Table 1: Generic commands

Short form	**Output**	**LaTeX command**
Definition of mathmode bold symbols		
\bs{a}	$\boldsymbol{a}$	{\ensuremath{\boldsymbol{#1}}\xspace}
\mt{a}	a	{\ensuremath{{#1}}\xspace}

Table 2: Vector symbols: lowercase English characters

Short form	**Output**	**LaTeX command**
\ba	$\boldsymbol{a}$	{\ensuremath{\boldsymbol a}\xspace}
\bb	$\boldsymbol{b}$	{\ensuremath{\boldsymbol b}\xspace}
\bc	$\boldsymbol{c}$	{\ensuremath{\boldsymbol c}\xspace}
\bd	$\boldsymbol{d}$	{\ensuremath{\boldsymbol d}\xspace}
\be	$\boldsymbol{e}$	{\ensuremath{\boldsymbol e}\xspace}
\bsf	$\boldsymbol{f}$	{\ensuremath{\boldsymbol f}\xspace}
\bg	$\boldsymbol{g}$	{\ensuremath{\boldsymbol g}\xspace}
\bh	$\boldsymbol{h}$	{\ensuremath{\boldsymbol h}\xspace}
\bi	$\boldsymbol{i}$	{\ensuremath{\boldsymbol i}\xspace}
\bj	$\boldsymbol{j}$	{\ensuremath{\boldsymbol j}\xspace}
\bk	$\boldsymbol{k}$	{\ensuremath{\boldsymbol k}\xspace}
\bl	$\boldsymbol{l}$	{\ensuremath{\boldsymbol l}\xspace}
\bm	$\boldsymbol{m}$	{\ensuremath{\boldsymbol m}\xspace}
\bn	$\boldsymbol{n}$	{\ensuremath{\boldsymbol n}\xspace}
\bo	$\boldsymbol{o}$	{\ensuremath{\boldsymbol o}\xspace}
\bp	$\boldsymbol{p}$	{\ensuremath{\boldsymbol p}\xspace}
\bq	$\boldsymbol{q}$	{\ensuremath{\boldsymbol q}\xspace}
\br	$\boldsymbol{r}$	{\ensuremath{\boldsymbol r}\xspace}
\bfs	$\boldsymbol{s}$	{\ensuremath{\boldsymbol s}\xspace}
\bt	$\boldsymbol{t}$	{\ensuremath{\boldsymbol t}\xspace}
\bu	$\boldsymbol{u}$	{\ensuremath{\boldsymbol u}\xspace}
\bv	$\boldsymbol{v}$	{\ensuremath{\boldsymbol v}\xspace}
\bw	$\boldsymbol{w}$	{\ensuremath{\boldsymbol w}\xspace}
\bx	$\boldsymbol{x}$	{\ensuremath{\boldsymbol x}\xspace}
\by	$\boldsymbol{y}$	{\ensuremath{\boldsymbol y}\xspace}
\bz	$\boldsymbol{z}$	{\ensuremath{\boldsymbol z}\xspace}

