

The “shyne” shortcuts package

Documentation for version 6/3/2018

Included packages

- amsmath
- amsthm
- amssymb
- mathrsfs
- graphicx
- textcomp
- enumitem (except with beamer)
- hyperref (except with beamer)

Number sets

Command	Output	Description
<code>\N</code>	\mathbb{N}	Natural numbers
<code>\Z</code>	\mathbb{Z}	Integers
<code>\R</code>	\mathbb{R}	Real numbers
<code>\Q</code>	\mathbb{Q}	Rational numbers
<code>\C</code>	\mathbb{C}	Complex numbers
<code>\P</code>	\mathbb{P}	Positive numbers

Capital greek letters

Command	Output	Description
<code>\Alpha</code>	\mathcal{A}	Capital Alpha
<code>\Beta</code>	\mathcal{B}	Capital Beta
<code>\Epsilon</code>	\mathcal{E}	Capital Epsilon
<code>\Zeta</code>	\mathcal{Z}	Capital Zeta
<code>\Rho</code>	\mathcal{P}	Capital Rho
<code>\Eta</code>	\mathcal{H}	Capital Eta
<code>\Kappa</code>	\mathcal{K}	Capital Kappa
<code>\Mu</code>	\mathcal{M}	Capital Mu
<code>\Nu</code>	\mathcal{N}	Capital Nu
<code>\Tau</code>	\mathcal{T}	Capital Tau

Size adjusting grouping symbols

Basic command	Examples	Output	Description
<code>\sag a b c</code>	<code>\sag ({0,1}]</code>	$(0,1]$	General form
	<code>\sag [{\dfrac 1 2 , \dfrac 3 4})</code>	$\left[\frac{1}{2}, \frac{3}{4}\right)$	
<code>\Brace a</code>	<code>\Brace x</code>	$\{x\}$	Braces
	<code>\Brace {\dfrac 1 2}</code>	$\left\{\frac{1}{2}\right\}$	
<code>\Paren a</code>	<code>\Paren x</code>	(x)	Parentheses
	<code>\Paren {\dfrac 1 2}</code>	$\left(\frac{1}{2}\right)$	
<code>\Brack a</code>	<code>\Brack x</code>	$[x]$	Brackets
	<code>\Brack {\dfrac 1 2}</code>	$\left[\frac{1}{2}\right]$	
<code>\Abs a</code>	<code>\Abs x</code>	$ x $	Absolute value
	<code>\Abs {\dfrac 1 2}</code>	$\left \frac{1}{2}\right $	
<code>\Norm a</code>	<code>\Norm {\vec x}</code>	$\ \vec{x}\ $	Norm
	<code>\Norm {\dfrac 1 2}</code>	$\left\ \frac{1}{2}\right\ $	
<code>\Eval a</code>	<code>\Eval {\dfrac {x^2} 2}_{x=1}^3</code>	$\frac{x^2}{2}\bigg _{x=1}^3$	Evaluate expression
<code>\Floor a</code>	<code>\Floor \pi</code>	$\lfloor \pi \rfloor$	Floor
<code>\Ceil a</code>	<code>\Ceil {\dfrac 1 2}</code>	$\left\lceil \frac{1}{2} \right\rceil$	Ceiling

Notation

Basic command	Example	Output	Description
<code>\f a</code>	<code>\f {det} X</code>	$\det X$	Named function
<code>\prm a</code>	<code>\prm f (x)</code>	$f'(x)$	Prime
<code>\prmd a</code>	<code>\prmd \theta</code>	θ''	Double prime
<code>\prmt a</code>	<code>\prmt {\theta_0}</code>	θ_0'''	Triple prime

Calculus

Basic command	Example	Output	Description
<code>\derivn a b c</code>	<code>\derivn x y 3</code>	$\frac{d^3 x}{dy^3}$	n th degree derivative
<code>\deriv a b</code>	<code>\deriv y x</code>	$\frac{dy}{dx}$	Derivative
<code>\dev a</code>	<code>\dev y</code>	$\frac{d}{dy}$	Derivative
<code>\devn a b</code>	<code>\devn y 2</code>	$\frac{d^2}{dy^2}$	n th degree derivative
<code>\pderivn a b c</code>	<code>\pderivn x y 3</code>	$\frac{\partial^3 x}{\partial y^3}$	n th degree partial derivative
<code>\pderiv a b</code>	<code>\pderiv y x</code>	$\frac{\partial y}{\partial x}$	Partial derivative
<code>\pdev a</code>	<code>\pdev y</code>	$\frac{\partial}{\partial y}$	Partial derivative
<code>\pdevn a b</code>	<code>\pdevn y 2</code>	$\frac{\partial^2}{\partial y^2}$	n th degree partial derivative
<code>\dd a</code>	<code>\int f(x) \dd x</code>	$\int f(x) dx$	Integral “suffix”

Analysis and set theory

Basic command	Example	Output	Description
<code>\set a</code>	<code>S = \set{x \mid x \leq y}</code>	$S = \{x \mid x \leq y\}$	Sets (same as <code>\Brace</code>)
<code>\implies, \iff</code>	<code>\implies, \iff</code>	$\Rightarrow, \Leftrightarrow$	Shorter arrows
<code>\bd</code>	<code>\bd S</code>	$\text{bd } S$	Boundry
<code>\cl</code>	<code>\cl S</code>	$\text{cl } S$	Closure
<code>\interior</code>	<code>\interior S</code>	$\text{int } S$	Interior

