Errata for
Introduction to Structural Dynamics and Aeroelasticity, Second Edition

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Errors in Second Printing

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Page Description

7 At the bottom where Newton's laws are stated, the third law should read, "$\ldots Q$ simultaneously exerts a force on P with the same magnitude and line of action but.…"

14 In the next to last line of the paragraph just before Art. 2.2.3, there is a reference to Problem 5. This should refer to Chapter 3, Problem 5.

99 The matrix $[K]$ in Eq. (3.310) should be replaced by $[\grave{K}\acute{}]$.

112 Equation (3.355) should read

$$v(x,t) = \begin{Bmatrix} 2z^3 - 3z^2 + 1 \\ z^3 - 2z^2 + z \\ 3z^2 - 2z^3 \\ z^3 - z^2 \end{Bmatrix}^T \begin{Bmatrix} v_i(t) \\ \ell_i \beta_i(t) \\ v_{i+1}(t) \\ \ell_i \beta_{i+1}(t) \end{Bmatrix}$$

112 The header for the second column of Table 3.9 should read $\theta(\ell)\dfrac{r\ell^2}{\overline{GJ}_0}$.

120 In the third line of Problem 14, "pirot" should be replaced by "pivot."

130 The third from the last sentence before Eq. (4.7) should end, "…which decreases as q increases."

149 The symbol GJ in Eq. (4.76) should be $\overline{GJ}$, and the symbol GJ in Eq. (4.80) should be $\overline{GJ}$.

151 The text before Eq. (4.85) should read, "The solution, with terms removed that are symmetric about $y = 0$, is"

151 Eq. (4.85) should read

$$\theta = \frac{p}{U\lambda}\left[\lambda y - \sec(\lambda\ell)\sin(\lambda y)\right] + \psi\beta\tan(\lambda\ell)\sin(\lambda y)$$

152 The righthand side of Eq (4.87) should read

$$\frac{\lambda\ell\beta\left(ec_{\ell_\beta}\left\{(\lambda\ell)^2 + 2\sin(\lambda\ell)[\tan(\lambda\ell) - \lambda\ell]\right\} + 2cc_{m_\beta}\sin(\lambda\ell)[\tan(\lambda\ell) - \lambda\ell]\right)}{2ae[\tan(\lambda\ell) - \lambda\ell]}$$

152 Eq (4.88) should read

$$\frac{\partial\left(\frac{p\ell}{U}\right)}{\partial\beta} = \frac{\lambda\ell\left(ec_{\ell_\beta}\left\{(\lambda\ell)^2 + 2\sin(\lambda\ell)[\tan(\lambda\ell) - \lambda\ell]\right\} + 2cc_{m_\beta}\sin(\lambda\ell)[\tan(\lambda\ell) - \lambda\ell]\right)}{2ae[\tan(\lambda\ell) - \lambda\ell]} = 0$$

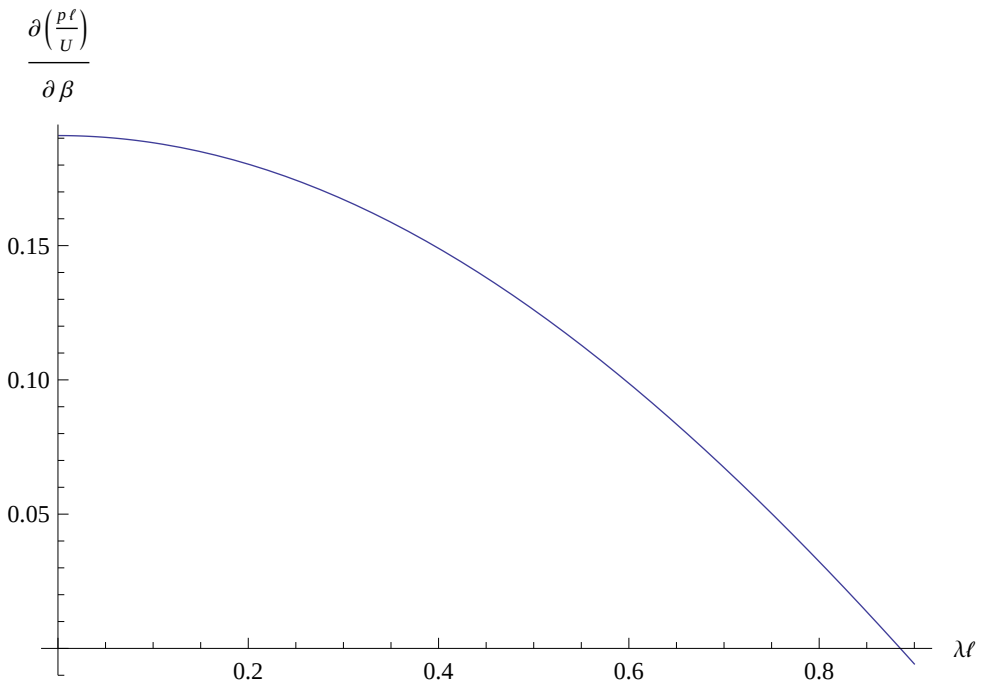

Figure 4.18: Roll rate sensitivity versus $\lambda\ell$ for $e = 0.25c$, $c_{\ell_\beta} = 0.8$, and $c_{m_\beta} = -0.5$, showing the reversal point at $\lambda\ell = 0.885285$

