

More statistical observations on speech lengths in Shakespeare's plays

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Abstract

The new drama analysis program IDAP provided charts containing frequency distributions of speech lengths in Shakespeare's plays. Following previous investigations that showed maximum values at the length of four words for plays produced after the opening of the Globe in 1599, and nine words for plays produced before 1599, the present analysis turned to the four plays *The Merry Wives of Windsor*, *King Henry IV, 2*, *Much Ado About Nothing* and *King Henry V* which already indicate changes in style. Composite curves not only characterize the four texts as transitional plays that embody the old style expressed by a maximum of nine words, but also impending changes expressed by a maximum of four words while the transition was indicated by the maximum of six words. Statistical results thus confirm the theories of stylistic and biographical changes before 1599 that James Shapiro had put down in his work *1599: A Year in the Life Of William Shakespeare*. London: Faber & Faber, 2005.

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In 2005 the *Shakespeare Jahrbuch* (Ilseman, 2005) published the results of my investigations into the question of what the frequency distribution of speech lengths can contribute to the analysis of literature (Fig. 1). The main argument was that Shakespeare's work can be divided into plays that were written before 1599 for various stages, and plays that came into existence since 1599 and were mainly produced for the *Globe Theatre*.

The most obvious change was the shift in the speech lengths that were most often used from nine words to four words, and as the stage size was identical to *The Theatre* (built in 1576) the assumption arose that there was a higher degree of artistic involvement in the production of plays, once Shakespeare had become co-owner of the Globe in 1599.

The shift was seen as decisive in the wider context of the relationship between rhetorical speeches and dramatic actions. The suggestion was that rhetoric and declamations receded and were

replaced by refined acting using the spatial dimensions of the stage and speeding up events by shorter speeches. This was also regarded as part of the growing maturity of Shakespeare. In the face of a general shift towards shorter speeches, soliloquies and monologues gained new qualities. Whereas before they had to be seen within the framework of rhetorical devices that kept actors rambling and lamenting, they now appeared as functional components of plays, adding also to the aesthetic values of *varietas* and *copia*—or variety and abundance.

The shift in speech lengths was also considered to be an unbiased demonstration that Shakespeare was the real author of his plays. This would not exclude collaborations with other authors, but the artistic involvement is so clearly marked by the opening of the Globe in 1599 that only Shakespeare's biographical dates best match the statistical data of his works.

By coincidence somebody else looked into the same question during the preparations for the

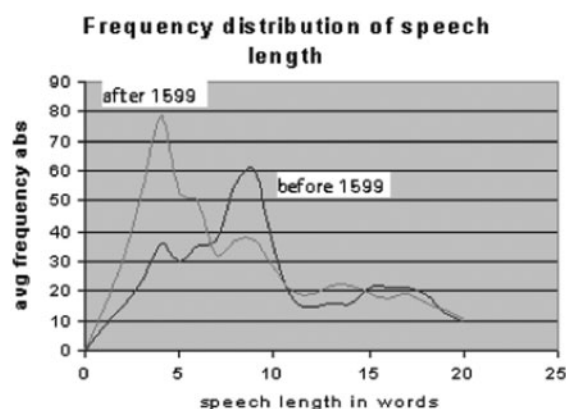


Fig. 1 Frequency distribution of speech lengths in plays before and after 1599

article in 2003 and 2004 though from a quite different vantage point. In 2005, James Shapiro published his much praised biography *1599: A Year in the Life of William Shakespeare* (Shapiro, 2005). In the book, Shapiro traces both what Shakespeare achieved and what Elizabethans experienced that year and he attaches particular importance to the development of Shakespeare as a writer. Whereas before Shakespeare had often been lifted out of time and place Shapiro undertook the difficult task to do some imaginative writing with deep insights into the situation of the playwright and poet at a time of private and public changes.

Another factor in the decision to carry on with speech lengths analyses was the installation of the new drama analysis program IDAP that is available via internet from <http://idap.engsem.uni-hannover.de>

The program provides the material for the speech length distribution of all Shakespeare plays and its graphics charts allow for comparisons of reliable data that have not been possible before.¹ Particularly when absolute figures have been converted to percentage representations it becomes possible to see developments and similarities between plays. The task that offers itself is twofold and can be summed up in the following two provisional questions:

- (1) Does the established order of when the plays came into existence come out in speech length distribution curves?

- (2) Are there similarities in the speech length distributions that appertain to a particular genre?

