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Candace Marie Kent* (cmkent@vcu.edu), Virginia Commonwealth University, Department of Mathematics and Applied Math., 1001 W. Main St., P.O. Box 842014, Richmond, VA 23284-2014, and **Hassan Sedaghat**. *A Bimodal System*. Preliminary report.

We investigate the two-dimensional threshold map, or bimodal system,

$$F(x, y) = \begin{cases} G(x, y), & \text{if } (x, y) \in \mathcal{T}, \\ H(x, y), & \text{if } (x, y) \notin \mathcal{T}, \end{cases}$$

where $G : \mathbf{R}^2 \rightarrow \mathbf{R}^2$ and $H : \mathbf{R}^2 \rightarrow \mathbf{R}^2$ are continuous and \mathcal{T} is a region in $[0, \infty)$. We denote the region $[0, \infty)^2 - \mathcal{T}$ by \mathcal{N} . The boundary, $\partial\mathcal{T}$, is considered part of \mathcal{N} and is called the *threshold* of the system. We find sufficient conditions on G and H such that there exist orbits under F that begin in the region \mathcal{T} and eventually end up and remain in \mathcal{N} ; pass between \mathcal{T} and \mathcal{N} infinitely often; or pass a finite number of times between \mathcal{T} and \mathcal{N} but end up in \mathcal{N} . (Received September 09, 2008)