Differential Dynamical Systems
Errata (First Printing)

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Abstract

Errors are listed by page and line number. The symbol $\Longrightarrow$ means "replace with". A negative line number means count from the bottom of the page. Equation lines are counted as one line.

Note that the first printing has 10 9 8 7 6 5 4 3 2 1 on the copyright page. The second printing should be out in early 2009, and will have 10 9 8 7 6 5 4 3 2 on the copyright page.

Chap.	Page	Line	Change	Thanks to
1	2	5	"(fluent quantities)" $\Longrightarrow$ "(fluxions)"	SS
	2	9	"find the fluxions" $\Longrightarrow$ "find the fluent quantities"	SS
	7	-3	"bounded sequence has a" $\Longrightarrow$ "bounded function has a"	SS
	10	-5	"These equations are linear" $\Longrightarrow$ "These equations are affine"	
	10	-4,-3	"then the equations of motion are not linear but are affine, see Exercise 9.9." $\Longrightarrow$ "additional affine terms are added to the equations, see §2.1 and Exercise 9.10."	
2	31	14	$v_i \neq 0 \Longrightarrow v \neq 0$	AGH
	41	-7	"matrices; then" $\Longrightarrow$ "matrices; then (in the Euclidean norm)"	
	42	9	(2.30) should be (2.24)	
	42	-10	Insert (2.23) after "By the definition"	
	42	-6	$T(x)^k \Longrightarrow T^k$(x)	DNK
	43	-14	"more generally." $\Longrightarrow$ "when the matrices A and B do not commute."	
	47	-6	"*fundamental matrix*" $\Longrightarrow$ "*(principal) fundamental matrix*"	SS
	49	4	$n-k \Longrightarrow 2m$	AGH
	49	5,6	$u_{k+1}, w_{k+1}, \ldots, u_n, w_n \Longrightarrow u_1, w_1, \ldots, u_m, w_m$	
	49	8	$B_k \Longrightarrow B_1$ AND $B_n \Longrightarrow B_m$	
	49	9	$B_k \Longrightarrow B_j$	
	49	11	$C_{k+1} + \cdots + C_n \Longrightarrow C_1 + \cdots + C_m$	
	49	-6	$j = k+1, \ldots, n, \Longrightarrow j = 1, \ldots, m$	
	49	-3	$B_k \Longrightarrow B_1$	
	50	-17	$(T - \lambda_j I)_j^{n_j} v = 0 \Longrightarrow (T - \lambda_j I)^{n_j} v = 0$	
	56	15	Kronnecker $\Longrightarrow$ Kronecker	LOJ
	58	7	$Av_3 = 3v_3 \Longrightarrow Av_3 = 1v_3$	CWW
	58	8	$U = (3) \Longrightarrow U = (1)$, $\dot{c}_3 = 3c_3 \Longrightarrow \dot{c}_3 = 1c_3$	
	58	-15	"One says that" $\Longrightarrow$ "More precisely, one says that"	SS
	59	12	Add a subscript k: $c_{jlm} \Longrightarrow c_{jklm}$ and $d_{jlm} \Longrightarrow d_{jklm}$. Also $j \in \Longrightarrow j, k \in$	
	59	12,13	$K/n_s \Longrightarrow K/n_s^2$ (both lines)	
	63	1,2	"origin is unstable" $\Longrightarrow$ "zero solution is unstable" (both lines)	SS
	65	-9	"for any linear operator" $\Longrightarrow$ "for any bounded linear operator"	
	66	-6	$M^2 = e^{TR} \Longrightarrow M^2 = e^{2TR}$	MS
	68	21 (Ex 9c)	"nilpotencies 0,1,2,3." $\Longrightarrow$ "nilpotencies 1,2,3."	KOT
	69	10	$\sum_{i=1}^{n_k} d_{ij} v_j \Longrightarrow \sum_{j=1}^{n_k} d_{ij} v_j$	AGH
	71	10	"block as in" $\Longrightarrow$ "blocks as in"	

