

Who wrote the Women's Movement articles in *The Saturday Review*?

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Computational Stylistics at the CLLC

<1> The Centre for Literary and Linguistic Computing at the University of Newcastle,(1) (CLLC) has, over the years, become something of a magnet for authorship problems, since the techniques of computational stylistics and the various statistical programs developed at the Centre can lend weight to researchers' other evidence(2). The question on which this paper reports is that of the authorship of a number of articles attacking the fledgling Women's Movement, published in *The Saturday Review* between 1855 and 1858. One hundred and fifty years after the articles were written, almost nothing is known about the authors, whether there was one or many, whether they were male or included among them women unsympathetic to the new movement, whether they were writing from conviction or following editorial dictates, and this has led the authors of this paper to look into this question, focussing on thirteen articles.(3) (For list see [Appendix](#).)

<2> Employing the statistical techniques for attribution developed at the CLLC, we have analyzed the articles, and have come to the conclusion that all the articles considered were written by men, and that there is a strong likelihood that six of the articles were written by Lord Robert Cecil (1830–1903), later third Marquess of Salisbury and Prime Minister of Great Britain, but at that date a regular contributor to the periodical press.

The Saturday Review

<3> In his seminal work, *The Saturday Review, 1855-1868; Representative Educated Opinion in Victorian Britain*, first published in 1941 and reprinted in 1966, Merle Mowbray Bevington writes that when the first issue of the *Saturday Review of Politics, Literature, Science, and Art* was published on November 3, 1855 “the time was ripe” for the “experiment of a journal which would ... enlarge the scope of criticism to take in all the political, social, and cultural activities of the English nation” (6-7). The journal itself was, Bevington notes, remarkable for the unity of its house style; it seemed to be able to call on the talents of its staff to merge their own individuality into such a “consistency of tone and point of view” that readers were able “to refer to what the *Saturday* said, rather than to what a particular writer said in the *Saturday*” (Bevington 34). This

tone was abrasive, being variously characterized by its critics as “cynical, skeptical, hypercritical, malicious and destructive” and earning the paper the title of “the Saturday Reviler” (Bevington 43-44).

<4> One of the paper’s targets in its early years was the emerging Women’s Movement. In the late 1840s social reformers had become concerned with the difficulties faced by governesses and the inadequacies of their education, and had founded the Governesses Benevolent Society, which offered annuities to governesses no longer able to work, and Queen’s and Bedford Colleges where university-educated men delivered courses of lectures to women, with some emphasis on the needs of governesses (Strachey, 60-63). A little later, in 1855, two young women, Barbara Leigh Smith and Bessie Rayner Parkes, began a campaign to alter the laws relating to married women’s property, and in 1858 founded the *English Woman’s Journal*, which aimed to raise awareness of the disadvantages women suffered in education and employment as well as in marriage. They also established a reading room for women, and supported the founding of a Society for Promoting the Employment of Women. In 1860 all three organizations moved into a house at 19 Langham Place and the women connected with them became known as the Langham Place group (Strachey 71-74, 89-98).

<5> All these initiatives were commented on critically and frequently satirically by the *Saturday Review*, often to the distress of the women concerned. In January 1860, for example, Bessie Rayner Parkes wrote to her friend: “The Saturday review wrote the most bestly article against the ‘Ladies Club’ that has yet appeared in its pages; dirty, indecent to a horrible degree. I expect it will set all the husbands & fathers of our 80 ladies wild with anger; for this time, you see, the whole body are attacked & not me alone!” (Girton College Library, BRP V 95: 8-1-60). Furthermore the *Saturday* articles have aroused the interest of later scholars, and most historical accounts of the English Women’s Movement, from Ray Strachey’s *The Cause* on, have quoted from them.(4)

<6> Only two of these articles have attributions of any sort and only one is convincingly credited. Bevington reports that “two partially marked files of the *Saturday Review*” have the annotation “Mrs. Bennett” beside the first of these articles “Lectures to Ladies on Practical Subjects”, published in December 1855, but he cannot identify the author further and has some doubts of the significance of the annotation (Bevington 331). The second attribution is much firmer: of the article “Bloomeriana” (published Sept. 12, 1857) to Lord Robert Cecil (later the Marquess of Salisbury). The name of this article appears with 606 others on a document in the handwriting of Salisbury’s daughter headed “List of the articles written by Lord Salisbury for *The Saturday Review*” which was reproduced in 1961 by J.F.A. Mason (Pinto-Duschinsky 32-33).

