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Pressed for Space: The Effects of Justification and the Printing Process on Fifteenth-Century Orthography

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ABSTRACT

There is a long-held belief that, prior to the standardisation of written English, printers altered spellings to justify their type. I investigate this claim through an analysis of spelling changes in William Caxton's two editions of the *Canterbury Tales*—by examining text within one book, written by one author and set by one compositor, the only difference between the sections of verse and the sections of prose should be the requirement for justification within the latter. Were the compositors altering spellings to justify their type, we would expect to see a greater number of altered spellings in the prose sections of text. This is not what the results of this study show—instead there is no statistically significant difference between the frequency of spelling changes in justified and non-justified text. However, there *is* a significantly higher number of abbreviations introduced into the justified text. These results suggest that the compositor of Caxton's second edition *Canterbury Tales* did not change spellings to justify his type.

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It does not seem possible to discuss the development of spelling in the fifteenth century without making reference to William Caxton. In 1476 Caxton began printing and distributing books in England. Aside from being England's first printer, Caxton was a mercer, governor of the English nation in Bruges and is also given a great deal of credit for standardising the English language:

Caxton may have influenced the direction in which the language grew more than any other man for he set himself up as the editor of the texts he printed and tried to settle the variant forms both of spelling and grammar.¹

Caxton's importance as a literary figure and as a preserver of the canon of Middle English writers was indeed great, but his lasting impact on the development of the English language—and specifically on English spelling—was even greater.²

Although there were some differences between the language of the printers and the Chancery Standard, it was the latter form of English that printing eventually served to confirm as the national standard. Caxton's role in this process was crucial.³

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¹Shaklee, 66.

²Hotchkiss and Robinson, 5–6.

³Upward and Davidson, 86.

Caxton's influence is linked to a multitude of roles in the process of standardisation, as the quotations above demonstrate. Margaret Shaklee gives Caxton the part of *editor* of the texts he printed; Valerie Hotchkiss and Fred C. Robinson draw attention to Caxton's role as a *publisher* through reference to his position as a "literary figure" and "a preserver of the canon of Middle English writers"; finally, Christopher Upward and George Davidson consider Caxton a *codifier* through their assertion that "Caxton's role ... was crucial" in the confirmation of Standard English through printing. Each of these roles gives Caxton explicit agency in the standardisation of written English, and suggests that he took an active role in causing language change to take place. However, these are not the only ways in which Caxton has been given agency within the standardisation of English. Attention has also been drawn to Caxton's choice of compositor—those who set type in the printing house—in particular that many fifteenth-century compositors were not native speakers of English.⁴ These compositors have been held responsible for "the adoption among printers of a spelling system so far removed from the English then being spoken"⁵ because they were not able to represent the sounds of English orthographically, and Caxton has been held accountable for the changes they made because he employed them.⁶

Caxton has also been held responsible for spellings altered by compositors due to spatial constraints when setting type. The printing process required that the compositor's line was completely filled with type; some scholars have claimed that, when setting prose, compositors altered spellings in order to fit the type onto the line.⁷ However, no empirical research has been undertaken into compositorial spellings in the fifteenth century. This paper is intended to remedy that. I investigated whether compositors were introducing changes due to spatial constraints through an examination of spelling differences between Caxton's two editions of Chaucer's *Canterbury Tales*. If compositors were changing spellings to fit the text onto their lines, we would expect a higher frequency of spelling changes in the prose texts, but that is not what I found in this study. Instead, the results of this research suggest that Caxton's compositor, at least, did not alter spellings in order to justify type. However, before discussing further the method and results of this study, it is first necessary to understand the processes that were involved in printing, and how these processes could impact upon the language of fifteenth-century printed texts.

1. The Printing Process

Caxton was the first to introduce moveable type and the printing press to England in 1476. Throughout the process of preparing a new book, the printing house needed a copy text to work from. The copy text was marked up by the master compositor, who was responsible for preparing the copy text for printing. At this point, any changes to the previous edition were incorporated into the copy text. For this study I used Caxton's two editions of Chaucer's *Canterbury Tales*⁸ and Pynson's edition of Caxton's *Reynard the Fox*.⁹ Caxton's first edition of the *Canterbury Tales* (Cx1) was used as the copy text for his second edition

⁴Scragg; Samuels; Blake, *Caxton and English Literary Culture*.

⁵Hotchkiss and Robinson, 6.

⁶Salmon.

⁷Blake, "Manuscript to Print"; Hellinga, "Hands of Printers"; Gaskell.

⁸Chaucer, *Canterbury Tales*, 1477; Chaucer, *Canterbury Tales*, 1483.

⁹Caxton, *Reynard the Fox*, 1494.

(Cx2), with alterations made in line with an unidentified manuscript copy.¹⁰ The master compositor would have marked up a copy of Cx1, adding corrections from the manuscript. Most of the text in Cx2 is the same as Cx1, though 277 lines were added and 89 removed. Changes to spelling were not likely to have been made while the copy text was with the master compositor; instead, it is more likely that spellings were altered by the compositor when setting the type.¹¹

Once the master compositor had made any changes to the text itself, the copy text was marked up to show the end of each page in the new edition—a process known as casting off. Casting off was necessary for two reasons. Firstly, because of the way the paper would be folded after printing, compositors did not set pages in the order that they would appear in the final copy. The compositors would have printed pages 1 and 8 on the same side of a quarto sheet, and 2 and 7 on the other side. The printers did not have enough type to keep eight pages standing, so it was necessary for the compositor to know where page 7 ended, in order that page 8 could be set immediately after page 1. And here I differentiate between *type*—the small metal blocks that the compositors set out—and *text*—the ink impression of the type on the page. The second reason to cast off the copy text is that printing houses usually employed more than one compositor. When setting Cx2, Caxton employed at least two compositors,¹² if not three.¹³ Compositors needed to know where their sections were due to end and begin in order to work effectively together.

If the text being copied was verse, then casting off was a fairly straightforward process. Caxton's two editions of the *Canterbury Tales* include sections of verse and prose. Chaucer's lines of verse are not long enough to reach the right-hand margin. Therefore the master compositor could simply count the number of lines in the copy text and mark where each page would end in the new copy. For example, in Cx1 the Nun's Priest's Tale has twenty-nine lines of verse per page; in Cx2 there are thirty-eight lines of verse per page. The master compositor worked out the length of Cx1 divided into pages of thirty-eight lines each, to get the total number of pages needed. Setting prose was more complicated than setting verse. The lineation would change unless the type and page size of the new edition remained the same as that of the copy text. In Caxton's case, the type changed from Type 2¹⁴ in Cx1 to the similarly styled but smaller Type 4 in Cx2. Caxton's master compositor would have had to work out the size of a page's worth of Type 4 and mark this on the copy text.

