## ABSTRACT

### Variance Components – A Practical Study in Random Effects Models



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The REML (REstricted Maximum Likelihood) method is the favored method to estimate variance components for a random effects model, especially when analyzing unbalanced data. Due to the computational intensity of this method, when analyzing large data sets it may be difficult, if not impossible, for the algorithm to converge. Reducing the volume of data is one way to solve this problem, and can be done through sampling. Using a hierarchical structure in the data with a MME (Method of Moment Estimator) offers an efficient, viable alternative to using a sampling scheme with the REML method, and has proven to be very useful and handy for many of our situations. In our presentation, we will illustrate and compare the usage of both methods with several examples.



Keyword: REML, Nested Design, Random Effects Model