

## Textual Reuse in the Eighteenth Century: Mining Eliza Haywood's Quotations

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### Abstract

This article introduces a novel approach to textual reuse in order to identify the sources of previously unattributed quotations within the work of Eliza Haywood. The article offers a brief introduction to methods used previously within the field of historical text reuse, describes the combinatorial ngram approach used within the present work, then shows how this method can help us better understand the complex inner workings of Eliza Haywood's most celebrated novel, *Betsy Thoughtless*.

### Introduction

Literary scholars often argue that the eighteenth century witnessed a revolution in notions of authorship, one that moved from a culture based on imitation to a culture organized around the production of original utterances.<sup>[1]</sup> Since at least the publication of Harold Ogden White's *Plagiarism and Imitation during the English Renaissance*, scholars have maintained that those writing in the seventeenth and early eighteenth centuries endorsed the model of *imitatio* that one finds throughout classical writing: "That early modern writing does not operate according to the logic of original invention is well known," writes Max Thomas: "Between the residual medieval tradition of *compilatio* and the humanistic practices of *copia* and *inventio*, the dominant structure of writing was largely imitative" [Thomas 2000, 282]. By the 1750s, however, the scene had changed. "It is in the middle of the 18<sup>th</sup> century," writes George Buelow, that "the concept of originality . . . become[s] [a] significant elemen[t] in critical writings, and it is on this foundation of new ideas that much of the further development of aesthetic criticism as well as actual artistic achievement in all the arts was made possible in the 19<sup>th</sup> century" [Buelow 1990, 123]. During this pivotal period, celebrated works like Edward Young's "Conjectures on Original Composition" helped make "Originality . . . the main force in the creative process," driving out earlier endorsements of imitation with an insistence on each author's individual genius [Buelow 1990, 123].<sup>[2]</sup>

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Written in the midst of this cultural shift, Eliza Haywood's 1751 novel *Betsy Thoughtless* includes a wide variety of passages drawn from an array of previous literary texts, and offers an interesting case study of the struggle between mimesis and authorial originality during the eighteenth century. Unfortunately, adequate study of Haywood's intertextual borrowings has heretofore been limited because previous scholarship has been unable to identify the sources for many of the passages borrowed in Haywood's writing. In an attempt to help fill this scholarly gap, the present study introduces a novel algorithmic method that can be used to identify instances of intertextuality in large data sets, and shows how one can leverage this workflow to generate new insights on the nature of intertextuality in literary texts such as Haywood's novel.

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### Detecting Textual Reuse with Combinatorial Ngrams

The methods used within the present study may be best illustrated by comparison with previous work in the field of historical text reuse. In their research on intertextuality in classical texts, Neil Coffee et al. use a sliding window technique to find passages wherein two texts share at least two words, then rank the matching window results

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according to the proximity and rarity of the words shared in the two windows. Jean-Gabriel Ganascia et al. also use a sliding window technique and score matches based on word rarity, though they allow for missing words in their sliding windows such that two windows of five words can count as a match if they share three words in common. David Smith et al. use a sliding n-gram window to establish candidate pairs, leverage the Smith-Waterman algorithm to align matching sequences in documents, and finally sort documents with matching windows according to the frequency of their common n-grams. Similarly, Constance Mews et al. also use a sequence alignment technique that matches strings based on identical words. Moving away from a sliding window technique, Glenn Roe et al. measure the cosine distance between passages in a term document matrix, while David Bamman et al. use Moore's Bilingual Sentence Aligner and a translation probability table generated from MGIZA++ to identify cross-lingual instances of intertextuality.

The present study extends the candidate retrieval step of Jean-Gabriel Ganascia et al., and implements a minimal probabilistic model to remove high probability ngrams from the database in order to reduce both storage requirements and processing time. The first step of the method used within the present study is to preprocess each file in a corpus, transform each file into an array of sentences using the Punkt sentence boundary detector, drop stopwords, remove non-token punctuation, and lowercase all text. Because orthography was non-standardized in the eighteenth century, the lookup table from MorphAdorner is then used to regularize the spelling of each word in the text, using a simple hash table replacement. Finally, the WordNet Lemmatizer is used to transform each word into its lemma form.