Once the copy text has been amended and cast off, the compositors began setting out the type. The master compositor would have specified the size of the printing area for the new edition, so the compositor set his composing stick—the thin rule on which he sets the type—to the width of the printing area. The compositor set out the type as it is on the copy text, revisions included. If setting verse, or text where the type is not aligned to both margins, then the compositor's line is filled using spacing—type that takes up space but that does not leave an impression during printing. Printers had spacing of different widths to ensure that each line was tightly filled with type. This process of fitting the type into a rectangle the shape of the printing area is called *justification*. When setting

¹⁰Hellinga and Painter; Bordalejo, "Caxton's Second Canterbury Tales."

¹¹Bordalejo, "Caxton's Editing of the Canterbury Tales."

¹²Hellinga and Painter.

¹³Bordalejo, "Caxton's Second Canterbury Tales."

¹⁴The naming of Caxton's typefaces in this paper follows that used in Blades.

prose, the process of justification became more difficult, as I shall discuss below. After the compositor has set out a page of type, this was tightly pinned together in a chase—the frame used to hold the type together for printing. The page of type was moved onto the press.

Once a page was set, the compositor printed off a copy for error-checking by the corrector. The corrector read the new copy in front of him while the original copy text was read aloud. The corrector amended the proof accordingly, and any changes were made by the compositor. The corrector rarely made changes to spelling, however.¹⁵ If the corrector was happy with the proof, the type was given to the pressmen who began printing copies for the new edition. The compositor began to set the next page and the process started again.

2. Spelling and the Printing Press

Now we understand the processes involved in printing, we can consider which aspects of this process could introduce spelling changes into the new copy. Within the printing process there are two main factors that could cause compositors to alter spellings when setting type:

- (1) Not having enough type
- (2) The requirement for justification

The first point covers a range of problems, including the possibility of the printer having too few spaces, too few abbreviations/punctuation marks, or the wrong ratios of letters for the language he is printing in. However, printers were not usually inconvenienced by these problems, and when they did occur they were able to manoeuvre around them. When Caxton began printing, there was no one casting and selling type in England. He was, therefore, obliged to buy his type from the Low Countries—where he learned to print and made connections within the book trade during his time as a mercer and merchant adventurer. Founts of type—a whole set of one typeface, including all the letters, punctuation and abbreviation marks—were made up of numbers of each letter relative to their use in the language they were intended for.¹⁶ Printers intentionally bought founts of type that only just had enough letters to print a couple of pages at once.¹⁷ Therefore, although this practice meant that the printers could not keep many pages in standing type ready to print, they would have had enough type to print two pages at any one time.

The printers, then, were unlikely to have too little type for their needs. But if they did, when the most used letters began to wear out, then they would work with the amount of type that they had, and borrow from other typefaces as necessary. For example, when printing *Parliament of Fowls* Caxton's compositor was short of capital *T* in Type 2 and borrowed from Type 3.¹⁸

I have demonstrated that a lack of type is unlikely to cause compositors to change spellings. However, the necessity of justification may have caused compositors to alter the length of words by changing spellings. This requirement that the type fits tightly into a

¹⁵Hellinga, *Texts in Transit*.

¹⁶Febvre.

¹⁷Ibid., 59.

¹⁸Painter, 95.

The Tale of the Parson

save a man shal be very repentaunt for alle his synnes that he
 hath don in delyte of hys thought / For delyte is perikous / For
 there be twe maners of consentynge that one of hem is cleped
 consentynge of affection / Whan a man is meued to doo synne
 apens the laue of god / Al though his reyon consent not to do
 synne in dede / Yet seyn som doctours and men that suche delyte
 that dwellyth long is ful perikous / al be it neuer so litte / And als
 so a man shold forwbe namely for al that euer he hath desyred
 apens the laue of god wyth passynght consentynge to the dede
 Wherefore I say that many men repente hem neuer of suche thoughtes
 and dettes and neuer thryue hem of it but only of the dede of
 grete synnes outwarde / Wherefore I say that suche wicked dettes
 and wicked thoughtes ben subtil begylars of hem that shal be
 dampned / More ouer man ough to forwbe for his wycked wor
 des and for his wycked dedes / For certis repentaunce of a syn
 guler synne and not repentyng of alle his other synnes/or elles
 repentyng hym of alle his other synnes and not of a syn guler
 synne may not auayle / For certis god almyghty is al good
 And therfor he foryeueth al or elles right nought / And therfore
 sayth saynt Austyn / I wote certynly that god is enemy to
 euery synnar / And hold than be that obseruyth one synne / shal
 he haue foryeuene of the remenaunt of his other synnes / nay /
 e fettherouer contricion shold be wonder forwful e anguysshous
 And therfore preyth hym godd pleyntly his mercy / And therfore
 whan my soule was anguysshous wythyn me I had remembraunce
 of Godd that my prayer myght come to hym / Furthouer con
 tricyon musse be contynuel and that men haue stedfast purpose
 to thryue hem and for to amende hem of her lif / For sothly wythe

Figure 1. Text that has been visually justified in Cx2, *The Parson's Tale*, fol. 291r (from Chaucer, *Canterbury Tales*, 1483; published with permission of ProQuest; © The British Library Board).

rectangle the shape of the printing area is one of the chief ways in which printing differs from copying a text by hand. Scholars have often suggested that printers altered spellings in order to justify their type.

2.1. Justification

Justification has a dual definition within book studies, one a physical requirement and the other a visual effect. We have already discussed the physical requirement in Section 1, namely that the type must be made to fit exactly the width of the printed area. The visual effect is what we see in [Figure 1](#), above.

We can see that in [Figure 1](#)¹⁹ the text forms a rectangle that reflects the shape of the type used to print it. In [Figure 2](#), below, the text is aligned to the left margin but not to the right. Though the text stops midway across the printed area, the right-hand side of each line will be filled with spaces in order that the type still exactly fills the chase. In this way, a *text* isn't necessarily visually justified, as in [Figure 2](#), but the *type* is always physically justified during the printing process.

¹⁹Figures 1, 2, 3, 5 and 12 published with permission of ProQuest. Further reproduction is prohibited without permission. © The British Library Board.

