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# *Arden of Faversham* and Shakespeare's Early Collaborations

## *The Evidence of Meter*

MacDonald P. Jackson

UNIVERSITY OF AUCKLAND



**ABSTRACT:** Most recent specialists in the attribution of authorship agree that the three *Henry VI* plays and *Titus Andronicus*, of the Shakespeare First Folio (1623) are collaborative, and that Shakespeare was also a coauthor of the anonymously published *Edward III* (1596). There is also growing support for the view that the middle scenes, 4–9, of the anonymous domestic tragedy *Arden of Faversham* (1592) were largely, if not wholly, Shakespeare's. The evidence for all these conclusions has come mainly from computational analyses of lexical words and rates of use of high-frequency function words, from database searches of rare phrases and collocations, and from the detection of stylistic and sub-stylistic patterns of usage. Marina Tarlinskaja's newly published investigation of the versification of English drama of the period 1561–1642 enables the allocations of shares in what are held to be Shakespeare's early collaborations to be tested against her carefully compiled metrical data. Tarlinskaja is aware of the divisions of authorship proposed by modern attributionists and presents her counts of various verse features accordingly. Statistical analysis of the figures in her tables for the above-mentioned plays provides broad support for the latest findings. In particular, scenes 4–9 of *Arden of Faversham*, unlike the rest of the play, are significantly more akin metrically to the putatively Shakespearean portions of the four Folio plays and *Edward III* than to the putatively non-Shakespearean portions.

**KEYWORDS:** *Arden of Faversham*, Shakespeare, meter, collaboration, Tarlinskaja, attribution, statistical analysis

When, in *Shakespeare, Computers, and the Mystery of Authorship*, Hugh Craig and Arthur F. Kinney reported on the application of their methods of computational stylistics to problems of attribution in the Shakespeare canon, among their conclusions was that Shakespeare was largely, if not wholly,

responsible for the middle portion of the anonymous domestic tragedy *Arden of Faversham* (published in 1592), namely scenes 4–9 (99). Their tests—involving (a) lexical words and (b) function words—had been validated on works of known authorship: a high degree of success in distinguishing between indisputably Shakespearean and non-Shakespearean passages of two thousand words was achieved.

Craig and Kinney's conclusions seemed to be confirmed by evidence that I set forth most fully in *Determining the Shakespeare Canon: "Arden of Faversham" and "A Lover's Complaint"* (2014). There I showed that when drama first performed within the period 1580–1600 was searched, through the electronic database "Literature Online" (LION), for phrases or collocations that five or fewer plays shared with *Arden of Faversham*, scene 8, these rare links were overwhelmingly with Shakespeare. Eight plays by him headed the list of totals, with 3 *Henry VI* at the top having twenty-two links, while the highest number for a non-Shakespeare play was eight. Similar results were obtained for Arden's narrative of his dream at 6.6–31 (Jackson 17–24, 54–56).<sup>1</sup>

Moreover, among links between *Arden of Faversham* and Shakespeare's early collaborations—the three *Henry VI* plays, *Titus Andronicus*, and *Edward III*—those with Shakespeare's shares, as these have been determined by recent studies in attribution, vastly outnumbered those with the shares of his collaborators, in proportion to the amount of text in each category.<sup>2</sup> This was true for each collaborative play, and the difference between the overall totals was statistically highly significant, with Shakespeare's contributions working out at thirteen per 2,000 words and his collaborators' at four per 2,000 words (Jackson 68–71). Shakespeare's contribution to 3 *Henry VI* contained an especially large number of rare phrases and collocations that were present in *Arden of Faversham*, scenes 8 and 6.6–31, namely twenty-two within 1,770 lines, compared with only six in the remaining 1,137 lines.<sup>3</sup> A sample from scene 14, notably un-Shakespearean according to the Craig–Kinney tests, provided a clear contrast, with Shakespeare not prominent among authors of plays with the greatest numbers of rare links, and five of the seven links to Shakespeare's early collaborations being to non-Shakespeare scenes (Jackson 72–75).