Table 3: Matrix symbols: uppercase English characters

Short form	Output	LaTeX command
\bA	$\boldsymbol{A}$	{\ensuremath{\boldsymbol A}\xspace}
\bB	$\boldsymbol{B}$	{\ensuremath{\boldsymbol B}\xspace}
\bC	$\boldsymbol{C}$	{\ensuremath{\boldsymbol C}\xspace}
\bD	$\boldsymbol{D}$	{\ensuremath{\boldsymbol D}\xspace}
\bE	$\boldsymbol{E}$	{\ensuremath{\boldsymbol E}\xspace}
\bF	$\boldsymbol{F}$	{\ensuremath{\boldsymbol F}\xspace}
\bG	$\boldsymbol{G}$	{\ensuremath{\boldsymbol G}\xspace}
\bH	$\boldsymbol{H}$	{\ensuremath{\boldsymbol H}\xspace}
\bI	$\boldsymbol{I}$	{\ensuremath{\boldsymbol I}\xspace}
\bJ	$\boldsymbol{J}$	{\ensuremath{\boldsymbol J}\xspace}
\bK	$\boldsymbol{K}$	{\ensuremath{\boldsymbol K}\xspace}
\bL	$\boldsymbol{L}$	{\ensuremath{\boldsymbol L}\xspace}
\bM	$\boldsymbol{M}$	{\ensuremath{\boldsymbol M}\xspace}
\bN	$\boldsymbol{N}$	{\ensuremath{\boldsymbol N}\xspace}
\bO	$\boldsymbol{O}$	{\ensuremath{\boldsymbol O}\xspace}
\bP	$\boldsymbol{P}$	{\ensuremath{\boldsymbol P}\xspace}
\bQ	$\boldsymbol{Q}$	{\ensuremath{\boldsymbol Q}\xspace}
\bR	$\boldsymbol{R}$	{\ensuremath{\boldsymbol R}\xspace}
\bS	$\boldsymbol{S}$	{\ensuremath{\boldsymbol S}\xspace}
\bT	$\boldsymbol{T}$	{\ensuremath{\boldsymbol T}\xspace}
\bU	$\boldsymbol{U}$	{\ensuremath{\boldsymbol U}\xspace}
\bV	$\boldsymbol{V}$	{\ensuremath{\boldsymbol V}\xspace}
\bW	$\boldsymbol{W}$	{\ensuremath{\boldsymbol W}\xspace}
\bX	$\boldsymbol{X}$	{\ensuremath{\boldsymbol X}\xspace}
\bY	$\boldsymbol{Y}$	{\ensuremath{\boldsymbol Y}\xspace}
\bZ	$\boldsymbol{Z}$	{\ensuremath{\boldsymbol Z}\xspace}

Table 4: Greek letters

Short form	Output	LaTeX command
Mathmode lowercase Greek symbols		
\alp	α	{\ensuremath{\alpha}\xspace}
\bet	β	{\ensuremath{\beta}\xspace}
\gm	γ	{\ensuremath{\gamma}\xspace}

\del	δ	{\ensuremath{\delta}\xspace}
\eps	ϵ	{\ensuremath{\epsilon}\xspace}
\zet	ζ	{\ensuremath{\zeta}\xspace}
\et	η	{\ensuremath{\eta}\xspace}
\tht	θ	{\ensuremath{\theta}\xspace}
\iot	ι	{\ensuremath{\iota}\xspace}
\kap	κ	{\ensuremath{\kappa}\xspace}
\lam	λ	{\ensuremath{\lambda}\xspace}
\mmu	μ	{\ensuremath{\mu}\xspace}
\mnu	ν	{\ensuremath{\nu}\xspace}
\mxi	ξ	{\ensuremath{\xi}\xspace}
\mpi	π	{\ensuremath{\pi}\xspace}
\mrho	ρ	{\ensuremath{\rho}\xspace}
\sig	σ	{\ensuremath{\sigma}\xspace}
\mtau	τ	{\ensuremath{\tau}\xspace}
\ups	υ	{\ensuremath{\upsilon}\xspace}
\ph	ϕ	{\ensuremath{\phi}\xspace}
\mchi	χ	{\ensuremath{\chi}\xspace}
\mpsi	ψ	{\ensuremath{\psi}\xspace}
\om	ω	{\ensuremath{\omega}\xspace}
\vth	ϑ	{\ensuremath{\vartheta}\xspace}
\vkap	$\varkappa$	{\ensuremath{\varkappa}\xspace}
\vpi	ϖ	{\ensuremath{\varpi}\xspace}
\vrho	ϱ	{\ensuremath{\varrho}\xspace}
\vsig	ς	{\ensuremath{\varsigma}\xspace}
\vph	φ	{\ensuremath{\varphi}\xspace}
\veps	ε	{\ensuremath{\varepsilon}\xspace}
Mathmode bold lowercase Greek symbols		
\balp	$\boldsymbol{\alpha}$	{\ensuremath{\boldsymbol \alpha}\xspace}
\bbet	$\boldsymbol{\beta}$	{\ensuremath{\boldsymbol \beta}\xspace}
\bgamma	$\boldsymbol{\gamma}$	{\ensuremath{\boldsymbol \gamma}\xspace}
\bdel	$\boldsymbol{\delta}$	{\ensuremath{\boldsymbol \delta}\xspace}

