CONTINUOUS CONVOLUTION HEMIGROUPS
INTEGRATING A SUBMULTIPLICATIVE FUNCTION

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Abstract: Unifying and generalizing previous investigations for vector spaces and for locally compact groups, E. Siebert obtained the following remarkable result: A Lévy process on a completely metrizable topological group \( G \), resp. a continuous convolution semigroup \( (\mu_t)_{t \geq 0} \) of probabilities, satisfies a moment condition \( \int f \, d\mu_t < \infty \) for some submultiplicative function \( f > 0 \) if and only if the jump measure of the process, resp. the Lévy measure \( \eta \) of the continuous convolution semigroup, satisfies \( \int_{U} f \, d\eta < \infty \) for some neighbourhood \( U \) of the unit \( e \). Here we generalize this result to additive processes, resp. convolution hemigroups \( (\mu_{s,t})_{s \leq t} \), on (second countable) locally compact groups.

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