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Multiple testing in ordinal data models

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Abstract

Consider an R x C contingency table in which the categories are ordered. Multiple testing of the hypotheses that each local odds ratio is one is carried out. The methodology to perform the multiple tests is an extension of the MRDSS method of Chen, Cohen, and Sackrowitz (2009). The MRDSS method extends the MRD method of Cohen, Sackrowitz, and Xu (2009) by adding a screen stage and a sign stage to MRD. The MRDSS method as well as the extension here is admissible and consistent. Both Fisher-type statistics and Chi-square statistics are used. Examples and a simulation study are included.

AMS 2000 subject classifications: Primary 62H17; secondary 62C15, 62F03.

Keywords: Admissibility, chi-square test, consistency, contingency table, Fisher's exact test, full multinomial model, independent Poisson model, ordered categories.

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