THE EFFECTS OF GENRE ON THE VALUE OF WORDS: DIDACTIC POETRY VERSUS SATIRE

In the present study a Swedish method for readability testing originally designed for teaching purposes is used for comparison of two excerpts from Lucretius and Juvenal respectively. The outcome was a higher readability index (RIX) for Lucretius, indicating a more difficult and complicated text. Probability testing gave the result that the differences identified are highly unlikely to be a matter of chance. The factors included in the test were found relevant for the examination of readability, but other factors were also seen as important in the comparison of complexity in syntax, vocabulary and what we may call genre-related features. The readability testing method is supplemented by two other methods, which focus on formal and thematic aspects respectively. The former method begins by sorting all the words in a text by word class; hence I call it the Word Class method. The results can then be treated in various ways. In the present study the method is applied to examining the difference between the two authors in their use of personal names, and also their preferences for different verb forms. The latter method opens with an examination of the vocabulary from a thematic point of view. The starting point is a reading of all the words in the text, which are sorted alphabetically, allowing us to see the words stripped of their use and functions in the text. I call it the Alpha-Thematic method. The methods described can be used in the comparison of any pair or group of texts, in poetry or prose.

Research into style is based upon quantities, say Teleman and Wieselgren in their *ABC of Stylistics*, first published in 1970.[1] The last decades have seen a growing interest in quantitative methods in literary studies. An important early study of an extensive corpus is presented by J.F. Burrows, a pioneer in the field of computer-based analysis: *Computation into Criticism. A Study of Jane Austen's Novels and an Experiment in Method* (Oxford, 1987). In a more recent work, a study of Juvenal translations into English in the seventeenth and eighteenth centuries, Burrows has demonstrated the potential of the computer to determine the authorship of a particular text.[2]

The present paper presents a study in a smaller format through comparison – a method that has been recommended to highlight and reveal stylistic traits.[3] I have chosen two excerpts that have common traits, namely Lucretius *De rerum natura* 5.925–1135 and Juvenal *Satire* 6.1–211. The former is the passage in which Lucretius explains the development of human society from its primitive beginnings to civilization. Juvenal 6, on the other hand, emphasizes from verse 1 the contrast between the primitive state of mankind and contemporary society. It is commonly accepted

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[1] U. Teleman and A.M. Wieselgren, *ABC i stilistik* (Malmö, 1992 [1970¹]), 8.

[2] 'The Englishing of Juvenal: computational stylistics and translated texts', *Style* 36 (2002), 677–99.

[3] Teleman and Wieselgren (n. 1), 7. An alternative would have been to use a corpus of Latin texts, sorted by word class, which philologists at the University of Liège have built up and placed at the disposal of other scholars. The corpus is available on the internet at http://www.ulg.ac.be/cipl/lsl.htm; the password may be obtained from the University. The corpus is presented by J. Denooz in an article: 'Opera latina: une base de données sur internet', *Euphrosyne* 32 (2004), 79–88. However, I did not learn about this opportunity until my study had been completed.

that the introduction to this satire alludes to the Lucretius passage in question.[4] To my knowledge, such a comparison has not been previously undertaken.

The title of my essay highlights genre differences, but there are of course other differences between the two texts. There is the aspect of personal style, and, furthermore, the fact that the texts in question were written in different periods of the development of the Latin language and literature.[5] It is not possible, of course, to isolate each of the factors that contribute to an author's style, and this study has no pretension of being exhaustive.

The question of the function of ancient texts presents specific problems: we know little about the senders, and even less about the receivers. However, the genres give some clues: presumably Lucretius' audience would have been people who were interested in the Epicurean school of philosophy, and in order to make his audience understand, Lucretius explains everything patiently from the beginning: atoms and void. The audience that Lucretius wants to influence consists of Latin-speaking individuals, to whom he presents Epicurean philosophy in Latin for the first time. For this aim, he has chosen a poem as his form. An important aspect of his style is his new coinages, necessary because of the *patrii sermonis egestas* (1.832).

As far as style is concerned, Juvenal must be regarded as a master who exercised an enormous influence on later generations.[6] Obviously, he would have been writing for a quite different audience from Lucretius, and their expectations would also have been quite different, since life in imperial Rome differed from life in the late republic. In a period when even the upper class had little or no political influence, they would have gratefully accepted the opportunity to be entertained by the malice of satire. Rudd sums up the functions of Roman satires as lying 'within a triangle of which the apices are (a) attack, (b) entertainment, and (c) preaching'.[7]

Scholars disagree about Juvenal's main target in Satire 6. Ferguson finds that '[i]f there is a single personal theme it is Woman'; Courtney, on the other hand, is a representative of those who read Juvenal 6 as a satire on marriage. Against these two traditional opinions, Henderson reads the text as satire on gender and *men*.[8] And during the Renaissance, when Juvenal was a favourite,[9] the 'preaching' aspect was emphasized: a poet who attacked all kinds of sin should be regarded as a moralist, since what he depicted were just *exempla* to be avoided.

My aim here is to explore the complexity of the texts in question through the use of

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[4] E. Courtney, *A Commentary on the Satires of Juvenal* (London, 1980), 262–3 (in the commentary on vv. 3, 6, 10 and 11); J. Ferguson (ed.), *Juvenal. The Satires* (New York, 1987), 186 (on the same verses).

[5] Among the examples in the excerpts that reveal this fact are, on the morphological level, the repeated passive infinitive in *-ier* in Lucretius (which was archaizing even in his time) and the short *-o* in verbs in the first person present, as in the very first word of Satire 6, and in the syntax, Juvenal's *quamquam* used with the subjunctive, as in 6.88–9 and 6.198–9.

[6] Flaubert wrote in a letter (1853): 'J'ai en ce moment une forte rage de Juvénal. Quel style! quel style!', quoted from R. Kimball, 'Lessons from Juvenal', *The New Criterion* 21 (2003), 4–8, at 4.