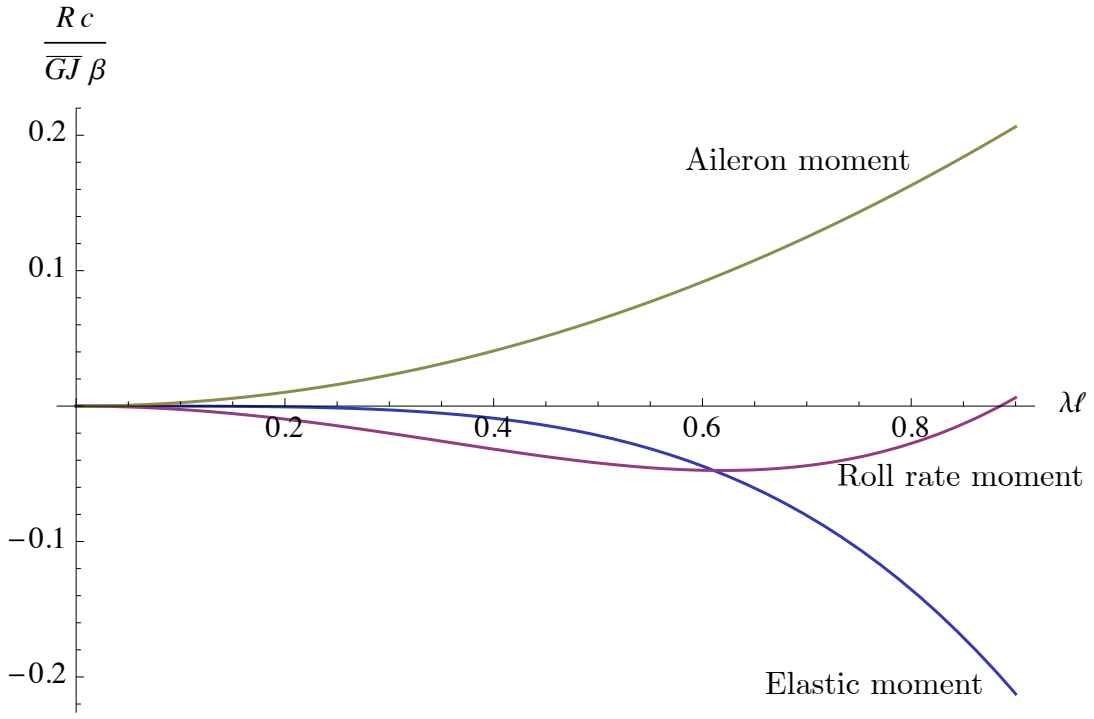

Figure 4.19: Contributions to rolling moment R (normalized) from the three terms of Eq. (4.86)

152 The second sentence under Eq. (4.88) reads, “The lowest value is associated the aileron reversal.” It should instead read, “The lowest value is associated with aileron reversal.”

152 Fig. 4.18 should be replaced with the figure shown herein.

153 Fig. 4.19 should be replaced with the figure shown herein.

158 The sentence underneath Eq. (4.100) reads, “. . . this is equation can be written as. . . ” but should read, “. . . this equation can be written as. . . .”

163 Fig. 4.27 is wrong. It should be replaced with the figure shown herein.

164 The paragraph that starts on page 163 and ends on page 164 says, “. . . which is normally destabilizing for cases with the elastic axis behind the aerodynamic center.” This phrase should be written instead as “. . . which is destabilizing.”

168 The dashed and solid lines in Figs. 4.29 and 4.30 are reversed. The figures should be replaced by Figs. 4.28 and 4.29.

176 In the fourth line of the first complete paragraph, that sentence should end with “. . . elimination of flutter can be guaranteed only by thorough testing.”

