Singular perturbation of symbolic dynamics via thermodynamic formalism

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We consider singular perturbation of a mixing subshift of finite type using thermodynamic formalism. In our formulation, the perturbed systems are described by a family of potentials \( \{ \Phi(\alpha, \cdot) \} \) with large parameter \( \alpha \) on a fixed subshift of finite type and the unperturbed system is characterized as the system at infinity obtained by collapsing the perturbed system by letting \( \alpha \to \infty \). We apply our formulation to the collapse of cookie-cutter systems and dispersing open billiards.