Is A^{-1} an infinitesimal generator?
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In this talk we discuss the open problem whether A^{-1} is the infinitesimal generator of a bounded semigroup on the Banach space X when A generates a bounded semigroup on X. This question was first posed by deLaubenfels in 1988, but for Hilbert spaces this question has remained open ever since. He showed that the answer is positive for bounded analytic semigroups.

We discuss counter examples for Banach spaces, and show that the answer is positive for contraction semigroups on Hilbert spaces. Furthermore, we discuss relations with other branches of mathematics, like numerical analysis.

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