INTRODUCTION TO LINEAR OPTIMIZATION
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Errata sheet
Last updated on 5/15/07

The errata depend on the printing. Books from the 2nd or 3d printing can be identified by the entry "Second printing" or "Third printing" below the ISBN number in the copyright page in the front.

Errata in the third printing

p. 223, l. 1: $\mathbf{A}_0 + \delta\mathbf{A_1}$ should be $\mathbf{A}_1 + \delta\mathbf{A_0}$

p. 259, in the displayed equation in item 4, z^*_ω should be z_ω

Errata in the second printing, corrected in the third printing.

p. 27, l. -11, replace "Schwartz" by "Schwarz"

p. 69, l. -13: "$\mathbf{a}'_{i^*}\mathbf{x} = b_i$" should be "$\mathbf{a}'_{i^*}\mathbf{x} = b_{i^*}$"

p. 126, l. 16, replace "inequality constraints" by "linear inequality constraints"

p. 153, l. -8, replace $\mathbf{a}'_i\mathbf{x} \neq b_i$ by $\mathbf{a}'_i\mathbf{x}^I \neq b_i$

p. 163, Example 4.9, first line: replace "from" with "form"

p. 165, l. 11, replace $\mathbf{p}'\mathbf{A}\mathbf{x} \geq \mathbf{0}$ by $\mathbf{p}'\mathbf{A}\mathbf{x} \geq 0$

p. 175, l. 1, replace "To this see" by "To see this"

p. 203, l. 12: replace $\mathbf{x} \geq \mathbf{0}$ by $\mathbf{x} \geq \mathbf{0},\ x_{n+1} \geq 0$

p. 216, l. -6: replace "$\leq \mathbf{c}\}$" by "$\leq \mathbf{c}'\}$"

p. 216, l. -3: replace $\mathbf{c}'$ by $(\mathbf{c}^1)'$

p. 216, l. -2: replace $\mathbf{c}'$ by $(\mathbf{c}^2)'$

p. 216, l. -1: right-hand side should be $\lambda(\mathbf{c}^1)' + (1-\lambda)(\mathbf{c}^2)'$

p. 220, l. -12: replace "added to the pivot row" by "added to the zeroth row"

p. 238, Fig. 6.1, caption, 6th line: replace "thatched" by "hatched"

p. 239, l. 1: replace "thatched" by "hatched"

p. 249, first displayed equation should read

$$\sum_{j=1}^{3} \lambda_1^j \mathbf{D}_1 \mathbf{x}_1^j + \sum_{k=1}^{2} \theta_1^k \mathbf{D}_1 \mathbf{w}_1^k + x_3 = 8$$

p. 264, last line: "Wosley" should be "Wolsey"

p. 281, caption: replace "thatched" by "hatched"

p. 304, caption: replace "thatched" by "hatched"

p. 305, 2nd and 4th line of Example 7.5: replace "thatched" by "hatched"

p. 349, replace part (d) by: "Does there exist a nondegenerate optimal basic feasible solution?"

p. 373, Lemma 8.2, 2nd line, replace $\Re^n$ by $\Re^m$

p. 447, l. 5, replace $\mathbf{z}^t = \sum_{j=1}^{t}$ by $\mathbf{z}^t = \sum_{j=1}^{n}$

p. 480, l. 5, delete the second "that"

p. 483, l. −9: the equation should read

$$x_2 + \frac{1}{10} x_3 + \frac{4}{10} x_4 = \frac{25}{10.}$$

p. 506, replace Table 11.1 by the following:

t	p^t	s^t	$Z(p^t)$
1	5.00	−3	−9.00
2	2.60	−2	−2.20
3	1.32	1	−0.68
4	1.83	−2	−0.66
5	1.01	1	−0.99
6	1.34	1	−0.66
7	1.60	1	−0.40
8	1.81	−2	−0.62
9	1.48	1	−0.52
10	1.61	1	−0.39

p. 516, l. −4: replace "equivalent to I_3" by "equivalent to I_2"

p. 567, l. −16, "Schultz" should be "Schulz"

p. 574, l. 5, "Schultz" should be "Schulz"

p. 577, l. 20, "Schultz" should be "Schulz"

p. 585, "Schwartz" should be "Schwarz"

Errata in the first printing, corrected in the second and third printings.