CLLC –Archive and Methods

<7> Most of the techniques used at the CLLC are based on the fact that the “way in which authors use large sets of common function words ... appears to be distinctive” (Holmes 114). In the early days of computer analysis of texts Professor John Burrows, the founder of the CLLC, made the discovery that the incidence of the very common words of English, the “function”

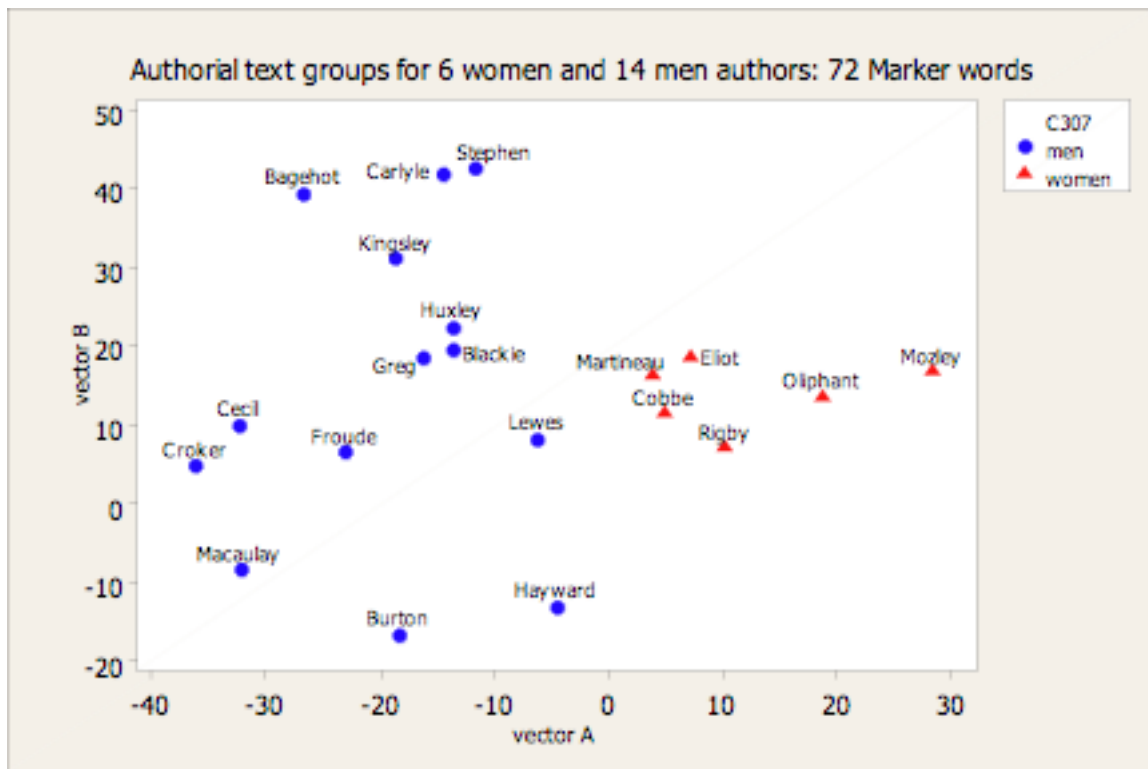
words, varies significantly between texts by different authors while remaining comparatively constant within a single author's work. During the past twenty-five years he and his colleagues at the CLLC have been devising and refining the statistical procedures that can most effectively isolate these distinctive usages, and now have a suite of procedures and tests that can be used to identify the authorial "signature" embedded within a text or a group of texts.

