Within a cut-point region, the sum of the basis functions always equals 1. This is easy to see by looking at a plot of basis functions, several of which are provided below. The definition and shape of the basis functions do not in any way depend on the data, only on the degree and cut-points. Of course, these functions can be added together in infinitely different ways using weights. If one is trying to fit a B-spline line to data, those weights can be estimated using regression models.

Regression – linear – basis function -polynimial – piecewise – natural spline -bspline -