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## The Authorship of *Wily Beguiled*

### Abstract

The authorship of the anonymous Elizabethan comedy *Wily Beguiled* could be established with the tools of the R Stylo program suite on the basis of 110 well-attributed and single-authored reference texts (see Appendix) and was compared with the findings of the relevant secondary literature. The greatest plausibility applied to Rhodes's and Maxwell's assumption that an earlier text like that of 1601/02 was reworked by John Marston and Thomas Dekker in the War of the Theatres. Rolling Delta, Rolling Classify and the General Imposters method were able to clearly prove that the earlier text must have been composed by John Lyly who had probably drawn on the early university play *Wylie Beguylie* (1566/7).

### Introduction

The anonymous comedy *Wily Beguiled* was entered into the Register of the Stationer's Company on 12 November 1606 and was printed in the same year. Four more editions followed in 1623, 1630, 1635 and 1638, and in the centuries to follow it became part of prestigious drama collections (T. Hawkins - 1773, R. Dodsley - 1874, J. S. Farmer - 1912, W. W. Greg – 1912). The appreciation became evident not only in the new editions, but also in the efforts of critics to determine the authorship and the date of writing. There was general agreement that there must have been an antecedent. Boas found an entry in the register of Merton College, Oxford for 3 January 1567, saying

Acta est Wylie Beguylie Comoedia Anglica nocte in aedibus Custodis per scolares, praesentibus Vicecustode, magistris, baccalaureis, cum omnibus domesticis et nonnullis extraneis ; merito laudandi recte agendo prae se tulerunt summam spem (Boas, 157).

But to K. E. Chambers the play did not seem to be markedly academic (vol. IV, p. 53), and Boas and Greg believed it to be of Cambridge origin. In his 1922 thesis, Baldwin Maxwell saw references to the *Parnassus Plays*, which were performed in Cambridge around 1600, as well as to other plays of this period. He mentioned the dating of the comedy by Malone at 1596 because Thomas Nashe had spoken of "[the] tricke of Wily Beguily" in *Have With You to Saffron Walden* and he reports on Fleay's observation that *Romeo and Juliet* and *The Merchant of Venice* were clearly parodied, but not Shakespeare's later plays. Subsequently Hales and Nicholson argued for "in or after 1601" (Maxwell, p. 208), citing the heated dispute between Ben Jonson and his fellow playwrights as the reason. Maxwell finds allusions to Jonson in the text, especially in his plays *Cynthia's Revels* and *Poetaster*, which supports the latter dates, since *Cynthia's Revels* was performed in the autumn of 1600 and *Poetaster* in 1601. After the discussion and dismissal of authorship attributions to Shakespeare (Bernardi) and Peele (Dyce, Fleay, Penniman, Gause) and his own investigations of alliterations and the quality of Latin phrases, Maxwell finally arrives at Marston, who was at odds with Jonson at this time. But: "The verse of Wily is most obviously not the verse of

Marston ; it is far more lyric and full of more elaborate conceits.” (Maxwell, p. 218). Another of Maxwell's areas of investigation is the comic element, which he traces back to *Gammer Gurton's Needle*, among others, leading him to conclude that *Wily Beguiled* is a reworking of an earlier comedy, as indicated by patchwork passages in which an editor retained or only slightly altered the original text, but also added lines to make improvements. If the non-preserved text of *Wylie Beguylie* (1566/7) is the source text, it should have contained many Italian elements, according to Maxwell, for the conventional characters of *Wily Beguiled* also include the pedant, the nurse, the parasite and the disguised villain. If one considers the Rolling Delta and Rolling Classify results in this context, a perspective gains weight according to which John Lyly could have done a reworking of *Wylie Beguylie*, which in turn was revised by Thomas Dekker and John Marston, who was also involved in the *Parnassus Plays*.

### **Rolling Delta**

Quite a number of Rolling Delta analyses have been carried out, and have been published in this journal, since its introduction as part of the R Stylo program suite in 2013 (Eder, Rybicki, Kestemont, 2016). It is therefore not of paramount importance to account for all details and peculiarities of the tool. But it is certainly worthy of note that with respect to the task it was necessary to use a large body of reference texts covering the whole period in question. Furthermore, only plays that were single-authored and well-attributed could be used (see Appendix) and were put into a folder called `secondary_set`. In the `primary_set` `anon_wilybeguiled.txt` could be found. The analysis was executed with a 5000-word window that moved through the text with an overlap of 250 words (step size) and character trigrams (mf3c) as variables (For the enlarged sets of parameters please see Appendix B). The result was for each play a long list of measurements expressing the distance from the target text. All data went into a spreadsheet in such a way that column A contained all the plays and in column B to the right all the centroid measurements were cited. In each column (except A) the three smallest delta values were highlighted. They express the smallest stylistic difference between the target text and the authors of the reference texts who are likely candidates for assignments. The other reference texts with higher delta values could be disregarded. In contrast to many other investigations only four reference texts were left, the values of which were unique.

