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Twisted matings of polynomials. Preliminary report.

Given two suitable polynomials of degree d , $p : \mathbb{C} \rightarrow \mathbb{C}$ and $q : \mathbb{C} \rightarrow \mathbb{C}$, we can form the mating of the polynomials $S^2 \rightarrow S^2$ by gluing together the Julia sets of p and q in a dynamically meaningful way. If the mating is equivalent to a rational map $\mathbb{P}^1 \rightarrow \mathbb{P}^1$, we say that the geometric mating of the polynomials exists. In this talk we define *twisted matings* of polynomials, and we prove that for the basilica polynomial $P(z) = z^2 - 1$, for any $n > 0$, all of the twisted matings of $P^{\circ n}$ with itself are classified by the periodic cycles of $z \mapsto z^2$, of length n . (Received September 17, 2011)