

## Plotting the “Female Wits” Controversy: Gender, Genre, and Printed Plays, 1670–1699<sup>1</sup>

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At the end of the 1694–95 theatrical season, a group of actors defected from the United Company, housed at the Theatre Royal in Drury Lane, to begin their own cooperative. The split of London’s theatrical monopoly into two rival playhouses—Christopher Rich’s “Patent Company” at Drury Lane and Thomas Betterton’s “Actors’ Company” at Lincoln’s Inn Fields—generated demand for new plays that might help either house gain the advantage. This situation created opportunities for novice writers, including an unprecedented number of women. Paula Backscheider has calculated that more than one-third of the new plays in the 1695–96 season were written by, or adapted from work by, women, including Delarivier Manley, Catherine Trotter, and Mary Pix (1993, 71). This group quickly became the target of a satirical backstage drama, *The Female Wits: or, the Triumvirate of Poets at Rehearsal*, modeled after George Villiers’s 1671 sendup of John Dryden, *The Rehearsal*. The satire, which was likely performed at Drury Lane in fall 1696, was partially the Patent Company’s revenge on Manley for withdrawing her play *The Royal Mischief* during rehearsals the previous spring and taking it to Betterton. However, *The Female Wits* was also a broader attack on the pretensions of women writers, whom it portrayed as frivolous, self-important upstarts reviving the overblown heroic tragedy of the 1660s and 1670s with an additional layer of feminine sentimentality.<sup>2</sup>

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<sup>1</sup> This research was made possible by a grant from the Andrew W. Mellon Foundation to Visualizing English Print, a project led by Michael Gleicher, Robin Valenza, Michael Witmore, and Jonathan Hope. Special acknowledgment is due to Richard Jason Whitt for his initial processing of the corpus from which my sample is drawn; Eric Alexander and Michael Correll for their guidance in using the prototype tools; Catherine DeRose for her invaluable comments on an early version of this paper; and Bret Hanlon for his help in understanding statistical concepts.

<sup>2</sup> Robert Hume argues that the heroic plays of this period, which often defy the tragedy/comedy binary, are primarily defined by their thematics of love, valour, war,

Critics have debated the extent to which the revival of heroic drama in the 1690s was or was not a gendered phenomenon, as well as the extent to which these female dramatists identified as a cohort or community. Some theatre scholars view *The Female Wits* as an attack on a burgeoning feminine literary style and tradition, emphasizing the sense of female solidarity that linked women writers. For instance, Pilar Cuder-Domínguez, following Backscheider, claims that the women writers of the 1690s located themselves not only as a cohort in the present, but as the inheritors of the mantle worn by Aphra Behn and Katherine Philips in the previous generation (2010, 267). Scholars in this school of thought point to the commendatory verses and prefatory materials the women wrote for one another's plays—which contain frequent allusions to “Orinda” (Philips) and “Astrea” (Behn)—as well as to similarities between their works. According to Backscheider, “the plays by women produced in the 1695–96 season illustrate efforts to protect and legitimate many of the revisionary elements in Behn’s plays. Most striking in these plays are their depictions of women’s utopian dreams of married love and of their fears of loneliness, insult, and rape” (1993, 86).<sup>3</sup> Backscheider thus implicitly links the women’s gender and their sense of female literary tradition to particular formal and thematic features of their writing.

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and politics (1976, 272–73, 286). According to Laura Brown, early Restoration heroic drama is characterized by its expression of aristocratic ideals, its distant settings, and its elevated style. For Brown, the “affective tragedy” of the later Restoration is “directly and closely derived” from earlier heroic forms, but it shifts away from exotic locales and upper-class heroes to become more focused on morality than on social status; consequently, its protagonists are more likely to be women or middling-class men than aristocrats (1981, 3–4, 69–70). Hume similarly connects the resurgent heroic of the mid-1690s to the earlier mode but sees the changes as largely superficial: “The standard formula for a serious play in these years is simple: graft pathos and sentiment onto an old play” (424). Although he cites plays by both male and female authors as examples of this “grafting,” he notes that “Female writers, especially, seem consistently to have favoured the heroic mode” in the 1690s, pointing to Trotter’s *Agnes de Castro* and Pix’s *Ibrahim* as examples (423).

<sup>3</sup> Along the same lines, Laurie A. Finke argues that the female playwrights of the 1690s were “conscious of themselves as an intellectual group” (1984, 64), and Laura J. Rosenthal discusses the prefatory materials Trotter, Pix, and Manley wrote for one another’s plays as an attempt to construct “a distinct female literary estate” (1996, 178). Tanya Caldwell likewise states that “Behn had paved a path down which her successors were careful to follow, consciously placing themselves in a tradition and creating a female lineage” (2011, 21).

Some recent critics, however, have pushed against this view, claiming instead that the women’s plays display a diversity that belies the notion of a specifically feminine dramatic form. Jane Milling, for instance, shows how female writers operated within the same structures and faced many of the same obstacles as their male counterparts; she emphasizes the variety of ways they responded to these market forces through their writings (2010a and 2010b). Marcie Frank similarly resists the narrative of a nascent female literary tradition, pointing to Dryden rather than Behn as the most powerful influence on playwrights like Trotter and Manley (2003). Thus, scholars continue to debate whether these women’s plays are qualitatively different from those produced by their male counterparts, suggesting that late-seventeenth-century debates about the changing generic landscape of drama crystallized around gender in ways that still inform criticism today.

