Emacs TeQ: (TeX + Quail)

Input Method written in Quail for entering LaTeX math expressions

Garid Zorigoo

April 10, 2023

Contents

1 Alphabet related stuff

1.1 Greek

Table 1: Main Greek letters

key	sym	latex (lower greek)	key	sym	latex (upper greek)
a.	α	\alpha	A.	A	A
b.	β	\beta	B.	B	B
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	H.	H	H
i.	ι	\iota	I.	I	I
j.	ξ	\xi	J.	Ξ	\Xi
k.	κ	\kappa	K.	K	K
l.	λ	\lambda	L.	Λ	\Lambda
m.	μ	\mu	M.	M	M
n.	ν	\nu	N.	N	N
o.	o	o	O.	O	O
p.	π	\pi	P.	Π	\Pi
r.	ρ	\rho	R.	P	P
s.	σ	\sigma	S.	Σ	\Sigma
t.	τ	\tau	T.	T	T
th.	θ	\theta	Th.	Θ	\Theta
u.	υ	\upsilon	U.	Υ	\Upsilon
w.	ω	\omega	W.	Ω	\Omega
x.	χ	\chi	X.	X	X
z.	ζ	\zeta	Z.	Z	Z

Table 2: Variation Greek letters

key	sym	latex (lower greek)
e..	ε	\varepsilon
f..	φ	\varphi
s..	ς	\varsigma
t..	ϑ	\vartheta
r..	ϱ	\varrho
p..	ϖ	\varpi
k..	$\varkappa$	\varkappa

1.2 Matrix (aka bold)

Table 3: Matrix

key	sym	latex (upper bold)	key	sym	latex (lower bold)
Am	**A**	\mathbf{A}	am	**a**	\mathbf{a}
Bm	**B**	\mathbf{B}	bm	**b**	\mathbf{b}
Cm	**C**	\mathbf{C}	cm	**c**	\mathbf{c}
Dm	**D**	\mathbf{D}	dm	**d**	\mathbf{d}
Em	**E**	\mathbf{E}	em	**e**	\mathbf{e}
Fm	**F**	\mathbf{F}	fm	**f**	\mathbf{f}
Gm	**G**	\mathbf{G}	gm	**g**	\mathbf{g}
Hm	**H**	\mathbf{H}	hm	**h**	\mathbf{h}
Im	**I**	\mathbf{I}	im	**i**	\mathbf{i}
Jm	**J**	\mathbf{J}	jm	**j**	\mathbf{j}
Km	**K**	\mathbf{K}	km	**k**	\mathbf{k}
Lm	**L**	\mathbf{L}	lm	**l**	\mathbf{l}
Mm	**M**	\mathbf{M}	mm	**m**	\mathbf{m}
Nm	**N**	\mathbf{N}	nm	**n**	\mathbf{n}
Om	**O**	\mathbf{O}	om	**o**	\mathbf{o}
Pm	**P**	\mathbf{P}	pm	**p**	\mathbf{p}
Qm	**Q**	\mathbf{Q}	qm	**q**	\mathbf{q}
Rm	**R**	\mathbf{R}	rm	**r**	\mathbf{r}
Sm	**S**	\mathbf{S}	sm	**s**	\mathbf{s}
Tm	**T**	\mathbf{T}	tm	**t**	\mathbf{t}
Um	**U**	\mathbf{U}	um	**u**	\mathbf{u}
Vm	**V**	\mathbf{V}	vm	**v**	\mathbf{v}
Wm	**W**	\mathbf{W}	wm	**w**	\mathbf{w}
Xm	**X**	\mathbf{X}	xm	**x**	\mathbf{x}
Ym	**Y**	\mathbf{Y}	ym	**y**	\mathbf{y}
Zm	**Z**	\mathbf{Z}	zm	**z**	\mathbf{z}

