
Last Modified: 4/11/13

Some of these corrections were incorporated in the second printing of the book in April 2013

p. 3 (+22) Change “as the union of the closures of all line segments” to “as the closure of the union of all line segments”

p. 37 (-2) Change “Every x” to “Every x ≠ 0”

p. 38 (+1) Change “Every x in” to “Every x ∉ X that belongs to”

p. 38 (+19) Change “i.e.,” to “with x₁,...,xₘ ∈ ℜⁿ and m ≥ 2, i.e.,”

p. 51 (-10) Change “since x ∈ C and y ∈ RₓC.” to “by our choice of x and y.”

p. 63 (+4, +6, +7, +19) Change four times “c'y” to “a'y”

p. 67 (+3 after the figure caption) Change “y ∈ AC” to “y ∈ AC”

p. 70 (+9) Change “[BeN02]” to “[NeB02]”

p. 71 (-12) Change “C × ⋯ × C” to “C”

p. 80 (+7) Change “C ∩ M” to “cl(C) ∩ M”

p. 84 (+9) Change “x ∈ X” to “x ∈ X ∩ dom(f)”

p. 84 (-7) Change “that the set of minima of f over X” to “that for a feasible problem, the set of minima of f over X”

p. 85 (-14) Change “Prop. 1.2.2(b)” to “Prop. 1.2.2(ii)”

p. 85 (-10) Change “Prop. 1.2.2(c)” to “Prop. 1.2.2(iii)”

p. 86 (-13) Change “x* ∈ X” to “x* ∈ X ∩ dom(f)”

p. 93 (+14) Change “x ∈ Rₓγ” to “x ∈ Vₓ”

p. 93 (-15) Change “(0, y) ∈ Rep(f)” to “(y, 0) ∈ Rep(f)”

p. 110 (+3 after the figure caption) Change “... does not belong to the interior of C” to “... does not belong to the interior of C and hence does not belong to the interior of cl(C) [cf. Prop. 1.4.3(b)]”

p. 116 (+16) Change “x = 0” to “x − x̄ = 0”

p. 118 (+13) Change “proper” to “proper convex”

p. 128 (+10) Change “Prop. 1.5.5” to “Prop. 1.5.4”
p. 148 (+2) Change “with respect to $x$” to “with respect to $z$”

p. 148 (+4) Change “$(c + Mx - d - u)$” to “$(Mx - d - u)$”

p. 148 (-8) Change “$\{x \mid r(x) \leq \gamma\}$” to “$\{z \mid r(z) \leq \gamma\}$”

p. 150 (-15) Change “$\{x \mid t(x) \leq \gamma\}$” to “$\{z \mid r(z) \leq \gamma\}$”

p. 153 (-8) Part (a) Exercise 2.1 is trivial as stated and does not require the convexity assumption on $f$. Here is a corrected version and corresponding solution of part (a):

(a) Consider a vector $x^*$ such that $f$ is convex over a sphere centered at $x^*$. Show that $x^*$ is a local minimum of $f$ if and only if it is a local minimum of $f$ along every line passing through $x^*$ [i.e., for all $d \in \mathbb{R}^n$, the function $g : \mathbb{R} \mapsto \mathbb{R}$, defined by $g(\alpha) = f(x^* + \alpha d)$, has $\alpha^* = 0$ as its local minimum].

Solution: (a) If $x^*$ is a local minimum of $f$, evidently it is also a local minimum of $f$ along any line passing through $x^*$. Conversely, let $x^*$ be a local minimum of $f$ along any line passing through $x^*$. Assume, to arrive at a contradiction, that $x^*$ is not a local minimum of $f$ and that we have $f(\overline{x}) < f(x^*)$ for some $\overline{x}$ in the sphere centered at $x^*$ within which $f$ is assumed convex. Then, by convexity, for all $\alpha \in (0, 1)$,

$$f(\alpha x^* + (1 - \alpha)\overline{x}) \leq \alpha f(x^*) + (1 - \alpha)f(\overline{x}) < f(x^*),$$

so $f$ decreases monotonically along the line segment connecting $x^*$ and $\overline{x}$. This contradicts the hypothesis that $x^*$ is a local minimum of $f$ along any line passing through $x^*$.

p. 157 (-11 and -3) Change “nondecreasing” to “nonincreasing”

p. 174 (-10) Change “$b'_j x - \mu_{r+1}a_{r+1} \leq 0$” to “$b'_j x - \mu_{r+1}b'_{j}a_{r+1} \leq 0$”

p. 213 (-6) Change “remaining vectors $v_j$, $j \neq i$.” to “vectors $v_j$ with $v_j \neq v_i$, $j \neq i$."

p. 219 (+3) Change “$f_i : C \mapsto \mathbb{R}^n$” to “$f_i : \mathbb{R}^n \mapsto \mathbb{R}^n$”

p. 256 (+9) Change “$F_X(x)$” to “$F_X(x^*)$”

p. 262 (+5) Change the equation to

$$g'(f(x); w) = \lim_{\alpha \downarrow 0, z \to w} \frac{g(f(x) + \alpha z) - g(f(x))}{\alpha}.$$

p. 265 (+10) Change “$\overrightarrow{d}/\|\overrightarrow{d}\|$” to “$-\overrightarrow{d}/\|\overrightarrow{d}\|$”

p. 268 (-3) Change “$j \in A(x^*)$” to “$j \notin A(x^*)$”

p. 274 (-14) Change “$a'_j x^* = 0$” to “$a'_j x^* = b_j$”
p. 274 (-10) Change “j ∈ A(x*)” to “j ∉ A(x*)”

p. 338 (+16) Change “convex, possibly nonsmooth functions” to “smooth functions, and convex (possibly nonsmooth) functions”

p. 382 In Sections 6.5.3 and 6.5.4, a distinction is made between the interior and the relative interior of dom(p). However, this distinction is valid only for the primal function of a problem with equality and inequality constraints. For a problem with inequality constraints only, the interior and the relative interior of dom(p) coincide, since dom(p) contains the positive orthant.

p. 384 (+6) Change “Section 5.2” to “Section 5.3”

p. 397 (+1) Change “from below by infx∈X g_j(x)” to “from above by supx∈X g_j(x)”

p. 435 (-3) Change “… f_1 and −f_2 are proper and convex, …” to “… f_1 and −f_2 are proper and convex, and −f_2 is also closed,…”

p. 446 (+6 and +8) Interchange “… constrained problem (7.16)” and “… penalized problem (7.19)”

p. 458 (+13) Change “… as well real-valued” to “… as well as real-valued”

p. 458 (-10) Change “We will focus on this … dual functions.” to “In this case, the dual problem can be solved using gradient-like algorithms for differentiable optimization (see e.g., Bertsekas [Ber99a]).”

p. 461 In figure 8.1.2, the subgradient (-2,1) shown at the left of the figure is wrong. The correct subgradient is (-2,-1).

p. 466 (+6) Change “y_i ∈ ℜ^m” to “y_i ∈ ℜ^m”