p. 35, Exercise 1.9, line 3: "grade i" should be "grade g"

p. 38, Exercise 1.20(a): Rewrite as follows: "Let $S = \{\mathbf{Ax} \mid \mathbf{x} \in \Re^n\}$, where $\mathbf{A}$ is a given $m \times n$ matrix. Show that S is a subspace of $\Re^m$."

p. 43, rewrite last sentence of first paragraph as follows: "In particular, a set of the form $\{\mathbf{x} \in \Re^n \mid \mathbf{Ax} = \mathbf{b},\ \mathbf{x} \geq \mathbf{0}\}$ is also a polyhedron, in a *standard form representation*."

p. 76, Exercise 2.3: Assume that $u_i > 0$ for all i.

p. 129, Exercise 3.4: "Replace "$\mathbf{Ex}^* < \mathbf{g}$" by "$(\mathbf{Ex}^*)_i < (\mathbf{g})_i$ for all i."

p. 130, Exercise 3.8: Replace by the following.

"This exercise deals with the problem of deciding whether a given degenerate basic feasible solution is optimal and shows that this is essentially as hard as solving a general linear programming problem.

Consider the linear programming problem of minimizing $\mathbf{c}'\mathbf{x}$ over all $\mathbf{x} \in P$, where $P = \{\mathbf{x} \in \Re^n \mid \mathbf{Ax} \leq \mathbf{b}\}$ is a given bounded and nonempty polyhedron. Let

$$Q = \big\{(\mathbf{x}, t) \in \Re^{n+1} \ \big|\ \mathbf{Ax} \leq t\mathbf{b},\ t \in [0, 1]\big\}.$$

(a) Give an example of P and Q, with $n = 2$, for which the zero vector (in $\Re^{n+1}$) is a degenerate basic feasible solution in Q; show the example in a figure.

(b) Show that the zero vector (in $\Re^{n+1}$) minimizes $(\mathbf{c}, 0)'\mathbf{y}$ over all $\mathbf{y} \in Q$ if and only if the optimal cost in the original linear programming problem is greater than or equal to zero."

p. 133, Exercise 3.18(e): Replace by "If $\mathbf{x}$ is an optimal solution found by the simplex method, no more than m of its components can be positive, where m is the number of equality constraints."

p. 134, Exercise 3.20(b): Replace by "The first row in the present tableau (below the row with the reduced costs) indicates that the problem is infeasible."

p. 135, Exercise 3.25. Replace last sentence of part (a) by "Also, show that it is nondegenerate if and only if $x_i \neq 0$ and $x_i \neq u_i$ for every basic variable x_i."

p. 142, first displayed equation: replace $\mathbf{0}$ by $\mathbf{b}$.

p. 188. Exercise 4.6(a): Replace $\sum_{i=1}^{m} p_i = 1$ by $\sum_{i=1}^{m} p_i \leq 1$

p. 191, Exercise 4.13(b): Replace "one of the basic" by "one of the nonbasic"

p. 197, Exercise 4.39: delete "and some $\lambda \in (0, 1)$"

p. 223, Exercise 5.5(c): "$\gamma \geq 0$" should be replaced by "$\gamma > 0$"

p. 316, first line: replace "network flow problem" by "uncapacitated network flow problem."

p. 347, Exercise 7.2, third line: replace "period" by "year"

p. 349, Exercise 7.11, before part (a): Insert "Assume that $d_i > 0$ for all i."

p. 354, Exercise 7.31(b): rewrite as follows: "Given a dual feasible basis associated with a certain tree, show that it is an optimal basis if and only if the corresponding tree solution to the primal is feasible."

p. 355, Exercise 7.35(c): replace "and therefore converges" by "and therefore converges after a finite number of steps"

p. 445, Exercise 9.12(b): "Show that the direction" should be replaced by "Suppose that the direction"

p. 445, last line: replace $\mathbf{d}_s^k$ by $\mathbf{d}_x^k$.

p. 455, replace next to last sentence by: "To this effect, we consider a binary variable y_i, $i = 1, \ldots, k-1$, which can be equal to 1 only if $a_i \leq x \leq a_{i+1}$, and must be 0 otherwise."

p. 525, Exercise 11.9: in the hint, replace "$f(\mathbf{x}) \leq t$" by "$f(\mathbf{x}) \geq t$".

p. 538, next to last displayed equation: replace $x_{fdo\tau}$ by $x_{fod\tau}$