

There are no degrees of freedom to estimate sigma_squared

Description

The message

There are no degrees of freedom to estimate sigma_squared. Set sigma_squared to a constant, or delete one or more of the random effects from the model

indicates that the model as specified implies the estimation of more parameters than can be done with available data. For example, if you have three data points nested within each level-2 unit and you allow two variables to vary randomly at level-2, the level-2 tau matrix will have three non-duplicated elements. Thus the number of random parameters at level-2 is equal to the number of data points/degrees of freedom and no "data remains" for the estimation of the remaining random parameter r at level-1.

Solution

In such a case, only one random effect can be accommodated at level-2. Either no random slope or, if the random slope is of specific interest, consider removing the random parameter associated with the intercept. Alternatively, compare model with a random intercept only to a model with only a random slope and use the model with the lowest deviance statistic.