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THE EFFECT OF PSYCHOLOGICAL CARD PREFERENCES *

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The theory of scoring card coincidences is based upon the comparison between pairs of cards chosen at random, and pairs of cards of which one is drawn at random from a pack, while the other is obtained by the subject in an attempt to guess or divine which card has been chosen. If these two cases differed only in the possession by some subjects of the power to guess a card in some degree like that drawn, the existence of such a power could have been tested strictly by the method of scoring previously proposed (Proc. S. P. R., vol. xxxiv. p. 181, July 1924). There is, however, a second difference, which at first sight appears to be without influence on the results, yet which requires in an exact treatment some modification of the scoring system previously devised.

It has been shown that in attempting to guess an unknown card people in general - and the same is probably true of each person in particular - exhibit a rather marked preference for certain cards. The effect of such preferences on the frequency of different degrees of success may best be perceived by considering an extreme case in which, on every occasion, the first card which presents itself to the mind of the subject is always the same, for example, the King of Hearts. The card actually drawn will be with equal frequency every card of the pack, and it is evidence that the guess will be right in colour half the trials, and right in suit in one quarter; also it will be right in value once in thirteen trials, these being in each case the probabilities for the same degree of agreement between two cards drawn at random. In the case of rank, however, there will be this difference, for the real card will be a picture card only three times in 13 trials, while the probability of two cards chosen at random being both plain or both picture cards is 109 in 169. The latter probability will in fact only represent the true chance if the subject guesses picture cards with the correct frequency, namely three times in thirteen trials. It will not be correct if he always guesses the King of Hearts, nor in less measure, will it be correct if, while varying his guess he yet guesses picture cards with more than the correct frequency.

The effect of this factor is thus somewhat to penalise those subjects who have a psychological preference for picture cards, and if this preference is general, so to give generally unduly low scores. On the other hand persons with a preference for plain cards will have enjoyed a slight advantage. In an exact analysis, it is possible to overcome the difficulty by scoring the two cases independently. Below are given two scoring systems appropriate for the two cases in which the card guessed by the subject is a plain card or a picture card respectively. The nature of the real card does not affect the system.

	Plain card chosen				Picture card chosen		
	O.	R.	N.		O.	R.	N.
O.:	.73	3.78	30.54	O.:	1.7	16.45	27.50
C.:	8.79	11.84	38.6	C.:	8.67	23.42	34.47
S.:	16.85	19.89	46.65	S.:	15.64	30.39	41.44

In both these systems the mean score, if the card guessed is independent of the true card, is 11.18, and the standard deviation of the mean of 25 guesses is 2.0. The effect of the change is simply to put upon an equal footing those whose preference leans to plain cards, or to picture cards respectively; it seems unlikely that it will greatly alter the average of any extensive group of scores.

It will be noted as an apparent defect in the use of two scoring tables that the effect on the score of guessing right instead of wrong on an even chance, for example, in colour, is 8.06 for plain cards and only 6.97 for picture cards. A guesser, in fact, whose strong point lay in colour or suit, will run up a big score quicker if he sticks to plain cards; this is a necessary consequence of using a single composite system for scoring different possible faculties. The different faculties may be examined separately merely by enumerating the number of successes and failures in each point (i) Colour, (ii) Suit, if the colour be right, (iii) Value, and comparing the observed numbers with those expected by chance. Only in the case of (iv) Rank, will the choice of a plain or a picture card affect the expected frequencies, and only in this faculty will a separate enumeration be necessary.