<8> The method in its simplest form involves measuring the word-usage in the texts in question and comparing it with the usage in a large group of texts whose authorship is known, in the expectation that a statistical analysis will show whether the text is likely to have been written by one of the authors in this counter-set, and whether the unattributed texts have one author or many. To avoid confusing largely generic features such as genre, date, and assumed audience with authorial ones it is desirable to choose for the counter-set texts which might be expected to exhibit the same generic qualities as the test-set.

<9> Ongoing work at the Centre has involved the development of a large corpus of digitized Victorian Periodical articles suitable for comparison with the *Saturday Review* texts considered here.⁽⁵⁾ Though anonymous at the time of publication, most of these articles have now been reliably attributed. When our tests were carried out the Victorian Periodical Literature Corpus had over one and a half million words, consisting of 162 articles by twenty authors – 108 written by fourteen men, 54 by six women. This imbalance reflects the fact that many more men than women wrote for the journals. The articles were all addressed to an educated audience, and published in relatively expensive journals between 1830 and 1880. They are generally well-written and are wide-ranging in their subject matter and depth of interest.

<10> Using this corpus the Centre has recently had some success in uncovering a gender difference in the use of particular words. Each author's usage of the 200 most common function words in the total CLLC Victorian Periodical Corpus was analysed, and thirty-two words emerged as more common in women's writing than in men's, and forty words as more common in men's writing than in women's. Using these seventy-two "marker words" in a principal component analysis test⁽⁶⁾ the simple scatter plot seen in figure 1 was created, a plot showing how the relative frequency of each author's usage of the words on our list places that author in relation to each of the other authors of articles in our corpus.

Figure 1



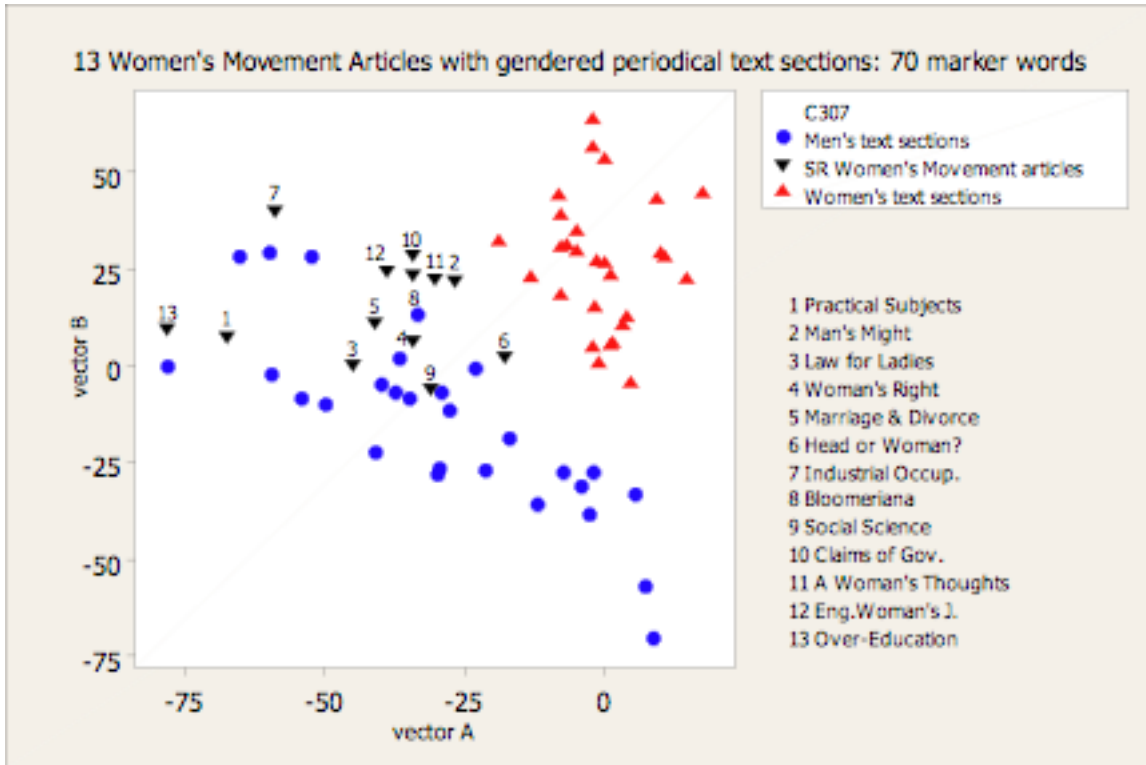
<11> In Figure 1 the six women authors form a fairly compact group spreading from the centre of the plot towards the right hand border, while the fourteen men authors form a much looser group spreading in both directions in the left half of the plot. This shows us that there is more variation among the men in the usage of the words which they (as a group) favour. The plot, we believe, clearly demonstrates that our “marker words” are able to separate the male and female authored groups of texts. Moreover, even when we moved from the large authorial groups of texts used in this plot to comparing single texts by the same group of authors, the gender demarcation, though not quite as absolute, was still significant enough to conclude that in general, one could speak of a woman’s style of writing and a man’s style of writing.

