January 7, 2021

Editorial Office

Royal Society Publishing

Dear Editors,

We are submitting a new manuscript, “Non-Vertical Cultural Transmission, Assortment, and the Evolution of Cooperation”, by Dor Cohen, Ohad Lewin-Epstein, Marcus W. Feldman, and Yoav Ram for potential publication in the *Proceedings of the Royal Society B*.

This manuscript studies the evolution of cooperation by viewing cooperation as a culturally transmitted trait. We show that horizontal transmission bias can be an important factor in the evolution of cooperation. Moreover, we find that if there is an association between horizontal transmission and social interactions, such that the same partner is likely to be chosen for both interactions, then cooperation is much more likely to evolve. We also analyze the evolution of such an association when cooperation and defection coexist, and find that the association is likely to decrease, thereby prohibiting the evolution of cooperation. Finally, we analyze a stochastic model with population structure and show that it agrees with conditions derived from a deterministic model.

The manuscript presents important extensions to Hamilton’s rule due to cultural transmission, and demonstrates how assortment generated by cultural transmission can facilitate the evolution of cooperative behaviour.

 Sincerely,

Yoav Ram, PhD

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