Once the texts are all represented as lists of clean and normalized sentences, the next step of analysis is to find sentences with unusually similar language. To accomplish this, a sliding window of length  $w$  is slid over each sentence in the corpus such that for each sentence, the window first contains words 0 through  $w-1$  from the sentence, then 1 through  $w$ , then 2 through  $w+1$ , and so on. For each of these windows, a list of all possible combinations of  $c$  words from the window is generated. Suppose  $c$  is 3, and the algorithm is considering the following sentence:

All saw her spots but few her brightness took. [Haywood 1998, 224]

Using this window of text, the list of “combinatorial ngrams” produced includes “all saw her”, “all saw spots”, “all saw but” . . . “her brightness took”. In order to minimize the storage requirements and maximize the utility of these ngrams, the algorithm next estimates the rarity of each ngram by calculating the product of the relative frequency of each word in the ngram.<sup>[3]</sup> The rarity of the ngram “spots few brightness”, for instance, is calculated as  $p(\text{spots}) * p(\text{few}) * p(\text{brightness})$ . Because ngrams with high probability are much more likely to be found often in a corpus and are therefore much less useful for detecting textual reuse, they are dropped from the list, and the remaining ngrams are stored in a database.

Once this database is produced, one can scour it for instances of textual reuse by feeding in additional documents, processing them in the same way, and comparing the combinatorial ngrams in each sentence from the input document to the sentences archived in the database.<sup>[4]</sup> An estimation of the similarity of two sentences can be produced by simply summing up the number of combinatorial ngrams shared by those two sentences and normalizing by the length of the sentence. Take for example the following passage from Nathaniel Lee's *Alexander the Great*, which the present method flags as a candidate for the quotation from *Betsy Thoughtless* discussed above:

All find my spots, but few observe my brightness [Lee 1677, 25]

While the sequential sliding window technique often employed in studies of text reuse only identifies a single shared trigram between these two passages (“spots but few”), the combinatorial ngram method gives a stronger indication of their semantic similarity, yielding 10 combinatorial trigram matches for the pair. Using this simple and scalable technique on the works of Eliza Haywood, we shall see below, allows one to rapidly identify instances of textual reuse and thereby improve our understanding of the production and dissemination of literary texts in the long eighteenth century.<sup>[5]</sup>

## Mining Eliza Haywood's Quotations

Although much of Eliza Haywood's biography remains mysterious, she was notorious within the literary circles of her day. After early careers as an actress and successful playwright, Haywood embarked upon a prolific career as a writer that would lead one eighteenth-century biographer to call her “perhaps the most voluminous female writer this kingdom

ever produced.” Many of the works in her canon offered critical if comical responses to high-profile works by male literati of the day. In titles such as *The Female Spectator*, *Anti-Pamela*, *Memoirs of the Court of Lilliput*, and *The Female Dunciad*, Haywood transformed works by Joseph Addison, Samuel Richardson, Jonathan Swift, and Alexander Pope into biting commentary on the gender inequality within eighteenth-century England. For these efforts, Alexander Pope granted Haywood a position next to the goddess Dullness in *The Dunciad*, and James Sterling crowned Haywood alongside Aphra Behn and Delarivier Manley in his “fair triumvirate of wit,” both of which acts attest to Haywood’s elevated status in the eighteenth-century world of letters.

In works from her later years, such as her best-known novel *Betsy Thoughtless*, Haywood used realistic portraits of the social dynamics of eighteenth-century England to fight for gender equality. She also borrowed an unusually large quantity of material from previous writers, weaving vast quantities of quotations from previous literature into her own writing. In the case of *Betsy Thoughtless*, as Andrea Austin has noted, Haywood leaves most of these quotations unattributed: “The overwhelming majority of quotations follow the introductory phrase, ‘as the poet says’, or some variation thereof, leaving the reader to determine the source of her borrowing . . . . Only in a few instances does she identify the original source” [Austin 2000, 278]. The majority of these mysterious quotations have remained unsourced ever since, perhaps because Haywood’s representations of the source material often depart significantly from the source texts themselves. As Kathryn R. King observes in her standard edition of Haywood’s works, “Haywood could be highly creative in her use of sources, embroidering here and there on hints she found in them and seldom exhibiting an overnice regard for considerations of veracity . . . . Her reworkings of her sources deserve, in fact, a study of their own.” [Haywood 2001, x]. Armed with the vast digital databases that have recently become available, it is now possible to heed King’s call and trace Haywood’s reworkings of source material in close detail.

