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

Input Method written in Quail for entering \LaTeX math expressions

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1	\mathbf{A}	lphabet related stuff:	
1.	1 (Greek	
σi	fg/p	yamnle-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	H	
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	
ο.	0	0	0.	O	0	
p.	π	\pi	P.	Π	\Pi	
r.	ρ	\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	Υ	
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		

Matrix (aka bold) 1.2

Table 3:	Matrix
\	_

1		<u>Table 3:</u>			1 / /1 1 1 1 1
key	sym	latex (upper bold)	key	sym	latex (lower bold)
Am	\mathbf{A}	\mathbf{A}	am	\mathbf{a}	\mathbf{a}
Bm	\mathbf{B}	\mathbf{B}	bm	\mathbf{b}	\mathbf{b}
Cm	${f C}$	\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	${f f}$	\mathbf{f}
Gm	${f G}$	$Mathbf\{G\}$	gm	${f g}$	\mathbf{g}
Hm	\mathbf{H}	\mathbf{H}	hm	${f h}$	\mathbf{h}
Im	\mathbf{I}	\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	${f N}$	\mathbf{N}	nm	${f n}$	\mathbf{n}
Om	Ο	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	${f R}$	\mathbf{R}	rm	${f r}$	\mathbf{r}
Sm	\mathbf{S}	$Mathbf\{S\}$	sm	\mathbf{s}	\mathbf{s}
Tm	${f T}$	\mathbf{T}	tm	${f t}$	\mathbf{t}
Um	${f U}$	D_{U}	um	\mathbf{u}	\mathbf{u}
Vm	${f V}$	\mathbf{V}	vm	\mathbf{v}	\mathbf{v}
Wm	\mathbf{W}	\mathbf{W}	wm	\mathbf{w}	\mathbf{w}
Xm	\mathbf{X}	\mathbf{X}	xm	X	\mathbf{x}
Ym	\mathbf{Y}	\mathbf{Y}	ym	\mathbf{y}	\mathbf{y}
Zm	${f Z}$	\mathbf{Z}	zm	${f z}$	\mathbf{z}
Om	0	0	Om	0	0

1.3 Vector & Hat

Table 4: Vectors and Hats						
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	\vec{c}	\vec{c}	ch	\hat{c}	\hat{c}	
dv	$ec{d}$	\vec{d}	dh	\hat{d}	\hat{d}	
ev	\vec{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}	\hat{g}	
hv	$ec{h}$	$\operatorname{\vec}\{h\}$	hh	\hat{h}	\hat{h}	
iv	$ec{i}$	\vec{i}	ih	\hat{i}	\hat{i}	
jv	$ec{j}$	\vec{j}	jh	\hat{j}	\hat{j}	
kv	$ec{k}$	\vec{k}	kh	\hat{k}	\hat{k}	
lv	$ec{l}$	$\vec{1}$	1h	\hat{l}	\hat{1}	
mv	\vec{m}	$\operatorname{\vec}\{m\}$	mh	\hat{m}	\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}	\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	\vec{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	\vec{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}	
ΖV	$ec{z}$	\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	À	\dot{A}	
bd	\dot{b}	$\det\{b\}$	Bd	\dot{B}	\dot{B}	
cd	\dot{c}	\dot{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}	$\det\{g\}$	Gd	\dot{G}	\dot{G}	
hd	h	$\det\{h\}$	Hd	\dot{H}	\dot{H}	
id	\dot{i}	\dot{i}	Id	İ	\dot{I}	
jd	\dot{j}	\dot{j}	Jd	\dot{J}	\dot{J}	
kd	\dot{k}	$\det\{k\}$	Kd	\dot{K}	\dot{K}	
ld	\dot{l}	$\det\{1\}$	Ld	\dot{L}	\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	Ò	$\dot{0}$	
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}	$\det\{t\}$	Td	\dot{T}	\dot{T}	
ud	\dot{u}	$\det\{u\}$	Ud	\dot{U}	\dot{U}	
vd	\dot{v}	$\det\{v\}$	Vd	\dot{V}	\dot{V}	
wd	\dot{w}	$\det\{w\}$	Wd	\dot{W}	\dot{W}	
xd	\dot{x}	$\det\{x\}$	Xd	\dot{X}	\dot{X}	
yd	\dot{y}	\dot{y}	Yd	\dot{Y}	\dot{Y}	
zd	\dot{z}	$\det\{z\}$	Zd	\dot{Z}	\dot{Z}	

1.5 DDots

Table 6: DDots					
key	sym	latex (vec)	key	sym	latex (hat)
ad.	\ddot{a}	\dot{a}	Ad.	Ä	\ddot{A}
bd.	\ddot{b}	\ddot{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.	$\ddot{\ddot{g}}$ $\ddot{\ddot{h}}$	\dot{g}	Gd.	\ddot{G}	\ddot{G}
hd.		$\displaystyle \dot\{h\}$	Hd.	\ddot{H}	\ddot{H}
id.	\ddot{i}	\ddot{i}	Id.	Ϊ	\ddot{I}
jd.	\ddot{j}	\ddot{j}	Jd.	\ddot{J}	\ddot{J}
kd.	k	\dot{k}	Kd.	\ddot{K}	\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.	$\ddot{Q} \ \ddot{R}$	\ddot{Q}
rd.	\ddot{r}	\dot{r}	Rd.		\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}	$\displaystyle \texttt{ddot}\{x\}$	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 J.		
key	trans	sym	description
perp	\perp	\perp	
perpn	\perp	1	⊥ n (neg)
para	\parallel		
paran	\nparallel	#	n (neg)
ang	\angle	_	
ang.	\measuredangle	4	\angle . (var)
tri	\vartriangle	Δ	
trin	\triangledown	∇	\triangle n (neg)
squ	\square		
tri.	\blacktriangle	A	\triangle . (var)
trin.	\blacktriangledown	lacktriangle	\triangle n. (neg,var)
squ.	\blacksquare		\Box . (var)

3.3 Letter like

Table 10: Letter-like Symbold

key	trans	sym	description
inf	\infty	∞	
ex	\exists	\exists	
exn	\nexists	∄	$\exists + \underline{\mathbf{n}} \text{ (neg)}$
fa	\forall	\forall	
hb	\hbar	\hbar	
hb.	\hslash	\hbar	$\hbar + \underline{\cdot} \text{ (var)}$
dd	\mathbf{d}	d	
dd.	\partial	∂	$d + \underline{\cdot} (var)$
ii	\imath	\imath	_
jj	$\$ jmath	\jmath	
nab	\nabla	∇	
cm	\checkmark	\checkmark	

3.4 Spaces

Table 11: Space Symbold

	Idole II.	Space	by moora
key	trans	sym	description
qu			
quu	\qquad		

3.5 Arrows:

3.5.1 Single:

Table 12: Single Line arrows

key	trans	sym	description
-		-	description
<-	\leftarrow	\leftarrow	
->	\rightarrow	\rightarrow	
-^	\uparrow	\uparrow	^ looks like up arrow head
-v	\downarrow	\downarrow	v looks like down arrow head
<->	\leftrightarrow	\leftrightarrow	
<-n	\nleftarrow	←	negate (n) of prev. section
->n	\nrightarrow	$\rightarrow \rightarrow$	$arrows + \underline{n}$
-^n	\nuparrow	7	
-vn	\ndownarrow	ŧ	
<->	\nleftrightarrow	$\leftrightarrow \rightarrow$	
>	\longrightarrow	\longrightarrow	longer arrows, with 2 dashes
<	\longleftarrow	\leftarrow	
->	\mapsto	\mapsto	vertical-bar + ->
			(this rendered wrong on Github)
			(check from PDF file)

3.5.2 Double:

Table 13: Double Line arrows

key	trans	sym	description
<=	\Leftarrow	(compared to single arrrow
=>	\Rightarrow	\Rightarrow	these uses = as the arrow shaft
=^	\Uparrow	\uparrow	
=v	\Downarrow	\Downarrow	
<=>	\Leftrightarrow	\Leftrightarrow	
iff	\Leftrightarrow	\Leftrightarrow	
<=n	\nLeftarrow	#	negate (n) of prev. section
=>n	\n Rightarrow	\Rightarrow	$arrows + \underline{n}$
<=>n	$\n \$	#	
iffn	\n	#	
<==>	\Longleftrightarrow	\iff	longer arrows, with 2 dashes
<==	\Longleftarrow	$ \leftarrow $	
==>	\Longrightarrow	\Longrightarrow	

3.5.3 Long arrow with top-bottom entries

Table 14: Long arrow Line arrows

	Table 14. Long arrow Line arrows					
key	trans	sym	description			
<	\xleftarrow[]{}	-	these uses triple - or $=$			
>	<pre>\xrightarrow[]{ }</pre>	$\xrightarrow{\square}$				
===>	<pre>\xRightarrow[]{ }</pre>	\Longrightarrow	mathtools lib required			
<===	<pre>\xLeftarrow[]{ }</pre>	-	mathtools lib required			

4 Symbol Modification

4.1 Accents (variable decoration?)

Table 15:					
key	trans	sym	description		
vec		$\vec{\Box}$			
bar					
hat	$\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ $	$\hat{\Box}$			
dot		$\dot{\Box}$			
dot.		$\ddot{\Box}$			
dot					
dot					
dag	^\dagger	□†			
dag.	$^\delta$	□ [‡]			
*	^*	_*			
deg	^\circ	_o			
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	\Box_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	\square_i	_i
		<pre>{ }</pre>	^^		{ }
		<pre>_{ } }</pre>	^^ .		^{ }
			^^		

