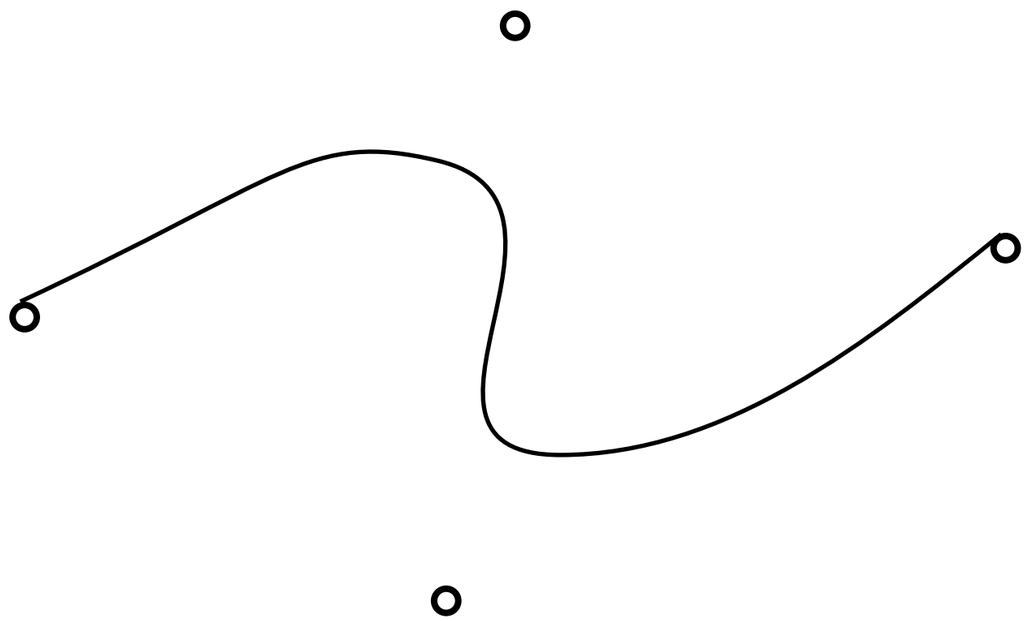
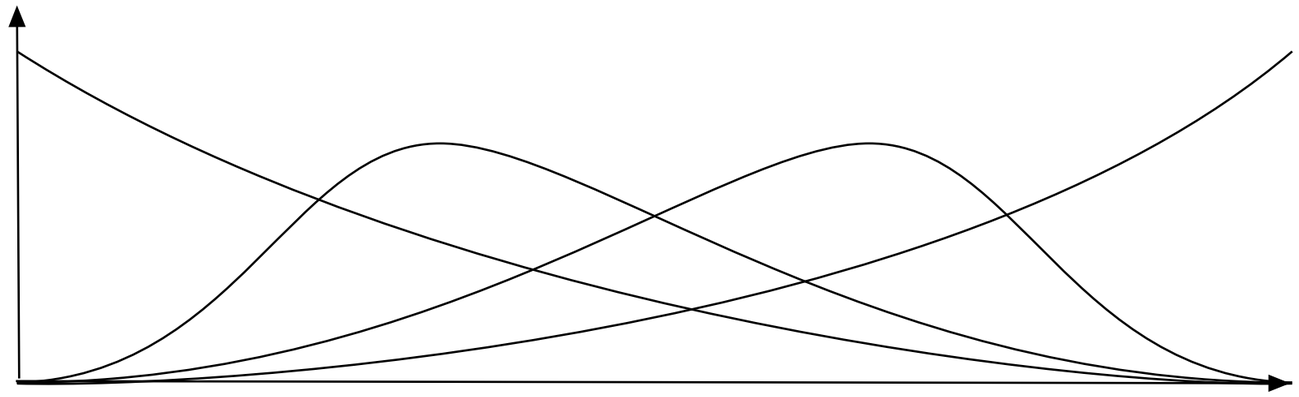
Bézier curves

Typically uses 3 or 4 control points per section



Bézier curves

The 4 points are blended together using 4 blending functions

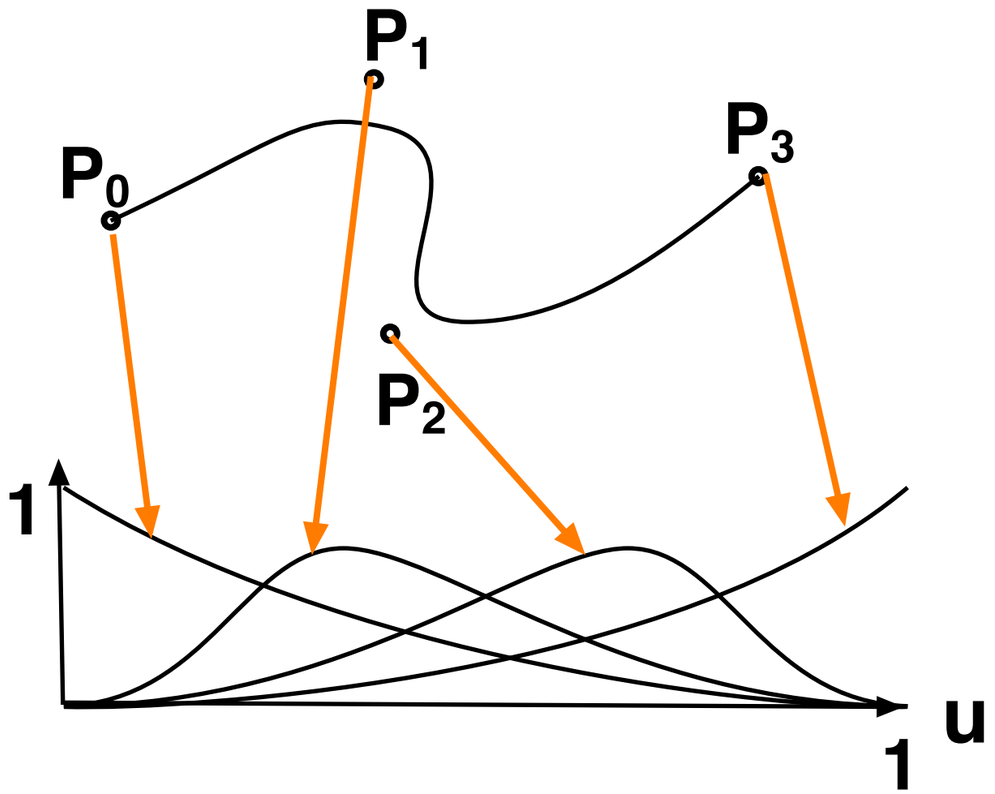


Bézier curves

Blending functions:
Bernstein polynomials

$$BEZ_{0,3} = (1-u)^3$$
$$BEZ_{1,3} = 3u(1-u)^2$$
$$BEZ_{2,3} = 3(1-u)u^2$$
$$BEZ_{3,3} = u^3$$

The sum is 1 for any u



$$BEZ_{0,3} = (1-u)^3$$
$$BEZ_{1,3} = 3u(1-u)^2u$$
$$BEZ_{2,3} = 3(1-u)u^2$$
$$BEZ_{3,3} = u^3$$

$$P(u) = P_0*(1-u)^3 + P_1*3u(1-u)^2 + P_2*3(1-u)u^2 + P_3*u^3$$

$$= \sum_{i=0}^{3} P_i * BEZ_{i,3}(u)$$

Fitting together sections

C_0/G_0 continuity: just fit the points

C_1 continuity: Tangents are equal along the edge.
G_1 continuity: Tangents have same direction along the edge.
Simple method: Put 3 points in a line