The Use of Spellings for Compositor Attribution in the First Folio

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Fifty years after its publication, Charlton Hinman's *The Printing and Proof-Reading of the First Folio of Shakespeare* remains our authority for most compositor attributions. Some of the attributions he made have been revised by subsequent investigators, but most have endured unchallenged. Hinman used the evidence of type recurrence and skeleton forme reuse to determine the order in which the formes in the Folio were printed and the typecases from which they were set. This evidence also assisted him in some cases to make compositor attributions; nevertheless, as he acknowledged, the attributions he made rely largely on characteristic spelling habits.[1] As T. H. Howard-Hill affirmed, spellings are "the great bulk of evidence generally used to distinguish compositors."[2]

Peter W. M. Blayney has provided the most recent authoritative listing of compositor attributions in the second edition of the *Norton Facsimile* of the Folio, based on his review of all work done up to that time.[3] As all but a handful of attributions listed by Blayney were made

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1. Charlton Hinman, *The Printing and Proof-Reading of the First Folio of Shakespeare*, 2 vols. (Oxford: Clarendon Press, 1963), 1:181.
2. T. H. Howard-Hill, *Compositors B and E in the Shakespeare First Folio and Some Recent Studies* (Columbia, SC: privately published, 1976), 41.
3. *The First Folio of Shakespeare: The Norton Facsimile*, 2nd ed., Peter W. M. Blayney, ed. (New York: Norton, 1996), xxxv–xxxvii. Where the source of a com-

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by Hinman and Howard-Hill, I shall confine my discussion almost entirely to their work, because it is the purpose of this paper to argue that some of the methods they used are unsound.

One difficulty with the existing studies that examine compositor attributions is the daunting effort required to check the data upon which they are based. Readers who wish to check my evidence and verify my analyses may consult my website, Shakespeare's Text, where they will find my data and appropriate search tools.[4]

In what follows I have used certain conventions for the sake of clarity and brevity. Typically lines in the Folio that are fully justified are known variously as "justified," "long," or "full" lines. I use the terms "justified" and "unjustified" and take due account of the widely agreed and easily demonstrable fact that compositors adjusted spellings to facilitate line justification.[5] I cite all lines by Through Line Number (TLN) keyed to the *Norton Facsimile*. Finally, I use modern spelling and quotation marks to refer to all words used in spelling tests, for example, "devil," but list their variant spellings in italics; for example *deuil* and *diuel*.

MCKENZIE'S WORK AND ITS IMPLICATIONS

D. F. McKenzie wrote two important papers, "Printers of the Mind" and "Stretching a Point," about some techniques used by Hinman and

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positor attribution mentioned in this paper is not stated, it should be assumed to be this book. I have taken Hinman's original compositor attributions from his own book, but I have also taken into account his subsequent retraction of his attributions to Compositor C in the *Henry IV* plays (*Norton Facsimile*, xviii). For simplicity I refer to "pages" throughout this paper. Where different parts of a page have been attributed to different compositors I have of course treated each part as a separate "page."

4. See http://www.shakespearestext.com, referred to throughout this paper as ST.

5. For example, consider Compositor B's spellings of *do* and *doe*. If we look at all lines attributed to him, we find 1646 *do* and *ado* spellings and 83 *doe* and *adoe* spellings, so the short spellings are a little over 95% of the total. But if we consider only the unjustified lines, we find 1348 *do* and *ado* spellings and 20 *doe* and *adoe* spellings. The proportion of short spellings has risen to more than 98%. The reader may check ST and find similar increases in percentages for other words and other compositors. If justification had not affected spellings, we should have seen the percentages remain about the same or for some to move up and some down. What we find is that they almost always move in the direction of the compositor's preference, proving that justification did cause the compositor to adopt spellings he would not have otherwise employed.

Howard-Hill, principally skeleton forme reuse and so-called psycho-mechanical evidence.[6] While my paper is concerned rather with the use of spellings, what McKenzie's papers taught us about the dangers of assuming "normality" in printing-house practices is salutary for all compositor analysis, so I shall summarize them here. The evidential basis for both papers was the archive of business records of Cambridge University Press from the late seventeenth and early eighteenth centuries. These records tell us not only the titles of the books published but also when their individual sheets were printed and the names of the compositors who typeset them.

"Printers of the Mind" used the press's archives to test the theory of skeleton-forme reuse. Hinman had arranged some of the formes in the Folio into groups, a group being defined by all its members having the same combination of box rules placed in the same skeleton. He based these groupings on the theory that a compositor did not set new headlines for each page but instead recycled the pertinent components, in this case the brass rules.[7] McKenzie demonstrated that patterns identified by this theory were often completely unrelated to what actually happened. For example, he considered a book called *Psyche*, printed in 1701–2 and in which "four skeleton formes were in regular use." Following Hinman one would conclude there were two or perhaps three compositors re-using the same skeletons, when in fact the archival record shows there was little if any correlation between compositor and skeleton.[8]

After the appearance of "Printers of the Mind," Howard-Hill published his identification of a new compositor, labeled F. This was the first attribution that relied partly on psycho-mechanical evidence such as the habit of inserting spaces after commas.[9] Howard-Hill's new technique was adopted by other investigators, most notably Gary Taylor, who used it to help him identify four further compositors, H_1, H_2, I,

6. "Printers of the Mind: Some Notes on Bibliographical Theories and Printing-House Practices," *Studies in Bibliography* 22 (1969): 1–75; "Stretching a Point: Or, The Case of the Spaced-out Comps," *Studies in Bibliography* 37 (1984): 106–21.

7. Hinman, *Printing and Proof-Reading*, 1:157.

8. McKenzie, "Printers of the Mind," 29–30.

9. T. H. Howard-Hill, "The Compositors of Shakespeare's Folio Comedies," *Studies in Bibliography* 26 (1973): 61–106.

and J.[10] In his second paper, "Stretching a Point," McKenzie used the same Cambridge book, *Psyche*, to pull the rug from under this technique too. Having counted spaces or no spaces before commas on 224 pages of the book and established a statistically significant division between the two groups, he divided the pages accordingly between two compositors. But the press records show that composition was shared by six men, four of whom set pages with both high and low proportions of spaced commas.[11] Once again the predictions made by the theory were contradicted by the evidence.

McKenzie's work was made possible by the fortunate survival of the Cambridge business records. By the end of the seventeenth century, however, spellings had become sufficiently standardized for them to be of no help in compositor attribution, so we cannot use those Cambridge documents to test any attributions made on the basis of spelling. Similarly, no comparable documents from Shakespeare's time have survived, so we have no hope of doing the kind of study with spellings that McKenzie did with skeleton forme reuse and psycho-mechanical evidence to prove or disprove our compositor attributions.

"Stretching a Point" should have prompted a skeptical re-examination of all post-Hinman compositors, since they were identified by investigations that relied at least partly on psycho-mechanical evidence. But it did not. Taylor responded that "McKenzie's key example has not been the subject of such extensive, independent, and interlocking investigation as the 1623 Folio."[12] Craig Ferguson performed compositor attribution on the first quartos of *Romeo* and *Troilus* using psycho-mechanical evidence without even mentioning McKenzie's rebuttal of its reliability. He wrote instead that Howard-Hill "has demonstrated that compositors in the Shakespeare First Folio can be distinguished by the ways they space commas."[13] In fact, Howard-Hill had demonstrated no such

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10. Gary Taylor, "The Shrinking Compositor A of the Shakespeare First Folio," *Studies in Bibliography* 34 (1981): 96–117.

11. McKenzie, "Stretching a Point," 111–14.

12. Stanley Wells and Gary Taylor with John Jowett and William Montgomery, *William Shakespeare: A Textual Companion* (Oxford: Clarendon Press, 1987), 66n115.

13. W. Craig Ferguson, "Compositor Identification in *Romeo* Q1 and *Troilus,*" *Studies in Bibliography* 42 (1989): 211. However, Ferguson had read "Stretching a Point" because he cites it in a footnote (about the placement of spaces in compositors' typecases).

thing; he had assumed it, just as it has always been assumed that spelling patterns can be used to distinguish among compositors. Regarding psycho-mechanical evidence, McKenzie had falsified that assumption for one book and therefore rendered its use suspect for other books. As he observed, the only way to salvage the Folio attributions made by using psycho-mechanical evidence is to assert that printing-house practices were different in London in 1623, something which "must be rigorously argued as a matter of history and meet the appropriate standards of historical scholarship."[14] To date, no such argument has been made.

Of the two accepted methods of identifying individual compositors—spelling preferences and psycho-mechanical evidence—the latter has been discredited by documentary evidence.[15] We shall probably never discover similar evidence with which to test the former, so we are left only to perform such checks on its internal consistency as we can devise. The following sections try to do this.

THE COMPOSITOR DISINTEGRATION GAME

For compositor attribution the three most useful test words are "do," "go," and "here" because all three occur on almost every page, and each has two frequently occurring variant spellings. But Howard-Hill cautioned against treating these words as more significant than others, insisting that we should consider *all* words (his emphasis).[16] Of course most words are useless for compositor studies because either they do not occur with sufficient frequency in the Folio, or they occur in only one spelling, or they occur in two spellings but one of the spelling variants occurs too infrequently to be safe to use. Nevertheless, there are more than a hundred words in the Folio with frequency of occurrence

14. McKenzie, "Stretching a Point," 114.

15. Strictly speaking, Howard-Hill and McKenzie had used different types of psycho-mechanical evidence. Howard-Hill counted "terminal-spaced commas" and "medial-spaced commas," that is, commas at the end of lines which are preceded by spaces and commas in the middle of lines which are followed by spaces. By contrast, McKenzie counted commas anywhere in a line which are preceded by spaces. As Gabriel Egan points out, the difference might not be trivial (see his unpublished seminar paper "Where Are We Now in Determining Folio Compositor Stints?", http://www.gabrielegan.com/publications/Egan2012d.htm).

16. T. H. Howard-Hill, "Spelling and the Bibliographer," *The Library*, 5th ser., 18 (1963): 2, 8.

and variation of spelling suitable for such analysis. For example, the word "mind" is spelled fifty-nine times as *mind* and 253 times as *minde* (looking only at unjustified lines).[17] Although the two totals are far from equal, each is large enough to work with.

I shall take up Howard-Hill's suggestion by performing spelling tests for more than the handful of words used by Hinman. I shall start with Compositor B because Shakespeare scholars assign to him responsibility for almost half the Folio pages; he is a workman everyone believes in; and we think he can be instantly recognized by his distinctive *do-go-heere* preference and the fact that his pages were almost always set from case y. I shall apply Howard-Hill's dictum that, "There is no practical alternative to the belief that when compositorial practices change between groups of texts, a change of compositor is indicated."[18]

If we look at all the pages currently assigned to Compositor B we find that he set 225 pages up to and including q1ʳ, which occurs in Act 4 of *3 Henry VI*, and 224 pages in the rest of the Folio. By drawing a dividing line at the end of q1ʳ, we can split his work into two approximately equal parts (see table 1).[19]

We see that in every one of these thirteen examples the compositor's spelling preference reverses as we move from the first to second group of pages. For example, *beauty* occurs less than a third of the time before q1ʳ; thereafter, it predominates over *beautie*. Most strikingly, *prethee* occurs almost exclusively before q1ʳ but *prythee* predominates thereafter. No argument that the compositor progressively changed his spelling preferences is available here either. For example, the reader can easily check that Compositor B consistently set the *prethee* spelling on unjustified lines until *1 Henry VI* (m1ʳ), when he first used *prythee* and

17. For brevity I do not usually list both the singular and plural forms of words. It should be assumed that any count I give for a word includes its plurals; for example, the statement that the *minde* spelling occurs 253 times in the Folio means that *minde* or *mindes* occurs 253 times. Similarly, *mind* includes *minds* and even the solitary occurrence of *mind's*.

18. Howard-Hill, "Folio Comedies," 87.

19. In this and subsequent tables I have not listed every spelling reversal I found. I have excluded words for which the numbers are too small or too close to be safe to use. For example, Compositor B set nineteen *need* spellings and twenty-eight *neede* spellings up to q1ʳ but twenty-six *need* spellings and twenty *neede* spellings thereafter (on unjustified lines). This is technically a reversal but I have not listed it as the totals are too close to each other.

TABLE 1

Spelling preference reversals in Compositor B's pages

	Page q1^r and Before	After Page q1^r		Page q1^r and Before	After Page q1^r
beauty	8	18	*beautie*	19	3
city	9	25	*citie*	12	9
company	15	30	*companie*	17	1
country	7	34	*countrie*	9	23
duty	6	24	*dutie*	24	13
gift	17	6	*guift*	5	15
honesty	4	14	*honestie*	7	8
humour	1	10	*humor*	19	6
prethee	32	1	*prythee*	2	47
ready	13	25	*readie*	15	3
study	1	4	*studie*	4	0
twenty	8	21	*twentie*	13	0
voice	17	10	*voyce*	9	35

almost immediately made it his exclusive choice. Nor can we say that this sudden reversal is a misleading impression created by my choosing to exclude justified lines from the counts: if we consider all lines we find sixty-one *prethee* spellings and four *prythee* spelling until q1^r, and one *prethee* spelling and sixty *prythee* spellings thereafter, so the reversal is equally clear. Furthermore, it is no use objecting that the split I have chosen at q1^r is based on the reading order of the pages in the Folio, which is not the order in which they were typeset, because that is immaterial to my point. If we had found that the compositor reversed his spelling preferences after typesetting half his pages (without of course knowing at that time that it *was* the half-way point) that would be striking enough. It is even more striking that he apparently varied his spellings in such a way that when the pages were rearranged into reading order after printing, they exhibited a reversal at the halfway point.

Suppose we apply Howard-Hill's dictum and say that this evidence tells us that the pages before and after q1^r were set by different compositors. Let us call these men Compositor B1 and Compositor B2 respectively, where Compositor B1's pages are those formerly assigned to Compositor B from the start of the book to the end of q1^r. We continue and observe next that Compositor B1 set 113 pages up to and including Z2^r, which occurs in Act 3 of *Twelfth Night*, and 112 pages after that. We then divide *his* work into two approximately equal parts (see table 2).