[7] N. Rudd, *Themes in Roman Satire* (London and Bristol, 1998 [1986¹]), 1, in the chapter 'Aims and Motives'.

[8] Ferguson (n. 4), 185; Courtney (n. 4), 252ff.; J.G.W. Henderson, '… when Satire writes "Woman"', in: S.H. Braund (ed.), *Satire and Society in Ancient Rome* (Exeter Studies in History 23) (Exeter, 1989), 89–125.

[9] 'In Italy alone, something like seventy editions of Juvenal (with and without Persius) were published before 1500 – more than of any other classical author except Cicero, Vergil, and Ovid', G. Highet, *Juvenal the Satirist. A Study* (Oxford, 1962 [1954¹]), 206.

some untraditional methods. I discuss to what degree Björnsson's readability testing (see below) is relevant for the study of complexity, and supplement it with other methods. My hypothesis is that complexity is connected not only to style, but to genre as well.

The editions used are Bailey's Lucretius and Ferguson's Juvenal.[10]

METHODS

In the field of educational theory, projects with the purpose of measuring readability started in the first half of the twentieth century. Such methods are based on the hypothesis that the degree of readability (i.e. how difficult it is to read a text) is a factor that can, at least to a certain extent, be measured through formal criteria. Among the factors compared are sentence length and the relationship between long and short words, measured by either letters or syllables. I have chosen a method that was presented by the Swede Carl-Hugo Björnsson in 1963.[11] Björnsson's readability index (in Swedish 'läsbarhetsindex', abbreviated 'LIX'; in English we may abbreviate it to RIX) is the sum of the average sentence length (number of words per sentence) and the percentage of long words (words of more than six letters).[12]

The readability test is supplemented here by two other methods. The Word Class method begins with a sorting by word class and a calculation of the distribution of words from different word classes. The words in each text were tagged (in this case, manually) and then sorted by the computer.[13] The results – word lists of varying length for each word class – may in themselves prove useful for the analysis; moreover, selected lists can be sorted again by various criteria. In the present study, the verbs were sorted into 'finite' and 'infinite' forms, and at the next stage the finite verbs were sorted again according to mood, tense, number and person.

Even the Alpha-Thematic method has a list of all the words in each text as its starting point. But whereas the criteria for sorting so far have been formal, they are now connected to *meaning*. As a basis one may use all the words in a text, or a selection. Among the criteria chosen for this study were themes like 'zoology' and 'woman' (from the whole excerpts) and 'positively loaded' (from the lists of adjectives). In order to avoid influence from the context, the words were tagged from alphabetical lists. But, once selected, the words were studied in context.

In the thematic word lists – the results of the Alpha-Thematic method – the *kind of words* used and the ways in which they have been used are of more interest than the *length* of the lists. But the RIX and the Word Class methods are quantitative in character; the results can be presented in the form of numbers and have been treated by a method from statistics: *probability testing*. What is tested is the so-called null hypothesis, namely that the difference between expected and observed numbers is random. The conventional choices of significance value are 0.001, 0.005, 0.01 (1 per 1000, 5 per 1000, 1 per 100).[14] Statistical testing does not presuppose samples of equal

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[10] C. Bailey (ed.), *Titi Lucreti Cari De rerum natura libri sex* (Oxford, 1947); Ferguson (n. 4).

[11] C.H. Björnsson, *Läsbarhet* (Stockholm, 1963).

[12] Tools for calculation of readability are available on the internet. At least one of these, developed by a group at Uppsala University, is based upon Björnsson's method: http://stp.ling.uu.se/~gustav/lixcounter/ (June 2007).

[13] For better control over homonyms, etc. I preferred to do the tagging manually, which was possible since the material was limited.

[14] This method is described in J.A. Rice, *Mathematical Statistics and Data Analysis*[2] (Belmont, California, 1995), 487 and *passim*. An important concept is chi-square: the relationship between

size; however, I have chosen two excerpts of the same length, since it makes direct comparison easier.

It has been necessary to frame certain definitions. In analyses of modern texts the calculation of sentence length is based upon the punctuation. For the texts examined here, it may be objected that the punctuation is the work of the editors and not the authors. I am in entire agreement with the argument that the punctuation, as part of the edition, demonstrates the editor's interpretation of the text. Nevertheless, the editor makes his decisions within the limits set by the logical structures in the text itself (as it has been transmitted to us) and the form that the author gave to his thoughts. Thus, in my opinion, it is not irrelevant to use punctuation (full stop, interrogation mark, exclamation mark) as one set of criteria for defining a 'sentence', even in ancient texts. The method has been supplemented here by a calculation of the number of independent clauses (main clauses) and subordinate clauses. In this calculation, the sentences have been defined on the basis of the occurrences of finite verb forms: a finite verb is seen as an organiser of a sentence, either independent or subordinate;[15] thus, the sum of the independent and the subordinate clauses in each excerpt equals the number of finite verbs.

Also the concept *word* had to be defined. I have found it necessary to separate word elements that are traditionally written together, but represent *two* syntactic functions. For example, *est* is counted as a separate word in Lucretius, even when it is written together with the preceding word in the edition, for instance, in *desiperest*. *Tecum* has been treated as two words, as has *siquis*. Even occurrences of the enclitic particle *-ne* have been treated as separate elements and also been included in the word count. The enclitic *-ve* has been counted as a separate word when it has a separate meaning and a syntactic function of its own, and so has *-que*. However, in connections like *atque* or *quisque*, *-que* has hardly any separate function and has not been counted separately.

Even a sorting by word class may cause problems. Certain words may be categorized as adjective or noun, as adjective or participle, or as adverb or conjunction. In such cases, the *function* of the word has been analysed. For example, *secreta* in the passage *hoc cuncta effundunt animi secreta* (Juv. 6.190), was counted as a noun. Nevertheless, there are cases of doubt – for example, sentences where *quod* may be understood as either conjunction or pronoun.