Another complication must certainly be seen in the fact that many of the plays produced before 1599 were collaborations. Kermode recalls the early dramatic work of Shakespeare in particular (Kermode, 2000) and takes up suggestions from *William Shakespeare: A Textual Companion* (Wells and Taylor 1987; Kermode, 2000, p. 18) where the proportion of collaborative plays written for the entrepreneur Philip Henslowe is given as two-thirds.

Regarding the complexity arising from the three central aspects—sequential development, generic differences between plays, and questions of collaboration—it becomes clear that there will be no plain answers. All one can do is to hint at certain probabilities that would be supported by statistical evidence. Regrettably it is the question of collaboration that was left out in this contribution as it would have involved the breaking down of speech length distribution curves to the level of acts or even scenes.

The first observation refers to the arrangement of plays as they came into existence. In the previous chart that was reproduced in the *Shakespeare-Jahrbuch 2005* the dates of plays were extracted from *A Shakespeare Encyclopaedia* by Campbell and Quinn which had been published in 1966. It accounted for nothing else but the division into plays written before and after 1599 (Table 1).

Meanwhile a new sequence has been generally acknowledged. It was also put down in Ina Schabert's *Shakespeare Handbuch* and records here also the speech lengths that were most often used.

The first striking point is the fact that prior to 1599 there are four plays where the most often used speech length is not eight or nine words any more but six, and in the case of *The Merry Wives of Windsor* even four.

But this would not contradict the main message that the opening of the Globe in 1599 was the main cause of aesthetic changes. As Shapiro was able to show in various instances Shakespeare had been trying for quite some time to introduce changes in the aesthetic constituents of his plays. Shapiro's chapter *A Battle of Wills* in particular presents us

Table 1 Speech length most often used

<i>Plays written before 1599</i>	<i>Plays Written after 1599</i>	
<i>The Two Gentlemen of Verona</i>	9 <i>Julius Caesar</i>	4
<i>The Taming of the Shrew</i>	9 <i>As You Like It</i>	6
<i>King Henry VI, 2</i>	9 <i>Hamlet</i>	4
<i>King Henry VI, 3</i>	9 <i>Twelfth Night</i>	4
<i>King Henry VI, 1</i>	8 <i>Troilus and Cressida</i>	4
<i>Titus Andronicus</i>	9 <i>Measure For Measure</i>	4
<i>Richard III</i>	9 <i>Othello</i>	4
<i>The Comedy of Errors</i>	9 <i>All's Well That Ends Well</i>	4
<i>Love's Labour's Lost</i>	9 <i>Timon of Athens</i>	4
<i>Richard II</i>	9 <i>Macbeth</i>	4
<i>Romeo and Juliet</i>	9 <i>Antony and Cleopatra</i>	4
<i>A Midsummer Night's Dream</i>	9 <i>Pericles</i>	4
<i>King John</i>	9 <i>Coriolanus</i>	4
<i>The Merchant of Venice</i>	8 <i>The Winter's Tale</i>	4
<i>King Henry IV, 1</i>	9 <i>King Lear</i>	4
<i>The Merry Wives of Windsor</i>	4 <i>Cymbeline</i>	4
<i>King Henry IV, 2</i>	6 <i>The Tempest</i>	4
<i>Much Ado About Nothing</i>	6 <i>King Henry VIII</i>	3/4
<i>King Henry V</i>	6 <i>The Two Noble Kinsmen</i>	4

with Kemp's acting style as Dogberry and Falstaff and Shakespeare's intentions to make his characters more real (Shapiro, 2005, pp. 27–49).

Likewise, Kermode attaches importance to the new quality of the last four plays before 1599 (Kermode, 2000, p. 48 ff) and he speaks of a new prose.

Something else might be added: the constant stream of foul papers apparently caused the *Lord Chamberlain's Men* to publish their own texts, and this was done under the name of William Shakespeare at least from 1598 (Shapiro, 2005; Wells, 2006). This may have been another incentive for the playwright to revise texts more carefully and to imprint his own style on them to a greater degree than ever before.

Irrespective of genre properties the following graphs are displayed in the alleged sequence as the plays emerged (Fig. 2). Frequency is displayed vertically, and speech length up to twenty words is given on the *x*-axis. This is the range where the most notable changes can be observed, whereas speech lengths of more than twenty words do not contain noteworthy features. Identification numbers were added to simplify the interpretation of the graphs and this was done without referencing mentally to title, genre, and possible collaborations.

It may well be seen as a cumbersome process to recall the frequency distribution of speech lengths for all plays in graphic charts, but they can be regarded as a kind of fingerprint of stylistic features. After all, speeches are what plays are made of, and, as can be seen further down, the term physiognomy might even fit better than fingerprint.