\beps	$\boldsymbol{\epsilon}$	{\ensuremath{\boldsymbol \epsilon}\xspace}
\bzet	$\boldsymbol{\zeta}$	{\ensuremath{\boldsymbol \zeta}\xspace}
\bfeta	$\boldsymbol{\eta}$	{\ensuremath{\boldsymbol \eta}\xspace}
\bth	$\boldsymbol{\theta}$	{\ensuremath{\boldsymbol \theta}\xspace}
\biot	$\boldsymbol{\iota}$	{\ensuremath{\boldsymbol \iota}\xspace}
\bkap	$\boldsymbol{\kappa}$	{\ensuremath{\boldsymbol \kappa}\xspace}
\blam	$\boldsymbol{\lambda}$	{\ensuremath{\boldsymbol \lambda}\xspace}
\bmu	$\boldsymbol{\mu}$	{\ensuremath{\boldsymbol \mu}\xspace}
\bnu	$\boldsymbol{\nu}$	{\ensuremath{\boldsymbol \nu}\xspace}
\bxi	$\boldsymbol{\xi}$	{\ensuremath{\boldsymbol \xi}\xspace}
\bpi	$\boldsymbol{\pi}$	{\ensuremath{\boldsymbol \pi}\xspace}
\brho	$\boldsymbol{\rho}$	{\ensuremath{\boldsymbol \rho}\xspace}
\bsig	$\boldsymbol{\sigma}$	{\ensuremath{\boldsymbol \sigma}\xspace}
\btau	$\boldsymbol{\tau}$	{\ensuremath{\boldsymbol \tau}\xspace}
\bups	$\boldsymbol{\upsilon}$	{\ensuremath{\boldsymbol \upsilon}\xspace}
\bphi	$\boldsymbol{\phi}$	{\ensuremath{\boldsymbol \phi}\xspace}
\bch	$\boldsymbol{\chi}$	{\ensuremath{\boldsymbol \chi}\xspace}
\bpsi	$\boldsymbol{\psi}$	{\ensuremath{\boldsymbol \psi}\xspace}
\bom	$\boldsymbol{\omega}$	{\ensuremath{\boldsymbol \omega}\xspace}
\bveps	$\boldsymbol{\varepsilon}$	{\ensuremath{\boldsymbol \varepsilon}\xspace}
\nvph	$\boldsymbol{\varphi}$	{\ensuremath{\boldsymbol \varphi}\xspace}
\bvsig	$\boldsymbol{\varsigma}$	{\ensuremath{\boldsymbol \varsigma}\xspace}
\bvrho	$\boldsymbol{\varrho}$	{\ensuremath{\boldsymbol \varrho}\xspace}
\bvpi	$\boldsymbol{\varpi}$	{\ensuremath{\boldsymbol \varpi}\xspace}