Linear algebra

Basic command	Example	Output	Description
<code>\arr a</code>	<code>\arr{1&2\\3&4}</code>	$\begin{array}{cc} 1 & 2 \\ 3 & 4 \end{array}$	Array (naked matrix)
<code>\mat a</code>	<code>\mat{1&2\\3&4}</code>	$\begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix}$	Matrix with brackets
<code>\pmat a</code>	<code>\pmat{1&2\\3&4}</code>	$\begin{pmatrix} 1 & 2 \\ 3 & 4 \end{pmatrix}$	Matrix with parentheses
<code>\bv a</code>	<code>\bv X</code>	\mathbf{X}	“Bold vector” notation
<code>\inv</code>	<code>(AB)\inv</code>	$(AB)^{-1}$	Inverse suffix
<code>\trn</code>	<code>(AB)\trn</code>	$(AB)^T$	Transpose suffix
<code>\minv a</code>	<code>\minv X</code>	\mathbf{X}^{-1}	Matrix inverse
<code>\mtrn a</code>	<code>\mtrn X</code>	\mathbf{X}^T	Matrix transpose

Abstract algebra

Basic command	Example	Output	Description
<code>\F</code>	<code>\F</code>	\mathbb{F}	Field
<code>\conmod a b c</code>	<code>\conmod 1 4 3</code>	$1 \equiv 4 \pmod{3}$	Congruent modulo
<code>\zmodz a</code>	<code>\zmodz 6</code>	$\mathbb{Z}/6\mathbb{Z}$	“Z mod Z”

Statistics

Basic command	Example	Output	Description
<code>\E</code>	<code>\E X^2</code>	$\mathbb{E}X^2$	Expected value
<code>\V</code>	<code>\V X</code>	$\mathbb{V}X$	Variance
<code>\var</code>	<code>\var (X+Y)</code>	$\text{Var}(X+Y)$	Variance
<code>\cov</code>	<code>\cov (X,Y)</code>	$\text{Cov}(X,Y)$	Covariance
<code>\logit</code>	<code>\logit (p)</code>	$\text{logit}(p)$	Logit (log odds)

Samples

Basic command	Example	Output	Description
<code>\samplexab a b c</code>	<code>\samplexab y 3 {10}</code>	y_3, \dots, y_{10}	Sample of a from indeices b to c
<code>\sample a b</code>	<code>\sample X {25}</code>	X_1, \dots, X_{25}	Sample of a from 1 to b
<code>\sam a</code>	<code>\sam Y</code>	Y_1, \dots, Y_n	Sample of a from 1 to n
<code>\samplexabplus a b c</code>	<code>\samplexabplus y 3 {10}</code>	$y_3 + \dots + y_{10}$	Sample of a from indeices b to c summed
<code>\sampleplus a b</code>	<code>\sampleplus X {25}</code>	$X_1 + \dots + X_{25}$	Sample of a from 1 to b summed
<code>\samplus a</code>	<code>\samplus Y</code>	$Y_1 + \dots + Y_n$	Sample of a from 1 to n summed

Display

Basic command	Example	Output	Description
<code>\ds</code>	<code>\ds \sum_{i=1}^n i^2</code>	$\sum_{i=1}^n i^2$	Shortcut for <code>\displaystyle</code> (Large symbols for inline math mode)

Text

Basic command	Example	Output	Description
<code>\bt a</code>	Not bold, <code>\bt{Bold}</code>	Not bold, Bold	Bold text in text mode
<code>\btext a</code>	<code>\\$x^2 \btext{ is x-squared} \\$</code>	x^2 is x-squared	Bold text within math mode
<code>\txtand</code>	<code>x=3 \txtand y=2</code>	$x = 3$ and $y = 2$	put an 'and' with space between equations
<code>\txtor</code>	<code>x=3 \txtor x \ge 10</code>	$x = 3$ or $x \geq 10$	put an 'or' with space between equations

Tables

Adjust spacing in tables: `\tabspace a`

- Add medium vertical space in table: `\tabspacemed = \tabspace{1.5}`

<code>\tabspacemed</code>	
<code>\begin{tabular}{c}</code>	Caption
Caption\\	A
<code>\hline</code>	
A\\	B
B\\	C
C	
<code>\end{tabular}</code>	

- Return to default spacing: `\tabspacedef = \tabspace{1}`

<code>\tabspacedef</code>	
<code>\begin{tabular}{c}</code>	Caption
Caption\\	A
<code>\hline</code>	
A\\	B
B\\	C
C	
<code>\end{tabular}</code>	

Equations in Beamer

Using `\begin{equation}` `\end{equation}` or `\[, \]` to display math in the equation environment produces excessive line spacing in Beamer. Use `\eq{}` for centered display style math with minimal spacing. (Should be preceded by paragraph break `\\.`)

`\eq{\int_a^b x^3 \, dx = \text{Eval}\{\frac{x^2}{3}\}_a^b}`

$$\int_a^b x^3 dx = \frac{x^2}{3} \Big|_a^b$$

List styles

Note: Not available in beamer documents

- Bold lowercase roman numerals in parentheses

<code>\begin{enumroman}</code>	(i) Item 1
<code>\item Item 1</code>	
<code>\item Item 2</code>	(ii) Item 2
<code>\item Item 3</code>	
<code>\end{enumroman}</code>	(iii) Item 3

- Bold arabic numerals in parentheses

<code>\begin{enumroman}</code>	(1) Item 1
<code>\item Item 1</code>	
<code>\item Item 2</code>	(2) Item 2
<code>\item Item 3</code>	
<code>\end{enumroman}</code>	(3) Item 3

- Bold lowercase letters in parentheses

<code>\begin{enumroman}</code>	(a) Item 1
<code>\item Item 1</code>	
<code>\item Item 2</code>	(b) Item 2
<code>\item Item 3</code>	
<code>\end{enumroman}</code>	(c) Item 3