ERRATA TO "EXTENSIONS OF CONTINUOUS FUNCTIONS FROM DENSE SUBSPACES"

ROBERT L. BLAIR

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I am indebted to Melvin Henriksen for calling my attention (in a letter dated January 11, 1977) to the information detailed in the following paragraph.

Condition (b) of [Bl, Theorem 2] asserts that “disjoint Lebesgue sets of $f$ have disjoint closures in $X$.” In a seminar conducted by Henriksen at Harvey Mudd College, Michael Christ observed that (b) is in error and should be replaced by condition (b)’ below. Otherwise (as he also noted) one has this simple counterexample: Let $X = \mathbb{R}$ and $S = X - \{0\}$, and define $f(x) = x$ for all $x \in S$. Clearly $f$ extends continuously over $X$ and $L_0(f) \cap L_0^0(f) = \emptyset$, but $\text{cl}_X L_0(f) \cap \text{cl}_X L_0^0(f) \neq \emptyset$.

The correct formulation of [Bl, Theorem 2] is as follows:

**Theorem 2'**. Let $S$ be a dense subspace of a topological space $X$, let $f \in C(S)$, and consider these conditions on $f$:

(a) $f$ extends continuously over $X$.

(b)' If $a < b$, then $\text{cl}_X L_a(f) \cap \text{cl}_X L_b(f) = \emptyset$.

(c) $\bigcap_{n=1}^{\infty} \text{cl}_X (L_{-n}(f) \cup L_n^0(f)) = \emptyset$.

Then (a) is equivalent to the conjunction of (b)' and (c); and if $f \in C^*(S)$, (a) is equivalent to (b)'.

It is worth emphasizing that the proof given for Theorem 2 in [Bl] is actually a correct proof of Theorem 2', and that all applications of Theorem 2 in [Bl] are, in fact, applications of Theorem 2'. Thus the single replacement of (b) by (b)' renders [Bl] correct in its entirety.

In [Bs, p. 115], Blasco also observes that (b) is in error (and gives an example similar to that above), but does not make the observations of the preceding paragraph. Instead, in [Bs, 3] he proves the equivalence of (a) and (b)', for $f \in C^*(S)$, with an argument that relies on Taimanov's theorem (see [Bl, Theorem 1A]). One of the points of [Bl] is that Taimanov's theorem is a consequence of this equivalence.

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REFERENCES


DEPARTMENT OF MATHEMATICS, OHIO UNIVERSITY, ATHENS, OHIO 45701