\bvkap	$\boldsymbol{\varkappa}$	{\ensuremath{\boldsymbol \varkappa}\xspace}
\bvth	$\boldsymbol{\vartheta}$	{\ensuremath{\boldsymbol \vartheta}\xspace}
Mathmode uppercase Greek symbols		
\Gm	Γ	{\ensuremath{\Gamma}\xspace}
\Del	Δ	{\ensuremath{\Delta}\xspace}
\Th	Θ	{\ensuremath{\Theta}\xspace}
\Lam	Λ	{\ensuremath{\Lambda}\xspace}
\mXi	Ξ	{\ensuremath{\Xi}\xspace}
\mPi	Π	{\ensuremath{\Pi}\xspace}
\Sig	Σ	{\ensuremath{\Sigma}\xspace}
\Ups	Υ	{\ensuremath{\Upsilon}\xspace}
\Ph	Φ	{\ensuremath{\Phi}\xspace}
\Ps	Ψ	{\ensuremath{\Psi}\xspace}
\Om	Ω	{\ensuremath{\Omega}\xspace}
Mathmode bold uppercase Greek symbols		
\bGm	$\boldsymbol{\Gamma}$	{\ensuremath{\boldsymbol \Gamma}\xspace}
\bDel	$\boldsymbol{\Delta}$	{\ensuremath{\boldsymbol \Delta}\xspace}
\bTh	$\boldsymbol{\Theta}$	{\ensuremath{\boldsymbol \Theta}\xspace}
\bLam	$\boldsymbol{\Lambda}$	{\ensuremath{\boldsymbol \Lambda}\xspace}
\bXi	$\boldsymbol{\Xi}$	{\ensuremath{\boldsymbol \Xi}\xspace}
\bPi	$\boldsymbol{\Pi}$	{\ensuremath{\boldsymbol \Pi}\xspace}
\bSig	$\boldsymbol{\Sigma}$	{\ensuremath{\boldsymbol \Sigma}\xspace}
\bUps	$\boldsymbol{\Upsilon}$	{\ensuremath{\boldsymbol \Upsilon}\xspace}
\bPhi	$\boldsymbol{\Phi}$	{\ensuremath{\boldsymbol \Phi}\xspace}
\bPsi	$\boldsymbol{\Psi}$	{\ensuremath{\boldsymbol \Psi}\xspace}
\bOm	$\boldsymbol{\Omega}$	{\ensuremath{\boldsymbol{\Omega} }\xspace}

Table 5: Vector/matrix "zero" and half

Short form	Output	LaTeX command
\bzero	$\mathbf{0}$	{\ensuremath{\boldsymbol{0}}\xspace}
\half	$\frac{1}{2}$	{\ensuremath{\frac{1}{2}}\xspace}

Table 6: Spaces symbols

Short form	Output	LaTeX command
\C	$\mathbb{C}$	{\ensuremath{\mathbb{C}}\xspace}
\Cn	$\mathbb{C}^n$	{\ensuremath{\mathbb{C}^n}\xspace}
\D	$\mathbb{D}$	{\ensuremath{\mathbb{D}}\xspace}
\Dn	$\mathbb{D}^n$	{\ensuremath{\mathbb{D}^n}\xspace}
\Re	$\mathbb{R}$	{\ensuremath{\mathbb{R}}\xspace}
\Rn	$\mathbb{R}^n$	{\ensuremath{\mathbb{R}^n}\xspace}
\Ri{a}	$\mathbb{R}^a$	{\ensuremath{\mathbb{R}^{#1}}\xspace}
\se	$se(3)$	{\ensuremath{se(3)}\xspace}
\ses	$se^*(3)$	{\ensuremath{se^*(3)}\xspace}
\SE	$\mathbb{SE}(3)$	{\ensuremath{\mathbb{SE}(3)}\xspace}
\so	$so(3)$	{\ensuremath{so(3)}\xspace}
\SO	$\mathbb{SO}(3)$	{\ensuremath{\mathbb{SO}(3)}\xspace}
\nul{$\boldsymbol{A}$ }	$\mathcal{N}(\boldsymbol{A})$	{\ensuremath{\mathcal{N}(#1)}\xspace}
\row{$\boldsymbol{A}$ }	$\mathcal{R}(\boldsymbol{A})$	{\ensuremath{\mathcal{R}(#1)}\xspace}
Notations for the configuration space		
\conf	$\mathcal{C}$	{\ensuremath{\mathcal{C}}\xspace}
\dimc	$\dim(\mathcal{C})$	{\ensuremath{\textrm{dim(}\mathcal{C}} \textrm{)}\xspace}

