1024-37-51 **David S. Richeson*** (richesod@dickinson.edu), Department of Mathematics and Comp. Sci., Dickinson College, Carlisle, PA 17013, and **Jim Wiseman** and **Paul Winkler**. *Itineraries of rigid rotations.* Preliminary report.

Let $f_\alpha : S^1 = \mathbb{R}/\mathbb{Z} \to S^1$ be the rigid rotation given by $f_\alpha(x) = x + \alpha \pmod 1$ and let $I = [0, \beta) \subset S^1$. Each $x \in S^1$ has an associated itinerary $(a_0, a_1, a_2, \ldots)$, where $a_i = 1$ if $f^i(x) \in I$ and $a_i = 0$, otherwise (the case $\alpha = \beta$ gives the famous Sturmian shift). In this talk we will discuss when these itineraries are unique. That is, given only an itinerary, is it possible to determine α, β, and x? If so, how do we recover these values? (Received December 14, 2006)