TABLE 2

Spelling preference reversals in the first half of Compositor B's pages

	Page $Z2^r$ and Before	After Page $Z2^r$		Page $Z2^r$ and Before	After Page $Z2^r$
body	4	32	*bodie*	7	6
company	6	9	*companie*	14	3
deny	6	19	*denie*	16	4
die	51	13	*dye*	12	52
fly	7	37	*flie*	8	2
happy	3	23	*happie*	8	4
heauy	4	18	*heauie*	11	2
honesty	0	4	*honestie*	7	0
lie	30	14	*lye*	19	34
marry	17	14	*marrie*	25	2
mercy	9	19	*mercie*	13	3
merry	9	16	*merrie*	12	0
mighty	1	11	*mightie*	5	2
twenty	3	5	*twentie*	12	1
voice	15	2	*voyce*	3	6

We can see again that the compositor's preferences reverse at the halfway point, most strikingly for "die." The reader may already have concluded that this way madness lies, but lest there be any doubt, let us continue the process. We now suspect that these pages were not all typeset by Compositor B1. Let us call Compositor B1a the man who set the pages from the start of the book until the end of $Z2^r$, and let us call the man who replaced him at that point Compositor B1b. We now consider Compositor B1a and find that he set fifty-seven pages up to and including page $R1^v$, which occurs in Act 2 of *As You Like It*, and fifty-six pages after that. Again, we can divide his work into two parts (see table 3).

We are dealing with a smaller sample of data now, the equivalent of about two full plays in each part, so it is not surprising that there are fewer words of sufficient quantity for which we find spelling preferences being reversed.[20] But, nevertheless, we have three independent reasons for arguing that Compositor B1a is in fact two men: Compositor B1a-i and Compositor B1a-ii. Observe that we have not even begun to disintegrate Compositor B2 and Compositor B1b yet.

20. I have not listed thirteen words, for example "country," which show reversals but for which the counts are too small to be safe to use.

TABLE 3

Spelling preference reversals in the first quarter of Compositor B's pages

	Page R1^v and Before	After Page R1^v		Page R1^v and Before	After Page R1^v
euery	22	10	*euerie*	13	17
maid	8	16	*maide*	0	18
ready	4	1	*readie*	2	9

The phenomenon I have just demonstrated is not peculiar to one compositor (see table 4). The Appendix (item 6) provides lists of words for other compositors whose spelling preferences reverse at the approximate halfway point.

The smaller number of reversals seen for Compositor A using the currently accepted attributions is likely due to the substantial reduction in his identified share of the Folio since Hinman's initial work. Are we to suppose that some Folio compositors, including the ones who account for the majority of pages in the book, reversed their spelling preferences for some words at what would later turn out to be their halfway point? If they did, then how can we also be sure that some pages with different spellings of the do-go-here group were not in fact set by the same compositor who reversed his preferences for these three key words? Or were these compositors replaced at their halfway points by other compositors who had the same do-go-here preferences but the opposite preferences

TABLE 4

No. of spelling preference reversals for all compositors

	No. of Spelling Preference Reversals at Halfway Points	
Compositor	Hinman's Original Attributions	Current (Norton) Attributions
A	20	7
B	16	18
C	9	9
D	12	10
E	20	21
F		12
H		6
I		6

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TABLE 5

Opposite spelling preferences between even and
odd plays for Compositor A

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	Even Plays	Odd Plays		Even Plays	Odd Plays
answer	2	33	*answere*	9	9
back	1	36	*backe*	9	8
behind	0	11	*behine*	3	5
feed	0	4	*feede*	2	0
hour	5	30	*howre*	10	15
kind	1	19	*kinde*	8	7
mistris	6	2	*mistrisse*	0	17
need	4	25	*neede*	7	8
pit(t)y	1	14	*pi(t)tie*	2	8
ready	0	11	*readie*	4	4

for some other words? When we observe how easily we were able to disintegrate Compositor B (and we have not even tried to disintegrate the other compositors yet), it is clear that extending this line of analysis would inevitably lead to the invention of many more compositors.

Nevertheless, the unorthodox nature of a conclusion is not an argument against its validity. To dispel the view that perhaps these spelling reversals really do indicate changes of compositors, I present one further set of data. This time, instead of dividing the Folio into two contiguous parts, I have made an arbitrary division. Exactly half of the thirty-six Folio plays have an even number of through lines, while the other half have an odd number. I shall call these "even" and "odd" plays respectively (see table 5).[21]

We see that even when we divide the Folio pages according to an arbitrary criterion—in this case whether the number of physical lines in each play is divisible by two—we can find several words for which the compositor exhibits opposite preferences in the two parts. As before, the phenomenon can be demonstrated for other compositors.

No reasonable person would propose a division of compositorial duties based on whether the total number of lines in a play was divisible by two. We can also dismiss any suggestion that textual differences might explain the reversals we have seen, since we can hardly suppose

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21. The even plays include nine comedies, two histories, and seven tragedies; the odd, five comedies, eight histories, and five tragedies.

TABLE 6

No. of spelling preference reversals between even
and odd plays for all compositors

| Compositor | No. of Spelling Preference Reversals between Even and Odd Plays | |
	Hinman's Original Attributions	Current (Norton) Attributions
A	31	13
B	10	10
C	14	14
D	14	8
E	23	16
F		10
H		0
I		7

that the copy texts contained opposite spellings for even and odd plays (see table 6). This table demonstrates that the spelling-preference technique I have been using is not safe to use for attribution. It mistakenly sees significance in data that, on closer examination, appears only to show that volatility was normal in compositors' spellings.

But two important problems arise from this conclusion. We have now discovered that not only did compositors have no discernable preferences for some words, alternating between spelling variants as they worked on successive plays, but that even when they did have preferences, they sometimes reversed them overnight. How sure can we be, then, that we can recognize a spelling preference and safely use it for attribution? Secondly, as I shall show in the following sections, some currently accepted compositor attributions are partly based on the disintegration technique whose unsoundness I have just demonstrated. Could we salvage those attributions by bringing evidence other than raw spelling counts into consideration? These are the questions I now turn to.

THE INFLUENCE OF COPY SPELLINGS

For a minority of Shakespeare's plays we believe we can identify the quartos that served as copy text for the Folio edition. But it is seldom noted that we have no associated external evidence to confirm the veracity of our identification. The beliefs are based on observations of

common errors or unusual typographical features in both the quarto and Folio texts, which we explain by supposing that they were transmitted by the compositors while setting the latter from the former. However, these explanations have not always been immune to challenge. For example, at the time Hinman wrote his book it was generally thought that *Hamlet* and *Othello* were set from marked-up quartos. Both propositions have since been shown to be wrong or, at best, doubtful.[22] Any use of copy spellings to derive evidence of distinct compositor stints is therefore vulnerable at its foundation, if our belief about the copy text changes. Moreover, if our compositor attributions for some plays are dependent on inferences drawn from copy spellings, then we need to ask what that means for the majority of Folio plays for which we have no recognized copy text. Let us look at the extent of this problem.

Hinman had assigned a selection of pages in the tragedies to Compositor E, starting in *Titus Andronicus* and ending in quire 2s, which is split between *Hamlet* and *Othello*. These assignments were consistent with his finding that the "intercalary" sequence of pages—in effect a separate production line for Compositor E because of his inexperience—came to an end with quire 2s, and Compositor E did not do any further work on the Folio. But Howard-Hill reassigned many pages after quire 2s from Compositor B to Compositor E (see table 7).

On the strength of this evidence it would seem counter-intuitive to assign the pages before and after the end of quire 2s to the same compositor. Until the end of that quire the *doe* spellings make up more than 20% of the total; after that they do not occur at all. It was the evidence of copy spellings which allowed Howard-Hill to make these attributions to the same compositor. When looking at the spellings in each forme, in the order in which they were printed, it is (just) possible to discern a trend towards greater use of *do* spellings and a tendency to reproduce the copy *do* spellings much more often than *doe* spellings. On this basis Howard-Hill was able to explain away the absence of *doe* spellings after quire 2s as being due to Compositor E's having completed the convergence of his spelling preferences towards those of his colleague Compositor B, by repeatedly distributing type from his pages.[23]

22. See for example Gary Taylor, "The Folio Copy for *Hamlet*, *King Lear*, and *Othello*," *Shakespeare Quarterly* 34 (1983): 44–61.

23. T. H. Howard-Hill, "New Light on Compositor E of the Shakespeare First Folio," *The Library*, 6th ser., 2 (1980): 170–71.

TABLE 7

Compositor E's *do-doe* spellings

	All Lines			Unjustified Lines	
	do	*doe*		*do*	*doe*
Quire 2s and before	213	62		186	59
After quire 2s	116	0		97	0

Compositor E is not the only example of how copy spellings have been used in combination with individual spelling preferences to make attributions; Hinman employed the same method to identify Compositor D's preferences. He examined the *do-go* spellings of twelve pages set from typecase z, all of which he attributed to Compositor D, attributions not challenged since then (see table 8).[24]

For example, looking at the row for K6ʳ, we see that there are five *do-go* spellings on the page, of which four are the copy spellings in the quarto used to set the F text, meaning that the compositor changed one long spelling (in this case *goe* at line 2312) to a short one (*go*). On the same page there is just one *doe-goe* spelling that is also present in the quarto, so there was no change from a short spelling to a long one.[25]

Hinman observed from these data that the compositor changed *do-go* copy spellings to *doe-goe* much more often than the other way round. He set forty-seven *do-go* spellings, but only five were changes from the copy; by contrast, of the thirty-two *doe-goe* spellings he set, twenty were changes. From this Hinman concluded that the compositor preferred *doe-goe*. The problem with this conclusion is that it conflicts with the overall evidence showing the compositor set more *do-go* spellings than *doe-goe* ones, not just in total but in each of the three quires, and that

24. Hinman, *Printing and Proof-Reading*, 1:196–98.

25. There are minor differences between my counts and Hinman's, although not enough to affect the substance of his argument. He claimed that three *do-go* spellings had been changed from *doe-goe* in the quire K pages, but I have found four, at lines 1415, 2218, 2236 and 2312 of *Much Ado About Nothing*. He claimed that only fourteen of the fifteen *do-go* spellings in quire L have counterparts in the quarto copy, but by my observation all of them do. Finally, he claimed that, in the quire N pages, five out of six *doe-goe* spellings in the Folio were changed from *do-go* in the quarto copy. In fact, only four were: the other two spellings, at lines 741 and 969 in *A Midsummer Night's Dream*, also occur in the presumed quarto copy Q2.

TABLE 8

Copy influence on Compositor D's spellings

Page	*do-go* (F)	Copy Spellings	Changes (Long to Short)	*doe-goe* (F)	Copy Spellings	Changes (Short to Long)
K2ᵛ	1		1	1		1
K5ᵛ	4	2	2	2	1	1
K6ʳ	5	4	1	1	1	
K6ᵛ	3	3		7	4	3
L2ʳ	1	1		2		2
L4ᵛ	5	5		2		2
L5ʳ	2	2		6	1	5
L5ᵛ	1	1				
L6ʳ				1	1	
L6ᵛ	6	6		4	2	2
N4ʳ	12	11	1	2	1	1
N4ᵛ	7	7		4	1	3
Total	47	42	5	32	12	20

only four of the twelve pages show a majority of *doe-goe* spellings over *do-go* ones.[26]

By focusing on a specific subset of the data, Hinman in effect disregarded the spellings that match the quarto copy. He reasoned that if a compositor set the same spelling as in the copy, it may be due to the influence of what he had just seen and may not disclose his preference. Had he taken all spellings into account, Hinman might have concluded that the compositor had no clear preference between *do-go* and *doe-goe*, or that he had a slight preference for *do-go*, or even that there were two compositors with opposite preferences. But he could not have reached the conclusion that he did—that there was one compositor who preferred *doe-goe*—because without excluding the Folio spellings that match the copy, the evidence he had was that there are forty-seven *do-go* spellings and thirty-two *doe-goe* spellings.

There is then a hidden logical elision in the work of Hinman and other investigators. By making their attributions dependent on observations about whether Folio spellings match copy spellings, they have silently acknowledged that it is necessary to know what the copy spellings

26. Hinman's counts were made by considering all lines, whether or not they are justified. His conclusion would have been the same had he chosen to exclude justified lines when making his counts, as the reader may verify by using ST.

are. They have nevertheless gone ahead and made attributions even for the Folio plays for which we do not know the copy, that is, where the influence of an unknown copy text might have affected the very spellings upon which their attributions depend. (Appendix A in Volume 1 of Hinman's book shows just how often he used evidence of copy spellings to argue the case for the attributions he made.) Howard-Hill acknowledged the importance of the point I have just made when he wrote that "evidence resting to any extent on what a compositor may or may not have done with the inferred forms of copy which does not exist, under conditions which can only be guessed at and never reproduced, is less likely to be good evidence."[27] Yet, as we saw earlier, he assigned many pages after quire 2s to Compositor E, even though they occur in plays for which we certainly do not know the copy (*Anthony and Cleopatra* and *Cymbeline*) or for which we probably do not (*Othello*). The evidence we do have is tolerably consistent with the attributions, but without the copy spellings we do not know if different attributions might not be equally consistent.

May we assume that Providence has been so kind as to provide that in plays for which we do not possess the copy text, an analysis of quarto/Folio spelling correlations would have made no difference to our attributions (even though it manifestly does in plays for which we know the copy)? Otherwise, if the same orthographical phenomena occur in plays both with and without known copy texts, what are the implications for those compositor attributions in Folio plays for which we have not identified the copy? While we might be tempted to reject these attributions, two further considerations mitigate such a conclusion.

It is generally agreed that five Folio plays, while we do not possess the copy texts, must have been set from transcripts by Ralph Crane: *The Tempest*, *The Two Gentlemen of Verona*, *The Merry Wives of Windsor*, *Measure for Measure*, and *The Winter's Tale*. *Cymbeline* may be a sixth, and if E. A. J. Honigmann was right then there is also a seventh play printed from a Crane transcript of *Othello*.[28] From other extant documents we know that Crane had strong spelling preferences for the words most commonly used for attribution, which allows us to determine with a high degree of confidence what the original copy spellings

27. Howard-Hill, "Folio Comedies," 61.
28. E. A. J. Honigmann, *The Texts of "Othello" and Shakespearian Revision* (London: Routledge, 1996), esp. ch. 6.

