}"
           ["\\dot{n}"
                                                                  ])
("nd"
                              ])
                                   ("Nd"
                                              ["\\dot{N}"
("od"
           ["\\dot{o}"
                              ])
                                   ("Od"
                                              ["\\dot{0}"
                                                                  ])
           ["\\\dot{p}"
                              ])
                                   ("Pd"
                                              ["\\dot{P}"
                                                                  ])
("pd"
           ["\\dot{q}"
                              ])
                                   ("Qd"
                                              ["\\dot{Q}"
                                                                  ])
("qd"
("rd"
           ["\\dot{r}"
                              ])
                                   ("Rd"
                                              ["\\dot{R}"
                                                                  ])
                                                                  ])
("sd"
           ["\\dot{s}"
                              ])
                                   ("Sd"
                                              ["\\dot{S}"
                              ])
                                   ("Td"
                                              ["\\dot{T}"
                                                                  ])
("td"
           ["\\dot{t}"
           ["\\dot{u}"
                              ])
                                   ("Ud"
                                              ["\\dot{U}"
                                                                  ])
("ud"
                                   ("Vd"
                              ])
                                                                  ])
("vd"
           ["\\dot{v}"
                                              ["\\dot{V}"
("wd"
           ["\\dot{w}"
                              ])
                                   ("Wd"
                                              ["\\dot{W}"
                                                                  ])
                                                                  ])
("xd")
           ["\\dot{x}"
                              ])
                                   ("Xd"
                                              ["\\dot{X}"
("yd"
           ["\\dot{y}"
                              ])
                                   ("Yd"
                                              ["\\dot{Y}"
                                                                  ])
                                   ("Zd"
                                              ["\\dot{Z}"
                                                                  ])
("zd"
           ["\\\det{z}"
                              ])
;; DDot
("ad."
           ["\\ddot{a}"
                              ])
                                   ("Ad."
                                              ["\\ddot{A}"
                                                                  ])
           ["\\ddot{b}"
                              1)
                                   ("Bd."
                                                                  ])
("bd."
                                              ["\\ddot{B}"
("cd."
           ["\\ddot{c}"
                              ])
                                   ("Cd."
                                              ["\\ddot{C}"
                                                                  ])
("dd."
           ["\\ddot{d}"
                              ])
                                   ("Dd."
                                              ["\\ddot{D}"
                                                                  ])
("ed."
           ["\\ddot{e}"
                              ])
                                   ("Ed."
                                              ["\\ddot{E}"
                                                                  ])
("fd."
           ["\\ddot{f}"
                              ])
                                   ("Fd."
                                              ["\\ddot{F}"
                                                                  ])
("gd."
           ["\\ddot{g}"
                              ])
                                   ("Gd."
                                              ["\\ddot{G}"
                                                                  ])
                              ])
                                                                  ])
("hd."
           ["\\ddot{h}"
                                   ("Hd."
                                              ["\\ddot{H}"
("id."
           ["\\ddot{i}"
                              ])
                                   ("Id."
                                              ["\\ddot{I}"
                                                                  ])
                                                                  ])
("jd."
           ["\\ddot{j}"
                              ])
                                   ("Jd."
                                              ["\\ddot{J}"
("kd."
           ["\\ddot{k}"
                              ])
                                   ("Kd."
                                              ["\\ddot{K}"
                                                                  ])
                                   ("Ld."
                                                                  ])
("ld."
           ["\\ddot{1}"
                              ])
                                              ["\\ddot{L}"
           ["\\ddot{m}"
                              ])
                                   ("Md."
                                              ["\\ddot{M}"
                                                                  ])
("md."
("nd."
           ["\\ddot{n}"
                              ])
                                   ("Nd."
                                              ["\\ddot{N}"
                                                                  ])
                                                                  ])
("od."
           ["\\ddot{o}"
                              ])
                                   ("Od."
                                              ["\\ddot{0}"
                                   ("Pd."
                                                                  ])
("pd."
           ["\\ddot{p}"
                              ])
                                              ["\\ddot{P}"
("qd."
           ["\\ddot{q}"
                              ])
                                   ("Qd."
                                              ["\\ddot{Q}"
                                                                  ])
("rd."
           ["\\ddot{r}"
                              ])
                                   ("Rd."
                                              ["\\ddot{R}"
                                                                  ])
```

```
("sd."
          ["\\ddot{s}"
                              ])
                                  ("Sd."
