Maintenance of cooperation in evolving heterogenous populations with motility MARIANNE BAUER, Ludwig-Maximilians Universitt, STEFFEN RULANDS, University of Cambridge/Max Planck Institut PKS, JOERG MARTIN, ERWIN FREY, Ludwig-Maximilians Universitt — The presence of cooperation in nature is a fundamental, still unsolved problem in biology. We study the evolution of cooperation in populations with different motility rates. We show under what conditions cooperation can be maintained in such populations using a simple implementation of the prisoner’s dilemma and fitness update mechanism. Specifically, we show why cooperation can be maintained for surprisingly large costs and high motility rates, and discuss the average motility that is selected after time evolution.