Erratum

Invariant measures and disintegrations with applications to Palm and related kernels

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I am grateful to Mr. Daniel Gentner of Karlsruhe for calling my attention to some serious gaps in the proofs of two main results. In Theorem 2.4, the given proof applies only when $\nu g < \infty$. For a general ν , choose $0 < \tilde{g} \leq g$ with $\nu \tilde{g} < \infty$, and note that the associated φ -kernel equals $\tilde{\varphi}_s = r(s) \varphi_s$, where $r(s) = 1/\varphi_s \tilde{g}$. Hence,

$$\nu = \int \tilde{g}(s) \nu(ds) \tilde{\varphi}_s = \int \tilde{g}(s) r(s) \nu(ds) \varphi_s = \int m \mu(dm), \quad (1)$$

where $\mu = (\tilde{g}r \cdot \nu) \circ \varphi^{-1}$. To get $\mu = (g \cdot \nu) \circ \varphi^{-1}$, we need to show that $(\tilde{g}r \cdot \nu)A = (g \cdot \nu)A$ when $A = \varphi^{-1}M$ for a measurable $M \subset \mathcal{M}_S$. By (1) it is then enough to take $\nu = \varphi_s$, in which case both sides reduce to $1_A(s)$, by the G -invariance of r and A .

In the proof of Theorem 3.5, we need to justify (8), which is far from obvious. Then fix any $r \in G$. For measurable functions $g \geq 0$ on $S \times T$, the invariance of M and ν yields $\mu_s g_s = (\mu_{rs} \circ \theta_r)g_s$, $s \in S$ a.e. ν , where $g_s(t) = g(s, t)$. Replacing g by gf for measurable $f \geq 0$ on T gives $(g_s \cdot \mu_s)f = (g_s \cdot (\mu_{rs} \circ \theta_r))f$ a.e. ν . Since M is σ -finite, we may choose $g > 0$ with $Mg < \infty$, so that $\mu_s g_s < \infty$ a.e. ν . Since T is Borel, we obtain $g_s \cdot \mu_s = g_s \cdot (\mu_{rs} \circ \theta_r)$ a.e. ν , which implies $\mu_s = \mu_{rs} \circ \theta_r$ a.e. ν .

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