

## Fisher scoring algorithm is unable to produce acceptable estimates

### The message

The Fisher scoring algorithm is unable to produce acceptable estimates of the variance-covariance components. It is possible that the model you have fitted is too complex for the data at hand

is only applicable to the non-unrestricted models available with **HMLM** and **HMLM2**. The unrestricted iterations use EM as an estimation method, and therefore cannot iterate to impossible (i.e. negative) variances. The other types of iterations use a Fisher scoring method, and can arrive at a solution outside the parameter space. The programs will attempt to control this problem, but only up to a point, after which it will stop and produce the message given above. The cause of this is usually an element of the random effect variance-covariance matrix (see the D matrix) being very close to 0. In the **HMLM/HMLM2** case, though, it could also be one of the other "extra" parameters.