**Pseudo code for Fisher’s scoring for estimating the variance components**

**Variable definition and initialisation**

G = matrix obtained from the variance component structure, i.e. coefficients of the variance component of the expected mean squares. This matrix is obtained from the infoDecompuTE package.

MS = mean squares of the ANOVA table based on the experimental data

DF = degrees of freedom of the corresponding mean square from the ANOVA table based on the experimental data

newV = current variance component estimates, initialised as the true values of the variance components when generating the simulated datasets.

oldV = previous variance component estimates, initialised as zero

counter = a counter for the numbers of the iteration has completed

**Fisher’s scoring algorithm**

while((newV – oldV) >1e-7){

oldV = NewV

MS\_hat = G’ × oldV

score function =

information matrix =

newV = oldV + (information matrix)-1 × (score function)

if ( counter > 1000 or information matrix is invertible)

stop the iteration and start a brand new simulation dataset

counter = counter +1

}

After the condition, (newV – oldV) >1e-7, is not met, the variable newV of the last iteration is the variance component estimates of the Fisher’s scoring algorithm.