I. READABILITY TESTING

As stated above, RIX is the sum of the average sentence length and the percentage of long words. Each excerpt consists of 211 hexameter verses, and, as it turned out, also the number of words is very close: 1,399 and 1,398 respectively. In a calculation of the number of sentences according to the punctuation, the Lucretius excerpt has 59 sentences against Juvenal's 96. This means that Lucretius has an average of about 23.7 words per sentence, measured by punctuation, against about 14.5 in Juvenal.

The results from calculating independent clauses and subordinate clauses are presented in Table 1.

expected and observed numbers. The testing presented in this study was performed by Åsne Haaland.

[15] This understanding of the sentence is based upon valency grammar. Cf. G. Helbig and W. Schenkel: *Wörterbuch zur Valenz und Distribution deutscher Verben* (Leipzig, 1969). For the valency theory applied to Latin, see H. Happ, *Grundfragen einer Dependenz–Grammatik des Lateinischen* (Göttingen, 1976).

TABLE 1. Number of sentences

	Lucretius	Juvenal
Independent clauses (main clauses)	102	152
Subordinate clauses	72	78

The outcome of probability testing the figures in Table 1 is that the null hypothesis is rejected, since the probability of randomness is less than 0.005.[16] The average sentence length, measured by main clauses, is about 13.7 words per sentence in the Lucretius excerpt and about 9.1 in Juvenal.[17]

Of the 1,399 words in the Lucretius excerpt, 486 are long, i.e. about 34.7 per cent. The corresponding figures for Juvenal are 477 words out of 1,398 and about 34.1 per cent. Thus, the percentage of long words is fairly similar in the two excerpts.

RIX for the Lucretius excerpt, measured by punctuation, is 58.4, and measured by main clauses, 48.4. RIX for Juvenal is 48.6, measured by punctuation, and 43.2 if we use the criterion of main clauses.[18] Thus, because of the longer sentences, the Lucretius excerpt obtains a higher RIX and is presumably the more difficult of the two texts.

Against this method and the very term 'readability', it may be objected that contemporary receivers of the texts in question were probably listeners rather than readers. But the sentence length is surely connected to the complexity of a text, regardless of whether it is presented orally or in writing.[19] Word length is important, not only through the mere number of letters, but because longer words are often derivations and more abstract than their origins. Thus, I find that the factors included in Björnsson's method contribute to the complexity of the text in syntax and in vocabulary.

But how far can we get through readability testing? Let us take Juvenal 6.28 as an example. The sentences are very short, and only one word has more than 6 letters: *certe sanus eras. uxorem, Postume, ducis?* The challenge to the receiver is to interpret the statement that Postumus was sane earlier (presumably, when he used to *alienum ... lectum concutere*, 21–2) combined with the rhetorical question. Basically, we may say that it 'means' that a good life for Postumus (and, hence, all men?) is to have sex with available and attractive women – married or not – but that marriage represents insanity. And even if such an interpretation lies beyond Björnsson's measured quantities, it still does not take us far enough. Juvenal's method includes exaggeration, to push things to extremes, within the limits and the liberty of the chosen genre. But in a one-dimensional reading the effect is lost and the liberty disappears, and obviously the scholarly disagreement attaching to, for example, Satire 6, begins when the interpretation passes this level.

The problem may be illustrated further by an example from Juvenal criticism, namely two different interpretations of the passage on the *pusio* (33–7), written in different periods. Ferguson wrote in 1987: 'These lines suggest J's antipathy to hetero-

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[16] Test-statistic, chi-square = 17.552, 1 degree of freedom, p-value = 0.004.
[17] One might proceed to examine the types of subordinate clauses, related to the types of argument given in each text and genre. Such an examination has not been undertaken here.
[18] The calculations are: 23.7 + 34.7; 13.7 + 34.7; 14.5 + 34.1; 9.1 + 34.1.
[19] One aspect of the syntactic complexity of each text is explored below through an examination of the use of verb forms.

sexual love, and sympathy for some form of active homosexuality; this is reinforced by Mart. 12, 18, 22–3, addressed to J: *ille quem tu* / ... *cupias*.'[20] The passage was understood in quite a different way by the Rostock professor Eilhardus Lubinus in 1619:

Nonne putas melius. Malum, imo sceleratissimum auctoris nostri consilium foret, si Vrsidio horrendum pueri concubitum potius, quam matrimonium serio suaderet. Verum minime existimandus est Iuuenalis Satyricus morum & honestatis magister integerrimus illius alii auctor esse quod ipse Sat. 1.2. & aliis infinitis locis condemnat. Verum Scoptice & hyperbolice notat omnia potius mala toleranda, omne scelus perpetrandum esse, quam vxorem ducere.[21]

Arguably, the disagreement between Lubinus and Ferguson is connected with the understanding of the satiric distance that separates the poet's statements and his message. And in my opinion, judging from this example, Lubinus demonstrates a better understanding of satire as a genre than Ferguson.

II. WORD CLASSES

The sorting by word class (proper names taken separately) resulted in eleven lists of words. In order to obtain valid values for the probability testing (that is, to avoid if possible values below five) two categories (interjections and particles) were grouped together.

TABLE 2. Number of words sorted by word class

	Lucretius	Juvenal
Nouns	424	357
Verbs	315	311
Conjunctions	220	178
Adjectives	160	178
Adverbs	140	98
Pronouns	78	117
Prepositions	51	42
Numerals	6	12
Proper names	5	96
Interjections and particles[22]	0	9
Sum	1399	1398

The outcome of probability testing the figures in Table 2 is that the null hypothesis is rejected, since the probability of randomness is less than 0.001.[23]

From the eleven lists of words, I chose three for further examination, namely verbs,

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[20] Ferguson (n. 4), 187.

[21] E. Lubinus, *Juvenalis Satyrarum libri V ... cum Analysi & doctissimis commentariis, partim nunc primum, partim de integro editis* (Hannover, 1619), 225f. In translation: '*Don't you think it's better*: It would be bad – indeed, even very impious advice from our author – if he seriously advised Ursidius to choose horrid copulation with a boy rather than matrimony. But Juvenal the Satirist, the irreproachable teacher of morals and honesty, should not at all be deemed the author of that which he condemns in the First and Second Satires and elsewhere in innumerable places. No, mockingly and exaggeratedly, he states that rather should all evil be tolerated and all crime be committed than to take a wife.'