We can begin to disentangle gender and genre by viewing the drama of the period computationally. Quantitative techniques allow us to see the statistically perceptible changes that took place in heroic drama over the course of the final decades of the seventeenth century, and to compare the affective and formal dimensions of male and female authors’ language. This paper therefore undertakes a quantitative reexamination of generic shift in late Restoration drama. Using the text-tagging program DocuScope and principal component analysis (PCA) of 272 plays printed between 1670 and 1699, I find that the heroic tragedies of the 1690s are, in fact, measurably different from those of the first wave. In place of the reasoned deliberation that characterizes earlier heroic tragedies, those of the 1690s are marked by higher levels of negativity, contingency, and denial—features that mirror the overblown satire of Manley’s dramatic language in *The Female Wits*, as well as Backscheider’s characterization of women writers’ “fears,” above.<sup>4</sup> While several plays by women fit this pattern, so do many written by men. My findings therefore challenge the assumption that this new form of heroic tragedy was primarily the purview of female playwrights. I argue instead that critics who lambasted the “female wits” were responding to more widespread changes in dramatic form, and I suggest that women were used as scapegoats for broader shifts in the language and focus of heroic drama. This case study serves as an example of modern critics’ tendency to unwittingly reproduce

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<sup>4</sup> For the purposes of this analysis, I am not concerned with one prominent difference between the two generations of heroic plays: those of the 1670s are written in heroic couplets, while those of the 1690s are written in blank verse. Rhyme (or the lack thereof) is not perceptible by DocuScope, and is therefore outside the scope of this paper.

the assumptions embedded in early modern criticism, as well as the potential of computational methods to help us challenge these inherited narratives.<sup>5</sup>

While advancing my primary argument about generic shifts in late Restoration drama, I also take the opportunity to reflect on the benefits and drawbacks of performing this kind of research computationally. I wish to make explicit the kinds of access statistical methods provide to large corpora of texts, as well as the limits of that access. Just as importantly, I wish to suggest the new perspectives we can gain by using techniques like PCA, while attending to the ways that the corpus curation, experimental design, and interpretation of results necessarily reproduce certain field-specific assumptions about the objects of analysis.<sup>6</sup> To that end, I provide a detailed account of my methods of corpus curation and statistical analysis before delving into the results and their implications.

### *Corpus Curation*

This analysis draws on a corpus of 272 plays printed between 1670 and 1699, a period that spans the heyday of Restoration theatre through the beginnings of Augustan drama and is often seen as a period of transition in public tastes and sensibilities. The texts were taken from the Early English Books Online-Text Creation Partnership (EEBO-TCP), a collection of hand-keyed electronic transcriptions of facsimiles from EEBO.<sup>7</sup> In addition to hand-selecting the

<sup>5</sup> As Catherine Ingrassia observes, “The act of scholarship often replicates the cultural relations it seeks to dissect” (1998, 9).

<sup>6</sup> D. Sculley and Bradley M. Pasanek rightly argue that prior assumptions come to bear on all stages of the experimental process, and that this issue may be even more acute in the humanities: “The literary critic ... can interpret anything, but such interpretation may well be another name for overfitting the data” (2008, 421). They propose that humanities scholars who use data mining methods should be more scrupulous about recording their assumptions, a call I attempt to answer here.

<sup>7</sup> Specifically, I used an archive of EEBO-TCP captured in early 2012 by members of the Visualizing English Print research team. The entire archive contains 20,885 texts published between 1470 and 1700, including 6,588 texts dated 1670–1699, from which I hand-selected my corpus. Each text was assessed individually to determine whether it was dramatic. It is worth noting that this step involved selection criteria about what counted as a “Restoration play” that were necessarily driven by my research questions. For example, I chose to include whole operas but not individual songs or collections of songs from operas. I did not include prologues and epilogues printed separately as broadsides or pamphlets, nor did I include translations of classical plays or Lord Mayor’s Day pageants, because these texts were unlikely to provide insight

dramatic texts from this larger archive, I also collected metadata about each play, including genre, publication year, and author name. This metadata was taken from the texts themselves wherever possible and supplemented with information from historical sources like Gerard Langbaine’s *A New Catalogue of English Plays* (1688), as well as from EEBO-TCP records. My goal was to use the terms and categories available to contemporaries wherever possible in order to avoid imposing modern scholarly assumptions about authorship and genre that might color the results.<sup>8</sup>

My corpus is necessarily an incomplete and limited set of plays from the decades under consideration, for several reasons. First, I began from an archive of texts that had been collected and modernized in early 2012, when EEBO-TCP was roughly half the size it is as of this writing. Second, the TCP collection itself is an incomplete subset of the more than 125,000 texts available in EEBO.<sup>9</sup> Third, even EEBO does not include every text printed—only those extant texts that have been scanned. Finally, because EEBO texts are dated by publication rather than by composition or performance, the corpus includes reprints of older plays and revivals and therefore may not map neatly onto theatrical trends as they appeared on stage. However, publication of plays frequently followed shortly on their performance, usually in a matter of weeks or months, and new plays and revivals were more likely than repertory plays to appear in new editions (Milhous and Hume, 1974). It is therefore fair to assume that the corpus under analysis represents a reasonable approximation of dramatic tastes across the period.

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into major genres of the public theatre and would introduce unnecessary noise into the analysis of the data. However, I did choose to include collections of several plays bound together, as well as plays that appeared to have been printed but never performed. Given the scarcity and unreliability of performance records from this period, determining which plays were intended for performance or actually performed would be difficult and time-consuming and would likely only result in the elimination of a small handful of items from the corpus.

<sup>8</sup> For example, I did not use generic categories like “sentimental heroic tragedy” that are found in today’s criticism. Instead, I labeled plays according to seven basic genres that correspond to those used in the title pages and criticism of the period: tragedy, comedy, tragicomedy, history, opera, masque, and farce. Similarly, I carefully preserved information about the anonymity of plays at their moment of publication, even in cases where the authorship is now agreed upon.

<sup>9</sup> For more on the TCP collection, please see <http://www.textcreationpartnership.org/tcp-eebo/>.

The texts were tagged according to the DocuScope dictionary built by David Kaufer at MIT, using the Ubiq+Ity tagging program developed by Visualizing English Print.<sup>10</sup> DocuScope contains entries for millions of words and phrases, each of which has been preassigned to one of more than 100 Language Action Types (LATs).<sup>11</sup> DocuScope's LATs represent a functionalist approach to language, which is to say that the dictionary tags phrases based on what they do—passing judgment, invoking communal authorities, or describing the physical world, for example—rather than by what they are (e.g., parts of speech). This approach to language makes DocuScope exceptionally good at helping us identify the functional linguistic underpinnings of dramatic genres, as Jonathan Hope and Michael Witmore have demonstrated.<sup>12</sup> It is therefore an excellent tool for exploring how the language of heroic drama may have changed over the final decades of the seventeenth century.