5 Binary Operation Symbols

5.1 Simple Arithmetics:

Table 17: Simple Arithmetics operations

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

5.2 Binary Relations:

	Table 18:		
key	trans	sym	description
=.	\equiv	=	Variation on
<.	\leq	\leq	<=>
>.	\geq	≥ ≪	symbols
«	\11	«	
>	\gg	>>	
=n ~	\neq	#	negation
~n	\nsim	≁ ↓	
<n< td=""><td>\nless</td><td>4</td><td></td></n<>	\nless	4	
>n <.n	\ngtr \nleq	P +	
>.n	\ngeq	<i>≯</i>	
			,1 , 1
=?	\stackrel{?}{=}	= ?	with question mark
</td <td>\stackrel{?}{<}</td> <td><u>.</u></td> <td></td>	\stackrel{?}{<}	<u>.</u>	
>?	\stackrel{?}{>}	?	
<.?	\stackrel{?}{\leq}		
>.?	\stackrel{?}{\geq}	?	
≪?	$\stackrel{?}{\ll}$? ≪	
»?	\stackrel{?}{\gg}	? >>	
= y	\stackrel{\checkmark}{=}	≤	with check mark
<y< td=""><td>\stackrel{\checkmark}{<}</td><td><</td><td></td></y<>	\stackrel{\checkmark}{<}	<	
>y	\stackrel{\checkmark}{>}	>	
<.y	\stackrel{\checkmark}{\leq}	✓	
>.y	\stackrel{\checkmark}{\geq}	<u>></u>	
«y	\stackrel{\checkmark}{\ll}	«	
≫y	\stackrel{\checkmark}{\gg}	≫	
~.	\sim	\sim	Another variations
~~	\approx	\approx	on =
3=	\equiv	≡	
=:	\coloneqq	≔	
:=	\coloneqq	:=	

5.3 Set symbols

	n 1			-	\sim
- '	Га	h	0	- 1	9

Table 19:					
key	trans	sym	description		
in	\in	\in			
in.	\ni	\ni			
ni	\ni	\ni			
inn	\n	∉	(neg)		
0/	\emptyset	Ø			
nsr	\mathbb{R}	\mathbb{R}	(n)umber (s)et (r)eal		
nsc	\mathbb{C}	\mathbb{C}	(n)umber (s)et (c)omplex		
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	⊈	(neg)		
sub.	\subseteq	\subseteq	(var)		
sub.n	\nsubseteq	$\not\sqsubseteq$ \sqsubseteq $\not\sqsubseteq$	(var, neg)		
subn.	\nsubseteq	⊈	(neg, var)		
sup	\supset	\supset			
supn	\nsupseteq	⊉ ⊇ ⊉	(neg)		
sup.	\supeseteq	\supseteq	(var)		
sup.n	\nsupseteq	$ ot \geq$	(var, neg)		
supn.	\nsupseteq	⊉_	(neg, var)		

5.4 Logic

Table 20:

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

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}(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	$\coth(\Box)$	$\operatorname{\coth}($
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} \Sigma \\ \Pi \\ \int \end{array} $	
prod	\prod	$\prod_{\mathbf{a}}$	
int	\int	\int_{Ω}	
inti	\iint		
intii	\iiint		
intiii	\iiiint	ſŢŢŢ	
into	\oint		
sum.	$\sum_{i=1}^{n} $	$\sum_{i=1}^{n}$	
prod.	\prod\limits_{ i=1 }^{ n }	$\sum_{i=1}^{n} \prod_{i=1}^{n}$	
int.	$\int \int \int \int ds ds ds$	\int_{\square}	
int	\int\limits_{ 0 }^{ +\infty }	$\int\limits_{0}^{+\infty}$	
int	$\label{limits_{-infty}^{+infty}} $$ \left(-\right)^{-} + \left(-\right)^{-} .$	$\int\limits_{-\infty}^{+\infty}$	
inti.	\iint\limits_{ }	$\int_{C}^{-\infty}$	
intii.	<pre>\iiint\limits_{ }</pre>	ĬIJ	
intiii.	<pre>\iiiint\limits_{ }</pre>	ĬĬĬĬ	
into.	<pre>\oint\limits_{ }</pre>	∮ C	

7 Structural:

7.1 Parenthesis Related

Table 24:

key	trans	sym	description
ļ		· — \	description
().	<pre>\left(\right)</pre>	(U)	
()	<pre>\left(\middle\vert \right)</pre>	$(\Box \Box)$	
[].	<pre>\left[\right]</pre>		
[]	<pre>\left[\middle\vert \right]</pre>		(var)
[].c	\lceil \rceil		(var) (ceil)
[].f	\lfloor \rfloor		(var) (floor)
{}.	<pre>\left\{ \right\}</pre>	$\{\Box\}$	
{}	<pre>\left\{ \middle\vert \right\}</pre>	$\{\Box \Box\}$	(var)
<>.	<pre>\left< \right></pre>	$\langle\Box\rangle$	
<>	<pre>\left< \middle\vert \right></pre>	$\langle \Box \Box \rangle$	(var)
11.	\left\vert \right\vert		
11	\left\Vert \right\Vert	$\ \Box\ $	(var)
(.	\left((half (
).	\right)	\Box)	half)
[.	\left[half [
].	\right]		half]
{.	\left\{	$\{\Box$	half {
}.	\right\}	\square }	half }
<.	\left<		$\mathrm{half} <$
>.	\right>	\Box	$\mathrm{half} >$
(\left.	•	half left .
)	\right.		half right .
١.	\Bigg\vert_{ }^{ }		definite integral range

7.2 Texts:

		Table 25:	
key	trans	sym	description
te		$\Box + \text{text}$	(te)xt
tr	\mathbf{mathrm}	$\Box + \mathrm{mathrm}$	(t)ext (r)oman
tb	\mathbf{mathbf}	$\Box + \mathbf{mathbf}$	(t)ext (b)old
ti	\mathbf{mathit}	$\Box + mathit$	(t)ext (i)talics

