1   The Truncated Power Basis

1.1   Piecewise Polynomial Functions

Let $\xi = \{\xi_1 < \xi_2 < \cdots < \xi_{l+1}\}$ be a strictly increasing series of points, and let k be a positive integer. Further, let $P_1, \ldots, P_l$ denote a sequence of l polynomials of order k. Then the correponding piecewise polynomial (pp) function of order k is defined as follows:

$$f(x) = P_i(x) \quad \text{if } \xi_i < x < \xi_{i+1}$$