In texts nos 4 (3*Henry VI*), 5 (1*Henry VI*), 6 (*Titus Andronicus*), 7 (*Richard III*), 10 (*Richard II*), 13 (*King John*), and perhaps also 20 (*Julius Caesar*), speech lengths of twelve or thirteen words are almost absent, i.e. they turn up only in very few numbers. None of these texts is a comedy. In *Julius Caesar* (20) we have furthermore a play where the maximum is at four words and the minimum at eleven.

Although there is a visible tendency in many more plays to divide the speech length distributions between one and twenty words into two peaks because of a hinted minimum at the values eleven, twelve, and thirteen, it is in many cases obvious that comedies do not fall into that category. Graph nos 16 (*The Merry Wives of Windsor*), 18 (*Much Ado about Nothing*), 21 (*As You Like It*), 23 (*Twelfth Night*), 25 (*Measure for Measure*), and 27 (*All's Well That Ends Well*) rise to their maximum value(s) and then fall gently towards the speech length of twenty words. The same applies to a series of plays that have a certain period in common: 15 (1*Henry IV*), 16 (*The Merry Wives of Windsor*), 17 (2*Henry IV*), 18 (*Much Ado about Nothing*), 19 (*Henry V*), 21 (*As You Like It*), and 23 (*Twelfth Night*). With the exception of *Julius Caesar* and *Hamlet*, this applies to the sequence from 1 *Henry IV* to *Twelfth Night*.

These observations are derived from mere visual impressions, and the question arises as to how the connection between the plays can be established in more detail. Some metaphorical considerations might be useful.

In her novel *The Biographer's Tale*, Byatt (2000) employs a first-person narrator who finds some composite pictures. These had been composed from individual photographs by Sir Francis Galton, the eminent 19th century researcher. The pictures of his three sisters put on top of each

