INFLUENCE OF RESOURCE INEQUALITY IN COOPERATION

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COOPERATION EXISTS IN NATURE.

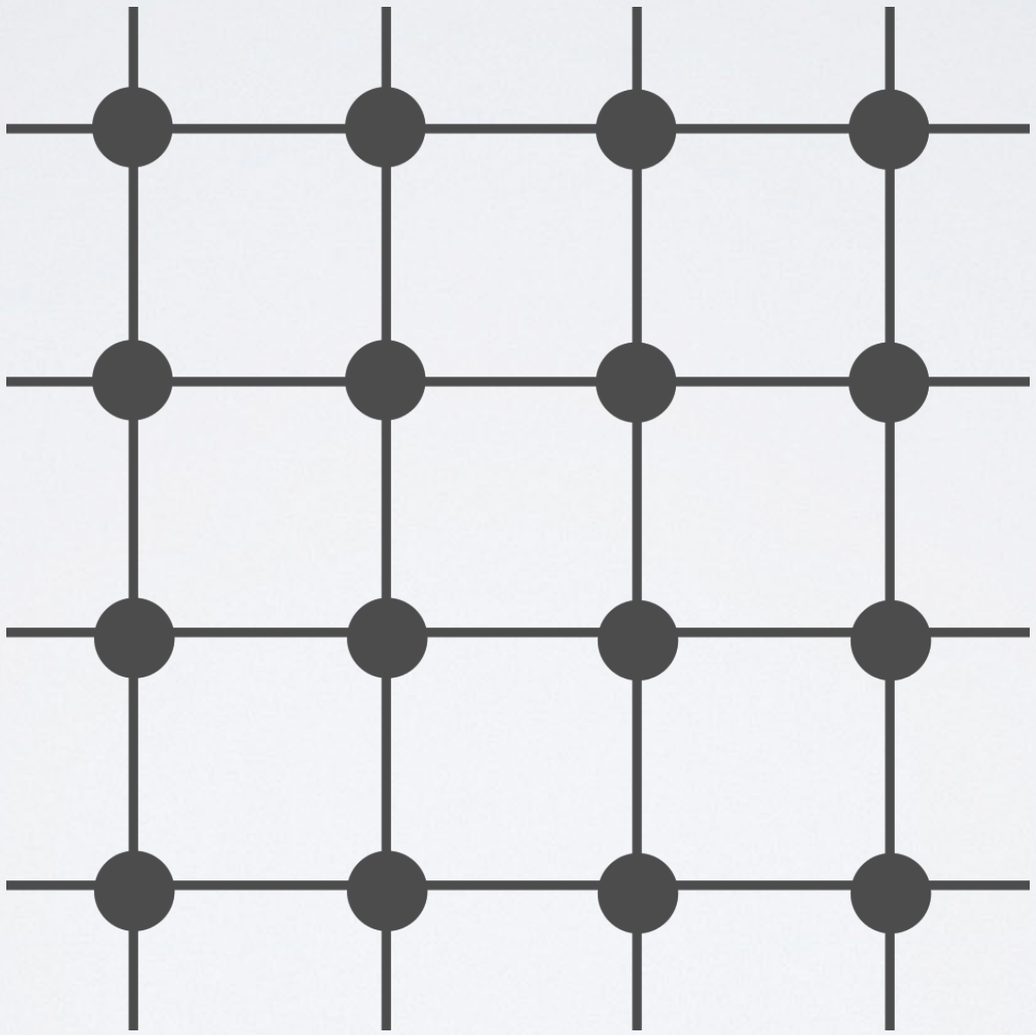
WHY?

PRISIONER'S DILEMMA

	Cooperator	Defector
Cooperator	R	S
Defector	T	P

$$T < R < P < S$$

LATTICE



ORIGINAL APPROACH

$$P_{t+1}[x = C] = \frac{\sum_{y \in neigh(x) \cup \{x\}} A(y)^m s(y)}{\sum_{y \in neigh(x) \cup \{x\}} A(y)^m}$$

REPLICATOR EQUATION APPROACH

$$g(k) = T_k^+ - T_k^-$$
$$= \frac{k}{Z}\frac{Z-k}{Z}\tanh\left(\frac{\beta}{2}(f_C(k) - f_D(k))\right)$$

$$P_{t+1}[x = C] = \begin{cases} 1, & g(x) > 0 \\ 0, & \text{otherwise} \end{cases}$$

SOFTMAX APPROACH

$$P_{t+1}[x = C] = \sigma(x)_C = \frac{e^{-\eta f_C(x)}}{e^{-\eta(f_C(x)+f_D(x))}}$$