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Social diversity provides a new mechanism for the evolution of cooperation in public goods games.

Throughout their life, humans often engage in public goods games (PGG) in situations ranging from family related issues to global warming. In all cases, the tragedy of the commons threatens the possibility of reaching the optimal solution associated with global cooperation, a scenario predicted by theory and demonstrated by many experiments. Up to now, individuals have been treated as equivalent in all respects, in sharp contrast with real life situations, where diversity is overwhelming. Here we show how diversity provides an escape from this paradox. We investigate the impact of social diversity in the evolution of cooperation in populations structured as heterogeneous graphs. We show that the diversity associated with the number and size of the PGG each individual participates and with the individual contribution to each PGG promotes cooperation. The enhancement of cooperation is particularly strong when both wealth and social ties follow a power-law distribution, providing clues on the self-organization of social communities and their economical implications. (Received February 14, 2008)