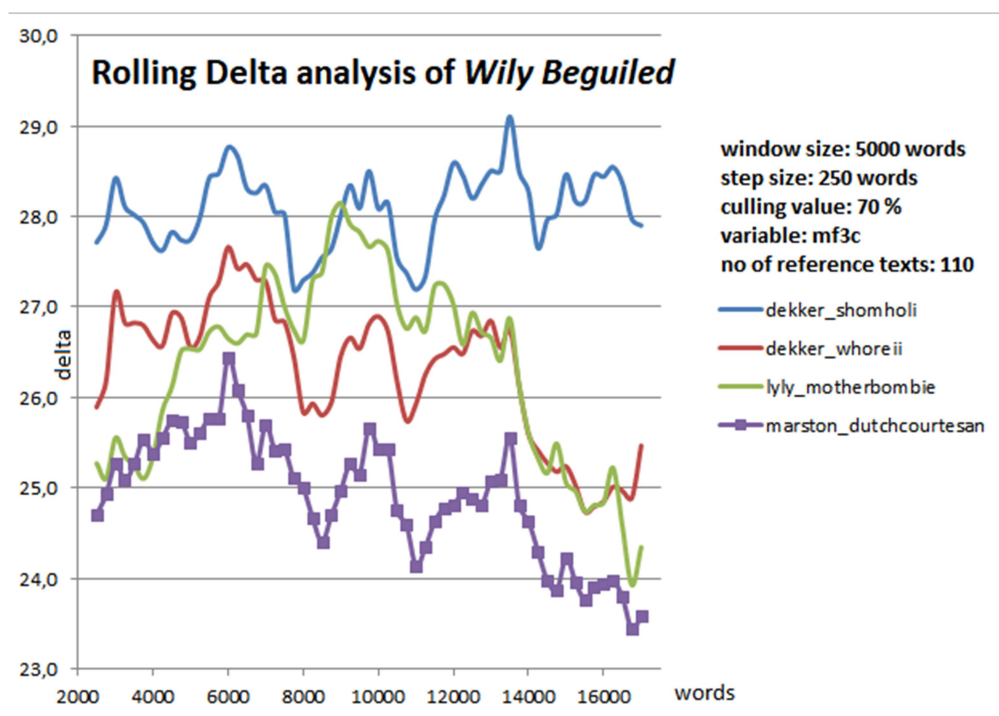


Figure 1

It was John Marston's play *The Dutch Courtesan* that prevailed in terms of stylistic closeness to *Wily Beguiled*. But closely interwoven were John Lyly's *Mother Bombie* and Thomas Dekker's *The Honest Whore*, part 2.

### Rolling Classify

In order to corroborate and perhaps extend the triad of Lyly, Marston and Dekker, other methodological steps are inevitable. Reference texts of the three named dramatists would only confirm the present result even though with different foci due to the mathematical kernel of the classifiers available in the Rolling Classify procedure. Instead, the whole range of references was used as before with Rolling Delta. The attributions for every 250-word segment were arranged in the following way. The larger divisions refer to the classifiers: nsc (nearest shrunken centroid), svm (support vector machine) and delta as noted in column A together with the centroids of the windows. Thus the attribution of the nsc 1000-word window is given in B5 at 500 words, that of the nsc 8000-word window in I19 at 4000 words. In each section the variable words (mf1w), character bigrams (mf2c) and character trigrams (mf3c) are tested with window sizes between 1000 and 8000 words at a distance of 1000 words. All in all eight authors were selected by the program in the attributions of 4392 250-word segments, identifiable by the first letter of their names. L = Lyly, D = Dekker, M = Marston, T = Tourneur, C = Chapman, I = S(i)dney, F = Fletcher, S = Shakespeare. The comparison of nsc, svm and delta assignments seems to convey a rather odd picture, which has to do with the specific mathematical kernels of the classifiers. Nsc is generally regarded as classification-friendly, i.e. it jumps very quickly to a conclusion. Svm, on the other hand, has a very high decision level, and is possibly more reliable, whereas delta recalls Rolling Delta results with Marston and Lyly as dominant assignments.

**Table 1 Rolling Classify attributions of *Wily Beguiled***

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y		
1	<b>Rolling Classify attributions in <i>Wily Beguiled</i></b>																										
2	<b>Window sizes:</b>																										
3	<b>classifier</b>	1000	2000	3000	4000	5000	6000	7000	8000	1000	2000	3000	4000	5000	6000	7000	8000	1000	2000	3000	4000	5000	6000	7000	8000		
4	<b>nsc</b>	1000	2000	3000	4000	5000	6000	7000	8000	1000	2000	3000	4000	5000	6000	7000	8000	1000	2000	3000	4000	5000	6000	7000	8000		
5	500	M			<b>mf1w</b>					M			<b>mf2c</b>					M			<b>mf3c</b>						
6	750	M								L								M									
7	1000	M	M							L	L							C	M								
8	1250	M	M							L	L							M	M								
9	1500	M	M	M						L	L	T						M	M	M							
10	1750	M	M	M						M	T	T						M	M	M							
11	2000	M	M	M	M					M	T	T	L					I	M	M	M						
12	2250	M	M	M	M					M	T	T	L					I	M	M	M						
13	2500	M	M	M	M	M				T	T	L	L	L				T	M	T	M	M					
14	2750	M	M	M	M	M				T	M	L	L	L				T	M	T	M	M					
15	3000	M	M	M	M	M	M			T	L	L	L	L	L			T	T	M	M	M		T			
16	3250	M	M	M	M	M	M			L	L	L	L	L	L			D	L	T	M	M		T			
17	3500	M	M	M	M	M	M	M		L	L	L	L	L	L	L		L	L	T	M	M		T	M		
18	3750	M	M	M	M	M	M	M		L	L	L	L	L	L	L		L	L	L	M	M		T	L		
19	4000	M	M	M	M	M	M	M	M	L	L	L	L	L	L	L	L	L	L	L	M	M		T	L	M	
20	4250	M	M	M	M	M	M	M	M	L	L	L	L	L	L	L	L	L	L	L	L	M	M		T	L	L
21	4500	M	M	M	M	M	M	M	M	L	L	L	L	L	L	L	L	L	M	L	L	M	M		T	L	T
22	4750	M	M	M	M	M	M	M	M	L	L	L	L	L	L	L	L	L	I	L	L	M	M		T	T	T
23	5000	M	M	M	M	M	M	M	M	L	L	L	L	L	L	L	L	L	L	M	L	M		T	T	T	T
24	5250	M	M	M	M	M	M	M	M	L	L	L	L	L	L	L	L	T	M	M	L	M	L		T	T	T
25	5500	M	M	M	M	M	M	M	M	L	L	L	L	L	L	T	L	L	M	L	M	L	L		T	T	T
26	5750	M	M	M	M	M	M	M	M	L	L	L	L	L	L	L	L	L	M	M	M	L	L		T	T	T

