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ADDENDUM TO: IDENTIFYING THE MOST APPROPRIATE ORDER FOR CATEGORICAL RESPONSES

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The authors wish to provide a formal clarification regarding the relationship between our article and the foundational study by Peyhardi, Trottier and Guédon (2015), titled “A new specification of generalized linear models for categorical responses”, published in *Biometrika* (volume 102, pages 889–906).

It has come to our attention post-publication that Peyhardi, Trottier and Guédon (2015) previously established closely related theoretical results, including Corollaries 4, 6, 8, 9 in their Section 4, on model invariance under permutations of response categories. We regret that this important precedent was not explicitly discussed in our original literature review. To clarify the distinct contributions of both works for future researchers, we highlight the following key points of comparison:

(1) Peyhardi, Trottier and Guédon (2015) considered more general link functions than ours, while our relevant results (namely Theorems 2, 3, 4, 5, 6, 7 in our Section 2) focused on logistic link but with a different specification of the model matrices. The conclusions are consistent. (2) Different from the proofs in Peyhardi, Trottier and Guédon (2015) on the equivalence of two orders or permutations, Wang and Yang (2025) provided explicit transformation formulae between the two MLEs, which can significantly reduce the computational cost. (3) A principal novelty of Wang and Yang (2025) lies in the likelihood-based theoretical investigation of the optimal ordering of response categories, including the use of AIC/BIC-type criteria and the associated asymptotic results (see Theorem 8 and Corollary 1 in Section 3).

References

- Peyhardi, J., Trottier, C. and Guédon, Y. (2015). A new specification of generalized linear models for categorical responses. *Biometrika* **102**, 889–906.
- Wang, T. and Yang, J. (2025). Identifying the most appropriate order for categorical responses. *Statistica Sinica* **35**, 411–430.

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