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Suppose you have an edge-labeled graph. A spline is a way of labeling the vertices so that each pair of adjacent vertices differ by a multiple of the corresponding edge. Splines come up naturally in many different applications, including numerical analysis, data interpolation, computer graphics, and engineering; the edge-labels roughly correspond to the slopes between two observed points.

We describe research into several questions, including some related to representation and others to applications from analysis (with edges labeled by polynomials). (Received September 25, 2018)