### *Principal Component Analysis*

Tagging 272 texts with more than 100 features results in thousands of data points. In order to analyze the interactions of these features, it is necessary to aggregate them into a manageable number of interpretable phenomena. For this study, I used CorpusSeparator, a program designed by Michael Correll at the University of Wisconsin-Madison, to perform PCA on the collections of LAT measurements for all texts in the collection. CorpusSeparator generates

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<sup>10</sup> Ubiq+Ity can be accessed at <http://vep.cs.wisc.edu/ubiq/>. In order to improve tagging accuracy and frequency, the texts underwent several pre-processing steps. First, when they were initially collected in 2012, they were stripped of their SGML/XML encoding and modernized using VARD 2, an open-access text processor designed by Alistair Baron at Lancaster University to reduce spelling variation in early modern English corpora (see <http://ucrel.lancs.ac.uk/vard/about/>). For many of the plays under consideration, this modernization step had the added benefit of removing speech prefixes, which were not recognizable as words. I selected my dramatic corpus from this already-modernized archive, according to the criteria outlined in note 6. I then used a batch text editor to remove all vertical bars (|), which indicate words split across line or page boundaries in TCP transcriptions.

<sup>11</sup> DocuScope assigns each word to one string and each string to a single LAT; as such, it does not account for the multiple overlapping functions of linguistic units. For more on the rhetorical and phenomenological underpinnings of the DocuScope dictionary, see Kaufer et al., 2004.

<sup>12</sup> See Hope and Witmore (2004, 2010, and 2014), as well as Witmore and Hope (2007). Susan David Bernstein and Catherine DeRose have also shown that PCA of DocuScope-tagged texts reveals signals of seriality in Victorian novels (2012).

principal components (PCs), which are mathematical representations of how different features’ presence or absence tends to co-occur in texts. Each PC has a positive or negative weight for each LAT, indicating the feature’s relative presence or absence in that PC. The first components account for the majority of variation across the corpus, with PC1 capturing the most variation. In the case of my 272-play corpus, as we will see, PC1 roughly separates the interpersonal energy of comedy from the descriptive language of tragedy and other genres, while PC2 differentiates the abstract verbal texture of heroic drama from the sensory spectacle of masques and burlesques.

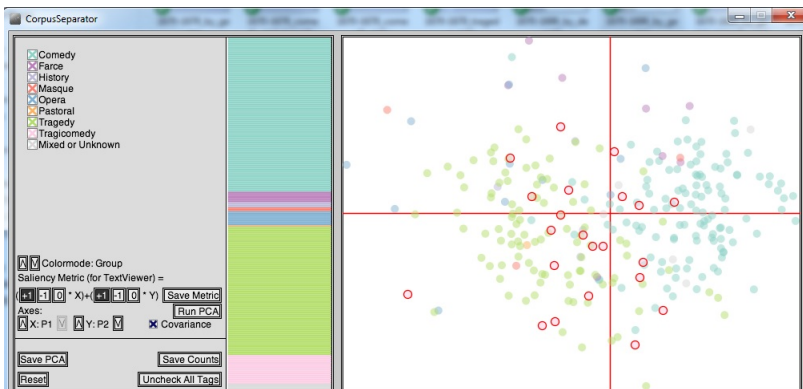


Figure 1. The 272-text corpus color-coded by genre, where the x-axis represents PC1 and the y-axis represents PC2. Comedies, labeled blue, group on the right side of the plot, while tragedies, labeled green, group on the left side. Tragicomedies, circled in red, tend to hover around the y-axis.

Once it has generated PCs that best account for variation between the texts, CorpusSeparator next scores each text against those PCs and projects the results onto a scatterplot.<sup>13</sup> The plot in Figure 1 shows the 272-play corpus color-coded by genre. In this visualization, the x-axis represents PC1 and the y-axis represents PC2. Texts whose LATs best align with the PC’s priorities are positioned furthest along the axis in the positive direction, while texts that abound in tags against which the PC selects appear furthest along the axis in the negative direction. The distance between points in this space reflects the texts’ difference from one another based on how DocuScope has tagged them. As this scatterplot makes immediately clear, genre is responsible for

<sup>13</sup> CorpusSeparator generates this score by using linear combination to multiply the individual text’s weights for each LAT by the PC’s weight for that LAT.

the most variation in the corpus. The majority of tragedies appear on the left side of the y-axis, while comedies tend toward the right side; tragicomedies fall around this dividing line.

Having established that PCA was, in fact, detecting features that separated the corpus roughly by genre, the next step was to analyze plays from each decade separately.<sup>14</sup> The goal in separating the corpus by decade was to determine how genre did or did not change across the period, in order to better understand why contemporaries experienced the revival of heroic tragedy in the 1690s as being different from the first wave in the 1670s, and also in order to determine whether gender had a role in that change.

*PC1: Comedy vs. Tragedy*

I began by analyzing PC1, the component that clearly separates comedy from tragedy in the 272-text corpus, in order to see whether the features of

<sup>14</sup> For the analyses described in this paper, I used DocuScope version 3.83, which contains 134 LATs. Because the number of features (LATs) exceeds the number of observations (texts) in my two sub-corpora (109 texts from the 1670s and 103 from the 1690s), there may be concerns about the limited generalizability of my findings. I address this concern in several ways. First, the findings in this paper are quite similar to those that were obtained using DocuScope 2.2, an older version of the dictionary that contains only 101 LATs, on the 1690s corpus. The earlier study was presented at the 2013 annual meeting of the Modern Language Association, and the newer study largely mirrors its findings for the 1690s. In addition, I ran a post-hoc feature selection test on the 1670s sub-corpus in which I eliminated the 40 LATs that had the least effect on the first two principal components. Doing so did not change my scatterplot, which suggests that the least prominent LATs were not introducing significant noise into my initial PCA results using the full 134-feature dictionary. This makes sense, since some of the least important LATs were clearly irrelevant to early modern drama. “Reporting\_Geography\_US\_States,” for instance, is a poor fit for historical reasons, while variations of “Academic\_Citation” track attributional moves of academic prose that are unlikely to occur frequently in drama. Furthermore, in this paper I consider only the highest-weighted LATs for the first two (and therefore most important) principal components, thereby reducing the dependence of my analysis on potentially noisy or irrelevant weightings. Finally, it is important to note that my claims are descriptive rather than predictive: I do not offer a statistical model for classifying all Restoration drama based on this subset. Rather, I take the statistical analysis of this specific corpus as a point of departure for interpretive claims about particular texts grounded in the methods of literary analysis and theatre history.



