Association schemes in designed experiments

R. A. Bailey

University of St Andrews, UK

Abstract

Association schemes arise in designed experiments in many ways. They were first used in incomplete-block designs, but they are implicit in the treatment structure of factorial designs and in many common block structures, such as row-column designs or nested blocks. What is nice about them is the link between the matrices which show the patterns and the matrices which project onto the common eigenspaces.

In recent work, Agnieszka Lacka and I have considered designs where the treatments consist of all combinations of levels of two treatment factors and one additional control treatment. We construct nested row-column designs which have what we call control orthogonality and supplemented partial balance.