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Model-Dependent Variance Inflation Factor Cutoff Values

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Abstract

When creating designed experiments, it is not always possible to run the experiment at the exact settings required to maintain orthogonal effects. However, this is not measurement error when precise measurements of the settings can be made once the experiment begins. A comparison is made for a 15-run Box–Behnken design using both the intended design settings and the actual design settings. Variance inflation factors are used to measure the induced collinearity in the effects. Two cutoff values are suggested for use to determine when an effect's variance inflation factor is too large to keep that effect in the model.

Keywords:

Collinearity | Orthogonal effects | Variable noise | Box–Behnken | Experimental design

Acknowledgments

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