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## Errata: Introduction to Bayesian Statistics, Second Edition

Page	Chapter	line	Correction
viii	Contents	14	<i>4.8 Odds and Bayes Factor</i>
xvi	Pref.	25	"....and Chapters 11-14."
33	3	13	<sup>a</sup> Value in table plus 299000km/s.
61	4	23	"Two mutually exclusive events each with non-zero probability cannot be independent."
69	4	34	<b>4.8 ODDS AND BAYES FACTOR</b>
69	4	36	... form the odds of the event. The odds for ...
70	4	5	...we get the prior odds.
70	4	7	...posterior odds.
70	4	10	... between odds and probabilities.
70	4	19	... odds to find ...
74	4	10	The odds of an event $A$ ...
84	5	10	Equation should read $\text{Var}(Y N, R, n) = n \times \frac{R}{N} \times \left(1 - \frac{R}{N}\right) \times \left(\frac{N-n}{N-1}\right)$
104	6	4	... some of which may be red.
107	6	4	entry in column headed 0,1 should read $\frac{1}{6} \times \frac{5}{5} \times \frac{0}{4}$
107	6	4	entry in column headed 1,1 should read $\frac{1}{6} \times \frac{0}{5} \times \frac{0}{4}$
126	7	17	Equation 7.4 should read $\text{Var}(Y) = E[(Y - E(Y))^2] = \int_{-\infty}^{\infty} (y - \mu)^2 f(y) dy$

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Page	Chapter	line	Correction												
129	7	20	"Its probability density ..."												
131	7	7	" ... variance of the $gamma(r, v)$ distribution ..."												
147	8	26	" ... in the following example"												
148	8	14-16	Equation should read												
			$g(\pi) = \begin{cases} 20\pi & \text{for } 0 \leq \pi \leq .10, \\ 2 & \text{for } .10 \leq \pi \leq .30, \\ 5 - 10\pi & \text{for } .30 \leq \pi \leq .50. \end{cases}$												
154	8	4	Table 8.3 entries should be												
			<table> <tr> <td><i>Anna</i></td> <td><math>beta(30.8, 93.2)</math></td> <td>.177</td> <td>.328</td> <td>.173</td> <td>.324</td> </tr> <tr> <td><i>Bart</i></td> <td><math>beta(27, 75)</math></td> <td>.184</td> <td>.354</td> <td>.180</td> <td>.350</td> </tr> </table>	<i>Anna</i>	$beta(30.8, 93.2)$	.177	.328	.173	.324	<i>Bart</i>	$beta(27, 75)$	.184	.354	.180	.350
<i>Anna</i>	$beta(30.8, 93.2)$	.177	.328	.173	.324										
<i>Bart</i>	$beta(27, 75)$	.184	.354	.180	.350										
158	8	36	" for $.2 < \pi \leq .3$ "												
159	8	6	"... <i>tintegral.mac</i> or the equivalent R function to find..."												
166	9	12	Equation should read												
			$MS(\hat{\pi}_B) = \left[ \frac{n\pi}{n+2} + \frac{1}{n+2} - \pi \right]^2 + \left[ \frac{1}{n+2} \right]^2 \times n\pi(1 - \pi)$												
168	9	5	" ...find an interval that has a high probability..."												
173	9	19	Equation should read												
			$P(\pi \leq .6   y = 8) = \int_0^{.6} \frac{\Gamma(12)}{\Gamma(3)\Gamma(9)} \pi^8 (1 - \pi)^2 d\pi$ $= .1189$												
173	9	22	"...null hypothesis at the 5% level of significance."												
180	9	31	" ... $\hat{\pi}_B = \frac{y+1}{n+2}, \dots$ "												

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Page	Chapter	line	Correction
184	10	8	Equation should read $f(y_1, \dots, y_n   \mu) = \prod_{i=1}^n f(y_i   \mu) \propto \mu \sum y_i e^{-n\mu}$
187	10	25	"... are going to count the number ..."
187	10	30	"... but he wants his prior to be invariant ..."
188	10	5	"...Chase will have a gamma(32.25, 10.5) posterior."
189	10	19	"... easily using the formulas, and Diana ..."
191	10	4	"... estimate is $\hat{\mu}_f = \bar{y}$ , the sample mean."
191	10	9	Equation (10.2) should read $MS(\hat{\mu}) = bias^2(\hat{\mu}) + var(\hat{\mu})$
192	10	8	Formula should read $MS(\hat{\mu}_B) = \left(\frac{2-\mu}{1+6}\right)^2 + \frac{6\mu}{(1+6)^2}$
193	10	13	"The four students calculated their 95% ... "
208	11	23	"The posterior precision will equal the observation precision.
211	11	5	The formula should read $(s')^2 = \frac{2^2}{12} = .3333$
214	11	29	"... random draw from the distribution $f(y \mu)$ ."
221	11	29	"... 28.3 ..."

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Page	Chapter	line	Correction
239	13	18	" In Section 13.1 ..."
239	13	21	" In Section 13.2"
240	13	1	" In Section 13.3 ..."
240	13	2	" In Section 13.4"
240	13	4	" In Section 13.5"
241	13	14	"... $(s'_d)^2 = (s'_1)^2 + (s'_2)^2$ ."
246	13	31	The formula should read $\frac{\left(\frac{\sigma_1^2}{n_1} + \frac{\sigma_2^2}{n_2}\right)^2}{\frac{(\sigma_1^2/n_1)^2}{n_1-1} + \frac{(\sigma_2^2/n_2)^2}{n_2-1}}$
247	13	34	The formula should read $\frac{\left(\frac{\sigma_1^2}{n_1} + \frac{\sigma_2^2}{n_2}\right)^2}{\frac{(\sigma_1^2/n_1)^2}{n_1-1} + \frac{(\sigma_2^2/n_2)^2}{n_2-1}}$
251	13	34	$m' = \bar{y} = 7.067$
252	13	12	Formula should read $m' = \frac{1}{.000230761} \times 0 + \frac{15}{.000230761} \times 7.067 = 6.30$
253	13	5	Brad $normal(6.30, 56.83^2)$ $P(Z \leq \frac{0-6.30}{65.83}) = .4619$
260	13	8	" $sd_1 = .00002257$ "
260	13	9	" $sd_2 = .00003075$ "
265	13	5	"...Exercise 15, we ...."