Table 7: Jacobian matrices

Short form	Output	LaTeX command
Constraint Jacobian matrices		
\jetaq	$\boldsymbol{J_{\eta q}}$	{\ensuremath{{\boldsymbol J}_ {\bfeta\bq}}\xspace}
\jetath	$\boldsymbol{J_{\eta \theta}}$	{\ensuremath{{\bs J}_ {\bfeta\bth}}\xspace}

\jetaphi	$\boldsymbol{J_{\eta\phi}}$	{\ensuremath{{\bs J}_ {\bfeta\bphi}}\xspace}
\jetagamma	$\boldsymbol{J_{\eta\gamma}}$	{\ensuremath{{\bs J}_ {\bfeta\bgamma}}\xspace}
\jetapsi	$\boldsymbol{J_{\eta\psi}}$	{\ensuremath{{\bs J}_ {\bfeta\bpsi}}\xspace}
\jphith	$\boldsymbol{J_{\phi\theta}}$	{\ensuremath{{\bs J}_ {\bphi\bth}}\xspace}
\jpsith	$\boldsymbol{J_{\psi\theta}}$	{\ensuremath{{\bs J}_ {\bpsi\bth}}\xspace}
\jgammath	$\boldsymbol{J_{\gamma\theta}}$	{\ensuremath{{\bs J}_ {\bgamma\bth}}\xspace}
\Jfth	$\boldsymbol{J_{f\theta}}$	{\ensuremath{\boldsymbol{J}_ {f\boldsymbol{\theta}}}\xspace}
\jqth	$\boldsymbol{J_{q\theta}}$	{\ensuremath{{\boldsymbol{J}}_ {\bq\bth}}\xspace}
\jpq	$\boldsymbol{J_{pq}}$	{\ensuremath{{\boldsymbol{J}}_ {\bp\bq}}\xspace}
\jpcth	$\boldsymbol{J_{p_c\theta}}$	{\ensuremath{\boldsymbol{J}_ {\pc\bth}\xspace}
\jpcphi	$\boldsymbol{J_{p_c\phi}}$	{\ensuremath{\boldsymbol{J}_ {\pc\bphi}\xspace}
\jpcq	$\boldsymbol{J_{p_cq}}$	{\ensuremath{\boldsymbol{J}_ {\pc\bq}\xspace}
\jfth	$\boldsymbol{J_{f\theta}}$	{\ensuremath{\boldsymbol{J}_ {\bs{f}\bth}\xspace}
\jfpsi	$\boldsymbol{J_{f\psi}}$	{\ensuremath{\boldsymbol{J}_ {\bs{f}\bpsi}\xspace}
\jfrts	$\boldsymbol{J_{fr_{ts}}}$	{\ensuremath{\boldsymbol{J}_ {\bs{f}\bs{r}_ {ts}}\xspace}
\jfpc	$\boldsymbol{J_{fp_c}}$	{\ensuremath{\boldsymbol{J}_ {\bs{f}\bp_ c}\xspace}
\jpth	$\boldsymbol{J_{p\theta}}$	{\ensuremath{\boldsymbol{J}_ {\boldsymbol{p\theta}}}\xspace}
\jpphi	$\boldsymbol{J_{p\phi}}$	{\ensuremath{\boldsymbol{J}_ {\boldsymbol{p\phi}}}\xspace}

