

1040-91-197

Sven Van Segbroeck* (svsegbro@vub.ac.be), Computational Modeling Lab, Pleinlaan 2, 1050 Brussel, Belgium, and **Francisco C Santos, Ann Nowé, Jorge M Pacheco** and **Tom Lenaerts**. *The evolutionary advantage of swift reaction to adverse ties.*

Recent results have shown that models in which some individuals interact more and more often than others, and react promptly to adverse social ties provide an efficient solution to the paradox of cooperation. Yet, what is the evolutionary mechanism determining the individuals' willingness to sever adverse ties? Here we show that when communities face the prisoner's dilemma, swift reaction to adverse ties evolves only when competition is fierce between cooperators and defectors. Our results show how our innate resilience to change relates to mutual agreement between cooperators and how competition provides an evolutionary pressure towards the demise of such resilience. Despite our innate resilience, the willingness to change promotes the emergence of cooperation when compared to the traditional view of the evolution of cooperation in well-mixed populations. (Received February 14, 2008)