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Sergei Levendorskiĭ* (leven@eco.utexas.edu), 1 University Station C3100, Austin, TX 78712, and **Oleg Kudryavtsev** and **Vadim Zherder**. *Finite difference scheme for pricing American options under Lévy processes.*

We construct a finite difference scheme for pricing of American options with finite time horizon, under Lévy processes of infinite activity and finite variation. The scheme is based on the approximation of the part of the infinitesimal generator corresponding to small jumps not by a differential operator of the second order, as in Cont and Volchkova (2003), but by a differential operator of the first order. In other words, small jumps are replaced with an additional drift. We show that our pricing method is several times faster than the method in Hirta and Madan (2003) (HM-method), and it is more accurate. The early exercise boundary, which HM-method produces, is unstable. In particular, for the American put on a stock which pays no dividends, HM-method produces the early exercise boundary which converges to the strike price even in cases when there must be a non-vanishing margin between the early exercise boundary and the strike. The reason: HM-method uses the smooth pasting condition, whereas for processes of finite variation, the price may have a kink at the boundary, if the drift points from the boundary. Our method produces the early exercise boundary fairly accurately even very close to expiry. (Received January 21, 2006)