CORRECTION TO
"MEASURABLE HOMOMORPHISMS
OF LOCALLY COMPACT GROUPS"

ADAM KLEPPNER

(Communicated by Jonathan M. Rosenberg)

There is a gap in the proof of Theorem 2, pointed out to me by Dominik Noll. The assertion that \( \pi(x) = \pi_* (x) \) \( \text{lae} \) is unjustified. Although it is true that for each \( u \) and \( v \in L^2(H) \), \( \langle \pi(x)u, v \rangle = \langle \pi_*(x)u, v \rangle, \) \( \text{lae} \), the exceptional locally null set depends a priori on \( u \) and \( v \).

To remedy this, the conclusion of Theorem 2 should be replaced by the following. This is sufficient for the proof of Theorem 1.

Then there is a continuous homomorphism \( \varphi_* : G \to H \) and for each open \( \sigma \)-compact subgroup \( G_1 \subset G \) an open \( \sigma \)-compact subgroup \( H_1 \subset H \) together with a filtered decreasing family \( \{ S_\alpha \} \) of closed normal subgroups of \( H_1 \) such that

1. \( H_1 = \lim_{\alpha} H_1 / S_\alpha \),
2. for each \( \alpha \), \( q_\alpha \varphi(x) = q_\alpha \varphi_*(x) \), for almost all \( x \in G_1 \), where \( q_\alpha : H_1 \to H_1 / S_\alpha \) is the canonical map. If \( \varphi \) is a homomorphism, \( \varphi = \varphi_* \).

To prove this we construct \( \varphi_* \) as before. \( \varphi_*(G_1) \) is contained in some \( \sigma \)-compact open subgroup \( H_1 \subset H \). For each separable subset \( E \subset L^2(H) \), \( \lambda(H_1)E \) is also a separable set. Let \( \{ E_\alpha \} \) be the family of all closed separable subspaces of \( L^2(H) \) invariant under \( \lambda(H_1) \). Each \( E_\alpha \) is invariant under \( \pi_*(G_1) \) and \( \{ E_\alpha \} \) is a filtered increasing family whose union is \( L^2(H) \). Put \( S_\alpha = \{ \gamma \in H_1 | \lambda(y) \in E_\alpha \} \). In view of the definition of the strong operator topology on the unitary group of \( E_\alpha \) and the bicontinuity of \( \lambda \) we see that \( H_1 = \lim_{\alpha} H_1 / S_\alpha \).

Because each \( E_\alpha \) is separable and invariant under \( \pi_*(G_1) \), \( \pi_*(x)|_{E_\alpha} = \pi(x)|_{E_\alpha} \), for almost all \( x \in G_1 \). This leads to the equation \( q_\alpha \varphi_*(x) = q_\alpha \varphi(x) \), for almost all \( x \in G_1 \). If \( \varphi \) is a homomorphism, then \( q_\alpha \varphi_\alpha \) and \( q_\alpha \varphi \) agree on a conull subgroup of \( G_1 \), which is all of \( G_1 \). Since this is true for each \( \alpha \), \( \varphi_* (x) = \varphi(x) \), for all \( x \in G_1 \). Because \( G_1 \) is arbitrary, \( \varphi_* = \varphi \).

Zoltán Sasvári has also given an alternate proof of Theorem 1 [Proc. Amer. Math. Soc., to appear].

DEPARTMENT OF MATHEMATICS, UNIVERSITY OF MARYLAND, COLLEGE PARK, MARYLAND 20742

Received by the editors March 26, 1990.
1980 Mathematics Subject Classification (1985 Revision). Primary 22D05.