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Short title: An empirical central limit theorem for intermittent maps.

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Review text:

Consider a stationary sequence $(X_i, i \in \mathbb{Z})$ of real valued random variables with common distribution function F. Let F_n be the empirical distribution function of the first n variables. Under a dependence condition involving only indicators of half line, a functional central limit theorem (FCLT) in the space $\ell^\infty(\mathbb{R})$ is proved. The limit is a centered Gaussian process. The theorem is an improvement of the author's previous work and uses a new type of Rosenthal inequality, proved in an appendix.

The main application of this theorem is in proving a FCLT for iterates of the intermittency map

$$T_\gamma(x) := \begin{cases} x(1+2^\gamma x^\gamma), & 0 \le x < 1/2 \\ 2x-1, & 1/2 \le x \le 1. \end{cases},$$

when $0 < \gamma < 1/2$. It is known that the dynamical system in $[0,1]$ defined by T_γ admits a unique stationary probability measure ν_γ. Viewing the sequence $T_\gamma, T_\gamma^2, \ldots,$ as a (stationary, reverse-time Markov chain) sequence of random variables on the probability space $([0,1], \nu_\gamma)$, and applying the general FCLT, the author proves weak convergence of the centered empirical process towards a continuous Gaussian process $(G(t), 0 \le t \le 1)$, in the space $\ell^\infty([0,1])$,