1011-68-292 **Jack H. Lutz*** (`lutz@cs.iastate.edu`), Department of Computer Science, 226 Atanasoff Hall, Ames, IA 50011. *Dimensions of Copeland-Erdös Sequences.* Preliminary report.

The base-k *Copeland-Erdös sequence* given by an infinite set A of positive integers is the infinite sequence $\mathrm{CE}_k(A)$ formed by concatenating the base-k representations of the elements of A in numerical order. This talk concerns the *finite-state dimension* $\dim_{\mathrm{FS}}(\mathrm{CE}_k(A))$, the *finite-state strong dimension* $\mathrm{Dim}_{\mathrm{FS}}\mathrm{Dim}_{\mathrm{FS}}(\mathrm{CE}_k(A))$, the *zeta-dimension* $\mathrm{Dim}_\zeta(A)$, a kind of discrete fractal dimension discovered many times over the past few decades, and the *lower zeta-dimension* $\dim_\zeta(A)$, a dual of $\mathrm{Dim}_\zeta(A)$. We prove the following.

1. $\dim_{\mathrm{FS}}(\mathrm{CE}_k(A)) \geq \dim_\zeta(A)$. This extends the 1946 proof by Copeland and Erdös that the sequence $\mathrm{CE}_k(\mathrm{PRIMES})$ is Borel normal.

2. $\mathrm{Dim}_{\mathrm{FS}}(\mathrm{CE}_k(A)) \geq \mathrm{Dim}_\zeta(A)$.

3. These bounds are tight in the strong sense that these four quantities can have (simultaneously) any four values in $[0, 1]$ satisfying the four above-mentioned inequalities.

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