TABLE 9

do-doe spellings in *Measure for Measure*

Page	All Lines		Unjustified Lines	
	do	*doe*	*do*	*doe*
F1^r	1	8	1	8
F1^v	3	2	2	1
F2^r-b	2	2	2	2
F3^r	2	5	2	2
F4^v	2	8	1	8
F5^r-b	2	1	2	1
G2^r-a	1	4	1	3

must have been.[29] Knowing Crane's preferences might tempt us to treat these plays as if we knew the actual copy spellings, discount the Folio spellings that match the copy, and make our attributions in the way that Hinman did.

Hinman assigned the pages in table 9 to Compositors A and D, although a third, Compositor C, has subsequently been identified and some of Compositor A's pages reassigned. All three compositors preferred *doe* spellings, which means the precise identity of the compositor matters less than the observation that there is a relatively high number of *do* spellings in these pages. Crane preferred *doe* to *do* by a ratio of about ten to one, far higher than the ratios evident from this table. Did he violate his *doe* preference when writing out the *Measure for Measure* manuscript, and were the compositors then influenced accordingly to set many *do* spellings? Or did the compositors find *doe* in the copy but went against both it and their own preferences to set *do* instead? The problem is not confined to one play. Looking only at unjustified lines and only at the five plays unanimously agreed to have been set from Crane transcripts we see a number of spellings that differ both from Crane's and the compositor's preferences (see table 10).

Before continuing, we should note an important theoretical consideration. It is an elementary principle of statistics that to be valid for testing purposes a sample drawn from a population must represent that population as a whole. This requirement is usually satisfied by assembling the sample at random. When compiling a non-random sample,

29. T. H. Howard-Hill, *Ralph Crane and Some Shakespeare First Folio Comedies* (Charlottesville: University Press of Virginia, 1972), 66–67. All my references to Crane's preferred spellings are based on this book.

TABLE 10

Discrepant pages in plays printed from Crane transcripts

Word	Discrepant Pages
do	B2r; B2v; B3r; B5v; B6v; C1r; C2v; C3r; C5r; F1r; F1v; F2r-b; F3r; F4v; F5r-b; G2r-a; G4v-a; 2A3v
go	B2r; B6r; C2v; C6r; F3r
here	A5v; G4r-b

the criterion for selection must be unrelated to the variable being tested, lest the researcher introduce selection bias. Here, we are counting spellings, but our criterion is directly related to the tested variable since we check whether Folio and copy-text spellings are the same and include or exclude them from consideration accordingly. In other words, our sample is by definition unrepresentative of the whole, and as a consequence we are unable to distinguish between a compositor who has a preference and one who is indifferent. To see this, suppose the copy text consistently uses *doe* spellings. The compositor has no preference and sets a mixture of *do* and *doe* spellings. We exclude all the *doe* spellings, since they match the copy, and wrongly diagnose the compositor as someone who strongly prefers *do*. If the compositor(s) who typeset the *Measure for Measure* pages in the table above had been indifferent between *do* and *doe*, the spellings they set might have been exactly the same.[30]

Whatever we make of the copy spellings we infer for the Crane plays, about half the Folio plays remain for which we do not possess the copy texts and cannot infer anything about the spellings in them. Nevertheless, if we go back to the roots of this subject, we may find a reason to think that for at least some plays it may not be necessary to know the copy spellings. Compositor attribution studies began with Thomas Satchell's letter to the *TLS* about spellings in the Folio *Macbeth*.[31]

30. Wittgenstein once asked his student Elizabeth Anscombe: "Why do people say that it was natural to think that the sun went round the earth rather than that the earth turned on its axis?" She replied: "I suppose, because it looked as if the sun went round the earth." "Well," Wittgenstein asked, "what would it have looked like if it had *looked* as if the earth turned on its axis?" (G. E. M. Anscombe, *An Introduction to Wittgenstein's Tractatus* [London: Hutchinson, 1959], 151).

31. Satchell sent his letter to the *Times Literary Supplement* from Kobe, Japan in July 1919 but it was not published until the issue dated 3 June 1920.

His observation that spelling preferences varied markedly among the pages led directly to the division of the play between Compositor A and Compositor B, an attribution that remains unchallenged and still appears very convincing, despite our knowing nothing about the under-lying manuscript. As Hinman noted, most pages of the play show only *do-go-heere* spellings or only *doe-goe-here* spellings. This provides strong support for the division of the play between the two compositors.[32] It is of course possible that the source manuscript for the Folio *Macbeth* was written by two hands, whether or not they were Shakespeare and Middleton. But it seems extremely improbable that the scribes wrote out alternating pages of the play or that the division of the manuscript between them should correspond so neatly to Folio page boundaries. So we may have a high level of confidence that the spelling differences evident in *Macbeth* indicate the presence of two different compositors. Hinman found some supporting typographical evidence too: there is a strong correlation between the *doe-goe-here* pages and case x, and be-tween the *do-go-heere* pages and case y; in addition, speech prefixes for Lady Macbeth differ between these sets of pages.

Macbeth served as the model for subsequent compositor attributions on the basis of spelling. But Satchell did not say how many other plays he had tried. Was it by luck that he examined just that play for which compositor attribution is clearest, or did he try and fail to achieve the same impressive result with other plays? Of course any Folio play can be divided by counting the *do-doe* spellings on each page; similarly, it can be divided using *go-goe* or *here-heere* spellings. Encouragingly, the divi-sion for most plays is quite neat, with few pages showing both spelling variants for a given word, at least when we exclude justified lines. But there are exceptions: I have already noted the discrepant *do* spellings in two Crane plays above. In other plays the most striking exceptions occur in *As You Like It* (a play about whose copy text we know nothing; see table 11.).

Recall that Compositors B, C, and D have been defined as having *do*, *doe*, and *doe* preferences respectively. Of the play's twenty-three pages, the nine pages or part-pages listed show some spellings opposite to the compositor's recognized preference. For example, in three of Compos-itor D's four pages non-preferred spellings predominate, an aberration we cannot explain without access to the source copy spellings. These are

32. Hinman, *Printing and Proof-Reading*, 1:384–86.

TABLE 11

do-doe spellings in *As You Like It*

Page	*do*	*doe*	Compositor
Q4^{v}	2	1	D
Q5^{r}	1	8	D
Q5^{v}-b	2	1	D
Q6^{r}	7	3	D
R1^{v}	2	1	B
R4^{r}	4	4	C
R4^{v}	1	4	C
R5^{r}	1	3	C
R5^{v}	1	1	C

far from isolated examples. Table 12 considers only unjustified lines on pages for which we have no evidence that compositors set from a quarto or a Crane transcript (and thus cannot compare source copy spellings with the Folio).[33] In each case the *majority* spellings of the relevant word do not match the preferences of the assigned compositor; even more pages can be found where the compositor set an *equal* number of variant spellings for one of the words.

Of course, we might say that, with the exception of a few dozen pages, most Folio pages show only one spelling variant for each of the three key words, and by noting which combination of variants occurs on these pages we can safely infer compositor identities. But here too problems arise, as I shall show by examining Compositors C and D, whom Hinman defined as having *doe-goe-heere* and *doe-goe-here* preferences respectively.

Consider the twelve pages in quires K, L, and N that Hinman assigned to Compositor D by disregarding spellings that match the copy texts. Suppose that we do not know the copy texts and make the attributions principally on the basis of the spellings of the three key words (see table 13).

Of these twelve pages, we can only assign K2^{v} and L5^{v} to Compositor D with any confidence based on spelling preferences. Of the remaining ten pages, one has no relevant spellings, and five contain either an equal

33. I have conservatively taken this list of plays to be *The Comedy of Errors*, *As You Like It*, *The Taming of the Shrew*, *All's Well That Ends Well*, *Twelfth Night*, *King John*, *Henry V*, *1 Henry VI*, *Henry VIII*, *Coriolanus*, *Timon of Athens*, *Julius Caesar*, *Macbeth*, and *Antony and Cleopatra*.

TABLE 12

Discrepant pages in plays printed from unknown copy

Word	Discrepant Pages
do	Q4^v; Q5^v-b; Q6; R2^r; V1^v; h2^v
go	H4^r-a; H5^v-a; T6^r; V5^r; a1^r; k2^v; x4^r; 2b1^r; 2h2^v; 2x1^v
here	H2^v; H5^v-b; R2^r; R4^r; S1^v; S3^r; V4^r; i1^r; i5^v; t4^r; t4^v; 2y1^v

number of preferred and non-preferred spellings or the non-preferred spellings are in the majority, especially the non-preferred spelling *do*. The data, most strikingly for N4^r, suggest a compositor who prefers *do*, not *doe*. Because Hinman had made the attributions with knowledge of the copy spellings, he used these pages not as evidence that Compositor D preferred *doe* spellings but that he was "tolerant" of them while truly preferring *doe*. This in turn allowed him to attribute pages to the same compositor where the source copy is unknown (for example *As You Like It*). Such appeals to a compositor's supposed tolerance are disturbingly numerous, both in Hinman's book and in papers by subsequent investigators.[34] It is hard to see how any rigor can be maintained if we have our cake and eat it too, if we cite spellings to support our attributions when they suit us but ignore them when they do not and claim the compositor must have tolerated them. There is an alternative explanation: the compositor is not the man we thought he was or (what amounts to the same thing) did not have the preferences we thought he had. All too often it appears that Folio scholars have succumbed to unintentional confirmation bias when identifying compositors based on spelling preferences.

We have a similar problem with Compositor C, where Hinman wrote that he was "bound to" attribute to him the first six pages of quire C (in Acts 2 and 3 of *The Two Gentlemen of Verona*).[35] These attributions have not been challenged and were based on the evidence presented in table 14.

Hinman found that these pages had been typeset from case y, the case most often used by Compositor B. However, he also noted the

34. Apart from Hinman's book, there are several examples in the two most important attribution papers, Howard-Hill's "Folio Comedies" and Taylor's "Shrinking Compositor A."

35. Hinman, *Printing and Proof-Reading*, 1:403.

TABLE 13

Spellings of the three key words on Compositor D's pages

Page	Spellings and TLNs
K2ᵛ	here[1426], goe[1497]
K5ᵛ	goe[2183], do[2189]
K6ʳ	here[2350], here[2366], do[2380], do[2390]
K6ᵛ	doe[2507], here[2511], go[2517], here[2525], goe[2537], goe[2551]
L2ʳ	go[119], agoe[131], here[144], doe[155], here[159]
L4ᵛ	do[764], do[766], goe[823]
L5ʳ	doe[919], doe[922], here[929], do[933], goe[934], doe[937], goe[959], doe[964], go[967], hereby[983]
L5ᵛ	here[993], here[1017], here[1036], here[1091]
L6ʳ	[no data]
L6ᵛ	go[1309], doe[1365], do[1368]
N4ʳ	do[739], do[740], goe[741], doe[752], here[755], do[763], do[766], do[784], do[784], do[794], do[800], here[802], do[803], do[818], do[818]
N4ᵛ	here[890], here[899], here[901], do[933], do[969], goe[969], here[970], doe[973], goe[973], go[978]

obvious *doe-goe* preference, which apparently enabled him to rule out Compositor B, although he does not say explicitly why. Despite the *doe-goe* preference, the number of *do-go-heere* spellings is high enough to also rule out Compositor A. Since Compositor C had a *doe* preference, Hinman seems to have made an unstated reliance on Compositor C's tolerance for *do* spellings, but since the evidence he gave shows an equal number of *here* and *heere* spellings, it is not clear why he attributed the pages to Compositor C rather than Compositor D. He noted the seven *here* spellings that point away from Compositor C, six of them in unjustified lines, but he did not then ask what happens when justified lines are excluded.

TABLE 14

Spellings of the three key words on Compositor C's pages (all lines)

Page	*do-go*	*heere*	*doe-goe*	*here*
C1ʳ	1	1	5	2
C1ᵛ	1	1	5	1
C2ʳ	1		4	
C2ᵛ	3		6	
C3ʳ	2	3	8	2
C3ᵛ		2	4	2

TABLE 15

Spellings of the three key words on Compositor C's pages
(unjustified lines)

Page	*do–go*	*heere*	*doe–goe*	*here*
C1ʳ	1		5	2
C1ᵛ		1	5	
C2ʳ			3	
C2ᵛ	2		6	
C3ʳ	1	3	8	2
C3ᵛ		1	3	2

Table 15 shows six *here* and five *heere* spellings; if the evidence points to either of the two men it points to Compositor D, not C. Yet Hinman assigned the six pages to Compositor C without even mentioning Compositor D. Furthermore, it is not clear that Compositor C had a sufficiently strong *heere* preference to justify this attribution. Including all lines in the Folio assigned by him to Compositor C, there are sixty-two *here* and 179 *heere* spellings; counting only unjustified lines, they are thirty-seven and 147 respectively.[36] If we also take into account the pages assigned to Compositor C by subsequent investigators, the supposed *heere* preference is even less strong: 86 *here* versus 182 *heere* in all lines; fifty-three versus 139 in unjustified ones. There is obviously a clear majority of *heere* spellings, but there are also enough *here* spellings to undercut any assertion that one or two *here* spellings on a page could not plausibly have been set by Compositor C, especially in one of the plays for which we have no copy source.

It seems hard to avoid the conclusion that it is unwise to perform compositor attribution for the majority of Folio plays, since we do not know what spellings the compositors were confronted with and therefore cannot judge the extent to which they may have been influenced to set spellings opposite to those by which we recognize them. Without the source copy it is impossible to assess what influence, if any, the spellings in that copy had on the compositors' own orthographic practices. The following section discussing spelling preferences in greater detail, therefore, is tempered by an awareness that for the majority of Folio

36. The counts of course include not just *here* and *heere* but related spellings such as *hereafter* and *heereafter*.

plays we do not know the source copy and the possible influential spelling patterns they contain.