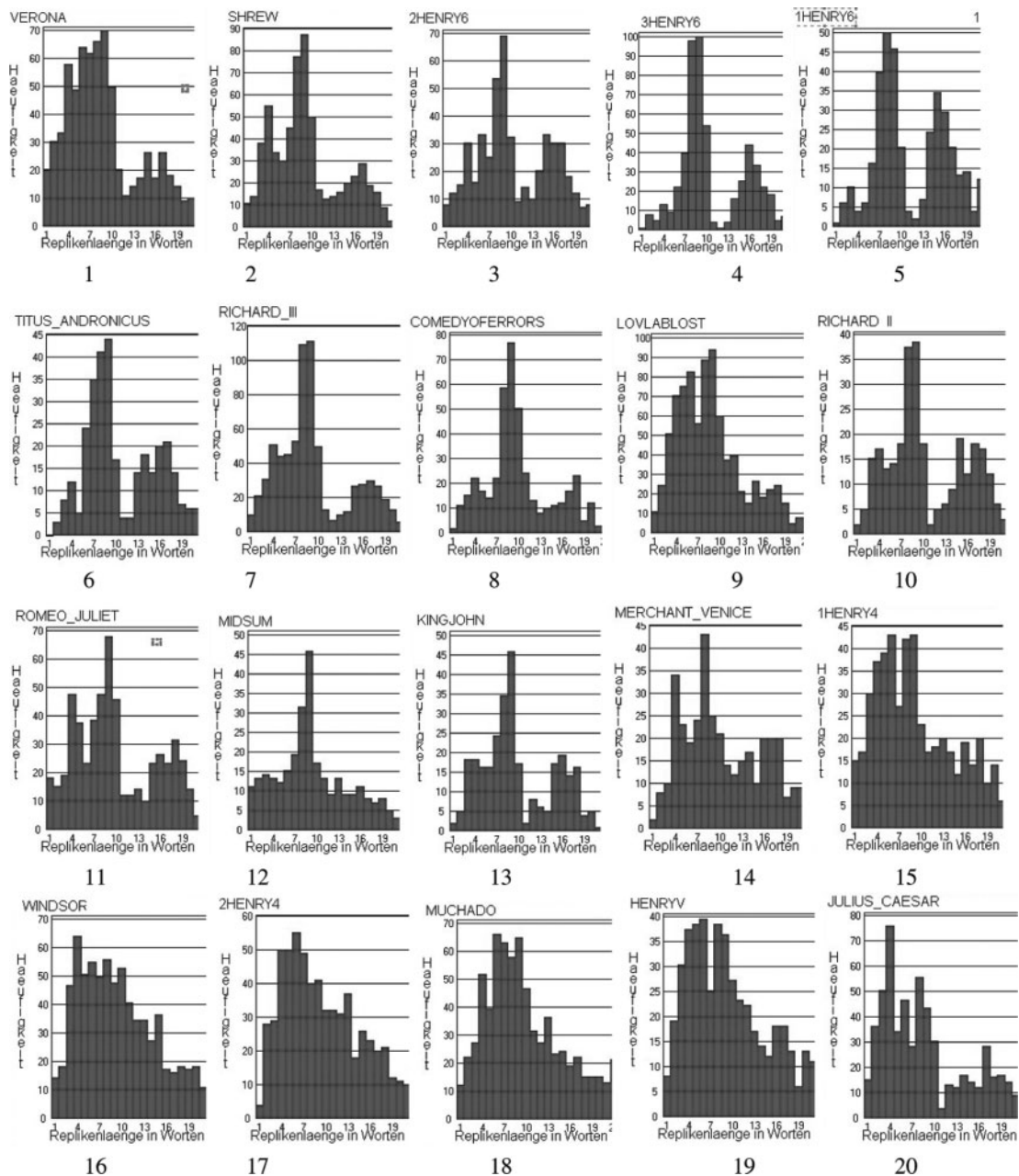


Fig. 2 Distribution charts of numbered plays

other yielded a new composite photo that contained the core of family resemblance, from which the individual traits had originated. Similar pictures had been produced from fellow soldiers and officers, and from the wife and children of Linnaeus.

If the speech length distribution curve is taken as a representation of an individual play, very much in the same way as a photograph gives us the face of an individual, and if we put members of the same family or group together we should get such a

