Fitting Mixtures of Nonlinear Regression Models

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Finite Mixture Models (FMMs) represent a highly accommodative class of statistical models which gained strong interest in recent years. Due to their flexibility FMMs cover a large area of application. They allow to model complex distributional shapes as well as evident group structures in heterogeneous data sets by probability based clustering methods provided by the Expectation-Maximization (EM) algorithm. The particular group of mixtures of regression models has largely contributed to the gain in popularity of FMMs. This model class has been widely studied by *Friedrich Leisch* and *Bettina Grün* who developed the package `flexmix` in `R` for model-based clustering and mixtures of regressions. Even though `flexmix` provides a flexible framework and a broad toolkit for mixtures of Generalized linear models (GLMs) it is not supporting the fitting of mixtures of nonlinear regression models.

The main objective of this presentation is to introduce the group of mixtures of Generalized nonlinear models (GNMs). Furthermore an implementation of these models was provided by embedding mixtures of GNMs in `flexmix` which will be addressed in this talk. Grün and Leisch (2004)

References

Grün, B., and Leisch, F. (2004). FlexMix: A general framework for finite mixture models and latent class regression in R. *Journal of Statistical Software*, *1*, 1-18.

Grün, B., and Leisch, F. (2008). FlexMix Version 2: Finite mixtures with concomitant variables and varying and constant parameters. *Journal of Statistical Software*, *28*, 1-35.