ENCYCLOPÉDIE OU *DICTIONNAIRE* RAISONNÉ DES SCIENCES, DES ARTS ET DES MÉTIERS

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AVANTAGE

Advantage, *as term of game*. One says that a player has the *advantage*, when the odds are greater for his gain, than for his loss; that is to say, when his expectation surpasses his stake. In order to clarify this definition by a very simple example; I suppose that a player A wagers against another B, to bring two on the first throw with a die, & that the stake of each player is one ecu; it is evident that the player B, has a great *advantage* in this bet; for the die having six faces is able to produce six different numbers, of which there is only one which makes player A win. Thus the total stake being two ecus, the odds are five against one that the player B will win. Therefore the expectation of this player is equal to $5/6$ of the total stake, that is to say, to $10/6$ ecu, since the total stake is two ecus. Now, $10/6$ ecu is worth an ecu & two-thirds ecu. Therefore since the stake of player B is one ecu, his *advantage*, that is to say, the excess of that which he expects to earn above the sum that he puts into the game, is $2/3$ ecu. So that if player A, after having made the wager, wished to renounce the game, & dared not tempt fortune, it would be necessary that he render to player B his ecu, & beyond that 2 livres, that is to say, $2/3$ of an ecu. *See* **Pari**, **Jeu**, **Dez**, **Probabilité**, & c. (*M. d'Alembert*)