1145-03-1676 **Laurent Bienvenu** and **Barbara F Csima***, Department of Pure Mathematics, University of Waterloo, Waterloo, Ontario N2L 3G1, Canada, and **Matthew Harrison-Trainor**. *Optimal bounds for single-source Kolmogorov extractors.*

The rate of randomness (or dimension) of a string σ is the ratio $C(\sigma)/|\sigma|$ where $C(\sigma)$ is the Kolmogorov complexity of σ. While it is known that a single computable transformation cannot increase the rate of randomness of all sequences, Fortnow, Hitchcock, Pavan, Vinodchandran, and Wang showed that for any $0 < \alpha < \beta < 1$, there are a finite number of computable transformations such that any string of rate at least α is turned into a string of rate at least β by one of these transformations. However, their proof only gives very loose bounds on the correspondence between the number of transformations and the increase of rate of randomness one can achieve. By translating this problem to combinatorics on (hyper)graphs, we provide a tight bound, namely: Using k transformations, one can get an increase from rate α to any rate $\beta < k\alpha/(1 + (k - 1)\alpha)$, and this is optimal. (Received September 23, 2018)