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Erratum

A sufficient condition for the Carasso-Kato theorem

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The proof of the derivation of (2.1) on p.339 was incomplete. It should be proved as follows : by Lemma 1 (i) and Lemma 2 (ii) we have

$$\lim_{r\to\infty} \psi(r) = \infty , \qquad \lim_{r\to\infty} \psi(r)/r = 0 ,$$

so that $\int_{(0,\infty)} y^{-1} \mu(dy) = \infty$ in (0.2). Then Remark 2 of [1, p.298] implies that $P(t,\{x\}) = 0$ for $t > 0, x \geq 0$. Therefore, for $c > 0$, the inverse Laplace transform for (0.1) leads to (2.1) (Theorem 7.6a of [2, p.69].

In addition, we add the following correction :

(a) Lines 5–1 from bottom on p.335 will be changed as follows : It is called the subordinated semigroup. Define the operator $\chi(A)$ by

$$\chi(A)x = \int_{[0,\infty)} (I - e^{-yA})x \ \ y^{-1}\mu(dy) , \qquad x \in D(A) , \tag{0.4}$$

where I is the identity and $D(A)$ is the domain of A. The integrand in (0.4) is defined for $y = 0$ by continuity to be equal to Ax. Then the closure $-\psi(A)$ of $-\chi(A)$ is the generator of the subordinated semigroup $[S_t^A]_{t\geq 0}$ [5, 6, Chap. XIII 9].

(b) Instead of (0.5a) on p.336, read "for every complex Banach space X, $[P(t,du)]$ makes $[S_t^A]_{t\geq 0}$ be holomorphic on X whenever $[e^{-tA}]_{t\geq 0}$ is a uniformly bounded C_0-semigroup on X," .

(c) p.337, line 3 from bottom. Instead of "define the generator $-\psi_j(A), j = 1,2$, by (0.4) for $\mu(dy) = \mu_j(dy)$" , read "let $-\psi_j(A), j = 1,2$, be the generator defined by the closure of $-\chi(A)$ of (0.4) for $\mu(dy) = \mu_j(dy)$" .

(d) p.340, line 1. Instead of "Thus, letting δ tend to 0 in (2.7) ", read "Thus, letting δ tend to 0 in (2.7) and using (2.3), (2.5), Lemma 1 (ii) and Lemma 2 (ii) " .

References

1. Esseen, C. G. : On the concentration function of a sum of independent random variables. Z.Wahrscheinlichkeitstheo. Verw. Geb. **9**, 290–308 (1968)
2. Widder, D. V. : The Laplace transform. Princeton, NJ : Princeton University Press 1946