Lars Lindvall, Göteborg University

1. Introduction

When I was invited to be one of the contributors at the seminar given in honour of Karin Aijmer on her retirement from the chair of English linguistics at Göteborg University, I happened to be reading an English detective novel by Robert Goddard (*Sight unseen*, 2005) in which a well-known problem of disputed authorship is an important element of the story. One of the main characters has a background as a post-graduate student of History at Oxford University where he was once engaged in research concerning the *Junius Letters*, which have intrigued many scholars trying to solve the problem of text attribution. In the novel we are given a new attribution which is, no doubt, unexpected and unacceptable to historians without, however, making the novel less exciting to read. On page 156, we can read the following lines about the authorship of the letters signed by "Junius":

Modern historians had settled on Philip Francis. His opinions, his character and his whereabouts fitted Junius like a glove. A computer-aided stylo-statistical analysis had also fingered him as a habitual user of Junian phrases and constructions. His youth and his junior station contributed for little in the face of that. Case closed.

When I read this I thought that it was possible, even probable, that the "computer-aided stylo-statistical analysis" mentioned refers to two scholarly works on the *Junius Letters* written by Alvar Ellegård (1962a, 1962b). He was, once upon a time, my professor of English and he is one of Karin Aijmer's predecessors as chair professor of English linguistics at Göteborg University.

Other scholars at the same university who later published important studies on problems of text attribution in different languages (English, Icelandic and Swedish) were Peter Hallberg (1968), Jan Svartvik (1968), Ture Johannisson (1973) and Göran Kjellmer (1975). Inspired by these scholars, I wanted to try my hand at this kind of research and started looking for some unsolved problems of text attribution in medieval

French literature. By then I had moved into the field of Romance languages, where I hoped to find interesting constellations of texts and challenging problems of disputed authorship.

One such interesting case concerns the texts attributed to Jean Renart (between 1170/1180 and 1240/1250). He has "signed" a short verse romance called Le Lai de l'Ombre and, on the basis of formal and thematic similarities, several scholars want to attribute the anonymous, and much longer, romances Guillaume de Dole and Le Roman de l'Escoufle to him. Some have also identified him as the author of a text known as Galeran de Bretagne. If we, by means of a suitable sampling method, examine variables such as sentence length (the number of words per sentence as a syntactic unit) and the use of coordination and subordination in all these texts, we can determine quantitatively how the examined texts relate to each other (see Lindvall 1982). We then find that Galeran de Bretagne very clearly separates itself from the other three texts with which it has been associated. Of course, these results do not mean that a solution to this particular problem of authorship has been found. It is, however, quite obvious that one cannot invoke any really decisive syntactic similarity between Galeran de Bretagne and the other texts – there is just no such close grammatical similarity between them.

In order to test the reliability of the method, I wanted to measure variations between texts belonging to the same œuvre (within the same genre and from the same period). There are scholars who attribute to Chrestien de Troyes (c. 1135-c. 1190), the greatest poet in French courtly epic literature, recognised as the author of *Érec et Énide*, *Cligès*, Yvain, Lancelot and Perceval, a rather mediocre text called Guillaume d'Angleterre. What results can the method applied yield in this particular case of disputed authorship? We find that this text differs quite clearly from the other texts but also, with some unease and, at the same time with some excitement, that Érec et Énide to a much larger degree deviates from the others (See Lindvall 1981). Can we then regard the method as so reliable that we can claim that Chrestien cannot be the author of Érec et Énide? Such a drastic conclusion would be hasty and uncertain but we should recall that *Érec et Énide* has a manuscript history different from the other texts attributed to Chrestien and that it also differs thematically from the others. In such a situation many scholars might be inclined to speak of an early text conceived and written before the poet's

later, mature literary works. That may, of course, be the case but such a general assessment cannot always be convincing.

2. Baudouin de Condé and Jean de Condé – father and son

There is one special situation that can offer interesting possibilities to test the usefulness and reliability of our method. We look for a case featuring two authors with known identities who were contemporaries, living socially and culturally in the closest proximity possible to each other. If these two authors and their texts can be shown to differ from each other on a microstylistic syntactic level by means of the same quantitative method, we will be in a position to interpret with greater confidence results indicating similarities and/or differences also in other constellations of texts.

