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Social networks and intergroup conflict

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Summary of notations

notation	meaning	special assumptions
payoff parameters		
v	victory payoff (temptation)	$v > e > 0 > c > d$
e	payoff for free-riding (bonus)	$v > e > 0 > c > d$
p	peace payoff	$p = 0$
c	clash payoff (punishment, draw)	$v > e > 0 > c > d$
d	payoff for defeat (the sucker's payoff)	$v > e > 0 > c > d$
s	selective incentives	$s > 0$
b	behavioral confirmation payoff	$b > 0$
t	traitor's payoff	$t > 0$
structural parameters and indexes		
$\{A, B\}$	the set of groups	$A \cap B = \emptyset$
n_A, n_B	group sizes	$n_A \geq 2, n_B \geq 2$
α, β	proportional group sizes	$\alpha = n_A / n_{A+B}, \beta = 1 - \alpha$
f_i	number of fellow neighbors of individual i	
g_i	number of neighbors of i from the other group	
k_A^*, k_B^*	minimal contributing sets for group collective action	$0 \leq k_A^* \leq n_A, 0 \leq k_B^* \leq n_B$
simulations		
S	grid size	$S \geq n_{A+B}, S = RC \geq 6$
R, C	number of rows and columns in the grid	$R > 0, C > 0$
π	proportion of inhabited cells	$\pi = n_{A+B} / S$
T	total number of dyadic connections in the grid	
δ	the proportion of network relations (nonempty dyads)	
ϕ	the proportion of fellow ties (clustering, segregation)	
γ	the proportion of opposite ties (exposure)	$\gamma = 1 - \phi$
ρ_A	the proportion of ties between members of group A	$\rho_A + \rho_B = \phi$
decisions		
ω_A, ω_B	vector of strategy choices of group A and B (dimensions $n_A \times 1$ and $n_B \times 1$)	$\omega_i = 1$ if i contributes
k_A, k_B	number of contributors in the groups	$0 \leq k_A \leq n_A, 0 \leq k_B \leq n_B$
notations in the experimental analysis		
r	round number	
$P_{rix}(\omega_i = 1)$	probability of contribution in decision round r of actor i in experimental session x	
P_{rix}	contribution propensity in decision round r of actor i in experimental session x	$P_{rix} = \ln \left(\frac{P_{rix}(\omega_i = 1)}{P_{rix}(\omega_i = 0)} \right)$
α_0	baseline contribution propensity	
φ_x	session level error term	$\varphi_x \sim N(0, \rho^2)$
ε_{ix}	subject level error term	$\varepsilon_{ix} \sim N(0, \sigma^2)$
ξ_{rix}	intra-individual variation	