[22] Juvenal has one interjection, eight particles.

[23] Test-statistic, chi-square = 120.237, 9 degrees of freedom, p-value = 0.000.

proper names and adjectives. The *verb* was chosen as a category because of its importance to the syntax, and on the hypothesis that the fairly similar percentage of verbs (22.5 in Lucretius against 22.2 in Juvenal) concealed contrasts in verbal use. A sorting into finite and infinite verb forms demonstrated that the former category dominates in the Juvenal excerpt (about 74 per cent of all verb occurrences), whereas Lucretius has a more equal share of each category (about 55 per cent finite forms). The reason for the choice of *proper names* was the substantial difference in numbers between the two poets – five against ninety-six – perhaps related to genre. The third group chosen was *adjectives*, on the assumption that this word class is important in respect of values and attitudes.

Finite verb forms

The results of the sorting of the finite verb forms by person, number and tense are presented in Table 3.

TABLE 3. Some results in the category of 'finite verb forms'

		Lucretius	Juvenal
1	1st person	2	8
2	2nd person	2	29
3	3rd person singular present	31	94
4	3rd person singular imperfect	32	10
5	3rd person singular perfect	15	30
6	3rd person singular, other tenses	6	7
7	3rd person plural present	36	28
8	3rd person plural imperfect	35	1
9	3rd person plural perfect and pluperfect[24]	14	5
10	Imperative[25]	1	18
	Total, finite verb forms	174	230

Neither in this case can differences be explained as random; the null hypothesis was rejected.[26]

   In Lucretius the third person present (rows 3 and 7, taken together, 67 occurrences) and third person imperfect (rows 4 and 8, also 67 occurrences) dominate; singular and plural have a fairly equal representation. A sorting by mood demonstrates that indicative is the dominant mood, particularly in the present tense. The Juvenal excerpt is dominated by the third person present singular: 94 occurrences, which means, almost one every second verse. Juvenal uses verbs in the first and second person much more frequently than Lucretius: 37 occurrences against four. In addition, the imperative mood is used 18 times, against one occurrence in Lucretius.

   The two occurrences of first person verbs in Lucretius are not only the same verb, but also in the same form, namely *videmus*. The use in 1039–40 is related to birds and

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[24] As in the preceding table, categories have been grouped together to obtain valid values. Lucretius has ten occurrences of third person plural perfect, four of pluperfect; all Juvenal's five occurrences are in the perfect tense.

[25] Lucretius' one imperative is in the singular; of Juvenal's eighteen occurrences, three are in the plural.

[26] Test-statistic, chi-square = 122.648, 9 degrees of freedom, p-value = 0.000.

how they learn to fly: *alituum porro genus alis omne videmus / fidere*. The second occurrence of *videmus* (1094–5) is related to lightning: *multa videmus enim caelestibus incita flammis / fulgere*. One of the two occurrences of second person verbs (1091) is connected with the same theme: *illud in his rebus tacitus ne forte requiras…*; lest the receiver of the text should wonder how man received fire, Lucretius explains the process in the following verses. The other second person verb is *cernis* (940–2), used in a context where the poet explains one of the differences between 'before' and 'now': *et quae nunc hiberno tempore cernis / arbita puniceo fieri matura colore, / plurima tum tellus etiam maiora ferebat*. Thus, in three of the four occurrences of first and second person, Lucretius uses the forms to activate the sensory experience of the reader or listener: '*we* see that it is so and so', '*you* see that it is so and so', with the aim of making the message more easily understood. Even *requiras* is part of a didactic approach.

One of Juvenal's eight occurrences of first person verbs is the very first word of the satire: *Credo Pudicitiam Saturno rege moratam / in terris*. Right from the beginning, the poetic speaker accords himself a key position in the poem. In this introductory description of life in the natural state, the finite verbs (after *credo*) are in the third person, more specifically the third person singular imperfect subjunctive, governed by *cum*: *praeberet, clauderet, sterneret.* In contrast, the next verb is in the perfect indicative and characterizes 'our modern times' and 'you' whose eyes a dead sparrow *turbavit.* Thus, in these few verses, the poet has introduced the important motifs of chastity and women, and the contrast between 'before' and 'now'. At the same time he has established a certain distance between himself and the narrative, through the use of the governing verb *credo*. And even though the 'I person' is not convinced that chastity was resident on earth during the reign of Saturn, he *believes* that this was the case, the implication being, of course, that this is not the situation *in our times*. In v. 133 of the satire, the first person singular is used in a rhetorical question, hinting at a Phaedra–Hippolytus situation, with a woman who tries to win the love of her stepson through magic: *hippomanes carmenque loquar coctumque venenum / privignoque datum*? In 166ff., the 'I' expresses his preferences when the options are either a completely unknown girl or a wife, *cui constant omnia*. The decision is cried out through the repeated verb: *malo, / malo Vetustinam*[27] *quam te, Cornelia, mater / Gracchorum*, or, in other words, 'I would prefer just anyone to you, Cornelia'. The addressee here is not the 'preferred girl' – who is completely unimportant – but Cornelia; thus, the effect is mainly to express contempt towards such a woman. The addressing of Scipio's daughter proceeds in 170–1: *tolle tuum, precor, Hannibalem victumque Syphacem / in castris et cum tota Carthagine migra*. The sentence contains two imperatives; the temperature is high. In the following the danger connected with such a woman is explained through a tale from mythology (172f.). The one who utters *precor* now is Amphion, who addresses Apollo and Artemis, begging them to save his children and strike down Niobe alone. The repeated use of *precor*, combined with imperatives, emphasizes the parallel danger connected with a woman who (thinks she) is good – which is hubris.

