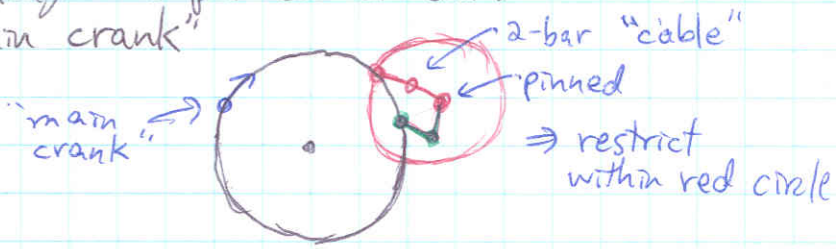
Signing your name

6.885
L2.5
Sept. 13, 2004

- **Weierstrass approximation theorem:**
  for any continuous function $f: [a,b] \to \mathbb{R}$
  & any $\varepsilon > 0$, there is a polynomial p
  such that $|p(x) - f(x)| \leq \varepsilon$ for all $x \in [a,b]$
- generalizes to polynomial/continuous curves in 2D by considering coordinate-wise
- can restrict Kempe linkage to portion of curve by restricting the "main crank"



Piecewise-polynomial curves (splines)

- look nicer; can get cusps; can dot "i"s...

Claim: there is a linkage with k pens that simultaneously draws k desired portions of polynomial (algebraic) curves

- trouble with replicating Kempe: different restrictions on arc of "main crank"

OPEN: prove claim

Claim: there is a linkage with 1 pen that draws k desired portions of polynomial curves

- transition between Kempe linkages?

OPEN: prove claim

- both claims made in [King 1999] but no proofs seem to be written (but likely King has them in mind)

PROJECT: implement Kempe applet (general or particular) → any poly. → nice poly.
PROJECT: sculpture based on Kempe linkage (or multiple)
PROJECT: design linkages for letters of alphabet