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Post-critically finite polynomials

In classical holomorphic dynamics, rational self-maps of the Riemann sphere whose critical points all have finite forward orbit under iteration are known as post-critically finite (PCF) maps. A deep result of Thurston shows that if one excludes examples arising from endomorphisms of elliptic curves, then PCF maps are in some sense sparse, living in a countable union of zero-dimensional subvarieties of the appropriate moduli space (a result offering dubious comfort to number theorists, who tend to work over countable fields). We show that if one restricts attention to polynomials, then the set of PCF points in moduli space is actually a set of algebraic points of bounded height. This allows us to give an elementary proof of the appropriate part of Thurston's result, but it also provides an effective means of listing all PCF polynomials of a given degree, with coefficients of bounded algebraic degree (up to the appropriate sense of equivalence).