

## Text Errata

What follows is a list of known text errata. Errors not listed on this page should be communicated to the author at fishbacp@math.gvsu.edu.

1. Section 1.3, Equation 1.9: In order for both  $\mathbf{x}, \mathbf{s} \geq \mathbf{0}$ , it must be assumed that  $\mathbf{b} \geq \mathbf{0}$ . This property holds for all LPs in the text, up to Section 2.3, where the Big M Method is introduced.
2. Section 2.4.2, Maple Worksheet: The last line line should be replaced by  

$$> M := \langle\langle A|B \rangle, \langle C|I2 \rangle\rangle;$$
3. Section 2.4.3, Equation 2.21:  $I_3$  should be replaced by  $I_m$ .
4. Section 2.4.3, Theorem 2.4.1: The formula for  $\mathbf{y}$  contains an incorrect index in its last summand. The sum  $\mathbf{y}_k M_k M_{k-1} \cdots M_1$  should be replaced by  $\mathbf{y}_k M_{k-1} M_{k-2} \cdots M_1$
5. Section 3.2, Exercise 1: "City 4" in the last line should be replaced by "City 5."
6. Section 3.2, Exercise 2: The word "matrix" should be inserted between "n by n" and "having."
7. Section 4.2.1: In the line immediately following Table 4.11 the inequality  $\delta < 1$  should be replaced by  $\delta \leq 1$ , for if  $\delta = 1$ , the current solution remains optimal even though the LP has multiple optimal solutions.
8. Section 5.1.7: In Equation 5.12, the first sum,  $\sum_{i=1}^n x_{ij} = 1$ , should be replaced by  $\sum_{j=1}^n x_{ij} = 1$ .
9. Section 5.2.3: The quantity NewRow is defined incorrectly in the Maple worksheet. It should be replaced by the following:  

$$> \text{NewRow} := -\text{Vector}[\text{row}]([\text{seq}(\text{fracpart}(\text{LPMatrix}[k+1, j]), j = 1 \dots n+m), \\ -1, \text{fracpart}(\text{LPMatrix}[k+1, n+m+1])]);$$
10. Section 6.2, Exercise 3b: The assertion is false. The directional derivative  $f_{\mathbf{d}}(\mathbf{x}_0)$  does depend upon the magnitude of  $\mathbf{d}$ . It is merely a convention that  $\mathbf{d}$  is chosen to be a unit vector.
11. Section 7.3, Calculations immediately prior to Waypoint 7.3.1: The values of  $\mathbf{w}$  and  $f(\mathbf{w})$  are incorrect. Instead, they are  $\mathbf{w} \approx \begin{bmatrix} 28.036 \\ 29.082 \end{bmatrix}$  and  $f(\mathbf{w}) \approx -7167.1$ .
12. Section 8.2, Equation 8.23:  $\nabla L(\mathbf{x}_0, \lambda)$  should replace  $\nabla L(\mathbf{x}_0)$ .
13. Section 8.3, Exercise 3c: The reference should be made to (b).
14. Appendix A.2, The Juice Logistics Project: The constraints introduced by 2f are redundant in light of 2b.

## Solutions Manual Errata

1. Section 2.3, Exercise 1a: In the statement of the solution,  $x_2 = \frac{5}{2}$  should be replaced by  $z = \frac{5}{2}$ .
2. Section 2.4, Exercise 5, in reference to Exercise 1c of Section 2.1. The vector  $\mathbf{y}_1$  and matrix  $M_1$  are incorrect are given. Instead, they should be replaced by  $\mathbf{y}_1 = [5/3, 0, 0]$  and  $M_1 = \begin{bmatrix} 1/3 & 0 & 0 \\ -1 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix}$ .
3. Section 3.3, Exercise 3: Three values listed in the first column of Table 3.1 have incorrect indices. The quantities  $C_{8,9}$ ,  $C_{8,1}$ , and  $C_{8,6}$  should be replaced by  $C_{8,7}$ ,  $C_{8,9}$ , and  $C_{8,12}$ , respectively.
4. Section 5.1, Exercise 4: The solution as listed is incorrect. To allow for more than one snack item, Maple's LPsolve command should be used with the option, assume=nonnegint, instead of assume=binary. If Jane is permitted to bring up to 100 grams with her, then she should bring three Gu Gel, which has a total mass of 96 grams and provides 75 grams of carbohydrates. If permitted to bring up to 125 grams instead, then she should bring two cereal bars and one Gu Gel, which has a total mass of 116 grams and provides 83 grams of carbohydrates. Finally, when allowed to bring up to 150 grams, she should bring two cereal bars and two Gu Gels, which has a total mass of 148 grams and provides 108 grams of carbohydrates.

5. Section 5.1, Exercise 5: The correct objective function value in the BLP's solution is an average combined earned run average of  $z = 2.69\overline{6}$ . Note also that the solution to the problem is not unique, for if Clay and Rawley switch roles of mid-innings relief and closer, respectively, then the objective value remains unchanged.