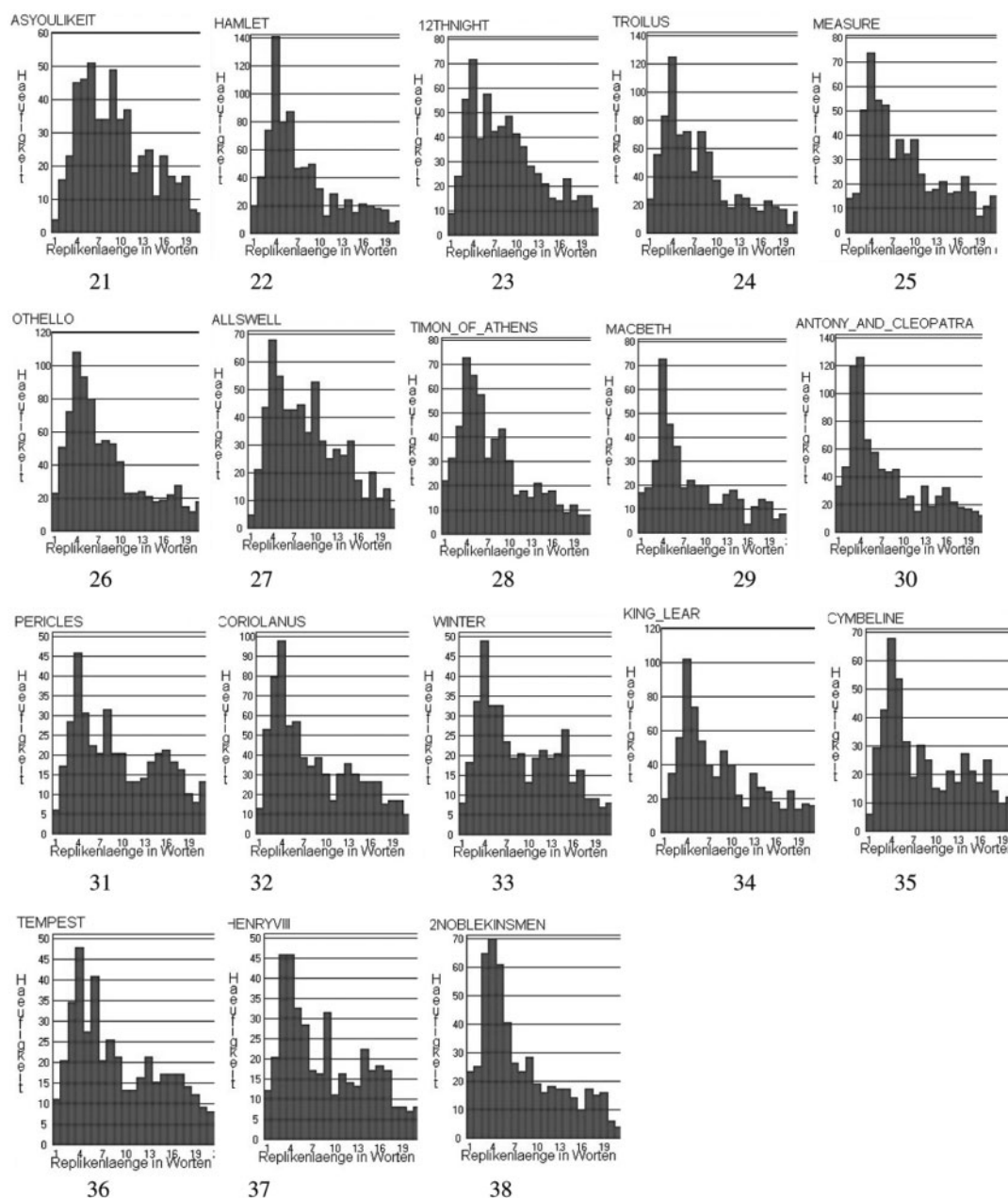


Fig. 2 Continued

composite curve. It is obvious that the greater the family likeness is the less difference there is in the course of the curves. This was achieved by a process of approximation, where the average of two curves was formed and then with the addition of a third

curve the average of three curves was given and so on. The guiding rule was to create a bundle of curves with little variety. In this heuristic approach such combinations of plays were excluded where curves varied widely.

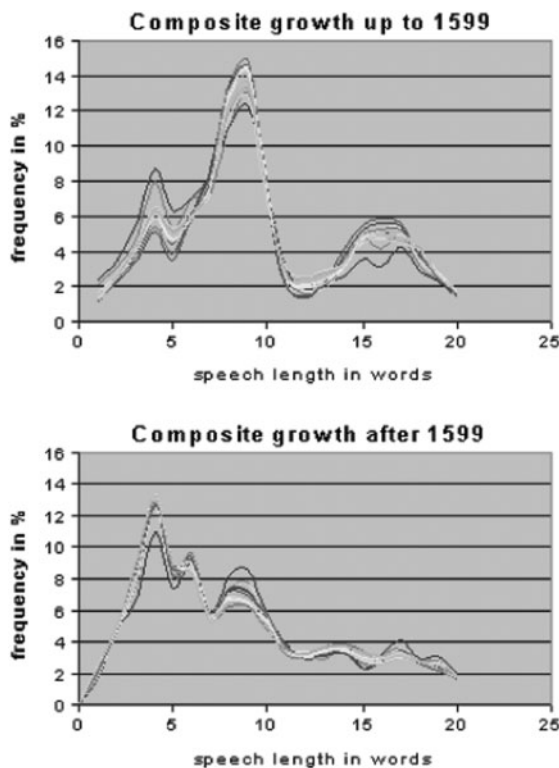


Fig. 3 Composite growth of plays

A large degree of variation could be expected when a large number of plays were involved. But even when we take up the already established distinction between plays before and after 1599 the curves clearly represent two different populations. The composite curves are shown in (Fig. 3).

Admittedly some speech length values (x -axis) vary noticeably because of the relatively large number of plays, but both curve bundles correspond to the total absolute values of speech lengths and to the average percentages of speech-length distribution. What is most interesting now is the reproduction of a group of plays determined either by their genre or their period of coming into existence.

1. Histories

The following composite curves represent the speech length distribution of histories that were

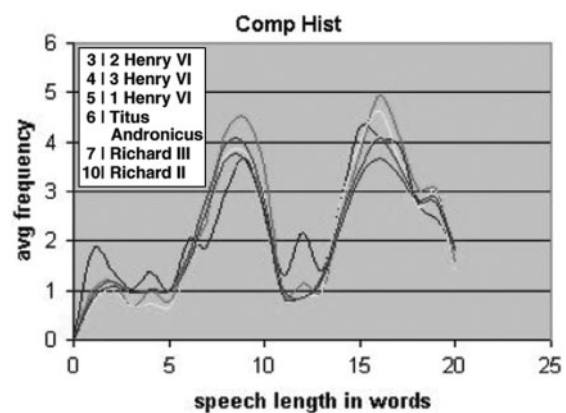


Fig. 4 Composite growth of histories

written between 1591 and 1595 (Fig. 4). 2 *Henry VI* was taken as a starting point with subsequent plays (3 *Henry VI*; 1 *Henry VI*; *Titus Andronicus*; *Richard III*; *Richard II*) being added.