What sex were the authors of the Women’s Movement articles?

<12> Since these gender marker words seemed, in most cases, capable of separating texts by male authors from those by women, we decided to use them in an attempt to determine the gender of the author/s of the Women’s Movement articles. The first series of tests performed on these articles involved setting up a control group of articles by both men and women from the CLLC Periodicals Project corpus.(7) Since the articles from the *Saturday Review* range in word-length from 1346 to 2022 words, whereas the articles from the other periodicals used range from around 4000 to over 30000 words, the articles in the control group were divided into 2500 word sections to make them more comparable to the *Saturday Review* articles being tested. A number of principal component analysis tests were run, using the text sections from the CLLC corpus as a base set and introducing the texts in the *Saturday Review* Women’s Movement test set both individually and in groups. All these tests consistently positioned the Women’s Movement

articles well away from the women’s periodical text sections, invariably placing them around or among the men’s periodical text sections. This level of consistency in the many tests we have carried out, leads us to believe that it is probable that the thirteen Women’s Movement articles (1855-58) we are investigating were written by men. Figure 2 shows the results of one of these tests.

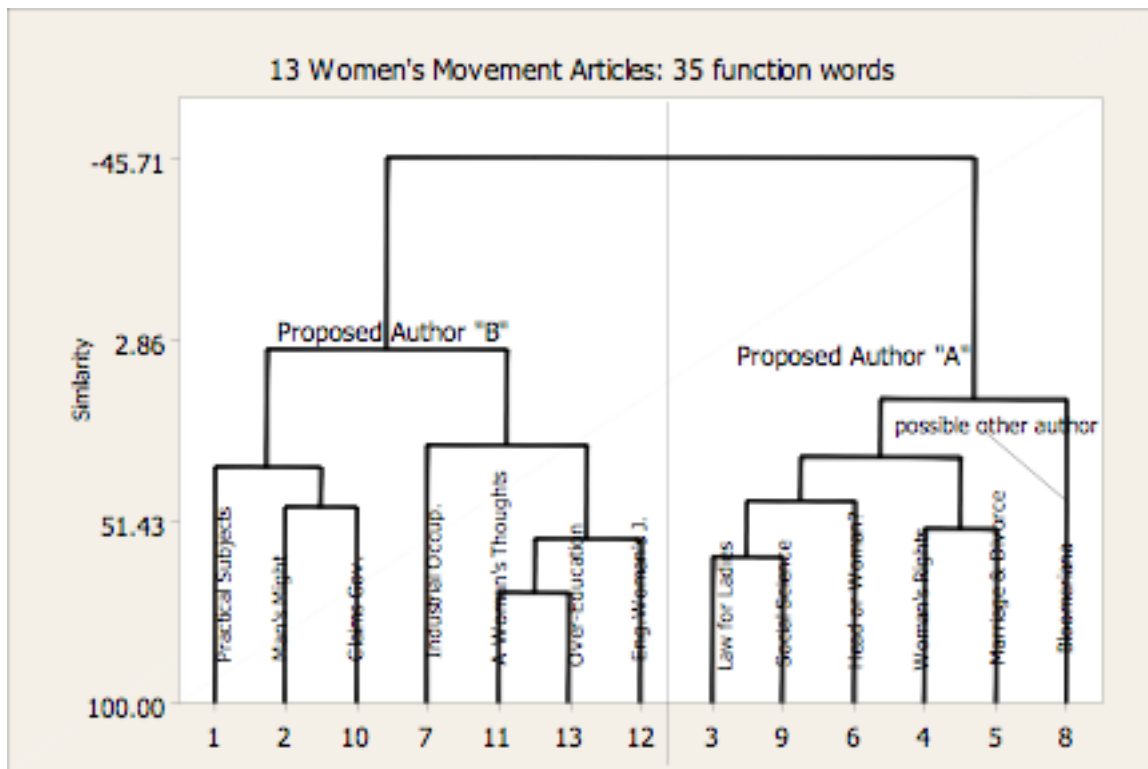
Figure 2



Testing for possible authors

<13> Having concluded that the Women’s Movement articles were probably all written by men, the next question became: one man or several? We began our investigation by running a series of tests using the 150, 100, 75, 50 and 35 most common function words of the CLLC Victorian periodical corpus. What we look for in these tests is consistency of patterning. We found that, though there were some minor variations in the positioning of the texts, each plot told the same basic story: two major groupings of texts suggesting that at least two hands (and possibly more) were responsible for writing our thirteen Women’s Movement texts. Figure 3 shows the results of the 35 words test expressed as a dendrogram.

