











Team selection puzzle

 Is there a way to split vertices into two groups so that at least half of the edges go between groups?

- Suppose that the probability of every person to be on Team Orange vs. Team Green is 1/2. - Then the probability for each edge (conflict) to be
- - Expected number of edges to go between
- different colours: ½ · total number of edges. - Therefore, there exists a way to split any group

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into two teams so that at least half of the conflicts are between people on different teams!

 Graph of the CONFLICT relation - Symmetric and anti-reflexive



- Team selection puzzle There exists a way to split any group into two teams so that at least half of the conflicts are • Graph of the CONFLICT relation - Symmetric and anti-reflexive between people on different teams - Drawn as an undirected graph
- But how would we do this split?
 - Let's do something random!
 Just assign each person to team Green or team Orange at random with probability ½
- So this proof not only tells us that such a split exists, but also gives a (randomized) algorithm that finds it
- Can prove that it finds it with decent probability
- Can be even made deterministic (that is, it is possible to make the choices without randomness).











The good news about computers is that they do what you tell them to do. The bad news is that they do what you tell them to do. Ted Nelson

