27	6000	M	M	M	M	M	M	M	L	L	L	L	L	L	L	M	M	T	L	L	T	T	T
28	6250	M	M	M	M	M	M	M	L	L	L	L	L	L	T	M	M	T	T	L	T	T	T
29	6500	M	M	M	M	M	M	M	L	L	L	L	L	L	L	M	T	T	T	L	T	T	T
30	6750	M	L	M	M	M	M	M	T	T	T	L	L	L	L	M	T	T	M	T	T	T	T
31	7000	M	L	M	M	M	M	M	T	L	T	L	L	T	L	T	T	T	M	T	T	T	T
32	7250	L	M	M	M	M	M	M	T	T	T	L	L	T	T	T	T	T	T	T	T	T	T
33	7500	L	M	M	M	M	M	M	T	T	T	L	L	T	T	T	T	T	T	T	T	T	T
34	7750	L	M	M	M	M	M	M	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
35	8000	L	L	M	M	M	M	M	T	T	T	T	T	T	T	I	T	T	T	T	T	T	I
36	8250	M	M	M	M	M	M	M	T	T	T	T	T	T	T	M	T	T	T	T	T	T	I
37	8500	M	M	M	M	M	M	M	M	L	T	T	T	T	T	M	T	T	T	T	T	T	T
38	8750	M	M	M	M	M	M	M	L	L	T	T	T	T	T	M	M	T	T	T	T	T	T
39	9000	M	M	M	M	M	M	M	L	T	T	T	T	T	T	F	M	T	T	T	T	T	T
40	9250	M	M	M	M	M	M	M	L	T	T	T	T	T	T	M	M	M	T	T	T	T	T
41	9500	M	M	M	M	M	M	M	L	L	T	T	T	T	T	T	M	I	M	T	T	T	T
42	9750	M	M	M	M	M	M	M	T	M	T	T	T	T	T	T	M	I	I	T	T	T	T
43	10000	M	M	M	M	M	L	M	I	I	T	T	T	T	T	I	I	T	I	T	T	T	I
44	10250	M	M	M	M	M	L	M	I	I	T	T	T	T	T	I	I	I	M	M	T	T	T
45	10500	I	M	M	M	M	L	L	I	I	I	T	T	T	T	I	I	I	M	M	T	T	T
46	10750	L	M	M	M	M	L	M	I	I	I	L	L	T	T	I	I	I	M	M	T	T	T
47	11000	L	M	M	M	M	L	L	I	I	I	T	L	T	T	I	I	I	M	T	T	T	T
48	11250	L	L	M	M	M	L	M	I	I	I	L	L	T	T	I	I	I	M	T	T	T	T
49	11500	L	L	L	M	L	L	M	I	I	I	I	L	T	T	I	I	I	I	I	T	T	T
50	11750	L	L	L	L	L	L	M	L	L	L	I	T	T	T	M	M	I	I	I	T	T	T
51	12000	M	L	L	L	L	L	M	L	L	T	I	T	T	T	M	L	T	I	I	T	T	I
52	12250	M	L	L	L	L	L	M	L	L	L	T	T	T	T	L	L	T	I	I	T	T	T
53	12500	L	L	L	L	L	L	M	L	L	L	T	T	T	T	L	L	T	T	I	T	T	T
54	12750	L	L	L	L	L	L	M	L	L	T	L	L	T	T	L	L	T	T	T	I	T	T
55	13000	L	L	L	L	L	L	M	L	L	L	L	T	T	T	L	L	T	T	T	I	I	I



		mf1w							mf2c							mf3c												
85	500	D							D							D												
86	750	D							C							D												
87	1000	D	D						C	D						D	D											
88	1250	D	D						C	D						D	D											
89	1500	D	D	D					D	D	D					D	C	D										
90	1750	D	D	D					D	D	D					D	D	D										
91	2000	D	D	D	D				D	D	D	D				D	D	D	C									
92	2250	D	D	D	D				D	D	D	D				D	D	D	C									
93	2500	D	D	D	D	D			D	D	D	D	D			D	D	D	C	D								
94	2750	D	D	D	D	D	D		D	D	D	D	D			D	D	D	C	D								
95	3000	D	D	D	D	D	D	D	D	D	D	D	D	D		D	D	D	C	C	D							
96	3250	D	D	D	D	D	D		D	D	D	D	D	D		D	D	D	C	C	D							
97	3500	D	D	D	D	D	D	D	D	D	C	D	D	D	D	D	D	D	C	C	D	C						
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99	4000	D	D	D	D	D	D	D	C	C	C	D	D	D	D	D	D	D	C	C	C	C	C					
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135	13000	D	D	D	D	D	D	D	C	C	C	D	D	D	D	D	D	D	D	D	C	C	C	C	D	C	C
136	13250	D	D	D	D	D	D	D	C	C	C	D	D	D	D	D	D	D	D	D	C	C	C	C	C	C	D
137	13500	D	D	D	D	D	D	D	C	C	D	C	D	D	D	D	D	D	D	D	C	C	C	C	C	C	D
138	13750	D	D	D	D	D	D	D	C	C	D	D	D	D	D	D	D	D	D	D	C	C	C	C	C	C	D
139	14000	D	D	D	D	D	D	D	C	D	C	D	D	D	D	D	D	D	D	D	C	C	C	C	C	C	D
140	14250	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	C	C	C	C	C	C
141	14500	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	C	C	C	D	C	C



142	14750	D	D	D	D	D	D	D	D	D	D	D	C	D	D	D	D	D	D	C	C	C	D	C	C	
143	15000	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	C	C	D	D	C	C
144	15250	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	C	D	D	C	C
145	15500	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	C	D	D	C	C
146	15750	D	D	D	D	D	D	D		D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	C	
147	16000	D	D	D	D	D	D	D		D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	C	
148	16250	D	D	D	D	D	D			D	D	D	D	D	D											
149	16500	D	D	D	D	D	D			D	D	D	D	D												
150	16750	D	D	D	D	D				D	D	D	D	D												
151	17000	D	D	D	D	D				D	D	D	D	D												
152	17250	D	D	D	D					D	D	D	D													
153	17500	D	D	D	D					D	D	D	D													
154	17750	D	D	D						C	D	D														
155	18000	D	D	D						C	D	D														
156	18250	D	D							D	D															
157	18500	D	D							D	D															
158	18750	D								D																
159	19000	D								D																
160	19250																									
161	19500																									