In *Determining the Shakespeare Canon*, I was also able to demonstrate that various previously noted pointers to and away from Shakespeare's authorship of *Arden of Faversham* fell into patterns that tended to corroborate the Craig–Kinney division between a largely Shakespearean middle

section and a largely non-Shakespearean beginning and end—a division made in ignorance of the earlier evidence and therefore independent of it (Jackson 60–84).

It appeared, therefore, that *Arden of Faversham* could be added to plays on which Shakespeare collaborated towards the beginning of his playwriting career. Many scholars remain skeptical of the newly emergent picture of Shakespeare as collaborator, and even those familiar with the accumulating evidence concede that for some plays the allocations of shares to Shakespeare and his coauthors are uncertain, and that dates of composition are also problematical. But, the publications to which Taylor gives full references in “Why Did Shakespeare Collaborate,” cannot lightly be set aside. There is a fair measure of agreement among attribution specialists.

Nevertheless, claims that Shakespeare contributed to *Arden of Faversham* still provoke resistance, which the present article may help overcome. It is devoted to a statistical analysis of metrical data on Shakespeare’s early collaborations that is presented in a series of tables in a newly published book by Marina Tarlinskaja, *Shakespeare and the Versification of English Drama, 1561–1642* (287–375). The question to be answered is whether her prosodic investigation of blank verse—carefully described, with illustrations of features counted—supports the findings of computational stylistics, LION searching, and other evidence adduced in my book.

Contemporary critics of early modern drama have taken little interest in metrical matters. Yet most would be willing to acknowledge that the dramatic verse of Fletcher in *All Is True* or *Henry VIII* and *The Two Noble Kinsmen* can be distinguished from Shakespeare’s by Fletcher’s more liberal use of feminine endings—of examples of an extra unstressed syllable added at the end of a line. Playwrights differed in the ways in which they varied the basic ti-túm ti-túm ti-túm ti-túm of blank verse, substituting trochaic for iambic feet, employing occasional hexameters or tetrameters, running units of sense and syntax across the line division, cramming lines with additional unstressed syllables, pausing in different positions within lines, and so on, in combinations of preferences and licenses that constituted an individual verse style. Playwrights of the 1580s and early 1590s, when dramatic verse to be spoken in the commercial theatres was in its infancy, were metrically less distinguishable than their Jacobean and Caroline successors, and date of composition, during years in which verse form rapidly developed, can be more influential than authorship. But some authorial differences can nevertheless be detected.

Tarlinskaja is an assiduous analyst of English blank verse, trained in “the Russian linguistic-statistical method for studying poetic rhythm” (Bailey in Tarlinskaja, *Shakespeare’s Verse* xv). Prominent in her analyses is the counting and tabulation of the percentages of stressed syllables within the ten different positions in the line. According to the iambic paradigm, even-numbered syllables (which are in “strong” positions) receive stress whereas uneven-numbered syllables (which are in “weak” positions) do not. Systematically employing linguistic criteria, defined in detail, and a binary division of categories, Tarlinskaja determines how often the theoretical expectations are actualized in practice. She also compiles data on the positions in the line at which word boundaries and strong syntactic breaks occur. In her recent book, she also gives tallies of miscellaneous features, such as pleonastic “do,” disyllabic pronunciations of “-ion,” grammatical inversions, and examples of “-ed” and “-eth” endings with syllabic value.

