

# Corrections

*Integrated Methods for Optimization*, 2nd ed.

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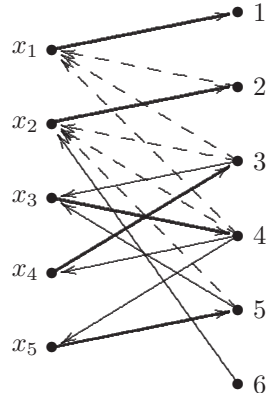
- *Page 44.* Replace “ $x_1 = \frac{1}{4}x_2$ ” with “ $x_1 = 1/4x_2$ ” in line 1 of paragraph 2.
- *Page 56.* Add the constraint “ $\sum_i x_{ij} = 1$ , all  $j$ ,” to formula (2.25).
- *Page 58.* Replace “ $v \geq$ ” with “ $M \geq$ ” in lines 2 and 3 of (2.29).
- *Page 59.* Replace “ $M \geq 10$ ” with “ $M \geq 8x_{B4}$ ” in master problem at bottom of the page. Also add constraint  $\sum_i x_{ij} = 1$ , all  $j$ .
- *Page 241.*  $P$  should be defined  $P = \{(x, y) \geq (0, 0) \mid Ax + By \geq b\}$  in Exercises 6.10 and 6.11.
- *Page 259.* Theorem 6.11 should state “. . . if and only if  $b_0 \leq k$  and

$$\sum_{j < b_0} a_j + \sum_{j > k} a_j < a_0 ”$$

- *Page 269.* Replace  $v_i^*$  on line 8 with  $v_i^* + f(\bar{x})$ . Replace  $v_i^*$  with  $v_i^* + f(x)$  in formulas (6.50) and (6.51). The last line of (6.51) should be

$$u^i(b - Dx) \leq B_i + M\delta_i, \quad i \in L_1$$

- *Page 270.* Replace 12 and 13 with  $12 + 3x_1 + 4x_2$  and  $13 + 3x_1 + 4x_2$ , respectively, in the Benders cut and its linearized form. The solution of the second master problem is  $z = 12$  with  $(\bar{x}_1, \bar{x}_2) = (0, 0)$ , not  $z = 10\frac{1}{4}$  with  $(\bar{x}_1, \bar{x}_2) = (0, 1)$ . Because the previous subproblem has optimal value 12, the algorithm terminates with optimal solution  $x = (0, 0)$ ,  $y = (1, 0, 1)$ .
- *Page 280.* Replace the second min in the formulas for  $U'_z$  and  $U'_x$  with max.
- *Page 281.* Replace “(6.70)–(6.72)” with “(6.73)–(6.75)” in Exercise 6.46.
- *Page 287.* Replace “element” in line 1 of (6.77) with “alldiff.” Figure 6.6 repeats Fig. 6.5. It should be as shown in Fig. ?? here.
- *Page 308.* The entry for  $b(3, b)$  in Table 6.3 should be 3, not 2.
- *Page 310.* Replace  $r_{\text{front}(Q)_j}$  with  $\bar{r}_{\text{front}(Q)_j}$  in line 8 of Fig. 6.17.



**Fig. 8.1** Bipartite graph used to achieve bounds consistency for an all-different constraint. The heavy lines indicate a matching that covers all  $x_j$  and therefore satisfies alldiff. Dashed lines represent domain elements that can be removed.

- *Page 314.* The regular expression should be

$$(((aa|aaa)(bb|bbb))^*|((cc|ccc)(bb|bbb))^*)^*(\epsilon|aa|aaa|cc|ccc)$$

and the following sentence should be, “Here the limits on the stretch length are imposed by expressions of the form  $aa|aaa$ .”

- *Page 347.* Replace  $\gg$  with  $\ll$  in Exercise 6.69.
- *Page 354.* Replace  $e_j^* = \infty$  with  $e_j^* = 0$  in line 3 of Fig. 6.30.
- *Page 361.* Replace  $p_i-$  in second formula of Theorem 6.31 with  $p_i+$ .
- *Page 388.* Immediately after Theorem 7.3, replace “ $C$  defines an odd hole” with “ $C$  defines an odd hole and contains all vertices of  $G$ .”
- *Page 390.* Replace  $> 1$  with  $< 1$  in line 1 (Exercise 7.7).
- *Page 419.* Replace  $d_1 - d_2 \geq -1$  just above the figure with  $x_1 - x_2 \geq -1$ .
- *Page 448.* Replace “Let  $x_j$  be” with “Let  $x_j \geq 0$  be” in Exercise 7.50.
- *Page 469.* Replace  $y \leq x_2^1 \leq 4y$  with  $3y \leq x_2^1 \leq 5y$ , and replace  $3(1 - y) \leq x_1^2 \leq 5(1 - y)$  with  $1 - y \leq x_1^2 \leq 4(1 - y)$ , immediately below formula (7.149).
- *Page 491.* Replace “has no integrality gap” with “has an integrality gap” in Exercise 7.91.
- *Page 502.* Add domain  $x_5 \in \{6\}$  to Exercise 7.102.
- *Page 519.* Change  $f_j = s_j - p_j$  to  $f_j = s_j + p_j$ , 8 lines from bottom.