The Tale of the Mauncippl

What nedyth it his feture to discreue
 For in thys world? was there non so fayr aby
 He was therwith fulfilled of gentilnesse
 Of honour and of parfight worthynesse
 This pkebus that was flour of bakelerye
 As wel in freedom as in chynalrye
 For his disport in signe eke of byctorye
 Of pkeby so as tellyth vs the story
 Was wont to bere in his hond? a tolbe
 Now had this pkebus in his hous a colbe
 With ynne a cage y fosteryd? many a day
 And taught it speke as men tce? a jay
 Whyt was this colbe as is a snolb whitt swan
 And countrefetid? the speche of euery man
 He coude wshen he shold tclle a tale
 Ther was in al this world non nyghtyngale
 Ne coude be an hondred? thousand deel
 Spynge so wonderly merily and? weel
 Now had this pkebus in his hous a wyf
 Whiche that he boued? more than his lpf
 And nyght e? day did? euer his dylgenc?e
 Her for to plese and do her reuerenc?e
 Saue only yf the soth yf I shal sayn
 Sekus he was e? wo?de haue kept her fayn
 For hym were wsh? iappyd? for to be
 And so is euery wyght in such degre
 But al for nought for it auayld? nought
 A good wyf that is clene of werk and thought
 Shold not be kept in non alwayt? crteyn
 And? treibly the labour is in weyn

Figure 2. Text that has not been visually justified text in Cx2, *The Manciple's Tale*, fol. 278r (from Chaucer, *Canterbury Tales*, 1483; published with permission of ProQuest; © The British Library Board).

There are several things that can go wrong if the type is not properly justified, most of which involves the type coming apart. The first problem would occur when transferring the type onto the press. After the compositor has set out a page of type, this is tightly pinned together in a chase. At this point, the type needs to be transferred onto the press. If the type is not tightly justified, then it will fall out and the compositor will have to set the page again. Compositors were paid a wage on the basis of their setting a particular number of pages a day,²⁰ and so it would not be desirable to spend time setting the same page twice. If the compositor did manage to get a loosely justified piece of text onto the press, more problems could occur during printing. The ink used by printers was sticky. Ink was pressed onto the type with inking balls—balls of sheep's wool covered in animal skin. Because of the stickiness of the ink, any loose type could be pulled out during inking. The result is “fallen type”: a piece of type that has fallen between the rest of the type and the paper. It causes the paper to tent slightly, leaving an impression of the piece of type surrounded by a loose halo in the final copy. Fallen type is rare in extant copies. Owing to the number of pages that a compositor was expected

²⁰Gaskell, 54.

deceptes that now dayly byn vsed
 in the world. not to thente that men
 sholde vse them but that every man

Figure 3. Rising space in Pynson's *Reynard*, Oxford, Bodleian Libraries, University of Oxford, MS Douce V 245, fol. 1r line 20 (from Caxton, *Reynard the Fox*, 1494; published with permission of the Bodleian Libraries, University of Oxford and ProQuest).

to set in a day in order to receive payment, most compositors probably made sure that their work was tightly justified. When setting prose, this meant not only the effort of physically justifying the text, but the extra effort involved visually justifying it, too.

It is unlikely that one line of type would justify visually without some alteration. Printers used spacing of different widths to fill any surplus space, to ensure the type is tightly wedged into the chase. Where one space would not fill the gap, a combination of spaces was used. On the second line of [Figure 3](#),²¹ we can see a rising space on the line which shows how extra spacing would be inserted between words. Between the words *that* and *man*, two spaces have been inserted. However, the type has not been justified tightly enough and so one of the two spaces between the words has risen up to make an impression on the page. The printer would not choose to use two spaces unless necessary: for each fount of type there would have been cast one size of space that was considered the ideal width between words. This ideal space would be used between words unless the compositor needed to alter the spacing when the line did not justify. In [Figure 3](#), either the original space was doubled, or the original was taken out and replaced by two thinner spaces which together were thicker than the original. This process of swapping the different spaces and combining them so as to create a series of spaces of different widths would have been repeated throughout the text.

What is of particular interest is *where* this additional spacing is used. In text that aligns only to the left, any extra spacing is inserted to the right of the line (cf. [Figure 2](#), above) and the spacing between words remains the same. The extra spacing ensures that the type as a whole fits perfectly into the rectangle of the chase. However, where the text is *visually* justified, the spacing that would otherwise have been inserted to the right must be evenly distributed through the line, so that the *text* appears as a rectangle on the page, as in [Figure 1](#), above. One way to do this is through increasing the spacing between words. This is a delicate operation—the spacing needs to be expanded enough so that the line fills the width of the printed area, but not so much as to create noticeably wide gaps between words. This procedure makes justification harder to achieve in text that aligns both to the right and left, and scholarly speculation suggests that printers altered spelling in order to achieve visual justification:

So long as such spelling variants were acceptable in printing, compositors used them as an aid to justification. Thus our man might set “doe” according to his usual practice and then, finding that his line was ... too long for the measure, change “doe” to “do” by discarding the e, rather than go to the greater trouble of throwing out spaces and finding thinner ones.²²

²¹ [Figures 3](#), [4](#) and [8](#) published with permission of ProQuest and the Bodleian Libraries, University of Oxford. Further reproduction is prohibited without permission.

²² *Ibid.*, 345.

The actual sequence of typesetting dictated the points at which the compositors would have to conform to limits of space ... the compositor could change spelling or vocabulary, but he could also add or omit text.²³

There were also numerous ways in which a scribe could reduce or expand his language, and many of these ways were available to the compositor as well. The most common was to use or alternatively to expand abbreviations. ... It was possible to vary the spelling of words in many languages so that they become longer or shorter. In English the addition or omission of final -e and the spelling of words ending in a single consonant with a double consonant with e to give the variants *ship* : *shippe* are well known.²⁴

There is, however, no empirical investigation of whether fifteenth-century printers did alter spellings for the sake of justifying their texts. It seems likely that scholarly opinion has been influenced by John Hart's statement in 1569, in which he argued that spellings deviated from the copy text "onely to fill vp the paper in writing : or the Compositors line in printing : to make a garnishing or furnishing therof with superfluous letters".²⁵ Hart's supposition might not have been correct—instead of changing spellings to fit type on the composing stick, the changes could result from the compositor introducing his own spellings into the copy. Yet, Hart's assertions have been used to argue that compositors altered spellings for the sake of justification in the fifteenth century.²⁶ In the following section, I explain how I investigated the question of whether compositorial spelling changes were made to justify their lines, or were representative of normal spelling variation in English at this time.

3. Method of Analysis

The difficulty in this research has been differentiating among types of orthographic change—this study aims to examine any changes the compositors made to make their type fit on their composing stick. Though the standardisation of written English was already well underway by the time Caxton began printing in England, a great deal of variability was still permitted in spelling. These variable spellings needed to be differentiated from those the compositor introduced intentionally to justify type. A further complication is the effect that the copy text can have on the language of the copy. It has long been accepted that when hand-copying a text, scribes were most likely to produce a copy that was a mixture of the spellings of the copy text and the scribe's own forms.²⁷ So the spellings in Caxton's second edition of the *Canterbury Tales* (Cx2) are a combination of the spellings in the copy text, the compositor's own spellings (whether introduced intentionally or otherwise) and any spellings the compositor changed to justify the type. Caxton's second edition of the *Canterbury Tales* is ideal for this study because it enables us to separate these three different sets of spellings from one another, so that we can focus our attention on spellings changed for the sake of justification.

