CORRECTION TO "GENERALIZED MEANS"

BY

FRED B. WRIGHT

The purpose of this note is to correct a mistake in the paper entitled *Generalized means*, which appeared in these Transactions [4]. At the same time, it may be appropriate to report the state of some problems raised there.

1. In §7 of [4] it is asserted that the set of means forms a compact set in the weak operator topology. I am indebted to S. P. Lloyd, of the Bell Telephone Laboratories, for pointing out that this is generally false. The Krein-Milman theorem cannot, then, be invoked to reduce the problem of existence to the existence of extreme means. Lloyd has shown (as yet unpublished) that every extreme mean, if such exists, is a homomorphism. On the other hand, Michael [3] has shown that means may exist even when no homomorphisms are available.

2. In the proof of Theorem 9.3, the compactness of the set of means is invoked (via the Tychonoff-Schauder fixed point theorem). Hence this proof needs revision. Fortunately, the set of means is, in the case considered in this theorem, compact in the topology introduced in the proof of Theorem 8.4 of [4]. In fact, the compactness is easily established by establishing the condition of Theorem 8.3.

3. All questions raised in §9 of [4] have a negative answer. This is an immediate consequence of the Hajian-Kakutani theorem concerning countably additive measures and incompressibility [1; 2]. I am grateful to Hajian for this observation.

4. In §5 of [4], it is wrongly asserted that a subalgebra $\mathfrak{B}$ of a complete Boolean algebra $\mathfrak{A}$ is relatively complete if and only if $\mathfrak{B}$ is complete in its own right. The correct version of this is that $\mathfrak{B}$ is a complete subalgebra of $\mathfrak{A}$ [5].

5. In Lemma 2.3(b), read: "If X is compact and Hausdorff, $\cdots$."

REFERENCES

1. A. Hajian and S. Kakutani, *Weakly wandering sets and invariant measures*, to appear.

2. P. R. Halmos, *Recent progress in ergodic theory*, Bull. Amer. Math. Soc. vol. 67 (1961) pp. 70–80.

3. E. A. Michael, Notices Amer. Math. Soc. vol. 8 (1961) p. 149.

4. F. B. Wright, *Generalized means*, Trans. Amer. Math. Soc. vol. 98 (1961) pp. 187–203.

5. ———, *Convergence of quantifiers and martingales*, Illinois J. Math., to appear.

TULANE UNIVERSITY,
NEW ORLEANS, LOUISIANA