Corrections for the book CONVEX OPTIMIZATION THEORY, Athena Scientific, 2009, by Dimitri P. Bertsekas

Last Modified: 11/5/10

p. 78, (Figure 1.5.8) At the top of the figure change “Hyperplane H that” to “Hyperplane that”

p. 78, (+1) Change “since P and C lie in the opposite closed halfspaces of H” to “[if \( \mathbf{x} \in P \cap \text{ri}(C) \) then \( \mathbf{x} \in D \cap \text{ri}(C) \), a contradiction since D and \( \text{ri}(C) \) lie in the opposite closed halfspaces of H and \( H \cap \text{ri}(C) = \emptyset \) ]”

p. 78, (-8) Change “(since otherwise 0 would be in the interior of P, which is impossible since 0 \( \in H \) and P lies in a closed halfspace of H)” to “[since otherwise 0 would be in the interior of P; then, by the Line Segment Principle, for any \( \mathbf{a} \in \text{ri}(C) \) the line segment connecting 0 and \( \mathbf{a} \) contains points in \( \text{ri}(D) \cap \text{ri}(C) \), a contradiction of the fact that H properly separates D and C]”

p. 79, (+5) Change “0 \( \in C \)” to “0 \( \in C \cap M \)”

p. 140 Fig. 4.2.2 should be corrected as follows:
p. 157 Fig. 4.5.2 should be corrected as follows:

![Diagram](image.png)

p. 157 Last line of caption of Fig. 4.5.2 should read as follows:

“Also $\overline{M}$ is related to the perturbation function $p(u) = \inf_{Ax-b \leq u} f(x)$ as follows:

$$\{ (u, w) \mid p(u) < w \} \subset \overline{M} \subset \text{epi}(p).$$

In particular, we have $w^* = p(0) = \inf_{Ax \leq b} f(x).$”

p. 157, (-6) Change “equal” to “related”

p. 157, (-2,3) Change these two lines to “(cf. Fig. 4.5.2). The min common value is equal to $p(0)$, the optimal value:”

p. 176, (+4,5) Change “$\sum_{j=0}^{r}$” to “$\sum_{j=1}^{r}$”

p. 198, (+6) Change “$\sup_{d \in \mathbb{R}^n} \{ d'y - f'(x; d) \}$” to “$\sup_{d \in \mathbb{R}^n} \{ d'y - f'(x; d) \} \leq 0$”

p. 231, (+15) Delete the sentence “A symmetric ... (nonnegative, respectively)”

p. 237, (+7) Change “Prop. A.2.6(b)” to “Prop. A.2.6(c)”