tragedy as a whole changed across the Restoration period. Figure 2 shows the scatterplot of just the 109 plays published between 1670 and 1679, color-coded by genre. Again, tragedy and comedy are divided along the x-axis, with most comedies scoring positive for PC1 and therefore falling to the right of the y-axis, and most tragedies scoring negative for PC1 and falling to the left. In fact, PC1 appears to differentiate comedies from nearly everything else: most histories, operas, masques, farces, and pastorals are, like tragedy, negative for PC1.

What linguistic features create this separation? The weights that define the “comedy component” suggest that PC1 selects most strongly for the LAT Character\_PersonProperty, a tag that is assigned to words like “sir,” “servant,” “kinswoman,” and “wife” that define individuals’ social roles. It also selects strongly for the LATs “Interactive\_You\_Attention” (phrases like “have you,” “I hope you,” and “do you”) and “Interactive\_Question” (words and phrases like “who,” “why,” and “may I,” as well as question marks). Comedies of the 1670s, then, appear preoccupied with people and their interactions, a finding that corresponds roughly to Jonathan Hope and Michael Witmore’s discovery that Shakespearean comedy prioritizes interpersonal exchange (2010, 373). The agreement between my findings and theirs suggests that the markers of comedy are consistent from the Elizabethan period up to the Restoration.

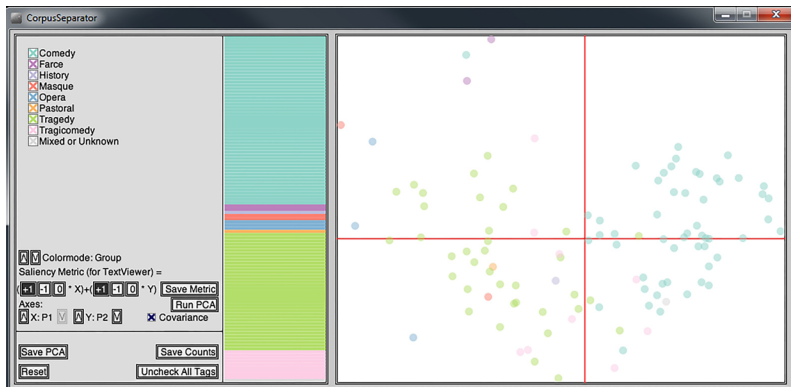


Figure 2. The subset of 109 plays published 1670–1679, color-coded by genre as in Figure 1.

On the other hand, non-comedic plays that score low for PC1 are full of SenseObjects—concrete nouns like “sword,” “periwig,” “house,” “shop,” and “books”—as well as SenseProperties, a tag applied to adjectives and adjective

phrases that describe physical objects: “swift,” “sweet,” “dark,” “piercing eyes,” “tempestuous winds,” etc. (The discussion of Thomas Duffet’s *The Mock-Tempest*, below, provides a more detailed analysis of a specific passage in which SenseObjects and SenseProperties interact.) What PC1 may tell us, then, is that the dividing line between comedy and other genres in the 1670s is the relative presence or absence of elaborate descriptive language—not, as we might expect, the presence of words suggesting positive or negative emotion.

PC1 again appears to distinguish between comedy and tragedy for the subset of 103 plays from the 1690s, although the points on the scatterplot group more loosely than in the 1670s, perhaps a signal of the experimental nature of much 1690s drama (Figure 3). In the 1690s, the comedy component continues to select for features related to people and conversation and against features related to description. In other words, the linguistic characteristics distinguishing comedy from other genres are similar in both decades (see Table 1).

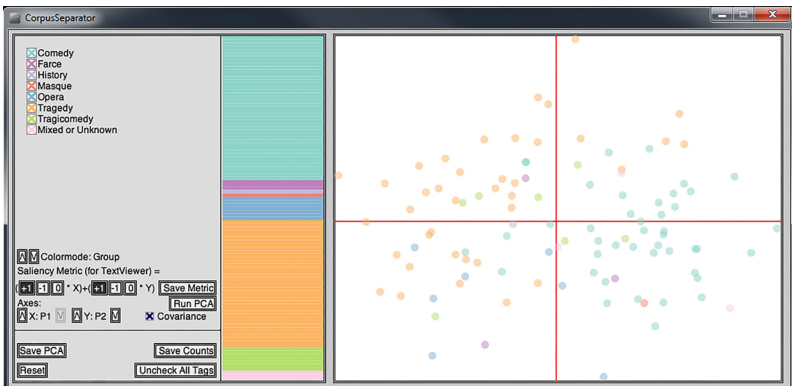


Figure 3. In the 1690s, tragedy (orange) and comedy (light blue) are still separated along PC1, but more loosely.

While PC1 remains similar across the period, however, PC2 shows quite a bit more change from the 1670s to the 1690s. It therefore offers a better explanation of the generic change identified by contemporaries at the end of the seventeenth century—the turn to sentimental heroic tragedy that was associated with the emergence of women dramatists.

