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Erratum

Erratum to: Efficiency based strategy spreading in the prisoner's dilemma game

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In the course of extending our recent work [1] to more general game matrices we identified an inequality different from equation (4) of reference [1] for the payoff per interaction case. If the parametrization of the prisoner's dilemma is chosen, the correct threshold condition for the cooperation strategy to be an ESS_N on a vertex with degree k is instead

$$b < \frac{2k-4}{2k-1}. \tag{1}$$

As the temptation to defect parameter b is always greater than 1, this condition is never fulfilled in the prisoner's dilemma game. Nevertheless, the main argument given in reference [1], that the vertices with the largest degree in the network loose their ability to support cooperation at a certain temptation to defect parameter value b_c, is however correct and supported by the numerical data. This can be seen by considering the second moment of degrees of cooperators κ^2 in the stationary state as shown in Figure 1. Our analysis reveals that the second moment κ^2, which is dominated by vertices with a large degree, declines rapidly as b gets larger than b_c. This indeed shows that the largest degree vertices cease to be cooperators for $b > b_c$, and successively vertices with smaller degree do so as well as b further increases.

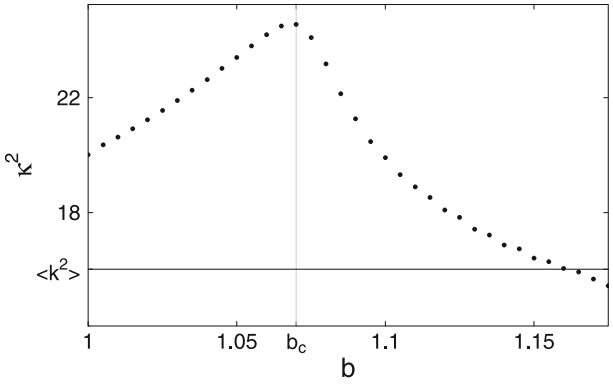

Fig. 1. Second moment of degrees of cooperating players κ^2 for the payoff per interaction case. Shown are the results for scale-free networks with scaling exponent $\gamma = 3$ and 4000 vertices. The horizontal line indicates the second moment $\langle k^2 \rangle$ of the whole network.

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References

1. S. Weber, M. Porto, Eur. Phys. J. B **69**, 599 (2009)

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