		Window sizes:										Window sizes:										Window sizes:							
	classifier	1000	2000	3000	4000	5000	6000	7000	8000		delta	1000	2000	3000	4000	5000	6000	7000	8000		1000	2000	3000	4000	5000	6000	7000	8000	
165	500	L										D									D								
166	750	L										L									L								
167	1000	L	D									L	L								L	L							
168	1250	L	L									L	L								L	M							
169	1500	M	L	L								L	L	L							L	M	M						
170	1750	L	L	L								L	D	L							T	M	L						

171	2000	L	D	L	D					L	D	L	L			T	M	L	L		
172	2250	L	L	L	D					L	L	L	L			T	L	L	L		
173	2500	L	L	L	D	L				L	L	L	L	L		T	T	L	L	L	
174	2750	L	L	D	D	L				L	L	L	L	L		D	L	L	L	L	
175	3000	L	L	L	M	M	M			L	L	L	L	L	L	D	D	L	L	L	M
176	3250	L	L	L	M	M	M			L	L	L	L	L	L	D	D	L	L	L	L
177	3500	L	L	L	M	D	M	M		L	L	L	L	L	L	D	L	L	L	L	M
178	3750	D	L	L	M	L	M	M		L	L	L	L	L	L	D	L	L	L	L	M
179	4000	D	L	L	M	L	M	M	M	L	L	L	L	L	L	L	L	L	L	M	M
180	4250	L	L	M	M	L	M	M	M	L	L	L	L	L	L	L	L	L	L	M	M
181	4500	L	L	M	M	D	M	M	M	L	L	L	L	L	L	L	L	L	L	M	M
182	4750	L	L	M	M	M	M	M	M	L	L	L	L	L	L	L	L	L	L	M	M
183	5000	L	L	M	M	M	M	M	M	L	L	L	L	D	L	L	L	L	D	M	M
184	5250	L	L	M	M	M	M	M	M	T	L	L	L	D	L	L	L	D	L	M	M
185	5500	L	L	D	M	M	M	M	M	D	L	L	L	L	L	L	L	D	D	L	M
186	5750	L	L	M	M	M	M	M	M	T	L	L	L	L	L	L	L	D	L	M	M
187	6000	L	L	M	M	M	M	M	M	L	L	L	L	L	D	L	L	D	D	M	M
188	6250	D	L	M	M	M	M	M	M	L	D	D	L	L	D	L	L	D	D	M	M
189	6500	L	L	M	M	M	M	M	M	L	D	D	L	L	L	L	L	D	D	M	M
190	6750	L	L	M	M	M	M	M	M	D	D	D	L	L	L	L	L	D	M	M	M
191	7000	L	L	M	M	M	M	M	M	D	D	D	L	L	L	L	L	M	M	M	M
192	7250	L	L	M	M	M	M	M	M	D	D	D	L	L	L	L	L	M	M	M	M
193	7500	L	L	M	M	M	M	M	M	L	L	D	L	L	D	L	L	M	M	M	M
194	7750	L	L	M	M	M	M	M	M	L	D	D	L	L	D	L	L	D	M	M	M
195	8000	L	L	M	M	M	M	M	M	L	D	D	L	D	D	L	L	L	M	M	M
196	8250	L	L	L	M	M	M	M	M	L	L	D	L	D	D	L	L	L	M	M	M
197	8500	D	L	M	M	M	M	M	M	D	L	D	L	L	D	L	L	D	M	M	M
198	8750	D	L	L	M	L	M	M	M	L	L	L	M	L	L	L	L	D	D	M	M
199	9000	D	D	M	L	L	M	M	M	L	L	L	M	L	L	L	L	D	D	M	M
200	9250	D	D	L	L	L	M	M	M	L	L	L	L	L	L	L	L	D	D	M	M
201	9500	D	D	L	M	L	M	M	M	L	L	M	L	L	L	L	L	D	M	M	M