                                             ["\\ddot{S}"
                                                                ])
                                  ("Td."
                                                                ])
("td."
           ["\\ddot{t}"
                              1)
                                             ["\\ddot{T}"
("ud."
          ["\\ddot{u}"
                                  ("Ud."
                                             ["\\ddot{U}"
                                                                ])
                              1)
("vd."
          ["\\ddot{v}"
                              1)
                                  ("Vd."
                                             ["\\ddot{V}"
                                                                ])
("wd."
          ["\\ddot{w}"
                             ])
                                  ("Wd."
                                             ["\\ddot{W}"
                                                                ])
                              1)
                                  ("Xd."
                                                                ])
("xd."
          ["\\ddot{x}"
                                             ["\\ddot{X}"
           ["\\ddot{y}"
                              ])
                                  ("Yd."
                                             ["\\ddot{Y}"
                                                                ])
("yd."
                                  ("Zd."
                                                                ])
("zd."
          ["\\ddot{z}"
                             ])
                                             ["\\ddot{Z}"
;; Expanding Func
("/"
           quail-TeQ-frac
                                      ; fraction on previous
("eq"
           quail-TeQ-equation
                                   )
                                      ; equation environment
("al"
                                      ; aligned environment
           quail-TeQ-aligned
("el"
           quail-TeQ-endofline
                                      ; end of line
;; Symbols-dots
("..."
            ["\\dots"
                                    ])
                                        ; 3 dots
(".v"
            ["\\vdots"
                                    ])
                                         ; vertical dots
(".d"
            ["\\ddots"
                                    ])
                                         ; diagonale dots
(".1"
           ["\\ldots"
                                    ])
                                        ; low dots
;; Symbols-geo
("perp"
           ["\\perp"
                                    ])
                                    ])
("perpn"
           ["\\perp"
                                        ;
                                    ])
("para"
           ["\\parallel"
            ["\\nparallel"
                                    ])
("paran"
                                    ])
("ang"
            ["\\angle"
("ang."
           ["\\measuredangle"
                                    ])
;; Symbols
("inf"
            ["\\infty"
                                    ])
("ex"
                                    ])
            ["\\exists"
("ex."
            ["\\nexists"
                                    ])
                                    ])
("fa"
            ["\\forall"
("hb"
            ["\\hbar"
                                    ])
                                    ])
("hb."
            ["\\hslash"
("dd"
            ["\\mathrm{d}"
                                    ])
("dd."
            ["\\partial"
                                    ])
("ii"
            ["\\imath"
                                    ])
("jj"
            ["\\jmath"
                                    ])
("nab"
            ["\\nabla"
                                    ])
("cm"
            ["\\checkmark"
                                    ])
;; Symbols spaces
("qu"
            ["\\quad"
                                    ])
```

```
("quu"
           ["\\qquad"
                                   ])
;; Symbols arrow1
("<-"
           ["\\leftarrow"
                                   ])
                                        ; left arrow
("->"
           ["\\rightarrow"
                                   ])
                                        ; right arrow
("-^"
           ["\\uparrow"
                                   ])
                                        ; up arrow
("-v"
           ["\\downarrow"
                                   1)
                                        ; down arrow
("<->"
                                   1)
           ["\\leftrightarrow"
                                        ; left-right arrow
("<-n"
           ["\\nleftarrow"
                                   ])
                                        ; not left arrow
("->n"
           ["\\nrightarrow"
                                   ])
                                        ; not right arrow
("-^n"
           ["\\nuparrow"
                                   ])
                                        ; not up arrow
("-vn"
           ["\\ndownarrow"
                                   ])
                                       ; not down arrow
("<->"
           ["\\nleftrightarrow"
                                   ])
                                        ; not left-right arrow
("-->"
           ["\\longrightarrow"