Language Action Type (LAT)	Weight (1670s corpus)	Weight (1690s corpus)	Change in Weight	Absolute Value of Change
Descript_SenseObject	-0.883	-0.598	0.285	0.285
Public_Values_Negative	-0.032	-0.152	-0.12	0.12
Interactive_You_Attention	0.435	0.554	0.119	0.119
Descript_SenseProperty	-0.443	-0.341	0.102	0.102
Elaboration_Prep	-0.443	-0.543	-0.1	0.1
Interactive_You_Focal_Subject	0.297	0.389	0.092	0.092
Reporting_Events	-0.19	-0.1	0.09	0.09
Elaboration_That_Wh	-0.056	-0.146	-0.09	0.09
Relations_Resistance	-0.07	-0.151	-0.081	0.081
Relations_Inclusive	-0.188	-0.109	0.079	0.079

Table 1. The LATs that define PC1 (what I am calling the comedy component) change from the 1670s to the 1690s sub-corpus. These ten features show the most change across the period.<sup>15</sup>

### *PC2: Heroic Plays vs. Sensory Spectacles*

As we have seen, the distribution of texts along the PC1 axis is easy to recognize: it is immediately apparent that this component distinguishes comedy from other genres, particularly tragedy. In other words, the phenomenon identified algorithmically by PCA is easily correlated to human-generated categories of genre, in part because the basic dramatic genres (tragedy, comedy, farce, and so on) are a form of metadata offered up by the texts and coded for each item in the corpus. PC2, conversely, does not separate plays into groups that are immediately interpretable in terms of the basic generic metadata provided by title pages and EEBO entries. Rather, it produces groupings that must be understood through an iterative movement between corpus-level patterns and individual texts, informed by domain knowledge of Restoration theatre. As this movement reveals, PC2 can help us discern

<sup>15</sup> I first took the top 25 most important LATs for PC1 in each decade (determined by the absolute value of the LAT weights), a total of 29 LATs for the two decades. I then calculated the change for all 29. The average of the absolute value of change across all 29 of these top LATs is 0.069.

the linguistic features of heroic drama, a label not commonly applied on title pages of the period, but nonetheless detectable using PCA.

On the scatterplot of plays printed in the 1670s, the three that appear highest on the y-axis (reflecting the fact that they score highest for PC2) are burlesques by Duffet of serious plays: *The Mock-Tempest*, *Psyche Debauched*, and *The Empress of Morocco: A Farce*. The other high-scoring plays for PC2 are a masque (*Beauties Triumph*, also by Duffet), a tragicomedy (John Crown's *Juliana*), an opera (Monsieur P. P.'s *Ariadne*), and a comedy (Edward Ravenscroft's *The English Lawyer*). Although this is a heterogeneous group, the confluence of farces and farcical comedies, masques, and operas suggests a shared emphasis on physical, visual, and aural entertainment over verbal play. The texts that score the lowest for PC2, on the other hand, are tragedies and tragicomedies that have been labeled "heroic" at various points in history: Edward Cooke's *Love's Triumph*; Frances Boothby's *Marcelia*; Dryden's *Aureng-Zebe* and *The Conquest of Granada*; and John Dancer's translation of Quinault's tragicomedy *Agrippa*.<sup>16</sup> Turning to the weights, we can see that the burlesques that score highest for PC2 are characterized by the frequent occurrence of the LATs *Descript\_SenseObject*, *Character\_PersonProperty*, *Directives\_Imperative*, *Character\_OralCues* and *Descript\_Motions*. The heroic plays against which PC2 selects have a fairly low frequency of those tags, but score high for features such as *Public\_Values\_Positive*, *Reporting\_States*, *Relations\_Resistance*, and *Reason\_Contingency*.

To better understand this combination of features, we need to see how they work together in passages that are exemplary of this "heroic component." A single-text viewer tool developed by Michael Correll and Eric Alexander makes it possible to zoom in, not only on the individual tagged texts, but even on passages that push a text toward or away from a particular PC. This step is crucial to humanities inquiry. Although PCA can help researchers identify groups of texts within a corpus that have similar scores relative to a component that accounts for variation within a data set, the algorithm cannot tell us what phenomenon the PC—that set of mutually occurring and/or mutually exclusive features—might represent. Understanding why the algorithm identified those features as significant and why it grouped those particular texts is an act of interpretation. In order to facilitate this interpretation, we can project a "mask" onto individual texts, a kind of mathematical snapshot of the features that define a PC or combination of PCs. Visualizing

<sup>16</sup> *Marcelia* was the first play by a woman to be staged professionally in London; see Hughes (2004).

the text’s interaction with the mask in this way makes it possible to grasp the meaning of the LATs, not only in terms of their quantitative weights, but in terms of the corresponding qualitative textual features and effects they produce when combined. This movement from corpus-level insights back to the text enables the crucial toggling between “close” and “distant” reading that makes algorithmic criticism meaningful and legible within intellectual traditions like literary studies and theatre history. Importantly, although this step requires field-specific knowledge, it does not require that the researcher should have read all, or even most, of the texts in the collection; rather, it allows us to extrapolate what we know about individual texts and passages to understand patterns within larger corpora.

Figure 4 shows the text viewer tool displaying a passage from *Love’s Triumph* that pushes the play low on the PC2 axis for the 1670s corpus. The passage exemplifies the features that, according to my interpretation, characterize the language of heroic plays from the 1670s. The tagged words and phrases are color-coded according to the LAT’s importance to PC2. The passage is an exchange between two characters, Perdiccas and Roxana. It reads, in part:

ROX. Of my deserts in Love, if I might boast,  
I best deserve him, cause I love him most.  
PER. And, Madam, if your Love for him be such,  
Can you for him think any thing too much?  
ROX. On this a dangerous consequence ensues,  
Therefore, my Lord, I justly may refuse.—  
He to destroy my Love, this Boon required.  
PER. Was then this favour by the Prince desired?  
ROX. Yes, but I did deny him that request,  
So much destructive to my Interest.  
PER. At first demand of it my Love did start,  
And all my blood went to support my heart.  
But forcive reason me did plainly show,  
There could no disadvantage from it grow.  
To fair Statira’s will I did submit,  
And promised her I would indeavour it. (Cooke 1678, 24)<sup>17</sup>

These lines seem to fit a conventional view that heroic drama centers on a conflict between love and politics or duty. This initial impression is nuanced,

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<sup>17</sup> The passage and those that follow are presented as modernized by VARD 2, but with speech prefixes from the original edition reintroduced for clarity.

however, by an analysis of the tagged phrases that pull this passage toward other heroic plays of the decade. “Careful,” “merit,” “justly,” “favour,” and “reason” are all tagged Public\_Values\_Positive; “hear,” “love,” and “think” are tagged Reporting\_States; “but,” “yet,” “refuse,” and “deny” are tagged Relations\_Resistance; and “it would,” “might,” “may,” and “there could” are tagged Reason\_Contingency. Put together, these tags suggest that what makes this passage exemplary is the way it dramatizes individuals weighing multiple possible courses of action, deciding between opposing values, and describing or anticipating conflict. In other words, the heroic component is defined primarily by its emphasis on reasoned deliberation, not necessarily an explicit concern with themes of love and valor.