Figure 3



<14> In this sort of plot, texts which join earliest (such as 11 and 13 in the left hand branch and 3 and 9 and 4 and 5 in the right hand branch) are the ones showing the greatest similarity. The groups which join latest – our two major branches – show least similarity. It is for this reason that we propose at least two different authors. Within the two major branches, there are other divisions, which may suggest either another author or a different sort of text. Further testing, for example, would be needed before we could say whether article 8 (“Bloomeriana”), the last to join the right-hand branch, was written by the same author as the other five articles in this branch or not.

<15> Our next step was to see whether the texts by our two or more proposed authors showed a word usage similar to that found in texts by authors whose contributions to the wider periodical press were included in the CLLC Victorian Periodical Corpus. Relying on Bevington’s attributions and dates of authors writing for the *Saturday* we looked for men who were known to have written articles for *The Saturday Review* between the years 1855 and 1859. Seven authors, Walter Bagehot, Robert Cecil, James Anthony Froude, William Rathbone Greg, Abraham Hayward, Charles Kingsley and George Henry Lewes qualified. Using a random selection of 5000 word text sections of periodical articles by each candidate and the thirteen Women’s Movement articles, we ran a series of principal component analysis tests based on the 75, 50 and 35 most common function words of the CLLC Victorian Periodical corpus. The results of the tests on six of the seven candidates’ texts showed complete dissimilarity with the Women’s Movement articles for each of the trials, suggesting that none of these authors (Bagehot, Froude,

Greg, Hayward, Lewes, Kingsley) had a hand in writing them. On the other hand, depending on the length of the word list, Cecil's periodical sections invariably attracted four or more of the six articles (always "Law for Ladies", "Woman's Rights", "Marriage and Divorce" and "Social Science", and sometimes "Head or Woman?" and/or "Bloomeriana") labelled "Proposed author 'A' in Figure 3.