We first need to identify the spellings that have been influenced by the copy text. The original *Canterbury Tales* was written by one author—Geoffrey Chaucer. It is important to

²³Hellinga, "Hands of Printers," 5.

²⁴Blake, "Manuscript to Print," 409.

²⁵Hart, 15r.

²⁶Salmon, 19.

²⁷Benskin and Laing, 56.

examine texts written by a single author because Caxton had different editing practices depending upon the author of the text in question. Simon Horobin demonstrates that Caxton's attitude when printing Chaucer's work is similar to his approach to Gower—Caxton retains the dialectal features most associated with the author.²⁸ In addition to the text having been written by one author, we also know that Cx1 was used as the copy text in creating Cx2. This is important because the copy text could have a great impact on the language of the new copy. By looking at Cx2 in conjunction with its copy text, I analysed only spellings that were changed in the second edition, that is, spellings that were not the same as in Cx1. These spellings, if not influenced by the copy text, must have been changed either because they are the compositor's own spellings, or because the compositor needed to change them in order to justify the type.

The copy text for Cx2 has been identified as Cx1 with corrections from a manuscript that is no longer extant.²⁹ Caxton claims in the prologue for Cx2 that he is issuing a new edition because a "gentyman" told him that his first edition was faulty, and that he could provide a better edition for Caxton to reprint.³⁰ Though it has been suggested that this was just an excuse to print a new edition complete with new woodcuts,³¹ Caxton does appear to have inserted alterations from an unknown manuscript source onto Cx1, which was used as the base text.³² Though the copy text contains additions from the manuscript, this does not cause problems for this study. I compared the spellings in Cx1 with their exact counterparts in Cx2. Any additions made to Cx2 from the manuscript could not have been examined, because they did not have a counterpart in Cx1. Furthermore, the spellings from Cx1 are unlikely to have been changed to match the manuscript; Barbara Bordalejo explains that, though many significant changes have been made to all the Tales in Cx2, spellings changed in Cx2 are likely to have been introduced by the compositor.³³

Now that we have found a way to exclude spellings that were influenced by the copy text, we need to separate the compositor's preferred spellings from those he changed to justify the type. To separate these two types of spellings, we need to compare sections of text that have been visually justified with text that has not, and be satisfied that both sections have been set by the same compositor. To do this, I compared sections of verse with sections of prose. In the verse Tales, the text never comes close to the right-hand margin, and so cannot be visually justified. This is because Chaucer's verse lines are short, at least relative to the width of Caxton's page. The prose sections are entirely visually justified, however. Therefore, any differences between the prose and verse, such as a change in the frequency of spelling changes or an increase in abbreviation rates, should be a result of the requirement of justification in the prose. In this way, the verse acts as a baseline measure for the amount of variation we would expect to find in Caxton's prints at this time. By comparing the types of spelling changes that occur in the prose with those that occur in the verse, I aim to isolate the changes that the compositor made to justify his type.

Finally, the Tales selected for analysis were set by the same compositor: the Parson's Tale and the Tale of Melibee—both prose—and the Nun's Priest's Tale and the Manciple's

²⁸Horobin.

²⁹Bordalejo, "Caxton's Editing"; Bordalejo, "Caxton's Second Canterbury Tales"; Blake, "Caxton and Chaucer."

³⁰Chaucer, *Canterbury Tales*, 1477, 1v.

³¹Blake, *Caxton and English Literary Culture*, 113.

³²Bordalejo, "Caxton's Editing"; Bordalejo, "Caxton's Second Canterbury Tales."

³³Bordalejo, "Caxton's Editing."

Prologue and Tale—all verse. Lotte Hellinga and Bordalejo claim independently that these Tales were set by one compositor.³⁴ The sample size from each tale is about twenty-five hundred words—the length of the Manciple’s Prologue and Manciple’s Tale combined. Because the prose and verse sections in Cx2 were both set by the same compositor, we would expect any habitual changes to spellings to occur in both prose and verse. For example, the compositor hardly ever changed *y* to *i* but frequently changed *i* to *y* (697 examples out of a corpus of 1,637 total changes). The *y* variant appears to be the compositor’s preferred spelling, and of the 697 changes, 376 of them appear in the verse and 321 in the prose. This split is quite even (53.9% to 46.1%), and suggests that because the changes were made in the verse as well as the prose—that is, these changes were made regardless of the requirement for justification—the changes were made because they were the compositor’s usual spellings. We would expect changes that were made for the sake of justification to appear mainly in the prose.

Now that we are looking at text within one book, written by one author and set by one compositor, the only difference between the sections of verse and the sections of prose should be the requirement for justification within the latter. When compiling the record of spelling changes between the two editions, I recorded whether the new spelling would have taken up more or less space on the compositor’s line. This is an important distinction. In order for a printer to justify type by changing spellings, it only makes sense to change the spellings to ones that take up more or less space on the compositor’s stick, and therefore wedge the type more tightly into the chase. Any changes that did not alter the space taken up by the type would not aid in justification, and were either one of the compositor’s own spellings, or a mistake. It is important, then, to record whether the new word took up more or less space than the original.

The result of this investigation is a database of spelling changes that occurred between the first and second editions of Caxton’s *Canterbury Tales*, broken down into text type—whether prose or poetry—and the type of spelling change—whether the new spellings took up more space on the compositor’s line than the originals. It was this database that I analysed to investigate whether printers changed spellings to justify their type.

3.1. Pynson’s Reynard

Justifying type is difficult because extra space must be redistributed between words. When this process is complete, the line needs to look neat without the spacing being either noticeably wide or narrow. In the prose of Cx2 this is not an unduly difficult task—the line lengths have an average length of fifteen words, so there are fourteen gaps in which to redistribute spacing. However, for other texts, justification was made harder through having far shorter line lengths. Richard Pynson’s 1494 print of *Reynard the Fox*³⁵ is one such example. The text is printed in two columns with an average line length of only six words. To justify Pynson’s lines, any excess spacing can be spread only across the five spaces between words, potentially leaving wide gaps in the line. Compared with the average fifteen words a line in Cx2, this makes Pynson’s task of justifying the text far harder. An excess of spacing would be very noticeable on a shorter line, making justification more difficult (see [Figure 4](#), below, compared with [Figure 5](#)).

³⁴Bordalejo, “Caxton’s Second Canterbury Tales”; Hellinga and Painter.

³⁵Caxton, *Reynard the Fox*, 1481.

