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**More Opportunities than Wealth: Inequality and Emergent Social Classes in a Network of Power and Frustration** CRISTIANO NISOLI, Los Alamos National Laboratory, BENOIT MAHAULT, Service de Physique de l'Etat Condense, CNRS UMR 3680, CEA-Saclay, 91191 Gif-sur-Yvette, France, AVADH SAXENA, Los Alamos National Laboratory — We introduce a minimal agent-based model to qualitatively conceptualize the allocation of limited wealth among more abundant opportunities. There the interplay of power, satisfaction and frustration determines the distribution, concentration, and inequality of wealth. Our framework allows us to compare subjective measures of frustration and satisfaction to collective measures of fairness in wealth distribution, such as the Lorenz curve and the Gini index. We find that a completely libertarian, law-of-the-jungle setting, where every agent can acquire wealth from, or lose wealth to, anybody else invariably leads to large inequality. The picture is however dramatically modified when hard constraints are imposed over agents, and they are limited to share wealth with neighbors on a network. We address dynamical societies via an out of equilibrium coevolution of the network, driven by a competition between power and frustration. The ratio between power and frustration controls different dynamical regimes separated by kinetic transitions and characterized by drastically different values of the indices of equality. In particular, it leads to the emergence of three self-organized social classes, lower, middle, and upper class, whose interactions drive a cyclical regime.

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