April 16, 2023

Editorial Office

Royal Society Publishing

Dear Editors,

We are submitting a new manuscript, “Prestige bias in cultural evolutionary dynamics”, by Saar Egozi and Yoav Ram for potential publication in *Journal of the Royal Society Interface*.

The cultural evolution literature often mentions *success bias*, in which individuals are more likely to copy successful role-models, and *prestige bias*, in which individuals indirectly evaluate success. In this study, we developed and studied a cultural-evolutionary model in which individuals combine two modes of prestige bias to choose a role model from which they copy a phenotype (e.g., arrowhead design): indirect cross-domain success, which is a measure of performance in some related phenotype (e.g., amount of prey hunted); and influence, which is the number of copiers that have already copied from each potential role-model. The result is a complex stochastic model that combines the between-generation dynamics of cultural evolution with the within-generation dynamics of role-model choice.

We develop analytical approximations for the role-model choice dynamics, which allow us to analyze the cultural-evolutionary dynamics. We find approximations for the fixation probability and time of a trait favored by indirect success bias. Our results reveal that success bias plays the role that selection plays in evolutionary genetic models, whereas influence bias plays the role of random drift by lowering the effective population size.

The manuscript presents a strong contribution to the growing literature on transmission biases in social learning and cultural evolution and demonstrates how different aspects of prestige bias combine to drive cultural evolutionary dynamics. See below for a list of suggested reviewers with experience in modelling cultural evolution under transmission bias.

Sincerely,

Yoav Ram, PhD

Senior Lecturer

School of Zoology, Faculty of Life Sciences

Sagol School of Neuroscience

Tel Aviv University

**Suggested reviewers**

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