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**Alon Levy\*** ([levy@math.columbia.edu](mailto:levy@math.columbia.edu)), Department of Mathematics, Columbia University,  
Room 509, Mail Code 4406, New York, NY 10027. *Rationality of the Space of Morphisms on  $\mathbb{P}^1$ .*

For every integer  $d > 1$ , we may define the space of morphisms from  $\mathbb{P}^1$  to itself of degree  $d$ ; this space is parametrized by monomials of degree  $d$ , and is an affine open subset of  $\mathbb{P}^{2d+1}$ . It has an action by  $\mathrm{PGL}(2)$  induced by the conjugation action of  $\mathrm{PGL}(2)$  on  $\mathbb{P}^1$ . The quotient of the action parametrizes dynamical systems on  $\mathbb{P}^1$  up to coordinate change. In this talk we prove that the quotient is rational for all  $d$ , generalizing previous results showing that when  $d = 2$ , the quotient is isomorphic to  $\mathbb{A}^2$ . (Received September 12, 2009)