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A bootstrap method for comparing correlated kappa coefficients

S. Vanbelle & A. Albert

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Abstract

Cohen's kappa coefficient is traditionally used to quantify the degree of agreement between two raters on a nominal scale. Correlated kappas occur in many settings (e.g., repeated agreement by raters on the same individuals, concordance between diagnostic tests and a gold standard) and often need to be compared. While different techniques are now available to model correlated κ coefficients, they are generally not easy to implement in practice. The present paper describes a simple alternative method based on the bootstrap for comparing correlated kappa coefficients. The method is illustrated by examples and its type I error studied using simulations. The method is also compared with the generalized estimating equations of the second order and the weighted least-squares methods.

Keywords:

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Weighted kappa: Nominal scale agreement provision for scaled disagreement or partial credit.
Source: Psychological Bulletin
Comparing correlated kappas by resampling: Is one level of agreement significantly different from another?
Source: Journal of Psychiatric Research
A Coefficient of Agreement for Nominal Scales
Source: Educational and Psychological Measurement
A Simple Method for Estimating a Regression Model for κ Between a Pair of Raters
Source: Journal of the Royal Statistical Society Series A (Statistics in Society)
An Introduction to the Bootstrap
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Ramifications of a population model forκ as a coefficient of reliability
Source: Psychometrika
Modeling kappa for measuring dependent categorical agreement data

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