Angular velocity related		
\jom	$\boldsymbol{J_{\omega}}$	{\ensuremath{{\bs J}_ {\bom}}\xspace}
\jomc{a}	$\boldsymbol{J_{\omega_{c_a}}}$	{\ensuremath{{\boldsymbol J}_ {\boldsymbol{\omega}_ {c_ #1}}}\xspace}
\jomth	$\boldsymbol{J_{\omega\theta}}$	{\ensuremath{{\bs J}_ {\bom\bth}}\xspace}
\jomphi	$\boldsymbol{J_{\omega\phi}}$	{\ensuremath{{\bs J}_ {\bom\bphi}}\xspace}
\jomeq	$\boldsymbol{J^{eq}_{\omega}}$	{\ensuremath{{\bs J}_ {\bom}^{eq}}\xspace}
\jweq	$\boldsymbol{J^{eq}_{w}}$	{\ensuremath{{\bs J}_ {\bs{w}}^{eq}}\xspace}
Linear velocity related		
\jv	$\boldsymbol{J_{v}}$	{\ensuremath{{\bs J}_ {\bs v}}\xspace}
\jvp	$\boldsymbol{J_{vp}}$	{\ensuremath{{\bs J}_ {{\bs v}{\bs p}}}\xspace}
\jvth	$\boldsymbol{J_{v\theta}}$	{\ensuremath{{\bs J}_ {\bv\bth}}\xspace}
\jvphi	$\boldsymbol{J_{v\phi}}$	{\ensuremath{{\bs J}_ {\bv\bphi}}\xspace}
\jveq	$\boldsymbol{J^{eq}_{v}}$	{\ensuremath{{\bs J}_ {\bv}^{eq}}\xspace}
\jc	$\boldsymbol{J_{c}}$	{\ensuremath{{\bs J}_ {\bs c}}\xspace}
\jvpc{a}	$\boldsymbol{J_{vp_{c_a}}}$	{\ensuremath{\boldsymbol{J}_ {{\bs v}{\bs p}_ {c_ #1}}}\xspace}
\jcp	$\boldsymbol{J_{cp}}$	{\ensuremath{\boldsymbol{J}_ {\bs{c}{\bp}}}\xspace}

Table 8: Kinematics

Short form	Output	LaTeX command
Positions		
\rot{a}{b}	${}^{a}_{b}\boldsymbol{R}$	{\ensuremath{{}^{#1}_ {#2}{\boldsymbol{R}}}\xspace}
\tran{a}{b}	${}^{a}_{b}\boldsymbol{T}$	{\ensuremath{{}^{#1}_ {#2}{\boldsymbol{T}}}\xspace}

\frm{a}	$\{a\}$	{\ensuremath{\{#1\}}\xspace}
\pc	$\boldsymbol{p}_c$	{\ensuremath{\boldsymbol{p}_ c}\xspace}
\pci{a}	$\boldsymbol{p}_{\boldsymbol{c}_a}$	{\ensuremath{\boldsymbol{p}_ {\boldsymbol{c}_ {#1}}}\xspace}
Velocities		
\vp	$\boldsymbol{v}_{\boldsymbol{p}}$	{\ensuremath{\boldsymbol{v}_ {\boldsymbol{p}}}\xspace}
\vpc{a}	$\boldsymbol{v}_{\boldsymbol{p}_{ca}}$	{\ensuremath{\boldsymbol{v}_ {\boldsymbol{p}_ {c_ #1}}}\xspace}
Derivatives		
\xd	$\dot{x}$	{\ensuremath{\dot{x}}\xspace}
\xdd	$\ddot{x}$	{\ensuremath{\ddot{x}}\xspace}
\bqd	$\dot{\boldsymbol{q}}$	{\ensuremath{\dot{\boldsymbol{q}}} \xspace}
\bqdd	$\ddot{\boldsymbol{q}}$	{\ensuremath{\ddot{\boldsymbol{q}}} \xspace}
\pcd	$\dot{\boldsymbol{p}}_c$	{\ensuremath{\dot{\boldsymbol{p}}_ c}}\xspace}
\thd	$\dot{\theta}$	{\ensuremath{\dot{\theta}}\xspace}
\bthd	$\dot{\boldsymbol{\theta}}$	{\ensuremath{\dot{\bs{\theta}}}\xspace}
\bthdd	$\ddot{\boldsymbol{\theta}}$	{\ensuremath{\ddot{\bth}}\xspace}
\alphad	$\dot{\alpha}$	{\ensuremath{\dot \alpha}\xspace}
\psid	$\dot{\psi}$	{\ensuremath{\dot{\psi}}\xspace}
\psidd	$\ddot{\psi}$	{\ensuremath{\ddot{\psi}}\xspace}
\phid	$\dot{\phi}$	{\ensuremath{\dot{\phi}}\xspace}
\bPhid	$\dot{\boldsymbol{\Phi}}$	{\ensuremath{\dot{\bs{\Phi}}}\xspace}
\bphid	$\dot{\boldsymbol{\phi}}$	{\ensuremath{\dot{\bs{\phi}}}\xspace}
\bpsid	$\dot{\boldsymbol{\psi}}$	{\ensuremath{\dot{\bs{\psi}}}\xspace}
\bphidr	$\dot{\boldsymbol{\phi}}^{\mathrm{r}}$	{\ensuremath{\dot{\boldsymbol{\phi}}^{ \textrm{r}}}\xspace}
\bphidn	$\dot{\boldsymbol{\phi}}^{\mathrm{n}}$	{\ensuremath{\dot{\boldsymbol{\phi}}^{ \textrm{n}}}\xspace}