Chap.	Page	Line	Change	Thanks to
3	76	18-19	"elements of a convergent" $\Longrightarrow$ "elements of a uniformly convergent"	
	79	4	to the phrase "with the L_∞ norm is complete" append "when E is compact".	
	86	-15	"complete space $C^0(\mathbb{R}, \mathbb{R}^n)$" $\Longrightarrow$ "complete space $C^0(J, \mathbb{R}^n)$"	
	98	Fig 3.7	Vertical axis should be labeled "x_o", not "x"	PJR
	99	3	$x : J \to \mathbb{R}^n \Longrightarrow x : J \to E$	
	99	7	$B_b(x_o) \Longrightarrow B_{b_o}(x_o)$ (Two places!)	AGH
	103	12	In the exponent, $2K$ should be K.	RC
4	110	4	defines a complete flow $\Longrightarrow$ exists for all $t \in \mathbb{R}$	MS
	110	10	Theorem 3.17 $\Longrightarrow$ Theorem 3.18	JA
	110	-10	The vector field F defines a flow on $\mathbb{R}^n$ $\Longrightarrow$ The solutions exist for all $t \in \mathbb{R}$	MS
	111	7	(4.7) $\Longrightarrow$ (4.8)	
	111	11	and therefore define a flow. $\Longrightarrow$ and therefore, if $f \in C^1$, define a flow.	MS
	111	-11	Theorem 3.17 $\Longrightarrow$ Theorem 3.18	JA
	119	11-12	"be appropriate rely" $\Longrightarrow$ "be appropriate to rely"	KOT
	121	7	$g(\delta x) = o(\delta x^2) \Longrightarrow g(\delta x) = O(\delta x^2)$	
	122	8	$y \le \delta \Longrightarrow \lvert y\rvert \le K\delta$	
	122	11	"Let" $\Longrightarrow$ "Now assume that $\lvert y_o\rvert \le \delta$, let"	
	122	11	$\lvert y_o \le \delta\rvert \Longrightarrow \lvert y_o\rvert \le \delta$	
	123	-2	$L(\varphi_t(z)) \Longrightarrow L(\varphi_s(z))$	
	130	Ftnt 24	"continuous, bijective map that" $\Longrightarrow$ "continuous, bijective map between compact sets that"	SS
	131	4	"itself, and thus" $\Longrightarrow$ "itself with a C^1 inverse, and thus"	SS
	136	12	"matrices are linearly conjugate" $\Longrightarrow$ "matrices are similar"	AR
	136	-7	$= (h_2(x_1, x_2) + tx_2) \Longrightarrow = (h_1(x_1, x_2) + tx_2)$	SS2
	148	-6	"is a subset M of N" $\Longrightarrow$ is a neighborhood $M \subset N$	MS
	151	-8	$B_R \subset E \Longrightarrow B_R \supset E$	
	151	(4.49)	This equation is incorrect. Replace it with $$R > \frac{r+\sigma}{2}\begin{cases} 2 & \alpha \le 2 \\ \frac{\alpha}{\sqrt{\alpha-1}} & \alpha > 2 \end{cases}, \quad \alpha = b\max(1, \sigma^{-1})$$	
	151	-5	$R > 38 \Longrightarrow R > 152/\sqrt{15}$	
	151	-5	$B_{39} \Longrightarrow B_{40}$	
	152	20	$\frac{d}{dt}(x+y) \Longrightarrow \frac{d}{dt}(\gamma + y)$	
	154	4	$(\partial H/\partial y, \partial H/\partial x) \Longrightarrow (\partial H/\partial y, -\partial H/\partial x)$	
	160	7	"is a unique the equilibrium" $\Longrightarrow$ "is a unique nonnegative equilibrium"	KOT
	161	7	$\dot z = 2z \Longrightarrow \dot z = z$	KLS
	162	-17	$0 \le z < Z \Longrightarrow 0 \le z \le Z$	KOT
	162	-5	$h(\omega(h^{-1}(y)) \Longrightarrow h(\omega(h^{-1}(y)))$	KOT

Chap.	Page	Line	Change	Thanks to
4	164	7	your systems $\Longrightarrow$ your system's	KOT
5	165	-2	"as $t \to \infty$" $\Longrightarrow$ "as $t \to -\infty$"	
	174	10	$x(t) = \Longrightarrow x(t;\sigma) =$	
	176	-1	change the last $\lvert x(t;\sigma)\rvert$ to $\lvert x(s;\sigma)\rvert$	
	177	-5	$v(t) = v(T) \Longrightarrow v(t) = u(T)$	
	188	5	$g : E^c \to E^u \Longrightarrow g : E^c \to E^s$	AR
	188	-1	$F(x, h(x), g(x)) \Longrightarrow F(x, g(x), h(x))$	
	189	6	$\{(x, h(x), g(x)) : \Longrightarrow \{(x, g(x), h(x)) :$	
	189	8	$F(x, h(x), g(x)) \Longrightarrow F(x, g(x), h(x))$	
	190	5	$+\frac{z^4}{16\lambda^2} \Longrightarrow +\frac{z^4}{16\lambda^3}$	AR
	191	-5	$\{(x_1, x_2, h(x_1, x_2))\} \Longrightarrow \{(x_1, x_2, g(x_1, x_2))\}$	
	191	-5	$h(x) = \alpha \Longrightarrow g(x) = \alpha$	
	191	-4	$y = h(x) \Longrightarrow y = g(x)$	
	191	-3	$\dot{y} = Dh(x) = \frac{\partial h}{\partial x_1}\dot{x}_1 + \frac{\partial h}{\partial x_1}\dot{x}_2$ Replace "h" with "g" in three places	
	192	5	$y = -x_2^2 - x_2^2 \Longrightarrow y = -x_1^2 - x_2^2$	RHG
	194	10	$\dot{x} = -x + y^2 \Longrightarrow \dot{x} = -x + xy$	
	194	11	$\dot{y} = 2y + xy \Longrightarrow \dot{y} = 2y + x^2$	
6	200	-1	$T = 2\pi r^2 \Longrightarrow T = 2\pi/r^2$	
	212	-4	"a symmetric pair" $\Longrightarrow$ "a symmetric partner"	
	213	-7	$(y + \alpha x^2 y, -x + \beta y^2 x^2) = -((-y) \Longrightarrow (-y + \alpha x^2 y, -x - \beta y^2 x^2) = -(-(-y)$	
	222	-14	$\dot{r} = \frac{y^2}{2r} \Longrightarrow \dot{r} = \frac{y^2}{r}$	AR
	222	-13	$\dot{r} = -\frac{y^4}{2r} \Longrightarrow \dot{r} = -\frac{y^4}{r}$	AR
	224	4	with only one change $\Longrightarrow$ for C^2 flows there is only one change	RM
	241	Ex. 2.12	Replace the $\dot{x}$ equation with $\dot{x} = x - y - x^2(x + 2y) - xy^2$	RM
7	252	5	For any functions $\Longrightarrow$ For any scalar functions	
	256	3	change the x in the 23 element of the matrix (7.21) to $-x$	APR
	258	-5	and set $v_{ii}(0) \Longrightarrow$ and set $v_{ij}(0)$	
	262	7	when $\varepsilon < t \Longrightarrow$ when $\varepsilon < 1$	
	262	-3	$\sum\limits_{m \in Z^d} \Longrightarrow \sum\limits_{m \in \mathbb{Z}^d}$	
	266	2	$< 9 \Longrightarrow \leq 9$	SEO
	266	3	a Lyapunov basis is $\Longrightarrow$ an eigenvector basis is	
	266	14	sides of length 1/3 $\Longrightarrow$ sides of length 1/2	RP