Tarlinskaja, aware of the latest research on attribution, provides separate figures for the Shakespearean and non-Shakespearean portions of *1 Henry VI*, *2 Henry VI*, *3 Henry VI*, *Titus Andronicus*, *Edward III*, and *Arden of Faversham*.<sup>4</sup> For *3 Henry VI*, she uses the division established by Craig and Burrows, assigning Shakespeare 1.3–2.2, 2.4–3.2, 4.1, 5.1, 5.3–5.7. Craig and Burrows tested “rolling segments” of text to determine where shifts toward and away from a Shakespearean style occurred. No such sophisticated analysis has been undertaken for *2 Henry VI*, but Tarlinskaja’s figures are based on scenes that are most (1.3–2.3, 3.1–4.1, 5.1–5.3) and least (1.1–2, 4.2.160–4.10) Shakespearean in Craig’s Table 3.3 of *Shakespeare, Computers, and the Mystery of Authorship* (69). She accepts that Act 1 of *1 Henry VI* is by Nashe and that Shakespeare’s contribution is small, giving Shakespeare only 2.4, 4.2, and 4.5, but, for word boundaries and strong syntactic breaks, also offering alternative Shakespeare counts for 2.4 and all 4.2–4.5. For word boundaries and strong syntactic breaks, I have worked with her more inclusive Shakespeare counts and her minimal counts for the part of *1 Henry VI* assigned to neither Shakespeare nor Nashe. For *Titus Andronicus* she accepts the now orthodox attribution of 1.1, 2.1, 2.2, and 4.1 to Peele, the rest to Shakespeare, though 3.2, the “fly scene,” not in the Quarto of 1594 but added in the First Folio, remains problematical and there are good grounds for restoring 4.1 to Shakespeare; but 1.1 so dominates Peele’s share that the effect of the doubtful scenes on Tarlinskaja’s figures is relatively small.<sup>5</sup> In *Edward III*, Shakespeare is assigned 1.2, 2.1, 2.2, and 4.4. But for strong syntactic breaks in that play,

she provides non-Shakespearean figures only for the combined totals of 1.1 and 5.1. In *Arden of Faversham*, she gives Shakespeare only scenes 4–8, since she finds scene 9 to be metrically dissimilar to the other five; reading it after the other five scenes one quickly becomes aware of a proliferation of irregular lines.

The text of the 1592 quarto of *Arden of Faversham*, on which all modern editions are based, suffers in places from some form of corruption, from which the middle scenes are, however, almost entirely free (Wine xxiv–xxxiii, Jackson 14–15, 81–83, 112). Tarlinskaja explains that she analyzed only lines that, enunciated in “the most natural way”, would “fit the iambic pentameter scheme” (Tarlinskaja, *English Drama* 107).

Tarlinskaja’s allocations for 3 *Henry VI*, *Titus Andronicus*, and *Edward III* are exactly the same as those I used in *Determining the Shakespeare Canon* (except that for strong syntactic breaks in *Edward III* her figures for the non-Shakespeare portion ignore all but 1.1 and 5.1). For 2 *Henry VI*, I selected only Act 3 as Shakespeare’s, since, as Craig concluded, “his contribution is mainly in what is designated Act III in modern editions” (Craig and Kinney 69). Craig did not suppose that Shakespeare’s writing was necessarily confined to Act 3, which forms a substantial part of Tarlinskaja’s “Shakespeare” allocation. Some blurring of results for 2 *Henry VI* may be expected. Tarlinskaja’s “maximal” allocation of Shakespeare scenes in 1 *Henry VI* is well supported by other studies, and I added 4.7.1–32. Since Shakespeare’s part in 1 *Henry VI* is so small, with only 237 testable lines for the “minimal” count, results for this play are likely to be among the least reliable. Moreover, the likelihood that Shakespeare’s scenes are a later addition to the original 1 *Henry VI* may further distort the results (Vincent 301–2). It is possible also that in *Edward III* (perhaps composed as late as 1594) Shakespeare was responsible for other scenes in Act 4 besides 4.4, and even passages elsewhere. The same proviso applies to *Arden of Faversham*: Tarlinskaja’s is a close approximation to the allocation adopted by Craig and Kinney and myself, but even that was not assumed to be by any means absolute.