7.3 Misc.

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

```
trans = repr(trans).replace("\'", "\"").replace("~", "")
        trans1 = repr(trans1).replace("\'", "\"").replace("~", "")
        print(f"({key:<7} [{trans:<17}]) ({key1:<7} [{trans1:<17}])")</pre>
def format_table_to_elisp_type3col_type1(headcomment, table):
    print(f";; {headcomment}")
    table = table[1:]
    for line in table:
        key, trans, sym, description = line
        key = repr(key).replace("\'", "\"").replace("~", "").replace("\\\\texttt{\\\\"
        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("~", "").replace("\\\\texttt{\\\\"
        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
("a."
          ["\\alpha"
                            ]) ("A."
                                          Γ"A"
                                                            ])
("b."
          ["\\beta"
                            1) ("B."
                                          ["B"
                                                            1)
                                          ["\\Psi"
("c."
          ["\\psi"
                            ]) ("C."
                                                            ])
("d."
          ["\\delta"
                            1) ("D."
                                          ["\\Delta"
                                                            1)
("e."
          ["\\epsilon"
                            ]) ("E."
                                          I"E"
                                                            ])
          ["\\phi"
("f."
                            1) ("F."
                                          ["\\Phi"
                                                            ])
          ["\\gamma"
                                          ["\\Gamma"
                                                            ])
("g."
                            ]) ("G."
          ["\\eta"
                            ]) ("H."
                                          ["H"
                                                            ])
("h."
("i."
          ["\\iota"
                            ]) ("I."
                                          ["I"
                                                            ])
("j."
          ["\\xi"
                            ]) ("J."
                                          ["\\Xi"
                                                            ])
                                          ["K"
("k."
          ["\\kappa"
                            ]) ("K."
                                                            ])
("1."
          ["\\lambda"
                            ]) ("L."
                                          ["\\Lambda"
                                                            ])
("m."
          ["\\mu"
                            ]) ("M."
                                                            ])
                                          "M"
("n."
          ["\\nu"
                                          ["N"
                                                            ])
                            ]) ("N."
("o."
          Γ"ο"
                            1) ("0."
                                                            1)
                                          Γ"0"
("p."
          ["\\pi"
                            ]) ("P."
                                          ["\\Pi"
                                                            1)
("r."
          ["\\rho"
                            ]) ("R."
                                          ["P"
                                                            1)
("s."
          ["\\sigma"
                            1) ("S."
                                          ["\\Sigma"
                                                            ])
("t."
          ["\\tau"
                            ]) ("T."
                                          ["T"
                                                            1)
("th."
          ["\\theta"
                            ]) ("Th."
                                          ["\\Theta"
                                                            1)
```

```
("u."
            ["\\upsilon"
                                     ("U."
                                ])
                                                 ["\\Upsilon"
                                                                      ])
("w."
            ["\\omega"
                                ])
                                     ("W."
                                                 ["\\Omega"
                                                                      ])
                                                 ["X"
                                                                      ])
("x."
            ["\\chi"
                                ])
                                     ("X."
("z."
            ["\\zeta"
                                1)
                                     ("Z."
                                                 ["Z"
                                                                      ])
;; Matrix
("Am"
           ["\\mathbf{A}"
                                1)
                                     ("am"
                                                 ["\\mathbf{a}"
                                                                      ])
                                                                      ])
("Bm"
           ["\\mathbf{B}"
                                1)
                                     ("bm"
                                                 ["\\mathbf{b}"
            ["\\mathbf{C}"
                                                 ["\\mathbf{c}"
("Cm"
                                ])
                                     ("cm"
                                                                      ])
("Dm"
            ["\\mathbf{D}"
                                1)
                                     ("dm"
                                                 ["\\mathbf{d}"
                                                                      ])
("Em"
            ["\mbox{\mbox{$\mathbb{E}$}}"
                                ])
                                     ("em"
                                                 ["\\mathbf{e}"
                                                                      ])
("Fm"
            ["\mathbf{F}"
                                ])
                                     ("fm"
                                                 ["\\mathbf{f}"
                                                                      ])
("Gm"
            ["\\mathbf{G}"
                                ])
                                                 ["\mbox{\mbox{$m$}athbf{g}}"
                                                                      ])
                                     ("gm"
("Hm"
            ["\\mathbf{H}"
                                ])
                                     ("hm"
                                                 ["\\mathbf{h}"
                                                                      ])
                                ])
                                     ("im"
                                                 ["\\mathbf{i}"
                                                                      ])
("Im"
           ["\mathbf{I}"
                                                                      ])
("Jm"
            ["\\mathbf{J}"
                                ])
                                     ("jm"
                                                 ["\\mathbf{j}"
("Km"
            ["\\mathbf{K}"
                                ])
                                     ("km"
                                                 ["\mbox{\mbox{$m$}athbf{k}"}
                                                                      ])
("Lm"
            ["\\mathbf{L}"
                                1)
                                     ("lm"
                                                 ["\mathbf{1}"
                                                                      ])
("Mm"
           ["\\mathbf{M}"
                                1)
                                     ("mm"
                                                 ["\mbox{mathbf{m}}"
                                                                      ])
("Nm"
           ["\\mathbf{N}"
                                1)
                                     ("nm"
                                                 ["\\mathbf{n}"
                                                                      ])
("Om"
            ["\\mathbf{0}"
                                ])
                                     ("om"
                                                 ["\\mathbf{o}"
                                                                      ])
("Pm"
           ["\\mathbf{P}"
                                ])
                                     ("pm"
                                                 ["\\mathbf{p}"
                                                                      ])
                                                 ["\mbox{\mbox{$m$}athbf{q}"}
                                                                      ])
("Qm"
           ["\\mathbf{Q}"
                                ])
                                     ("qm"
                                                 ["\mbox{\mbox{$m$}athbf{$r$}"}
                                                                      ])
("Rm"
            ["\mathbf{R}]"
                                ])
                                     ("rm"
("Sm"
            ["\\mathbf{S}"
                                1)
                                     ("sm"
                                                 ["\\mathbf{s}"
                                                                      1)
("Tm"
            ["\\mathbf{T}"
                                1)
                                     ("tm"
                                                 ["\mbox{\mbox{$m$}athbf{t}"}
                                                                      ])
            ["\\mathbf{U}"
("Um"
                                ])
                                     ("um"
                                                 ["\mbox{\mbox{$"}}]
                                                                      ])
("Vm"
            ["\\mathbf{V}"
                                ])
                                     ("vm"
                                                 ["\\mathbf{v}"
                                                                      ])
                                                                      ])
("Wm"
            ["\\mathbf{W}"
                                ])
                                     ("wm"
                                                 ["\\mathbf{w}"
                                ])
                                     ("xm"
                                                                      ])
("Xm"
           ["\\mathbf{X}"
                                                 ["\mathbf{x}]"
            ["\\mathbf{Y}"
("Ym"
                                ])
                                                 ["\\mathbf{y}"
                                                                      ])
                                     ("ym"
("Zm"
           ["\mathbf{Z}"]
                                ])
                                     ("zm"
                                                 ["\mathbf{z}"
                                                                      ])
("Om"
            ["\mathbf{0}]"
                                ])
                                     ("Om"
                                                 ["\\mathbf{0}"
                                                                      ])
;; Vector & Hat
("av"
           ["\\vec{a}"
                                1)
                                     ("ah"
                                                 ["\\hat{a}"
                                                                      ])
           ["\\vec{b}"
                                                                      ])
("bv"
                                ])
                                     ("bh"
                                                 ["\\hat{b}"
("cv"
           ["\\vec{c}"
                                ])
                                     ("ch"
                                                 ["\\hat{c}"
                                                                      ])
("dv"
           ["\\vec{d}"
                                ])
                                     ("dh"
                                                 ["\\hat{d}"
                                                                      ])
           ["\\vec{e}"
                                ])
                                     ("eh"
                                                 ["\\hat{e}"
                                                                      ])
("ev"
("fv"
            ["\\vec{f}"
                                1)
                                     ("fh"
                                                 ["\\ hat{f}"
                                                                      ])
("gv"
            ["\\vec{g}"
                                ])
                                     ("gh"
                                                 ["\\hat{g}"
                                                                      ])
```

```
["\\vec{h}"
                                   ("hh"
                                               ["\\hat{h}"
                                                                   ])
("hv"
                               ])
                                                                   ])
("iv"
           ["\\vec{i}"
                               ])
                                   ("ih"
                                               ["\\hat{i}"
           ["\\vec{j}"
                                   ("jh"
                                               ["\\hat{j}"
                                                                   ])
("jv"
                               ])
("kv"
           ["\\vec{k}"
                               1)
                                   ("kh"
                                               ["\\hat{k}"
                                                                   ])
("lv"
           ["\\vec{1}"
                               ])
                                   ("lh"
                                               ["\\hat{1}"
                                                                   ])
                                                                   ])
           ["\\vec{m}"
                               1)
                                   ("mh"
                                               ["\\hat{m}"
("mv"
                                   ("nh"
                                                                   ])
("nv"
           ["\vec{n}"]
                               1)
                                               ["\\ hat{n}"
                                                                   ])
("ov"
           ["\\vec{o}"
                               ])
                                   ("oh"
                                               ["\\hat{o}"
                                               ["\\ hat{p}"
                                                                   ])
("pv"
           ["\\vec{p}"
                               ])
                                   ("ph"
           ["\\vec{q}"
                               ])
                                   ("qh"
                                               ["\\hat{q}"
                                                                   ])
("qv"
                                                                   ])
("rv"
           ["\\vec{r}"
                               ])
                                   ("rh"
                                               ["\\hat{r}"
           ["\\vec{s}"
                               ])
                                   ("sh"
                                               ["\\hat{s}"
                                                                   ])
("sv"
("tv"
           ["\\vec{t}"
                               ])
                                   ("th"
                                               ["\\hat{t}"
                                                                   ])
                                                                   ])
           ["\\vec{u}"
                               ])
                                   ("uh"
                                               ["\\hat{u}"
("uv"
                                                                   ])
("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"
                                                                   ])
("ad"
           ["\\dot{a}"
                               ])
                                               ["\\dot{A}"
                                   ("Bd"
           ["\\dot{b}"
                                               ["\\dot{B}"
                                                                   ])
("bd"
                               ])
           ["\\dot{c}"
                               ])
                                   ("Cd"
                                               ["\\dot{C}"
                                                                   ])
("cd"
                               1)
                                                                   1)
("dd"
           ["\\dot{d}"
                                   ("Dd"
                                               ["\\dot{D}"
("ed"
           ["\\dot{e}"
                               ])
                                   ("Ed"
                                               ["\\dot{E}"
                                                                   ])
("fd"
           ["\\dot{f}"
                               ])
                                   ("Fd"
                                               ["\\dot{F}"
                                                                   ])
           ["\\dot{g}"
                               ])
                                   ("Gd"
                                               ["\\dot{G}"
