



Probabilities in Proofreading

George Polya

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PROBABILITIES IN PROOFREADING

GEORGE PÓLYA

Two proofreaders, \mathcal{A} and \mathcal{B} , read, independently of each other, the proofsheets of the same book. As they finished, A misprints were noticed by \mathcal{A} , B misprints by \mathcal{B} , C misprints by both, and so, as the result of their joint effort, $A + B - C$ misprints were noticed and corrected. We wish to estimate the number of those misprints that remained unnoticed and uncorrected.

Let M denote the number of all misprints, noticed or unnoticed, in the proofsheets examined, p the probability that proofreader \mathcal{A} notices any given misprint, and q the analogous probability for \mathcal{B} . It is an essential assumption that these two probabilities are independent. Hence the expected number of misprints that may be noticed

is:

| | | |
|--------------------|--------------------|---------|
| by \mathcal{A} , | by \mathcal{B} , | by both |
| Mp , | Mq , | Mpq , |

respectively.

In order to arrive at the desired estimate we assume that the expected numbers are approximately equal to the numbers actually found, in symbols

$$Mp \sim A, \quad Mq \sim B, \quad Mpq \sim C$$

and so

$$M = \frac{Mp \cdot Mq}{Mpq} \sim \frac{AB}{C}.$$

Hence the number of misprints that remained unnoticed is

$$= M - (A + B - C) \sim \frac{AB}{C} - (A + B - C) = \frac{(A - C)(B - C)}{C}.$$

This is the desired estimate.

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MATHEMATICAL EDUCATION

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A COURSE ON THE DEVELOPMENT OF ANALYSIS

E. J. BARBEAU

In 1969, the Mathematics Department of the University of Toronto introduced a sequence of four undergraduate courses with an historical approach. These are described in an article by K. O. May [14]. I have taught the second year course of the group, *Development of Analysis*, to three classes of full-time day students and one class of evening students.