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	$\vec{b}$	\vec{b}	bh	$\hat{b}$	\hat{b}
cv	$\vec{c}$	\vec{c}	ch	$\hat{c}$	\hat{c}
dv	$\vec{d}$	\vec{d}	dh	$\hat{d}$	\hat{d}
ev	$\vec{e}$	\vec{e}	eh	$\hat{e}$	\hat{e}
fv	$\vec{f}$	\vec{f}	fh	$\hat{f}$	\hat{f}
gv	$\vec{g}$	\vec{g}	gh	$\hat{g}$	\hat{g}
hv	$\vec{h}$	\vec{h}	hh	$\hat{h}$	\hat{h}
iv	$\vec{i}$	\vec{i}	ih	$\hat{i}$	\hat{i}
jv	$\vec{j}$	\vec{j}	jh	$\hat{j}$	\hat{j}
kv	$\vec{k}$	\vec{k}	kh	$\hat{k}$	\hat{k}
lv	$\vec{l}$	\vec{l}	lh	$\hat{l}$	\hat{l}
mv	$\vec{m}$	\vec{m}	mh	$\hat{m}$	\hat{m}
nv	$\vec{n}$	\vec{n}	nh	$\hat{n}$	\hat{n}
ov	$\vec{o}$	\vec{o}	oh	$\hat{o}$	\hat{o}
pv	$\vec{p}$	\vec{p}	ph	$\hat{p}$	\hat{p}
qv	$\vec{q}$	\vec{q}	qh	$\hat{q}$	\hat{q}
rv	$\vec{r}$	\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	$\vec{y}$	\vec{y}	yh	$\hat{y}$	\hat{y}
zv	$\vec{z}$	\vec{z}	zh	$\hat{z}$	\hat{z}

2   Function Expansion

Table 5: Keys that will execute some elisp functions

key	trans	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 6: Multiple Dots Related

key	trans	sym	description
...	\dots	...	3 dots
.v	\vdots	⋮	vertical dots
.d	\ddots	⋱	diagonale dots
.l	\ldots	...	low dots

3.2   Geometry

Table 7:

key	sym	trans	description
perp	⊥	\perp	
perpn	⊥̸	\perp	
para	∥	\parallel	
paran	∦	\nparallel	
ang	∠	\angle	
ang.	∡	\measuredangle	

3.3 Letter like

Table 8: Letter-like Symbold

key	sym	trans	description
inf	∞	\infty	
ex	$\exists$	\exists	
ex.	$\nexists$	\nexists	
fa	$\forall$	\forall	
hb	$\hbar$	\hbar	
hb.	$\hbar$	\hslash	
dd	d	\mathrm{d}	
dd.	∂	\partial	
ii	$\imath$	\imath	
jj	$\jmath$	\jmath	
nab	∇	\nabla	
cm	$\checkmark$	\checkmark	

3.4 Spaces

Table 9: Space Symbold

key	sym	trans	description
qu		\quad	
quu		\qquad	

3.5 Arrows:

3.5.1 Single:

Table 10: Single Line arrows

key	trans	sym	description
<-	\leftarrow	←	left arrow
->	\rightarrow	→	right arrow
-^	\uparrow	↑	up arrow
-v	\downarrow	↓	down arrow
<->	\leftrightarrow	↔	left-right arrow
<-n	\nleftarrow	↚	not left arrow
->n	\nrightarrow	↛	not right arrow
-^n	\nuparrow	↟	not up arrow
-vn	\ndownarrow	↡	not down arrow
<->	\nleftrightarrow	↮	not left-right arrow
-->	\longrightarrow	⟶	
<--	\longleftarrow	⟵	
|->	\mapsto	↦	

3.5.2 Double:

Table 11: Double Line arrows

key	trans	sym	description
<=	\Leftarrow	⇐	left arrow
=>	\Rightarrow	⇒	right arrow
=^	\Uparrow	⇑	up arrow
=v	\Downarrow	⇓	down arrow
<=>	\Leftrightarrow	⇔	left-right arrow
iff	\Leftrightarrow	⇔	left-right arrow
<=n	\nLeftarrow	⇍	left arrow
=>n	\nRightarrow	⇏	right arrow
<=>n	\nLeftrightarrow	⇎	left-right arrow
iffn	\nLeftrightarrow	⇎	left-right arrow
<==>	\Longleftrightarrow	⟺	left-right arrow
<==	\Longleftarrow	⟸	left-right arrow
==>	\Longrightarrow	⟹	left-right arrow

