

Formulating (G)lmer models

week 6
problem 1

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

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

Bernoulli mess $p(y|\mu) = \mu^y (1-\mu)^{1-y}$ $\eta = g(\mu) = \log\left(\frac{\mu}{1-\mu}\right)$

Respiration ex class handout Sec 13.4 HSAUR

binomial links Level 1 $\eta = \beta_0 + \epsilon$ flat across months after protocol
 flat trend by (1|subject) in lmer

Level 2 $\beta_0 = \gamma_{00} + \gamma_{01} \text{ baseline} + \gamma_{02} \text{ month}$
 $+ \gamma_{03} \text{ treatment} + \gamma_{04} \text{ gender}$
 $+ \gamma_{05} \text{ age} + \gamma_{06} \text{ centre} + u_0$

combined model substitute β_0 to match lmer
 (Level 2 for β_0) Roga's R-session
 posting

Alternative

Level 1 allows trend in logit over months
 $\eta = \beta_0 + \beta_1 * \text{month} + \epsilon$ [do month-1
 compare models so β_0 is meaningful]