Given these reservations and cautions, we can now determine from Tarlinskaja’s tables the degrees of prosodic similarity of (a) Shakespearean and (b) non-Shakespearean parts of Shakespeare’s five acknowledged early collaborative texts to *Arden of Faversham*, 4–8, and to the rest of *Arden of Faversham*. Tarlinskaja herself interprets her data subjectively, according to

what from the benefit of her wide experience and highly attuned ear for rhythm, seems most important to her. But an objective, mathematically determined, measure of likeness is also desirable. One possible approach would be to undertake principal component analysis. But since my concern here is with *Arden of Faversham*, a simpler mode of testing may be employed. It has the advantage of taking into account all the information presented. This simple measure of likeness to *Arden of Faversham* “Shakespeare” and “non-Shakespeare” is the Basic Linear Correlation, which may be thought of as a mathematical means of computing the similarity between the shapes of the graphs of the sets of figures for any one play or part-play and another.<sup>6</sup> In Table B.1, Tarlinskaja gives percentages for strong stresses in each of the even positions in lines—after syllables 2, 4, 6, 8, and 10. For each of these positions, they are 77.9, 90.9, 71.8, 81.0, and 89.1 for *Arden of Faversham*, 4–8, and 68.5, 87.6, 69.4, 78.4, and 89.7 for Shakespeare’s share of *Titus Andronicus*. There are websites that, once these two sets of figures have been entered into parallel columns, can perform a Basic Linear Correlation within a split second.<sup>7</sup> If the percentages for both plays were exactly the same for each syllabic position, the final correlation would be 1. Since wild deviations from the metrical paradigm are not possible, the correlations between all pairs of plays or part-plays are high, but even small differences in the results effectively distinguish between degrees of closeness. The results of these calculations are set out here in Table 1.

Table 1: *Arden of Faversham* scenes 4–8 tested against Shakespeare and non-Shakespeare portions of Shakespeare’s early collaborations

	Shakespeare scenes	Non-Shakespeare scenes
Stress in strong syllabic positions		
3 <i>Henry VI</i>	0.990*	0.876
2 <i>Henry VI</i>	0.987*	0.662
1 <i>Henry VI</i>	0.948**	0.720 (Nashe, Act 1)
		0.946 (remainder)
<i>Titus Andronicus</i>	0.939*	0.798 (Peele)

(Continued)

	Shakespeare scenes	Non-Shakespeare scenes
<i>Edward III</i>	0.902	0.926
Word boundaries		
<i>3 Henry VI</i>	0.892*	0.838
<i>2 Henry VI</i>	0.921*	0.802
<i>1 Henry VI</i>	0.918**	0.817 (Nashe, Act 1)
		0.887 (remainder)
<i>Titus Andronicus</i>	0.921*	0.919 (Peele)
<i>Edward III</i>	0.915*	0.890
Strong syntactic breaks		
<i>3 Henry VI</i>	0.994*	0.979
<i>2 Henry VI</i>	0.993*	0.909
<i>1 Henry VI</i>	0.931*	0.961 (Nashe, Act 1)
		0.928 (remainder)
<i>Titus Andronicus</i>	0.986*	0.938 (Peele)
<i>Edward III</i>	0.954*	0.902
Miscellaneous features		
<i>3 Henry VI</i>	0.958*	0.913
<i>2 Henry VI</i>	0.962*	0.894
<i>1 Henry VI</i>	0.929*	0.811 (Nashe, Act 1)
		0.954 (remainder)
<i>Titus Andronicus</i>	0.983*	0.952 (Peele)
<i>Edward III</i>	0.982	0.984

*Note:* Testing is by Basic Linear Correlation. The larger the result, the closer the fit. Asterisks are explained in the text.



For strong stresses (Tarlinskaja, *English Drama* Table B.1), the calculations ignore the columns for the *means* of stresses in strong positions, since these are obviously dependent on the other figures.<sup>8</sup> Tarlinskaja's Table B.2 shows word boundaries after syllabic positions 2–11 as percentages of the total number of lines. Whether words end at position 10 or 11 depends on the presence or absence of feminine endings, which are dealt with in Tarlinskaja's Table B.4. So we may discard the figures for those two positions. Tarlinskaja's Table B.3 gives percentages of strong syntactical breaks after positions 2–11 in the line. Here again, figures for positions 10 and 11 are not independent of figures for run-on lines and feminine endings (both included in Table B.4) and so are discarded from analysis of Table B.3's figures. Since percentages in Table B.3 are based on relatively few actual instances—strong syntactical breaks normally coming after only a single position in the line, whereas the vast majority of all strong positions receive stress and computations of word boundaries also yield high raw tallies—those for the 340 lines of Shakespeare's "maximal" share of *1 Henry VI*, in particular, may well be unreliable.