                                                                   ])
("gd"
("hd"
                               ])
                                   ("Hd"
                                                                   ])
           ["\\dot{h}"
                                               ["\\dot{H}"
("id"
           ["\\dot{i}"
                               ])
                                   ("Id"
                                               ["\\dot{I}"
                                                                   ])
                                                                   ])
           ["\\dot{j}"
                               ])
                                   ("Jd"
                                               ["\\dot{J}"
("jd"
("kd"
           ["\\dot{k}"
                               ])
                                   ("Kd"
                                               ["\\dot{K}"
                                                                   ])
                                                                   ])
("ld"
           ["\\dot{1}"
                               ])
                                   ("Ld"
                                               ["\\dot{L}"
                                   ("Md"
("md"
           ["\\dot{m}"
                               ])
                                               ["\\dot{M}"
                                                                   ])
                                                                   ])
("nd"
           ["\\dot{n}"
                               1)
                                   ("Nd"
                                               ["\\dot{N}"
           ["\\dot{o}"
                               ])
                                   ("0d"
                                               ["\\dot{0}"
                                                                   ])
("od"
("pd"
           ["\\dot{p}"
                               ])
                                   ("Pd"
                                               ["\\dot{P}"
                                                                   ])
                                                                   ])
("qd"
           ["\\dot{q}"
                               ])
                                   ("Qd"
                                               ["\\dot{Q}"
                                                                   ])
                               ])
                                   ("Rd"
("rd"
           ["\\dot{r}"
                                               ["\\dot{R}"
("sd"
           ["\\dot{s}"
                               1)
                                   ("Sd"
                                               ["\\dot{S}"
                                                                   ])
("td"
           ["\\dot{t}"
                               ])
                                   ("Td"
                                               ["\\dot{T}"
                                                                   ])
```

```
["\\dot{u}"
                                   ("Ud"
                                                                 ])
("ud"
                              ])
                                              ["\\dot{U}"
                                                                 ])
("vd"
           ["\\dot{v}"
                              ])
                                   ("Vd"
                                              ["\\dot{V}"
                                                                 ])
("wd"
           ["\\dot{w}"
                              1)
                                   ("Wd"
                                              ["\\dot{W}"
("xd")
           ["\\dot{x}"
                              1)
                                   ("Xd"
                                              ["\\dot{X}"
                                                                 ])
("yd"
           ["\\dot{y}"
                              ])
                                   ("Yd"
                                              ["\\dot{Y}"
                                                                 ])
                                                                 ])
           ["\\\det{z}"
                              1)
                                   ("Zd"
                                              ["\\dot{Z}"
("zd"
;; DDot
("ad."
           ["\\ddot{a}"
                              ])
                                   ("Ad."
                                              ["\\ddot{A}"
                                                                 ])
                                                                 ])
("bd."
           ["\\ddot{b}"
                              1)
                                   ("Bd."
                                              ["\\ddot{B}"
("cd."
           ["\\ddot{c}"
                              1)
                                   ("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."
                              ])
                                  ("Hd."
                                              ["\\ddot{H}"
           ["\\ddot{h}"
                                                                 ])
("id."
           ["\\ddot{i}"
                              ])
                                   ("Id."
                                              ["\\ddot{I}"
                                                                 1)
("jd."
           ["\\ddot{j}"
                              1)
                                   ("Jd."
                                              ["\\ddot{J}"
("kd."
           ["\\ddot{k}"
                              1)
                                  ("Kd."
                                              ["\\ddot{K}"
                                                                 ])
("ld."
           ["\\ddot{1}"
                              1)
                                   ("Ld."
                                              ["\\ddot{L}"
                                                                 ])
("md."
           ["\\ddot{m}"
                              ])
                                   ("Md."
                                              ["\\ddot{M}"
                                                                 ])
("nd."
           ["\\ddot{n}"
                              ])
                                   ("Nd."
                                              ["\\ddot{N}"
                                                                 ])
                                  ("Od."
                                                                 ])
("od."
           ["\\ddot{o}"
                              ])
                                              ["\\ddot{0}"
           ["\\ddot{p}"
                                   ("Pd."
                                                                 ])
("pd."
                              ])
                                              ["\\ddot{P}"
                                                                 1)
("qd."
           ["\\ddot{q}"
                              1)
                                   ("Qd."
                                              ["\\ddot{Q}"
("rd."
           ["\\ddot{r}"
                              1)
                                   ("Rd."
                                              ["\\ddot{R}"
                                                                 ])
("sd."
           ["\\ddot{s}"
                              ])
                                   ("Sd."
                                              ["\\ddot{S}"
                                                                 ])
("td."
           ["\\ddot{t}"
                              ])
                                   ("Td."
                                                                 ])
                                              ["\\ddot{T}"
                              ])
                                                                 ])
("ud."
           ["\\ddot{u}"
                                   ("Ud."
                                              ["\\ddot{U}"
("vd."
                              ])
                                   ("Vd."
                                                                 ])
           ["\\ddot{v}"
                                              ["\\ddot{V}"
                                                                 ])
("wd."
                              ])
                                   ("Wd."
           ["\\ddot{w}"
                                              ["\\ddot{W}"
("xd."
           ["\\ddot{x}"
                              ])
                                   ("Xd."
                                              ["\\ddot{X}"
                                                                 ])
("yd."
           ["\\ddot{y}"
                              ])
                                   ("Yd."
                                              ["\\ddot{Y}"
                                                                 ])
("zd."
           ["\dot{z}"
                              1)
                                  ("Zd."
                                              ["\\ddot{Z}"
                                                                 ])
;; Expanding Func
("/"
            quail-TeQ-frac
                                    )
                                       ; fraction on previous
("eq"
                                       ; equation environment
            quail-TeQ-equation
                                    )
("al"
            quail-TeQ-aligned
                                       ; aligned environment
("el"
            quail-TeQ-endofline
                                       ; end of line
;; Symbols-dots
("..."
            ["\\dots"
                                         ; 3 dots
                                     ])
```

```
(".v"
           ["\\vdots"
                                        ; vertical dots
                                   ])
(".d"
           ["\\ddots"
                                   ])
                                        ; diagonale dots
(".1"
                                   1)
           ["\\ldots"
                                        ; low dots
;; Symbols-geo
           ["\\perp"
                                   ])
("perp"
                                   ])
                                        ; $\perp$ ~n~ (neg)
("perpn"
           ["\\perp"
                                   ])
("para"
           ["\\parallel"
                                   ])
("paran"
           ["\\nparallel"
                                        ; parallel ^n (neg)
                                   1)
("ang"
           ["\\angle"
           ["\\measuredangle"
                                   1)
                                        ; $\angle$ ~.~ (var)
("ang."
                                   ])
("tri"
           ["\\vartriangle"
("trin"
           ["\\triangledown"
                                   ])
                                        ; $\vartriangle$ ~n~ (neg)
           ["\\square"
                                   ])
("squ"
                                   ])
                                        ; $\vartriangle$ ~.~ (var)
("tri."
           ["\\blacktriangle"
           ["\\blacktriangledown"
                                   ])
                                        ; $\vartriangle$ ~n.~ (neg,var)
("trin."
                                   ])
                                        ; $\square$ ~.~ (var)
("squ."
           ["\\blacksquare"
;; Symbols
("inf"
           ["\\infty"
                                   ])
("ex"
           ["\\exists"
                                   ])
("exn"
           ["\\nexists"
                                   ])
                                        ; $\exists$ + _n_ (neg)
                                   ])
("fa"
           ["\\forall"
("hb"
                                   ])
           ["\\hbar"
("hb."
           ["\\hslash"
                                   ])
                                        ; $\hbar$ + _._
           ["\\mathrm{d}"
                                   1)
("dd"
("dd."
           ["\\partial"
                                   ])
                                       ; $\mathrm{d}$ + _._ (var)
("ii"
           ["\\imath"
                                   ])
("jj"
                                   ])
           ["\\jmath"
                                   ])
("nab"
           ["\\nabla"
("cm"
                                   ])
           ["\\checkmark"
;; Symbols spaces
("qu"
           ["\\quad"
                                   ])
                                   ])
("quu"
           ["\\qquad"
;; Symbols arrow1
("<-"
           ["\\leftarrow"
                                   ])
("->"
                                   ])
           ["\\rightarrow"
("-^"
           ["\\uparrow"
                                   ])
                                          ~~~ looks like up arrow head
("-v"
                                   ])
           ["\\downarrow"
                                          ~v~ looks like down arrow head
                                   ])
("<->"
           ["\\leftrightarrow"
("<-n"
           ["\\nleftarrow"
                                   1)
                                        ; negate (~n~) of prev. section
("->n"
           ["\\nrightarrow"
                                   ])
                                        ; arrows + _n_
```

```
("-^n"
           ["\\nuparrow"
                                   ])
                                   ])
("-vn"
           ["\\ndownarrow"
("<->"
                                   ])
           ["\\nleftrightarrow"
("-->"
           ["\\longrightarrow"
                                   ])
                                       ; longer arrows, with 2 dashes
("<--"
           ["\\longleftarrow"
                                   ])
("|->"
                                   1)
                                        ; vertical-bar + ~->~
           ["\\mapsto"
(""
           [""
                                        ; (this rendered wrong on Github)
                                   1)
(""
           [""
                                   ])
                                        ; (check from PDF file)
;; Symbols arrow2
("<="
           ["\\Leftarrow"
                                   ])
                                        ; compared to single arrrow
("=>"
           ["\\Rightarrow"
                                   ])
                                        ; these uses ~=~ as the arrow shaft
("=^"
           ["\\Uparrow"
                                   ])
("=v"
           ["\\Downarrow"
                                   ])
("<=>"
                                   ])
           ["\\Leftrightarrow"
                                   ])
("iff"
           ["\\Leftrightarrow"
                                   ])
("<=n"
           ["\\nLeftarrow"
                                        ; negate (~n~) of prev. section
                                   1)
("=>n"
           ["\\nRightarrow"
                                        ; arrows + _n_
("<=>n"
           ["\\nLeftrightarrow"
                                   1)
("iffn"
           ["\\nLeftrightarrow"
                                   1)
           ["\\Longleftrightarrow"])
("<==>"
                                        ; longer arrows, with 2 dashes
("<=="
           ["\\Longleftarrow"
                                   ])
("==>"
                                   ])
           ["\\Longrightarrow"
;; Symbols arrow3
("<---"
           ["\\xleftarrow[]{}"
                                   ])
                                        ; these uses triple - or =
("--->"
           ["\\xrightarrow[]{}"])
("===>"
           ["\\xRightarrow[]{}"])
                                        ; ~mathtools~ lib required
("<==="
           ["\\xLeftarrow[ ]{ }" ])
                                        ; ~mathtools~ lib required
;; Symbols arrow3
           ["\\vec{"
("vec"
                                   ])
                                   ])
("bar"
           ["\\bar{"
("hat"
           ["\\hat{"
                                   ])
                                   ])
("dot"
           ["\\dot{"
("dot."
           ["\\ddot{"
                                   ])
("dot.."
           ["\\dddot{"
                                   1)
           ["\dddot{"}
("dot..."
                                   ])
("dag"
           ["^\\dagger"
                                   ])
           ["^\\ddagger"
                                   ])
("dag."
("*.."
           ["^*"
                                   ])
("deg"
           ["^\\circ"
                                   ])
("tr"
           ["^T"
                                   ])
```

```
("tr."
           ["^{-T}"]
                                    ])
                                        ;
;; Operation: arith
("+-"
           ["\\pm"
                                    ])
("-+"
           ["\\mp"
                                    ])
("*x")
           ["\\times"
                                    ])
("::"
           ["\\div"
                                    ])
("**"
           ["\\cdot"
                                    ])
;; Operation: arith
("=."
           ["\\equiv"
                                    ])
                                         : Variation on
("<."
           ["\\leq"
                                    ])
                                         : < = >
(">."
                                    ])
           ["\\geq"
                                         ; symbols
("<<"
           ["\\11"
                                    ])
(">>"
           ["\\gg"
                                    ])
("=n"
                                    ])
           ["\\neq"
                                         ; negation
("n"
                                    ])
           ["\\nsim"
("<n"
           ["\\nless"
                                    ])
(">n"
           ["\\ngtr"
                                    1)
("<.n"
           ["\\nleq"
                                    1)
(">.n"
           ["\\ngeq"
                                    ])
("=?"
           ["\\stackrel{?}{=}"
                                    ])