The texts chosen for comparative study here are not among the most memorable in French literature from the Middle Ages. A poet called Baudouin de Condé (c. 1230 – c. 1290), who was (re)discovered as late as the 19th century, was believed to be the sole author of a collection of poems conserved in the same manuscript. It was later found that there were in fact two authors, who happened to be father and son, to be considered – in one place in the manuscript it says: "Ci finent li dit Baudouin de Condeit et commencent li Jehan son fil" ('This is where Baudouin's poems end and his son Jean's begin'). It is believed that Jean de Condé lived between c. 1280 and c. 1345. When Baudouin's and Jean's poems were published in 1866-67, the editor (Auguste Scheler) wrote, almost apologetically, in his preface:

Il (sc. Scheler) reconnaît volontiers que les produits de la muse de Baudouin de Condé, ainsi que ceux de son fils Jean [...] sont tout aussi peu propres à jeter quelque lumière nouvelle sur des problèmes de science littéraire, historique ou archéologique, qu'à procurer des jouissances intimes par la beauté harmonieuse et l'élégance de la forme, ou par l'originalité des conceptions qu'ils expriment. On irait, en effet, vainement chercher dans les compositions que nous publions, une grande inspiration poétique, des pensées fines, délicates ou profondes, une parole entraînante de verve ou séduisante par la suavité et la grâce de l'expression, une expansion riche, naïve et simple de sentiments élevés. – Il suffit, pour fixer le rang littéraire de notre poëte, de rappeler qu'il appartient à cette période de la décadence de la poésie française que l'on appelle l'époque des moralités, des allégories, de la prédication poétique, et que, malgré les estimables qualités que ses compositions

nous découvrent en ce qui concerne son caractère personnel, sa muse est empreinte des vices et des travers qui marquent cette époque (Pp. V-VI).

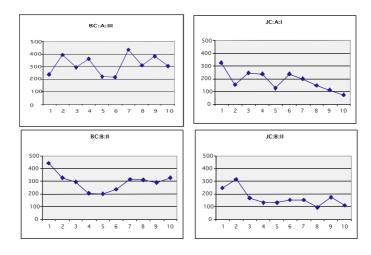
Father and son both wrote didactic, aesthetically unremarkable and seldom original poems. Their shortcomings are to a large extent due to the constraints and demands of the genre and, no doubt, also to the functions that the two poets had as *protégés* of Flemish nobles (in today's Belgium). As Swedes we are, indirectly, indebted to Baudouin since he was the first to give a literary form to the motif of the three living who meet the three dead (a memento mori) which was later elaborated to become the *danse macabre* in literature and art – "Li Dis des Trois Mors et des Trois Vis" (n° XVII). The motif can be seen in Francesco Traini's mural painting in the old church-yard in Pisa. The Swedish poet Gunnar Ekelöf probably saw it there and drew inspiration from it for his poem "Trionfo della Morte" in the volume *Strountes* (1955).

Any reader of Baudouin's poems will soon find that they are very often difficult to penetrate. Their general content is perhaps not difficult to understand but their grammatical structures are a challenge, and the lack of grammatical regularity and clarity is not compensated for by literary qualities. The difficulties in reading Baudouin are sometimes so great that we cannot always analyse with certainty the grammar underlying his poems. To some extent, these problems have consequences for the method that has been used here but they do not seriously undermine its usefulness for a general description of the sentence structures which are characteristic of Baudouin's texts. Our method allows us to show systematic differences between two quite different syntactic and stylistic registers, that of the father and that of the son.

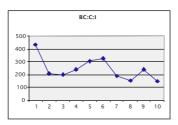
Of course, an analysis of sentence length cannot always yield data useful for the study of similarities and/or differences between texts but, in a case such as ours, the variable is interesting since the form of the examined texts is determined by a given metrical pattern. We can also study sentence length in co-variation with syntactic factors such as coordination and subordination, factors which, in isolation or in combination with each other, we know influence the syntactic structure of sentences.

