Dictating mathematics into Scientific notebook using Caster

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Contents

1 Introduction

- All of these bindings can be easily changed by modifying modifying mathfly/config/scientific_notebook.toml in any text editor or saying "configure Scientific Notebook" while the module is enabled.
- (option a | option b) means that both commands will do the same thing.

- Square brackets means that the word(s) inside are optional, the command will work with or without them.

2 Basics

new file	Create a new file
open file	Open a file
save file	Save a file
save as	Save as
export document	Export current document as .rtf
toggle math	Begin dictating mathematics (use the body math/body text controls at the bottom for extended blocks)
toggle text	Begin dictating text
evaluate	Evaluate expression

3 Miscellaneous

fraction	Creates a fraction. anything highlighted will form the numerator.
over	Creates a fraction with the previous element as the numerator (e.g. "five over three")
(super [script] | to the power)	Superscript
sub [script]	Subscript
squared	Superscript 2
cubed	Superscript 3
inverse	Superscript -1
(parens | parentheses)	Parentheses
square brackets	Square brackets
curly brackets	Curly brackets
absolute	Create two bars and moves inside them
degrees	Insert a degree symbol
summation	$\sum$
product	$\prod$
limit	lim
label above	Add a label above the selected text
label below	Add a label below the selected text

4 Letters

4.1 Greek

By default, all of these commands must be prefixed with "greek" for lowercase or "greek big" for uppercase. This behaviour can be changed by modifying greek_prefix and capitals_prefix. Where relevant I have provided pronunciation tips for best results.

alpha	α		
beta	β		beater
gamma	γ	Γ	
delta	δ	Δ	
epsilon	ε		
zeta	ζ		
eta	η		eater
theta	θ	Θ	they-tah
iota	ι		
kappa	κ		
lambda	λ	Λ	
mu	μ		moo
nu	ν		new
xi	ξ	Ξ	zee
pi	π	Π	
rho	ρ		
sigma	σ	Σ	
tau	τ		
upsilon	υ	Υ	
phi	ϕ	Φ	
chi	χ		kie
psi	ψ	Ψ	sigh
omega	ω	Ω	

4.2 Accents

These commands add accents above the highlighted text, or create an empty accent if nothing is highlighted.

accent hat	$\hat{a}$
accent tilde	$\tilde{a}$
accent dot	$\dot{a}$
accent double dot	$\ddot{a}$
accent bar	$\bar{a}$
accent arrow	$\vec{a}$

5 Symbols

[square] root	$\sqrt[n]{x}$
integral	$\int$
double integral	$\int\int$
triple integral	$\int\int\int$
times	$\times$
divide	$\div$
stop	$\cdot$
plus or minus	$\pm$
partial	∂
infinity	∞
dot dot dot	$\ldots$
greater [than] [or] equal [to]	$\geq$
less [than] [or] equal [to]	$\leq$
not equal [to]	$\neq$
approximately [equal] [to]	$\approx$
proportional [to]	$\propto$
preference less [than]	$\prec$
preference less equal	$\preceq$
preference greater [than]	$\succ$
preference greater equal	$\succeq$
sine	sin
cosine	cos
tangent	tan
secant	sec
cosecant	csc
cotangent	cot

arc sine	arcsin
arc cosine	arccos
arc tan	arctan
hyperbolic sine	sinh
hyperbolic cosine	cosh
hyperbolic tangent	tanh
hyperbolic cotangent	coth
degree	deg
determinant	det
dimension	dim
exponential	exp
(natural (log | logarithm) | log natural)	ln
logarithm	log
argument	arg
maximum	max
minimum	min
(modulo | modulus)	mod
supremum	sup
infimum	inf
probability	Pr
there exists	$\exists$
member [of]	$\in$
for all	$\forall$
subset	$\subset$
superset	$\supset$
strict subset	$\subsetneq$
strict superset	$\supsetneq$
intersection	$\cap$
union	$\cup$
logic and	$\wedge$
logic or	$\vee$
logic not	$\neg$
left arrow	$\leftarrow$
right arrow	$\rightarrow$
up arrow	$\uparrow$
down arrow	$\downarrow$
left right arrow	$\leftrightarrow$
maps to	$\mapsto$

oh plus	$\oplus$
oh times	$\otimes$
big oh plus	$\bigoplus$
big oh times	$\bigotimes$
diagonal dots	$\ddots$
horizontal dots	$\cdots$
vertical dots	$\vdots$