<16> Although only one of these six, "Bloomeriana", is included in the list made by Cecil's daughter of his contributions to the *Saturday Review*, that list cannot be accepted as comprehensive. Mason found a reference in Cecil's correspondence to an article not listed there which appeared on November 28, 1868, leading one scholar to suggest that Cecil's daughter's judgment in identifying his journalistic contributions was "too cautious" (Pinto-Duschinsky 33). It therefore seemed worthwhile to undertake a more rigorous testing of the possibility that Cecil wrote the six articles in question.

Testing Cecil

<17> Lord Robert Cecil married young against the wishes of his father, who cut off his allowance. He therefore began supplementing by journalism the modest income inherited from his mother. Alexander Beresford-Hope, the owner of the *Saturday Review*, was his brother-in-law and, as we have already noted, there is archival evidence that between 1856 and 1868 he contributed over 600 miscellaneous unsigned pieces to the paper. It also seems likely, given the results of our tests, that he contributed a number of others. (ODNB; Smith 3-4)

<18> A careful reading of the six relevant Women's Movement texts revealed a writer who calls for moderation, who looks for inconsistencies in proposed legislation, and who enjoys pursuing an idea to its logical conclusion. This conforms to the impression his longer articles made on a twentieth century commentator. Paul Smith writes:

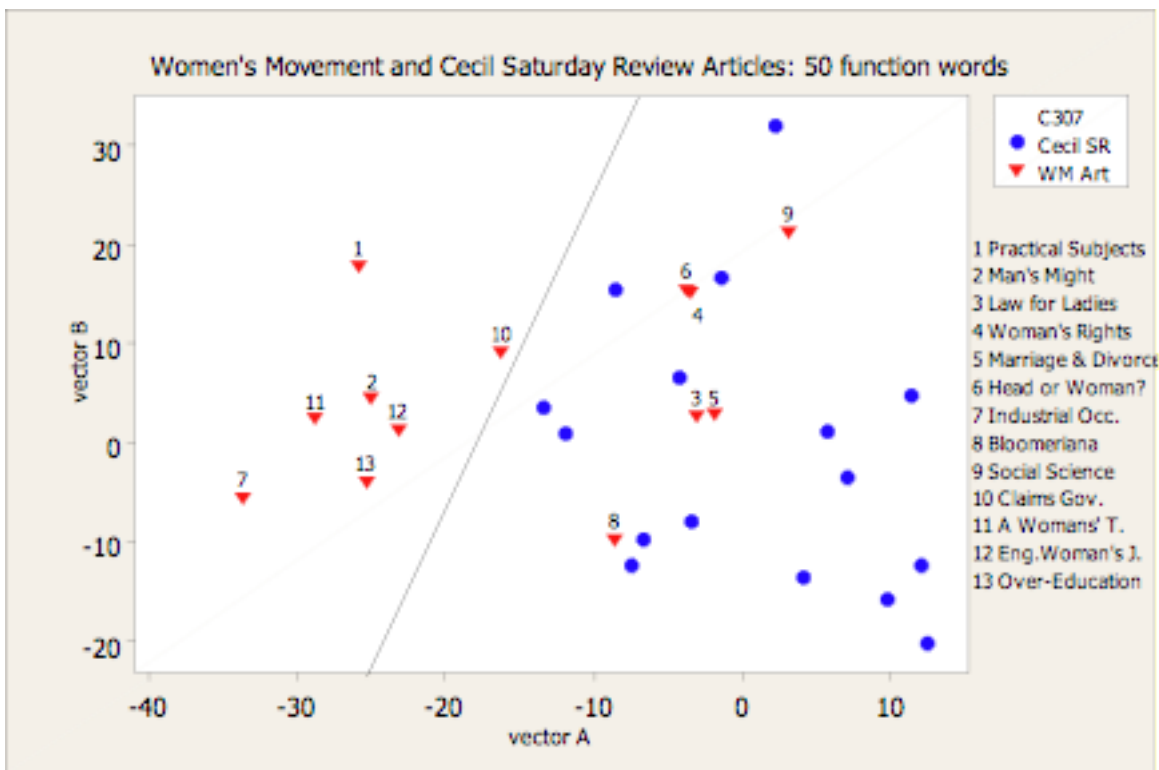
Salisbury's is an intellectual and sophisticated Toryism, which employs an apparatus of close empirical reasoning to support the conclusions at which it is programmed by instinctive predilection to arrive. It is, or desires to be, a clear, hard, logical creed, realistic and skeptical, seeking an argumentative basis for resistance to radical change not in the sentimental or mystical idealization but in the rational justification of the existing order. (Smith 3)