SPELLING PREFERENCES

The notion that we can identify the compositors responsible for a page in an early modern book by counting spellings seems at first a little counter-intuitive. The possibility exists only because spellings had not yet been standardised and different people used different spellings of the same words. Yet the point is partly self-defeating because the lack of standardization also means that the same people used different spellings of the same words, the most notorious example being the three pages of Shakespeare's will that bear three different spellings of his own name. It is possible that compositors were more orthographically disciplined than dramatists since, as Blayney argued, they had a professional interest in standardizing their own spellings.[37] Howard-Hill went further and argued that the overall standardization of spellings in the seventeenth century was partly caused by the expansion of printing.[38]

That compositors in Shakespeare's era did not always have discernable preferences—let alone preferences that remained constant over time—is evident from the table presented earlier, where spelling differences appeared between the arbitrary groupings of "even" and "odd" plays (and where the only rational explanation was that the compositor did not have a preference). An unexplained lack of preference also appears in the *O/Oh* spellings. As Philip Williams confessed, "For reasons that I now do not pretend to understand, the folio compositors generally reproduced the copy spellings of [*O* and *Oh*]."[39] Taylor and Jowett later provided evidence to support this claim.[40] This is an odd phenomenon since it runs opposite to what we think we know about compositors' treatment of other common words such as "do," "go," and "here." But it is borne out by evidence from plays printed in the Folio

37. Peter W. M. Blayney, *The First Folio of Shakespeare* (Washington, DC: Folger Shakespeare Library, 1991), 10. This is not the *Norton Facsimile* but a booklet written to accompany a 1991 exhibition of Folios at the Folger Shakespeare Library.

38. T. H. Howard-Hill, "Early Modern Printers and the Standardization of English Spelling," *Modern Language Review* 101 (2006): 16–29.

39. Philip Williams, "New Approaches to Textual Problems in Shakespeare," *Studies in Bibliography* 8 (1956): 6.

40. Gary Taylor and John Jowett, *Shakespeare Reshaped: 1606–1623* (Oxford: Clarendon Press, 1993), app. 2.

from quarto copy. For example, the Folio text of *Much Ado About Nothing* has forty-six *O* spellings and no *Oh* spellings, while that of *A Midsummer Night's Dream* has fifty-five *O* spellings and six *Oh* spellings. The typesetting of both plays has been attributed to Compositors B, C, and D, all of whom set a much higher proportion of *Oh* spellings elsewhere in the Folio than in these plays. Looking at all Folio lines outside these two plays, we find that Compositor B set 598 *O* spellings and 483 *Oh* spellings; Compositor C set 122 and sixty-eight respectively; and Compositor D set fifty-one and thirty-one.[41] Excluding justified lines reduces the totals to 468 and 405, ninety-five and fifty-five, and thirty-four and twenty. The explanation for the striking contrast with *Much Ado* and *Dream* becomes clear when we compare the Folio text with the quartos that served as their source copy. Q1 of *Much Ado*, from which the F text was set, contains only *O* spellings, while the *O/Oh* spellings in Q2 of *Dream* match the Folio spellings in every case. This correspondence can hardly have arisen by chance, given the compositors' practice elsewhere in the Folio. Rather it demonstrates that, at least in this case, the compositors adopted their spellings from the source copy. That in turn suggests the same pattern of copy-spelling adoptions may exist for some others words and reinforces the need for caution when attempting compositor attributions based on spelling preferences where the original copy spellings are not known.

At the same time it is clear that compositors often did not follow copy spellings but instead followed their own habits. This is easy to demonstrate. Consider the spellings set by Compositor B in the pages attributed to him in the plays generally agreed to have been printed from Crane transcripts. We do not possess those manuscripts but we can be highly confident that they would have used *doe-goe-here* spellings found in extant documents we know to have been written by Crane. Yet, as Hinman documented, the Compositor B pages in these plays show overwhelming evidence of his *do-go-heere* preferences, in each case the opposite of Crane's.

The situation is not clear-cut even with words for which we think the compositors did have preferences. It is not merely that compositors departed regularly from what we believe were their preferences.

41. I have used the compositor attributions from the *Norton Facsimile*. As the reader may verify from ST, the counts are different if we use Hinman's original attributions, but not materially different.

They also departed from them where the copy spellings were the same as their preferences and should therefore have acted to reinforce those preferences. In addition to those already discussed, consider M6^r, the penultimate page of *Love's Labour's Lost*. Here Compositor B set *eie* no less than six times, on unjustified lines, even though the quarto which served as copy text has *eye* in each case and he himself strongly preferred the *eye* spelling in the Folio, setting it 367 times while setting *eie* only thirty-six times, all in unjustified lines. Similarly, in *Much Ado About Nothing*, on K4^r Compositor B set no less than five *ladie* spellings, in unjustified lines, even though he preferred *lady* to *ladie* in the Folio (186 times to fifty-three times, all in unjustified lines) and the 1600 quarto which served as copy text has *lady* in four of these five cases.

In a similar vein, we can find dozens of examples where a compositor spells the same word in two different ways on the same unjustified line. If we widen the net to find cases where the same word is spelt differently on adjacent unjustified lines by the same compositor, we can find scores of occasions, several in each play, for example:[42]

Greater *he* shall not be: If *hee* serue God,
   (*Richard II*, 1456, Compositor A)

Looke what I speake, or *do*, or thinke to *doe*,
   (*The Taming of the Shrew*, 2175, Compositor B)

I *go*, I *go*, looke how I *goe*,
   (*A Midsummer Night's Dream*, 1123, Compositor C)

That all *eyes* saw his *eies* inchanted with gazes.
   (*Love's Labour's Lost*, 751, Compositor D)

If there be *diuels*, would I were a *deuill*,
   (*Titus Andronicus*, 2263, Compositor E)

How might we explain such intra-line variation? We might simply say that compositors were capricious, a problematic suggestion since, as Hinman's book shows, there are pages for which the compositor attribution turns on just a handful of spellings. But we might discover a different explanation within the press-correction evidence. Hinman found that the phrase "o-uer . . . honors bed" was changed to "ouer . . . honours bed" on 2c4^v. As he wrote, the correction required was only from "o-uer" to "ouer" but the compositor also changed "honors" to "honours," even

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42. Emphasis added. A fuller list can be found in the Appendix.

though the former spelling was common and occurs dozens of times in the Folio. Why should he do this? The line is short, unjustified, and needed no shifting to maintain balance. But, as Hinman explained, having removed the hyphen from the line, he needed to insert a new piece of type in order to tighten it back up. He evidently found expanding the spelling of "honors" to "honours" with a handy *u* easier than locating another quad.[43]

Here we have an example of a spelling change in the middle of an unjustified line, with plenty of white space at the end, all to make it easier to fill up the line. Had the uncorrected sheet not survived, we should never have known that this happened. However, it does not follow that the scarcity of extant examples means such spelling changes during correction as a whole were also rare. Proofing and correction took place in multiple stages, and the vast bulk of textual corrections occurred before the final states of the formes were machined. Any of the thousands of alterations made during production could have occasioned a spelling change such as the one described above. As well, there is no reason to suppose that it happened only when a compositor was correcting an error. The compositor in this example evidently decided that adding a *u* to "honors" would help him fill the line. If he had set "ouer" correctly to start with, he might have made the same decision and we should never have known. An experienced compositor made many such instant decisions as he worked, and most would leave no trace in the finished book. Moreover, the words for which a compositor might vary the spelling are just those words that had acceptable long and short spellings—the very words we use for compositor attribution. Even if the phenomenon was rare relative to the number of words a compositor set, its effect on our work might be disproportionately high.

William S. Kable demonstrated almost half a century ago that compositors altered some spellings in verse lines to save themselves the trouble of turning the lines over or under. In such cases a line may not look

43. Hinman, *Printing and Proof-Reading*, 1:285–86. There is another example of this phenomenon in Q1 of *King Lear*. On K4ᵛ the compositor had wrongly set "common bossom" as "coren bossom." When making the correction from "coren" to "common," he also changed "bossom" to "bossome," presumably because it helped him to tighten up the line.

justified because its spellings were shortened.[44] If we combine Kable's observation with what I have just shown, it becomes clear we can never be entirely confident of a compositor's spelling preference (if he had one). What looks like a departure might in fact be a snap decision to use a longer or shorter spelling in anticipation of the end of the line. Conversely, what looks like the preferred spelling of one compositor might in some cases have been set for the same reason by a compositor with the opposite preference. How often did this happen? We can only guess, but there are many possible examples. Section 3 of the Appendix contains a selection of words that occur in two spelling variants and the number of times Compositors A and B chose each one. They show numerous instances where the spelling choices are heavily one-sided. For example, looking only at unjustified lines, Compositor A set *guiltie* twelve times but *guilty* just once (2A1^v). The most striking example is from Compositor B, who set *thank* just once (d5^r), but *thanke* no less than 149 times, all on unjustified lines. If we widen the net to catch spellings of common words set just twice or thrice, the list expands accordingly.

When we perform spelling counts for a large number of words across the entire Folio, we discover a spectrum, not a neat division. Every compositor exhibits some very strong preferences; some preferences weak enough to be called non-existent; and everything between those extremes. The Appendix demonstrates this for Compositor A and Compositor B. But when we change our view to the page level, an opposite picture emerges. There is no spectrum: for almost any given word, the vast majority of pages show only one spelling variant. In other words, even when a compositor did not exhibit a spelling preference for a word in the Folio as a whole, he almost always did so on any given page. Granted, on some pages there is only a handful of spellings, sometimes only one, and these are of little importance. Yet the very small proportion of mixed-spelling pages does suggest that some form of self-influence operated on the compositors. Having set one spelling variant on a page, even if it was not his strong preference, a compositor was evidently much more likely to set it again on the same page than use the opposite variant. For most words, then, there is local stability but global

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44. William S. Kable, "The Influence of Justification on Spelling in Jaggard's Compositor B," *Studies in Bibliography* 20 (1967): 238.

instability. This phenomenon is what makes compositor attributions at page level possible at all, irrespective of whether they are accurate. It also means that, having made our attributions, we can find almost as many discrepant spellings as we desire, that is, a spelling choice at odds with the preference shown by a compositor in the rest of the Folio (considering only unjustified lines).

Howard-Hill cautioned against reading too much into the discrepancies we can easily observe in compositors' spellings:

An investigator who approaches compositor determination from spellings will not find it difficult to observe that every page, containing text different from every other page, will almost always present a distinctive array of spellings and may, on that account, be each assigned to a different compositor. What inhibits this disintegrationist tendency is the presence of features similar to those of pages set by identified compositors.[45]

This dictum, pragmatic and moderate as it sounds, is not without problems. It begs the question by warning against disintegration. A stretch of text split between two or more compositors can be said to have been disintegrated only if we have first established that it is whole. But we have no independent means to establish such wholeness and thus no justification to privilege one choice over another: if we can disregard discrepant spellings to avoid making two compositor attributions in place of one, we can equally well recognize those discrepancies and make two attributions. Howard-Hill proposed no rule by which we could make this choice, nor do I believe such a rule is possible in the absence of any external evidence against which to test it. Discrepancies do not automatically invalidate proposed compositor attributions, but they do provide useful evidence should one wish to do so.

Consider V5^v, in Act 2 of *All's Well That Ends Well*. Hinman attributed it to Compositor B, apparently on the basis of its *do-go-heere* spellings and his deduction from type recurrence evidence that it was set from Compositor B's habitual case y.[46] The attribution has not been challenged since then, but see the evidence in table 16.

Presented in isolation, these aberrations might be explained away by saying that Compositor B did not have a constant preference for the relevant words or that he was influenced by the spellings in the copy

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45. Howard-Hill, "New Light," 161.
46. Hinman, *Printing and Proof-Reading*, 1:419.

TABLE 16

Discrepant spellings by Compositor B on page V5^{v}

Counts of Folio Spellings by Compositor B except on Page V5^{v}	Discrepant Spellings on Page V5^{v} and TLNs
{behind}=4, {behinde}=28	behind[1089]
{blood, bloodie, bloody}=386, {bloud, bloudie, bloudy}=19	bloudie[1098]
{brief, briefe}=7, {breefe}=23	briefe[1084]
{deed, deed's, deeds}=90, {deede, deedes}=30	deede[1028]
{euery}=159, {euerie}=33	euerie[1040], euerie[1040]
{eye, eyes}=367, {eie, eies}=34	eies[1007], eies[1071]
{fly, flye, flyes, flys}=113, {flie, flies}=19	flies[1073]
{honor, honor'd, honor's, honors}=222, {honour, honour'd, honour's, honours}=84	honour[1030], honour[1035], honours[1035], honours[1036], honours[1037], honour'd[1043], honour[1046], honour[1059], honour[1072]
{maid, maids}=49, {maide, maides}=30	maide[1044]
{marry}=52, {marrie}=30	marrie[1011]
{mighty}=38, {mightie}=6	mightie[1023]
{pitty, pity}=73, {pitie, pittie, pittie's}=19	pittie[1069]
{scarce}=2, {scarse}=30	scarce[1115]
{she, she'l, she'l'd, she'ld, she'le, she'll, she's}=656, {shee, shee'l, shee'le, shee'll, shee's}=57	shee[1008], shee[1016], shee[1033], shee's[1034], shee[1045]
{yong, yong'st}=119, {young, youngest}=30	young[1033]

(which we do not know). Nevertheless, there is a cumulative force in these small discrepancies. If we are willing to accept twenty-nine discrepant spellings on this one page and persist in assigning it to Compositor B, then what is to stop us from assigning other pages to him that happen to contain a mere handful of *doe, goe* and *here* spellings. For example b3^{v} (Act 5 in *King John*) was set from Compositor B's habitual case y, but Hinman assigned it to Compositor C because its four *doe-goe* spellings did not accord with Compositor B's preferences. Of course Compositor B's *do-go* preference is far stronger than those displayed in Table 16, but how many weak discrepancies are enough to counterpoise a strong preference? It would be easy enough to devise a formula to decide, but we would have nothing to test it against, and consequently each investigator is left to make a subjective judgment.

This is no isolated problem. In 1975 John O'Connor proposed some compositor reattributions in the comedies, frequently relying on small

discrepancies to argue his case. For example, the *praier(s)* spelling occurs on unjustified lines just eight times in the whole book, by four different compositors, yet O'Connor uses its single discrepant appearance on F2^v as an argument against Compositor C's responsibility because the compositor had set three *prayer* spellings on F4^v.[47] If such a small dataset is good enough to disprove a compositor attribution, then what might O'Connor have made of the hundreds of discrepancies like the ones above presented in section 5 of the Appendix? To be consistent, he would have needed to argue that there might be many more compositors at work in all those pages.