Finally, Tarlinskaja's Table B.4 enumerates, as rates per one thousand lines, twelve features of the verse that are miscellaneous in the extreme. We may ignore the division of feminine endings into "simple" and "compound" examples (the latter consisting of an extra unstressed monosyllable), since the compound types are so consistently rare in plays roughly contemporary with *Arden of Faversham*, and retain only the overall totals. Even so the figures given for *Arden of Faversham*, 4–8, for example, range from 5.1 for "grammatical inversions" to 218 for "proclitic phrases." Since only 395 lines were available for testing, there must have been only two grammatical inversions ( $5.1 \div 1,000 \times 395$ ). So Table B.4 comprises data for features of wildly diverse frequencies. Nevertheless, I have computed the Basic Linear Correlations for these data too, while recognizing that they may yield strikingly anomalous results.

Asterisks in Table 1 mark those twenty out of twenty-four possible cases where the putatively Shakespearean portion of *Arden of Faversham* is closer to the Shakespearean than to the non-Shakespearean portion (or in the case of *1 Henry VI*, one or both non-Shakespearean portions) of an early collaborative play. On strong stresses and word boundaries, for which the data are copious, *Arden of Faversham*, 4–8, is closer to the Shakespeare scenes of *1 Henry VI* than to either Nashe's Act 1 or the rest of the play, and so two asterisks mark the Shakespeare portion. On strong syntactic breaks,

*Arden of Faversham* is less close to the Shakespeare scenes of *1 Henry VI* than to Nashe's Act 1, but closer to the rest of the play, and on miscellaneous features, the reverse is the case, so that each time the Shakespearean portion receives one asterisk.

We may regard this as an experiment, in which the "null hypothesis" is that *Arden*, 4–8, is equally likely to be metrically closer to Shakespearean or non-Shakespearean shares of the five early collaborative plays, just as the toss of an unbiased coin is equally likely to yield a head or tail result. We can calculate the exact binomial probability of 24 tosses yielding 20 or more heads, or 20 or more tails, and the same calculation applies to the 20 asterisked results, out of a possible 24, in Table 1. Such a deviation would occur by chance one in 649 times ( $p = .00154$ ).<sup>9</sup> This outcome is of high statistical significance. It is, moreover, in the predicted direction. The null hypothesis may be rejected at well beyond the  $p < .01$  level of confidence that is conventionally taken as critical, and in fact well beyond the  $p < .005$  level of confidence.

On these tests, *Arden of Faversham*, 4–8, is more often than not closer to the putatively Shakespearean scenes of the early collaborative plays than to the remaining scenes. As anticipated, it is *1 Henry VI* that affords the most problematic results. For *Edward III*, also tricky because of its likely date, differences between Shakespeare's share and the other scenes are small, even for the anomalous two results. Further, Tarlinskaja gives for miscellaneous features alternative figures that include in the non-Shakespearean portion of *Edward III*, only 1.1, Act 3, and 5.1, and this would lower the correlation for non-Shakespearean *Edward III* on miscellaneous features to 0.980. Since exclusion of 4.1–4.2 and 4.5–4.7 from the non-Shakespearean portion lowers the correlation, presumably its inclusion in the Shakespearean portion of *Edward III* would raise its correlation, and even if it were to remain unchanged it would be closer than redefined non-Shakespearean *Edward III* to *Arden of Faversham*, 4–8. This would give a 21:3 disparity in the distribution of asterisks in Table 1 ( $p = .00028$ , one in 3,571).