Even though *Titus Andronicus* is not normally counted among the histories, it was left here as it belonged to the same creative period.

The outstanding features are two maxima, one accounting for a speech length of nine words, the other depicting mainly speeches of sixteen words. A very prominent dip can be found at the speech lengths of eleven and twelve words. The question of why these speech lengths are obviously not among the favored ones is difficult to answer. But on the other hand, speech lengths between one and five words move in the same range, which is the more surprising if we think of the fact that in the creative processes only a couple of years later shorter speeches of four words would become dominant. Apparently the dramatic speed that goes with shorter speeches was not yet seen as crucial.

2. Comedies

The shape of the distribution of speech lengths suggests a kinship between *The Two Gentlemen of Verona*, and *Love's Labour's Lost* (Fig. 5).

Another pair of similar shapes can be seen in *The Taming of the Shrew* and *The Comedy of Errors* (Fig. 6).

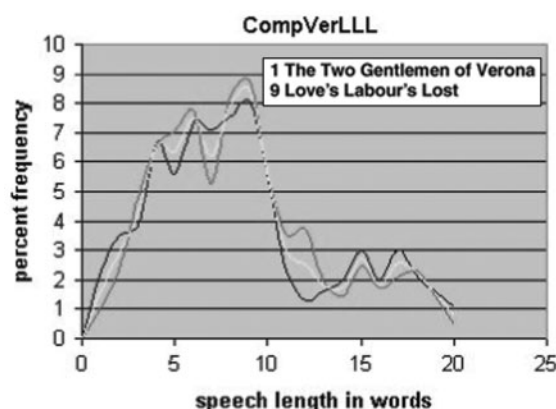


Fig. 5 Composite growth of a comedy type

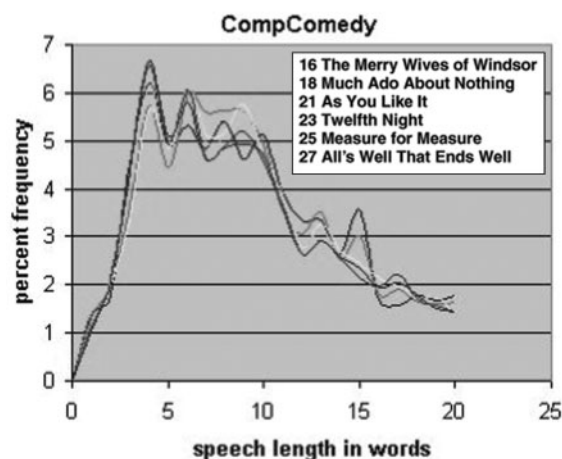


Fig. 7 Composite growth of later comedies

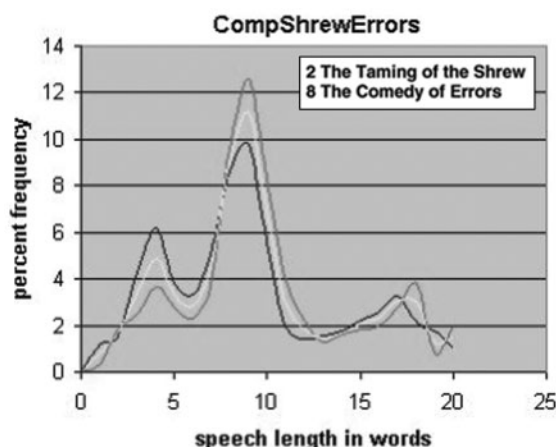


Fig. 6 Composite growth of another comedy type

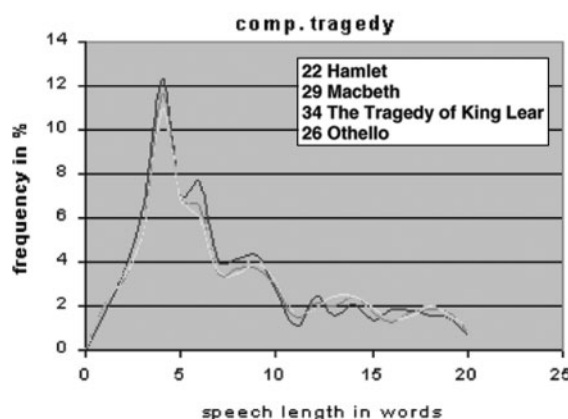


Fig. 8 Composite growth of major tragedies

In both examples, a third curve was added which represents the average value of the two curves.

At the very first glance we see that there are differences between the two graphs, and before further conclusions are drawn it makes sense to refer also to some later comedies (Fig. 7).