202	9750	D	D	L	M	L	M	M	M	D	L	M	L	L	L	L	L	D	D	D	M	M	M	M	M
203	10000	L	D	L	M	M	M	M	M	D	L	M	L	L	L	L	L	I	D	M	M	M	M	M	M
204	10250	L	L	L	M	M	M	M	M	D	L	M	L	L	L	L	L	I	D	M	M	M	M	M	M
205	10500	L	L	L	M	M	M	M	M	I	I	M	L	L	L	L	L	I	T	M	M	M	M	M	M
206	10750	L	L	L	M	M	M	M	M	D	I	M	L	L	L	L	L	I	I	M	M	M	M	M	M
207	11000	L	D	L	M	M	M	M	M	T	I	I	L	L	L	L	L	I	I	M	M	M	M	M	M
208	11250	L	D	M	M	M	M	M	M	L	L	I	L	L	L	L	L	I	M	M	M	M	M	M	M
209	11500	L	D	M	L	M	M	M	M	L	L	L	L	L	L	L	L	L	M	M	M	M	M	M	M
210	11750	L	D	M	M	M	M	M	M	L	L	L	L	L	L	L	L	L	L	M	M	M	M	M	M
211	12000	D	D	L	M	L	M	M	M	L	L	L	L	L	L	L	L	L	L	M	M	M	M	M	M
212	12250	L	D	L	M	L	L	M	M	L	L	L	L	L	L	L	L	L	L	L	M	M	M	M	M
213	12500	D	L	L	L	L	L	M	M	L	L	L	L	L	L	L	L	L	L	M	M	M	M	M	M
214	12750	D	D	L	L	L	M	M	M	L	L	L	L	L	L	L	L	L	L	M	M	M	M	M	M
215	13000	L	L	L	L	L	M	M	M	L	L	L	L	L	L	L	L	M	L	L	L	L	M	M	M
216	13250	L	L	L	L	L	M	M	M	L	L	L	L	L	L	L	L	M	L	L	L	M	L	M	M
217	13500	L	L	L	L	L	M	M	M	D	L	L	L	L	L	L	L	L	L	M	M	M	M	M	M
218	13750	L	L	L	L	L	M	M	M	I	L	L	L	L	L	L	L	L	T	L	M	M	M	M	M
219	14000	L	L	L	L	L	M	M	M	I	L	L	L	L	L	L	L	L	D	L	L	M	M	M	M
220	14250	L	L	L	L	L	M	M	M	I	L	L	L	L	L	L	L	L	L	L	M	M	M	M	M
221	14500	L	L	L	L	L	M	M	M	D	D	L	L	L	L	L	L	L	D	L	D	M	M	M	M
222	14750	L	L	L	L	M	L	M	M	L	L	L	L	L	L	L	L	L	D	L	D	M	M	M	M
223	15000	L	T	T	L	L	L	M	M	L	L	D	L	L	L	L	L	L	L	D	D	M	L	M	M
224	15250	M	T	L	L	L	L	M	M	L	D	L	D	L	L	L	L	L	D	D	M	M	L	M	M
225	15500	T	T	L	M	L	L	M	M	L	D	D	D	L	L	L	L	L	T	D	M	M	L	M	M
226	15750	M	L	L	L	L	M	M		T	D	D	D	L	L	L		T	M	M	M	L	M	M	
227	16000	L	L	L	L	L	L	M		T	I	D	L	L	L	L		T	I	M	M	M	M	M	
228	16250	L	L	L	M	L	M			D	I	L	L	L	L			T	I	M	M	M	M		
229	16500	L	L	L	L	M	M			I	I	L	L	L	L			D	L	M	M	L	M		
230	16750	L	L	L	M	M				I	I	L	L	L				M	D	M	M	L			
231	17000	L	L	L	M	M				I	L	I	L	L				L	D	T	M	M			
232	17250	L	L	L	M					L	L	L	L					D	D	T	M				

233	17500	L	L	L	M
234	17750	L	L	L	
235	18000	L	L	L	
236	18250	L	L		
237	18500	L	L		
238	18750	L			
239	19000	L			
240	19250				
241	19500				

L	L	L	L
L	L	L	
L	L	L	
L	L		
I	L		
L			
L			

D	L	M	M
D	L	L	
L	L	L	
L	L		
T	L		
L			
L			

A rough description of the discrepancies between the classificatory tables would reveal the addition of Cyril Tourneur, mainly in the mf3c section of nsc, and then of George Chapman in the mf3c section of svm. It is difficult to find regularities, but the offer of various authors depends on the tremendous number of reference texts and existing similarities of the vocabulary in the treatment of subject matter. All classifiers are normally at their best when a choice between just two authors is at stake. It is therefore advisable to summarise all results, which are displayed in the following table (Table 2) which follows the format of the abridged authors' names.

**Table 2 Summary of assignments**

Authors	Text	
	Assignments	%
Marston	1062	24,2
Lyly	1086	24,7
Dekker	1220	27,8
Tourneur	509	11,6
Chapman	386	8,8
Sidney	126	2,9
Fletcher	1	0,0
Shakespeare	2	0,0
<b>total</b>	<b>4392</b>	

Once again it is Dekker, Lyly, and Marston, who have clear preferences, and this refers us back to the War of the Theatres going on between 1599 and 1602, including the playwright Ben Jonson on one side and his rivals John Marston and Thomas Dekker on the other, simultaneously confirming that the amalgamation of the styles bears out Maxwell's contention of a revision. It seems to be Lyly's original text which at the turn of the century when competition between professional dramatists was at its fiercest was underpinned with contemporary trends by Marston and Dekker. To prove their stylistic presence in *Wily Beguiled* another recently developed tool can be helpful, the General Imposters method.

### **The General Imposters Method (GI)**

Maciej Eder presented GI in his post "Authorship verification with the package 'stylo'" in which he gave a detailed account of the new method, referred to its introduction by Koppel and Winter (2014) and Kestemont's application of it to the study of Julius Caesar's disputed writings (Kestemont et al., 2016). GI is an additional check on similarities in writing styles and is claimed to be a second verification system. It goes beyond the simple assessment of similarity, but aims to state whether two documents are significantly more similar to each other than they are to other documents.

The prerequisites necessary to use the function **imposters()** have been described as follows:

It assumes that all the texts to be analysed are already pre-processed and represented in a form of a matrix with frequencies of features (usually words). The function contrasts, in several iterations, a text in question against (1) some texts written by possible candidates to authorship, or the authors that are suspected of being the actual author, and (2) a selection of “imposters”, or the authors that could not have written the text to be assessed. Consequently, a given candidate’s class is assigned a score between 0 and 1 (Eder, 2018).

The reasonable assumption of the procedure is that any result above 0.5 can be seen as a successful verification of authorship. The classifier available is delta, but other classifiers are in the process of being prepared. Eder added however two more distance measures, Cosine delta (Wu), developed by the Würzburg computational stylistics group, and Ruzicka metrics (Ru). The latter consumes a very high computation time, but is regarded as highly reliable.

