1020-37-69 **E. Arthur Robinson, Jr.** and **Ayse A Sahin*** (`asahin@condor.depaul.edu`), Department of Mathematical Sciences, DePaul University, 2320 N. Kenmore Ave., Chicago, IL 60626. $\mathbb{Z}^d$ *actions, rank one and Følner sets.* Preliminary report.

Rank one transformations are a rich source of examples in classical ergodic theory. The natural candidate for tower shapes in one dimension are interval subsets of $\mathbb{Z}$. Rank one transformations where the tower shapes were not intervals were introduced by Thouvenot and studied by Ferenczi. These were called *funny rank one* transformations and were a source of counter examples.

In extending the notion to higher dimensions, and more abstract groups, the geometry of the tower shapes plays an even bigger role. One has even more freedom in choosing tower shapes, even in the presence of natural candidates. In $\mathbb{Z}^2$, for example, where rectangles are the natural candidates, there are choices in the growth rates of the dimensions of the rectangles which affect the possible dynamics of the resulting action.

We will present some recent results which highlight these issues. (Received August 13, 2006)