The three graphs seem to represent different approaches as to the use of speech length. Whereas *The Two Gentlemen of Verona* and *Love's Labour's Lost* indicate a steeper rise to the value four from which they rise again to a speech length of nine words, *The Taming of the Shrew* and *The Comedy of Errors* have two clearly distinct maxima, a smaller

maximum at four words and the dominant one at nine words. This is contrasted by the later comedies, starting with *The Merry Wives of Windsor*, where a steep rise goes up to the value of four words, followed by the gentle decline towards the value twenty. To what degree the decrease from four to twenty can be seen as a generic property only becomes visible when a third dramatic type is added for the purpose of comparison.

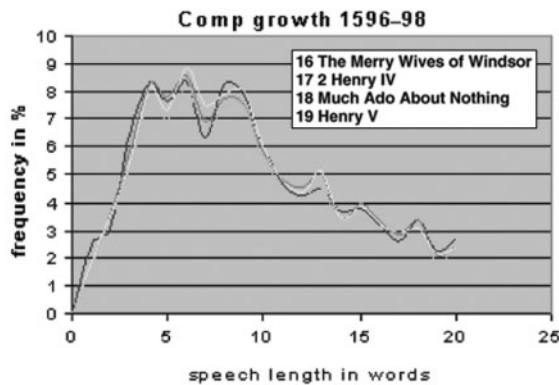


Fig. 9 Composite growth of plays during transitional phase

TRAGEDIES

The four tragedies that were selected are undoubtedly the most famous ones Shakespeare ever wrote. Once again we see the steep rise towards the value of four words, but then there is a very sharp drop as well, and instead of falling gently towards the value twenty as comedies do, the frequency level between eleven and twenty words is almost even. In fact, it looks as if this was a totally different aesthetic concept with a particular focus on shorter dialogical speeches creating suspense and dramatic speed (Fig. 8).

1596–1598

Having viewed the generic propensities of composite curves, I now want to take up the question of what composite curves can contribute to the crucial pre-1599 situation (Fig. 9). Instead of a maximum of either nine or four words in these plays, the speech length of six words was most often used, and in the case of *The Merry Wives of Windsor* it was even the speech length of four words.

The chart demonstrates clearly that the period just before the changes brought about by the Globe in 1599 already accounts for stylistic

changes. The composite curves do not only draw attention to the maximum value of a speech length of six words, but also to the clearly visible (old) maximum of nine words. Not surprisingly, though, there is also the speech length of four words that is to dominate the plays after 1599.

The chart thus illustrates the transitional phase before 1599 when Shakespeare's artistic aspirations moved towards a new aesthetic achievement but were on the other hand still rooted in old accomplishments. The least one can say is that Shapiro's findings are replicated in the composite curves of speech length distributions. In other words, speech length distribution curves objectify research theses that refer to stylistic changes.

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Note

- 1 In contrast to *Windrama* the new programme *IDAP* (Internet Drama Analysis Programme) does not include the speaker's name in its assessment of the length of a speech.

APPENDIX

Frequency Distributions of Speech Lengths (Order of plays as they allegedly came into being)

<i>The Two Gentlemen of Verona</i>																					
Length	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Freq.	0	20	30	33	57	48	63	61	65	69	49	20	11	14	17	26	17	26	18	14	9
<i>The Taming of the Shrew</i>																					
Length	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Freq.	0	11	14	38	55	34	30	45	77	87	50	17	13	14	16	20	23	29	19	16	9
<i>2 Henry VI</i>																					
Length	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Freq.	0	8	12	15	30	16	33	25	53	68	32	9	14	10	20	33	30	30	18	12	7
<i>3 Henry VI</i>																					
Length	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Freq.	0	1	8	5	13	9	22	39	96	98	53	4	1	4	16	25	43	33	22	18	5
<i>1 Henry VI</i>																					
Length	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Freq.	0	1	6	10	4	6	16	39	49	45	20	4	2	7	24	34	29	20	13	14	4
<i>Titus Andronicus</i>																					
Length	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Freq.	0	0	3	8	12	5	24	35	41	44	17	4	4	14	18	14	20	21	14	7	6
<i>Richard III</i>																					
Length	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Freq.	0	10	21	31	51	44	45	53	109	111	50	13	7	10	12	27	28	30	27	19	13
<i>The Comedy of Errors</i>																					
Length	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Freq.	0	2	11	15	22	17	14	22	58	76	50	24	13	8	10	11	12	17	23	5	12
<i>Love's Labour's Lost</i>																					
Length	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Freq.	0	11	24	50	69	74	81	55	87	92	59	37	39	21	15	26	18	22	24	15	5
<i>Richard II</i>																					
Length	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Freq.	0	2	5	15	17	13	14	18	37	38	18	2	5	6	9	19	12	18	17	12	6
<i>Romeo and Juliet</i>																					
Length	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Freq.	0	18	15	19	47	37	23	38	47	67	45	12	12	14	10	23	26	23	31	24	14
<i>A Midsummer Night's Dream</i>																					
Length	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Freq.	0	11	13	14	13	12	15	19	31	45	17	13	9	13	9	9	11	8	7	8	5
<i>King John</i>																					
Length	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Freq.	0	2	5	18	18	16	16	24	34	45	17	2	8	6	5	17	19	14	16	4	5
<i>The Merchant of Venice</i>																					
Length	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Freq.	0	2	8	10	34	23	19	24	43	25	21	14	12	15	17	10	20	20	20	7	9