There begyneth the hystorie of reynard the foxe.

In this hystorie ben wynton the parables. gode leynage and diuerse popytes to be marked. By whiche popytes men maye lette to come to the subtyll knowierche off suche thinges as now dayis ben vsed and hadde in the counceyllis off lordes and prelates gostly ⁊ worldy and also emonge marchauntes and otheer comoune people. ⁊ this booke is

How the lyon kynge of alle bestys sente oute his maundementis that alle bestys shold come to his festie court. *Caritulo panno*

It was aboute the tyme of pen thecrosse or wythsonnyde that the wodes compny be lusty ⁊ glad som And also the trees clad wyth leys and bloffoms and the ground wyth herbes and flourys swete smel syng and also the fowles and byrdes syngen melodypoussy in thyr armonye. That the lyon the noble kyn

Figure 4. Pynson's *Reynard*, 1r (from Caxton, *Reynard the Fox*, 1494; published with permission of ProQuest and the Bodleian Libraries, University of Oxford).

A Pongr man that called was melkebus the whiche was myghty ⁊ rych begat a doughter vpon his wyf that called was prudence whiche doughter called was Sophy vpon a day keppe that he for his dysport wente hym in to the feldys for to playe / his wyf ⁊ his doughter hath he lefte within his hous of whiche the doves were faste shyte / There of his olde foes hath hit aspyed ⁊ setten ladders vnto the walkes of his hows ⁊ by the byndolbes he entryd in / ⁊ lete his wyf ⁊ wounde his doughter with fyue mortel woundes in v sondrye place / that is to say in her feet / in her hondes / in her eeres / in her nose / and in her mouth / and letten her for dede and wenten her way / when melkebus returned was in to his hows and fayne al thys myschep / he like a mad man rentynge his clothes began to wepe and crye

Figure 5. Caxton's Cx2, 232r (from Chaucer, *Canterbury Tales*, 1483; published with permission of ProQuest; © The British Library Board).

We would expect that if Caxton's compositor changed spellings in Cx2 in order to justify his type, then Pynson's compositor would alter spellings with greater frequency because of the increased difficulty in justifying *Reynard the Fox*. To investigate whether this is the case, I compared Pynson's *Reynard* with its copy text—Caxton's translation and first edition of *Reynard*³⁶—identified by Norman Blake.³⁷ Adding Pynson's *Reynard* to the analysis fulfils several roles. Firstly, because of the shorter lines on Pynson's two-column layout, we can see that use of justification methods increases when the compositors have less space. Secondly, it enables us to see that the compositors of at least two printing houses—Caxton and Pynson—used the same methods of justification. Finally, Pynson's *Reynard* was printed later than Caxton's *Canterbury Tales*

³⁶Caxton, *Reynard the Fox*, 1481.

³⁷Blake, *Caxton and English Literary Culture*, 259.

text—1494 to Caxton’s 1477 and 1483—therefore covering the majority of the printing period in England in the fifteenth century.³⁸ This shows us that printers did not change to different justification methods within the fifteenth century.

4. Spellings were not Changed to Justify Type

My results suggest that Caxton’s compositor did not change spellings in order to justify his type. This finding was contrary to my expectations on setting out. I had expected that the printers would alter the length of the line by changing spellings for longer or shorter variants. Vivian Salmon states that printers were more likely to use shorter spellings when altering a text: avoiding doubling letters and final *-e*.³⁹ Gaskell also says that printers preferred to remove letters, rather than add them.⁴⁰ We would have expected a higher proportion of uses of *had* over *hadde*, for example, in the printed texts, in comparison with a scribal copy from the same time. However, there is an almost equal distribution of spelling changes that shorten and lengthen words in question (245 total number of words lengthened by adding letters; 249 words shortened). Within these numbers, of the 245 lengthened words, 172 are lengthened through adding final *-e*; of the 249 shortened words, 142 are shortened by deleting final *-e*. The compositor did not appear to move towards actively adding or removing final *-e* from the text, as Salmon suggested he might.

4.1. Frequency of Changes

The frequencies of change support the conclusion that the compositors under examination did not change spellings to justify type. The frequencies of change do not differ notably between justified and non-justified text. In order for a printer to justify type by changing spellings, it only makes sense to change the spellings to ones that take up more or less space on the compositor’s stick. Therefore, it was necessary to classify spelling change by the spacing that the new spelling took up. I classified three types of spelling change: addition, replacement, reduction. *Addition* is when the word in the second edition was respelled with more letters than in the first edition and therefore took up more space on the compositor’s line; *replacement* comprises the set of words whose spelling is altered, but the length of the word remains the same; *reduction* is when the second edition features a shorter word than the first. We can see the distribution of these types of change in Table 1, below. The frequencies, whether considered together or broken down into these three categories, do not suggest that there was any great difference between the prose and the verse texts. In fact, a greater number of spellings was changed in the verse than in the prose. As the verse acts as a baseline measure for the variation without justification, the fact that the prose has a similar distribution of locations and similar frequencies of change supports my hypothesis that the prose is not altered for the purposes of justification.

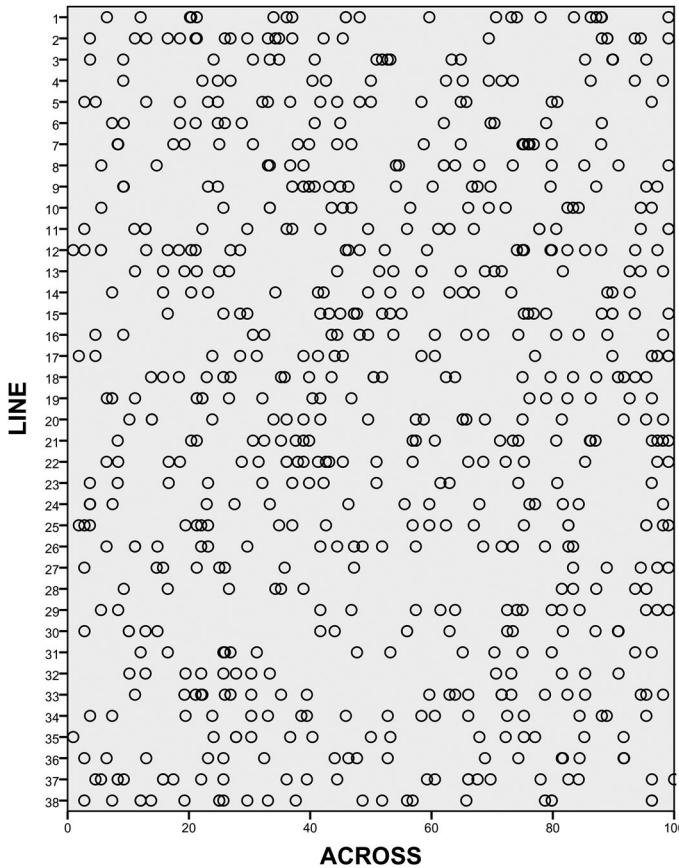
³⁸Caxton opened shop in Westminster in 1476, and died in 1491.

