

T3_79 FORTUNE WHEEL AS A TOOL FOR ILLUSTRATION THE BASIC PRINCIPLES OF STATISTICAL PHYSICS

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A real-life situation is presented which gives an opportunity to illustrate the use one of the most important methods of statistical physics. A wheel of fortune is studied and it is shown the labelling method of the wheel to get a probability distribution of a fair game. The problem originates from an experience of one of the authors. On a nice Sunday afternoon of 2006 a long queue of impatient people were waiting for playing a game on a kind of roulette in a Hypermarket at Kecskemét (Hungary). The roulette wheel had 24 congruent sectors, 6 of them were labelled "NO PRIZE"; the others had labels of different PRIZE. On the basis of the geometrical ratio of sectors the chance of winning something seemed to be 75%. In spite of this, watching the game for a short time all the 50 trials occurred resulted in "NO PRIZE". Obviously the wheel of fortune was manipulated. The interest of the students of the University of the Town was also piqued by the wheel. In this paper the results of the discussion happened at a lecture of statistical physics is presented. A simple form of an imaginary wheel of fortune was planned. It had a revolving disk of 1 meter radius which has 100 sectors labelled with 11 different prizes (e. g. 0 €, 1 €, 2 €, ... 10 € prizes). A spinning pointer was applied to get the prize. The fee of a game of the imaginary play should be 2 €, and the play should also fulfill the following two requirements: (1) the average gain should be 0,04 € (the profit of the casino) per game. (2) the game should be as exciting as possible. It means that the result of a single game should be unforeseen. The label distribution conforming these requirements is compared with the distribution–diagram of the manipulated fortune wheel applied by the Hypermarket.