Against Lucretius' two occurrences of the second person – used to address the receiver of the text – Juvenal has 29. For the most part the use is concentrated in certain passages in the excerpt, while, for instance, the second person is not used at all in the introduction to the satire. After Juvenal's version of human life in the natural

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[27] I follow Ferguson's reading of the name.

state (in contrast to 'woman of today'), a new section begins in v. 21, when *Postumus* is addressed for the first time. His name is placed – not flatteringly – in the middle of the nexus *alienum … lectum*, object of the verb *concutere*. Lines 25–30 are very rich in second person occurrences:

> conuentum tamen et pactum et sponsalia nostra
> tempestate *paras* iamque a tonsore magistro
> *pecteris* et digito pignus fortasse *dedisti*?
> certe sanus *eras*. uxorem, Postume, *ducis*?
> dic qua Tisiphone, quibus *exagitere* colubris,
> ferre *potes* dominam saluis tot restibus ullam, …

The passage begins with three questions, and, in brief, the meaning is: 'Are you preparing a marriage?' The verbs used vary in grammatical form: present active, present passive, perfect active. However, their common features – second person singular and indicative mood – emphasize two important aspects of the question: are *you* preparing marriage, and are you *in fact* preparing marriage? The verbs used in the questions directed to Postumus are *paras*, 'are you preparing (marriage)', *pecteris*, 'are you being combed (in order to look pretty at the wedding)', and *dedisti*, 'have you given (a ring)'. The logical impact of these questions is made explicit in the following verse, but only after the satirist has made a statement, *certe sanus eras*. Thus, marriage is seen in opposition to (mental) health, a point that is driven even further through the 'exhortation' in l. 29. The verb *potes* (30) suggests by its etymology that it is not *possibile* to endure a *domina* when there are better alternatives. Three ways out are presented, namely hanging oneself, jumping out of a window, or throwing oneself from a bridge. And if 'you' don't like the thought of suicide, *nonne putas melius, quod tecum pusio dormit?* (34), where *putas* together with *nonne* suggest that the answer should be 'yes, that would be much better' (than to have a *domina*). Next the advantages connected with a young, male lover are presented through second person verbs that hint at aspects of the sexual act, *parcas* and *anheles* (37). In the excerpt Juvenal uses the second person primarily in rhetorical questions and invective, addressed to the man who is about to marry.

But the third person is dominant in both excerpts, and I have chosen two forms for closer examination, namely the *present singular* and the *imperfect plural*. These are the forms that most clearly demonstrate the differences between the two excerpts, judged by the number of occurrences: 31 versus 94 for the present singular, and 35 versus 1 for the imperfect plural. (Cf. Table 3 above.)

Of the 31 occurrences in Lucretius of the third person singular present, four are subjunctive active, four are indicative passive, and the rest are indicative active. If the latter group is sorted by grammatical subject, at least seven of these are of the 'abstract concept' type: *ardor, penuria, invidia, metus aut dolor, notities utilitatis, potestas, infantia linguae*, and perhaps also *copia rerum*. Another seven have to do with 'nature': *arbor, decursus aquai, iuuencus* (with three verbs), *vitulus* (with two verbs). Indefinite pronouns also occur as subjects, *quorum utrumque,* and *quisque* (three instances), as do a number of impersonal expressions, *aequum est, mirabile est, facile est, id est*, and one occurrence of *licet*.

As appears from Table 3, Juvenal has roughly three times as many occurrences of the third person singular present as Lucretius. Of the 94 occurrences, 20 are sub-junctive active, nine are indicative passive, and two are subjunctive passive, while the majority, 63, are indicative active. The subjects of 36 of the verbs in the latter group are persons, fifteen of whom are 'men', if we include two mythological characters

(Amphion and Paean). The suggested lover, *pusio*, is the subject of four verbs and *Ursidius* – *moechorum notissimus* – of two. This means that the subjects of 21 verbs are women, *Tuccia, Apula, Thymele, Aelia, Hispulla, meretrix Augusta*, and the more indefinite *haec, altera* and *uxor*. Among the other subjects are the interrogative pronoun *quis* (three instances) and abstract concepts, for instance, *clementia*.

Of the 35 occurrences in Lucretius of the third person plural imperfect, seven are subjunctive and 28 indicative. The majority of these 28 verbs have as their subject a variant of 'the human race': *mortalia saecla, miseri, hi, illi ipsi*; *genus humanum*, on the other hand, is understood as singular. Three verbs have *some* among the group of men as subjects: *quos effugium servarat, … accibant … Orcum; qui praestabant; qui corde vigebant*. The rest of the subjects are *fluvii fontesque, saecla ferarum, turbida ponti aequora, multa* and *vires*. It is worth noting that, while imperfect active third person plural dominates in vv. 925–1010, there follow nearly a hundred verses without a single occurrence of this form (1011–1102). This passage describes a new era, *tum genus humanum primum mollescere coepit*, and displays a variety of verb forms in the description of this development. The same is true of the famous passage presenting the theory of how language was formed, whereas the last 33 verses of the excerpt have five occurrences of the form we are considering. To sum up, we may say that third person plural imperfect active is the typical verbal form in the passages where Lucretius describes life in the natural state. When he moves on to describe the social and technical development of human life, other verbal forms appear in the text.

Against Lucretius' 35 occurrences of imperfect plural, Juvenal has only one. It can hardly be mere coincidence that this form appears in the very passage where the satirist treats the natural state of man: *aliter tunc orbe novo caeloque recenti / vivebant homines, qui … nullos habuere parentes*' (11ff.); rather it should be concluded that imperfect third person plural as a verbal form is *in itself* part of Juvenal's allusion to Lucretius.

Infinite verb forms

Some results of the sorting of the infinite verb forms are shown in Table 4.