³⁹Salmon, 19.

⁴⁰Gaskell, 349.

Table 1. Frequency of spelling change in Cx2, per 1,000 words.

Text type	Type of Change			Total
	Addition	Reduction	Replacement	
Verse	25.55	22.01	100.99	148.55
Prose	16.84	20.84	74.55	112.23
Total	42.39	42.85	175.54	260.78

**Figure 6.** Distribution of spelling changes in the *Canterbury Tales* prose.

Additionally, there was no patterning as to *where* the spelling changes occurred on the page. Philip Gaskell stated that compositors were more likely to change spellings towards the ends of lines, or towards the ends of pages when they realised that they were running out of space.⁴¹ This tendency would make sense: it is easier for the compositor to change words that are near the rightmost side of the line, purely because of the difficulty in getting letters in and out that are already sandwiched between type. Therefore, words which have been changed at the end of a line are also perhaps more likely to be candidates for change for justification. This is not what I have found in this study, however. Instead, I found that

⁴¹*ibid.*, 346.

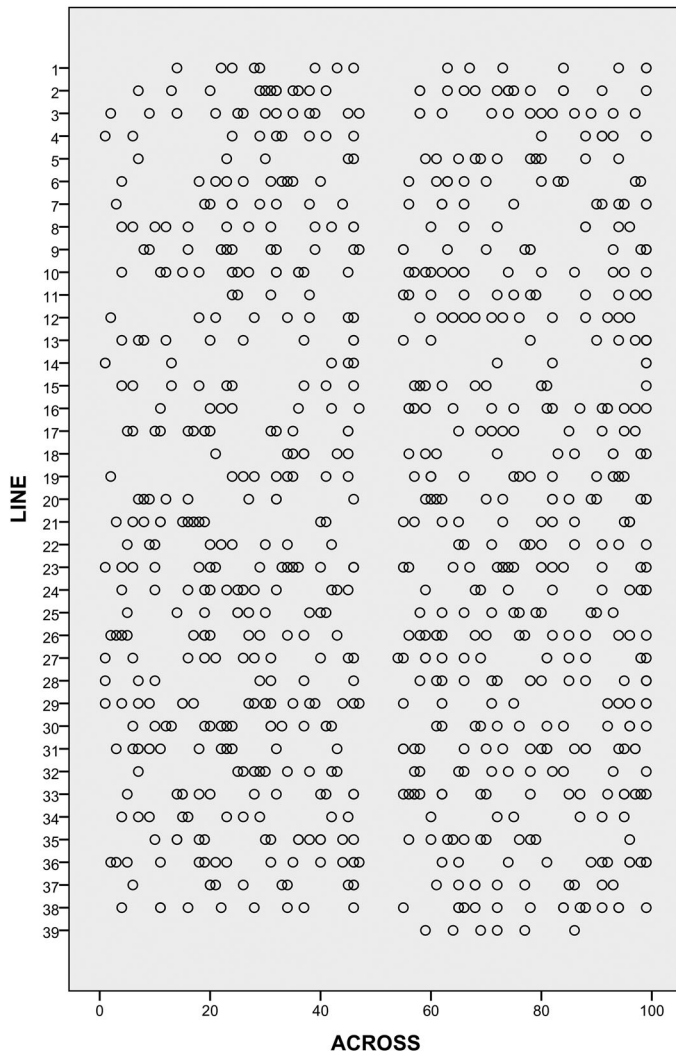


Figure 7. Cumulative distribution of spelling changes in Pynson's *Reynard*.

in both the prose and the verse, there was no statistically significant result as to where on the page the spelling changes occurred.

Figure 6 represents the cumulative distribution of the location on the page of spelling changes in the prose samples of Cx2. Here, the x-axis represents the distance across the page that spelling changes occurred, and the y-axis shows the line number of the page—each page I analysed in Cx2 had thirty-eight lines of type. The area of the graph represents the printable area on Caxton's page. Each circle represents one spelling change within the prose, located by its line number and its distance across the width of the page. These are the changes of all spelling changes I observed in Cx2 superimposed onto one graph. We can see that the spelling changes are distributed across all areas of the page. Had the compositors been altering spellings towards the ends of the lines, as Salmon suggested, we would see a far stronger clustering of changes along the far right of the page, or in this case, the

graph. As it is, the spelling changes are distributed evenly across the page both in terms of how far across they occur, and how far down the page they occur.

The spelling changes are similarly distributed in Pynson's *Reynard*. Figure 7 shows the distribution of spelling changes in Pynson's *Reynard*. The graph shows clearly the gap between the two columns. Additionally, several pages of the sample that I examined had an extra line thirty-nine on the rightmost column, and this can be seen here through the six spelling changes that occurred on that line throughout the text. Like the distribution of Cx2, there is no significance to the patterning of spelling changes within Pynson's *Reynard*. Justification does not, then, seem to have an impact with regard to where on the page the spelling changes were made.

My research suggests that there was no difference between the way that these compositors changed spellings in the prose and verse sections of text. We find similar frequencies of spelling changes in justified and non-justified text, and the compositor is not more likely to use longer or shorter spelling variants in justified prose. If the compositor does not change more spellings when setting prose then it is likely that he is not introducing changes to justify his type.

5. How did Printers Justify their Texts?

If the compositors did not justify the texts used in this study through altering spellings, then how did they justify their texts? The results of my investigation suggest that Caxton's compositor justified his text through three main methods:

- (1) Breaking words over lines
- (2) Abbreviation
- (3) Altering spaces between words

5.1. Breaking Words over Lines

In both Cx2 and Pynson's *Reynard*, some lines have not been fully justified. Instead, the last word in the line is hyphenated and completed on the next line, or in some cases the line breaks mid-word without hyphenation. We can see this in Figure 8, below. In

**It was about the tyme of yere
 the croste or wythfontyde that
 the wodes comynly be lusty & glad
 som And also the trees clad wyth le
 uys and bloffoms and the ground
 wyth herbes and flourys wete smel
 lunge and also the fowles and byr
 des syngen melodyouffly in thyr ar
 monye. That the lyon the noble kyn
 ge of alle beestes wolde in the hooly**

Figure 8. Hyphenated lines in Pynson's *Reynard*, fol. 1r (from Caxton, *Reynard the Fox*, 1494; published with permission from ProQuest and the Bodleian Libraries, University of Oxford).

the sample in Figure 8, most of the line-final words are incomplete. Many of the words are hyphenated at the end of the line, that is, the ends of lines 3, 4, 7 and 8. However, on line 1 *penthecoste* is split after *pen*, on line 6 *smellynge* is split after *smel* and on the final line *kynge* is split after *kyn*.