3.5.3 Long arrow with top-bottom entries

Table 12: Long arrow Line arrows

key	sym	trans	description
<--	$\overset{\square}{\underset{\square}{\longleftarrow}}$	\xleftarrow[ ]{ }	
-->	$\overset{\square}{\underset{\square}{\longrightarrow}}$	\xrightarrow[ ]{ }	
===>	$\overset{\square}{\underset{\square}{\Longrightarrow}}$	\xRightarrow[ ]{ }	mathtools lib required
<===	$\overset{\square}{\underset{\square}{\Longleftarrow}}$	\xLeftarrow[ ]{ }	mathtools lib required

3.6 Accents (variable decoration?)

Table 13:

key	sym	trans	description
vec	$\vec{\square}$	\vec	
bar	$\bar{\square}$	\bar	
hat	$\hat{\square}$	\hat	
dot	$\dot{\square}$	\dot	
dot.	$\ddot{\square}$	\ddot	
dot..	$\dddot{\square}$	\dddot	
dot...	$\ddddot{\square}$	\ddddot	
dag	$\square^{\dagger}$	^\dagger	
dag.	$\square^{\ddagger}$	^\ddagger	
*..	$\square^{*}$	^*	
deg	$\square^{\circ}$	^\circ	
tr	$\square^{T}$	^T	
tr.	$\square^{-T}$	^{-T}	

4 Binary Operation Symbols

4.1 Simple Arithmetics:

Table 14: Simple Arithmetics operations

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

4.2 Binary Relations:

Table 15:

key	sym	trans	description
=n	$\neq$	\neq	
=.	$\equiv$	\equiv	
=?	$\stackrel{?}{=}$	\stackrel{?}{=}	
=y	$\stackrel{\checkmark}{=}$	\stackrel{\checkmark}{=}	
3=	$\equiv$	\equiv	
=:	$:=$	\coloneqq	
:=	$:=$	\coloneqq	
~.	$\sim$	\sim	
~n	$\nsim$	\nsim	
~~	$\approx$	\approx	
<n	$\nless$	\nless	
<.	$\leq$	\leq	
<.n	$\nleq$	\nleq	
<?	$\stackrel{?}{<}$	\stackrel{?}{<}	
<y	$\stackrel{\checkmark}{<}$	\stackrel{\checkmark}{<}	
<.?	$\stackrel{?}{\leq}$	\stackrel{?}{\leq}	
<.y	$\stackrel{\checkmark}{\leq}$	\stackrel{\checkmark}{\leq}	
«	$\ll$	\ll	
«?	$\stackrel{?}{\ll}$	\stackrel{?}{\ll}	
«y	$\stackrel{\checkmark}{\ll}$	\stackrel{\checkmark}{\ll}	
>n	$\ngtr$	\ngtr	
>.	$\geq$	\geq	
>.n	$\ngeq$	\ngeq	
>?	$\stackrel{?}{>}$	\stackrel{?}{>}	
>y	$\stackrel{\checkmark}{>}$	\stackrel{\checkmark}{>}	
>.?	$\stackrel{?}{\geq}$	\stackrel{?}{\geq}	
>.y	$\stackrel{\checkmark}{\geq}$	\stackrel{\checkmark}{\geq}	
»	$\gg$	\gg	
»?	$\stackrel{?}{\gg}$	\stackrel{?}{\gg}	
»y	$\stackrel{\checkmark}{\gg}$	\stackrel{\checkmark}{\gg}	

4.3 Set symbols

Table 16:

key	sym	trans	description
in	∈	\in	
in.	∋	\ni	
ni	∋	\ni	
inn	∉	\notin	
0/	∅	\emptyset	
nsr	ℝ	\mathbb{R}	
nsc	ℂ	\mathbb{C}	
nsn	ℕ	\mathbb{N}	
nsp	ℙ	\mathbb{P}	
nsz	ℤ	\mathbb{Z}	
nsi	𝕀	\mathbb{I}	
sub	⊂	\subset	
subn	⊄	\nssubseteq	
sub=	⊆	\subseteq	
sub=n	⊈	\nsubseteq	
subn=	⊈	\nsubseteq	
sup	⊃	\supset	
supn	⊅	\nsupseteq	
sup=	⊇	\supeseteq	
sup=n	⊉	\nsupseteq	
supn=	⊉	\nsupseteq	

