Multivariate additive models

Generalized additive models are generalized linear models in which the linear predictor is specified in terms of unknown smooth functions of covariates, and the functions are the target of inference. See e.g. Wood (2006) and the mgcv package in R. A natural extension of these models is to multivariate responses, and in this case a construction is required which will allow the degree of smoothness of the model component functions to be estimated in a well founded way (as it is in the univariate case). This project aims to develop this in a form suitable for implementing in R.


Figure illustrating some of the smooth model components available for constructing GAM models which it would be good to be able to use in multivariate models.