I have demonstrated the extent of what we might call a reflexive self-influence, where a compositor's use of one non-preferred spelling might trigger the same spelling if the word recurs on a single page, in effect impersonating another compositor, or at least creating doubt about our attribution. At what point do enough discrepant spellings accumulate on a page to justify the rejection of an attribution? How can we differentiate between what appear to be the preferred spellings of one compositor and the non-preferred spellings of another prompted by self-influence? It is difficult to see how these questions could be answered unless we discover some external evidence to help us calibrate our data.

I have taken it for granted so far that we assert the presence of a compositor in a page because it exhibits a clear preference for some spellings over others. Before moving on, we should pause to note an exception that Hinman made for Compositor E. Observing that there is an "olio" of spellings in the compositor's early work in *Titus* and *Romeo*, he wrote that "[in] these two plays, therefore, spellings alone may be taken as a sufficient basis for the identification of Compositor E."[48] Although not immediately obvious, he meant that the spellings of the three key words do not exhibit any clear preference and that he was basing a compositor identification not on spelling preferences but on the *absence* of them. Looking at the pages assigned to Compositor E by Hinman (and ignoring subsequent revisions by Howard-Hill and others), we see what he's driving at (see table 17):

47. John O'Connor, "Compositors D and F of the Shakespeare First Folio," *Studies in Bibliography* 28 (1975): 105.

48. Charlton Hinman, "The Prentice Hand in the Tragedies of the Shakespeare First Folio: Compositor E," *Studies in Bibliography* 9 (1957): 7.

TABLE 17

Spellings of the three key words by Compositor E

All Lines		Unjustified Lines	
do-go-heere	*doe-goe-here*	*do-go-heere*	*doe-goe-here*
444	265	377	224

From these figures alone we could not assert a spelling preference strong enough to justify an attribution. But because all the pages assigned by Hinman to Compositor E were set from surviving quartos, he was able to disregard Folio spellings that match the copy and thereby deduce that the compositor had the same *do-go-heere* preference as his more senior colleague Compositor B. If, *contra* Hinman, we now believe that *Hamlet* and *Othello* were set from manuscripts rather than quartos, then some of his explanation loses its force for those plays, but it remains intact for *Titus* and *Romeo*. Moreover, he supported his deduction with independent type-recurrence evidence through which he discovered the phenomenon of the intercalary formes and the unusually high number of typographical errors in those formes.

Hinman's explanation that the production line that turned out the intercalary formes was created for a special compositor is a plausible one—but not the only one. We could just as easily construct a narrative where Jaggard, faced with a temporary staff absence or a temporary surplus of work, set up a separate production line operated by a succession of journeymen. Philip Gaskell estimated 75% of printing-house employees in London in 1668 were journeymen.[49] The proportion was probably similar in 1623 since there were no significant changes in the printing trade over those years. Hamlet summed up the quality of work associated with journeymen when he observed of bad actors that "some of nature's journeymen had made men and not made them well, they imitated humanity so abominably." A journeyman would not have a type-case to call his own but rather would work on whichever case was available on the day. As the employee of lowest rank he would be expected to make himself generally useful, perhaps by distributing type for the regular compositors. If two journeymen of similar but not identical habits

49. Philip Gaskell, *A New Introduction to Bibliography* (Oxford: Clarendon Press, 1972), 176.

worked on the same book, we might wrongly diagnose their differences as the inconsistency of a single workman. Hinman found a disproportionately large number of press variants in pages he had assigned to Compositor E. He inferred from this that the compositor was "*expected* to make a great many mistakes" and his work was often proof-read whereas that of his colleagues was generally not.[50] He did not notice that what he believed to be true of an apprentice might also be true of a journeyman. In other words, according to Hinman's own understanding, work by a sequence of journeymen could have been expected to leave behind a greater number of proof-sheets, be set from different typecases, not be part of a regular pattern of composition (a journeyman being called in only when needed), and display greater inconsistency of spelling than the work of one compositor. These are just the characteristics by which Hinman defined Compositor E.

Finally, whereas McKenzie used external evidence to show that at least some compositors' practice with spacing before commas was so arbitrary as to defy prediction, we have internal evidence (see the Appendix) that the Folio compositors had equally arbitrary spelling practices, at least for enough words to enable us to call the attributions into question if we wish.

COMPOSITORS F, H, AND I

I have given most attention so far to the five compositors identified by Hinman, because of his fundamental work and because those compositors account for most Folio pages. I shall now look at the post-Hinman compositors since the arguments for their existence rest on particularly vulnerable foundations.

Compositor F was first identified by Howard-Hill when he reconsidered the pages assigned to Compositor A by Hinman in five comedies printed early in the Folio as well as *The Winter's Tale* and *Richard II*.[51] He presented spelling counts for seventeen words to show that in the early comedies Compositor A exhibits different preferences to those found in *The Winter's Tale* and *Richard II*. For convenience I give Howard-Hill's

50. Hinman, *Printing and Proof-Reading*, 1:220, 325 and *Norton Facsimile*, xix. The modern view is that the absence of surviving proof-sheets should not be taken as evidence that proof-reading was not done; see, for example, *Norton Facsimile*, xxxi.

51. The early plays are *The Tempest*, *The Two Gentlemen of Verona*, *The Merry Wives of Windsor*, *Measure for Measure*, and *The Merchant of Venice*.

TABLE 18

Howard-Hill's spelling counts for the disintegration of Compositor A

	Early Comedies	*The Winter's Tale and Richard II*		Early Comedies	*The Winter's Tale and Richard II*
chuse		2	*choose*	21	
cousin		17	*cosin*	2	1
deare	2	2	*deere*	4	3
deuill		2	*diuell*	15	
graunt	1	3	*grant*	2	
grief/ue	13	24	*greefe/ue*		
Heauen		25	*heauen*	12	1
howre	1	1	*houre*	7	2
indeed	1	11	*indeede*	18	2
mistresse		7	*mistris*	22	2
scarce	1	1	*scarse*		
suddaine	1	1	*sodaine*	3	
yeere	2	9	*yeare*		
young	2	12	*yong*	15	1

counts in Table 18, listing only the totals since only they are material to his argument.[52] I include all of his original figures, although I disagree with many of them, and it is not clear to me whether he considered all lines or only unjustified lines.

Some of this data supports Howard-Hill's attribution: that the *choose* spelling is preferred in the early comedies but the *chuse* spelling in the later plays; and that *Heauen* is the exclusive spelling in the later plays but *heauen* was overwhelmingly preferred in the early comedies. Other counts are less helpful. For example, since the *greefe/ue* and *yeare* spellings do not occur anywhere in the passages he considered, they are of no relevance here. Similarly, the counts for the variant spellings of "dear," "grant," "scarce," and "sudden" reveal nothing of significance. Stripped of the meaningless spelling variants, Howard-Hill's argument is founded on between eight and twelve words. It is fair to note that he also included elisions and some psycho-mechanical evidence in his essay. Nevertheless, his disintegration of Compositor A into Compositors A

52. Howard-Hill, "Folio Comedies," 85–87. I have excluded his counts for *do*, *go*, and *here* since he did not use them in his argument.

and F could not have been taken seriously without the spellings evidence in the table above.

Howard-Hill summed up his argument by claiming "The evidence is such that it is not possible to believe that a single compositor is found in A's pages of the comedies and histories without serious doubt being cast on the principles on which compositor identifications from spelling are made."[53] As noted above, he also asserted "when compositorial practices change between groups of texts, a change of compositor is indicated." A few years later his attitude seems to have changed: "The arguments of investigators who assume constancy of spelling practices throughout long periods of composition rest on grounds as infirm as those of the bibliographers who established minutely-detailed timetables of presswork as if a printer had only one job on hand at a time."[54] He seems to be arguing that differences in spelling indicate a change of compositor unless we can assert, as he did with Compositor E, that the differences were part of a progressive change in one compositor's preferences. Tellingly, Howard-Hill did not suggest a progressive change in Compositor A's preferences; it would have been fatal to his argument to do so. Between the last of the early comedies, *The Merchant of Venice*, and the first of the later plays to be set, *Richard II*, Hinman found that Compositor A worked only on *The Taming of the Shrew* and *All's Well That Ends Well*.[55] If there had been a progressive change in his spellings, we would be able to see evidence of it in those plays. But there is no such evidence: *Shrew* and *All's Well* show the same spellings as the early comedies, reinforcing the point that the spellings apparently changed overnight at the start of the printing of the histories.[56]

Earlier I demonstrated by my *faux* disintegration of Compositor B that the technique Howard-Hill used with Compositor A's spellings—to divide them into two parts and show that they differ between the parts—collapses under closer scrutiny. Once we discount Howard-Hill's spelling data, the existence of Compositor F rests on the slender evidence of some elisions and the psycho-mechanical evidence discredited by McKenzie. Paul Werstine has already argued that Compositor F is not

53. Howard-Hill, "Folio Comedies," 87.
54. Howard-Hill, "New Light," 171.
55. Hinman has shown that work on *Richard II* was started before *The Winter's Tale*.
56. See ST for the relevant data.

distinguishable from Compositor D.[57] However, Compositor F was not distinguishable from Compositor A to begin with. This inevitably raises the question as to whether Compositor D was ever distinguishable from Compositor A. Hinman defined Compositor D as a man who had the same *doe-goe-here* preference as Compositor A but who was much more tolerant of *do* and *go* spellings. I have already suggested that tolerance is not a sufficiently rigorous criterion on which to base compositor attributions. Hinman found that case z had been used in twenty-eight of the Folio's 883 pages. He assigned most of these to Compositor D and the rest to Compositor A. Subsequent investigators assigned all of the case z pages to Compositor D. Moreover, Hinman only assigned those pages to Compositor D for which the case was either case z or it was unknown. Clearly, then, there is a very close relationship between Compositor D and case z. Consequently, any further attempt to integrate Compositor D back into Compositor A must include an examination of the type recurrence evidence cited by Hinman, and that analysis is outside the scope of this paper.

My previous disintegration of Compositor B also calls into question a method by which O'Connor purported to distinguish Compositor D from Compositor F. These two compositors set thousands of −*y* or −*ie* spellings between them, and both overwhelmingly preferred the −*y* ending. O'Connor found some words for which he could plausibly assert an −*ie* preference by Compositor D but for which the −*ie* endings were not used by Compositor F. He then presented this as a way to distinguish between the two men. But as we have seen, there are words where the pre- and post-*3 Henry VI* Compositor B shows opposite preferences between −*y* and −*ie* endings, notably *company/companie*. The difference signifies nothing. In a sample of thousands of spellings, O'Connor was bound to find a few apparent anomalies establishing a difference which is, in fact, more illusory than real. He claimed his evidence "shows how mass counts may hide actual preferences," meaning that Compositor D's −*ie* preference for some words had been submerged in the total counts of −*y* and −*ie* endings.[58] This is opposite to the principle MacDonald P.

57. Paul Werstine, "Scribe or Compositor: Ralph Crane, Compositors D and F, and the First Four Plays in the Shakespeare First Folio," *PBSA* 95, no. 3 (2001): 315–39.

58. O'Connor, "Compositors D and F," 93–96. Some of the other data O'Connor relies on is also minimal. For example, Compositor D uses the *readie* spelling just

Jackson applied when attempting to distinguish the two compositors of the quarto of *Troilus and Cressida*. He argued that the compositors "were extremely variable in their spacing of commas, so that it would be quite impossible to discriminate their shares on this basis alone—it is only in the overall proportions that a significant difference appears."[59] O'Connor felt the totals revealed no significant difference, so he zoomed in for an anomaly he could seize upon. Jackson reasoned that at page level the data was intractable, and so he zoomed out until the page-level variability was submerged in the totals. As with the appeals to tolerance, the worry here is that the desired conclusion influenced the investigator's chosen method, not the other way round.

Taylor invented Compositor H and assigned him many pages in *Troilus and Cressida* that were formerly with Compositor A.[60] The direct evidence for H's existence consists solely of spellings; Taylor had used psycho-mechanical evidence to distinguish between two new compositors, H1 and H2, but then overruled that evidence to conflate them into Compositor H. This is despite the fact that he had called psycho-mechanical evidence a "near-infallible" indicator of Compositor C's presence and had used it to rule out that presence in the pages he wanted to assign to Compositor H. Taylor distinguished Compositor H from Compositor A by using a selection of spelling variants and showing that Compositor A's preferences differed from those of Compositor H. But he had deduced Compositor A's preferences by excluding the pages that Howard-Hill had taken away from him and assigned to Compositor F. For example, Taylor observed that Compositor A almost always capitalizes his "devil" spellings and prefers *Deuil(l)* whereas Compositor H prefers *diuel(l)*. However, if we conclude that Compositor F is not based on sufficient evidence and give those pages back to Compositor A, his dataset of spellings now includes enough *diuel(l)* choices to make the claimed difference between Compositors A and H doubtful. Unsurprisingly, the same happens with *heauen*; Howard-Hill had separated Compositors A and F partly by noting that Compositor A prefers to capitalize this word. Taylor separated Compositor A and Compositor H

once on an unjustified line, and Compositor F never, yet O'Connor lists this as one of the words which demonstrate that they could not have been the same man.

59. MacDonald P. Jackson, "Punctuation and the Compositors of Shakespeare's *Sonnets*, 1609," *The Library*, 5th ser., no. 30 (1975): 16 (footnote omitted).