4.4 Logic

Table 17:

key	sym	trans	description
or	∨	\lor	
and	∧	\lnd	
not	¬	\neg	
or.	or	\text{ or }	
and.	and	\text{ and }	
not.	not	\text{ not }	

5 Functions

5.1 Function

Table 18:

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

5.2 Trignometry: function

Table 19:

key	sym	trans	key	sym	trans
cos	cos	\cos	cosh	cosh	\cosh
sin	sin	\sin	sinh	sinh	\sinh
tan	tan	\tan	tanh	tanh	\tanh
cot	cot	\cot	coth	coth	\coth
acos	arccos	\arccos	cos.	arccos	\arccos
asin	arcsin	\arcsin	sin.	arcsin	\arcsin
atan	arctan	\arctan	tan.	arctan	\arctan

15

5.3 Iterative-like operation:

Table 20: Integrals, Sums, Products

key	sym	trans	description
il	$\sum\limits_{here}^{here}$	\limits_{ }^{ }	
lim	$\lim$	\lim	
sum	$\sum$	\sum	
prod	$\prod$	\prod	
int	$\int$	\int	
inti	$\iint$	\iint	
intii	$\iiint$	\iiint	
intiii	$\iiiint$	\iiiint	
into	$\oint$	\oint	
sum.	$\sum\limits_{i=1}^{n}$	\sum\limits_{ i=1 }^{ n }	
prod.	$\prod\limits_{i=1}^{n}$	\prod\limits_{ i=1 }^{ n }	
int.	$\int\limits_{-\infty}^{-\infty}$	\int\limits_{ -\infty }^{ -\infty }	
inti.	$\iint\limits_{C}$	\iint\limits_{ C }	
intii.	$\iiint\limits_{C}$	\iiint\limits_{ C }	
intiii.	$\iiiint\limits_{C}$	\iiiint\limits_{ C }	
into.	$\oint\limits_{C}$	\oint\limits_{ C }	

6 Structural:

6.1 Parenthesis Related

Table 21:

key	sym	trans	description
().	(□)	\left(\right)	
()..	(□|□)	\left(\middle\vert \right)	
[].	[□]	\left[\right]	
[]..	[□|□]	\left[\middle\vert \right]	
[].c	⌈□⌉	\lceil \rceil	
[].f	⌊□⌋	\lfloor \floor	
{}.	{□}	\left\{ \right\}	
{}..	{□|□}	\left\{ \middle\vert \right\}	
‖ .	|□|	\left\vert \right\vert	

6.2 Texts:

Table 22:

key	sym	trans	description
te	$a + \text{text}$	\text{}	
tr	$a + \mathrm{mathrm}$	\mathrm{}	
tb	$a + \mathbf{mathbf}$	\mathbf{}	
ti	$a + \mathit{mathit}$	\mathit{}	

6.3 Superscripts (power) & Subsripts (lower)

Table 23:

key	sym	trans	key	sym	trans
pp	$\Box^\Box$	^{	ll	$\Box_\Box$	_{
p0	$\Box^0$	^0	l0	$\Box_0$	_0
p1	$\Box^1$	^1	l1	$\Box_1$	_1
p2	$\Box^2$	^2	l2	$\Box_2$	_2
p3	$\Box^3$	^3	l3	$\Box_3$	_3
p4	$\Box^4$	^4	l4	$\Box_4$	_4
pn	$\Box^n$	^n	lnn	$\Box_n$	_n
px	$\Box^x$	^x	li	$\Box_i$	_i
__	$\overset{\Box}{\Box}$	\underset{ }{ }	^^	$\overset{\Box}{\Box}$	\overset{ }{ }
__.	$\underbrace{\Box}$	\underbrace{ }_{ }	^^.	$\overbrace{\Box}$	\overbrace{ }^{ }
__..	$\underline{\Box}$	\underline{ }	^^..	$\overline{\Box}$	\overline{ }

6.4 Misc.

Table 24:

key	sym	trans	description
binom	$\binom{\Box}{\Box}$	\binom	
box	$\boxed{\Box}$	\boxed	
can	$\cancel{\Box}$	\cancel	requires cancel
&=		&=\n\\\\	
=&		&=\n\\\\	

6.5 xy Diagram related

Table 25:

key	sym	trans	description
xy		\xymatrix{\n\n}	
bu	●	\bullet	
ar		\ar	