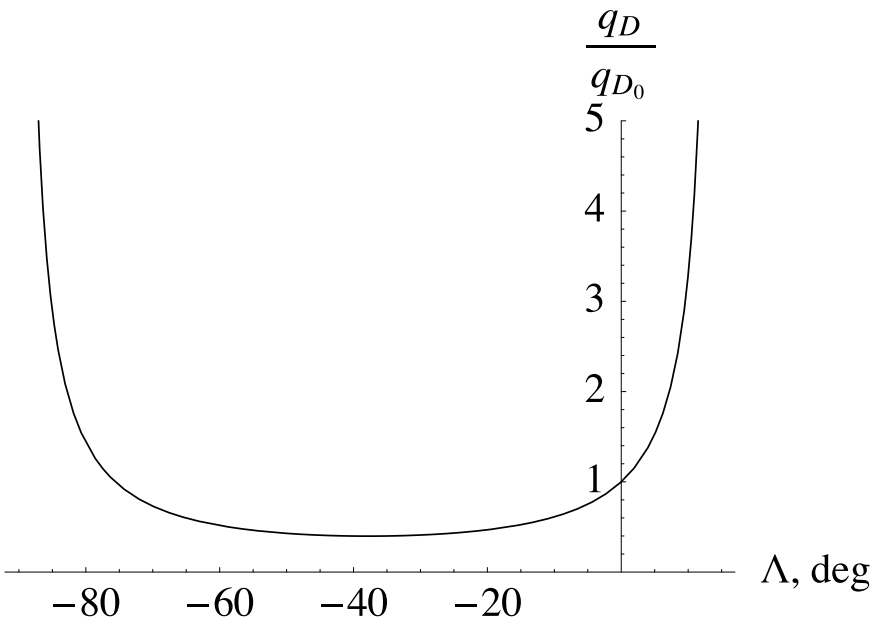

Figure 4.27: Normalized divergence dynamic pressure for an elastically uncoupled, swept wing with $\overline{GJ}/\overline{EI} = 0.2$ and $e/\ell = 0.02$

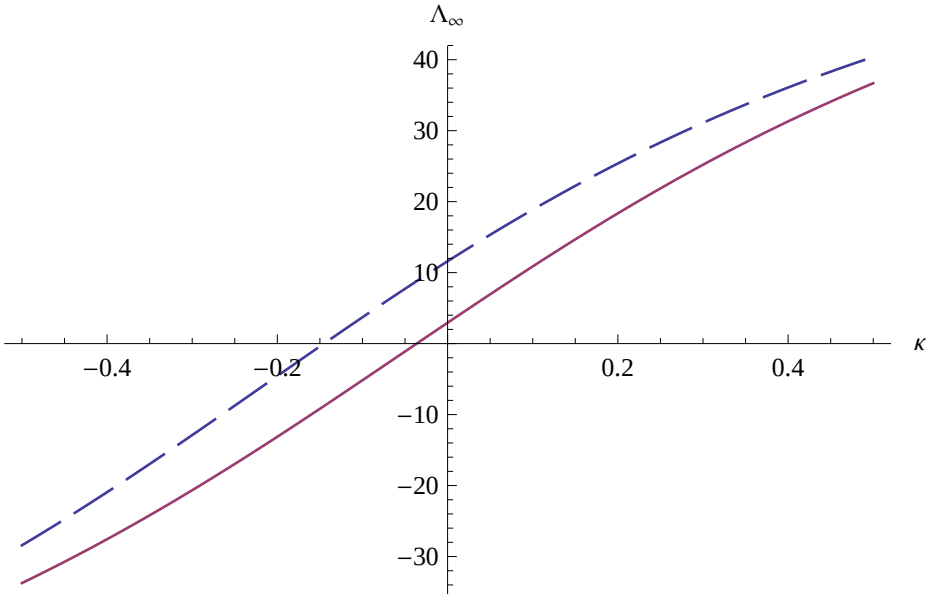

Figure 4.28: Sweep angle for which divergence dynamic pressure is infinite for a wing with $\overline{GJ}/\overline{EI} = 0.5$; solid line is for $e/\ell = 0.01$; dashed line is for $e/\ell = 0.04$

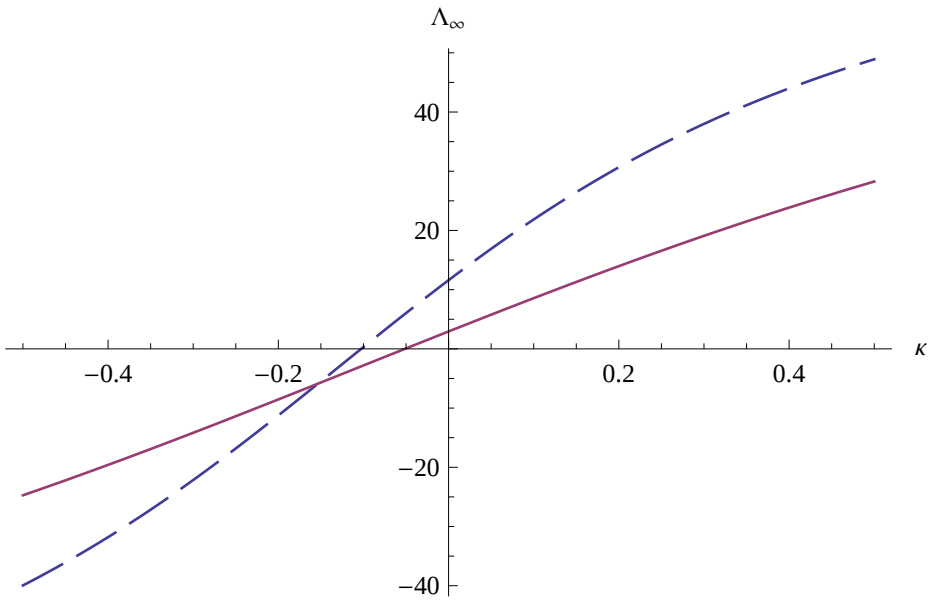

Figure 4.29: Sweep angle for which divergence dynamic pressure is infinite for a wing with $e/\ell = 0.02$; solid line is for $\overline{GJ}/\overline{EI} = 1.0$; dashed line is for $\overline{GJ}/\overline{EI} = 0.25$