If we compare the sentence lengths in three samples from Baudouin's texts (BC), each containing 10 x 10 sentences, with three equal samples from Jean's poems (JC), the differences between the registers of

the two poets can be illustrated in diagrams as in Fig. 1. We find that variations between subsamples containing 10 sentences can be considerable within the same sample. In BC:A:III the values vary between 200 and 400 words per subsample. The variations within the samples BC:B:II and BC:C:I are also great (data from all subsamples and samples cannot, for reasons of space, be given here). In the three samples representing Baudouin's poetry there are thus rather high values for the average sentence length. If, then, we choose three samples representing the poetry of Jean de Condé, we find that there are differences between the subsamples but it is evident that the samples have lower average values than in the case of Baudouin. In isolated cases only, in subsamples JC:A:I:1 and JC:B:II:2, the values are higher than 300 words per subsample. Most subsamples in these three samples from Jean's texts have values lower than 200 words which gives a much lower average sentence length than is the case in the texts written by his father.



Lars Lindvall



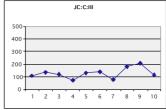


Fig. 1. Sentence length in subsamples (10 sentences) representing BC and JC

Comparisons between samples containing 100 sentences (A:I-III, B:I-III and C:I-III) show that variations become less dramatic. This is evident in the case of Baudouin's texts (Fig. 2a) – the samples tend to contain between 2000 and 3000 words. Between samples representing Jean's texts (Fig. 2b) there is some variation but the number of words per sample is only occasionally lower or higher than 1500 words.

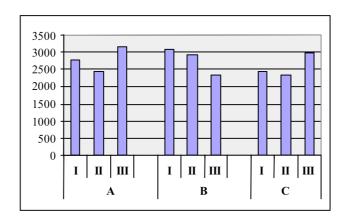


Fig. 2a. Sentence length in samples (100 sentences) representing BC

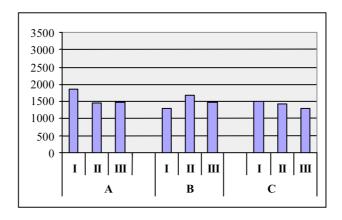


Fig. 2b. Sentence length in samples (100 sentences) representing JC

Thus, differences in average sentence length tend to level out if the samples contain 100 sentences. The differences between the two poets, Baudouin and Jean de Condé, become quite obvious if we let them produce a hundred sentences each in the metrical form they had to adapt to (octosyllabic rhymed couplets). If we compare three larger samples (each containing 3 x 300 sentences) which represent Baudouin's poetry with corresponding samples representing Jean's poems we find that variations between the samples are nowhere greater than the differences between father and son (see Fig. 3). Baudouin's average sentence length always exceeds the average sentence length in the corresponding samples by his son Jean. This, of course, does not mean that one of them is a better poet than the other. However, it does show that they construct their sentences very differently within the same metrical form. Thus, our comparative analysis sheds light on some of the syntactic and stylistic properties that explain why Jean de Condé is much easier to read than his father Baudouin.

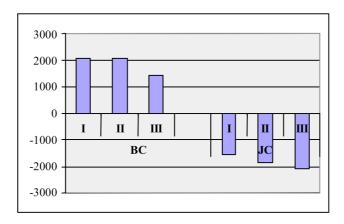


Fig. 3. Sentence length in samples (300 sentences) representing BC and JC

3.1 Ovide moralisé

In a long poem, known as *Ovide moralisé*, from the first half of the 14th century, an anonymous medieval poet has interpreted Ovid's metamorphoses in accordance with the literary and theological ideas of his time (Ovid was the most widely read and commented Roman poet in the Middle Ages). The anonymous French poet translated Ovid's metamorphoses and then wrote lengthy allegorical and moralising explanations in order to interpret them in Christian terms.

