

Optimization for Data Analysis: Typos

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TYPLOS FOR “OPTIMIZATION FOR DATA ANALYSIS”
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- p.19, two equations below (2.12), and “=” should be replaced by “≤”. Specifically,

$$f(x^* - \alpha \nabla f(x^*)) = f(x^*) - \frac{1}{2} \alpha \|\nabla f(x^*)\|^2 < f(x^*),$$

should be

$$f(x^* - \alpha \nabla f(x^*)) \leq f(x^*) - \frac{1}{2} \alpha \|\nabla f(x^*)\|^2 < f(x^*),$$

- p.23, line −3. $\nabla f(x)^T$ should be $\nabla f(x)^T u$.
- p.34, first line after proof of Theorem 3.5: “for the the sequence” should be “for the sequence”.
- p.40, line −8: “using the (3.22a)” should be “using (3.22a)”.
- p.46, second line of Example 3.8: “ $\sum_{i=1}^n p_i = 0$ ” should be “ $\sum_{i=1}^n p_i = 1$ ”.
- p.47, line 10: “inverse function of h ” should be “inverse function of ∇h ”.
- p.47, last line: “for all $g \in \partial f(x)$, where $\|\cdot\|_*$ is the dual norm of $\|\cdot\|$.” should be “for all $g \in \partial f(x)$. Here, $\partial f(x)$ denotes the subdifferential of f at x (see Definition 8.1) and $\|\cdot\|_*$ is the dual norm of $\|\cdot\|$, defined by $\|z\|_* = \sup_{\|x\| \leq 1} z^T x$.”
- p.48, line 4: “the definition of the normal cone” should be “the definition of the normal cone (Definition 7.1)”
- p.68, line −11. Missing “)”: “Beck and Teboulle, 2009).” should be “Beck and Teboulle, 2009).”
- p.79, in formula (5.10), “ $(f(y_i), x_i)$ ” should be “ $(f(x_i), y_i)$ ”. In the line before this formula, “ $\hat{x}(y)$ ” should be “ $f(x)$ ”.
- p.95, line 18: “described by first by Zhang (2004)” should be “described first by Zhang (2004)”.
- p.102, line −8: “Many optimization” should be “Many optimization problems”.
- p.130, line 4: “Goldstein, 1974” should be “Goldstein (1974)”
- p.174, line −6: “when φ obtained from” should be “for φ obtained from”
- p.180, two lines before formula (10.20), “strongly convex in λ ” should be “strongly concave in λ ”.
- p.190, last line: $(\nabla_{x_{l-3}} \phi_{l-2})$ should be $(\nabla_{\phi_{l-3}} \phi_{l-2})$
- p.194, line 18: “all of its of its children” should be “all of its children”.

- p.207, line 8. “both (A.16) and (A.17) both have” should be “both (A.16) and (A.17) have”.
- p.210, line -14: “ $x^k = (k, 1/k)^T$ ” should be “ $x^k = (k, 1/k)$ ”
- p.210 line -12: “ $z^k \rightarrow (0, 0)^T$ but $(0, 0)^T \notin X - Y$ ” should be “ $z^k \rightarrow (0, 0)$ but $(0, 0) \notin X - Y$ ”.
- p.211, lines 11-12: “almost immediate consequence of the separating hyperplane theorem” should be “almost immediate consequence of Lemma A.11”.
- p.215, line 7: “a $n \times n$ orthogonal matrix” should be “an $n \times n$ orthogonal matrix”