Breaking words over lines is one of the most frequent methods used by compositors to justify their texts. Within Caxton's prose, 12.8% of lines are not fully justified. The number is greater for Pynson's *Reynard*, in which 29.33% are not fully justified. It seems likely that the greater spatial pressure on Pynson's compositor has caused an increased use of line breaks to justify the text. On these hyphenated lines, abbreviations are particularly unlikely to occur: only on 4.65% of hyphenated lines in Pynson's *Reynard* is there an abbreviation. The use of only one of these methods on any one line suggests that the compositor chooses to use *either* abbreviation *or* word hyphenation as an active attempt to justify the text.⁴²

5.2. Abbreviation

The study showed that printers added abbreviation twice as often in Caxton's prose than verse. The rate of abbreviation in the prose is double that in the verse: 13.47⁴³ tokens per 1,000 words in justified text, compared with 6.39 per 1,000 words in text that has not been visually justified. The only difference between the verse and the prose is the requirement for justification. It follows that the difference in abbreviation rates is a result of the compositor using abbreviation to justify his type.

Supporting evidence is provided through analysis of Pynson's *Reynard*. Here the rate of abbreviation is far higher, where the columns are thin and the spacing is tight. Pynson uses 25.49 abbreviations per 1,000 words of text. The most common abbreviation was the replacement of *and* with an ampersand. However, other abbreviations, such as *that* > *þ*^t and *the* > *þ*^e are also commonly used in all texts.

Figure 9 shows the graphical representation of the number of abbreviations per 1,000 words for each of the types of text I have examined. The lowest rate of abbreviation occurs in the verse, where justification is not required. This may be taken as the amount of abbreviation we would expect to be added to any printed text without the requirement for justification. The rate of abbreviation for Caxton's prose is twice that of Caxton's verse. This means that, although a large number of abbreviations may have already existed in Cx1, the compositor added more at a rate of 13.47 per 1,000 words. The highest rate of abbreviation occurs in Pynson's *Reynard*, where a greater number of abbreviations is required in order to justify the type. This is contrary to what I had expected: Blake tells us that printers preferred not to use abbreviations.⁴⁴

The distribution of abbreviations is also worth examining, as we can see in Figure 10, below. As already discussed, the locations of spelling changes on the page appear to be random; altered spellings are not more likely to appear at the ends of lines—a hypothesis

⁴²Breaking words over lines was never a method utilised in the poetry. This is due to the line lengths; on no occasions were the lines long enough in the Nun's Priest's Tale or the Manciple's Tale to come close to the right margin. The lines never run onto the next line, and so it would not be possible to break the final word over two lines.

⁴³Frequencies have been shortened to two decimal places.

⁴⁴Blake, *History of English*, 205. However, see Norman Blake's earlier paper for completely the opposite point of view: "The most common [way to justify the text] was to use or alternatively to expand abbreviations" ("Manuscript to Print," 409).

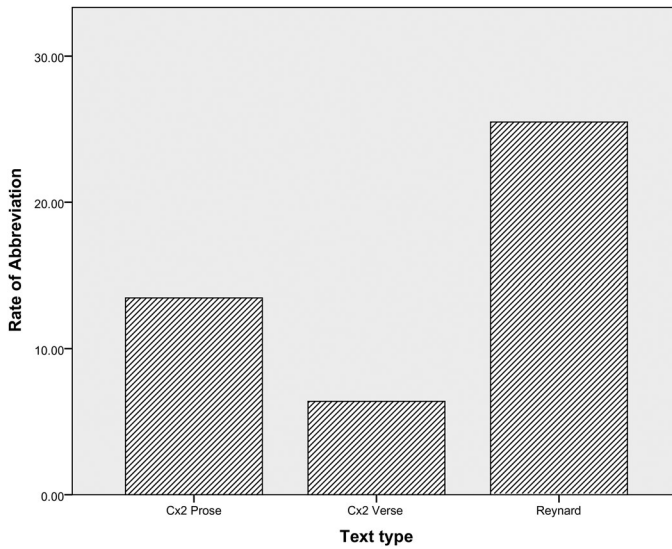


Figure 9. Abbreviations added to the new copy, per 1,000 words of text.

put forward to support the use of spelling change as a method of justification. However, the distribution of abbreviations is not random. Abbreviations introduced to Cx2 by the compositor *are* more likely to occur at the ends of lines.

Figure 10 shows the number of spelling changes that occurred in each tenth of the width of the page. We can see that the greatest number of abbreviations occurs in the area closest to the right-hand margin—that is, the bar on the graph furthest to the right. We would expect to see this when printers realised that they were running out of space and had to use abbreviations to justify their type. We see the same distribution in Pynson's *Reynard*.

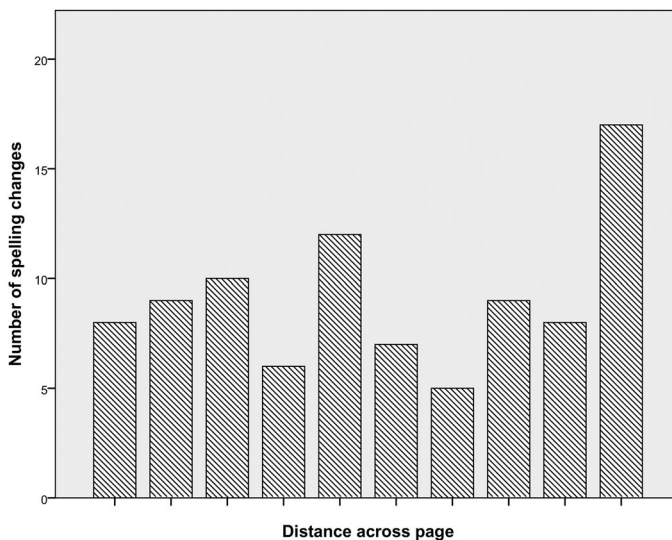


Figure 10. Distribution of abbreviations across the page of Cx2 prose.