TABLE 4. Infinite verb forms

	Lucretius	Juvenal
Infinitive	76	23
Participle	65	51
Gerund/gerundive	0	7
Total, infinite verb forms	141	81

The null hypothesis was rejected; thus the difference is significant.[28]

In the Juvenal excerpt there are occurrences of verb forms not found in Lucretius, like the gerund, gerundive and future participle. According to Woodcock, we should not expect to find the latter in Lucretius: 'An examination of the usage of various authors shows that the form in *-urus* did not reach the full status of a participle till the time of Livy'.[29]

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[28] Test-statistic, chi-square = 22.490, 2 degrees of freedom, p-value = 0.000.
[29] E.C. Woodcock, *A New Latin Syntax* (London, 1996 [1959¹]), 82.

But Lucretius' use of infinite forms, which is frequent, is not at all without variation. Bailey sums up his use of the infinitive: 'Lucretius has a very extended use of the infinitive after verbs expressing desire, etc., including many usages which are unknown or rare elsewhere.'[30] One function is to express a reservation regarding what is said, in the complicated task of explaining the history of mankind and nature; this is obtained when the infinitive is governed by verbs like *videtur* or *dicitur* (as happens in a few cases in the excerpt). Even more common are infinitive forms in connections like 'man learned how to …' and 'man began to …'. This use of the infinitive underlines the historical narrative style. The verb *scire* is used four times in vv. 934–59, each time in the third person imperfect, with the effect of emphasizing what man in his natural state did not know or was not able to do: man had neither learned to plough nor to treat fire, man did not know how to use furs as clothing, but at least knew where to find water; three of the four occurrences of *scire* are connected with a *nec*. In this way Lucretius highlights the importance of knowledge. One stylistic function of the lavish use of a nominal verb form is to give the text a stamp of generality: attention is drawn, not towards one or more individuals who have performed or are performing an action, but towards the action itself.

Among Juvenal's 23 occurrences of infinitives in the excerpt (less than one third of Lucretius' number) one finds accusative with infinitive, *dormire virum cum senserat uxor* (116), and the infinitive as (part of the) subject, *durum est conscendere navem* (98). A central occurrence is *tollere* in v. 38, on Ursidius: *tollere dulcem / cogitat heredem*. The most striking use of the infinitive in the excerpt is *gestare* in v. 158, governed by *dedit*; *gestare* is, however, a conjecture (by Housman).

It is tempting to compare the two poets' use of the verb *stillare*, which is found, accidentally, in both excerpts in the present participle form. In Lucretius, water is dripping and people can obtain drinking water (951). In Juvenal, however, the dripping is connected with the themes of woman and marriage, since what drips is the eye of a disgusting gladiator whom Eppia accompanies to Egypt, instead of staying at home with her children and her husband, the senator (109).

Proper names

As shown in Table 2, there are five occurrences of proper names in the Lucretius excerpt against 96 in Juvenal.

For Lucretius, we can briefly note that four occurrences are mythological characters (but not gods who intervene in people's lives, which would contradict the Epicurean philosophy). The occurrence of *Venus* (twice in the excerpt) should be seen in the context that *De rerum natura* is introduced by a hymn to Venus, *AENEADUM genetrix, hominum divumque voluptas, / alma Venus*. Thus, the use of her name in Book 5 alludes to the history of Rome and to Lucretius' work as a whole. But, of course, the name of the goddess also stands for love and sexual attraction. *Orcus* is used as a poetical word for 'death', and *Tartara* is used to denote 'the infernal regions'. Furthermore, the connection '*Tartara taetra*' sounds good at the end of l. 1126. The fifth proper name in the excerpt is *Molossum*, in the connection *canum Molossum* (1063). Thus, in the excerpt we are considering Lucretius has no individuals at all, no real proper names.[31]

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30 Bailey (n. 10), 101.
31 *De rerum natura* is dedicated to Memmius, and the poet addresses him *passim*, though not in this excerpt.

Juvenal's 95 proper names are of many kinds: there are mythological names, like *Cecrops, Hyacinthos, Niobe, Mars*, there are learned allusions like *moenia Lagi,* and literary references like *Cynthia* and *Quintilianus*. In a more everyday group we find names of actors of the second rank, and of women ranked still lower. Moreover, the excerpt includes a number of proper names of the type *Dacicus, Hiberina* and *Latinus*. *Eppia* is presented in 82f., where the satirist tells us that she, the wife of a senator, has accompanied a gladiator to Egypt. Her name is mentioned again twice, in different kinds of questions. In 103f. the questions are: what motivates her, what has she seen in the gladiator to make her leave her children and country, husband and sister? The answer is given in 112, *ferrum est quod amant*; the plural shows that 'such women' are meant, with Eppia simply representing women in general. In v. 114 she is used as a contrast to the women of the imperial family, through the rhetorical question, *quid privata domus, quid fecerit Eppia, curas?* Through this question the focus of the account shifts from private persons to official Rome, since whatever *Eppia* does is of no importance, compared to what goes on in the imperial family. In the case of *Eppia*, her name is a means to let the reader or listener become more familiar with the woman, thus perhaps obtaining a more intense reaction than if she had been referred to as the unidentified *uxor senatoris*. In certain cases, the use of a proper name can also sharpen the irony: *Hispulla tragoedo | gaudet: an expectas ut Quintilianus ametur?* (74–5) The well-known name has a more striking effect than, for example, the noun *grammaticus*.

Positively loaded adjectives

The number of adjectives in the two excerpts is 160 in Lucretius and 178 in Juvenal, that is, about 11.5 per cent and about 12.5 per cent of the words in each excerpt. Using the Alpha-Thematic method, I have made an attempt to sort out 'positively loaded adjectives', defined as adjectives that, taken separately, express some kind of desirable property, for example adjectives with meanings like good, beautiful, decent and healthy. This means that adjectives with meanings like big, quiet and hard are not included, since such adjectives are positively loaded only in certain contexts. There is also the question whether the same adjectives should be regarded as positively loaded for both poets. My criteria cannot be characterized as 'objective', and I have chosen not to calculate the percentage of positively loaded adjectives. Nevertheless, the material may prove interesting.

