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ERRATA

ERRATA FOR "NONPARAMETRIC GOODNESS-OF-FIT TESTS FOR THE RASCH MODEL"

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A Monte Carlo-algorithm realizing a family of nonparametric tests for the Rasch model is introduced which are conditional on the item and subject marginals. The algorithm is based on random changes of elements of data matrices without changing the marginals; most powerful tests against all alternative hypotheses are given for which a monotone characteristic may be computed from the data matrix; alternatives may also be composed. Computation times are long, but exact p-values are approximated with the quality of approximation only depending on calculation time, but not on the number of persons. The power and the flexibility of the procedure is demonstrated by means of an empirical example where, among others, indicators for increased item similarities, the existence of subscales, violations of sufficiency of the raw score as well as learning processes were found. Many of the features described are implemented in the program T-Rasch 1.0 by Ponocny and Ponocny-Seliger (1999).

Key words: nonparametric tests, IRT, goodness-of-fit tests, Rasch model, exact tests.

Important references have to be added with respect to the elaborations on pages 445–447. An earlier algorithm for enumerating (0,1)-matrices with fixed marginals is found in Snijders (1991). Switching the elements of the data matrix as described in Ponocny (2001) as basic element of the Monte Carlo-algorithm was, apart from Ponocny (1996), already proposed by Besag and Clifford (1989) and further developed by Rao, Jana, and Bandyopadhyay (1996; see also the references therein) who also deal with the lemma and the historical development of these ideas and give the theorem about the stationary distribution. However, Rao et al. establish the uniform distribution as the stationary one by means of waiting steps, whereas Ponocny (2001) works with the nonuniform limiting distribution and corrects afterwards by modifying the computation of the p-values.

References

Besag, J., & Clifford, P. (1989). Generalized Monte Carlo significance tests. *Biometrika*, *76*, 633–642.

Ponocny, I. (1996). *Kombinatorische Modelltest für das Raschmodell* [Combinatorial goodness-of-fit tests for the Rasch model]. Unpublished doctoral dissertation, University of Vienna, Austria.

Ponocny, I. (2001). Nonparametric goodness-of-fit tests for the Rasch model. *Psychometrika*, *66*, 437–460.

Rao, A.R., Jana, R., & Bandyopadhyay, S. (1996). A Markov chain Monte Carlo method for generating random (0, 1)-matrices with given marginals. *Sankhya: The Indian Journal of Statistics, Series A*, *58*(2), 225–242.

Snijders. T.A.B. (1991). Enumeration and simulation methods for (0, 1) matrices with given marginals. *Psychometrika*, *56*, 397–417.

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