CORRECTION TO THE PAPER "THE MULTINOMIAL SOLID AND THE CHI TEST"*

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The following note should be appended at the bottom of page 141:†

However, Pearson's sum (loc. cit.) extends over the interior of an ellipsoid in $(m-1)$-space, instead of over the interior of our parallelopiped. The two figures overlap, but do not coincide; hence it should not be asserted, as in §5, that the estimated error surely applies to the Pearson tables. An attempt to extend the theory further has encountered so many difficulties that the author would be compelled at present to adopt the error found in §5 as his best estimate of the error inherent also in Pearson's approximation. But it might not always be a close estimate. The equations (20) and the restrictions (7) do apply to both cases. If an expression were to be found for the sum Q, when extended over the interior of our parallelopiped, one would have a test of significance which would rival Pearson's chi-square test, and which, unlike his, would reduce to the ordinary procedure when $m=2$ (point binomial). It would give the probability that a sample $(f_1, \cdots, f_m)$ had class frequencies as near the ideal as those observed, whereas Pearson's test gives the probability of a sample's having class frequencies whose total probability would be as great as the total probability of the sample observed. These two possible tests are not identical. The form just suggested is the natural extension of the method usually preferred for the point binomial, and the estimated error could be made to apply to it with exactness; but this estimate is still useful as an approximation in Pearson's case, and the restrictions (7) continue to be needed.

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† These Transactions, vol. 31 (1929), pp. 133–144.

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