Among adjectives that might be regarded as positively loaded in Lucretius is the group *floridus*, *solidus* and *validus*. *Validus* is used as many as four times in the excerpt, first together with *solidus* in the description of the stalwart human beings living in the first period of the history of mankind (927f.). But later it characterizes a lion, in the context that people were driven from their homes by *spumigeri suis adventu validique leonis* (985). Lucretius explains that fire came to the earth when Nature caused two big trees to rub against each other *validis … viribus* (1098). In the final occurrence it is said that gold took the place of honour from the *validis et pulchris* (1114) – qualities that had been highly esteemed before the finding of gold.

Perhaps the most important passage, philosophically, in the Lucretius excerpt is 1113–19. Lucretius has just described how the strong and beautiful took the lead in society. Later, money was invented and gold was found, with the result that also the strong and beautiful started to allow themselves be led by the rich. The poet's comment is:

> quod siquis *vera* vitam ratione gubernet,
> divitiae grandes homini sunt vivere parce
> *aequo* animo; neque enim est umquam penuria parvi.   (1117–19)

Two adjectives categorized as positively loaded, *vera* and *aequus*, are used here as elements of central concepts in Epicurean philosophy, *vera ratio* and *aequo animo*: the former expression is used as a synonym for 'Epicurean philosophy', while the latter is an important aim for human life. *Divitiae* is of course a noun, and one would not expect to find a word denoting 'wealth' used with positive connotations in a text by Lucretius. The context here, however, is a description of *real* 'great wealth' for man, namely a life distinguished by a frugal way of living (*vivere parce*) and a well-balanced mind.

The most obvious example of a positively loaded adjective is of course *bonus*, which fits all ideologies. *Bonus* is used by both poets. Lucretius has it in the context where we learn about how men started to organize societies (1025), when it was essential for the survival of the human species that *bona magnaque pars servabat foedera caste*. Thus, *bona* is not used in the basic meaning of 'good', but in the meaning 'great' as in 'a good deal of'. In the Juvenal excerpt, there are three occurrences of *bonus*. In v. 136, the form *optima* is used to characterize a certain *Caesennia* – or, rather, a question is asked, *optima sed quare Caesennia teste marito?* Through the question the satirist suggests that the adjective does not describe the woman in question very precisely; there must be an explanation: *bis quingena dedit. tanti vocat ille pudicam*. What interests the husband is her money. The last adjective here, *pudicam*, refers to a central concept in Satire 6, but here, in contrast, *pudicam* is only a label which can be bought for money. The second occurrence of *bonus* is as part of the expression *rari summique … boni*' (179–80). If regarded separately, this is a philosophical concept. But Juvenal uses it to characterize a woman who, like Cornelia, is distinguished by *gravitas* and *forma*. Since only a few verses earlier the 'I' has said that *malo, / malo Vetustinam quam te, Cornelia*, the receiver of the text understands that Cornelia's *gravitas*, etc. are not the highest good (for a man). The expression 'the highest good' is used ironically, not only because such qualities are said to be good and are not, but also because a philosophical concept, on a high level, is used to characterize female qualities, on a much lower level. Besides, it is stated explicitly that *voluptas/nulla* is connected with this so-called highest good, since such a woman *animo corrupta superbo / plus aloes quam mellis habet*' (180f.). In the last verse of the excerpt (211), *bonus* characterizes the husband. It is claimed that '*longe minus utilis illi / uxor, quisquis erit bonus optandusque maritus*. Ferguson comments on the passage: 'a utilitarian standard, espoused among others by Epicureans. The more good-natured the husband, the more advantage will be taken of him.'[32]

In Juvenal there is only one adjective with the meaning of 'happy', namely *beata* used in a feminine form in v. 204. There is no 'happy wife', however; the adjective is used to characterize a shining plate, *lanx*, full of gold. In v. 30 *salvus* is used in a similar way, to characterize 'rope', one of the ways for a husband-to-be of committing suicide, which is recommended instead of marriage.

Nobilis infans is used in v. 81 – ironically, since the child's father is not the mother's husband, the nobleman Lentulus, but *Euryalum murmillonem*. *Nobilis* is used once more in the excerpt, in the comparative, of Niobe, who felt that she was nobler than Latona. In the latter example, the word is not used ironically, since Niobe, with all her

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[32] Ferguson (n. 4), 194.

children, really felt nobler than the goddess. However, its function is a reminder of and warning against hubris, particularly in the case of a woman.

Elevated adjectives are also used in vv. 94–5: *iusta* and *honesta*. The context is women who travel by sea, their reasons for doing so and their feelings connected with it. The adjectives are connected with *ratio*: *Iusta pericli / si ratio est et honesta, timent pavidoque gelantur / pectore*. However, when a Roman wife sails with a gladiator (as in the case of *Eppia*), she is not frightened at all. Thus, the two positively loaded adjectives, even in the feminine singular, do not at all characterize a certain female character as *iusta* and *honesta*; in fact, the adjectives are used to do the opposite, by saying that reasons of these kinds have no meaning for the women referred to.

III. THEMES

Whereas the process of sorting by word class depends upon the function of each word in its context, the whole idea of the Alpha-Thematic method is to see each word *isolated* from its context. After reading the alphabetically sorted lists I chose the themes 'the sea and navigation', 'woman', 'house and home', 'children', 'zoology – animals, birds and fish', 'sexual life (and potential allusions)'.[33]

In the excerpt from *De rerum natura*, the words denoting 'the sea' are *aequor, undae, marini fluctus, pontus* (twice), *salsum.* In the excerpt from Satire 6 we find *pelagus* in addition to the place names *Tyrrhenos fluctus* and *Ionium* (sc. *mare*). The most neutral word, *mare,* is found in both excerpts. Lucretius has only two designations for 'woman', *mulier* and *muliebre saeclum*, while Juvenal displays more variety: *coniunx* (twice), *domina, femina, mater* (twice), *matrona, puella* (twice), *soror* (four times), *vidua*, and *uxor* (eight times). Lucretius demonstrates a larger variety of words with the meaning of 'place to live', 'house'. While both poets use *casa* and *domus*, Lucretius also has *aedes, tectum* and *tegmen.* In the area of 'children' there is more similarity between the two poets, as both use *infans/infantia, natus* and *puer.* In addition, Lucretius has *proles* and *propago*, Juvenal *privignus.*

While results from the examination of these themes have been referred to only briefly, I have – because of the character of the texts in question – chosen *zoology* and *sexual life* for closer examination.