<19> The initial series of principal component analysis tests, which compared the thirteen Women's Movement articles with twelve 5000 word sections from four of Cecil's known contributions to the *Quarterly Review*, had proved promisingly suggestive rather than conclusive. In some of the tests two of the Women's Movement articles, "Head or Woman?" and "Bloomeriana", appeared to have more in common with the other seven Women's Movement articles than with Cecil's contributions to the *Quarterly*. The *Quarterly* articles are, however, all rather serious-minded political commentaries and so somewhat different from the hard-hitting, clever, short articles demanded by the *Saturday*. This seemed to us a possible explanation of why the two groups did not integrate. In addition, "Head or Woman?" and "Bloomeriana" are more aggressively misogynistic (or "beastly" as the ladies of Langham Place would have put it) than the other four in the group, and it occurred to us that it may have been their greater conformity to

the “reviler” tone of the *Saturday* that produced a word usage more similar to that of the other Women’s Movement pieces than to Cecil’s *Quarterly Review* contributions.

<20> We therefore digitized sixteen of Cecil’s firmly attributed *Saturday Review* articles and ran a further series of tests which confirmed our suspicion that Cecil’s *Saturday* style differed somewhat from the one he used for the *Quarterly*, and provided further confirmation of the likelihood that he wrote all six Women’s Movement articles. When the Women’s Movement articles were compared to Cecil’s *Saturday Review* contributions without the intervention of his other writings, his authorship of the six articles in question appeared even more likely. Moreover, the results offered further support for the hypothesis prompted by the findings shown in Figure 3, that the Women’s Movement articles divided into two distinct authorship groups. Figure 4 shows one such test. A line has been drawn across the plot in order to highlight the separation of the Women’s Movement articles into two groups.

Figure 4



<21> Given these results, we believe we can confidently state that there is a high likelihood that six of the Women’s Movement articles were written by Cecil, though we are no closer to knowing who wrote the other seven, and whether more than one other author was involved. We have also established that it is likely that all the Women’s Movement articles were written by

men but that six men (Bagehot, Froude, Hayward, Greg, Kingsley, Lewes) known to have written for the *Saturday* during the first years of its operation do not appear to have had a hand in writing the articles.

<22> Although the tone of Cecil's articles was less scathing than that of some of the others dealing with the Langham Place women, he nevertheless cast considerable doubt on their proposals. It is therefore rather surprising to realize that forty years later, and as Prime Minister, he was known to be in favour of woman's suffrage, even though he was not able to take his party down this path. Yet perhaps it is not so surprising. The fact that he wrote on such subjects suggest a certain fascination with the 'Woman Question', and although critical he was usually prepared to examine the proposals rationally.

Appendix

The 13 Women's Movement articles

1. "Lectures to Ladies on Practical Subjects." *The Saturday Review*, December 15, 1855.
2. "Man's Might and Woman's Right." *The Saturday Review*, May 3, 1856.
3. "Law for Ladies." *The Saturday Review*, May 24, 1856.
4. "Woman's Rights." *The Saturday Review*, June 14, 1856.
5. "Marriage and Divorce." *The Saturday Review*, July 5, 1856.
6. "Head or Woman?" *The Saturday Review*, February 7, 1857.
7. "Industrial Occupations of Women." *The Saturday Review*, July 18, 1857.
8. "Bloomeriana." *The Saturday Review*, Sept. 12, 1857.
9. "Social Science." *The Saturday Review*, October 17, 1857.
10. "A Woman's Thoughts about Women." *The Saturday Review*, April 10, 1858.
11. "The Claims of Governesses." *The Saturday Review*, Jan 30, 1858.
12. "The English Woman's Journal." *The Saturday Review*, April 10, 1858.
13. "The Over-Education of Women." *The Saturday Review*, May 8, 1858.