What interests us here is the thematically complex character of the text: we wish to use our method in the analysis of a literary text in which there are two different registers and we want to know whether the two types of text have different underlying grammatical structures. For special reasons the samples in this case study contain 4 x 400 sentences representing each type of text. The translations of Ovid's stories are designated T-text and the samples from the allegories are designated A-text.

The poem has the same metrical form as Baudouin and Jean de Condé's poetry (octosyllabic rhymed couplets). Consequently, sentence length may prove to be a distinguishing property of the text. The whole

poem may have the same metrical form but the creative process has not been the same throughout the text. We suppose that the translations of Ovid's metamorphoses can be shown to differ syntactically from the allegorical and moralising explanations and interpretations that the poet has written himself without being directly dependent on or influenced by a given source text.

When we analyse samples from T-text and samples from A-text we find great variations as to sentence length within each type of text. A comparison between the samples representing T-text on the level where they contain 100 sentences shows clear differences. Between larger samples (400 sentences) of T-text there are still variations. The same observations can be made for A-text but if we compare the average sentence length in T-text with the average length of sentences in A-text we find a clear difference: the variations between samples representing T-text are nowhere greater than the differences we find between T-text and A-text. Despite the variations that are found between subsamples and samples, T-text is consistently characterised by much shorter sentences than A-text. In what follows I shall try to relate these observations to differences in the use of subordinators.

There happens to be one subsample (10 sentences) which is unique in the sense that it contains no coordinated or subordinated clauses – the index of complexity for this particular subsample is consequently zero. It occurs in A-text (Livre XIV, vv. 5329-5351) and is reproduced here since it also offers an example of the repetitive and often colourless style characteristic of the allegories in *Ovide moralisé* (finite verbs are here printed in italics):

Une hore est temps de transplanter, de faire hantes et planter. (1)

En temps *doit* 1'on mouller ces hantes et arrouser ces joennes plantes. (2)

En temps se *doit* l'on traveillier or de fouïr, or de taïller. (3)

En temps fet l'en ces cortillages, ces gaains et ces gaaignages. (4)

En temps redoit on aëschier ces ameçons pour peëschier. (5)

En temps *maine* on l'iaue as augeres por faire arrouser ces praieres. (6)

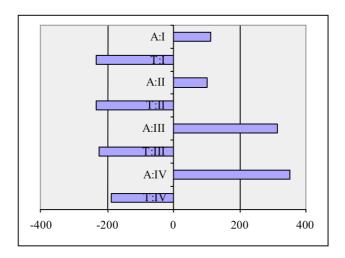
En temps se *redoit* l'on pener or de fauchier, or de fener, or de fains fenez amasser, de l'estoier et d'entasser. (7)

En temps doit l'en cueillir et batre les blez. (8)

En temps *doit* l'en abatre les nois, et les pomes cueillir, et ces autres fruits concueillir et garder en temps por mengier. (9)

En temps redoit l'en vendengier et les vins faire et entoner. (10)

The differences in sentence length between T-text and A-text are accompanied by differences in frequencies of subordinated clauses. There is a much higher degree of complexity in A-text, which can in part be explained by the syntactic role played by subordination in the grammatical structures which characterise the allegorical parts of *Ovide moralisé* (see Fig. 4).



 $Fig.\ 4.\ Sentence\ length\ in\ samples\ (400\ sentences)\ representing\ A\text{-text}\ and\ T\text{-text}.$

We then ask ourselves whether it is possible to go further in the analysis of subordination. Our data show quite clearly that the presence of subordinators is more evident in A-text than in T-text. If we wish to try to ascertain how various types of subordinators are used in *Ovid moralisé*, we must analyse a number of subordinators found in T-text and an equal number found in A-text.

