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Corrigendum

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Volume **44**, Number 2 (1988), in the article "A Foundation of Location Theory: Consumer Preference and Demand," by Marcus Berliant and Thijs ten Raa, pages 336–353: We claim (Lemma 3) that any open set in Euclidean space has null boundary. John H. Boyd III pointed out to us that the claim is false. Take the unit interval, [0, 1], and enumerate the rational numbers, $\{q_k\}_{k=1}^{\infty}$. Counterexample to the claim is $A = \bigcup_{k=1}^{\infty} B(q_k, r_k)$, where radii $r_k > 0$ vanish sufficiently rapidly. Since A is dense, $A \cup \partial A = [0, 1]$ and, therefore,

$$m(\partial A) \geqslant 1 - m(A) \geqslant 1 - \sum_{k=1}^{\infty} m[B(q_k, r_k)] \geqslant 1 - \sum_{k=1}^{\infty} 2r_k,$$

which can be made as close to the full measure (one) as desired, by choice of radii r_k. Thus, in fact, $m(\partial A)$ may attain any measure.

The only occasion on which we invoked Lemma 3 is the proof of our main result, the existence of demand for land, namely, the demonstration that the set

$$[B \cup (C \backslash S)]^0 \backslash B$$

has measure zero. We refer to the proof of Theorem 1, but the only pertinent facts are that $B \cap C = \varnothing$ and S is a dense subset of C. Fortunately, the proof can be repaired. In fact, the above set is empty.

Suppose, to the contrary, that some element x belongs to the above set. Then it has an open neighborhood,

$$N_x \subset [B \cup (C \backslash S)]^0.$$

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By Lemma 2, using $x \notin B$ and S dense in C,

$$x \in \partial(C \setminus S).$$

Hence N_x contains a $c \in C \setminus S$. N_x is also an open neighborhood of $c \in C$ and S is dense in C. Hence N_x contains an $s \in S$. Since $N_x \subset B \cup (C \setminus S)$, we have that member $s \in B$. It follows that

$$s \in B \cap S \subset B \cap C,$$

contradicting the emptiness of the latter set. Hence x cannot exist, completing the proof of the emptiness of $[B \cup (C \setminus S)]^0 \setminus B$.

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