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Using the method discussed above, I was able to identify likely sources of all but three of the eighteen previously unsourced quotations in *Betsy Thoughtless*, yielding a recall value of 83.3%.<sup>[6]</sup> Both the sources of the identified passages and Haywood’s representations of those sources are indicated in Table 1 below. Comparing Haywood’s renderings with her sources, one finds that Haywood often changes her sources in provocative ways. Consider, for example, the following passage from *Betsy Thoughtless*:

13

Secrets of marriage should be sacred held,  
Their sweets and bitters by the wife conceal'd. [Haywood 1998, 503]

This passage is adapted from John Dryden’s *Aureng Zebe*, in which one reads:

14

Secrets of Marriage still are sacred held,  
Their sweet and bitter by the wife concealed;  
Errors of wives reflect on husbands still. [Dryden 1704, 20]

By closely comparing these passages, one finds that Haywood withheld the feminist punchline of Dryden’s stanza: “Errors of wives reflect on husbands still.” Perhaps of greater import is the fact that while Dryden believed “secrets of marriage” were still held sacred, Haywood needed to implore that secrets of marriage *should* be held sacred. Such repetitions with a difference abound in Haywood’s textual reuse, and might well reflect Haywood’s position on the status of institutions such as marriage in her day.

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Comparing Haywood’s adaptations to their source passages also helps to reveal one reason why previous editors have had difficulty identifying the sources of her quotations, namely the fact that Haywood often combined lines from disparate literary works into a single passage and then passed the resulting passage off as a “quotation” of extant works. Take, for example, the following passage from *Betsy Thoughtless*:

16

Pleas'd with destruction, proud to be undone,  
With open arms I to my ruin run,  
And sought the mischiefs I was bid to shun;  
Tempted that shame a virgin ought to dread,  
And had not the excuse of being betray'd [111]

Like other instances of intertextuality in Haywood's writing, this passage appears to derive from multiple sources. The first line appears in the poet and doctor Richard Blackmore's *Advice to the Poets*, where Blackmore writes:

17

Let 'em this generous Resolution own,  
That they are pleas'd and proud to be undone [Blackmore 1706, 12].

The second and third lines of Haywood's aforementioned passage borrow language from *The Basset Table*, a poem believed to have been written by Mary Wortley Montagu, John Gay, or Alexander Pope, wherein one finds the lines:

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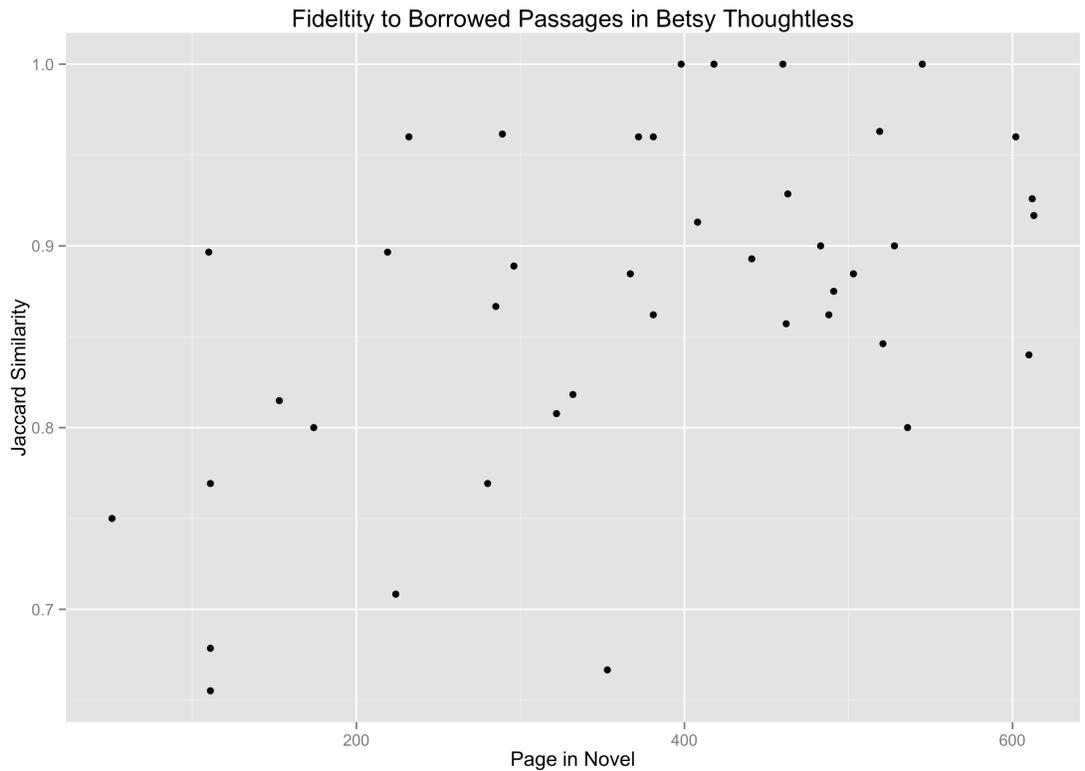
I know the bite, yet to my ruin run,  
And see the folly which I cannot shun [Anonymous 1706, 6].<sup>[7]</sup>

Here and elsewhere, Haywood combines multiple variegated texts in order to produce her own poetic formulation, confusing the boundary between original and derivative utterances in a way that anticipates our own "remix culture."

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All of these remixed, composite quotations in *Betsy Thoughtless* fall within the novel's early chapters, wherein the titular Betsy keeps questionable company and may indeed appear "thoughtless." By the end of the novel, however, Betsy repents for her wayward youth and devotes herself to a single love, Mr. Trueworth. Interestingly, as Betsy completes her transition from flighty youth to dedicated lover, the passages Haywood borrows from other texts also become more faithful to their source texts. By calculating the Jaccard Similarity Coefficient between Haywood's source passage and Haywood's rendering of that passage for each borrowed quotation within the novel, one can visualize this general trend:

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**Figure 1.** This plot depicts the similarity between Eliza Haywood's source text and Haywood's rendering of that source text for each quotation within *Betsy Thoughtless*.

While it is impossible to say whether Haywood *intentionally* made her rendering of quotations more faithful over the course of her novel, this trend does offer a curious parallel to the psychological development of her protagonist, who steadily rejects her misbegotten youth and devotes herself to a dedicated relationship with Mr. Trueworth. Whether this trend generalizes to other works within or beyond the Haywood canon remains for future work to determine.

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Finally and most astonishingly, tracing the sources of Haywood's adapted quotations reveals that a significant portion of

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the poetic passages Haywood incorporates into her own writing are derived from a single work of literary extracts, the 1710 edition of Edward Bysshe's *Art of English Poetry*. Bysshe's volume is essentially a collection of literary passages organized into hundreds of themes such as "Love," "Gypsy," and so on. As Table 1 shows, nearly half of the quotations Haywood adapts in *Betsy Thoughtless* are present in Bysshe's volume. One could take for example the point in the novel wherein Lady Mellasin reflects on the beauty of Miss Flora, and Haywood uses the following phrase to introduce a borrowed quotation: "[Lady Mellasin] had often heard and read of men, whose resentment had been softened and melted into tenderness on the appearance of a lovely object: — as the poet somewhere or other expresses it..." [519]. Having created a need for a passage on beauty, Haywood then weaves in a passage found under the "Beauty" heading in Bysshe's volume:

Beauty, like ice, our footing does betray;  
Who can tread sure on the smooth slipp'ry way? [Dryden 1704, 13]

Some few pages later in the novel, Haywood introduces yet another quotation from the "Beauty" section in Bysshe's volume [536]. Examining passages such as the above, it seems Haywood often introduced her quotations with vague phrases like "as the poet somewhere or other expresses it" because she didn't yet know which poet she would quote, or the text from which she would quote. She merely intended to look up a relevant heading in Bysshe's volume and siphon off a quote from that page.

