

OPTIMAL PARTITIONING OF A NETWORK OF LIKES AND DISLIKES

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We study a real network constructed from a survey in which each individual chose five members she wants to work with, and other five she did not like to work together. We pursue to answer the question of proper divisions of the organization based on the concept of happiness defined for each directed pair. For example, two individuals connected by like (dislike) links in both directions are happy if they belong to the same (different) group(s). We then adopt the framework of the q -state Potts model with ferromagnetic and antiferromagnetic directed interactions and discuss the group structure in the organization that maximizes the suitably defined global and local happiness.

