Dynamical systems for arithmetic schemes

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We construct a natural infinite dimensional dynamical system whose periodic orbits correspond to the prime numbers p. A corresponding construction works more generally for arithmetic schemes and their closed points. Thus the zeta functions of analytic number theory and arithmetic geometry can be viewed as Ruelle type zeta functions of dynamical systems. We will describe the construction and what is known about these dynamical systems. The "generic fibres" of our dynamical systems are related to an earlier construction by Robert Kucharczyk and Peter Scholze of topological spaces whose fundamental groups realize Galois groups.

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