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A NOTE ON THE EXPERIMENTAL TREATMENT OF SHAKESPEAREAN PAGINATION

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Introduction

Pagination research has yielded significant findings concerning issues critical to the reader's phenomenological awareness. Recent research has discovered, for example, that NUMP/2 - FHP = 0, where NUMP equals the number of pages in any book; and FHP is the number of pages in the first one-half of the book (Turner, 1971). Further, Johnston (1971) has shown that where one begins to read a book at a random page rather than at the beginning or start page, this practice yields a lack of continuity unintended by the author. Johnston called this the Non-Random Access Phenomenon (Non-Rap). Another significant discovery was made by Tuinman (1971y). Tuinman had 100 subjects open the Oxford English Dictionary at random and discovered that a significant proportion of them fell among lexical differences ($p < .001$).

Problem

Not unlike much of the above-reported literature, the current research has been overlooked for years in spite of the fact that hundreds of Shakespearean scholars have scrutinized his every page. However, one obvious but very significant feature of Shakespeare's entire works in quarto editions has been indeed overlooked. For centuries scholars have assumed that Shakespeare's plays all begin on page 1. Yet, this assumption has not been systematically investigated with experimental analysis.[1]

Method

To experimentally investigate whether Shakespeare's plays begin on page 1, a chi-square analysis was performed. Using the Yale Edition of Shakespeare, the beginning page number of each play was examined for the observed values in the analysis. The expected values were derived from the assumption that all of the plays begin on page 1 and hence (since there are 37 plays); the expected cell entries are 37, 0, 0.[2] These expected cell frequencies were further modified to 30, 4, 3 using the following rationale: First, it must be assumed that page numbers are members of an array of randomly distributed numbers. Thus, the skeptic reader can easily verify by drawing

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[1]Page 1 of a play is considered that part of the text in which the actual dialogue begins; thus, the Dramatis Personae is not included in such reckoning. Also not included are folio editions, complete or partial collections bound in one book and single copies of the plays that add introductory or other kinds of material to the original quartos (i.e., Hayden Shakespeare Series). The readers should note that we hypothesized that all plays would have begun on page 1 as demonstrated in the Yale Edition had they appeared in quartos; therefore, even though some plays come to us via folio editions, we can surmise what their pagination would have been in quartos.

[2]37 plays begin on page 1; 0 begin on pages 2-5, and 0 begin on page 6 or later.

numbers from a random number table. The resulting digits, after suitable permutations and combinations, are indistinguishable from the digits to indicate page numbers. Now, it is perfectly clear, that drawing from random distribution, would not result in 37 repetitions of the digit 1. The authors, in order to calculate the expected frequency, therefore, used a modified Random-Poisson distribution (this modification is most suitable in view of the discreteness of page numbers). A computer digit generation program using this distribution resulted in the expected frequencies 30, 4, 3.

Results

The Chi-square analysis was performed on the data which appears in Table 1.

TABLE 1

Chi Square Cell Frequencies

	Category of Start Page Numbers	
Page 1	Pages 2-5	Page 6 or higher
Observed 37.0	0	0
Expected 30	4	3

Our hypothesis was that there would be no difference between the observed frequencies (number of plays beginning on page 1, pages 2-5, after page 5) and the assumed, or expected, cell frequencies (30 begin on page 1, 4 on pages 2-5 and 3 on page 6 or higher). Therefore,

$$X^2 = \Sigma \frac{(f_o - f_e)^2}{f_e}$$

$$X^2 = \frac{(7)^2}{30} + \frac{(4)^2}{4} + \frac{(3)^2}{3}$$

$$X^2 = \frac{49}{30} + \frac{16}{4} + \frac{9}{3}$$

$$X^2 = 1.63 + 4.0 + 3.0$$

$$X^2 = 8.63$$

and, since

$$X^2_{(\alpha = .01)} = 9.21, \quad df = 2$$

the calculated X^2 of 8.63 is not sufficiently large to reject our hypothesis at the .01 level of significance, and hence the observed values for Shakespearean pagination are not statistically significantly different from the expected values.

Discussion and Conclusion

This research has shown some interesting results. Although it has been assumed for centuries that Shakespeare began all of his plays on page 1, the evidence presented here suggests this may not be the case. The hypothesis tested was not rejected, and that hypothesis stated that the observed number of plays that begin on page 1, pages 2-5 or after page 5 would not be different than the observed number of plays that begin in those categories. The reader will recall that the expected values for the categories were 30, 4 and 3, respectively. That is, we expected 30 plays to begin on page 1, 4 plays to begin on pages 2-5, and 3 plays to begin on page 6 or higher. The observed values for these categories were 37, 0 and 0. Since the Chi-square was not large enough to conclude that the distribution of observation values to be statistically significantly different from the expected values, the obvious conclusion is that our predicted values are indeed a true representation of the number of Shakespeare's plays that begin on page 1.

This raises the possibility of some very interesting interpretations. Since the true representation of the number of plays that begin on page 1 is 30, we must account for the fact that in every case that was examined (37 in the Yale Edition), we found the beginning of the play on page 1. This observation could lead to the erroneous conclusion that all Shakespeare's plays begin on page 1 had we not engaged in this experimental analysis. It is clear now that only 30 of the plays actually started on page 1; four must have started on pages 2-5 and three on a page number higher than 5. The observed frequency of 37 plays beginning on page 1 in the Yale Edition can, therefore, only be attributed to random error.

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