CORRECTIONS TO THE PAPER "INTEGRATION IN GENERAL ANALYSIS"*

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There are two tacit assumptions in this paper which need clarification. The author is indebted to Professor M. H. Stone for the observation of the first of these.

In the definition of the integral $\int_E f(P)d\alpha$ of a summable function $f(P)$ it is necessary to show that any two Cauchy sequences $\{f_n\}$ and $\{g_n\}$ of functions in $S_0(E)$ which define $f(P)$ have the property that

$$\lim_n \int_E f_n(P)d\alpha = \lim_n \int_E g_n(P)d\alpha.$$

This follows from Lemma 5, for we may assume that $f_n(P)-g_n(P)\rightarrow 0$ almost uniformly with respect to α on E so that

$$\lim_n \int_E (f_n(P) - g_n(P))d\alpha = \lim_n \int_e (f_n(P) - g_n(P))d\alpha,$$

where $\beta(e)$ is arbitrarily small. Since the limit on the right of this equation exists uniformly with respect to e in $A(E)$, it follows from Lemma 5 that

$$\lim_{\beta(e)=0} \lim_n \int_e (f_n(P) - g_n(P))d\alpha = 0.$$

This gives the desired result. It might be pointed out that Theorem 4 shows that $\|f_n-g_n\|\rightarrow 0$.

In §4 it is tacitly assumed that the measurable set E can be partitioned into measurable sets E_η. This is always the case in separable spaces. To proceed without this assumption it will not be necessary to assume that J is metric. The class $S_0(E)$ is defined as the class of functions finitely valued on E. Such a function is one for which there is a decomposition of E into a finite number of disjoint measurable subsets on each of which it is constant. This basis necessitates only a slight rewording in a few places. In Lemma 1 the set E should be taken as a set in A. In Theorem 2 the words "functions uniformly continuous" should be replaced by "functions finitely valued." In the proof of Theorem 11 the sentence "Fix . . . continuous on e" should be worded "Fix e with $\beta(E-e)<\delta$ and so that for some f_0 in $S_0(E)$,

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$$\|f_0(P) - f(P)\| \leqq \epsilon/(3 \sup_n \beta_n(E))$$

for P in e." Theorem 10 takes on a trivial form. Without a metric in J all reference to continuity is meaningless and consequently Theorem 3 drops out. All other theorems remain as stated. If J is metric and every set E in A contains a closed set e for which $\beta(E-e)<\epsilon$ then Theorem 3 holds.

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