                                   ])
("<--"
           ["\\longleftarrow"
                                   ])
("\\vert ->"
              ["\\mapsto"
                                       ])
;; Symbols arrow2
("<="
           ["\\Leftarrow"
                                   ])
                                        ; left arrow
("=>"
           ["\\Rightarrow"
                                   ])
                                        ; right arrow
("=~"
           ["\\Uparrow"
                                   ])
                                        ; up arrow
("=v"
           ["\\Downarrow"
                                   ])
                                        ; down arrow
("<=>"
           ["\\Leftrightarrow"
                                   ])
                                        ; left-right arrow
("iff"
                                   ])
           ["\\Leftrightarrow"
                                       ; left-right arrow
("<=n"
           ["\\nLeftarrow"
                                   ])
                                        ; left arrow
                                   1)
("=>n"
           ["\\nRightarrow"
                                        ; right arrow
("<=>n"
           ["\\nLeftrightarrow"
                                   ])
                                        ; left-right arrow
("iffn"
           ["\\nLeftrightarrow"
                                   ])
                                        ; left-right arrow
("<==>"
           ["\\Longleftrightarrow"])
                                        ; left-right arrow
("<=="
           ["\\Longleftarrow"
                                   ])
                                        ; left-right arrow
("==>"
                                   ])
                                        ; left-right arrow
           ["\\Longrightarrow"
;; Symbols arrow3
           ["\\xleftarrow[ ]{ }" ])
("<---"
("--->"
           ["\\xrightarrow[]{}"])
("===>"
           ["\\xRightarrow[]{}"])
                                          ~mathtools~ lib required
("<==="
           ["\\xLeftarrow[]{}"
                                        ; ~mathtools~ lib required
;; Symbols arrow3
("vec"
           ["\\vec"
                                   ])
           ["\\bar"
                                   ])
("bar"
                                   ])
("hat"
           ["\\hat"
("dot"
           ["\\dot"
                                   1)
("dot."
           ["\\ddot"
                                   ])
```

```
("dot.."
            ["\\dddot"
                                    ])
("dot..."
                                    ])
           ["\\ddddot"
("dag"
                                    ])
           ["^\\dagger"
("dag."
           ["^\\ddagger"
                                    ])
("*.."
            ["^*"
                                    ])
           ["^\\circ"
                                    ])
("deg"
("tr"
           ["^T"
                                    ])
           ["^{-T}"
("tr."
                                    ])
;; Operation: arith
("+-"
           ["\\pm"
                                    ])
("-+"
            "qm//"]
                                    ])
("*x"
                                    ])
            ["\\times"
("::"
            ["\\div"
                                    ])
("**"
           ["\\cdot"
                                    ])
;; Operation: arith
            ["\\neq"
                                    ])
("=n"
("=."
                                    ])
            ["\\equiv"
("=?"
            ["\\stackrel{?}{=}"
                                    ])
("=y"
            ["\\stackrel{\\checkmark}{=}"])
("3="
            ["\\equiv"
                                    ])
("=:"
            ["\\coloneqq"
                                    ])
                                         ;
(":="
            ["\\coloneqq"
                                    ])
("=.="
           ["\\sim"
                                    ])
("=n="
            ["\\nsim"
                                    1)
(""
                                    ])
            ["\\approx"
("<n"
            ["\\nless"
                                    ])
("<."
                                    ])
            ["\\leq"
("<.n"
            ["\\nleq"
                                    ])
("<?"
            ["\\stackrel{?}{<}"
                                    ])
("<y"
            ["\\stackrel{\\checkmark}{<}"])
("<.?"
            ["\\stackrel{?}{\\leq}"])
("<.y"
            ["\\stackrel{\\checkmark}{\\leq}"])
("<<"
            ["\\11"
                                    ])
("<<?"
            ["\\stackrel{?}{\\ll}" ])
("<<y"
            ["\\stackrel{\\checkmark}{\\ll}"])
(">n"
           ["\\ngtr"
                                    ])
(">."
           ["\\geq"
                                    ])
(">.n"
                                    ])
            ["\\ngeq"
(">?"
            ["\\stackrel{?}{>}"
                                    ])
(">y"
           ["\\stackrel{\\checkmark}{>}"])
```

```
(">.?"
            ["\\stackrel{?}{\\geq}"])
(">.y"
            ["\\stackrel{\\checkmark}{\\geq}"]) ;
(">>"
            ["\\gg"
                                    ])
(">>?"
            ["\\stackrel{?}{\\gg}" ])
(">>y"
           ["\\stackrel{\\checkmark}{\\gg}"])
;; Operation: arith
           ["\\in"
("in"
                                    ])
                                         ;
("in."
