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We study the stability of certain randomized algorithms approximating solutions of ordinary differential equations. We adapt notions of mean-square stability and asymptotic stability, considered in [4] in the context of numerical methods for SDEs, to the case of randomized schemes for ODEs. Moreover, we introduce the notion of stability in probability. We investigate relations between these three types of probabilistic stability, describe probabilistic stability regions, and compare them with absolute stability regions for deterministic schemes, cf. [1,2,3]. We focus on randomized Taylor and Euler schemes.

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[4] D. J. Higham. Mean-square and asymptotic stability of the stochastic theta method. *Siam J. Numer. Anal.* 38, 753-769, 2000.

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