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Dynamics of semigroups of Moebius transformations. Preliminary report.

We study the dynamics of semigroups of Moebius transformations on the Riemann sphere. We discuss the topology of the invariant structures that these systems generate, namely, their Fatou and Julia sets and attractors. The theory presents natural connections between the dynamics of rational functions, rational semigroups, and Moebius groups. We illustrate their differences and interactions with examples. In particular, we consider a one-parameter family of Moebius semigroups that originated from a random dynamics variant of the Fibonacci sequence $1, 1, 2, 3, 5, 8, 13, 21, \dots$. The relationship these semigroups, and corresponding groups, bear to the well studied Riley groups is also investigated. (Received September 17, 2009)