So two completely independent and dissimilar types of evidence converge. Rare phrases and collocations shared by the putatively Shakespearean scenes 8 and 6.6–31 of *Arden of Faversham* and the five early coauthored plays were found to occur at rates more than three times greater in portions of the collaborations that had been allocated to Shakespeare than in

portions that had been allocated to other playwrights. And metrically *Arden of Faversham*, 4–8 (which, of course, includes scenes 8 and 6.6–31) is much closer to the Shakespearean than to the non-Shakespearean parts of the same plays.

How does the rest of *Arden of Faversham* perform on the same metrical tests?

Tarlinskaja provides separate figures for the sections preceding and following 4–8, namely 1–3 and 9–end. Since these two portions of the play (1–3 and 9–end) are of almost exactly the same length—786 and 787 lines, according to Table B.4—we can simply take the average of the two sets of figures as those for “non-Shakespeare.”<sup>10</sup> The results of the same correlation tests as used for *Arden of Faversham*, 4–8, are shown in Table 2.

Table 2: *Arden of Faversham* scenes 1–3 and 9–end tested against Shakespeare and non-Shakespeare portions of Shakespeare’s early collaborations

	Shakespeare scenes	Non-Shakespeare scenes
Stress in strong syllabic positions		
3 <i>Henry VI</i>	0.865	0.977
2 <i>Henry VI</i>	0.846	0.978
1 <i>Henry VI</i>	0.879	0.978 (Nashe, Act 1)
		0.928 (remainder)
<i>Titus Andronicus</i>	0.882	0.986 (Peele)
<i>Edward III</i>	0.974*	0.961
Word boundaries		
3 <i>Henry VI</i>	0.888	0.946
2 <i>Henry VI</i>	0.888	0.918
1 <i>Henry VI</i>	0.841*	0.924 (Nashe, Act 1)
		0.811 (remainder)
<i>Titus Andronicus</i>	0.910	0.915 (Peele)
<i>Edward III</i>	0.792*	0.779

(Continued)

	Shakespeare scenes	Non-Shakespeare scenes
Strong syntactic breaks		
3 <i>Henry VI</i>	0.969	0.984
2 <i>Henry VI</i>	0.952*	0.932
1 <i>Henry VI</i>	0.925	0.940 (Nashe, Act 1)
		0.931 (remainder)
<i>Titus Andronicus</i>	0.970*	0.942 (Peele)
<i>Edward III</i>	0.944*	0.912
Miscellaneous features		
3 <i>Henry VI</i>	0.994*	0.985
2 <i>Henry VI</i>	0.982	0.988
1 <i>Henry VI</i>	0.980**	0.902 (Nashe, Act 1)
		0.969 (remainder)
<i>Titus Andronicus</i>	0.970*	0.831 (Peele)
<i>Edward III</i>	0.974*	0.958

Note: Testing is by Basic Linear Correlation. The larger the result, the closer the fit. Asterisks are explained in the text.

On eleven occasions the non-Shakespeare scenes of *Arden of Faversham* are closer to the Shakespearean portions of the coauthored plays and on thirteen occasions they are closer to the non-Shakespearean portions.<sup>11</sup> Of course there is no theoretical reason why non-Shakespeare *Arden of Faversham* should not be metrically more akin to Shakespeare than to his collaborators. And in fact, in 24 tosses, an unbiased coin would yield at least 13 heads or tails results far more often than not ( $p = .83882$ , Exact Binomial Probability). But the contrast between the results for *Arden of Faversham*, 4–8, and the results for *Arden of Faversham*, 1–3 and 9–end, (20: 4 vs. 11:13) is striking. According to Fisher's Exact Test, a disparity this great would occur by chance only once in 68 trials ( $p = .01455$ ).<sup>12</sup>

Notably, five of the eleven asterisks placed in Table 2 beside Shakespeare scenes are under the "Miscellaneous features" category, for which anomalous results were not unexpected. If we were to ignore the "Miscellaneous features" entirely, in both Tables 1 and 2, the disparity between the "Shakespearean"

and “non-Shakespearean” parts of *Arden of Faversham* in their closeness to “Shakespearean” and “non-Shakespearean” parts of the coauthored plays would be 16: 2 versus 6: 12, which has a one in 633 probability of occurring by chance ( $p = .00178$ , Fisher’s Exact Test).