60. Taylor, "Shrinking Compositor A," 100–2.

by making the same claim. But if we give the Compositor F pages back to Compositor A, we can no longer claim that Compositor A always capitalized the word, and so the alleged difference with Compositor H disappears. Taylor is right that Compositor A strongly prefers *young* to *yong* whereas Compositor H spells *yong* exclusively. But again, Compositor A acquires more *yong* spellings when we give the Compositor F pages back to him, significantly weakening his *young* preference, and given that we do not know the copy spellings for much of Compositor A's work in the Folio, we cannot be sure how strong his preference really was. The same holds true for "indeed." In some other cases, the totals are so small that they hardly qualify as evidence. For example, the solitary *duetie* spelling in *Troilus* is not very strong evidence for Compositor H when we consider that the spelling occurs just three other times in the whole book, once on a page assigned by Hinman to Compositor A (I3^v). Similarly, the discrepancies for some other words Taylor used—"meet," "pluck," "traitor," and "voice"—are very small, particularly after we give Compositor F's spellings back to A. What remains of Taylor's evidence are just six words: "beat," "blood," "dear," "deed," "master," and "sweet." For these, the disintegration of Compositor A by Howard-Hill did not have a material effect on the discrepancies Taylor highlighted. Are these six words enough to justify the existence of Compositor H? Given how variable compositors' spellings could be and how their preferences could change overnight, the evidence of the six words is clearly not enough.

Compositor I was carved out by Taylor mainly from Compositor C's domain: of the twenty-three pages Taylor assigned to him, twenty-one came from Compositor C and the other two from Compositor A.[61] Hinman had felt obliged to invent Compositor D so that there would be someone who, while preferring *doe* and *goe*, could be called upon to tolerate *do* and *go* spellings when they were found in inconvenient places. Taylor first asserted Compositor I's presence so that there would a compositor who, while preferring *heere*, could also be called upon to tolerate *here*. The pages he wanted to assign to Compositor I do not contain terminal-spaced commas, and on this basis he ruled out the possibility that they were set by Compositor C. But, as McKenzie later showed, such psycho-mechanical evidence is not as reliable as Taylor had assumed. Taylor also presented counts from the Folio as a whole for

61. Taylor, "Shrinking Compositor A," 103–6, 113.

TABLE 19

Taylor's counts for *–nesse/–nes* spellings

Compositor	*–nesse*	*–nes*
A	243	1j
B	815	20 (+34j)
C	132	10 (+10j)
D	59	2 (+4j)
E	163	13 (+2j)
F	35	1 (+1j)
H	44	1j
I	54	20 (+3j)
C* (*1 & 2H4*)	30	0

words ending in *–nesse/–nes, -ie/–y* and *–ies/–yes/–ys*, arguing that they helped further distinguish Compositor I (see table 19). But he made no allowance for the influence of copy spellings (because for most Folio plays they are not known), even though he had made allowances for Folio words matching their copy spellings elsewhere in his analysis; and he did not make clear whether he had counted words in justified lines. For this reason, it is hard to know how much to rely on his counts.

For the *–nes* spellings Taylor gives separate figures for justified and unjustified lines, but the figures in the *–nesse* column do not make a similar distinction. There are of course hundreds of *–nesse* spellings in justified lines. I found forty-one words that occur in both *–nes* and *–nesse* spellings in the Folio, but the total of all such spellings in all lines is 1167, which is far less than that obtainable from Taylor's table, so I am unable to determine what he counted.[62] It is possible that the computer program written at his request that produced his numbers took into account the more than two hundred words that occur in the Folio only in *–nesse* spellings, such as *gentlenesse* and *noblenesse*. Such a slip skews the data, since a word that is always spelt in the same way should not be counted in tables used to distinguish between compositors by means of

62. basenes, bitternes, boldnes, busines, darkenes, darknes, goodnes, gouernes, greatnes, happines, hardnes, highnes, hollownes, kindnes, likenes, lownes, madnes, meeknes, newnes, quietnes, rashnes, readines, rudenes, sadnes, sauagenes, sawcines, sicknes, smoothnes, stilnes, strangenes, sweetnes, tendernes, thankfulnes, vnkindnes, vnthankfulnes, wantonnes, wearines, whitenes, wickednes, wildernes, witnes.

TABLE 20

My counts for *-nesse/-nes* spellings

Compositor	All Lines		Unjustified Lines	
	–nesse	*–nes*	*–nesse*	*–nes*
A	201	2	160	0
B	533	58	441	14
C	76	18	55	10
D	31	5	25	2
E	108	10	91	10
F	26	1	24	0
H	21	0	16	0
I	41	23	40	20

spelling variants. I have attempted to repeat Taylor's work, based on the words that occur in both spelling variants (see table 20).

My table does not exactly match Taylor's because he gave separate figures for Hinman's Compositor C* (whom he was about to turn into Compositor J, an invention that has since been rejected). But the difference is not important because the numbers for Compositor C* are small. My compilation does show that Compositor I set a higher proportion of *–nes* spellings than anyone else, as Taylor claimed, but this is much less convincing than it seems at first sight. There is one compositor in the table whose division of *–nes* and *–nesse* spellings, while not a match to that of Compositor I, is much closer than anyone else's. Intriguingly, that compositor is Compositor C, the very man from whom Taylor had carved out Compositor I. I have already shown how greatly compositors' spellings fluctuated, especially how a compositor could consistently set one group of spellings for the first part of his work and then switch to a different group in the second part. Taylor picked the last twenty-one pages that Hinman had assigned to Compositor C and reassigned them to Compositor I by showing that the spellings had changed. This is essentially the same procedure that Howard-Hill used to disintegrate Compositor A, which my *faux* disintegration of Compositor B showed could uncover any number of imaginary compositors. Taylor's data for the *-ie/–y* and *–ies/–yes/–ys* spellings derives from the same faulty procedure and is thus unreliable.

Taylor's other pieces of evidence for Compositor I were the spellings of "staid" and "rank," for which Compositor A preferred the *stay'd* and

ranke spellings. But Compositor I only used "rank" three times, spelling it as *ranck*, *rancke* and *ranke*, hardly a large enough sample to justify asserting a preference for *ranck(e)* over *rank(e)*. The three *staid* spellings in Compositor I's stint are good evidence, but still there are only three of them (we also do not know the copy spellings), and after the variability of spellings I have shown, I believe Taylor erred when he stated "even a single piece of good evidence would be quite sufficient" to make the attributions he wanted to make.[63]

Finally, since our understanding of compositor preferences is based on spellings in the Folio as a whole, any reattribution from one compositor to another has a potential domino effect we cannot ignore. Reassigning two compositors' pages may change one or both of their spelling preference distributions for a word we did not consider when making the reattributions; this in turn may affect the validity of other attributions elsewhere in the Folio. To see the potential problems, consider *Macbeth*, a play whose compositor attributions have not been questioned since Hinman's initial investigations, which relied substantially on Satchell's foundational work. Hinman assigned most of 2m2ʳ to Compositor B but gave the last forty-five lines to Compositor A on the basis of type recurrence evidence and two *Lady* speech prefixes in those lines (since Compositor A very strongly preferred that prefix but Compositor B did not).[64] These forty-five lines contain a *show* spelling that, according to Hinman's attributions for other plays, Compositor A set fifteen other times in unjustified lines (even though his preferred spelling was *shew*), so it was not surprising to find him setting it on 2m2ʳ. But all fifteen of these spellings were on pages taken away from Compositor A and given to Compositor F, Compositor D, or Compositor I by subsequent investigators, making the solitary *show* spelling on 2m2ʳ highly discrepant (and not likely to be a variation to help fill up the line because *show* and *shew* take up about the same space). Anyone who divides a compositor into two has a responsibility to consider what impact that division has on our understanding of the compositor whose share has been diminished; otherwise the work is not complete.

63. Taylor, "Shrinking Compositor A," 106.

64. Hinman, *Printing and Proof-Reading*, 1:385. Hinman gave lines "b1–15" to Compositor B and "b16–67" to Compositor A, although there are only sixty lines in column b. I have assumed that he intended the split to be at the end of line b15, thus giving forty-five lines to Compositor A.

Jackson's work is to be admired for a rare willingness to apply statistical tests to compositor attributions. I do not mean to question the work he did on compositor attribution for some quartos, but I shall demonstrate that the technique he used most often should be applied to the Folio only with great care, since it can lead to clearly incorrect results. That technique is the use of the chi-squared (χ^2) test, or the Fisher Exact Test, to show that counts of spellings or other data are statistically significant and therefore may be relied on to make compositor attributions.[65] A typical example of Jackson's statistical treatment of such data concerns Compositors A and B in the quarto of Shakespeare's sonnets:

A's nine pages of Sonnets contain 24 colons and 3 commas at the ends of the quatrains; B's fourteen pages contain 11 colons and 18 commas at the ends of quatrains. If the figures (24:3 and 11:18) are arranged in a 2x2 contingency table and analysed by Yates's Chi-square, we obtain the highly significant result $\chi^2 =$ 12.9, p < 0.0005.[66]

The 2x2 contingency table he referred to is a way of laying out the frequency distribution of the variables being examined (see table 21).

The Fisher test gives the probability (p) as 0.00009, in other words 0.009%, which is so small as to provide a very high level of statistical significance, as Jackson claimed. In this and other papers, Jackson used this technique to argue that the compositor attributions he was making had been confirmed by data which was statistically significant, usually very highly significant.

To show how easy it is for this technique to mislead us, compare the previous contingency table with table 22, which displays the distributions of a word from the Compositor B data discussed above.

Even without applying a χ^2 or Fisher test, it is readily apparent that the distribution is highly statistically significant. If we follow Jackson's reasoning, we could say that we have proved statistically that the same compositor could not have set the pages before and after q1^r. In fairness to Jackson, he did not make his attributions for the quarto of the sonnets on the basis of a single test. He used a set of spellings given by Alice Walker to make a tentative division of the pages in the quarto between

65. ST provides a short introduction to these statistical concepts for the use of non-mathematicians.
66. Jackson, "Punctuation," 14.

TABLE 21

Jackson's 2x2 contingency table for the
compositors of the Sonnets

	Colons	Commas
Compositor A	24	3
Compositor B	11	18

two compositors. He then tested that division by exhibiting a number of pairs of counts taken from those divisions, for example of colons and commas at the end of quatrains, and showing that they are also statistically significant. But we must not assume that a series of statistically significant results that are consistent with each other are also corroborative. Apart from "prethee" there are a dozen other words in Table 1 for which the division of spellings is statistically significant and therefore arguably confirms my *faux* disintegration of Compositor B.

These problems lurk for many of the compositor attributions made for the Folio. Consider, for example, the *do-doe* spellings set by Compositor E (see table 23).

This is a pair of 2x2 contingency tables, one for all lines and one for unjustified lines only. Performing the Fisher calculation for each, they confirm a statistically significant split at quire 2s: the test is telling us that the probability that the pages before and after the gathering were set by the same compositor is negligible. Yet, modern scholarship accepts that all these pages were indeed set by one man, Compositor E.

What does this mean? Tests such as χ^2 and the Fisher Exact Test are widely used in many disciplines, including the humanities, to assay statistical significance and thereby "prove" some proposition. They "work" because the real-life data they test approximates sufficiently well the mathematical models that underlie the tests. Unfortunately, Folio

TABLE 22

2x2 contingency table for Compositor B's
spellings of *prethee/prythee*

	prethee	*prythee*
Page q1^r and before	32	1
After page q1^r	2	47

TABLE 23

2x2 contingency tables for Compositor E's spellings of *do–doe*

	All Lines		Unjustified Lines	
	do	*doe*	*do*	*doe*
Quire ss and before	213	62	168	59
After quire ss	116	0	97	0

spellings vary in such a capricious fashion that they do not conform even approximately to these models. The human factor—the sheer unpredictability of the ways in which Folio compositors spelt—is too complex to justify these techniques. The mathematical models cannot account well enough for the fluctuations in the data caused by a number of possible variables, including copy influence, the ever-present need to fill the lines tightly, temporary shortages of type, or even just arbitrariness.

I do not mean to suggest that statistical techniques have no place in this subject. We have more than 800,000 spellings available to study, a huge sample, and the data invites statistical treatment. But any techniques we use must first be tested on control samples and shown to be reliable.

CONCLUSION

This paper has presented evidence to show that once we cast our net much wider than the handful of spellings which have hitherto been used to distinguish between compositors, we discover that almost every page has a majority of spellings of some or other words that are different from the ones we should expect given the alleged compositor's practice in the rest of the book. We have seen that we can almost arbitrarily disintegrate compositors into two because we can always find several words that exhibit different spellings in the two halves (and with the flourish of statistical significance too). The variety of spellings is so great that evidence can be found to support or rebut almost any attribution. The Folio compositors' spelling habits were clearly a lot more variable than we had hoped. That reality makes enough attributions doubtful to call into question the point of doing this work at all.

Hinman found typographical evidence to show that two typecases were in use throughout the printing of the Folio, and perhaps a third

typecase for a few quires in the comedies. From this and the phenome-non of the intercalary formes, which Hinman also discovered, we can be fairly confident that there were at least three compositors. I have tried to show that very little else can be safely asserted as historical fact. It may be time to consider the possibility that even if the division of *Macbeth* made by Satchell is true, it is only a lucky glimpse into a past whose darkness we cannot otherwise see into.

APPENDIX

The data given in the lists below is capable of being checked by any interested reader, using the Shakespeare's Text website.

1. Different Spelling Variants on the Same or Adjacent Lines

   A separate list is given below for each play. For example, we see that in *The Tempest* the compositor set a *he* spelling on line 794 but a *hee* spelling on the next line. I have considered only unjustified lines.

