

## An "eulerian" approach to a class of matching problems

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*Abstract.* We study a card game called *He Loves Me, He Loves Me Not* ( $(HLM)^2N$ ), which can be considered as a generalization of the classical games *Treize* and *Mousetrap*. We give some results by a theoretical point of view and by a numerical one, by means of Monte Carlo simulations. Furthermore, we introduce a new technique which allows us to obtain the best result at least for French card decks (52 cards with 4 seeds). This technique allows us to answer to some open questions related to the game *Mousetrap*.