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

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RAFLE de dés

RAFLE of dice, (*Analyzes of chance*.) it is a cast where the thrown dice all come on the same point. If you want to know the advantage of the one who would attempt to produce in a cast with two or more dice, a determined *rafle*, for example terne, you will consider that if he took among them with two dice, he would have only one chance to win, & 35 to lose, because two dice are able to be combined in 36 different ways; that is to say, that their faces which are six in number, are able to have 36 different lies, as you see it in this table,

1, 1.	2, 1.	3, 1.	4, 1.	5, 1.	6, 1.
1, 2.	2, 2.	3, 2.	4, 2.	5, 2.	6, 2.
1, 3.	2, 3.	3, 3.	4, 3.	5, 3.	6, 3.
1, 4.	2, 4.	3, 4.	4, 4.	5, 4.	6, 4.
1, 5.	2, 5.	3, 5.	4, 5.	5, 5.	6, 5.
1, 6.	2, 6.	3, 6.	4, 6.	5, 6.	6, 6.

this number 36 being the square of the number of faces 6 on two dice. If one had 3 dice, instead of 36, square of 6, one would have 216 for the number of the combinations among 3 dice; if one had 4 dice, one would have the fourth power 1296 of the same number 6, for the number of the combinations among 4 dice, & thus in succession.

It follows thence that one must put only 1 against 35, in order to make a determined *rafle* with two dice in one throw. One will know by similar reasoning, that one must put only 3 against 213, in order to make a determined *rafle* with three dice in a throw, & 6 against 1290, or 1 against 215 with four dice, & thus in succession, because of the 216 chances which are found with three dice, there are 3 of them for the one who holds the die, since 3 things are able to be combined 2 by 2, in three ways, & consequently 213 contrary to the one who holds the die: & that of the 1296 chances which are found among four dice, there are 6 of them which are favorable to the one who holds the die, since four things combine two by two in six ways, & consequently 1290 contrary to the one who holds the dice.

But if you want to know the advantage of the one who would undertake to make any *rafle* on the first throw with two or more dice, it will not be difficult to know that he must put 6 against 30, or one against 5 with two dice, because, if of the 36 chances which are found among two dice, one takes off six chances which could produce a *rafle*, there remain 30. One will know also very easily that with three dice, he is able to put 18 against 198, or 1 against 11, because if of the 216 chances which are encountered among three dice, one takes off 18 chances which are able to produce a *rafle*, there remain 198, &c. (D. J.)

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