Chap.	Page	Line	Change	Thanks to
8	269	-11	that as $\mu \to \infty \Longrightarrow$ that as $\mu \to -\infty$	SS2
	274	19	$= Dhf(x; p(\nu)) \Longrightarrow = Dh(x; p(\nu))f(x; p(\nu))$	MS
	279	7	and when $\Longrightarrow$ and zero when	LOJ
	283	-8	$g(x) = Ax + O(3) \Longrightarrow g(\xi) = A\xi + O(3)$	LOJ
	283	-4	calls $L_A \Longrightarrow$ calls $-L_A$	LOJ
	294	Fig 8.9	of (8.49) for $\Longrightarrow$ of (8.46) for	AA
	294	-7	$b = 1 \Longrightarrow b = -1$	AA
9	335	-4	$= \int_{U_t} \operatorname{tr}(Df(x(t)))dx \Longrightarrow = \int_{U_t} \operatorname{tr}(Df(x))dx$	
	346	- 8	$\frac{dq}{ds} \Longrightarrow \frac{dq}{ds}(s)$ and $\frac{dt}{ds} \Longrightarrow \frac{dt}{ds}(s)$	LOJ
	368	-5	Hamiltonian flow is $\Longrightarrow$ Hamiltonian flow on M_c is	
	369	9	$M_c \Longrightarrow \theta$	LOJ
	350	12	is a C^2 diffeomorphism $\Longrightarrow$ is a C^2 embedding	
	350	-12	$Dh(y) \Longrightarrow Dh^T(y)$ (in two places) and $D^2h(y)\dot{y} \Longrightarrow (D^2h(y)\dot{y})^T$	
	350	-11	$Dh(y) \Longrightarrow Dh^T(y)$	
	361	8	$(2n-1)n \Longrightarrow (2n+1)n$	
	362	4	$(2n-1)n \Longrightarrow (2n+1)n$	
	370	6	$\omega = \pi(I) \Longrightarrow \omega = \Omega(I)$	
	371	-8	$\lvert m \cdot \omega \rvert > c \Longrightarrow \lvert m \cdot \omega \rvert \geq c$	
	371	-7	The set $\mathcal{D}_{c,\tau}$ is a $\Longrightarrow$ The set $\mathcal{D}_{c,\tau} \cap \mathbb{S}^{n-1}$ is a	
	371	-1	$> \frac{d}{\lvert q \rvert^{\tau+1}} \Longrightarrow \geq \frac{d}{2\lvert q \rvert^{\tau+1}}$	
	372	1	with $d = c/\omega_2 \Longrightarrow$ with $d = 2c/\omega_2$	
	372	4	$[0, d/2]$ and $[1- \Longrightarrow [0, d/2)$ and $(1-$	
	372	9	Thus E is bounded $\Longrightarrow$ Thus L is bounded	
	374	10	$+q^T Sq$, where $S \Longrightarrow +q^T Wq$ where W	
	374	-15	two-degrees-of-freedom $\Longrightarrow$ two degree-of-freedom	
	374	-1	let $Q \Longrightarrow$ let $\mathcal{Q}$	
	375	7	$\Sigma = \Longrightarrow S =$	
	387	-14	Casmir $\Longrightarrow$ Casimir	
	389	5	Exercise 8. $\Longrightarrow$ (9.39).	
	389	-6	$+\frac{mga}{I} \Longrightarrow +2\frac{mga}{I}$	LOJ