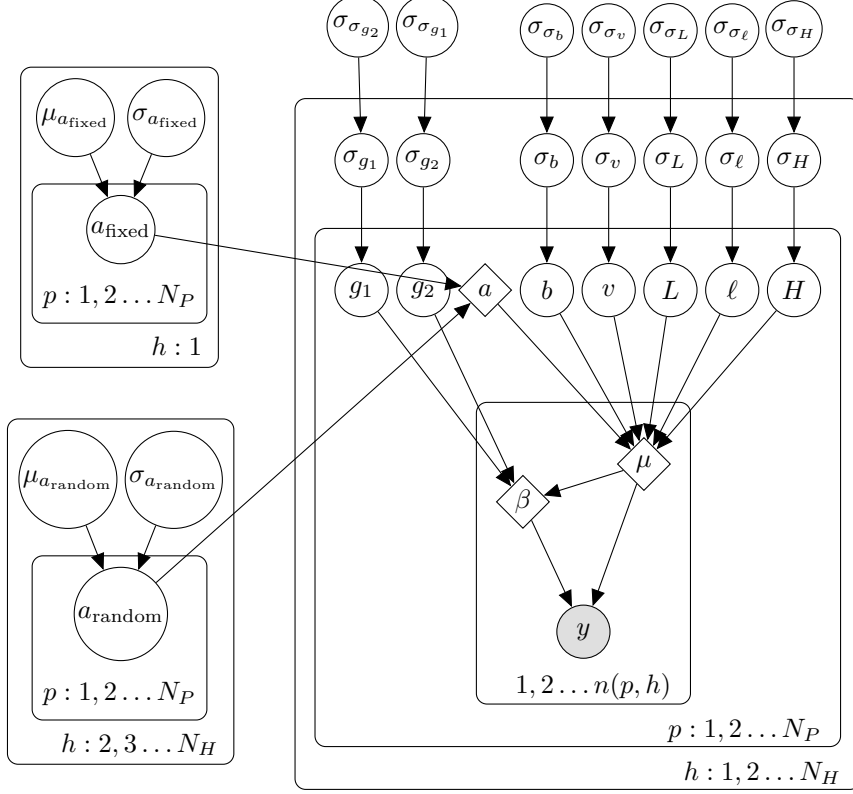


In this section, we describe a mixed-effects model consisting of both fixed and random effects. This model is particularly useful in settings where the same participants undergo repeated experiments. For instance, one might be interested in assessing intervention benefits by looking at how the thresholds change from pre and post intervention. Fig. 4.3.3 gives the graphical representation of such a model implemented by hbmeq. In section 5.3, we use this model (with $N_H = 2$) to compare midline and lateral stimulation thresholds.



where,

$$a_p^1 = a_{p\text{fixed}} \quad (4.3.1)$$

$$a_p^h = a_{p\text{fixed}} + a_{p\text{random}}^h \quad \forall h > 1 \quad (4.3.2)$$

A priori we assume no difference between the fixed and random effects. This is reflected in the choice of a flat prior for $\mu_{a\text{random}}$ that is symmetric about 0. Once the model is fit, we look at the shift in the posterior distribution of $\mu_{a\text{random}}$ to assess the difference between the fixed and random components.