Errata in *Orbital Mechanics* by Prussing & Conway

Preface Insert as the last sentence of third paragraph: "The problems designated by * are more difficult and can be used for special purposes, such as graduate credit."

p.7 Eq. (1.3) should read

$$\mathbf{r}_{ij} = \mathbf{R}_j - \mathbf{R}_i, \qquad i,\ j = 1, 2, \cdots, n \tag{1.3}$$

p.19 In Fig. 1.6(b) the intersection of the Δ line with the asymptote is not necessarily at the same horizontal location as the periapse.

p.42 The equation number in Prob. 2.3(b) should be (2.43)

p.49 In Fig. 3.3 for the vector **r** to lie above the reference plane, the angle $\omega + f$ should be less than π. The descending node occurs at $\omega + f = \pi$ and lies along the continuation of the line connecting the ascending node and the focus.

p.54 The entire $\hat{\mathbf{J}}$ component of the velocity vector in Eq. (3.9) should be preceded by a minus sign.

p.54 Before last sentence of page insert: "Taking the cross product of **h** with Eq. (1.30) yields"

$$\mathbf{h} \times (\mathbf{v} \times \mathbf{h}) = \mathbf{h} \times \mu(\frac{\mathbf{r}}{r} + \mathbf{e}) \tag{3.10}$$

p.64&66 Some of the numerical values are approximate. More accurate values are $a_m = 1.1442\, r_1$, $e = .2768$, $\tilde{e} = .6789$.

p.66 In the next-to-last paragraph "measure of its total energy" should refer to Sec. 1.7.

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p.68 In Fig. 4.5 the dashed locus of the vacant focus should be a hyperbola, as shown in Fig. 4.3. [F_s^* should be shown closer to F, and a straight line connecting F^* and $\tilde{F}^*$ would be parallel to the (straight line) locus of the eccentricity vector shown.] Also, the line between F and F_s^* should be parallel to the chord connecting P_1 and P_2.

p.91 In Table 5.2 m_{p1} should be 9537, m_{p2} should be 2463, and ε should be 0.143.

p.91 In the last line $\varepsilon = 0.696$ should be $\varepsilon = 0.0696$

p.92 In Table 5.3 for the 2 stage rocket m_{s1}, m_{s2}, m_{p1}, and m_{p2} should have the same (corrected) values as in Table 5.2 (see above).

p.96 In Eq. (5.59) the subscript "3+" should be "3". Similarly, in Eq. (5.60) the subscript "2+" should be "2".

p.98 In Problem 5.8 the second expression should read

$$\frac{J}{c} > \frac{\ln(1 - \Delta J/J)}{-\Delta J/J}$$

p.104 In Fig. 6.5 "parabola" should be "parabolas".

p.118 Problem 6.2 part (b) is missing. Add: "b) Calculate the Hohmann transfer time in days."

p.129 In the next-to-last line "the the" should be "the"

p.130 In Fig. 7.6 the graph should pass through the point (0.5, 0.5).

p.151 After Eq. (8.34) "Equation (8.27)" should be "Equation (8.29)"

p.152 After Eq. (8.38) "Equation (8.32)" should be "Equation (8.34)"

p.153 Reference 8.5 is more accessible as "Optimal Multiple-Impulse Satellite Evasive Maneuvers", *Journal of Guidance, Control, and Dynamics*, **17**, 3, May-Jun 1994, pp. 599–606.

p.154 In Prob. 8.3 "(8.32)" should be "(8.34)"

p.156 For Fig. 9.1, see comment for p. 49.

p.158 On second line "assuming $\dot{\omega}$ small,"

p.161 The final close parenthesis) in Eq. (9.37b) should instead be at end of the last line on the preceding page.

p.161 The exponent in the second line of Eq. (9.37c) shown as $-\frac{1}{2}$ should be $\frac{1}{2}$.

p.161 On line preceding Eq.(9.37e) "right-hand side of (9.37b)"

p.165 The first line should read "where R is the mean equatorial radius of the earth ....."

p.166 The first new sentence after Eq. (9.63) should read "Note that $\dot{\Omega} < 0$ for a posigrade orbit ....."

p.168 In last equation on page $d\mathbf{F}_{drag}$ should be $\mathbf{F}_{drag}$.

p.169

$$T = -\frac{AC_D}{2}\,\rho a^2 n^2\,(1 - \frac{\omega_e}{n}\cos i)$$

should be

$$T = -\frac{AC_D}{2}\,\rho a^2 n^2\,(1 - \frac{2\omega_e}{n}\cos i)$$

p.169 $\mathbf{v} \cdot d\mathbf{F}$ should be $\mathbf{v} \cdot \mathbf{F}$.

p.174 Eq. (10.8) should read

$$\hat{\mathbf{L}}(t) = \hat{\mathbf{L}}(t_o)\,\frac{(t-t_1)(t-t_2)\cdots(t-t_m)}{(t_o-t_1)(t_o-t_2)\cdots(t_o-t_m)}$$

$$+\,\hat{\mathbf{L}}(t_1)\,\frac{(t-t_o)(t-t_2)\cdots(t-t_m)}{(t_1-t_o)(t_1-t_2)\cdots(t_1-t_m)} + \cdots$$

$$+ \hat{\mathbf{L}}(t_m)\, \frac{(t - t_o)(t - t_1) \cdots (t - t_{m-1})}{(t_m - t_o)(t_m - t_1) \cdots (t_m - t_{m-1})}$$

p.175 In Eq. (10.12) $-\dfrac{GM}{r^3}\,\dot{\mathbf{r}}$ should be $-\dfrac{GM}{r^3}\,\mathbf{r}$