Table 9: Dynamics

Short form	Output	LaTeX command
\bMth	$\boldsymbol{M_\theta}$	{\ensuremath{\boldsymbol{M_ \theta}}\xspace}
\bCth	$\boldsymbol{C_\theta}$	{\ensuremath{\boldsymbol{C_ \theta}}\xspace}
\bGth	$\boldsymbol{G_\theta}$	{\ensuremath{\boldsymbol{G_ \theta}}\xspace}
\bin	$\boldsymbol{I}_n$	{\ensuremath{\boldsymbol{I}_ n}\xspace}
\Ith	$I(\theta)$	{\ensuremath{I(\theta)}\xspace}
\bkp	$\boldsymbol{K}_p$	{\ensuremath{\boldsymbol{K}_ p}\xspace}
\bkv	$\boldsymbol{K}_v$	{\ensuremath{\boldsymbol{K}_ v}\xspace}
\bQc	$\boldsymbol{Q}^{\mathrm{c}}$	{\ensuremath{\boldsymbol{Q}^{ \textrm{c}}}\xspace}
\Pnc	P^{nc}	{\ensuremath{P^{ \textrm{nc}}}}\xspace}
\bQnca	$\boldsymbol{Q}^{\mathrm{nc}}_{\mathrm{a}}$	{\ensuremath{\boldsymbol{Q}^{ \textrm{nc}}_ {\textrm{a}}}\xspace}
\bQnc	$\boldsymbol{Q}^{\mathrm{nc}}$	{\ensuremath{ \boldsymbol{Q}^{\textrm{nc}}}}\xspace}
\bQncr	$\boldsymbol{\mathcal{Q}}$	{ \ensuremath{ \boldsymbol{ \mathcal{Q}}}} \xspace}

Table 10: Manipulators

Short form	Output	LaTeX command
\rrs	3-$\underline{\mathrm{R}}$RS	{\ensuremath{3}-\underline{R}RS\xspace}
\rps	3-R$\underline{\mathrm{P}}$S	{\ensuremath{3}-R\underline{P}S\xspace}
\upu	3-U$\underline{\mathrm{P}}$U	{\ensuremath{3}-U\underline{P}U\xspace}
\rrr	3-$\underline{\mathrm{R}}$RR	{\ensuremath{3}-\underline{R}RR\xspace}
\rpr	3-R$\underline{\mathrm{P}}$R	{\ensuremath{3}-R\underline{P}R\xspace}

