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Title: Cultural Variation and Dynamics of Social Transmissions in a Finite Population

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Abstract:

Cultural variation in a population is due to the occurrence of social transmission, whether such transmissions are preferred or eschewed, how cultural variants are trans- mitted between individuals in the population, and the size of the population. When a cultural variant takes over the whole population, we call it fixation of that variant. Here we modify the cultural Moran model to study cultural evolution. We include the phenomena of bias, where transmission of a variant of culture does not necessarily depend on the frequency of the same. We obtain the probability that a variant of culture becomes fixed, and the expected time this takes. For all of these, we deter- mine the effect of the mode of some modified social transmission: negative bias, where there is a tendency for each naïve newborn to not copy the most popular variant; con- formist, where the newborn interacts with a few individuals and chooses according to the frequency distribution of variants in that circle.

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