6 Fractions

There are a few ways of easily inserting fractions:

- Use the "fraction" command, and navigate through it using directions.
- Use the "over" command, which will build a fraction with the previous element as the numerator. e.g. "x-ray squared over five".
- For denominators up to 10, use their natural names, providing a number for the numerator, e.g. "five thirds".

7 Matrices

- To insert a matrix of a particular size, use the matrix command, e.g. "matrix three by one".
- To add or remove columns and rows, Use the command "add/remove matrix column/row".
- Matrices can be encased in brackets as expected, E.g. "parens matrix three by three".

8 Units

These commands insert common scientific units. By default, all of them must be prefixed with "unit", so for example "unit cubic feet" produces ft^3.

- **Activity**— Becquerels, Curies

- **Amount**— Attomoles, Examoles, Femtomoles, Gigamoles, Kilomoles, Megamoles, Micromoles, Millimoles, Moles, Nanomoles, Petamoles, Picomoles, Teramoles
- **Area**— Acres, Hectares, Square feet, Square inches, Square metres
- **Current**— Amperes, Kiloamperes, Microamperes, Milliamperes, Nanoamperes
- **Capacitance**— Farads, Microfarads, Millifarads, Nanofarads, Picofarads
- **Charge**— Coulombs
- **Conductance**— Kilosiemens, Microsiemens, Millisiemens, Siemens
- **Potential difference**— Kilovolts, Megavolts, Microvolts, Millivolts, Nanovolts, Picovolts, Volts
- **Resistance**— Gigaohms, Kiloohms, Megaohms, Milliohms, Ohms
- **Energy**— British thermal unit, Calories, Electron volts, Ergs, Gigaelectronvolts, Gigajoules, Joules, Kilocalories, Kilojoules, Megaelectronvolts, Megajoules, Microjoules, Millijoules, Nanojoules
- **Force**— Dynes, Kilonewtons, Meganewtons, Micronewtons, Millinewtons, Newtons, Ounce force, Pound force
- **Frequency**— Exahertz, Gigahertz, Hertz, Kilohertz, Megahertz, Petahertz, Terahertz
- **Illuminance**— Footcandle, Lux, Phot
- **Length**— Angstrom, Attometers, Centimeters, Decimeters, Femtometers, Feet, Inches, Kilometers, Meters, Micrometers, Miles, Millimeters, Nanometers, Picometers
- **Luminance**— Candela, Lumens
- **Magnetic flux**— Maxwells, Microwebers, Milliwebers, Nanowebers, Webers

- **Magnetic flux density**— Gauss, Microteslas, Milliteslas, Nanoteslas, Picoteslas, Teslas, Henries, microhenries, millihenries
- **Mass**— Atomic mass units, Centigrams, Decigrams, Grams, Kilograms, Micrograms, Milligrams, Pounds, Slug
- **Angle**— degrees, Microradians, Milliradians, Minutes of angle, Seconds of angle, Radians, Steradian
- **Power**— Gigawatts, Horsepowers, Kilowatts, Megawatts, Microwatts, Milliwatts, Nanowatts, Watts
- **Pressure**— Atmospheres, Bar, Kilobar, Kilopascals, Megapascals, Micropascals, Millibar, Millimeters of Mercury, Pascals, Torrs
- **Temperature**— Celsiuss, Fahrenheits, Kelvins
- **Time**— Attoseconds, Days, Femtoseconds, Hours, Microseconds, Milliseconds, Minutes, Nanoseconds, Picoseconds, Seconds, Years
- **Volume**— Cubic feet, Cubic inches, Cubic metres, Gallons, Liters, Milliliters, Pints, Quarts