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Some of the passages Haywood derived from Bysshe offer even more telling clues that *The Art of English Poetry* was Haywood's main source for literary extracts. Consider, for example, the following borrowed passage in *Betsy Thoughtless*:

24

Ingratitude's the sin, which, first or last,  
Taints the whole sex; the catching court-disease. [322]

This rendering departs ever so slightly from its source text, Nathaniel Lee's *Mithridates*:

25

Inconstancy, the plague that first or last  
Taints the whole sex, the catching court-disease. [Lee 1678, 44]

What would have led Haywood to replace the first word of Lee's passage, "Inconstancy," with her own term "Ingratitude"? It is likely that Haywood accidentally made this change after discovering Lee's lines within *The Art of English Poetry*, where the borrowed lines are followed by a large subject heading for "Ingratitude" [Bysshe 1710, 222]:

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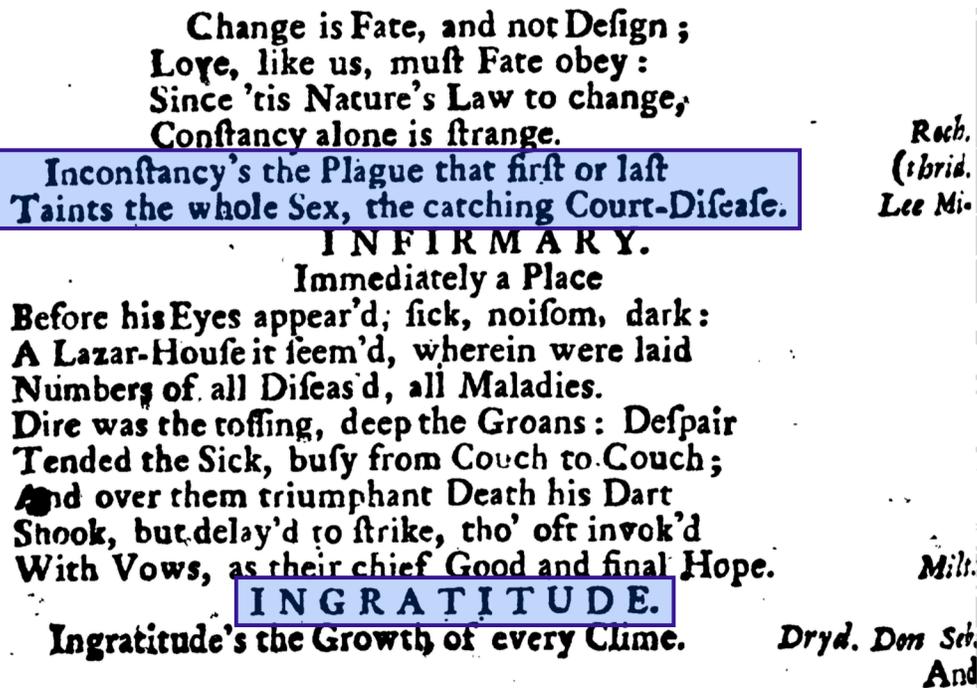


Figure 2. A page image from the 1710 *Art of English Poetry* [Bysshe 1710, 222]

These discovered debts to Bysshe's work support and extend the research of Carol Stewart, who found that many of the literary references in Haywood's novel *The Invisible Spy* may be found within *The Art of English Poetry* [Haywood 2014, 469]. As Table 1 indicates, a number of previously unsourced quotations from across the Haywood corpus contain material found in Bysshe's work, which suggests Haywood's reading may not have been as voluminous as her writing once made it appear. 27

