PROBABILITIES IN PROOFREADING

GEORGE PÓLYA

Two proofreaders, $\mathscr{A}$ and $\mathscr{B}$, read, independently of each other, the proofsheets of the same book. As they finished, A misprints were noticed by $\mathscr{A}$, B misprints by $\mathscr{B}$, 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 $\mathscr{A}$ notices any given misprint, and q the analogous probability for $\mathscr{B}$. It is an essential assumption that these two probabilities are independent. Hence the expected number of misprints that may be noticed

	by $\mathscr{A}$,	by $\mathscr{B}$,	by both
is:	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

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

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.

DEPARTMENT OF MATHEMATICS, STANFORD UNIVERSITY, STANFORD, CA 94305.

MATHEMATICAL EDUCATION

EDITED BY SHIRLEY HILL AND PAUL T. MIELKE

Material for this Department should be sent to Shirley Hill, Department of Mathematics, University of Missouri, Kansas City, MO 64110, or to Paul T. Mielke, Department of Mathematics, Wabash College, Crawfordsville, IN 47933.

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.