Corrections

Integrated Methods for Optimization, 2nd ed.
J. N. Hooker

- **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

\[
\sum_{j<k} a_j + \sum_{j>k} a_j < a_0
\]”

- **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 + 3$x_1 + 4x_2$ and 13 + 3$x_1 + 4x_2$, 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 $r_{\text{front}}(Q)_{ij}$ with $\bar{r}_{\text{front}}(Q)_{ij}$ 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

  $$(((\text{aa|aaa})(\text{bb|bbb}))*(((\text{cc|ccc})(\text{bb|bbb}))*)(\text{e|aa|aaa|cc|ccc})$$

  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.