1024-37-98   **Samuel R Kaplan*** (`skaplan@unca.edu`), One University Heights, Dept of Math, CPO #2350, Asheville, NC 28804, and **Richard Montgomery** and **Mark Levi**. *Stuttering in the Planar Three-Body Problem.* Preliminary report.

We investigate the planar three-body problem in the range where one mass, say the 'sun' is very far from the other two, call them 'earth' and 'moon'. We show that "stutters" : two consecutives eclipses in which the moon lies on the line between the earth and sun, occur for an open set of initial conditions. In these motions the moon reverses its sense of rotation about the earth. The mechanism is a kind of tidal torque. The motivation is to better understand the limits of variational methods. The methods of proof are classical estimates and bounds in this asymptotic regime. (Received January 02, 2007)

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