Figure 4. A passage from *Love's Triumph* that pushes the play low on the PC2 axis, as seen in the single-text viewer tool. The line graph on the right charts the strength of what we might call an “anti-PC2 signal” over the course of the play. The weights on the left are a mask of “anti-PC2” weights. The passage in the middle pane illustrates the kind of language against which PC2 selects and therefore exemplifies the language of heroic drama that helps pull the play lower on the y-axis in Figure 3. Words highlighted in blue are tagged with LATs that make this passage particularly “heroic,” while words highlighted in red are more strongly associated with the sensory language of burlesque, farce, and masque that opposes heroic drama in this corpus.

On the other end of the spectrum, a passage that scores exceptionally high for PC2, and therefore exemplifies the sensory language of burlesque and masque, is a song sung by a devil in Duffet’s *The Mock-Tempest*:

[A noise of horrid Musick; a Devil arises with a Crown of Fire.]  
Sings.  
Arise, arise, ye Subterranean Fiends,  
Come claw the backs, of guilty hinds:  
And all ye filthy Drabs, and Harlots rise,  
Which use to infect the Earth with Puddings, and hot Pies;  
Rise ye who can devouring glasses frame,  
By which Wines pass to the hollow Womb, and Brain;  
Engender Head-akes, make bold elbows shake;  
Estates to Pimples, and to deserts turn.  
And you whose greedy flames mans very entrails burn,  
Ye ramping queens, who rattling Coaches take,  
Though you’ve been fluxed until Head and Body shake.  
Come Clap these Wreches until their parts do swell:  
Let Nature never make them well.  
Cause Legs, and Arms to pine, cause loss of hair,  
Then make them howl with Anguish, and sad groans.  
Rise and obey, rise and obey, Raw head and bloody bones.  
[Exit Devils] (Duffet 1675, 20)

This passage abounds in Sense\_Objects, including food items (“Puddings,” “Pies,” “Wines”) and body parts (“Brain,” “Womb,” “entrails”), described by SenseProperties (“hot,” “hollow,” “Raw”). Directives\_Imperative (“Come,” “Rise,” “make”) work together with Character\_OralCues (the repeated “ye”) to produce the structure of the song, a series of directives to the other devils to wreak havoc on humans. Along with other passages high in PC2, this song highlights how common this combination of imperative syntax and sensory catalog is in songs as well as stage directions—both of which dominate printed texts of masques, farces, and operas that PC2 pushes far away from the heroic plays discussed above.

Examining passages from plays that score exceptionally high and exceptionally low in PC2 shows that this component is roughly tracking the divide between highly sensory plays and highly intellectual or verbal ones. This distinction is, of course, overly schematic, as heroic plays like Dryden’s *The Conquest of Granada* were also visual spectacles. Nonetheless, in this collection of plays from the 1670s, language that evokes the senses—whether lines

of spoken dialogue that ignite the audience's sensory imaginations or stage directions painting the image of spectacle in readers' minds—tends not to co-occur with the verbal deliberation and evaluation characterizing heroic plays.

Turning to the 1690s sub-corpus, we find that PC2, like PC1, tracks roughly the same phenomena that it did for the collection of texts from the 1670s. Once again, PC2 appears to differentiate between heroic plays on the one hand and farces and musical extravaganzas on the other.<sup>18</sup> However, whereas many of the most extreme examples of the “heroic” component in the 1670s were tragicomedies, here they are all tragedies—suggesting, perhaps, that the heroic mode is more closely associated with tragedy in the later decade. The plays that score highest for PC2 are Trotter's *Fatal Friendship* and *Agnes de Castro*, followed by William Philips's *The Revengeful Queen*, Dryden's *The Fatal Discovery*, and the anonymous *The Unnatural Mother* (by “a young lady”). At the other extreme, we have Elkanah Settle's operas *The World in the Moon* and *The Fairy Queen*, William Mountfort's farcical adaptation of *Doctor Faustus*, and Ravenscroft's comedy *The Canterbury Guests*.

Heroic drama in the 1690s displays several of the same linguistic features as heroic drama in the 1670s, and it similarly tends to avoid the sensory texture of masque, opera, and burlesque. The heroic component here selects against plays like *The World in the Moon*, which abounds in rich descriptions of scenery that include concrete nouns (“Palace,” “Marble,” “Bases,” “Girdles,” “Foliage,” “Coronets,” “Gold,” “Roof,” “Panels,” “Mouldings,” and “Flowers”), imperatives (“Enter”), descriptions of spatial relations (“The Scene,” “near Thirty Foot high” and “Arch”), and allusions to specific people (“Man,” “Sir,” “Queen,” “Emperor,” “Mogul”). This kind of language has no place in heroic tragedies like Trotter's *Fatal Friendship*, the heroic tragedy that scores the highest for PC2 in the 1690s sub-corpus.

However, the LAT weights that define PC2 in the 1690s reveal a much higher degree of change over time than we saw for PC1; whereas the features distinguishing comedy from tragedy did not show much shift from the 1670s to the 1690s, the features distinguishing highly sensory spectacles from highly verbal heroic plays do change from early to late Restoration drama (see Table 2).

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<sup>18</sup> The direction is reversed, with the “heroic” plays scoring high rather than low for PC2, but this reversal is an arbitrary artifact of PCA.