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Page	Chapter	line	Correction
278	14	32	" = $25 \times (207.0703 - 14.3888^2) = .81886$ ."
291	14	32	"If the slugs stay the same shape..."
293	14	3	" ... equal to that calculated in part (d)."
294	14	29	"(a) Use <i>BayesLinReg.mac</i> or ..."
294	14	32	"(b) Find a 95% Bayesian ..."
294	14	33	"(c) Test the hypothesis ..."
294	14	35	"(d) Find the predictive ..."
295	14	1	"(e) Find a 95% credible ..."
299	15	13	formula should read $Var(X) = \frac{2S^2}{(\kappa-2)^2 \times (\kappa-4)}$
304	15	12	" ... where $W$ has the <i>chi-squared</i> distribution with $\kappa$ degrees ..."
311	15	11	" ... $\kappa$ degrees of freedom then its ..."
318	16	35	"...are shown in Figure16.2."
320	16	15	formula should read $g(\theta, i) = p_i \times (1 - i) \times g_0(\theta) + (1 - p_i) \times (i) \times g_1(\theta)$

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Page	Chapter	line	Correction
330	16	11-14	(a) Calculate the posterior distribution of $\mu$ when $g_0(\mu)$ is the prior. (b) Calculate the posterior distribution of $\mu$ when $g_1(\mu)$ is the prior. (c) Calculate the posterior probability $P(I = 0 y_1, \dots, y_6)$ . (d) Calculate the marginal posterior $g(\mu y_1, \dots, y_6)$ .
330	16	24-27	(a) Calculate the posterior distribution of $\mu$ when $g_0(\mu)$ is the prior. (b) Calculate the posterior distribution of $\mu$ when $g_1(\mu)$ is the prior. (c) Calculate the posterior probability $P(I = 0 y_1, \dots, y_6)$ . (d) Calculate the marginal posterior $g(\mu y_1, \dots, y_6)$ .
372	App. C	9	"output c6 c7 c8 c9."
374	App. C	32	"...and inputting the value ..."
377	App. C	29	"...and inputting the value ..."
381	App. C	13	"...and inputting the value ..."
393	App. D	18	<code>pbeta(.1,7,11)</code>
394	App. D	6	"...using this R function."

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Page	Chapter	line	Correction
405	App. E	7 and 8	Should be $\begin{array}{l} 0 \\ 0 \end{array} \parallel \begin{array}{l} 33 \\ 5799 \end{array}$
409	App. E.	20	$= \frac{16}{208} \times \frac{64}{207} + \frac{64}{208} \times \frac{16}{207} = 0.047566$
414	App. E	26-28	insert 7.11 (a) $E(Y) = \frac{12}{4} = 3$ (b) $Var(Y) = \frac{12}{4^2} = .75$ (c) $P(Y \leq 4) = .873$
417	App. E.	37	formula should read $P(\mu \leq 35) = P\left(\frac{\mu - 36.87}{.944} \leq \frac{35 - 36.87}{.944}\right)$
418	App. E.	1	" = $P(Z \leq -1.9739) = .024$ "
418	App. E.	4	35

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Page	Chapter	line	Correction
419	App. E.	7	equation should read $m' = \frac{\frac{1}{80^2}}{.0040625} \times 325 + \frac{\frac{25}{80^2}}{.0040625} \times 401.44 = 398.5$
419	App. E.	8	"...is <i>normal</i> (398.5, 15.69 <sup>2</sup> )"
419	App. E.	24	"... <i>normal</i> (14.97, .3778 <sup>2</sup> )..."
421	App. E.	7	formula should read $\frac{1}{3^2} + \frac{7}{1^2} = 7.111111$
421	App. E.	8	"... variance equals $\frac{1}{7.111111} = .1406255...$ "
421	App. E.	10	formula should read $\frac{\frac{1}{3^2}}{7.111111} \times 0 + \frac{\frac{7}{1^2}}{7.111111} \times -3.9143 = -3.85312.$
421	App. E.	11	"... of $\mu_d$ is <i>normal</i> (-3.85, .375 <sup>2</sup> ). "
421	App. E.	12	"The 95% Bayesian credible interval is (-4.59, -3.12)."
425	App. E.	9	formula should read $m' = \frac{\frac{1}{1^2}}{1514.45} \times 0 + \frac{\frac{SS_x}{850111^2}}{1514.45} \times .00691966 = .00691509$
425	App. E.	14	<i>normal</i> (-.1074, .0324 <sup>2</sup> )
425	App. E.	15	... for $\beta_1 - \beta_2$ is (-.171, -.044)
425	App. E.	17-21	should read $\begin{aligned} &P(\beta_1 - \beta_2 \leq 0) \\ &= P\left(\frac{\beta_1 - \beta_2 - -.1074}{.032} \leq \frac{0 - -.1074}{.032}\right) \\ &= P(Z \leq 3.31) = .9999 \end{aligned}$ This is greater than the level of significance, so we cannot reject the null hypothesis.
435	INDEX	51	odds, 69

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