AN EXPERIMENT REGARDING THE χ^2 TEST

By

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1. *Introduction*

R. A. Fisher has proposed that in case the hypothesis being tested has been partially obtained from the data, the Elderton table[1] for χ^2 should be entered with n' equal to, not the number of frequency classes, but the number of frequency classes minus the number of statistics computed from the data. It has been proved under certain restrictions that this theory holds in the limit as the size of the sample approaches infinity.[2]

For samples of moderate size our only guide is experimental evidence, which indicates that Fisher's method is satisfactory in practice.[3] This is true in particular of the evidence presented in the present paper which describes a coin tossing experiment suggested by Professor H. L. Rietz.

2. *The Experiment*

The experimental work here considered was done by seventy students each of whom tossed seven coins 128 times. In any one of the seventy experiments, this results in a frequency distribution of 128 items divided into eight frequency classes. But we lumped together the classes of zero heads and one head and likewise for six heads and seven heads, so that we had six frequency classes. If for every coin on every throw the probability of heads