Us and Them

The explanation of group genesis and group formation among human being is an important topic to study in our world. From the article we found several important factors that can influence the group formation. But most importantly the major focus points are reciprocity and transitivity. From the meaning of the words, reciprocity means how one individual is being beneficial to the other. Transitivity is how information is passed on to one individual to another, in our study case the information they have passed is impressions to each other. All factors in the article can be represented by mathematical numbers and equations, because we are using a code-based model named Agent-based models to do simulations, to test couple of the author’s hypothesis. The benefits of using a computer-based model are to keep away personal bias, doing repeatedly, large quantity and various factor tests. It also gives us the ability to change different test backgrounds. All of those are essential to testify a scientific hypothesis.

The agent-based models we used are based on couple factors: 1, Probability of interaction: We are given a matrix between each 2 players, there is a random number generated to decide whether they will interact or not. 2, Interaction behavior and payoffs: The random number for every individual also decides it one cooperates or defects. 3, Reciprocity: a parameter r is added to calculate how far or closer between every individual. 4, Transitivity: another factor t is added to calculate how much one should adjust himself if he is the one with a lower C(n/m, x) which means a weaker opinion individual. These are all bases of simulating the prisoner’s dilemma: when two people interact, the cooperator benefits another person where defectors take in the benefits from another person, side with effect of individual payoffs amount and trust.

The results show that reciprocity and transitivity do influence the group formation size and number. That is, the more reciprocity the fewer but larger groups, the more transitivity the more but smaller groups. But the effects are not significant as we predicted. Also, there are randomness and path dependence also take control on the group formation. Also, the formation is effect by the number of players too which is - the larger number of individuals, the fewer but larger groups will form. Also, the group formation will result in a different amount of payoff into groups. The test set the payoff amount to be 0 and adjust its reciprocity and transitivity to see how these two factors will make a change to the payoff. The result shows that transitivity doesn’t make a difference to the payoff amount. Increasing reciprocity itself increases the payoff by some. But with both transitivity and reciprocity, the individuals will form cooperative groups and increase the payoff amount by a more significant number. Also, larger population size will do the same but with little effective rate. Another very important condition is how interpersonal trust can influence group genesis. Here another factor A is introduced to see how it goes. The more negative A is, the more isolated individuals and the greater positive A is, the larger groups formation.

The result testified the authors’ hypothesis at the beginning of the article. All the factors: reciprocity and transitivity, group-promoting conditions on individual payoffs and the impact of trust. The agent-based model uses all these factors in numbers provides an obvious, parsimonious explanation. The result documents the power of reciprocity and transitivity and shows how important group formation is social networks. But these tests are such limited to homogeneous population. The author also indicates that there will be more complex models in the future – multiple groups in different social contexts, hierarchical group formation, or more complex reciprocity rules etc. because the author’s research not only assumed interpersonal closeness remains constant with 1 cooperator and 1 defector since A is either (-) or (+).Even though with the case of 1 cooperated and other defected, the 2 people can move apart instead of keeping the same position. Overall the author’s research highlights the importance of social phenomena, by introducing the advanced computer model system.