1067-37-1584    **R E Lampe\*** (`rlampe@copper.net`), 6 Warrenton Circle, Richmond, VA 23229. *Orbit distributions in iterated function systems with finitely many forms.*

Let $\mathcal{F} = \{f_i\}_{i \in I}$ be a family of measure preserving self maps on a measure space $\{X, \Sigma, \mu\}$, indexed by a finite set $I$. For a sequence $\alpha = a_1, a_2, \ldots$ with $a_i \in I$, the n-fold composition with respect to $\alpha$ is $F_\alpha^n = f_{a_n} \circ F_\alpha^{n-1}$. When the n-fold compositions from the family $\mathcal{F}$ take finitely many forms, we show the discrete time distribution for the orbit of $F_\alpha^k(x_0)$ is a weighted average of the discrete time distributions of the orbits of the finite forms at the point $x_0$ for $\mu$-almost all $x_0$ and for almost all $\alpha$. This weighted average is arrived at by showing that an independence condition holds by applying the Law of Large Numbers applied to a subsequence of the Radamacher functions. When the discrete time distributions of the finite forms are identical for $\mu$-almost all $x_0 \in X$ the weighted sum of the discrete time distributions reduces to the single valued distribution for any one of the finite forms. (Received September 21, 2010)