**Table 3 General Imposters Assessment of reference texts**

	A	B	C	D	E	F	G	H	I	J	K	L	M
1	<b>The General Imposters Method and <i>Wily Beguiled</i></b>												
2	<b>Frequency of</b>	delta				Wu				Ru			
3	<b>mf1w</b>	anon	dekker	lyly	marston	anon	dekker	lyly	marston	anon	dekker	lyly	marston
4	anon_wilybeguiled.txt		0.04	0.95	0.58		0.05	0.62	0.47		0.33	0.26	1.00
5	dekker_satiromastix.txt	0.04	0.71	0.19	0.76	0.04	0.58	0.11	0.94	0.14	0.97	0.01	0.47
6	dekker_whoreii.txt	0.37	0.02	0.81	0.75	0.32	0.32	0.33	0.59	0.25	0.07	0.39	1.00
7	lyly_campaspe.txt	0.44	0.04	1.00	0.27	0.40	0.04	1.00	0.20	0.31	0.19	1.00	0.18
8	lyly_motherbombie.txt	0.62	0.17	1.00	0.05	0.56	0.11	0.98	0.04	0.58	0.34	0.81	0.02
9	marston_antonmellid.tx	0.40	0.06	0.30	0.95	0.35	0.78	0.01	0.79	0.36	0.55	0.04	0.93
10	marston_dutchcourtesa	0.89	0.35	0.20	0.48	0.69	0.40	0.00	0.64	0.76	0.90	0.17	0.13
11													
12	<b>Frequency of</b>	delta				Wu				Ru			
13	<b>mf2w</b>	anon	dekker	lyly	marston	anon	dekker	lyly	marston	anon	dekker	lyly	marston
14	anon_wilybeguiled.txt		0.22	0.28	1.00		0.24	0.26	0.92		0.24	0.53	0.95
15	dekker_satiromastix.txt	0.04	0.72	0.00	0.98	0.12	0.70	0.00	0.90	0.16	1.00	0.03	0.47
16	dekker_whoreii.txt	0.18	0.68	0.02	0.92	0.20	0.70	0.00	0.87	0.39	0.49	0.00	1.00
17	lyly_campaspe.txt	0.03	0.02	0.84	0.66	0.17	0.04	1.00	0.43	0.46	0.21	1.00	0.14
18	lyly_motherbombie.txt	0.12	0.00	0.97	0.49	0.55	0.00	1.00	0.20	0.69	0.09	0.94	0.10
19	marston_antonmellid.tx	0.01	0.98	0.26	0.58	0.03	0.91	0.25	0.44	0.12	0.55	0.15	0.80
20	marston_dutchcourtesa	0.44	0.88	0.01	0.64	0.59	0.64	0.00	0.25	0.70	0.87	0.14	0.03
21													
22	<b>Frequency of</b>	delta				Wu				Ru			
23	<b>mf3c</b>	anon	dekker	lyly	marston	anon	dekker	lyly	marston	anon	dekker	lyly	marston
24	anon_wilybeguiled.txt		0.49	0.87	0.46		0.38	0.61	0.19		0.32	0.41	0.98
25	dekker_satiromastix.txt	0.49	1.00	0.02	0.28	0.21	0.93	0.00	0.60	0.07	0.97	0.03	0.47
26	dekker_whoreii.txt	0.93	0.14	0.33	0.40	0.53	0.57	0.09	0.08	0.47	0.11	0.35	0.98
27	lyly_campaspe.txt	0.52	0.01	1.00	0.36	0.39	0.00	1.00	0.35	0.29	0.16	1.00	0.32
28	lyly_motherbombie.txt	0.96	0.29	0.64	0.00	0.63	0.19	0.86	0.01	0.63	0.50	0.63	0.01
29	marston_antonmellid.tx	0.41	0.35	0.00	1.00	0.20	0.67	0.07	0.83	0.19	0.46	0.00	1.00
30	marston_dutchcourtesa	0.99	0.71	0.15	0.05	0.70	0.32	0.03	0.39	0.87	0.76	0.16	0.10

The analysis was carried out with three different variables: the frequencies of words (lines 4 to 14), the frequencies of word bigrams (lines 18 to 28) and the frequencies of character trigrams (lines 32 to 42), each of them divided into delta, Wu and Ru sections. The target text anon\_wilybeguiled can be found in lines 4, 18 and 32 and the author references point to

Dekker (2), Lyly (5), and Marston (6). A confirmation of these findings should be displayed in columns B, H and N (anon). Once again we find positive values for Dekker, Lyly, and Marston, but not for Chapman or Tourneur. We may take this as confirmation of the summarised data of Table 1, displayed in Table 2. Furthermore the Tourneur columns G, M and S contain only very scant information and have no link to *Wily Beguiled*. The same is true for the Chapman column, even though Chapman shows a tremendous amount of stylistic versatility in the whole range of plays, except those of John Lyly.

## Evaluation

The results of Rolling Delta, Rolling Classify and the General Imposters Method largely comply with what Baldwin Maxwell had generated from investigating the plays in question, namely to detect a connection with the Parnassus plays, the War of the Theatres and the work of an editor revising an earlier text. At that time he could not know that almost a century later the Marston authorship of the Parnassus plays was proven by non-traditional stylometry (Ilseman, 2019). Cecil Rhodes in his *Elizabethan Grotesque* expands Maxwell's theses and gives a most impressive analysis of satirical interrelationships between plays around 1601. It is in connection with these representatives of scholarship that the features of R Stylo deliver evidence of a complex history of origins, in which a lost university play of 1566/7 was reworked by John Lyly and then 'in or after 1601' revised by John Marston and Thomas Dekker.

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### **Appendix A**

of 110 plays with abbreviated author prefixes and titles, all of them used a reference texts in the analyses.

