

A P-spline Playground

In this directory you will find five interactive programs to play with P-splines and variants. All programs have sliders and buttons to change the number of B-splines, their degree, the amount of smoothness, etcetera. After starting a program, a small panel with controls will appear. Any change you apply there will immediately update the R graphics window. The programs are:

- *PSPlay_bsplines.r* to visualize B-spline bases of different degrees and size.
- *PSPlay_psplines.r* to fit simulated data with P-splines.
- *PSPlay_discrete.r* to play with the Whittaker smoother.
- *PSPlay_interpolate.r* to visualize interpolation and extrapolation with the Whittaker smoother. The Whittaker smoother takes P-splines to the limit: the B-spline basis is replaced by the identity matrix.
- *PSPlay_histogram.r* for histogram smoothing with the generalized linear Whittaker smoother. It is instructive to see that the variance does not change when the order of the penalty is 3 or more.

The programs are quite short. They use the *rpanel* package to create the interactive elements. We hope that they you will inspire you to build your own interactive smoothing programs.