1106-37-942 **James P Kelly*** (j_kelly@baylor.edu) and **Timothy Tennant**. *Topological Entropy of Set-valued Functions.* Preliminary report.

Let (X, d) be a compact metric space, and let f be a set-valued function on X. For each $n \in \mathbb{N}$, define the set of *n-orbits* to be

$$\mathrm{Orb}_n(f) = \{(x_0, \ldots, x_n) \big| x_i \in f(x_{i-1}) \text{ for } 1 \leq i \leq n\}.$$

Given $n \in \mathbb{N}$ and $\varepsilon > 0$, a set $S \subseteq \mathrm{Orb}_n(f)$ is called an *(n, ε)-spanning set* if, for every $(x_0, \ldots, x_n) \in \mathrm{Orb}_n(f)$, there exists $(s_0, \ldots, s_n) \in S$ such that $d(s_i, x_i) < \varepsilon$ for all $0 \leq i \leq n$. Let $r_{n,\varepsilon}$ be the minimum cardinality of an (n, ε)-spanning set for f, and define the *topological entropy* of f to be

$$h(f) = \lim_{\varepsilon \to 0} \limsup_{n \to \infty} \frac{1}{n} \log r_{n,\varepsilon}.$$

We discuss the relationship between the entropy of f and the entropy of f^m, and we establish sufficient conditions for a set-valued function to have positive or infinite entropy. (Received September 09, 2014)