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Svetlana Boyarchenko and **Sergei Levendorskii***, Department of Economics, University of Texas at Austin, 1 University Station C3100, Austin, TX 78712. *General option exercise rules for regime-switching models.*

A general framework for pricing of perpetual American and real options in regime-switching Lévy models is developed. In each state of the Markov chain, which determines switches from one Lévy process to another one, the payoff stream is a monotone function of the Lévy process labelled by the state, which allows for additional switching within each state of the Markov chain (payoffs can be different in different regions of the state space). As applications, we solve entry and exit problems for a price-taking firm, find optimal exercise boundaries and rational prices of perpetual American call and put options and their generalizations, and construct a pricing procedure for American options with finite time horizon (a generalization of Carr's randomization procedure for regime-switching Lévy models). The method is efficient even for a Markov chain with many states, and novel even for Markov-modulated Brownian motions. (Received August 06, 2006)