PROCEEDINGS OF THE
AMERICAN MATHEMATICAL SOCIETY
Volume 106, Number 3, July 1989

ERRATA TO "EXTENSIONS OF CONTINUOUS FUNCTIONS FROM DENSE SUBSPACES"

ROBERT L. BLAIR

(Communicated by Dennis Burke)

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 $(\mathrm{b})'$ below. Otherwise (as he also noted) one has this simple counterexample: Let $X = \mathbf{R}$ and $S = X - \{0\}$, and define $f(x) = x$ for all $x \in S$. Clearly f extends continuously over X and $L_0(f) \cap L^0(f) = \varnothing$, but $\mathrm{cl}_X L_0(f) \cap \mathrm{cl}_X L^0(f) \neq \varnothing$.

The correct formulation of [B1, 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.*

$(\mathrm{b})'$ *If $a < b$, then $\mathrm{cl}_X L_a(f) \cap \mathrm{cl}_X L^b(f) = \varnothing$.*

(c) $\bigcap_{n=1}^{\infty} \mathrm{cl}_X(L_{-n}(f) \cup L^n(f)) = \varnothing$.

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

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 $(\mathrm{b})'$ 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 $(\mathrm{b})'$, for $f \in C^*(S)$, with an argument that relies on Taĭmanov's theorem (see [Bl, Theorem 1A]). One of the points of [Bl] is that Taĭmanov's theorem is a consequence of this equivalence.

Received by the editors November 22, 1988.

References

[Bl] R. L. Blair, *Extensions of continuous functions from dense subspaces*, Proc. Amer. Math. Soc. **54** (1976), 355–359.

[Bs] J. L. Blasco, *Hausdorff compactifications and Lebesgue sets*, Topology Appl. **15** (1983), 111–117.

Department of Mathematics, Ohio University, Athens, Ohio 45701