Discussiones Mathematicae
Probability and Statistics 34 (2014) 71–72
doi:10.7151/dmps.1162

ALGEBRAIC STRUCTURE FOR THE CROSSING OF BALANCED AND STAIR NESTED DESIGNS

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Abstract

Stair nesting allows us to work with fewer observations than the most usual form of nesting, the balanced nesting. In the case of stair nesting the amount of information for the different factors is more evenly distributed. This new design leads to greater economy, because we can work with fewer observations. In this work we present the algebraic structure of the cross of balanced nested and stair nested designs, using binary operations on commutative Jordan algebras. This new cross requires fewer observations than the usual cross balanced nested designs and it is easy to carry out inference.

Keywords: balanced nested designs, stair nested designs, crossing, commutative Jordan algebras, variance components, inference.

2010 Mathematics Subject Classification: 62J10.

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Received 7 August 2014