abaisero.sty

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1 Commands

Option [math]

Symbol	Command	Description	Example
$\mathbb{N}$	`\naturalset`	the set of natural numbers	$\mathbb{N} \doteq \{1, 2, 3, \dots\}$
$\mathbb{Z}$	`\integerset`	the set of integer numbers	$\mathbb{Z} \doteq \{0, 1, -1, 2, -3, \dots\}$
$\mathbb{R}$	`\realset`	the set of real numbers	$\sqrt{2} \in \mathbb{R}$
*	`\kstar`	the Kleene star operator	$\mathcal{X}^* \doteq \bigcup_{k=0}^{\infty} \mathcal{X}^k$
$^+$	`\kplus`	the Kleene plus operator	$\mathcal{X}^+ \doteq \bigcup_{k=1}^{\infty} \mathcal{X}^k$
softmax	`\softmax`		
softmin	`\softmin`		
sign	`\sign`		$x = \operatorname{sign} x \cdot \lvert x \rvert$

Option [linalg]

Symbol	Command	Description	Example
diag	`\diag`		
rank	`\rank`		
tr	`\trace`		$\operatorname{tr}(M) \doteq \sum_{i=1}^{n} M_{ii}$
col	`\colspace`		
ker	`\nullspace`	Nullspace (a.k.a kernel) of a linear mapping	
span	`\spanspace`		
$^\top$	`\T`	Transpose superscript	symmetric $M \implies M = M^\top$
$^{-1}$	`\I`	Inverse superscript	invertible $M \implies MM^{-1} = I$
$^+$	`\PI`	Pseudo-inverse superscript	$MM^+M = M$
$^{-\top}$	`\IT`	Inverse transpose superscript	$M^{-\top} = (M^{-1})^\top = (M^\top)^{-1}$
$^{+\top}$	`\PIT`	Pseudo-inverse transpose superscript	$M^{+\top} = (M^+)^\top = (M^\top)^+$

Option [optim]

Symbol	Command	Description	Example
argmax	\argmax		$\operatorname{argmax}_a Q^\pi(s,a)$
argmin	\argmin		$\theta^* \doteq \operatorname{argmin}_\theta \mathcal{L}(\theta)$
*	\opt	Optimality superscript	$\pi^*(s) = \operatorname{argmax}_a Q^*(s,a)$

Option [stats]

Symbol	Command	Description	Example
$\mathbb{C}$	\Cov	Covariance	$\mathbb{C}(x,y) = \mathbb{E}[xy] - \mathbb{E}[x]\,\mathbb{E}[y]$
$\mathbb{H}$	\Ent	Entropy	$\mathbb{H}[x] = -\mathbb{E}[\log \Pr(x)]$
$\mathbb{E}$	\Exp	Expectation	$\mathbb{E}[f(x)] = \sum_x \Pr(x) f(x)$
$\mathbb{I}$	\Ind	Indicator function	$\Pr(x=0) = \mathbb{E}[\mathbb{I}[x=0]]$
KL	\KL	KL-divergence	$\mathrm{KL}(p\|q) \doteq \mathbb{E}_{x\sim p}\left[\log\left(\frac{p(x)}{q(x)}\right)\right]$
D_{KL}	\DKL	KL-divergence (alternative)	
$\mathbb{I}$	\MI	Mutual Information	
$\mathbb{V}$	\Var	Variance	$\mathbb{V}[x] = \mathbb{E}\left[x^2\right] - \mathbb{E}[x]^2$

Option [dists]

Symbol	Command	Description
Categorical	\Categorical	Categorical
Dirichlet	\Dirichlet	Dirichlet
Normal	\Normal	Normal
Uniform	\Uniform	Uniform

Option [ml]

Symbol	Command	Description	Example
$\mathcal{D}$	\data	Data set	$\mathcal{D} \doteq \{(x_i, y_i)\}_{i=1}^N$
$\mathcal{L}$	\loss	Loss function	$\mathcal{L}(\theta; x, y) = \frac{1}{2}\|y - f(x;\theta)\|^2$
nll	\nll	Neg-log-likelihood	$\mathrm{nll}(x) \doteq -\log \Pr(x)$
MSE	\mse	Mean-squared-error	

Option [rl]

Symbol	Command	Description
$\mathcal{A}$	\aset	Action set
$\mathcal{B}$	\bset	Belief set
$\mathcal{H}$	\hset	History set
$\mathcal{O}$	\oset	Observation set
$\mathcal{R}$	\rset	Reward set
$\mathcal{S}$	\sset	State set
D	\dfn	Dynamics function
G	\gfn	Generative function
O	\ofn	Observation function
R	\rfn	Reward function
T	\tfn	Transition function
ε	\nohistory	Empty history
π	\policy	policy
Q^π	\qpolicy	Policy Q function
$\hat{Q}$	\qmodel	Parametric Q model
V^π	\vpolicy	Policy V function
$\hat{V}$	\vmodel	Parametric V model
U^π	\upolicy	Policy U function
$\hat{U}$	\umodel	Parametric U model

Option [marl]

Symbol	Command	Description
$\bar{\pi}$	\policies	Joint policies
$\bar{h}$	\hs	Joint histories
$\bar{a}$	\as	Joint actions
$Q^{\bar{\pi}}$	\qpolicies	Joint Q function
$V^{\bar{\pi}}$	\vpolicies	Joint V function
$U^{\bar{\pi}}$	\upolicies	Joint U function

Option [misc]

Symbol	Command	Description
$^{(k)}$	\iter{k}	Superscript indicating iteration