

# Linguist for the Prosecution

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In 1981, a Sydney husband was arrested on a charge of homicide. When originally interviewed by the police, he had produced a six-page letter which he claimed had been written by his wife as a farewell to the children. Among other things the letter explained that the wife was leaving home to live with another man elsewhere. As the police could not find the wife's body, the authenticity of the letter became critical. Although the police were suspicious, any possibility of arguing for its genuineness would have seriously undermined the other evidence.

Because the letter had been typed on the family typewriter, and because the husband insisted that the wife had written it, the likely authorship was reduced to either the wife or the husband. As the letter was completely typewritten without even a signature, it could not be subjected to the usual handwriting tests. However, the police were able to obtain a reasonable amount of material that had been written by both the husband and the wife in the months preceding the event. It became a question of comparing the disputed letter with other writings of the husband and wife to see which one was the likely author.

## *The Documents*

The documents available for investigation were:

F (the 'farewell' letter in dispute): 2551 words — all typewritten.

H (a letter and other writings of the husband): 3725 words — all typewritten.

W (a letter and other writings of the wife): 3294 words — all handwritten.

H and W especially were fairly comparable in size. Moreover, they were similar in level of formality. Though the size of each was not large, this quality was balanced by the fact that at least two of the sets had quite distinctive characteristics in context-independent, objective elements of language, and in particular by the fact that certain divergent forms arose in relatively large numbers. The range of the types of dissimilarity that could be found and the persistent uniformity in the results of their application offset any theoretical reservations that might have been felt about the size of the material. No valid question could be made of the size of the sample — it had qualities which established its adequacy.

## *Procedures*

The procedures start from the premise that writers have many constant features in their practice springing from ingrained habits of using language, so that the writings of one author will resemble each other in numerous ways. These are

features which are not affected by variations in subject matter: a shift from law to cricket will lead to differences in vocabulary, for example. Nor are they features that are affected by variations in formality: grammatical and lexical choices will alter as we move from a casual to a formal situation. In comparing two texts we look for those features which are independent of context and which are likely to occur no matter what the writer is discussing and no matter what the circumstances. These context-independent linguistic characteristics are also objective, yielding to verification by anyone subjecting the material to scrutiny. They do not depend on personal interpretation to produce results.

More often than not, the difference between authors is a matter of the frequency with which a linguistic form is used rather than its absolute use or non-use in one of the authors. We look at the rate at which an author uses certain forms which are common to several pieces of writing. The assumption is that the rate of frequency for the occurrence of the selected forms is fairly constant in the texts of the one writer. Any fluctuations should have an obvious and reasonable explanation.

It is essential that the agreement should involve several features and not just one or two items, and several instances of each feature. The greater the number of features and the more the features belong to different categories (*e.g.*, syntactic structures, type of grammatical subject, inflexions, vocabulary, spelling, and so on) the stronger the case for shared authorship. At the same time we seek to show that the unattested document disagrees with other documents in the same features and, possibly, in other points. In effect we work in two directions: to establish significant similarities with certain known sources and significant dissimilarities with others.<sup>1</sup>

## *The Evidence from the Investigation*

### 1. SPELLING

#### 1.1 *Errors in individual words*

The proportion of spelling errors in individual words, excluding faulty capitalization, in the three sets was: F (1.7%), H (2.5%), and W (0.3%). The farewell letter and the husband's documents were much closer in the rate of spelling

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<sup>1</sup>These procedures are now well established. See particularly A. Ellegard, *A Statistical Method for Determining Authorship: the Junius Letters 1769-1772*, Gottenburg Studies in English, 13 (1962), which not only applies the procedures but offers a validation for them. See also J. Svartvik, *The Evans Statements: A Case for Forensic Linguistics*, Gottenburg Studies in English, 20 (1968); S. Michaelson, A. Q. Morton, and N. Hamilton-Smith, *To Couple is the Custom* (Edinburgh, 1978), and, by the same authors, *Justice for Helander* (Edinburgh, 1979); A. Q. Morton, *Literary Detection* (London, 1978). Morton's selection and treatment of features is in some respects different from others. The procedures have been applied in disputes over the reliability of records of interview (police 'verbals') in more recent years.

error; the wife's documents were markedly different. The authors of F and H are comparatively weak spellers, the author of W a reasonable one.