Language Action Type (LAT)	Weight (1670s corpus)	Weight (1690s corpus)	Change in Weight	Absolute Value of Change
Public_Values_Positive	0.392	0.095	-0.297	0.297
Public_Language	0.179	-0.034	-0.213	0.213
Interactive_Question	-0.275	-0.066	0.209	0.209
Academic_Abstract_N_AJ_AV	0.189	0.045	-0.144	0.144
Descript_Motions	-0.371	-0.228	0.143	0.143
Elaboration_Prep	0.179	0.039	-0.140	0.140
Past	0.089	0.225	0.136	0.136
Reason_DenyDisclaim	0.125	0.259	0.134	0.134
Emotion_Negativity	0.012	0.137	0.125	0.125
Elaboration_Determiner	-0.094	-0.212	-0.118	0.118

Table 2. This table shows how the LATs that define PC2 (heroic drama) change from the 1670s to the 1690s. These ten features show the most change across the period. Compared to PC1 (see Table 1), PC2 demonstrates much more change over time, suggesting that the features distinguishing heroic drama from sensory spectacle are less stable than those differentiating comedy from tragedy.<sup>19</sup>

As Table 2 shows, the LAT *Public\_Values\_Positive* has become much less important to heroic drama in the 1690s, its score dropping dramatically from +0.392 to +0.095. Recall that *Public\_Values\_Positive*, a key feature of heroic plays from the 1670s, includes words like “merit,” “justly,” and “favour,” terms that suggest positive norms against which individuals’ behaviors might be assessed. In the 1690s, these norms have faded away, and PC2 now selects against, rather than for, the related LAT *Public\_Language*, which includes terms like “highness,” “power” “royal,” and “army” that relate to authority and governance. This shift seems to bear out the notion that heroic drama in the 1690s was less concerned with aristocratic ideals and heroes than its earlier Restoration counterpart.

<sup>19</sup> I first took the top 25 most important LATs for PC2 in each decade (determined by the absolute value of the LAT weights), a total of 31 LATs for the two decades. I then calculated the rate of change for all 31. The average of the absolute value of change across all 31 of these top LATs is 0.078. Note that these weights are those that PC2 selects against in the 1670s and for in the 1690s; the directionality of the principal components is arbitrary.

While this kind of public and normative language fades out of the picture, however, other LATs gain importance for heroic drama in the 1690s: Emotion\_Negativity's weight rises from 0.012 to 0.137, and Reason\_DenyDisclaim's weight rises from 0.125 to 0.259. These weights suggest that in the heroic drama of the 1690s corpus, public and positive values have given way to more negative language. As Table 2 shows, the characters in these plays speak more about the past and are more prone to express denial; simultaneously, their speech has become less abstract and less elaborative. It might appear from this analysis that the heroic tragedies of the later Restoration are more about emotion than intellect, more about conflict than deliberation, more about pathos than the display of nobility. These conclusions, however, must be tested against specific passages that exemplify the characteristics of later heroic drama, as represented by PC2.

The heroic component for the 1690s is strongly defined by what it selects against: the top five most important LATs are all negative weights. As a result, it is challenging to track the features that exemplify it. However, their cumulative, qualitative effects are evident from the language of the climactic confrontation scene between the friends alluded to in the title of Trotter's *Fatal Friendship*, Castalio and Gramond:

CAST. Take back the shameful Ransom; I'll to Prison,  
And resume my Chains; bestow the Purchase  
Of your Treachery on Knaves, I'll none of it.

GRAM. Stay, stay, my Lord, there's yet a surer way  
To clear your Fame, the Blood of him that stained it:  
Take, take my Life, it is a just Sacrifice,  
You owe it to your self, to Honour,  
And the Name of Friend so long abused.

CAST. Is this the Man  
I called my Friend! And was I thus deceived!  
I find indeed Lamira well observed,  
There's the least Truth, where most it does appear.  
Ha! that thought has roused one that alarms my Heart;  
She said it was one esteemed my Friend that wronged her;  
Is it possible that he, the Man whom I  
Preferred to all the World, should be ordained  
The Ruin of the only thing besides  
That could be dear to me!

GRAM. What said you, do you love her?

CAST. Whom, what her? It is not Lamira thou'st abused.

GRAM. Nothing but this could aggravate my Crime,  
Or my Remorse; and was it wanting, Heaven!  
Must every Blow which I, or Fate strikes for me,  
Fall heavier still on him! Why, why is this!  
CAST. That I alone may have the right of Vengeance,  
Which now my Injuries are ripe for: Traitor,  
Defend thy Life. (1698, 51–52)

This passage includes several phrases tagged Reason\_Contingency, including “possible that,” “That could be,” “this could,” and “may have.” Reporting\_States is another frequent tag for words and phrases like “observed,” “love,” and “wanting.” As discussed above, the LATs Reason\_DenyDisclaim and Emotion\_Negativity become more important to PC2 in the 1690s, and both are present here. “Nor is it,” “it can’t,” “none of,” “It is not,” and similar phrases are tagged DenyDisclaim, while Emotion\_Negativity is assigned to words like “Ransom,” “Prison,” “Knaves,” “abused,” “alarms,” “The Ruin of,” “aggravate,” “strikes,” and “Burden.” This passage, exemplary of heroic drama in the 1690s, feels quite different from the passage from *Love’s Triumph* that exemplified heroic drama in the 1670s (Figure 4). The language is still elevated, and the drama continues to occur on a plane apart from the sensory world; this is still the drama of the individual’s thoughts and feelings and remains opposed to the sensory language found in printed texts of spectacles. Now, however, the form this highly verbal, highly abstract dramatic language takes is more about negativity and emotion than about deliberation and the weighing of values. The conflict here is darker, angrier, and more emotional. This affective shift aligns with the critical consensus that the resurgence of heroic tragedy in the 1690s took a sentimental or pathetic turn. In addition, two plays by Trotter—one of the “female wits” so maligned by contemporaries—have the highest scores for PC2.

Does the exceptionality of Trotter’s plays bear out the association between women writers and the increasing pathos of heroic drama in the 1690s? Not quite. Crucially, the plays that fall closest to Trotter are *The Revengeful Queen* and *The Rival Sisters*, both written by men, and *The Unnatural Mother*, purportedly by “a young lady.” What these plays have in common, in addition to their deployment of the language associated with PC2, is not female authors; rather, it is the fact, suggested by the titles, that they feature prominent female characters. Perhaps, then, women came under fire for writing in this style because it was associated in the cultural imagination with female

protagonists, the tastes of female audience members, and by extension the productions of female authors.