                                          with question mark
("<?"
                                    ])
           ["\\stackrel{?}{<}"
(">?"
           ["\\stackrel{?}{>}"
                                    1)
("<.?"
           ["\\stackrel{?}{\\leq}"])
(">.?"
           ["\\stackrel{?}{\\geq}"])
("<<?"
           ["\\stackrel{?}{\\ll}" ])
(">>?"
           ["\\stackrel{?}{\\gg}" ])
("=y"
           ["\\stackrel{\\checkmark}{=}"])
                                               ; with check mark
("<y"
           ["\\stackrel{\\checkmark}{<}"])</pre>
(">y"
           ["\\stackrel{\\checkmark}{>}"])
("<.y"
           ["\\stackrel{\\checkmark}{\\leq}"])
(">.y"
           ["\\stackrel{\\checkmark}{\\geq}"])
("<<y"
           ["\\stackrel{\\checkmark}{\\ll}"])
(">>y"
           ["\\stackrel{\\checkmark}{\\gg}"])
("."
                                         ; Another variations
           ["\\sim"
                                    ])
(""
           ["\\approx"
                                    ])
                                         : on =
("3="
           ["\\equiv"
                                    ])
           ["\\coloneqq"
("=:"
                                    ])
(":="
                                    ])
           ["\\coloneqq"
;; Operation: arith
("in"
           ["\\ in"]
                                    ])
                                        ;
```

```
("in."
            ["\\ni"
                                     ])
("ni"
                                     ])
            ["\\ni"
("inn"
            ["\\notin"
                                     ])
                                         ; (neg)
("0/"
            ["\\emptyset"
                                     1)
("nsr"
            ["\mathbb{R}"
                                     ])
                                          ; (n)umber (s)et (r)eal
("nsc"
                                     1)
                                          ; (n)umber (s)et (c)omplex
            ["\\mathbb{C}"
("nsn"
                                     1)
            ["\\mathbb{N}"
                                     ])
("nsp"
            ["\\mathbb{P}"
                                         ; ...
                                     1)
("nsz"
            ["\\mathbb{Z}"
                                          ; . . .
("nsi"
            ["\mbox{\mbox{$"}}]
                                     1)
                                         ; ...
("sub"
                                     ])
            ["\\subset"
("subn"
            ["\\nssubseteq"
                                     ])
                                          ; (neg)
("sub."
            ["\\subseteq"
                                     ])
                                          ; (var)
                                     ])
            ["\\nsubseteq"
("sub.n"
                                          ; (var, neg)
                                     ])
("subn."
            ["\\nsubseteq"
                                            (neg, var)
            ["\\supset"
                                     ])
("sup"
                                     1)
("supn"
            ["\\nsupseteq"
                                          ; (neg)
("sup."
            ["\\supeseteq"
                                     ])
                                         ; (var)
("sup.n"
            ["\\nsupseteq"
                                     ])
                                          ; (var, neg)
("supn."
            ["\\nsupseteq"
                                     ])
                                          ; (neg, var)
;; Operation: arith
("or"
            ["\\lor"
                                     ])
("and"
            ["\\lnd"
                                     ])
                                     1)
("not"
            ["\\neg"
                                     1)
("or."
            ["\\text{ or }"
                                         ; (var)
("and."
            ["\text{ and } ]"
                                     ])
                                          ; (var)
                                     ])
("not."
            ["\\text{ not }"
                                          ; (var)
;; Func: main
("rank"
            ["\\mathrm{rank}"
                                     ])
                                     ])
("arg"
            ["\\arg"
("det"
            ["\\det"
                                     ])
                                     ])
("dim"
            ["\\dim"
("exp"
            ["\\exp("
                                     ])
                                     1)
("Im"
            ["\\mathrm{Im}("
            ["\\mathrm{Re}("
("Re"
                                     ])
("ln"
            ["\\ln("
                                     ])
                                     ])
("log"
            ["\\log("
                                     ])
("max"
            ["\\max("
("min"
            ["\\min("
                                     ])
                                     ])
("dim"
            ["\\dim("
```

```
("sqrt"
           ["\\sqrt("
                                  ])
                                  ])
("mod"
           ["\\pmod("
           ["\\mod"
                                  ])
("mod."
("mod.."
           ["\\bmod"
                                  ])
;; Func: Trig
("cos"
          ["\\cos("
                                ("cosh"
                                           ["\\cosh("
                                                             ])
                            1)
                                                             ])
("sin"
          ["\\sin("
                            1)
                                ("sinh"
                                           ["\\sinh("
                                                             ])
("tan"
          ["\\tan("
                            ])
                                ("tanh"
                                           ["\\tanh("
                                                             ])
("cot"
          ["\\cot("
                            1)
                                ("coth"
                                           ["\\coth("
("acos"
          ["\\arccos("
                            1)
                                ("cos."
                                           ["\\arccos("
                                                             1)
                                                             ])
("asin"
          ["\\arcsin("
                            ])
                                ("sin."
                                           ["\\arcsin("
("atan"
          ["\\arctan("
                            ])
                                ("tan."
                                           ["\\arctan("
                                                             ])
;; Func: iter
("il"
           ["\\limits_{ }"
                                  ])
           ["\\limits_{ }^{ }"
("il"
                                  ])
                                  ])
("lim"
           ["\\lim"
                                  ])
("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 }"]) ;
           ["\left[ \right]^{ + \infty };
("int..."
("inti."
           ["\\iint\\limits_{ }" ])
           ["\\iiint\\limits_{ }" ])
("intii."
("intiii." ["\\iiint\\limits_{ }"])
("into."
           ["\\oint\\limits_{ }" ])
;; Structural: Parenthesis
("()."
           ["\\left(\\right)"
                                  ])
           ["\\left( \\middle\\vert \\right)"]) ;
("().."
("[]."
           ["\\left[ \\right]"
                                  ])
("[].."
           ["\\left[ \\middle\\vert
                                     \\right]"]) ; (var)
("[].c"
           ["\\lceil \\rceil"
                                      ; (var) (ceil)
                                  ])
("[].f"
           ["\\lfloor \\rfloor"
                                       ; (var) (floor)
("{}."
           ["\\left\\{ \\right\\}"])
```

```
("{}.."
           ["\left( \right) ; (var)
("<>."
           ["\\left< \\right>"
                                  ])
("<>.."
           ["\\left< \\middle\\vert \\right>"]) ; (var)
("||."
           ["\\left\\vert \\right\\vert"]) ;
("||.."
           ["\\left\\Vert \\right\\Vert"]) ; (var)
("(."
           ["\\left("
                                      ; half (
                                  ])
(")."
           ["\\right)"
                                  ])
                                      ; half )
("[."
           ["\\left["
                                  ])
                                      ; half [
                                  ])
("]."
           ["\\right]"
                                      ; half ]
("{."
           ["\\left\\{"
                                  ])
                                      ; half {
("}."
                                  ])
           ["\\right\\}"
                                     ; half }
("<."
           ["\\left<"
                                  ])
                                      ; half <
(">."
           ["\\right>"
                                  ])
                                      ; half >
                                  ])
("(.."
           ["\\left."
                                      ; half left .
(").."
                                  ])
           ["\\right."
                                      ; half right .
("|."
           ["\\Bigg\\vert_{ }^{ }"])
                                      ; definite integral range
;; Structural: Text
("te"
           ["\\text{"
                                  ])
                                     ; (te)xt
("tr"
           ["\\mathrm{"
                                  ])
                                      ; (t)ext(r)oman
("tb"
           ["\\mathbf{"
                                  ])
                                      ; (t)ext (b)old
("ti"
           ["\\mathit{"
                                  ])
                                      ; (t)ext (i)talics
;; Structural: Text
("te"
           ["\\text{"
                                  ])
                                      ; (te)xt
           ["\\mathrm{"
                                  1)
                                      ; (t)ext (r)oman
("tr"
("tb"
           ["\\mathbf{"
                                  ])
                                     ; (t)ext (b)old
("ti"
           ["\\mathit{"
                                  ])
                                      ; (t)ext (i)talics
;; Structural: Sub-sup-scripts
("^"
          ["^{"
                               ("_"
                                          ["_{"
                                                            ])
                            ])
("pp"
          ["^{"
                            ])
                               ("11"
                                          ["_{"
                                                            ])
          ["^0"
                                                            ])
                            ])
                                ("10"
                                          ["_0"
("p0"
("p1"
          ["^1"
                            ])
                                ("11"
                                          ["_1"
                                                            ])
          ["^2"
                                                            ])
("p2"
                            ])
                               ("12"
                                          ["_2"
("p3"
          ["^3"
                            ])
                               ("13"
                                          ["_3"
                                                            ])
          ["~4"
("p4"
                            1)
                                ("14"
                                          ["_4"
                                                            1)
("pn"
          ["^n"
                            1)
                                ("lnn"
                                                            ])
                                          ["_n"
"xq")
          ["^X]
                            ]) ("li"
                                          ["_i"
                                                            ])
("__"
          ["\\underset{ }{ }"]) ("^~"
                                           ["\\overset{ }{ }"])
("__."
          ["\\underbrace{ }_{ }"]) ("^^."
                                              ["\\overbrace{ }^{ }"])
          ["\\underline{ }" ]) ("^^.." ["\\overline{ }" ])
;; Structural: misc
```

```
("binom"
          ["\\binom{}{"
                                ]) ; Binom
("box"
          ["\\boxed{}{"
                                ])
                                     ; Putting box around object
("fr"
          ["\\frac{}{"
                                ]) ; Fractions
("can"
          ["\\cancel"
                                1)
("&="
          ["&=\\n\\\\\"
                                ])
("=&"
          ["&=\\n\\\\\"
                                ]) ;
;; Structural: xy
("xy"
          ["\\xymatrix{\\n\\n}"
                                ])
                                ]) ;
          ["\\bullet"
("bu"
("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
10
(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."
                                           ["A"
                                                           ])
   ("a."
             ["\\alpha"
                             ])
                                                           ])
   ("b."
             ["\\beta"
                             1)
                                 ("B."
                                           ["B"
   ("c."
             ["\\psi"
                             1)
                                 ("C."
                                           ["\\Psi"
                                                           ])
             ["\\delta"
                                                           ])
   ("d."
                             1)
                                 ("D."
                                           ["\\Delta"
   ("e."
             ["\\epsilon"
                             ])
                                 ("E."
                                           ["E"
                                                           ])
   ("f."
                                 ("F."
                                           ["\\Phi"
                                                           ])
             ["\\phi"
                             ])
                                                           ])
   ("g."
                             ])
                                 ("G."
                                           ["\\Gamma"
             ["\\gamma"
   ("h."
             ["\\eta"
                             ])
                                 ("H."
                                           ["H"
                                                           ])
                                                           1)
   ("i."
             ["\\iota"
                             1)
                                 ("I."
                                           ["I"
   ("j."
                                                           ])
             ["\\xi"
                             1)
                                 ("J."
                                           ["\\Xi"
   ("k."
             ["\\kappa"
                             ])
                                 ("K."
                                           ["K"
                                                           ])
   ("1."
                                                           ])
             ["\\lambda"
                             ])
                                 ("L."
                                           ["\\Lambda"
   ("m."
             ["\\mu"
                             ])
                                 ("M."
                                           "M"
                                                           ])
   ("n."
             ["\\nu"
                             ])
                                 ("N."
                                           ["N"
                                                           ])
                                                           ])
   ("o."
             ["o"
                             ])
                                 ("0."
                                           ["0"
   ("p."
             ["\\pi"
                             ])
                                 ("P."
                                           ["\\Pi"
                                                           ])
                                           ["P"
                                                           ])
   ("r."
             ["\\rho"
                             ])
                                 ("R."
                                           ["\\Sigma"
   ("s."
             ["\\sigma"
                             ])
                                 ("S."
                                                           ])
                                 ("T."
   ("t."
                                           ["T"
                                                           ])
             ["\\tau"
                             1)
   ("th."
             ["\\theta"
                             ])
                                 ("Th."
                                           ["\\Theta"
                                                           ])
   ("u."
             ["\\upsilon"
                             ])
                                 ("U."
                                           ["\\Upsilon"
                                                           ])
   ("w."
                                                           ])
             ["\\omega"
                             ])
                                 ("W."
                                           ["\\Omega"
                                                           ])
   ("x."
             ["\\chi"
                             ])
                                 ("X."
                                           ["X"
   ("z."
             ["\\zeta"
                             1)
                                 ("Z."
                                           ["Z"
                                                           ])
```