Even more telling, F and H shared the same spelling mistakes, while W avoided them, for example:

|         |                  |            |
|---------|------------------|------------|
| F       | H                | W          |
| assult  | assult (twice)   | assault    |
| assullt | assulted (twice) |            |
| carring | carring (twice)  | carrying   |
| thier   | thier            | their      |
| treat   | treat (twice)    | threatened |
|         | treaten          |            |

F and H also had difficulty with derived forms of *sex*, whereas W coped successfully, for example, F: 'sex's remarks' (for 'sexist'); H: 'sex intercourse' (for 'sexual'); and W: 'sexually molest'. Again, F and W conflicted in the spelling of some words which did not occur in H:

|                      |                  |
|----------------------|------------------|
| F                    | W                |
| ect (twice)          | etc              |
| Ughily (three times) | ugly (six times) |

This series offered additional, separate confirmation that the writers F and W differed in spelling practice. 'Ugly' was particularly convincing as it could not be attributed to a typing error.

## 1.2 *Capitals with common nouns*

H showed a strong tendency to spell a common noun with a capital where normal practice expects a small letter. The practice was less frequent in F, though the number of instances in this letter might be reduced because it was typewritten.<sup>2</sup> W very rarely committed this fault. There were some interesting contrasts:

|           |           |           |
|-----------|-----------|-----------|
| F         | H         | W         |
| Mother    | Mother    | mother    |
| Old       | Old       | old       |
| Solicitor | Solicitor | solicitor |
| You       | You       | you       |

As well, F and H were inconsistent in their behaviour here. *Mother*, *old*, and *you*, etc., were sometimes spelt with a capital and sometimes with a small letter. W maintained a consistency.

## 1.3 *Small letters with proper nouns*<sup>3</sup>

The farewell letter (F) was inconsistent in its practice of spelling proper nouns. It has such pairs as:

|        |        |       |      |        |
|--------|--------|-------|------|--------|
| Billy; | Henry; | Olga; | Pam; | Vicki; |
| billy; | henry; | olga; | pam; | vicki  |

It also has 'jim' (four times) but 'Don', 'Fred', 'Ian'. H has a similar inconsistency with such pairs as:

<sup>2</sup>Less proficient typists often forget to press the capital key.

<sup>3</sup>Names have been changed.

|        |      |       |       |
|--------|------|-------|-------|
| Chris; | God; | Joan; | Tommy |
| chris; | god; | joan; | tom   |

It also has 'pam' (twice) but 'Don', 'Vicki', and 'green' but 'Valley'. W did not show this trait, always spelling proper names used as nouns with a capital. There was one instance of a small letter in place of an expected capital, but then the item was being used as a modifier: 'the irish joke' (W14.4).<sup>4</sup>

### 1.4 *Intrusive apostrophe*

In both F and H there were several occurrences of an apostrophe in noun, pronoun and verb endings where it is not normally required, for example:

|                     |                         |
|---------------------|-------------------------|
| F                   | H                       |
| (making me) offer's | (the poor little) kid's |
| (beautiful) baby's  | (my) trouble's          |
| (it) hurt's         | (kids) saving's         |
| (he) put's          | (the only) one's        |
| (he) want's         | he's (fault)            |
| wors't              | (of) her's              |
| wor'st              |                         |

There were no instances of this intrusive apostrophe in W. In quoting her husband, the wife inserted an apostrophe in the nonstandard *you's*, but this could be rather a recognition of the irregularity of the form, just as many write 'the 3 R's'. The apostrophe here is certainly not of the same type as the intrusive ones found in F and H.

## 2. GRAMMATICAL MORPHOLOGY <sup>5</sup>

### 2.1 *The verb: present tense inflexion*

Both F and H were erratic in the use of the *s* inflexion in the environment of the third person present singular, and there were several instances of omissions. There were none in W. The facts were:

|      |                   |   |
|------|-------------------|---|
| F    | H                 | W |
| -    | believe           | - |
| get  | -                 | - |
| -    | give              | - |
| keep | -                 | - |
| -    | think             | - |
| want | want (four times) | - |

### 2.2 *The verb: past tense forms*

There were many instances of the use of the regular weak past tense ending in '-ed', in all three sets of documents. In F and H, however, it was also often omitted. There were some seven instances in F, and in H thirty-seven failures to attach the inflexion. Parallel examples are:

F 6.4 He would get upset with them because they *believe* me.  
 H 6.11 I never really never *believe* her.

<sup>4</sup>The numbers indicate page and line references. This example occurred on line 4 of page 14 of the wife's material.

<sup>5</sup>The last item (1.4) under 'Spelling' also has connexions with grammar, for it relates to the spelling of grammatical endings or inflexions.

