and therefore

$$2(e_2, T, E_2) = 0.$$

Owing to this, E. Čech, who pointed out this circumstance to us, suggested that in the present and in the similar instance for any p, the singular cell be also considered as degenerate. The more extended meaning to be thus attached to degenerate cells, while justifiable, is not however essential.

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VARIABLES CORRELATED IN SEQUENCE*

BY A. T. CRAIG

1. *Introduction.* If each of n variables, $x_1, x_2, \cdots, x_n$, represents a quantitative character of an individual, and if the variables are correlated in sequence, that is, x_1 is correlated with x_2, x_2 is correlated with x_3, $\cdots$, and in general x_i is correlated with x_{i+1}, it seems natural to inquire about the correlation between a character, say x_1, of one individual and a character, say x_3, of a second individual, with the condition imposed that the two individuals have identical measurements with regard to the character x_2. It is this problem with which we shall be primarily concerned in the present paper. As we proceed, we shall place appropriate restrictions upon the nature of the correlation which exists between the variables. We shall, however, make no assumptions regarding the correlation between the variables other than that between them in adjacent pairs.

In order to provide a convenient point of departure and to exhibit a set of variables correlated in sequence, we shall first consider a rather elementary problem which arises when measurements are made under a constant law of probability.

2. *The Correlation between Measurements under a Constant Law of Probability.* Let the variable t obey a constant law of probability $f(t) = 1/a$, $0 \leqq t \leqq a$. Let successive sets of n independent measurements each, say $t_1, t_2, \cdots, t_n$, be made upon t. We may, without loss of generality, suppose the meas-

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