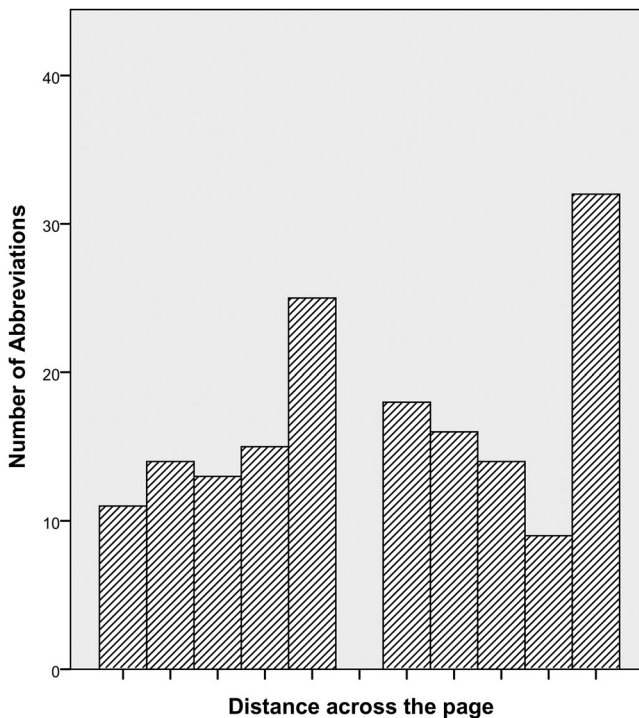


Figure 11. Distribution of abbreviations in Pynson's *Reynard*.

In [Figure 11](#), again we can see the gap between the two columns. We can also see that at the rightmost side of each column, abbreviations are far more likely to occur. Again, this finding supports the hypothesis that compositors did use justification methods when they realised that they were running out of space, and so abbreviations are more likely to occur near the end of the compositor's line. However, spelling changes on the whole were not more likely to occur near the ends of lines. So while the compositors of Cx2 and Pynson's *Reynard* used abbreviations to justify their type, they did not change spellings to this end.

5.3. Altering Spaces between Words

Altering spacing between words was the most frequent method by which Caxton and Pynson justified the lines of their texts. It is difficult to determine the distance between the left/rightmost edge of the letter itself and the edge of the type it sits on. This then makes it difficult to discern the amount of spacing between words. The design of the type could add more spacing between words depending upon the letters involved. That said, in *every justified line* that I examined, the size of the spacing between words differed, even on lines where abbreviations were used, as can be observed in [Figure 5](#) (see above). For example, on line 1 we can see the difference in spacing between *called* and *was*, and between *was* and *mellebeus*; on line 2 we can see the difference in spacing between *vpon* and *his*, *his* and *wyf* and so forth. We do not see the same variability of spacing in the verse, demonstrated in [Figure 12](#), below. In the poetry, one width of spacing

Prologue

That no droppe fylt vpon hyr brest
 In curtesye was set ful myghtyl hyr lest
 Her ouerlyppe lyppez she so clene
 That in her cup ther was no fertyngge sene
 Of grece / Whan she hadde dronke her draugh
 Ful semely after hyr mete she maught
 And sekerly she was of grece dysport
 Of pleasaunce andz amynable of port
 Andz peynedz her to countrafeite chere
 Of courtes andz to be statelý of manere
 Andz to be holde dygne of reuerence

Figure 12. Caxton's Cx2, 7r (from Chaucer, *Canterbury Tales*, 1483; published with permission of Pro-Quest; © The British Library Board).

appears to be used between words, and the line is justified by moving spacing to the right side of the type.

There is one clear reason that compositors chose to respace their lines in order to justify the text: speed. Speed is important—compositors had a set number of pages that they needed to set each day in order to get paid,⁴⁵ so to make a decent living they would need to be both fast and accurate. Altering the spacing between words is a quick and easy way to justify type because it involves few processes. The compositor sets out the type as demonstrated in the copy text until it becomes clear that the last word on his line will not fit. At this point he goes back over the line and adds more spacing between the words, or replaces spacing with two thinner spaces that together are slightly wider than the original—as we saw in Figure 3. This is the fastest way to justify type because there are few processes involved: if the type does not fit, the compositor adds more spaces. If this does not work, he uses a combination of spaces that are collectively the width required.

Abbreviating words involves more processes, and this may be why they were used as a justification method with relative infrequency compared with respacing. To abbreviate, the compositor must remember all the words that can be abbreviated, such as *and* > ampersand and so forth. Then the compositor has to look back over the line, examining each word (written left to right, but appearing to him upside down and each letter a mirror image). It takes time to read back what he has done, and to assess whether any of the words on his line can be replaced with a valid abbreviation. It takes more time still to select the word to be abbreviated, remove the letters on the line and replace them with the corresponding abbreviation. Even then the line may need respacing if it has not justified perfectly. This procedure is clearly not as quick as padding gaps out with extra spacing.

It is unlikely then that the compositors would have used respelling as an alternative to the processes that they already used. It would take more time and involve more processes to change spelling in order to justify type than it would for abbreviation, which I have already suggested was time consuming.⁴⁶ Changing spelling is not too dissimilar to

⁴⁵Gaskell, 132.

⁴⁶There is, however, the possibility that compositors would be able to guess accurately the space that words would take up on their composing stick. However, the number of words would vary slightly line to line, so it seems likely that this would be an inaccurate skill and lines would still require justification.

abbreviation: instead of remembering which words can be abbreviated (a small and limited list), the printer instead has to analyse every word to determine which could be spelt differently, which variant spellings were generally accepted and which ones would add (or remove) the length he needed in order to justify the line. The key difference here is that abbreviation involves just a small number of words, but respelling could involve far more; a high proportion of words could be spelt variably during the fifteenth century. I found that, in line with this observation, at least the compositors of the texts under examination did not alter spellings to justify their texts. When spellings were changed between editions, these were introduced by the compositor, either because they were his preferred spellings, or because they were representative of the natural variation in spelling at that time.

6. Concluding Remarks

This study has shown that compositors working for Caxton and Pynson were not changing spellings in order to justify their texts, even when justification was particularly difficult to achieve, as was the case in Pynson's *Reynard*. The frequencies of altered spellings in justified and non-justified text are not significantly different; had the compositors been changing spellings to justify their type we would expect higher frequencies of spellings changed in the justified text. Nor is there any statistical significance behind the distribution of spelling changes on the page. It seems most likely that printers did not utilise spelling as a method of justification because of the time it would take, relative to that of the other options at their disposal.

Instead, compositors justified their type by using a far greater number of abbreviations, altering the spacing between words and breaking whole words over two lines. Spelling changes were evenly distributed throughout the page in both prose and verse, and changes were not more likely to occur at the rightmost side of lines or towards the end of the page, as has been suggested.⁴⁷ However, in justified text we see both a higher frequency of use and significant placement in the use of abbreviation. It appears possible that printers used abbreviation to justify their type. The idea that the printer altered spellings to fit type to the page is a prevalent one in the history of English narrative. This paper suggests that at least two compositors in the fifteenth century did not utilise this practice in their work. Instead, spelling change is introduced by the individual setting the type.

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⁴⁷Salmon.

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