From Tables 1 and 2 (left-hand columns), we can also ascertain that on 16 of 20 occasions *Arden of Faversham*, 4–8, is closer than the remainder of *Arden of Faversham* to Shakespeare’s share of an early coauthored play, a result that has a one in eighty-five chance of occurring on a random distribution ( $p = .01182$ , Exact Binomial Probability). If we ignore the problematical “Miscellaneous features,” *Arden of Faversham*, 4–8, is closer than the remainder of *Arden of Faversham* to Shakespeare’s share of an early coauthored play on 14 out of 15 occasions, which yields a chance probability so miniscule that it is recorded as nil.

In contrast (comparing Table 1 left-hand column with Table 2 right-hand column), we discover that on 14 of 23 occasions *Arden of Faversham*, 4–8, is closer than the remainder of *Arden of Faversham* to a non-Shakespearean share of an early coauthored play. This result is almost as likely to occur by chance as not ( $p = .40487$ , Exact Binomial Probability), and the figure of 11 out of 17, ignoring “Miscellaneous features,” has a one in three probability of occurring by chance ( $p = .03231$ , Exact Binomial Probability). For these two calculations, the available comparisons are reduced from 14 to 23 and from 18 to 17, because for “strong syntactic breaks” the correlation of 0.931 between *Arden of Faversham*, 4–8, and the Shakespeare scenes of *1 Henry VI* (Table 1 left-hand column) is the same as that between *Arden of Faversham*, 1–3 and 9–end, the non-Shakespeare scenes that are not by Nashe in *1 Henry VI* (Table 2 right-hand column): the coin has, as it were, landed on its edge, so for calculating probabilities this tie must be ignored.

The results of this investigation may be summarized as follows. Statistical analysis of Tarlinskaja’s meticulously computed metrical figures for the two verse styles in *Arden of Faversham* in relation to the shares of Shakespeare and his collaborators on the three *Henry VI* plays, *Titus Andronicus*, and *Edward III*, as these have been determined by recent attribution scholars, lends independent support to the conclusion, arrived at on very different grounds, that Shakespeare was largely, if not wholly, responsible for *Arden*, scenes 4–8, at the least. The basic correctness of currently established divisions between Shakespeare and his coauthors in the four First Folio plays and *Edward III* is also supported.

Could the putatively “Shakespearean” and “non-Shakespearean” metrical patterns in some of the plays analyzed merely reflect chronologically different strata of composition by Shakespeare alone? Such a theory might, in certain cases, explain Tarlinskaja’s figures on versification, considered in isolation, but these are buttressed by evidence from vocabulary, function-word rates, rare phrases and collocations, and other stylistic and substylistic measures—all of which have been shown to discriminate between authors. There is much about Shakespeare’s beginnings as a playwright that still requires clarification. But it seems probable that, in *Arden of Faversham*, the Craig–Kinney tests by computational stylistics, the LION and other evidence cited in *Determining the Shakespeare Canon*, and Tarlinskaja’s prosodic analysis have independently detected genuine authorial differences.<sup>13</sup>

MACDONALD P. JACKSON is Emeritus Professor of English at the University of Auckland and a Fellow of the Royal Society of New Zealand. He was an associate general editor of, and contributor to, the award-winning Oxford *Thomas Middleton: The Collected Works* (2007) and its companion volume *Thomas Middleton and Early Modern Textual Culture* (2007) and has co-edited two volumes of Cambridge’s *The Works of John Webster* (2003, 2007). The most recent of his twelve books is *Determining the Shakespeare Canon: “Arden of Faversham” and “A Lover’s Complaint”* (Oxford University Press, 2014). (m.jackson@auckland.ac.nz)

#### NOTES

1. References to scenes and lines in *Arden of Faversham* are to Wine’s edition references to (other) Shakespeare plays are to Evans’s *Riverside Shakespeare*.