beau\_knightpebble, chap\_allfools, chap\_blindbeggar, chap\_bussydambois, chap\_bussyrevenge, chap\_daysmirth, chap\_gentlemanusher, chap\_mayday, chap\_msd'olive, chettle\_hoffman, daniels\_cleop, day\_bednalgreen, day\_humbreathms, day\_isleofgullsms, dek\_fortunatus, dek\_matchme, dek\_satiromastix, dek\_shomholi, dek\_spansold, dek\_whorebabel, dek\_whoreii, dek\_wyatt, fletch\_akingnoking, fletch\_beggarsb, fletch\_bonduca, fletch\_customcountry, fletch\_humlieut, fletch\_islandprincesse, fletch\_lawscandy, fletch\_maidstrag, fletch\_monstthomas, fletch\_philaster, fletch\_rulewife, fletch\_shepherdess, fletch\_valentinian, fletch\_witmoney, fletch\_womprize, gager\_ulyssesRedux, greene\_alphonsus, greene\_friarbb, greene\_jamesiv, greene\_news, greene\_orlando, greene\_selimus, heyw\_engtravel, heyw\_fairmaidwest, heyw\_hoxton, heyw\_royalking, heyw\_womkillkind, jon\_alchemist, jon\_bartholomew, jon\_catiline, jon\_cynthia, jon\_devilass, jon\_epicoene, jon\_inhumour, jon\_outhumour, jon\_poetaster, jon\_sejanus, jon\_volpone, kyd\_mscornelia, kyd\_soliman, kyd\_spanpure, lodge\_mariusscilla, lyly\_campaspe, lyly\_endimion, lyly\_gallathea, lyly\_motherbombie, lyly\_mydas, lyly\_saphophao, mar\_tamburlain1, mar\_tamburlain2, mars\_antmellid, mars\_dutchcourtesan, mars\_malcontent, mid\_2ndmaids, mid\_changeling, mid\_cheapside, mid\_gallants, mid\_hengist, mid\_nowit, mid\_phoenix, mid\_puritan, mid\_trickcatch, mid\_witch, mun\_kentcumberms, nashe\_summers, peelee\_alcazar, peelee\_alcazar, peelee\_arraignment, peelee\_davbeth, peelee\_oldwives, row\_whenysee, shak\_12thnight, shak\_hamlet, shak\_lear, shak\_lear, shak\_muchado, shak\_othello, shak\_romjul, shak\_thnight, shak\_winters, sidney\_marcantonie, theobald\_doublefalse, tourneur\_atheists, web\_duchess, wever\_lustyjuventus, wilkins\_misenfmar, wilson\_3ladieslondon, wycherley\_country.





23	4750	M	M	M	D	M	M	M	M	M	L	D	D	D	D	D	D	D	M	L	L	L	L	L	M	M	M
24	5000	M	M	D	M	M	M	M	M	M	L	L	D	D	D	D	D	D	M	L	L	L	L	M	M	M	M
25	5250	D	M	M	M	M	M	M	M	M	L	D	L	D	D	D	D	D	L	L	L	L	L	M	M	M	M
26	5500	D	D	D	M	M	M	M	M	M	L	L	D	D	D	D	D	D	L	L	M	L	L	M	M	M	M
27	5750	W	D	D	M	M	M	M	M	M	L	D	D	D	D	D	D	D	L	M	L	M	M	M	M	M	M
28	6000	D	D	D	M	M	M	M	M	M	D	D	D	D	D	D	D	D	D	M	M	M	M	M	M	M	M
29	6250	H	D	H	D	M	M	M	M	M	D	D	D	D	D	D	D	D	D	D	M	M	M	M	M	M	M
30	6500	H	D	D	D	M	M	M	M	M	D	D	D	D	D	D	D	D	M	M	M	M	M	M	M	M	M
31	6750	D	M	M	D	M	M	M	M	M	M	D	D	D	D	D	D	D	M	M	M	M	M	M	M	M	M
32	7000	D	D	M	M	M	D	M	M	M	M	M	D	D	D	D	D	D	M	M	M	M	M	M	M	M	M
33	7250	D	D	D	M	M	D	D	D	M	M	M	M	D	D	D	D	D	M	M	M	M	M	M	M	M	M
34	7500	D	D	D	D	M	M	D	D	M	D	M	D	D	D	D	D	D	M	M	M	M	M	M	M	M	M
35	7750	D	D	D	D	D	D	M	M	D	M	D	D	D	D	D	D	D	M	M	M	M	M	M	M	M	M
36	8000	C	D	D	D	D	M	M	M	D	L	L	D	D	D	D	D	D	L	M	M	M	M	M	M	M	M
37	8250	C	D	D	D	M	M	M	M	D	L	L	D	D	D	D	D	D	L	L	M	M	M	M	M	M	M
38	8500	M	D	D	D	M	M	M	M	D	L	D	D	D	D	D	D	D	L	M	M	M	M	M	M	M	M
39	8750	D	D	D	D	D	M	M	D	D	D	D	D	D	D	D	D	D	D	M	M	L	M	M	M	M	M
40	9000	D	D	D	D	M	D	M	D	D	D	D	D	D	D	D	D	D	D	M	D	M	M	M	M	M	M
41	9250	D	M	D	D	M	M	D	D	D	D	D	D	D	D	D	D	D	M	D	D	D	M	M	M	M	M
42	9500	M	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	M	M	M	M	M	M	M	M
43	9750	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	M	D	M	M	M	M	M	M	M
44	10000	M	M	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	M	M	M	M	M	M	M	M	M
45	10250	F	M	D	D	D	D	D	D	D	T	M	D	D	D	D	D	D	T	M	M	M	M	M	M	M	M
46	10500	M	D	D	D	D	D	D	D	D	M	D	D	D	D	D	D	D	M	M	M	M	M	M	M	M	M
47	10750	M	D	M	D	D	D	D	D	M	M	M	D	D	D	D	D	D	C	M	M	M	M	M	M	M	M
48	11000	D	D	D	D	M	D	D	M	M	D	D	D	D	D	D	D	D	M	M	M	M	M	M	M	M	M
49	11250	D	D	D	D	D	M	M	M	M	M	M	M	D	D	D	D	D	M	M	M	M	M	M	M	M	M
50	11500	D	M	D	D	M	M	M	M	M	M	M	D	D	D	D	D	D	M	M	M	M	M	M	M	M	M
51	11750	M	M	D	M	M	M	M	M	M	M	D	D	D	D	D	D	D	M	M	M	M	M	M	M	M	M
52	12000	M	M	M	M	M	M	M	M	M	M	M	L	D	D	D	D	D	M	M	M	M	M	M	M	M	M
53	12250	M	M	M	M	M	M	M	M	M	L	L	L	L	D	D	D	D	L	L	M	M	M	M	M	M	M



The second-lowest delta values of Table 4 above.

