1023-37-1253   **Brian A. Coomes*** (`coomes@math.miami.edu`), Department of Mathematics, University of Miami, 1365 Memorial Dr., Ste. 515, Coral Gables, FL 33124, **Hüseyin Koçak** (`hk@cs.miami.edu`), Department of Computer Science, University of Miami, P.O. Box 248154, Coral Gables, FL 33124, and **Kenneth J. Palmer** (`palmer@math.ntu.edu.tw`), Department of Mathematics, National Taiwan University, Taipei, Taiwan. *Homoclinic Tangencies, Periodic Orbits and Connecting Orbits: An Investigation of the Hénon Map.*

We give a brief overview of the techniques, related to shadowing, we use to find periodic and connecting orbits of dynamical systems. A central computation in our technique is designed to take advantage of hyperbolic structure. We describe situations were we have successfully proved the existence of periodic and connecting orbits and also describe some of the problems encountered near homoclinic tangencies where the hyperbolic structure breaks down. The Hénon Map is used to provide examples of both success and problems. (Received September 25, 2006)

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