Formulating (G) lmer models

Week 6 Problem 1

respiration (dichotomous) Pr{"Good"}
binomial link
epilepsy (count) seizure count
poisson link

Poisson mass $p(y|\mu) = e^{-\mu}\frac{\mu^y}{y!}$ Link $\eta = g(\mu) = \log(\mu)$

Bernoulli mass $p(y|\mu) = \mu^y(1-\mu)^{1-y}$

$\eta = g(\mu) = \log\left(\frac{\mu}{1-\mu}\right)$

Respiration ex class handout Sec 13.4 HSAUR

Level 1 $\eta = \beta_0 + \varepsilon$ flat across months after protocol

binomial link

flat trend by (1|subject) in lmer

Level 2

$\beta_0 = \gamma_{00} + \gamma_{01}$ baseline $+ \gamma_{02}$ month
$+ \gamma_{03}$ treatment $+ \gamma_{04}$ gender
$+ \gamma_{05}$ age $+ \gamma_{06}$ centre $+ u_0$

Combined model: substitute * to match lmer

(Level 2 for β_0)

Rogosa R-session posting

Alternative

Level 1 allows trend in logit over months

$\eta = \beta_0 + \beta_1 *$ month $+ \varepsilon$ [do month - 1 so β_0 is meaningful

compare models