The Tempest. 794]he; 795]hee's; 924]he; 925]hee's; 927]hee's; 928]he; 980]he; 981]he,hee's; 1450]he,he; 1451]he,hee'l; 1860]goe; 1861]go,goe; 1907]he; 1908] hee'l. *The Two Gentlemen of Verona.* 249]do; 250]doe; 543]she; 544]shee; 708] sonne; 709]son; 1207]here; 1208]heere; 1220]here; 1221]heere's. *The Merry Wives of Windsor.* 110]answer'd; 111]answere; 112]answer'd; 176]mistresse; 177]mistris; 385]humors; 386]humour. *Measure for Measure.* 431]powre; 432]power; 770] honour; 771]honor; 855]shew; 856]shew,show; 881]he; 882]hee's; 1194]he; 1195] hee'ld; 1826]doe; 1827]do. *The Comedy of Errors.* 64]wee; 65]we; 407]answere; 408]answer. *Much Ado About Nothing.* 517]answer; 518]answered; 1690]shee's; 1691]she; 1962]enemy; 1963]enemie. *Love's Labour's Lost.* 26]do,doe; 153]studie; 154]study; 292]maide; 293]maid; 294]maide; 436]maide; 437]maid; 751]eies,eyes; 1537]read,reades; 1911]doe,doe; 1912]do; 2004]cry'd; 2005]cried; 2103]do,doe. *A Midsummer Night's Dream.* 243]he,he; 244]hee; 578]do,do; 579]doe; 650] queene; 651]queen; 1123]go,go,goe; 1226]we; 1227]wee; 1913]heere,here; 1945] bloody; 1946]bloudy. *The Merchant of Venice.* 1508]she; 1509]she,shee; 1738]do; 1739]doe; 1947]answer; 1948]answered; 1967]answered; 1968]answer; 1991]euerie; 1992]euery; 2682]keepe; 2683]keep. *As You Like It.* 495]do; 496]doe; 705] oh; 706]o,oh; 723]sonne; 724]son,son; 741]blood,bloudie; 1027]hee; 1028]he; 1048]citie; 1049]city; 1075]answered; 1076]answer'd; 1207]euerie; 1208]euery; 1771]do,doe; 1892]he,hee's; 2163]shee; 2164]she,she; 2242]hee; 2243]he,he. *The Taming of the Shrew.* 53]sweet,sweete; 218]she; 219]shee; 327]sweete,sweets; 710] very; 711]verie; 1172]she; 1173]shee's; 1187]she; 1188]shee; 1189]shee; 1190]she; 1272]olde,young; 1273]old,yong; 1460]he; 1461]hee; 1616]she,shee; 1903]hee'l; 1904]he; 2175]do,doe; 2314]sunne; 2315]sun; 2316]sunne. *All's Well That Ends Well.* 454]blood,bloud; 928]be,bee; 1565]deare,deerest; 1593]she; 1594]shee; 2907] hee; 2908]he; 3023]guiltie,guilty,he,he's; 3024]he,hee'l; 3025]he. *Twelfth Night.* 45]sweete; 46]sweet; 114]be,bee; 443]hee'l; 444]he; 687]wee; 688]we,we; 1004] indeede; 1005]indeed; 1522]he,hee'l; 1528]madame; 1529]madam. *The Winter's Tale.* 153]he; 154]hee'le; 155]he; 476]he; 477]hee; 695]she; 696]shee's; 905]shee; 906]she; 961]she; 962]shee'l; 2308]dye; 2309]die; 3363]son; 3364]sonne. *King John.* 460]child; 461]childe,childe; 487]sin; 488]sinne; 614]lye; 615]lies; 659]we; 660]wee; 749]shee; 750]she; 751]hee; 752]he; 753]shee; 754]she; 893]maid,maide;

995]here; 996]heere; 1039]war,war,warre; 1148]answers; 1149]answere; 1275]blood; 1276]blood,bloud; 1699]mercie; 1700]mercy; 2093]truely,truly. *Richard II.* 1294]lookes; 1295]look'd; 1296]looke; 1456]he,hee; 1659]we,wee; 1985]lie,lye; 2483]be; 2484]bee; 2550]read'st; 2551]reade; 2558]oh; 2559]o. *1 Henry IV.* 1775]he; 1776]hee's; 2552]he; 2553]hee; 2749]bee; 2750]be; 2967]leade; 2968]lead. *2 Henry IV.* 2887]hee's; 2888]he. *Henry V.* 1438]he; 1439]hee'le; 2293]hee'le; 2294]he. *1 Henry VI.* 284]she; 285]shee; 368]we; 369]we,wee; 1509]we; 1510]wee; 1511]we; 1989]drum; 1990]drumme; 2367]he; 2368]hee'l. *2 Henry VI.* 61]reade; 62]read; 640]we; 641]wee; 1369]he; 1370]hee's; 1371]he; 1486]hee'le; 1487]he; 2312]body; 2313]bodie; 3283]olde; 3284]old. *3 Henry VI.* 25]do; 26]doe; 51]he; 52]hee; 656]been; 657]beene; 1247]son,sonne; 1248]sonne; 1323]he,hee's; 1529]he; 1530]hee'le; 2466]hee; 2467]he; 2610]war; 2611]warre; 3031]oh; 3032]o; 3049]heere; 3050]here. *Richard III.* 283]graunt; 284]grant; 285]graunt; 564]marry; 565]marrie,marrie; 737]sunne; 738]sun; 1348]hee's; 1349]he's; 2906]son,sonnes; 3656]euery; 3657]euerie; 3712]bloudy; 3713]blood,blood; 3807]drum; 3808]drumme; 3882]bloudy; 3883]blood. *Henry VIII.* 214]runne; 215]run; 645]hee's; 646]he; 1054]he; 1055]hee'l; 1056]he; 1615]queene; 1616]queen; 2024]deede; 2025]deeds; 2794]shee'l; 2795]she; 3200]hee; 3201]he. *Troilus and Cressida.* 67]look'd,looke; 134]she; 135]shee; 165]hee; 166]he; 279]he; 280]hee; 349]hee; 350]he; 745]he,hee'l; 1396]he; 1397]hee; 1542]go,goe; 1980]deare; 1981]deere; 2287]do,do; 2288]doe; 2748]shee's; 2749]she's; 3002]do; 3003]doe; 3311]do,doe. *Coriolanus.* 503]drum; 504]drummes; 1565]hee,hee; 1566]he; 1701]do; 1702]doe; 1790]hee'l; 1791]he; 2345]traitor; 2346]traytor; 2390]bee; 2391]be,be; 2406]bee; 2407]be,be; 2448]o,oh; 2709]speak'st,-speake; 3010]flies; 3011]flyes; 3465]countrie; 3466]country. *Titus Andronicus.* 242]do; 243]doe; 327]son; 328]sonnes; 1086]do; 1087]doe; 1645]she; 1646]shee's; 1647]she; 2017]he; 2018]he,hee'l; 2263]deuill,diuels; 2515]suns; 2516]sunne. *Romeo and Juliet.* 219]she; 220]shee; 261]she; 262]shee's; 312]read; 313]reades; 347]show; 348]shew,shewes; 621]shewes; 622]showes; 796]sunne; 797]sun; 1415]thanke; 1416]thanks; 1677]speaks; 1678]speakes; 1686]he's,hee's,hee's; 1954]happy; 1955]happie; 1976]o; 1977]oh; 2017]do; 2018]adoe; 2361]speak; 2362]speak'st,speake; 2595]oh; 2596]o,o; 2656]she; 2657]shee's; 2943]oh; 2944]o. *Timon of Athens.* 513]he,hee'ld; 904]hee's; 905]he; 1081]denied; 1082]deny'de; 1217]heere; 1218]here's; 1349]be,bee. *Julius Caesar.* 1209]reade; 1210]read; 1684]read; 1685]reade; 1804]hee; 1805]he; 2116]be,bee; 2186]die; 2187]dye; 2511]he; 2512]hee's; 2541]lyes; 2542]he,lies; 2543]hee; 2544]he. *Macbeth.* 127]drum; 128]drumme,drumme; 1741]he; 1742]hee's; 2189]he; 2190]hee's; 2483]sonne; 2484]son. *Hamlet.* 730]guifts; 731]gifts; 3154]queene; 3155]queen. *King Lear.* 219]she,shee's; 826]she; 827]shee'l; 1174]he; 1175]hee's; 1806]goe; 1807]go; 2709]he; 2710]hee's; 2711]he; 2877]go; 2878]goe; 3148]dye; 3149]die. *Othello.* 1957]shee'l; 1958]she; 2139]lyes; 2140]lies; 2229]speake; 2230]speak; 2333]houres,howres; 3117]oh; 3118]o; 3159]o,oh; 3160]o,o; 3178]oh; 3179]o; 3226]o; 3227]oh; 3245]she,shee'l; 3354]shee's; 3355]she; 3358]

she; 3359]she,shee'l. *Antony and Cleopatra.* 373]she; 374]shee; 378]be; 379]bee; 541]deed; 542]deede; 2135]shee; 2136]she; 2474]soldiers; 2475]souldiers; 3174]she; 3175]shee's; 3194]he,hee's; 3331]he; 3332]hee'l; 3333]he. *Cymbeline.* 1277]she,shee; 1868]he,hee's; 2274]oh; 2275]o; 2524]he; 2525]he,hee'l; 2648]he,hee; 2732]hee's; 2733]he; 2756]he; 2757]hee's; 2991]he,hee'l; 2992]hee'l; 3093]he; 3094]hee; 3764] read; 3765]reades.

2. Unique Spellings

The table below gives lists for each compositor of some spellings of common words which he set on only one page, while setting a different spelling at least five times, often much more, elsewhere in the Folio. As usual, I have considered only unjustified lines but a similar list can be presented for all lines.

Compositor A. 2A1ᵛ: guilty[137]; c6ʳ: humor'd[1528]; f2ᵛ: yeare[2372]; ᵡ2g4ᵛ: keep'st[2547]; h2ʳ: heauy[348]; h2ᵛ: cosin[383]; h2ᵛ: vncle[407]; i2ʳ: diuell[1856]; i3ʳ: beates[2115]; i4ʳ: sun[2347]; k3ʳ: weary[223]; l1ᵛ: fury[1339]; o4ʳ: down[17]; 2a5ᵛ: crie[1125]; 2a5ᵛ: suite[1163]; 2m2ʳ: show[565]

Compositor B. S5ᵛ: been[854]; V6ᵛ: you'le[1293]; c2ʳ: sudden[520]; d5ʳ: thank[2805]; g3ʳ: suit[675]

Compositor C. D4ᵛ: find[668]; F4ʳ: alreadie[762]; G2ʳ: readie[1830]; I4ʳ: graunt[307]

Compositor D. F5ʳ: suit[1077]; K6ᵛ: thanks[2548]; N4ʳ: pitty[802]; N6ᵛ: down[1462]

Compositor E. 2d3ʳ: you'l[1337]; 2d4ʳ: sirra[1529]; 2e5ʳ: readie[577]; 2G3ʳ: graunt[407]; 2q4ʳ: howre[510]; 2s1ʳ: scarse[2801]; 2s1ᵛ: mercie[2912]; 2s2ᵛ: breefe[3144]; 2s5ᵛ: ladie[515]; 2x6ʳ: acte[1424]

Compositor F. A1ᵛ: howr's[124]; A1ᵛ: indeed[200]; A1ᵛ: mind[187]; B3ᵛ: companie[2245]; B5ᵛ: need'st[319]; G6ʳ: cries[2795]; G6ᵛ: marrie[2917]

Compositor H. ¶4ʳ: deeds[1190]; ¶6ʳ: wars[1805]; 2¶5ʳ: lies[3064]

Compositor I. t4ᵛ: voice[405]; v1ʳ: speaks[1071]; v3ʳ: counsaile[1583]; v3ᵛ: greefes[1720]; 2n6ʳ: look[377]

3. Spectrum of Spelling Preferences

The lists below for Compositor A and Compositor B show, for a large selection of words that occur in two spelling variants, the number of times the compositor set each variant, considering only unjustified lines. As is clear from these lists, each compositor had some very strong preferences, some very weak ones, and everything between those extremes. For example, we can see from the first line that Compositor A set *already* seven times but *alreadie* ten times.

In most cases the count for the short spelling is given first, but that is immaterial since my purpose is to show the spread of spelling variants, not the quantity of any particular variant. The reader may confirm at the website that the same variation is found in all compositors.

Compositor A. act[16,0]; already[7,10]; answer[35,18]; back[37,17]; be[840,5]; beat[22,1]; beauty[0,10]; been[31,75]; behind[11,8]; blood[173,8]; body[33,0]; brief[8,0]; child[21,0]; choose[0,7]; city[0,22]; company[10,11]; counsel[14,11]; country[2,8]; cousin[1,70]; cry[49,1]; dear[41,4]; deed[37,6]; deny[14,4]; devil[1,21]; die[9,65]; do[10,370]; down[1,90]; drum[10,19]; duty[2,16]; either[10,23]; enemy[3,25]; every[77,0]; eye[126,0]; feed[4,2]; find[17,40]; fly[55,1]; fury[1,7]; gift[10,0]; go[7,188]; grant[3,16]; grief[57,0]; guilty[1,12]; happy[25,12]; he[633,116]; heavy[1,25]; here[273,26]; honesty[0,7]; honour[111,6]; hour[35,25]; humour[1,7]; indeed[23,12]; keep[1,65]; kind[20,15]; lady[103,0]; lead[8,3]; liberty[0,6]; lie[0,66]; lip[4,11]; look[16,125]; madam[0,47]; maid[7,0]; majesty[2,68]; marry[15,0]; meet[48,14]; mercy[22,7]; merry[12,0]; mighty[0,28]; mind[18,45]; mistress[8,17]; need[29,15]; oh[115,72]; old[53,4]; pity[15,10]; power[71,9]; prethee[11,8]; proud[1,29]; queen[1,128]; read[12,20]; ready[11,8]; run[13,31]; scarce[8,0]; she[109,48]; show[1,67]; sin[4,23]; soldier[0,65]; son[1,107]; speak[4,141]; study[3,4]; sudden[27,3]; suit[17,1]; sun[1,35]; sweet[55,4]; thank[7,42]; think[5,133]; traitor[2,36]; truly[8,0]; twenty[0,23]; uncle[1,55]; very[62,0]; voice[4,37]; wait[8,0]; war[28,65]; we[475,80]; we'll[4,42]; weary[1,12]; win[6,16]; year[1,37]; you'll[0,11]; young[2,44]