;; Matrix

```
["\\mathbf{A}"
                               ])
                                               ["\mathbf{a}"
                                                                  ])
("Am"
                                   ("am"
                                                                  ])
("Bm"
           ["\\mathbf{B}"
                               ])
                                   ("bm"
                                               ["\\mathbf{b}"
                                                                  ])
("Cm"
           ["\\mathbf{C}"
                               ])
                                   ("cm"
                                              ["\\mathbf{c}"
("Dm"
           ["\\mathbf{D}"
                               ])
                                   ("dm"
                                              ["\\mathbf{d}"
                                                                  ])
("Em"
           ["\\mathbf{E}"
                               ])
                                   ("em"
                                              ["\\mathbf{e}"
                                                                  ])
("Fm"
           ["\\mathbf{F}"
                               ])
                                   ("fm"
                                              ["\\mathbf{f}"
                                                                  ])
           ["\\mathbf{G}"
                                               ["\\mathbf{g}"
                                                                  ])
("Gm"
                               ])
                                   ("gm"
                                                                  ])
("Hm"
           ["\\mathbf{H}"
                               ])
                                   ("hm"
                                               ["\\mathbf{h}"
                                                                  ])
("Im"
           ["\mathbf{I}"]
                               ])
                                   ("im"
                                               ["\\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"
                                               ["\mathbf{p}]"
                                   ("qm"
                                                                  ])
("Qm"
           ["\\mathbf{Q}"
                               ])
                                              ["\\mathbf{q}"
("Rm"
           ["\mathbf{R}]"
                               ])
                                   ("rm"
                                              ["\mathbf{r}]"
                                                                  ])
("Sm"
           ["\\mathbf{S}"
                               ])
                                   ("sm"
                                              ["\\mathbf{s}"
                                                                  ])
("Tm"
           ["\mathbf{T}]"
                               ])
                                   ("tm"
                                              ["\\mathbf{t}"
                                                                  ])
                                                                  ])
("Um"
           ["\\mathbf{U}"
                               ])
                                   ("um"
                                              ["\\mathbf{u}"
("Vm"
                                                                  ])
           ["\\mathbf{V}"
                               ])
                                   ("vm"
                                              ["\\mathbf{v}"
                               ])
                                                                  ])
("Wm"
           ["\\mathbf{W}"
                                   ("wm"
                                               ["\\mathbf{w}"
                                                                  ])
("Xm"
           ["\\mathbf{X}"
                               ])
                                   ("xm"
                                              ["\mathbf{x}]"
("Ym"
           ["\\mathbf{Y}"
                               ])
                                   ("ym"
                                              ["\\mathbf{y}"
                                                                  ])
("Zm"
           ["\\mathbf{Z}"
                               ])
                                   ("zm"
                                               ["\mathbf{z}"
                                                                  ])
("Om"
           ["\\mathbf{0}"
                               ])
                                   ("Om"
                                              ["\\mathbf{0}"
                                                                  ])
;; Vector & Hat
           ["\\vec{a}"
                               ])
                                   ("ah"
                                              ["\\hat{a}"
                                                                  ])
("av"
                               ])
                                                                  ])
("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}"
                                                                  ])
                               ])
                                                                  ])
("gv"
           ["\\vec{g}"
                                   ("gh"
                                              ["\\hat{g}"
("hv"
           ["\\vec{h}"
                               ])
                                   ("hh"
                                                                  ])
                                              ["\\hat{h}"
                                                                  ])
("iv"
           ["\\vec{i}"
                               ])
                                   ("ih"
                                              ["\\hat{i}"
                                                                  ])
           ["\\vec{j}"
                               ])
                                               ["\\hat{j}"
("jv"
                                   ("jh"
("kv"
           ["\\vec{k}"
                               ])
                                   ("kh"
                                               ["\\hat{k}"
                                                                  ])
("lv"
           ["\\vec{1}"
                               ])
                                   ("lh"
                                              ["\\hat{1}"
                                                                  ])
```

```
["\\vec{m}"
                               ])
                                   ("mh"
                                               ["\\hat{m}"
                                                                   ])
("mv"
                                                                   ])
("nv"
           ["\vec{n}"]
                               ])
                                   ("nh"
                                               ["\\ hat{n}"
           ["\\vec{o}"
                               ])
                                   ("oh"
                                               ["\\hat{o}"
                                                                   ])
("ov"
                                                                   ])
("pv"
           ["\\vec{p}"
                               ])
                                   ("ph"
                                               ["\\hat{p}"
("qv"
           ["\\vec{q}"
                               ])
                                   ("qh"
                                               ["\\hat{q}"
                                                                   ])
                                                                   ])
("rv"
           ["\\vec{r}"
                               ])
                                   ("rh"
                                               ["\\hat{r}"
           ["\\vec{s}"
                                   ("sh"
                                               ["\\hat{s}"
                                                                   ])
("sv"
                               ])
                                                                   ])
("tv"
           ["\\vec{t}"
                               ])
                                   ("th"
                                               ["\\hat{t}"
           ["\\vec{u}"
                                               ["\\hat{u}"
                                                                   ])
("uv"
                               ])
                                   ("uh"
("vv"
           ["\\vec{v}"
                               ])
                                   ("vh"
                                               ["\\hat{v}"
                                                                   ])
           ["\\vec{w}"
                               ])
                                               ["\\hat{w}"
                                                                   ])
("wv"
                                   ("wh"
("xv")
           ["\\vec{x}"
                               ])
                                   ("xh"
                                               ["\\hat{x}"
                                                                   ])
("yv"
           ["\\vec{y}"
                               ])
                                   ("yh"
                                               ["\\hat{y}"
                                                                   ])
                                                                   ])
("zv"
           ["\vec{z}"]
                               ])
                                   ("zh"
                                               ["\\ hat{z}"
;; Dot
           ["\\dot{a}"
                               ])
                                   ("Ad")
                                               ["\\dot{A}"
                                                                   ])
("ad"
                               ])
                                                                   ])
("bd"
           ["\\dot{b}"
                                   ("Bd"
                                               ["\\dot{B}"
("cd"
           ["\\dot{c}"
                               ])
                                   ("Cd"
                                               ["\\dot{C}"
                                                                   ])
                                                                   ])
("dd"
           ["\\dot{d}"
                               ])
                                   ("Dd"
                                               ["\\dot{D}"
("ed"
           ["\\dot{e}"
                               ])
                                   ("Ed"
                                               ["\\dot{E}"
                                                                   ])
("fd"
                                   ("Fd"
                                                                   ])
           ["\\dot{f}"
                               ])
                                               ["\\dot{F}"
           ["\\dot{g}"
                               ])
                                   ("Gd"
                                               ["\\dot{G}"
                                                                   ])
("gd"
           ["\\dot{h}"
                               ])
                                   ("Hd"
                                               ["\\dot{H}"
                                                                   ])
("hd"
                                               ["\\dot{I}"
("id"
           ["\\dot{i}"
                               1)
                                   ("Id"
                                                                   ])
                                                                   ])
("jd"
           ["\\dot{j}"
                               ])
                                   ("Jd"
                                               ["\\dot{J}"
("kd"
           ["\\dot{k}"
                               ])
                                   ("Kd"
                                               ["\\dot{K}"
                                                                   ])
                                                                   ])
("ld"
           ["\\dot{1}"
                               ])
                                   ("Ld"
                                               ["\\dot{L}"
           ["\\dot{m}"
                               ])
                                   ("Md"
                                               ["\\dot{M}"
                                                                   ])
("md"
("nd"
           ["\\dot{n}"
                               ])
                                   ("Nd"
                                               ["\\dot{N}"
                                                                   ])
                                                                   ])
                               ])
("od"
           ["\\dot{o}"
                                   ("Od"
                                               ["\\dot{0}"
("pd"
           ["\\dot{p}"
                               ])
                                   ("Pd"
                                               ["\\dot{P}"
                                                                   ])
                                                                   ])
("qd"
           ["\\dot{q}"
                               ])
                                   ("Qd"
                                               ["\\dot{Q}"
("rd"
           ["\\dot{r}"
                               ])
                                   ("Rd"
                                               ["\\dot{R}"
                                                                   ])
                                                                   ])
("sd"
           ["\\dot{s}"
                               ])