For this purpose I established four subsamples for T-text and four for A-text with 100 subordinators in each. Thus, we can analyse altogether 8 x 100 subordinators, 4×100 for T-text and the same number for A-text. There are 133 subclauses which belong to what will be presented as the

first category (clauses introduced by que 'that' in its various meanings). If we apply a simple method which lets us measure variations in relation to a mean (see Table 1), we find that differences between the subsamples are so small that they are difficult to evaluate and we can conclude that 100 occurrences do not suffice to prove the reliability of this method. If we analyse discrepancies between subsamples comprising 200 subordinators, we find more tangible and tractable results. On this statistical level we can see more clearly that there are more occurrences for this category in T-text than in A-text (+2 and +16 versus -6 and -11), but the differences are still rather small. If, however, we move to the next level, where we count 300 occurrences, we get a clearer picture. The discrepancies are +15 for T-text and -15 for A-text allowing us to more confidently keep the text types apart (see Table 1). This observation is further reinforced on the highest level of 400 occurrences (see Table 2), which means that there is a critical limit somewhere between 300 and 400 occurrences – that is where the samples are large enough that we can be confident that they have the required representativity.

Table 1. Frequencies of subordinators in samples (400 sentences) representing T-text and A-text.

| Cat. 1 | T:I | T:II | T:III | T:IV | A:I | A:II | A:III | A:III | Sum | Mean |
|----------|---------|----------|--------|----------|-----|------|-------|-------|-----|------|
| Sum | 15 | 20 | 29 | 20 | 17 | 10 | 7 | 15 | 133 | 17 |
| Sum-Mean | 2 | 3 | 12 | 3 | 0 | -7 | -10 | -2 | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| Cat. 1 | T:I-II | T:III-IV | A:I-II | A:III-IV | | | | | Sum | Mean |
| Sum | 35 | 49 | 27 | 22 | | | | | 133 | 33 |
| Sum-Mean | 2 | 16 | -6 | -11 | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| Cat. 1 | T:I-III | A:I-III | | | | | | | Sum | Mean |
| Sum | 64 | 34 | | | | | | | 98 | 49 |
| Sum-Mean | 15 | -15 | | | | | | | | |

Lars Lindvall

Table 2 shows the results for the seven different categories of subordinators on the level where the samples contain 400 occurrences for both T-text and A-text. In T-text there is a larger number of clauses introduced by *que* (Category 1) and clauses introduced by *se* 'if' (Category 2). The differences between T-text and A-text are small in the case of Category 3 (clauses introduced by subordinators consisting of adverb + *que*) and Category 4 (comparative and other clauses introduced by *come*, *coment* 'as', 'how', etc.) and for Category 5 (clauses introduced by *quant* 'when') the difference is insignificant. In Category 6 (consecutive clauses) there is no difference at all. However, as to Category 7 (relative and interrogative clauses), T-text differs quite significantly from A-text.

Table 2. Frequencies of subordinators in T-text and A-text

| Cat.1 | T:I-IV | A:I-IV | Sum | Mean |
|----------|--------|--------|-----|------|
| Sum | 84 | 49 | 133 | 67 |
| Sum-Mean | 17 | -18 | | |
| | | | | |
| Cat. 2 | 42 | 20 | 62 | 31 |
| Sum-Mean | 11 | -11 | | |
| | | | | |
| Cat. 3 | 24 | 17 | 41 | 21 |
| Sum-Mean | 3 | -4 | | |
| | | | | |
| Cat. 4 | 27 | 22 | 49 | 25 |
| Sum-Mean | 2 | -3 | | |
| | | | | |
| Cat. 5 | 34 | 32 | 66 | 33 |
| Sum-Mean | 1 | -1 | | |
| | | | | |
| Cat. 6 | 24 | 24 | 48 | 24 |
| Sum-Mean | 0 | 0 | | |
| | | | | |
| Cat. 7 | 165 | 236 | 401 | 200 |
| Sum-Mean | -35 | 36 | | |
| | | | | |

The high frequencies for relative and interrogative clauses, in combination with relatively low frequencies for *que*-clauses and *se*-clauses, distinguish the allegorical parts of *Ovide moralisé* from those parts that are translations of Ovid's Latin metamorphoses.

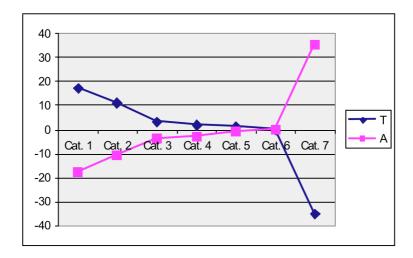


Fig. 5. Differences between frequencies of subordinators in T-text and A-text.

