

$(0, 1)$ -matrices and the problems of distribution

Rosário Fernandes* and Susana C. Palheira**

*CMA/FCT/UNL and **DM/FCT-UNL

*mrff@fct.unl.pt and **susanap1112@gmail.com

ABSTRACT

Consider the following problem: “We are organizing a social dinner for the participants of a mathematical meeting. The participants are from n different countries. We intent to seat the participants in m tables, each one with a fix number of seats, so that in each table there are no two participants with the same nationality, but the number of seats is equal to the number of participants. After dinner, there will be a show. Before the show, the host will call some participants for a joke. The host will choose the maximum number of participants selecting, at most, one per table and, at most, one per country. As we do not know when the artists will be ready for the show, the host will repeat the joke with another group, with the maximum number of participants again choosing, at most, one per table and one per country, but the countries are now different from the countries selected in the first group. The host will repeat this joke until the show begins, or all countries were chosen. How to distribute the participants in the tables so that each group of participants in the joke is as small as possible?”

In this talk, using matrices and/or the maximum flow - minimum cut algorithm we will see how to solve this kind of problems.

REFERENCES

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