           ["\\ni"
                                    ])
            ["\\ni"
("ni"
                                    ])
("inn"
            ["\\notin"
                                    ])
("0/"
                                    ])
            ["\\emptyset"
("nsr"
            ["\\mathbb{R}"
                                    ])
("nsc"
            ["\\mathbb{C}"
                                    ])
                                    ])
("nsn"
            ["\\mathbb{N}"
            ["\\mathbb{P}"
                                    ])
("nsp"
("nsz"
                                    ])
            ["\\mathbb{Z}"
                                    1)
("nsi"
            ["\\mathbb{I}"
("sub"
           ["\\subset"
                                    ])
                                    ])
("subn"
            ["\\nssubseteq"
("sub="
            ["\\subseteq"
                                    ])
                                    ])
("sub=n"
           ["\\nsubseteq"
("subn="
           ["\\nsubseteq"
                                    ])
("sup"
            ["\\supset"
                                    ])
                                    1)
("supn"
            ["\\nsupseteq"
("sup="
           ["\\supeseteq"
                                    ])
("sup=n"
            ["\\nsupseteq"
                                    ])
("supn="
            ["\\nsupseteq"
                                    ])
;; Operation: arith
("or"
           ["\\lor"
                                    ])
("and"
            ["\\lnd"
                                    ])
("not"
            ["\\neg"
                                    ])
("or."
                                    ])
            ["\\text{ or }"
("and."
            ["\\text{ and }"
                                    ])
("not."
           ["\\text{ not }"
                                    ])
;; Func: main
("rank"
           ["\\mathrm{rank}"
                                    ])
           ["\\arg"
                                    ])
("arg"
                                    ])
("det"
           ["\\det"
("dim"
           ["\\dim"
                                    ])
("exp"
           ["\\exp("
                                    ])
```

```
("Im"
            ["\\mathrm{Im}("
                                    ])
("Re"
            ["\\mathrm{Re}("
                                    ])
("ln"
            ["\\ln("
                                    ])
("log"
           ["\\log("
                                    ])
("max"
            ["\\max("
                                    ])
("min"
           ["\\min("
                                    ])
("dim"
           ["\\dim("
                                    ])
("sqrt"
            ["\\sqrt("
                                    ])
                                    ])
("mod"
            ["\\pmod("
("mod."
           ["\\mod"
                                    ])
("mod.."
           ["\\bmod"
                                    ])
;; Func: Triq
("cos"
          ["\\cos("
                             ])
                                  ("cosh"
                                             ["\\cosh("
                                                                ])
                                                                ])
("sin"
          ["\\sin("
                             ])
                                  ("sinh"
                                             ["\\sinh("
          ["\\tan("
                             ])
                                                                ])
("tan"
                                  ("tanh"
                                             ["\\tanh("
          ["\\cot("
                             ])
                                  ("coth"
                                             ["\\coth("
                                                                ])
("cot"
                                                                ])
("acos"
           ["\\arccos("
                             1)
                                  ("cos."
                                             ["\\arccos("
("asin"
          ["\\arcsin("
                             ])
                                  ("sin."
                                             ["\\arcsin("
                                                                ])
          ["\\arctan("
("atan"
                             1)
                                  ("tan."
                                             ["\\arctan("
                                                                ])
;; Func: iter
("il"
           ["\\limits_{ }"
                                    ])
                                        ;
("il"
           ["\\limits_{ }^{ }"
                                    ])
                                        ;
           ["\\lim"
                                    ])
("lim"
                                    1)
("sum"
            ["\\sum"
("prod"
           ["\\prod"
                                    ])
("int"
            ["\\int"
                                    ])
("inti"
           ["\\iint"
                                    ])
("intii"
           ["\\iiint"
                                    ])
("intiii"
           ["\\iiiint"
                                    ])
                                    ])
("into"
            ["\\oint"
            ["\\sum\\limits_{ i=1 }^{ n }"])
("sum."
("prod."
           ["\\prod\\limits_{ i=1 }^{ n }"])
("int."
           ["\\int\\limits_{ }^{ }"])
("int.."
           ["\\int\\limits_{ 0 }^{ +\\infty }"])
("int..."
           ["\\int\\limits_{ -\\infty }^{ +\\infty }"])
("inti."
           ["\\iint\\limits_{ }" ])
           ["\\iiint\\limits_{ }" ])
("intii."
("intiii."
           ["\\iiiint\\limits_{ }"])
           ["\\oint\\limits_{ }" ])
;; Structural: Parenthesis
```

```
("()."
           ["\\left(\\right)"
                                ]) ; parenthesis
("().."
           ["\\left( \\middle\\vert \\right)"]) ; parenthesis
("[]."