\upsl	6-U$\underline{\text{P}}$S	{\ensuremath{6}- U\underline{P}S\xspace}
\map	MaPaMan	{\mbox{MaPaMan}\xspace}
\mapI	MaPaMan-I	{\mbox{MaPaMan-I}\xspace}
\mapII	MaPaMan-II	{\mbox{MaPaMan-II}\xspace}

Table 11: Math Symbols

Short form	**Output**	**LaTeX command**
\iff	*iff*	{\ensuremath{\mathit{iff}}\xspace}
\imply	$\Rightarrow$	{\ensuremath{\Rightarrow \;}\xspace}
\QED	■	{\ensuremath{\rule[0pt]{1.5ex}{1.5ex}}\xspace}
\proof	*Proof:*	{\noindent\hspace{2em}{\em Proof: }\xspace}
\define	$\triangleq$	{\ensuremath{\stackrel{\Delta}{=}}\xspace}
\elim{a}	$\xrightarrow{\times a}$	{\ensuremath{\stackrel{\times #1}{\longrightarrow}}\xspace}
Operations		
\adj	adj	{\text{adj}\xspace}
\trace	tr	{\text{tr}\xspace}
Norm		
\norm{a}	$\|a\|$	{\ensuremath{\\|#1\\|}\xspace}
\normd{a}	$\|a\|_d$	{\ensuremath{\\|#1\\|_ d}\xspace}
Partial derivative		
\pd{a}{b}	$\frac{\partial a}{\partial b}$	{\ensuremath{\frac{\partial #1}{\partial #2}}\xspace}
\dpd{a}{b}	$\dfrac{\partial a}{\partial b}$	{\ensuremath{\dfrac{\partial #1}{\partial #2}}\xspace}
Total derivative		
\td{a}{b}	$\frac{\mathrm{d}a}{\mathrm{d}b}$	{\ensuremath{\frac{\textrm{d} #1}{\textrm{d} #2\hfill}}\xspace}
\dtotder{a}{b}	$\dfrac{\mathrm{d}a}{\mathrm{d}b}$	{\ensuremath{\dfrac{\textrm{d} #1}{\textrm{d} #2\hfill}}\xspace}
Partial second derivative		

\pdd{a}{b}	$\frac{\partial^2 a}{\partial b^2}$	{\ensuremath{\frac{\partial^2 #1}{\partial #2^2}}\xspace}
Total second derivative		
\tdd{a}{b}	$\frac{\mathrm{d}^2 a}{\mathrm{d}b^2}$	{\ensuremath{\frac{\textrm{d}^2 #1}{\textrm{d} #2^2\hfill}}\xspace}
\dsecder{a}{b}	$\dfrac{\mathrm{d}^2 a}{\mathrm{d}b^2}$	{\ensuremath{\dfrac{\textrm{d}^2 #1}{\textrm{d} #2^2\hfill}}\xspace}
Scalar tripple product		
\trip{a}{b}{c}	$[a, b, c]$	{\ensuremath{\left[#1, #2, #3\right]}\xspace}
Rank symbol		
\rank{a}	$\mathrm{rank}\,(a)$	{\ensuremath{\mathrm{rank}\left(#1 \right)}\xspace}

Table 12: Generic words

Short form	**Output**	**LaTeX command**
\dof	degree-of-freedom	{degree-of-freedom\xspace}
\dofs	degrees-of-freedom	{degrees-of-freedom\xspace}
\rb	rigid-body	{rigid-body\xspace}
\rbm	rigid-body motion	{rigid-body motion\xspace}
\asf	actuator-space formulation	{actuator-space formulation\xspace}
\csf	configuration-space formulation	{configuration-space formulation\xspace}
\ith	ith	{\ensuremath{i}th\xspace}

Table 13: References

Short form	**Output**	**LaTeX command**
\mref{a}	**??**	{\ref{#1}\xspace}
\mcite{a}	[?]	{\cite{#1}\xspace}
\mlabel{a}		{\label{#1}\xspace}