F 6.2 He *threaten* me.

H 12.6 She had knife and *threaten* during argument.

W was quite accurate in the use of this inflexion. With verbs which indicate the past tense through internal changes rather than the addition of an inflexion, F and H showed a similar fluctuation in practice, choosing nonstandard forms as frequently as standard ones:

| F                 | H           |
|-------------------|-------------|
| come (1 out of 3) | come (2/6)  |
| done (2/2)        | done (2/3)  |
| -                 | keep (1/1)  |
| seen (1/2)        | seen (5/7)  |
| -                 | sware (1/1) |

That is, F and H used the nonstandard forms more frequently than the standard.

In W, there were only two instances of nonstandard forms: *come* and *swang*. Both occur only once each, and the one instance of 'come' has to be set against fourteen occurrences of the standard form 'came', and *swang* is matched by one occurrence of 'swung'. That is, the non-standard forms must be regarded as random instances in W, a possible slip or error, whereas they have a more regular status in F and H. In the expression of the past tense, then, F and H had a strong nonstandard component both in regular and irregular verbs, whereas W was definitely standard, with only two nonstandard occurrences and those in irregular verbs.

### 3. SYNTAX

#### 3.1 *Sentence structure*

In F many independent sentences were not clearly separated. Instead they were run together without any marking of their division with a full stop and a capital letter, for example, 'since his accident at work he's slowed down before that he wanted it everynight always woke up with a horn everymorning ready to go for it again' (F 3.13-15). A full stop would have been in order after 'down', and 'before' should have begun with a capital letter. A similar arrangement might have applied after 'everynight'.

Alternatively, a comma was found inserted in place of the required full stop, for example, 'Alan look after helen, when she has the baby, look after it be proud of it like I am of you, never bad talk or run it down' (F 1.14-15). A full stop, for example, would have been in place after 'helen', with 'when' being spelt with a capital letter.

The same weakness in sentence control characterized H, but did not appear in W. The total numbers of errors in sentence-division were: F (80), H (142), and W (4). The correlation between F and H is positive enough to point to a close similarity in linguistic practice. The correlation between F and W on the other hand appears quite negative.

In this part of the investigation two criteria were used to establish the division between sentences: the presence of a full stop at the end of one and the presence of a capital letter at the beginning of the next. I have left out of consideration those instances in which the writers failed to insert a full stop but commenced a segment, which was legitimately a fresh sentence, with a capital letter. It seemed reasonable to regard the capital letter as sufficient recognition of sentence division; for example, 'he would keep saying he wanted to go to Noosa Heads, just because you were there I was suppose to keep dropping my pants till he decided to take me, when tommy . . .' (F 2. 2-3); and 'the Oldman will look after the children He loves you very much' (F 6. 27). The details of such instances, with absence of stop but with presence of capital, were: F (6), H (44), and W (19).

The reasonable exclusion of these figures did not in any way affect the conclusion reached on control of sentence structure. Even if they had been included in the earlier totals, they would not have materially altered the strong correlation between F and H, and the distinction between them on the one hand, and W on the other.<sup>6</sup>

### 3.2 *Disrupted structures*

In the farewell letter (F) there are nine instances of what might be termed disrupted structures, that is, sentences in which a structural element had been omitted. Six of these involved the word 'to': 'got you . . . paint' (F 2.28); 'whether . . . start' (F 4.1); and 'try . . . help' (F 6.28). One involves the omission of 'of': 'hundreds . . . dollars' (F 2.18).

There is nothing difficult about the types of structures involved in these examples. On the contrary they are straightforward and fairly frequent. Moreover, the words 'of' and 'to' are simple and well-known. Their use is almost automatic, and their absence could not be attributed to some stylistic intricacy in the pattern. Their relatively small number might lead to them being regarded as slips.

The same disrupted patterns, however, occurred in the husband's writing (H), though with greater frequency. There were forty-seven instances of the pattern with 'to' missing, and fourteen of those with 'of' missing.<sup>7</sup>

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<sup>6</sup>The handwriting of the wife was rather light in touch, and sometimes it was difficult to tell whether she had made a full-stop. Only those instances where there was definite evidence of a full-stop were counted. All others were regarded as absence of full-stop in the calculations.

<sup>7</sup>The husband used the accepted patterns containing 'to' and 'of'. There were fewer instances of the disrupted patterns (eleven and two respectively) in the letter to his mother, which was more in the form of a connected piece, than in the answers to the questionnaire.

