

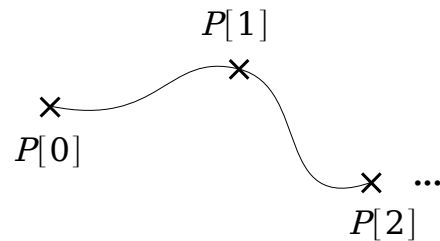
Exercise Computer graphics – (till November 6, 2007)

Splines

Exercise 15: Custom-made splines

A designer wants $N-1$ curves to interpolate N knots. He does not care for the derivation at the end-points. N is not known in advance.

- Invent a smooth and easy to calculate spline which satisfies these constraints. Keep the degree as low as possible.
- Implement your solution by altering one of your sample applications.



Exercise Computer graphics – (till November 6, 2007)

Bezier curves

Exercise 16: Weights for the Bezier Blending function

In the lecture we have expressed the Bezier curve analytically. We started with the degenerated instance of the curve consisting of two points only and extended it to a bent curve using three points.

Both, the straight and the bent curve consisted of weights for each knot.

- a) Extend the approach from three to four knots and calculate the weights for each of the four knots.
- b) When going from 2, to 3 and finally to 4 knots, can you find a pattern or schema for the weights? Express the weight for knot n in a curve consisting of N knots.

Hint: The factor for each weight is the binomial coefficient.