           ["\\left[ \\right]"
                                  ]) ; parenthesis
("[].."
           ["\\left[ \\middle\\vert \\right]"]) ; parenthesis
("[].c"
           ["\\lceil \\rceil"
                                     ; parenthesis (ceil)
                                  ])
("[].f"
           ["\\lfloor \\rfloor"
                                     ; parenthesis (floor)
                                  ])
("{}."
                                     ; parenthesis
           ["\\left\\{ \\right\\}"])
("{}.."
           ["\left\\{ \middle\vert \\right\\}"]) ; parenthesis (set maker)
("<>."
           ["\\left< \\right>"
                                  ]) ; parenthesis
("<>.."
           ["\\left< \\middle\\vert \\right>"]) ; parenthesis
("\\vert\\vert ." ["\\left\\vert \\right\\vert"]) ; parenthesis (abs)
("\\vert\\vert .." ["\\left\\Vert \\right\\Vert"]) ; parenthesis (abs)
("(."
           ["\\left("
                                  ]) ; half-parenthesis
(")."
           ["\\right)"
                                     ; half-parenthesis
                                  ])
("[."
           ["\\left["
                                  ])
                                     ; half-parenthesis
("]."
           ["\\right]"
                                  ])
                                     ; half-parenthesis
("{."
           ["\\left\\{"
                                  1)
                                      ; half-parenthesis
("}."
           ["\\right\\}"
                                  ])
                                     ; half-parenthesis
("<."
           ["\\left<"
                                  ])
                                      ; half-parenthesis
(">."
           ["\\right>"
                                  ]) ; half-parenthesis
("\vert ." ["\Bigg\vert_{ }^{ }"]) ; definite integral range
;; Structural: Text
("te"
           ["\\text{}"
                                      ; normal text
                                  ])
           ["\\mathrm{}"
("tr"
                                  1)
                                      ; math roman (used for sin, cos, tan ...)
("tb"
           ["\\mathbf{}"
                                  1)
                                      ; math bold
("ti"
           ["\\mathit{}"
                                  1)
                                      : math italics
;; Structural: Text
           ["\\text{}"
("te"
                                  ])
                                      ; normal text
("tr"
           ["\\mathrm{}"
                                  ])
                                      ; math roman (used for sin, cos, tan ...)
           ["\\mathbf{}"
                                  ])
("tb"
                                      ; math bold
("ti"
           ["\\mathit{}"
                                  ])
                                      ; math italics
;; Structural: Sub-sup-scripts
("^"
          ["~{"
                            ])
                                ("_"
                                           ["_{"
                                                             ])
                                           ["_{"
          ["~{"
("pp"
                            1)
                                ("11"
                                                             1)
("p0"
          ["^0"
                            1)
                                ("10"
                                           ["_0"
                                                             ])
("p1"
          ["~1"
                            ])
                               ("11"
                                           ["_1"
                                                             ])
          ["^2"
                            1)
                                           ["_2"
                                                             ])
("p2"
                                ("12"
          ["^3"
                            ])
                                           ["_3"
                                                             ])
("p3"
                                ("13"
("p4"
          ["~4"
                            1)
                                ("14"
                                           Γ" 4"
                                                             1)
                                                             1)
("pn"
          ["^n"
                            1)
                                ("lnn"
                                           ["_n"
```

```
["^x"         ]) ("li"         ["_i"         ])
["\underset{ }{ }"]) ("^^"         ["\overset{ }{ }"])
    ("px"
    ("__"
              ["\\underbrace{ }_{ }"]) ("^^." ["\\overbrace{ }^{ }"])
    ("__.."
              ["\\underline{ }" ]) ("^^.." ["\\overline{ }" ])
    ;; Structural: misc
               ["\\binom"
    ("binom"
                                       ]) ; Binom
    ("box"
               ["\\boxed"
                                       ]) ; Putting box around object
    ("can"
               ["\\cancel"
                                       ]) ; requires ~cancel~
    ("&="
                                       ]) ;
               ["&=\\n\\\\\"
    ("=&"
               ["&=\\n\\\\\"
                                       ])
                                           ;
    ;; Structural: xy
    ("xy"
               ["\\xymatrix{\\n\\n}" ]) ;
               ["\\bullet"
                                       ]) ;
    ("bu"
    ("ar"
               ["\\ar"
                                       ]) ;
)
```