## Neither Close nor Distant: Algorithmic Reading

The foregoing analysis has demonstrated one way researchers can use computational methods to trace patterns in intertextuality within literary texts. Using a novel method to scour large text collections for patterns of textual reuse, the present study has discovered many sources for the borrowed passages in Eliza Haywood's writing. By examining those passages in detail, one finds that many of Haywood's changes to her source materials may well help reveal both her position on contemporary institutions as well as the particular editions of works from which she derived the borrowings. Furthermore, examining Haywood's borrowed quotations in the aggregate, one finds that the degree of similarity between her source materials and her own representation of those materials offers a provocative parallel to her protagonist's psychological development over the course of *Betsy Thoughtless*. Lastly and most curiously, one finds that a shocking portion of the quotations Haywood incorporated into her texts derive from a single work of literary extracts from the period, the 1710 edition of Edward Bysshe's *Art of English Poetry*. In sum, closely attending to the texts Haywood borrowed — including their original sources, the contexts in which Haywood introduces those passages, and the ways in which she modifies them — offers a series of rare glimpses into the finer points of a powerful and playful writer's mind. 28

Table 1 may be accessed via the following url: <https://goo.gl/7G0QFH> 29

### Notes

[1] One of the earlier works to discuss this shift in notions of authorial originality is Elizabeth Louis Mann's *The Problem of Originality in English Literary Criticism, 1750-1800* (Ph.D. Dissertation, University of Chicago: 1939). More recent scholarship on the subject may be found in Loy Martin's "Changing the Past: Theories of Influence and Originality, 1680-1830" *Disposito*, Vol. 4, No. 12 (1979): 189-212; George Buelow: "Originality, Genius, Plagiarism in English Criticism of the Eighteenth Century" *International Review of the Aesthetics and Sociology of Music*,

[2] While Young's famous letter to Richardson often features prominently in discussions of originality within the eighteenth century, it is helpful to read Young alongside other similar works from the period, such as William Sharpe's *Dissertation upon Genius* (1755), Richard Hurd's *Letter to Mr. Mason; on the Marks of Imitation* (1757), and Edward Capell's response to Hurd in *Reflections on Originality in Authors* (1766). For relevant secondary works on the imitation-originality axis in eighteenth-century literature, see in particular: Robert Mack: *The Genius of Parody: Imitation and Originality in Seventeenth- and Eighteenth-Century English Literature*. London: Palgrave, 2007; William Kupersmith: *English Versions of Roman Satire in the Earlier Eighteenth Century*. Newark: University of Delaware Press, 2007; Tom Huhn: *Imitation and Society: The Persistence of Mimesis in the Aesthetics of Burke, Hogarth, and Kant*. University Park: Pennsylvania State University, 2004; and Roland Mortier: *L'originalité: une nouvelle catégorie esthétique au siècle les lumières*. Genève: Librairie Droz, 1982.

[3] The probabilities for individual words were retrieved from the Google Ngrams corpus. The source code for the present study includes probability tables drawn from both the 1 Million English Google Ngrams corpus and the All English Google Ngrams corpus. In both cases, word probabilities were normalized by dividing the number of books that contained the target word by the global maximum number of times a word appeared in a book.

[4] Within the present study, roughly half a million texts were collected from the Text Creation Partnership, Internet Archive, Project Gutenberg, Google Books, and Literature Online, and all were processed in this fashion.

[5] Using a 48-core server with 3 TB of RAM maintained by the University of Notre Dame's Center for Research Computing, the method described above was able to process roughly half a million literary texts (~5GB on disk) in six hours.

[6] It is worth noting that measuring recall for text reuse detection methods is often difficult or impossible, because many data sets lack ground truth values against which to compare the results of the classification task. Pursuing the sources for previously unsourced quotations offers one way around this problem, as borrowed quotations announce that they are reusing text from previous works.

[7] Norman Ault reported some time ago that "the problem of the authorship of *Court Poems* [the volume in which 'The Basset Table' appears] is baffling, and cannot . . . be regarded as settled" [Pope 1936, xcv]. Writing some years thereafter, however, Robert Halsband suggested that "whatever mistakes Pope's posthumous editors made . . . his friends as well as he knew that *The Basset-Table*...was by Lady Mary" [Halsband 1953, 243].

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