Just as importantly, some plays by “female wits” that critics typically label sentimental heroic drama score quite low or even negative for PC2. Pix’s *Ibrahim*, for instance, is often considered a paragon of sentimental heroic tragedy (note 2), yet it falls *below* the x-axis, unlike most others of the genre. The play has the expected plot structure, but its language is highly concrete and sensory. This exception suggests that PC2 is selecting for a particular way of using language that tended to occur in heroic drama but was not a necessary precondition for writing in that genre. The kind of dramatic language that characterizes PC2 may have been associated with femininity in the theatre, then, but it was not necessarily the exclusive purview of women writers—nor did all female authors of heroic drama choose to write in this way.

### *Conclusions and Implications*

Critics have debated how the character types, common plot structures, and tropes of heroic drama may have changed throughout the late seventeenth century, but my study suggests that at least part of the shift registered by contemporaries—and blamed on women writers—had to do with changes in the linguistic and rhetorical fabric of heroic tragedy. In fact, some contemporary critics did register the importance of language to the changes they were witnessing in dramatic genre. *The Female Wits*, while ostensibly a send-up of a genre and a gender, undertakes a highly specific and pointed satire of the overblown verbal style of Manley’s *The Royal Mischief*. As Laura J. Rosenthal puts it, “the play-within-the-play characterizes *The Royal Mischief* as excessive, histrionic, and in violation of even heroic tragedy’s generous boundaries of verisimilitude (1996, 173).<sup>20</sup> Lucyle Hook has pushed against

<sup>20</sup> For instance, during the rehearsal of Marsilia’s play, a young lover laments: “Give me your Heart! your Arms! Oh! give me all! see at your Feet the wretched *Amorous* falls! Be not more cruel than our Foes. Behold me on the Torture! *Fastin* cannot Punish me with half the Racks denying Beauty lays on longing Love” (W. M. 1704, 56). Elsewhere, his forbidden beloved Isabella bemoans her fate, crying “Thou, Mother Earth, bear thy wretched daughter, open thy all-receiving womb, and take thy groaning burden in!” (49). The overwrought pathos of these lines comes from words like “wretched,” “cruel,” “Torture,” “groaning,” and “burden,” as well as negations like “Be not” and “cannot.” According to my interpretation, this is the same kind of language that PC2 selects for in the corpus of 1690s plays: emotional, negative, and contingent.

the satire's view of "female" dramatic style, arguing that the only trait distinguishing *The Royal Mischief* from other heroic tragedies and tragicomedies of the day is the presence of a female protagonist, and that the play's mockery is therefore grounded in antifeminism rather than in any real generic or stylistic shift (1967, viii). Conversely, my statistical analysis suggests that there *were* real changes taking place in the language of heroic tragedy at this moment. This finding, however, does not diminish Hook's larger point that the attacks on women playwrights made them gendered scapegoats. In my corpus, plays by both men and women fit the contingent, emotionally negative profile of 1690s heroic tragedy, while at the same time, there are several plays by "female wits" that do not fit this pattern. It appears, therefore, that women were blamed for a larger theatrical trend followed by men and women alike.

While my findings do not support the existence of a specifically female literary tradition or style at this time, they lend credence to the sense—expressed by women playwrights themselves—that they were coming under specifically gender-based attacks that went beyond the ordinary sparring between writers and critics.<sup>21</sup> In her preface to *The Lost Lover*, for instance, Manley famously blamed her gender for the play's failure: "I am satisfied the bare name of being a woman's play damned it beyond its own want of merit" (quoted in Caldwell 2011, 291). However, the fact that *Fatal Friendship* (1698) scores even higher for the 1690s heroic component than *Agnes de Castro* (published 1696, but likely performed in 1695) suggests the possibility that Trotter responded to *The Female Wits*, not by backing down, but by turning up the volume on what made this new brand of plays unique. My study thus offers a potential corrective to the common assumption that female playwrights were discouraged and set back by the satirical attack.<sup>22</sup>

<sup>21</sup> Rosenthal makes this distinction in her discussion of the play: "Writers, of course, pilloried each other all the time during these years, but the actual impersonation and public performance of an author's intimate vulnerabilities, produced by the company for which these women wrote, expresses a particular vehemence" (1996, 173).

<sup>22</sup> Hook argues that *The Female Wits* "had its impact on women playwrights in 1696," pointing out that "Manley did not produce another play until *Almyra*" in 1706 and that Pix and Trotter began writing for Lincoln's Inn Fields rather than Drury Lane (1967, x). Rosenthal, citing Hook, agrees that "*The Female Wits* may have had real effects on the careers of these women," although she emphasizes that the satire is evidence of their importance in the world of professional theater and further points out that Manley went on to become well known for her political and prose

Ultimately, the idea that these women were a “triumvirate,” or that they had a specific way of writing, was constructed by contemporaries because female playwrights were associated with the larger cultural threat of changing tastes. The notion was later reclaimed by feminist scholars who sought evidence of female solidarity in this moment of increased output by women writers. The assumptions made about women’s plays in the 1690s thus continue to inform criticism today. Computational analysis makes it possible to separate ourselves, albeit incompletely, from some of these assumptions, and to see individual texts of interest within the larger context of literary output at the time. This productive estrangement from familiar materials and narratives is not the same thing as “objectivity,” of course. As I have tried to make transparent throughout this discussion, even unsupervised analysis of a human-curated data set is subject to the assumptions embedded in its collection: biases of survival and selection for inclusion in the larger archive, biases researchers bring to the process of picking items to examine and assigning metadata, and biases inherent in the tools themselves. Nonetheless, if approached cautiously and with these limitations in mind, the results of quantitative analysis reveal the inherited categories and narratives that we bring, sometimes unawares, to our materials of study.

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writings (1996, 173). Robert Day offers the most extreme assessment of the legacy of *The Female Wits*, suggesting that Manley, Pix, and Trotter, “after shining briefly, were ignominiously extinguished, dying poor and obscure” as a result of their work’s hostile reception (1980, 62).

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