## 4. PUNCTUATION<sup>8</sup>

### 4.1 *Comma: omission at end of clauses*

In F the practice of inserting a comma between clauses within sentences was not always followed, for example, 'Ian Henry to halfdrunk knocking at your door at all hours of the night trying to climb on top of you, telling me how beautiful I was wants his daughter to look . . .' (F 2. 10-11). A comma would have been in order both after 'night' and after 'was'. H exhibited the same type of omission but to a considerably greater degree, but this feature was almost absent in W. The details were: F (20), H (62), and W (5). For the document to share the feature in equal strength, taking F as the base, the figures should have read: F (20), H (29), and W (26). F and H clearly had much more in common than either of them had with W.

### 4.2 *Comma: omission in series*

A comma between items in a series was regularly omitted in F; for example, 'Meg Ruth Barbara Myself and others' (F 2.23). The same sort of omission occurred in H. Moreover, the proportion of occurrences in F and H was the same. The feature never occurred in W. The details were: F (14), H (22), and W (0).

### 4.3 *Quotation marks*

W generally used quotation marks as required. Sometimes the wife omitted the quotation marks either at the beginning or at the end of the quotation, but only rarely did she omit them altogether. F and H, however, never made use of them, although in F there was only one opportunity to do so. The details were:

|                | F | H  | W  |
|----------------|---|----|----|
| Both sets used | 0 | 0  | 30 |
| One set used   | 0 | 0  | 25 |
| Omitted        | 1 | 11 | 9  |

H and W, in particular, stood in marked contrast here.

### 4.4 *Asides*

There were three occasions in which asides were indicated by the use of brackets or dashes in F. One was: 'he would run out and buy something to try to get me to love him, (poor old fool)' (F 6. 14). On the other hand, there were twelve occasions in which the asides were not marked. On three other occasions commas were used in place of brackets or dashes. On four other occasions brackets were used incorrectly. H also failed to signal asides appropriately on twelve occasions. W, however, was always accurate in this area.

### 4.5 *Full-stops: influence on spelling*

Punctuation has an influence on spelling inasmuch as a full-stop at the end of one sentence leads to the word beginning the next sentence being spelt with a capital

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<sup>8</sup>Punctuation as it has connexions with sentence structure in the form of full-stops and the substitution of commas for full-stops has already been discussed in section 3.1.

letter, even though elsewhere that word would be spelt with a small letter. In F there were fifty-eight instances of a full-stop, leading to the expectation of fifty-eight capitals. On fifteen occasions a small letter appeared instead; for example, 'and what I have to offer them. you my babe . . .' (F 3. 5). In H there were seventy-one full-stops; twenty-two of them were followed by a small letter. In W in all 225 occasions where a full-stop occurred at the end of a sentence, the opening word of the next sentence began with a capital letter. The details were: F (15), H (23), and W(0). The accuracy of W in this matter is as significant, when compared with F and H, as the fairly high correlation between F and H.

## 5. CORRESPONDENCE IN CONTENT

There was a noticeable correspondence in detail between the farewell letter and the husband's letter to his mother in set H. The shared items of information included:

|   |            |        |
|---|------------|--------|
| a) Amounts of money taken and goods sold        | F 2, 4, 5, | H 3, 9 |
| b) Claims of wife to be young and good looking  | F 3, 4     | H 6    |
| c) Desire of wife for other activities          | F 4, 6     | H 2    |
| d) Husband's attention to house                 | F 5        | H 2    |
| e) Details of building materials and operations | F 5        | H 8    |
| f) Husband's willingness for wife's return      | F 4        | H 4    |
| g) Inability of husband to do heavy work        | F 3        | H 5-6  |
| h) Repair of truck                              | F 3        | H 5    |
| i) Existence of other man                       | F 5        | H 9    |

This correspondence in detail was paralleled by correspondences in expression, in particular:

- j) F 5.16 the oldman can *stick the house up his arse*  
H 1.18-19 . . . *stick the house in my arse*
- k) F 5.17 house *bricks* hammering and *digging shits* me to death  
H 8.4 I also by junk for the house *shit* the yard up with it . . . you and your *brick steel wood heap of shit* . . . *digging* trenches concreting

This list shows that there was considerable overlap between F and H, which reached into individual items of expression. As the wife did not discuss such matters in her document, we cannot say what items of information she would select or how she would express them. The comparison undertaken in this section, then, served only to show a link between F and H. It remained neutral on whether or not there would be a similar link between F and W or H and W.