**Table 5**

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB
1	<b>Rolling Delta second-lowest values in <i>Wily Beguiled</i></b>																											
2																												
3	<b>Window size:</b>																											
4		1000	1500	2000	2500	3000	3500	4000	4500	5000	1000	1500	2000	2500	3000	3500	4000	4500	5000	1000	1500	2000	2500	3000	3500	4000	4500	5000
5	words																											
6	500	J									D									D								
7	750	L	D								D	L								L	L							
8	1000	W	D	D							D	D	D							M	M	L						
9	1250	W	D	D	D						M	D	D	M						M	M	L	L					
10	1500	D	D	M	M	D					D	M	M	D	D					M	L	L	L	L				
11	1750	D	D	D	D	D	D				D	M	L	L	L	D				T	L	L	L	L	L			
12	2000	M	M	M	D	D	D	D			M	L	D	D	D	M	M			M	M	L	L	L	L	L		
13	2250	D	M	M	D	D	D	D	D		M	D	D	D	D	D	L	L		M	M	L	L	L	L	L	L	
14	2500	M	M	M	M	D	D	D	D	D	W	D	D	D	M	L	D	L	L	T	D	D	D	L	L	M	L	L
15	2750	M	M	M	M	D	D	D	D	D	D	D	D	M	M	L	L	L	L	D	D	D	D	L	M	L	L	L
16	3000	D	D	M	D	D	D	D	D	D	D	M	D	M	L	L	L	L	D	M	D	D	D	L	L	L	L	L
17	3250	D	D	M	D	D	D	D	D	D	M	M	M	M	M	L	L	D	D	M	D	D	L	L	L	L	L	L
18	3500	H	D	H	H	D	D	D	D	D	L	L	L	M	L	L	M	L	L	D	L	L	L	L	L	L	L	L
19	3750	D	D	M	D	D	D	D	D	D	L	L	L	M	L	M	L	L	L	L	D	D	D	M	L	L	L	M
20	4000	D	D	D	H	D	D	D	D	D	D	L	L	L	M	L	D	L	L	D	D	D	D	L	M	M	M	L
21	4250	D	D	M	D	D	D	D	D	D	L	L	L	L	L	L	L	L	L	M	D	D	M	M	M	M	M	L
22	4500	J	D	D	D	H	H	D	D	D	D	L	D	L	L	L	L	L	L	D	D	M	M	D	D	M	L	L
23	4750	J	D	D	M	H	H	H	D	D	D	L	L	L	L	L	L	L	L	L	M	D	D	D	D	D	L	L
24	5000	D	D	M	D	H	H	H	H	D	M	D	L	L	L	L	M	M	L	M	M	M	D	D	L	L	D	L
25	5250	M	D	D	D	H	H	H	H	H	D	L	D	L	L	L	M	M	M	M	M	M	M	M	M	M	D	D
26	5500	W	M	M	D	D	H	H	H	H	D	D	L	L	L	L	M	L	M	M	M	L	M	M	L	L	L	L



58	13500	L	L	M	L	M	M	L	D	D	M	M	L	M	L	L	D	L	L	L	L	L	L	L				
59	13750	D	L	M	M	M	M	L	M	D	M	M	L	L	L	L	L	L	D	D	L	L	L	L	L	L		
60	14000	C	M	M	M	M	L	M	M	M	M	M	M	L	L	L	L	L	L	T	D	D	L	L	L	L	L	
61	14250	L	M	L	M	M	M	L	L	D	M	M	M	L	L	L	M	L	L	D	D	D	L	L	L	D	D	L
62	14500	M	M	D	L	L	M	L	D	D	M	M	L	M	L	L	L	M	M	L	L	L	D	D	L	L	D	L
63	14750	J	D	D	D	D	L	L	L	D	M	M	L	L	M	L	L	L	M	L	L	D	D	D	D	L	L	D
64	15000	D	M	D	M	D	D	L	D	D	L	L	M	T	T	T	L	M	L	L	M	D	D	T	D	D	D	L
65	15250	M	M	T	M	D	D	D	D	D	L	L	L	T	T	T	M	L	L	M	M	D	D	D	W	D	L	L
66	15500	T	T	D	D	D	M	D	D	D	T	T	M	L	T	T	T	M	L	T	M	D	D	D	D	D	D	L
67	15750	F	F	D	D	L	L	D	D	D	D	T	T	M	M	T	M	L	L	C	M	T	D	D	D	D	L	L
68	16000	F	F	F	J	M	L	D	D	D	D	D	T	T	M	L	L	L	L	M	M	M	D	D	L	L	D	L
69	16250	F	M	F	J	M	D	D	D	D	M	D	D	T	L	L	L	L	M	M	C	C	D	D	L	M	L	D
70	16500	C	F	F	J	M	M	D	L	L	M	M	T	T	L	L	L	L	M	M	T	M	D	L	L	L	L	L
71	16750	C	T	M	M	M	M	J	L	L	D	D	M	T	T	L	L	M	L	M	M	D	D	D	L	L	L	L
72	17000	M	J	M	M	M	M	J	L	L	D	M	M	T	T	T	M	L	L	L	D	L	D	D	L	L	L	L
73	17250	D	J	M	M	M	J	M	J		L	L	L	M	D	M	L	L		D	D	D	L	L	L	L	L	L
74	17500	D	M	J	M	J	L	J			L	D	M	D	M	M	M			D	D	D	L	L	L	L	L	L
75	17750	D	J	J	J	J	J				D	L	L	D	M	M				D	L	L	L	L	L			
76	18000	J	J	L	L	J					D	M	D	M	D					D	M	L	L	L				
77	18250	L	D	L	D						L	D	D	D						L	L	M	L					
78	18500	D	L	D							D	L	M							C	L	L						
79	18750	M	L								D	L								L	L							
80	19000	L									L									L								

81 19250 M = 2 7. 7 %  
82 19500 D = 3 3. 9 %

L = 3 0. 4 %      others = 7. 9 %