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Detecting the end of agreement between two long ranked lists

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Abstract

We propose an alternative approach to the problem recently posed by Hall and Schimek (Journal of the American Statistical Association, 107(498)(2012), 661–672): determining at what point the agreement between two rankings of a long list of items degenerates into noise. We modify the method of estimation in Fligner and Verducci's (Journal of the American Statistical Association, 83(403)(1988), 892–901) multistage model for rankings, from maximum likelihood of conditional agreement over a sample of rankings to a locally smoothed estimator of agreement. Through simulations we show that this modification performs very well under several conditions. We apply our technique as a stopping rule to supplement the tau - path algorithm, developed by Yu et al. (Statistical Methodology 8(2011), 97–111), in an analysis of associations between gene expression and compound potency in cancer data, and discuss some ramifications as planned extensions. © 2013 Wiley Periodicals, Inc. Statistical Analysis and Data Mining, 2013