4. Conclusion

The method described and applied in this paper has some inherent limitations. One condition that determines its usefulness is the metrical form of the examined texts. Sentence length (number of words per sentence as a syntactic unit) proves to be a distinguishing variable since the authors have been obliged to construct their sentences within the limits determined by the metre (octosyllabic rhymed couplets). However, even with its limitation the method allows us to find clear differences between texts written by different authors, as in the case of Baudouin de Condé and his son Jean de Condé, but also within a text with only one author – the voluminous medieval poem known as *Ovide moralisé*. In this particular text there are two thematically different registers, translations of Ovid's metamorphoses followed by allegorical Christian explanations and interpretations of the Roman poet's stories. The differences between successive parts of the text can be made visible, not only regarding sentence length, but also in the frequency and typology of subordinators. The

method used can thus help us to measure degrees of similarity between French medieval texts with the same metrical form, and which belong to the same genre and period.

Bibliography

Examined literary texts:

Dits et Contes de Baudouin de Condé et de son fils Jean de Condé publiés d'après les manuscrits de Bruxelles, Turin, Rome, Paris et Vienne et accompagnés de variantes et de notes explicatives par Aug. Scheler, t. I-III. Bruxelles: Victor Devaux et Cie, 1866-1867.

Ovide moralisé. Poème du commencement du quatorzième siècle publié d'après tous les manuscrits connus par C. de Boer, t. I-V. Verhandelingen der Koninklijke Akademie van Wetenschappen te Amsterdam. Afdeeling Letterkunde. Nieuwe Reeks. Deel XV, XXI, XXX:3, XXXVII, XLIII. Amsterdam: Johannes Müller, 1915, 1920; Amsterdam: Uitgave van de N. V. Noord-Hollandsche Uitgeversmaat-schappij, 1931, 1936, 1938.

References

- Ellegård, Alvar. 1962a. Who was Junius?. Stockholm: Almqvist & Wiksell.
- Ellegård, Alvar. 1962b. *A Statistical method for determining authorship: the Junius Letters, 1769-1772.* Göteborg: Acta Universitatis Gothoburgensis. Gothenburg Studies in English 13.
- Goddard, Robert. 2005. Sight unseen. London: Corgi Books.
- Hallberg, Peter. 1968. *Stilsignalement och författarskap i norrön sagalitteratur. Synpunkter och exempel.* Göteborg: Acta Universitatis Gothoburgensis. Nordistica Gothoburgensia 3.
- Johannisson, Ture. 1973. *Ett språkligt signalement*. Göteborg: Acta Universitatis Gothoburgensis. Nordistica Gothoburgensia 6.
- Johannisson, Ture (ed.). 1983. Språkliga signalement. Om författarbestämningar. Med bidrag av Jan Svartvik, Alvar Ellegård, Göran

- Kjellmer, Lars Lindvall, Peter Hallberg, Ture Johannisson. Stockholm: Akademiförlaget.
- Kjellmer, Göran. 1975. *Did the "Pearl Poet" write* Pearl? Göteborg: Acta Universitatis Gothoburgensis. Gothenburg Studies in English 30.
- Lindvall, Lars. 1981. "Structures syntaxiques et structures stylistiques", in: *Romania*, t. 102, pp. 456-500.
- Lindvall, Lars. 1982. Jean Renart et Galeran de Bretagne. Étude sur un problème d'attribution de textes. Structures syntaxiques et structures stylistiques dans quelques romans d'aventures français. Data linguistica 15. Stockholm: Almqvist & Wiksell International.
- Lindvall, Lars. 1985. "Meningskonturer som stilsignalement", in: *Lunda-forskare föreläser* 17, pp. 44-53. Lunds universitet: CWK Gleerup.
- Svartvik, Jan. 1968. *The Evans statements: A case for forensic linguistics*. Göteborg: Acta Universitatis Gothoburgensis. Gothen-burg Studies in English 20.