

R Mixed Linear Models Functionality
4/17/09

Here is a table that (as best I can tell on 4/17/09) lays out what functions can be used to get what from `lme()` in the `nlme` package and `lmer()` in the `lme4` package. Particularly `lmer()` seems to be in flux, and this stuff may not be relevant tomorrow.

Functionality	lme() Function	lmer() Function
Summary of the Fit	<code>summary()</code>	<code>summary()</code>
Estimated Covariance Matrix for Fixed Effects	<code>vcov()</code>	<code>vcov()</code>
Case Predictions/Fitted Values	<code>predict(),fitted()</code>	<code>fitted()</code>
Estimated Fixed Effects	<code>fixed.effects()</code>	<code>fixef()</code>
Predicted Random Effects	<code>random.effects()</code>	<code>ranef()</code>
Intervals	<code>intervals()</code>	<code>mcmcscamp()</code> and <code>HPDinterval()</code>

Intervals produced using `mcmcscamp()` and `HPDinterval()` for an `lmer()` output are (as of 4/17/09) not really confidence intervals, but rather Bayes "credible intervals." But the methodology employed has presumably been tuned to make them act roughly like confidence intervals. The current version of this outputs an interval for σ (the standard deviation of the epsilons) and for *ratios of the other standard deviations to σ* (as opposed to producing intervals for the standard deviations individually).

Corresponding functionality for fixed effects models are below.

Functionality	lm() Function	nls() Function
Summary of the Fit	<code>summary()</code>	<code>summary()</code>
Estimated Covariance Matrix for Fixed Effects	<code>vcov()</code>	<code>vcov()</code>
Case Predictions/Fitted Values	<code>predict(),fitted()</code>	<code>predict(),fitted()</code>
Intervals	<code>confint()</code>	<code>confint()</code>