1 Henry IV

Length	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Freq.	0	15	17	30	37	39	43	27	42	43	23	17	18	20	17	12	19	14	20	10	14

The Merry Wives of Windsor

Length	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Freq.	0	14	18	46	63	50	54	49	55	47	52	40	34	34	27	36	17	16	18	17	18

2 Henry IV

Length	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Freq.	0	4	28	29	50	50	55	49	40	41	32	32	31	37	18	26	23	20	21	12	11

Much Ado About Nothing

Length	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Freq.	0	12	22	27	51	39	65	62	57	64	46	31	27	36	23	24	19	22	15	15	15

Henry V

Length	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Freq.	0	8	19	30	37	38	39	25	38	36	27	23	22	17	14	12	18	18	13	6	13

Julius Caesar

Length	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Freq.	0	15	36	50	75	34	46	28	55	43	30	4	13	12	17	14	12	28	16	17	14

As You Like It

Length	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Freq.	0	4	16	23	45	46	51	34	34	49	34	37	18	23	25	11	23	17	15	17	7

Hamlet

Length	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Freq.	0	20	40	73	139	79	86	46	47	49	32	13	28	18	24	15	21	20	18	17	8

Twelfth Night

Length	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Freq.	0	9	24	55	71	39	57	42	44	48	41	36	28	25	21	15	14	23	14	16	16

Troilus and Cressida

Length	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Freq.	0	24	55	82	123	69	71	43	71	57	37	23	18	27	25	18	16	23	19	17	6

Measure for Measure

Length	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Freq.	0	14	16	50	73	54	52	30	38	32	38	24	17	18	21	16	17	23	17	7	11

Othello

Length	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Freq.	0	23	51	72	108	93	80	53	55	53	42	23	23	24	21	18	19	22	28	15	12

All's Well That Ends Well

Length	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Freq.	0	5	21	43	67	54	42	42	44	34	52	31	25	28	26	31	17	11	20	11	14

Timon of Athens

Length	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Freq.	0	22	31	44	72	65	57	31	39	43	30	16	18	15	21	17	18	12	9	12	8

Macbeth

Length	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Freq.	0	17	19	30	72	45	36	19	22	20	20	12	12	16	18	14	4	11	14	13	6

Antony and Cleopatra

Length	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Freq.	0	33	47	118	124	66	57	45	43	45	24	26	15	33	19	26	32	22	18	17	15

Pericles

Length	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Freq.	0	6	17	28	45	30	22	20	31	20	20	13	13	14	18	20	21	18	16	10	8

Coriolanus

Length	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Freq.	0	13	52	78	96	54	56	38	34	38	30	17	30	35	30	26	26	26	15	17	17

The Winter's Tale

Length	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Freq.	0	8	18	33	48	32	32	23	19	20	13	19	21	19	20	26	13	16	9	9	7

The Tragedy of King Lear

Length	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Freq.	0	20	35	56	102	74	54	40	33	48	40	22	15	35	27	24	18	14	25	14	17

Cymbeline

Length	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Freq.	0	6	29	42	67	53	31	19	30	25	15	14	21	17	27	21	17	25	14	10	12

The Tempest

Length	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Freq.	0	11	20	34	47	27	40	20	25	21	13	13	16	21	15	17	17	17	14	12	9

Henry VIII/All Is True

Length	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Freq.	0	12	20	45	45	32	28	17	16	31	11	16	14	13	22	17	18	17	8	8	7

The Two Noble Kinsmen

Length	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Freq.	0	23	25	64	69	60	40	26	23	28	19	16	18	17	17	14	10	17	15	16	6