                                   ("Sd"
                                               ["\\dot{S}"
("td"
           ["\\dot{t}"
                               ])
                                   ("Td"
                                               ["\\dot{T}"
                                                                   ])
("ud"
           ["\\dot{u}"
                               ])
                                   ("Ud"
                                               ["\\dot{U}"
                                                                   ])
("vd"
                               ])
                                   ("Vd"
                                                                   ])
           ["\\dot{v}"
                                               ["\\dot{V}"
                               ])
                                                                   ])
("wd"
           ["\\dot{w}"
                                   ("Wd"
                                               ["\\dot{W}"
("xd"
           ["\\dot{x}"
                               ])
                                   ("Xd"
                                               ["\\dot{X}"
                                                                   ])
("yd"
           ["\\dot{y}"
                               ])
                                   ("Yd"
                                               ["\\dot{Y}"
                                                                   ])
```

```
["\\\det{z}"
                                  ("Zd"
                                             ["\\dot{Z}"
                                                                 ])
("zd"
                              ])
;; DDot
           ["\\\dot{a}"
                                  ("Ad."
                                             ["\\ddot{A}"
                                                                 ])
("ad."
                              ])
("bd."
           ["\\ddot{b}"
                              ])
                                  ("Bd."
                                             ["\\ddot{B}"
                                                                 ])
("cd."
           ["\\ddot{c}"
                              ])
                                  ("Cd."
                                             ["\\ddot{C}"
                                                                 ])
                                                                 ])
("dd."
           ["\\ddot{d}"
                              1)
                                  ("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."
                                                                 ])
("id."
           ["\\ddot{i}"
                              ])
                                             ["\\ddot{I}"
("jd."
           ["\\ddot{j}"
                              ])
                                  ("Jd."
                                             ["\\ddot{J}"
                                                                 ])
("kd."
           ["\\ddot{k}"
                              ])
                                  ("Kd."
                                             ["\\ddot{K}"
                                                                 ])
                                                                 ])
("ld."
           ["\\ddot{1}"
                              ])
                                  ("Ld."
                                             ["\\ddot{L}"
                                                                 ])
("md."
           ["\\ddot{m}"
                              ])
                                  ("Md."
                                             ["\\ddot{M}"
                              ])
                                                                 ])
("nd."
           ["\\ddot{n}"
                                  ("Nd."
                                             ["\\ddot{N}"
                                                                 ])
("od."
           ["\\ddot{o}"
                              ])
                                  ("Od."
                                             ["\\ddot{0}"
("pd."
           ["\\ddot{p}"
                              ])
                                  ("Pd."
                                             ["\\ddot{P}"
                                                                 ])
("qd."
           ["\\ddot{q}"
                              ])
                                  ("Qd."
                                             ["\\ddot{Q}"
                                                                 ])
("rd."
           ["\\ddot{r}"
                              ])
                                  ("Rd."
                                             ["\\ddot{R}"
                                                                 ])
                                                                 ])
("sd."
           ["\\ddot{s}"
                              ])
                                  ("Sd."
                                             ["\\ddot{S}"
                                  ("Td."
                                                                 ])
("td."
           ["\\ddot{t}"
                              ])
                                             ["\\ddot{T}"
                              ])
                                  ("Ud."
                                                                 ])
("ud."
           ["\\ddot{u}"
                                             ["\\ddot{U}"
                                  ("Vd."
                                                                 ])
("vd."
           ["\\ddot{v}"
                              1)
                                             ["\\ddot{V}"
("wd."
           ["\\ddot{w}"
                              ])
                                  ("Wd."
                                             ["\\ddot{W}"
                                                                 ])
("xd."
           ["\\ddot{x}"
                              ])
                                  ("Xd."
                                             ["\\ddot{X}"
                                                                 ])
("yd."
           ["\\ddot{y}"
                              ])
                                  ("Yd."
                                             ["\\ddot{Y}"
                                                                 ])
                                  ("Zd."
                                             ["\\ddot{Z}"
                                                                 ])
("zd."
           ["\dot{z}"]
                              ])
;; Expanding Func
("/"
           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
;; Symbols-dots
            ["\\dots"
("..."
                                    ])
                                         ; 3 dots
(".v"
            ["\\vdots"
                                    ])
                                         ; vertical dots
(".d"
            ["\\ddots"
                                    ])
                                         ; diagonale dots
(".1"
            ["\\ldots"
                                    ])
                                         ; low dots
;; Symbols-geo
            ["\\perp"
                                    ])
("perp"
```

```
("perpn"
           ["\\perp"
                                   ])
                                       ; $\perp$ ~n~ (neg)
("para"
           ["\\parallel"
                                   ])
("paran"
           ["\\nparallel"
                                   ])
                                       ; $\parallel$ ~n~ (neg)
("ang"
                                   ])
           ["\\angle"
("ang."
                                   ])
                                       ; $\angle$ ~.~ (var)
           ["\\measuredangle"
                                   1)
("tri"
           ["\\vartriangle"
                                   ])
("trin"
           ["\\triangledown"
                                       ; $\vartriangle$ ~n~ (neg)
("squ"
           ["\\square"
                                   ])
("tri."
           ["\\blacktriangle"
                                   1)
                                        ; $\vartriangle$ ~.~ (var)
("trin."
           ["\\blacktriangledown"])
                                        ; $\vartriangle$ ~n.~ (neg,var)
("squ."
           ["\\blacksquare"
                                   ])
                                        ; $\square$ ~.~ (var)
;; Symbols
("inf"
           ["\\infty"
                                   ])
("ex"
                                   ])
           ["\\exists"
                                       ; $\exists$ + _n_ (neg)
("exn"
           ["\\nexists"
                                   ])
("fa"
                                   ])
           ["\\forall"
                                   1)
("hb"
           ["\\hbar"
("hb."
           ["\\hslash"
                                   ])
                                       ; $\hbar$ + _._
                                                         (var)
("dd"
           ["\\mathrm{d}"
                                   ])
("dd."
           ["\\partial"
                                   ])
                                       ; $\mathrm{d}$ + _._ (var)
("ii"
           ["\\imath"
                                   ])
("jj"
                                   ])
           ["\\jmath"
                                   ])
("nab"
           ["\\nabla"
("cm"
                                   1)
           ["\\checkmark"
;; Symbols spaces
("qu"
           ["\\quad"
                                   ])
("quu"
                                   ])
           ["\\qquad"
;; Symbols arrow1
("<-"
           ["\\leftarrow"
                                   ])
("->"
                                   ])
            ["\\rightarrow"
("-^"
            ["\\uparrow"
                                   ])
                                          ~~~ looks like up arrow head
("-v"
           ["\\downarrow"
                                   ])
                                          ~v~ looks like down arrow head
("<->"
           ["\\leftrightarrow"
                                   ])
("<-n"
           ["\\nleftarrow"
                                   ])
                                        ; negate (~n~) of prev. section
("->n"
           ["\\nrightarrow"
                                   ])
                                        ; arrows + _n_
("-^n"
                                   ])
           ["\\nuparrow"
                                   ])
("-vn"
           ["\\ndownarrow"
                                   ])
("<->"
           ["\\nleftrightarrow"
("-->"
           ["\\longrightarrow"
                                   ])
                                        ; longer arrows, with 2 dashes
("<--"
           ["\\longleftarrow"
                                   ])
```

```
("|->"
           ["\\mapsto"
                                       ; vertical-bar + ~->~
                                   ])
(""
           [ 11 11
                                   ])
                                        ; (this rendered wrong on Github)
(""
           [""
                                   ])
                                        ; (check from PDF file)
;; Symbols arrow2
("<="
           ["\\Leftarrow"
                                   ])
                                        ; compared to single arrrow
("=>"
                                        ; these uses ~=~ as the arrow shaft
           ["\\Rightarrow"
                                   ])
("=^"
                                   1)
           ["\\Uparrow"
                                   ])
("=v"
           ["\\Downarrow"
("<=>"
           ["\\Leftrightarrow"
                                   1)
("iff"
           ["\\Leftrightarrow"
                                   1)
("<=n"
           ["\\nLeftarrow"
                                   ])
                                       ; negate (~n~) of prev. section
("=>n"
           ["\\nRightarrow"
                                   ])
                                        ; arrows + _n_
("<=>n"
           ["\\nLeftrightarrow"
                                   ])
("iffn"
                                   ])
           ["\\nLeftrightarrow"
("<==>"
           ["\\Longleftrightarrow"])
                                        ; longer arrows, with 2 dashes
("<=="
           ["\\Longleftarrow"
                                   ])
("==>"
                                   1)
           ["\\Longrightarrow"
;; Symbols arrow3
("<---"
           ["\\xleftarrow[ ]{ }" ])
                                        ; these uses triple - or =
("--->"
           ["\\xrightarrow[]{}"])
("===>"
           ["\\xRightarrow[]{}"])
                                       ; ~mathtools~ lib required
("<==="
           ["\\xLeftarrow[ ]{ }" ])
                                       ; "mathtools" lib required
;; Symbols arrow3
           ["\\vec{"
("vec"
                                   1)
("bar"
           ["\\bar{"
                                   1)
("hat"
           ["\\hat{"
                                   ])
("dot"
           ["\\dot{"
                                   ])
("dot."
           ["\\ddot{"
                                   ])
("dot.."
           ["\\dddot{"
                                   ])
                                   ])
("dot..."
           ["\\ddddot{"
("dag"
           ["^\\dagger"
                                   ])
("dag."
           ["^\\ddagger"
                                   ])
("*.."
           ["^*"
                                   ])
("deg"
           ["^\\circ"
                                   ])
("tr"
           ["^T"
                                   ])
("tr."
           ["^{-T}"
                                   ])
;; Operation: arith
("+-"
           ["\\pm"
                                   ])
("-+"
           "qm//"]
                                   ])
("*x")
           ["\\times"
                                   ])
```

```
("::"