Compositor B. act[43,26]; already[41,10]; answer[161,19]; back[7,129]; be[2389,55]; beat[7,43]; beauty[26,22]; been[1,94]; behind[5,28]; blood[387,20]; body[92,17]; brief[8,23]; child[5,67]; choose[28,0]; city[34,21]; company[45,18]; counsel[43,15]; country[41,32]; cousin[54,14]; cry[93,34]; dear[19,193]; deed[90,31]; deny[67,22]; devil[72,6]; die[77,174]; do[1348,20]; down[3,206]; drum[21,40]; duty[30,37]; either[117,13]; enemy[58,17]; every[159,35]; eye[367,36]; feed[20,28]; find[11,188]; fly[113,20]; fury[18,12]; gift[23,20]; go[588,18]; grant[34,8]; grief[5,126]; guilty[22,9]; happy[63,15]; he[2257,120]; heavy[48,23]; here[61,753]; honesty[18,15]; honour[223,93]; hour[177,6]; humour[11,25]; indeed[100,31]; keep[12,184]; kind[4,97]; lady[186,53]; lead[17,44]; liberty[21,12]; lie[71,139]; lip[44,22]; look[41,331]; madam[191,9]; maid[49,31]; majesty[60,27]; marry[52,31]; meet[49,72]; mercy[51,19]; merry[36,16]; mighty[38,7]; mind[7,120]; mistress[108,6]; need[47,46]; oh[487,406]; old[202,9]; pity[73,20]; power[151,47]; prethee[33,49]; proud[69,0]; queen[12,236]; read[41,43]; ready[38,18]; run[62,14]; scarce[3,30]; she[659,62]; show[11,187]; sin[11,56]; sirrah[21,25]; soldier[51,88]; son[34,297]; speak[23,465]; study[5,4]; sudden[1,40]; suit[1,48]; sun[37,50]; sweet[216,36]; thank[1,149]; think[22,411]; traitor[97,2]; truly[41,5]; twenty[29,13];

uncle[15,25]; very[178,43]; voice[27,44]; wait[7,21]; war[50,177]; we[1273,16]; we'll[116,2]; weary[24,8]; win[38,11]; year[60,23]; you'll[52,1]; young[119,31]

4. Most Pages Show Only One Spelling Variant

For the same set of common words used above, I now give the total number of pages on which the word occurs at least twice, and the number of those pages on which only one of its spelling variants is seen. As usual, all counts are taken from unjustified lines. We see from the first entry that the word "act" occurs twice or more in unjustified lines on ten pages, of which seven show only one spelling variant, either *act* or *acte* (including plurals). The evidence is clear that for all words most pages show only one spelling variant.

act[10,7]; already[9,6]; answer[67,46]; back[54,45]; be[829,771]; beat[20,14]; beauty[19,15]; been[59,46]; behind[4,4]; blood[189,160]; body[33,29]; brief[9,7]; child[29,22]; choose[7,7]; city[19,13]; company[18,14]; counsel[18,15]; country[14,8]; cousin[37,33]; cry[40,26]; dear[96,78]; deed[39,25]; deny[25,16]; devil[31,28]; die[100,79]; do[642,523]; down[91,90]; drum[21,9]; duty[24,19]; either[40,37]; enemy[20,15]; every[80,70]; eye[196,171]; feed[8,5]; find[83,70]; fly[42,37]; fury[3,1]; gift[11,10]; go[353,309]; grant[11,9]; grief[57,53]; guilty[5,4]; happy[21,15]; he[722,546]; heavy[22,19]; here[475,376]; honesty[5,3]; honour[152,100]; hour[58,50]; humour[11,8]; indeed[42,35]; keep[81,79]; kind[26,23]; lady[130,110]; lead[18,12]; liberty[6,4]; lie[93,58]; lip[17,12]; look[213,161]; madam[97,85]; maid[32,17]; majesty[52,43]; marry[35,28]; meet[48,33]; mercy[21,14]; merry[21,19]; mighty[9,8]; mind[52,45]; mistress[52,47]; need[27,21]; oh[399,254]; old[91,82]; pity[31,28]; power[80,65]; prethee[19,19]; proud[26,24]; queen[113,97]; read[34,19]; ready[13,12]; run[28,18]; scarce[3,3]; she[310,230]; show[76,61]; sin[28,18]; sirrah[11,8]; soldier[44,33]; son[149,119]; speak[248,223]; study[5,1]; sudden[12,11]; suit[16,16]; sun[33,17]; sweet[132,100]; thank[60,51]; think[214,184]; traitor[33,30]; truly[9,7]; twenty[15,14]; uncle[32,29]; very[101,88]; voice[19,14]; wait[6,5]; war[79,65]; we[555,506]; we'll[39,38]; weary[6,4]; win[15,12]; year[32,25]; you'll[7,7]; young[59,47]

5. Sample List of Discrepancies

It would be unfeasible to list all discrepancies here but I hope to convince the reader that they are abundant by listing a sample of them for a sample page in every quire. The pages are listed below in reading order. For each page I list a set of words for which there is a discrepant spelling on the page. For example, looking at the first entry we see that on page A6ʳ the compositor set a spelling of "deny" which was different to his majority spelling elsewhere in the Folio.

To check any entry in this list the reader may use the Shakespeare's Text website to find the discrepant spelling on the page, note the compositor the page is attributed to, and then do another search to see the spelling variants the compositor set for that word on all pages. This process, easy enough to do for at least a few words although inevitably tedious for more than a few, will allow the discrepant spelling to be seen in the context of the compositor's usage elsewhere in the Folio. I have produced the list below using only unjustified lines and the compositor attributions in the *Norton Facsimile*, I obtained very similar results by using all lines and by using Hinman's original attributions: the discrepancies differ but their quantity and quality remains about the same.

A6^{r} (deny, die, every, eye, fly, he, indeed, marry, sun, very); B2^{r} (answer, beat, blood, do, son, sun); C3^{r} (blood, company, duty, honour, oh, proud, sun); D4^{v} (find, fury, lie, mistress, she, young); E6^{r} (blood, eye, find, oh, sin); F6^{r} (beauty, body, deed, die, indeed, lie, mercy, oh, ready, voice); G2^{v} (deny, die, every, lie, mercy, pity, power, sin, very, year); H4^{r}-a (do, go, honour, hour, merry, oh, year); I2^{r} (company, deny, go, liberty, need, oh, old, twenty, voice); K3^{v} (blood, dear, eye, here, honour, hour, sweet); L6^{v} (dear, do, eye, go, maid, oh, sweet); M6^{r} (beauty, counsel, dear, deny, every, eye, guilty, heavy, honesty, madam, majesty, sin, very, weary); N4^{r} (blood, do, eye, fly, happy, honour, lie, oh, pity, run, show); O2^{r} (brief, devil, do, go, hour, merry, mind, wait); P4^{r} (blood, body, enemy, every, feed, honour, indeed, very); Q6^{v} (company, die, enemy, feed, honesty, lie, look, merry, pity, prethee, voice); R1^{r} (answer, body, city, company, cry, die, fly, go, look, oh, pity, she, sin, sun, weary); S3^{r} (deed, every, eye, gift, happy, here, indeed, lady, merry, mighty, oh, ready, sirrah, twenty, very, voice); T4^{r} (beat, body, city, company, every, feed, liberty, look, marry, oh, prethee, very); V5^{v} (behind, blood, brief, deed, every, eye, fly, honour, maid, marry, mighty, pity, scarce, she, young); X2^{r} (already, drum, honesty, honour, indeed, lady, maid, marry, need, oh); Y5^{v} (die, hour, maid, prethee, sun, sweet, very, year); Z5^{r} (company, lady, lip, meet, twenty, year); 2A3^{r} (answer, counsel, look, oh, read, she); 2B2^{r} (maid, oh, power, prethee, run); 2C1^{v} (answer, dear, either, oh, power); a4^{r} (beauty, city, eye, fury, here, indeed, lady, lip, marry, mighty, pity, read, traitor); b4^{v} (blood, body, either, happy, heavy, lead, look, maid, majesty, need, oh, ready); c5^{v} (back, dear, drum, happy, oh, sweet, we, we'll); d5^{r} (deed, keep, lie, need, oh, thank); e5^{v} (back, here, kind, meet, need, oh, read, ready, we); f3^{v} (behind, happy, here, indeed, kind, meet, we); g6^{v} (counsel, he, hour, indeed, meet, old, voice, war, we); ˣ2g4^{r} (he, here, hour, meet, oh, pity, power, she, war); h3^{v} (act, counsel, duty, honour, kind, power, read); i3^{r} (beat, company, country, find, hour, mind, think); k3^{r} (already, been, behind, drum, honour, run, weary, win); l3^{r} (behind, blood, either, honour, meet, oh, thank); m1^{r} (die, either, madam, maid, majesty, oh,

soldier, war); n4^v (cry, either, lip, majesty, oh, prethee, sweet, war); o3^r (beauty, body, cry, deed, die, enemy, meet, need, oh, war); p3^v (counsel, enemy, guilty, lady, she, war, win); q1^r (here, indeed, liberty, lie, majesty, need, soldier, war, young); r1^r (country, every, maid, majesty, marry, need, son); s3^r (back, happy, here, hour, look, meet, pity, she); t2^r (country, drum, soldier, sun, think); v1^v (do, find, go, hour, meet, oh, sun); x1^v (beauty, down, honesty, pity, sun); χ2^r (beauty, go, here, need, oh, suit, sun); ¶2^r (act, go, honour, meet, sun, young); 2¶2^v (cry, dear, gift, pity, sudden, sweet); 3¶1^r (war); 2a2^v (beat, he, lie, look, oh, pity); 2b4^r (city, country, lie, mercy, need, soldier, voice); 2c2^r (country, cry, duty, grant, honour, lady, lip, oh, soldier, sun); 2d6^v (child, cry, dear, devil, fly, grief, indeed, mind, oh); 2e1^v (dear, devil, find, go, mind, oh, sun, traitor, uncle); 2f3^v (dear, deed, do, find, heavy, here, honesty, liberty, show); 2g2^r (beauty, blood, dear, enemy, fury, here, merry, weary); 2G5^v (gift, indeed, need, oh, think, wait, year); 2h1^v (every, grant, liberty, maid, oh, sun, young); 2k4^v (dear, grant, humour, look, need, run); 2l3^v (die, duty, heavy, meet, ready); 2m1^r (behind, country, die, kind, run); 2n6^v (blood, go, here, hour, lie, oh, read, show); 2o6^v (die, enemy, fly, honour, lead, meet, need, oh, power, run, she, very); 2p1^r (back, die, majesty, oh, very); 2q2^v (answer, dear, eye, gift, he, here, majesty, sun, think); 2r5^r (drum, here, need, oh, power, read, sweet); 2s5^r (counsel, dear, enemy, find, here, maid, oh, son, very, young); 2t3^r (dear, devil, honesty, power, sin, soldier, suit, win); 2v2^r (cry, fly, heavy, honesty, lip, oh, run, sweet); 2x4^r (company, dear, feed, lie, maid, oh, power, win); 2y2^v (be, indeed, lead, oh, think, win, young); 2z5^v (dear, feed, fly, read, thank, think); 3a3^v (already, body, look, maid, mind, need, oh, read, year); 3b3^r (either, fly, honour, lie, oh, power, soldier, sweet).

6a. Spelling Preference Reversals at Halfway Points

For each compositor this section lists the words for which his spelling preference reverses at the halfway point of his stint (considering only unjustified lines as usual). The signature given is of the page at the halfway point. The halfway points and the words are of course different for each set of compositor attributions. Using Hinman's original attributions the list is:

Compositor A (h6^v). answer; back; behind; child; choose; counsel; die; drum; either; fury; indeed; lip; madam; mistress; need; prethee; suit; we'll; win; young.

Compositor B (r4^v). beauty; city; country; duty; gift; honesty; humour; need; oh; prethee; read; ready; sirrah; study; twenty; voice.

Compositor C (P4^v). brief; dear; devil; enemy; humour; majesty; queen; study; truly.

Compositor D (L2^r). company; dear; do; eye; meet; need; oh; pity; read; sirrah; sweet; year.

Compositor E (2f3^v). answer; beat; beauty; child; choose; city; country; find; fury; gift; go; guilty; here; majesty; merry; sun; traitor; wait; we'll; you'll.

Using the current attributions, from the Norton facsimile, the list is:

Compositor A (k3^v). already; behind; drum; hour; kind; mind; prethee.

Compositor B (q1^r). beauty; city; company; country; duty; fury; gift; honesty; humour; need; oh; prethee; read; ready; sirrah; study; twenty; voice.

Compositor C (K4^v). choose; devil; hour; liberty; merry; oh; run; study; wait.

Compositor D (N4^v). beat; body; dear; do; feed; happy; honour; very; voice; year.

Compositor E (2G3^r). answer; choose; company; country; cry; dear; deny; devil; drum; enemy; find; gift; majesty; marry; oh; sudden; suit; traitor; we'll; you'll; young.

Compositor F (C5^v). answer; counsel; deed; die; fly; oh; power; show; son; suit; sun; war.

Compositor H (2¶2^r). cry; enemy; gift; honour; mighty; traitor.

Compositor I (x3^r). cry; hour; mind; oh; queen; suit.

6b. Spelling Preference Reversals between Even and Odd Plays

For each compositor this section lists the words for which his spelling preference is different between even and odd plays. Using Hinman's original attributions the list is:

Compositor A. answer; back; behind; child; choose; company; counsel; dear; deed; devil; drum; either; feed; fury; heavy; hour; indeed; kind; lip; madam; meet; mistress; need; proud; study; suit; traitor; truly; win; you'll; young.

Compositor B. beauty; city; feed; gift; honesty; marry; need; read; twenty; uncle.

Compositor C. dear; deny; die; duty; enemy; humour; liberty; lie; majesty; queen; study; suit; traitor; truly.

Compositor D. company; dear; deed; devil; do; every; eye; mistress; oh; read; show; sweet; very; we'll.

Compositor E. beauty; child; choose; cry; dear; deed; deny; enemy; find; fly; fury; go; here; marry; merry; mistress; pity; sin; sudden; sun; traitor; voice; we'll.

Using the current attributions, from the *Norton Facsimile*, the list is:

Compositor A. answer; back; behind; company; feed; hour; indeed; kind; mistress; need; pity; ready; study.

Compositor B. beauty; city; duty; feed; gift; honesty; marry; need; twenty; uncle.

Compositor C. choose; counsel; dear; honour; humour; liberty; majesty; merry; queen; study; suit; truly; wait; win.

Compositor D. answer; body; every; eye; oh; power; show; sweet.

Compositor E. child; choose; dear; deed; devil; find; gift; go; heavy; here; honesty; oh; sin; suit; sun; traitor.

Compositor F. counsel; deed; die; fly; grant; maid; oh; power; show; voice.

Compositor H. None, because this compositor is found in just one play.

Compositor I. blood; cry; hour; lie; oh; read; show.