The asymptotic compression rate of Lempel-Ziv on Markov sources

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Lempel-Ziv encoding is one of the fundamental paradigms in lossless compression. The compression rate (i.e., the number of bits per symbol required to encode) of the Lempel–Ziv'78 parsing scheme is known to converge in first order towards the entropy for any stationary ergodic source.

In this talk, we will have a closer look at the compression rate's fluctuation around the entropy. More precisely, we derive a limit theorem for the compression rate if the input is generated by a Markov source. The talk is based on a joint work with Ralph Neininger and Nicholas Wormald.