On the other hand, there was a conflict between implicit and explicit attitudes in F and W. In W there was the explicit indication on the part of the mother of modesty with her children: 'He pulled my pants down in front of my son. I

managed to turn my back to him in time and he saw my buttocks' (W 21.7-10). This clashed with the implicit openness of attitude revealed by such descriptions written for the children as: 'trying rub his prick all over you' (F 2.13). Such considerations as raised in this section, however, do not have the same solidity as the objective facts described in sections 1-4. They act more by way of corroboration and confirmation of other evidence.

### **Findings**

There were many significant differences between the language of the farewell letter and the language of the wife's documents. These had nothing to do with extraneous matters, such as variation in subject-matter or in level of formality, but reflected instead a marked divergence in underlying linguistic practice. The clear conclusion on the basis of this evidence was that the wife — the author of the documents labelled W — was not the author of the farewell letter.

On the other hand, there were many strong similarities between the language of the farewell letter and the language of the letter and questionnaire composed by the husband. The high correlation between the two indicated a strong probability that the husband was the author of the farewell letter. There was definitely nothing in F that would be inconsistent with his normal linguistic practice. On the contrary the large degree of comparability pointed in his direction.

Equally to the point, it was not possible to find a feature in which F and W agreed to the exclusion of H. Where F and W agreed, for example in the order of subject and predicator or the forms of personal pronouns, so also did H. It was only F and H that matched up to the exclusion of W. Indeed, the style of writing in W stood apart quite dramatically from that of F and H, mainly because of the good control of sentence structure. The sentences in W were well constructed and properly delimited. Even when the wife was presenting notes, and so used truncated sentences, she observed the normal conventions for sentence construction. In addition to this feature, which has already been commented on in section 3.1, there were such other niceties unique to W as:

- a) The marking of a special word with inverted commas, *e.g.*, 'He "rasberried" in my face' (W 12. 22) and 'snarling' (W 14. 12).
- b) Varied sentence openings, *e.g.*, 'Upon arriving home my husband . . .' (W 16. 5).
- c) The exploitations of a wide range of punctuation marks. Not only did W have the full-stop and question-mark, but it alone employed the exclamation mark and quotation marks.

Not only did W not share many features with F and H, it was uniquely different from them in others. The following chart summarizes the findings of the linguistic investigation at points of significant comparison between F and W, and F and H.

SUMMARY OF COMPARISON OF THREE SETS OF DOCUMENTS<sup>9</sup>

|                                     | F | H | W |
|-------------------------------------|---|---|---|
| 1. SPELLING                         |   |   |   |
| 1.1 Errors in individual words      | + | + | - |
| 1.2 Capitals with common nouns      | + | + | - |
| 1.3 Small letters with proper nouns | + | + | - |
| 1.4 Intrusive apostrophe            | + | + | - |
| 2. GRAMMATICAL MORPHOLOGY           |   |   |   |
| 2.1 The verb: present tense         | + | + | - |
| 2.2 The verb: past tense            | + | + | - |
| 3. SYNTAX                           |   |   |   |
| 3.1 Sentence structure              | + | + | - |
| 3.2 Disrupted structures            | + | + | - |
| 4. PUNCTUATION                      |   |   |   |
| 4.1 Comma: with clauses             | + | + | - |
| 4.2 Comma: in series                | + | + | - |
| 4.3 Quotation marks                 | ? | + | - |
| 4.4 Asides                          | + | + | - |
| 4.5 Capitals after full-stops       | + | + | - |

This chart demonstrates clearly that the language of the farewell letter was inconsistent with the language of the wife and that it was not reasonable to consider her as its author. The chart also forcefully demonstrates that if only one of two persons was the writer of the farewell letter, then on the basis of the evidence coming from the investigation of the language it was legitimate to conclude that the author of the documents (H) was also the author of the farewell letter. It would be invalid to deny the high probability of this fact.

***Postscript***

The husband pleaded his innocence at the committal proceedings and continued to affirm that the wife had written F. The linguistic evidence was subject to extensive cross-examination. After being committed for trial, the husband changed his plea to one of manslaughter for which he was subsequently found guilty. And he admitted to writing the farewell letter (F)!

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<sup>9</sup>Section 5, 'Correspondence in Content', though in harmony with the above findings, has been excluded. Additional linguistic features could have been included, but they were illustrated less richly in the material. + = possession of shared features in stated item; - = non-possession of shared features.