2. There is a comprehensive survey of recent studies by Taylor, “Why did Shakespeare Collaborate?” Attributions were summarized in Wells and Taylor, *Textual Companion*, 111–15, 136–37 supplemented for *Edward III* by Wells and Taylor, *Oxford Shakespeare*, 257. Since the *Textual Companion* was published there have been several advances. For *Titus Andronicus*, see Vickers, *Shakespeare, Co-Author*, 148–243, and for *1 Henry VI* Vincent, and Vickers, “Incomplete Shakespeare.” All five early collaborations are also discussed by Craig and Kinney, 28–33, 40–77, 116–33 (*Edward III* in a chapter by Timothy Irish Watt). Craig and Burrows have since determined authorial shares in *3 Henry VI*. Elliott and Valenza offer independent grounds for believing that all five plays were coauthored.

3. These figures combine information given by Jackson at 53 Table 2.1, 69, 70 Table 3.1, 71 n.34. In Table 2.1, only one of the six links to *3 Henry VI* is to a non-Shakespeare scene.

4. Tarlinskaja's Table B.2 gives no separate figures for word boundaries in Shakespearean and non-Shakespearean portions of 3 *Henry VI*, only figures for the whole play, but she has kindly sent me the breakdown. For positions 2–9 the percentages are, for "Shakespeare": 48.0, 29.5, 52.4, 35.0, 45.7, 30.5, 40.7, 31.7; for "non-Shakespeare": 42.9, 29.8, 50.1, 35.7, 42.1, 34.0, 41.4, 26.3.

5. See Weber for a persuasive argument in favor of Shakespeare's authorship of 4.1. The scene that Tarlinskaja, following most editors, labels 2.1 is arguably part of 1.1, since Aaron remains on stage.

6. An alternative would have been the chi-square "goodness of fit," obtained by squaring the difference between each pair of figures in turn and dividing each squared difference by each sum of the two figures. But for strong syntactic breaks expected figures are often lower than 5, and some are lower than 1, conditions that render chi-square unreliable, even as a means of ordering the results rather than generating probabilities. Yet, results from chi-square goodness of fit are, in fact, closely similar to those from linear correlations.

7. I have used the VassarStats "Website for Statistical Computation" (see Works Cited).

8. I have disregarded Tarlinskaja's figures for stresses on weak positions because she evidently regards them as of minor importance, ignoring them in her own discussion of *Arden of Feversham* and 2 and 3 *Henry VI* (105–16).

9. All probabilities in this article are two tailed. VassarStats includes a facility for calculating exact binomial probabilities.

10. The figures are 786 and 788 in Table B.1 and 783 and 787 in Table B.2; there are none in Table B.3. On page 110, Tarlinskaja does give figures for strong syntactical breaks in scenes 1–3 and 9–end combined.

11. When correlations were run for *Arden* 1–3 and 9–end separately, the results were similar to those for the two non-Shakespearean portions combined: 1–3 was closer to Shakespeare scenes in the collaborative plays 12 times, and closer to non-Shakespeare scenes 12 times; for 9–end the breakdown was 10: 14.

12. For Fisher's Exact Test, I have used the Microsoft Research site (see "Works Cited").

13. Tarlinskaja also notes remarkable variation within *Arden of Feversham* in the incidence of lines that were evidently intended as iambic pentameters but "with omitted syllables." In scenes 1–3, she counted 48 in 786 lines (6.1 percent); in scenes 4–8, 17 in 395 lines (4.3 percent); and in scenes 9–end 106 in 787 lines (13.5 percent). Scenes 9–end are distinguished, at a very high level of statistical significance, from the other two sections. Tarlinskaja tentatively suggests that the later scenes may suffer more textual corruption (107).

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