Endnotes

(1)See the CLLC home page website. <http://www.newcastle.edu.au/centre/cllc/>
A more technical description of the methods used for this article can be found on the website, as well as details of the wordlists used and the complete publication details of all the articles used in the tests. Note 6 provides a very brief description of some of the statistical methods and terms.(^)

(2)Holmes says of John Burrows' discovery of the Burrows 'method' used at the CLLC: "He [Burrows] achieved remarkable results, indicating that the way in which authors use large sets of

common function words ... appears to be distinctive.” and “The Burrows ‘method’ has now become the standard first port-of-call for attributional problems in stylometry.” (1998, 114) Hoover says “The ground-breaking work of John Burrows on Jane Austen (1987) convincingly demonstrates that the frequencies of words such as *the*, *and*, *of*, *a*, and *to*, which intuitively seem insignificant both semantically and stylistically can nevertheless be used to distinguish authors, novels and even characters within a single novel from each other, and can be shown to have interesting and significant stylistic nuances.” (2002, 157).(^)

(3)These 13 articles were selected some years ago by one of the authors of this paper as those from the pre-1860 period that were most relevant to her research into the English Women’s Movement.(^)

(4)For example: Strachey, Ray. 1928. *The Cause: A Short History of the Women’s Movement in Great Britain*. London: Virago, 1978. p. 93.

Stephen, Barbara. *Emily Davies and Girton College*. London: Constable, 1927. p.43.
Burton, Hester. *Barbara Bodichon, 1827-1891*. London: Murray, 1949 p. 68-9.

Holcombe, Lee. 1983. *Victorian Wives and Property: Reform of the Married Women’s Property Law, 1857-1882*. Toronto: University of Toronto Press. P. 141, 145.

Anderson, Bonnie S. & Zinsser, Judith P. *A History of Their Own: Women in Europe from Prehistory to the Present*, Vol 2. London: Penguin, 1988, p.159.(^)

(5)A complete list of CLLC corpus articles can be accessed from the Victorian Periodicals link on the CLLC website at <http://www.newcastle.edu.au/school/hss/research/groups/cllc>(^)

(6)MiniTab 14 or 15 statistical package was used for all tests.

Function words are the grammatical ones which obtain their full meaning in context, as opposed to words which have more lexical content.

Marker words are identified by running a distribution test on the two groups under testing (here men versus women) using the 200 most common function words of the CLLC Victorian Periodical Corpus as variables. The test identifies those words which are used significantly differently by the two groups. Of the 200 words tested 72 had a T-value greater than + or – 2, which we had chosen as our level of significance. Of the 72 “marker words” 26 had P value <01, while another 16 had P value <0.001; that is, over half the distinguishing words are “strong” discriminators. The polarity (+ or -) of the t-value indicates the tendency of the group to use the marker word in question relatively more, or relatively less often. This way we were able to say that there were 40 words which the men (as a group) used more often than women and 32 words which the women (as a group) used more often.

Principal component analysis is a statistical procedure aimed at highlighting the main features of a complex set of data. See Burrows and Craig (2001) for a discussion of how principal component analysis is used in attribution studies at the CLLC.

Word frequency lists are standardized (that is divided by the article length and multiplied by 100) to allow articles of different lengths to be compared more equitably.(^)

(7)Only 70 of the 72 “marker words” were used in the tests on the Women’s Movement articles. Since these articles are relatively short, two of the low frequency words “somehow” and “theirs” did not appear in some of the shorter articles. Hence they were omitted from this series of tests.
(^)

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