            ["\\div"
                                    ])
("**"
           ["\\cdot"
                                    ])
;; Operation: arith
("=."
           ["\\equiv"
                                    ])
                                        ; Variation on
("<."
            ["\\leq"
                                    ])
                                        : < = >
(">."
                                    ])
            ["\\geq"
                                        ; symbols
("<<"
           ["\\11"
                                    ])
(">>"
                                    ])
            ["\\gg"
("=n"
                                    1)
            ["\\neq"
                                        ; negation
("n"
            ["\\nsim"
                                    ])
("<n"
                                    ])
            ["\\nless"
(">n"
            ["\\ngtr"
                                    ])
("<.n"
            ["\\nleq"
                                    ])
                                    ])
(">.n"
            ["\\ngeq"
("=?"
                                    ])
            ["\\stackrel{?}{=}"
                                        ; with question mark
("<?"
            ["\\stackrel{?}{<}"
                                    ])
(">?"
            ["\\stackrel{?}{>}"
                                    1)
("<.?"
           ["\\stackrel{?}{\\leq}"])
(">.?"
            ["\\stackrel{?}{\\geq}"])
("<<?"
            ["\\stackrel{?}{\\ll}" ])
(">>?"
           ["\\stackrel{?}{\\gg}" ])
("=y"
            ["\\stackrel{\\checkmark}{=}"])
                                               ; with check mark
("<y"
            ["\\stackrel{\\checkmark}{<}"])
(">y"
            ["\\stackrel{\\checkmark}{>}"])
("<.y"
           ["\\stackrel{\\checkmark}{\\leq}"])
(">.y"
            ["\\stackrel{\\checkmark}{\\geq}"])
("<<y"
            ["\\stackrel{\\checkmark}{\\ll}"])
(">>y"
            ["\\stackrel{\\checkmark}{\\gg}"])
("."
           ["\\sim"
                                    ])
                                        ; Another variations
(""
                                    ])
            ["\\approx"
                                        ; on =
("3="
            ["\\equiv"
                                    ])
("=:"
                                    ])
            ["\\coloneqq"
                                        ;
(":="
           ["\\coloneqq"
                                    ])
;; Operation: arith
("in"
           ["\\in"
                                    ])
("in."
           ["\\ni"
                                    ])
("ni"
           ["\\ni"
                                    ])
           ["\\notin"
                                    ])
("inn"
                                        ; (neg)
("0/"
           ["\\emptyset"
                                    1)
("nsr"
           ["\\mathbb{R}"
                                    ])
                                        ; (n)umber (s)et (r)eal
```

```
("nsc"
            ["\\mathbb{C}"
                                         ; (n)umber (s)et (c)omplex
                                     ])
("nsn"
                                     ])
            ["\\mathbb{N}"
("nsp"
            ["\\mathbb{P}"
                                     ])
                                         ; ...
("nsz"
            ["\\mathbb{Z}"
                                     ])
                                         ; ...
("nsi"
            ["\mathbb{I}"]
                                     ])
                                         ; ...
("sub"
                                     1)
            ["\\subset"
                                     ])
("subn"
            ["\\nssubseteq"
                                         ; (neg)
                                     ])
("sub."
            ["\\subseteq"
                                         ; (var)
                                     ])
("sub.n"
            ["\\nsubseteq"
                                         ; (var, neg)
("subn."
            ["\\nsubseteq"
                                     ])
                                         ; (neg, var)
("sup"
                                     ])
            ["\\supset"
("supn"
            ["\\nsupseteq"
                                     ])
                                         ; (neq)
("sup."
            ["\\supeseteq"
                                     ])
                                         ; (var)
                                     ])
("sup.n"
            ["\\nsupseteq"
                                         ; (var, neg)
                                     ])
("supn."
            ["\\nsupseteq"
                                         ; (neg, var)
;; Operation: arith
("or"
                                     ])
            ["\\lor"
("and"
            ["\\lnd"
                                     ])
                                     ])
("not"
            ["\\neg"
            ["\\text{ or }"
("or."
                                     ])
                                         ; (var)
            ["\\text{ and }"
                                     ])
("and."
                                         ; (var)
("not."
            ["\\text{ not }"
                                     ])
                                         ; (var)
;; 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: Trig
```

```
("cos"
          ["\\cos("
                                ("cosh"
                                                             ])
                            ])
                                           ["\\cosh("
                                                             ])
("sin"
          ["\\sin("
                            ])
                                ("sinh"
                                           ["\\sinh("
("tan"
                                ("tanh"
                                                             ])
          ["\\tan("
                            1)
                                           ["\\tanh("
("cot"
          ["\\cot("
                            1)
                               ("coth"
                                           ["\\coth("
                                                             ])
("acos"
          ["\\arccos("
                            ])
                                ("cos."
                                           ["\\arccos("
                                                             ])
                                                             ])
("asin"
          ["\\arcsin("
                            1)
                                ("sin."
                                           ["\\arcsin("
          ["\\arctan("
                                           ["\\arctan("
                                                             ])
("atan"
                            1)
                                ("tan."
;; Func: iter
("il"
           ["\\limits_{ }"
                                  ])
("il"
           ["\\limits_{ }^{ }"
                                  ])
                                      ;
("lim"
           ["\\lim"
                                  ])
("sum"
           ["\\sum"
                                  ])
("prod"
           ["\\prod"
                                  ])
("int"
                                  ])
           ["\\int"
("inti"
           ["\\iint"
                                  ])
("intii"
                                  ])
           ["\\iiint"
                                  1)
("intiii"
           ["\\iiiint"
("into"
           ["\\oint"
                                  ])
("sum."
           ["\\sum\\limits_{ i=1 }^{ n }"])
("prod."
           ["\\prod\\limits_{ i=1 }^{ n }"]) ;
           ["\\int\\limits_{ }^{ }"]) ;
("int."
("int.."
           ["\\int\\limits_{ 0 }^{ +\\infty }"])
("int..."
           ["\\int\\limits_{ -\\infty }^{ +\\infty }"]) ;
("inti."
           ["\\iint\\limits_{ }" ]) ;
("intii."
           ["\\iiint\\limits_{ }" ])
("intiii." ["\\iiint\\limits_{ }"])
("into."
           ["\\oint\\limits_{ }" ]) ;
;; Structural: Parenthesis
("()."
           ["\\left( \\right)"
                                  ])
("().."
           ["\\left( \\middle\\vert \\right)"]) ;
("[]."
           ["\\left[ \\right]"
                                  ])
("[].."
           ["\\left[ \\middle\\vert \\right]"]) ; (var)
("[].c"
           ["\\lceil \\rceil"
                                  ])
                                     ; (var) (ceil)
("[].f"
           ["\\lfloor \\rfloor"
                                  ])
                                      ; (var) (floor)
("{}."
           ["\\left\\{ \\right\\}"])
("{}.."
           ["\\left\\{ \\middle\\vert \\right\\}"]) ; (var)
("<>."
           ["\\left< \\right>"
                                  ]) ;
("<>.."
           ["\\left< \\middle\\vert \\right>"]) ; (var)
("||."
           ["\\left\\vert \\right\\vert"])
("||.."
           ["\\left\\Vert \\right\\Vert"]) ; (var)
```

```
("(."
           ["\\left("
                                   ])
                                       ; half (
(")."
           ["\\right)"
                                   ])
                                       ; half )
("[."
           ["\\left["
                                   ])
                                        ; half [
("]."
           ["\\right]"
                                   ])
                                       ; half ]
("{."
           ["\\left\\{"
                                   ])
                                        ; half {
("}."
           ["\\right\\}"
                                   ])
                                        ; half }
("<."
           ["\\left<"
                                   ])
                                        ; half <
(">."
           ["\\right>"
                                   ])
                                        ; half >
("(.."
           ["\\left."
                                   ])
                                        ; half left .
(").."
           ["\\right."
                                   ])
                                        ; half right .
("|."
           ["\\Bigg\\vert_{ }^{ }"])
                                       ; definite integral range
;; Structural: Text
("te"
           ["\\text{"
                                   ])
                                        ; (te)xt
("tr"
           ["\\mathrm{"
                                   ])
                                       ; (t)ext (r)oman
                                   ])
("tb"
           ["\\mathbf{"
                                       ; (t)ext (b)old
("ti"
           ["\\mathit{"
                                   ])
                                       ; (t)ext (i)talics
;; Structural: Text
("te"
           ["\\text{"
                                   ])
                                       ; (te)xt
("tr"
           ["\\mathrm{"
                                   ])
                                        ; (t)ext(r)oman
("tb"
           ["\\mathbf{"
                                   ])
                                       ; (t)ext (b)old
("ti"
           ["\\mathit{"
                                   ])
                                        ; (t)ext (i)talics
;; Structural: Sub-sup-scripts
                                 ("_"
                                            ["_{"
("^"
          ["^{"
                                                               ])
                             ])
                                  ("11"
          ["~{"
                                            ["_{"
                                                               1)
("pp"
                             1)
          ["^0"
("p0"
                             1)
                                 ("10"
                                            ["_0"
                                                               ])
("p1"
          ["^1"
                             ])
                                 ("11"
                                            ["_1"
                                                               ])
          ["^2"
                                            ["_2"
("p2"
                             ])
                                 ("12"
                                                               ])
          ["^3"
                             ])
                                 ("13"
                                            ["_3"
                                                               ])
("p3"
("p4"
          ["^4"
                             ])
                                 ("14"
                                            ["_4"
                                                               ])
                                            ["_n"
          ["^n"
                             ])
                                                               ])
("pn"
                                 ("lnn"
("px")
          ["^X"
                             ])
                                  ("li"
                                            ["_i"
                                                               ])
("__"
          ["\\underset{ }{ }"]) ("^~"
                                             ["\\overset{ }{ }"])
("__."
          ["\\underbrace{ }_{ }"]) ("^^."
                                                 ["\\overbrace{ }^{ }"])
("__.."
          ["\\underline{ }" ]) ("^^.."
                                            ["\\overline{ }" ])
;; Structural: misc
("binom"
           ["\\binom{}{"
                                   ])
                                       ; Binom
("box"
           ["\\boxed{}{"
                                   ])
                                        ; Putting box around object
("fr"
           ["\\frac{}{"
                                   ])
                                        ; Fractions
("can"
           ["\\cancel"
                                   1)
                                       ;
("&="
           ["&=\\n\\\\"
                                   ])
```

```
("=&" ["&=\\n\\\\\"]);
;; Structural: xy
   ("xy" ["\\xymatrix{\\n\\n}"]);
   ("bu" ["\\bullet"]);
   ("ar" ["\\ar"]);
```