Zoology

The number of words related to the animal world is much higher in Lucretius than in Juvenal, 33 against seventeen. These are the numbers of *different* words; in addition, Lucretius has many cases of repetition.

The environment for the animals in Lucretius is an imagined situation when people *necdum res igni scibant tractare neque uti / pellibus et spoliis corpus vestire ferarum* (953–4). The poet does not idealize the wild past, but includes in his description the dangers that threatened men from all directions, for example, from wild beasts. Wild boars are mentioned twice, characterized with rare adjectives: *saetiger* in v. 970 [969] and *spumiger* in 985. Both adjectives are composed from first declension nouns and the suffix *-ger*; they also sound fairly similar. The attachment of these two adjectives

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[33] Other possible thematic groups for the excerpts would be 'wealth and poverty', 'war and combat', 'the body, its parts and their functions', 'expressions of time: before and now', and 'nations'.

to the same noun within fifteen verses gives the reader or listener a feeling of repetition, of, so to speak, being surrounded by threatening boars.

Most of the zoological words in the Lucretius excerpt (35 out of 46) appear in vv. 1028–90, where he treats the origin of speech, a process he sees as physiological. Thus, he finds it relevant to compare human with other species and their ways of expression. Lucretius takes interest in animal behaviour in order to use it as a model in his explanation of human behaviour. If a horse is able to express itself in different ways, humans can express themselves in even more ways. In addition, Lucretius uses animals to characterize people's life in olden times: *vulgivago vitam tractabant more ferarum* (932). The word *fera* is used seven times in the Lucretius excerpt of 211 verses, six of which occur at the end of a verse in the form *ferarum*. Four times we find *ferarum* in the characteristic connection *saecla ferarum*.[34]

Juvenal for his part keeps to the traditional Roman view:[35] the Golden Age was part of the remote past, and one had to accept that one was living in the Iron Age. After this motif has been introduced in v. 1, there is room for a number of allusions to Lucretius' representation of the natural state. The most striking is *vicinarumque ferarum / pellibus* (6–7).

Juvenal's *porcis* (160) occurs in a digression. The subject treated has been women's (wives') demands for luxury and valuable items, including a diamond that is even more valuable since it has been on *Beronice*'s finger. The thematic connection to the mocking of the Jews in the following verses is rather loose – only that the ring was given to her *obseruant ubi festa mero pede sabbata reges / et vetus indulget senibus clementia porcis* (159–60). These verses effectively sum up aspects of the Jewish religion, but in a way that makes words like *indulget* and *clementia* appear excessively solemn, and thus ironic. The other pig in the Juvenal excerpt is the *scrofa*, the fertile, white sow (177). It is referred to in, for instance, the *Aeneid*,[36] by the nicer word *sus*, because of the role it has as an important omen in Roman history. Juvenal uses the sow in a comparison with Niobe: her hubris and pride, based upon her many children, is ridiculed through his comparison, that she was *scrofa … fecundior alba*. Least of all does the satirist have Roman history in mind. Or perhaps he has: in one sentence, he ridicules female pride and the pompous writing of history and epic.

Proceeding to birds, the well-known expression *rara avis* (165) does not characterize a bird, but a worthy woman, who is as rare as *nigro … cycno*. And Lesbia, whose function in the satire is to be a contrast to woman in the natural state, is hinted at by the word *passer*. As a means to ridicule marriage, Juvenal uses a metaphor from the equestrian world: *quid fieri non posse putes, si iungitur ulla / Ursidio? si moechorum notissimus olim / stulta maritali iam porrigit ora capistro …?* (41–3)

The authors' different approaches to the animal world may be illustrated by the use of the words *gannitus/gannire*. In Lucretius the barking of dogs is heard from a bitch playing with her puppies, but *longe alio pacto gannitu vocis adulant / et cum deserti baubantur in aedibus aut cum / plorantes fugiunt summisso corpore plagas* (1070–2). These verses are part of the explanation of how language developed. When Juvenal uses the related verb *gannit* (65), there is no dog involved, but indecent actors and their effect on women: Tuccia urinates on herself; Apula (or the Apulian girl) *longum / sicut in amplexu, subito et miserabile gannit*.

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[34] As pointed out by Wayne B. Ingalls, among others, repetition is an important factor in Lucretius' style. W.B. Ingalls, 'Repetition in Lucretius', *Phoenix* 25.3 (1971), 227–36.

[35] Treated, for instance, by Ovid in *Met.* 1.

[36] 3.390ff., 8.43ff., and 8.81ff.

To the Epicurean animals are animals, and are of interest as such. The bitch licks her puppies, the young birds learn how to fly, horses mate. These animals are used in the description of life in the natural state and as examples in the explanation of how language developed, and animals are a theme in the text. In the excerpt from Juvenal, on the other hand, animals appear as a theme in the word list, but rarely in the text itself: the animals in the satire are used in comparisons or as metaphors, and – in the case of *ferarum* – as an allusion to Lucretius.

Sexual life

Sexual practice is of interest to both our poets. A sorting of words used in the two excerpts gave the result that Juvenal uses 73 words that have (or seem to have) a connection with this subject against 17 words in Lucretius.[37] In vv. 962–5, there is an accumulation of 'sex words':

> et Venus in silvis iungebat corpora amantum;
> conciliabat enim vel mutua quamque cupido
> vel violenta viri vis atque impensa libido
> vel pretium, glandes atque arbita vel pira lecta.

The content of the quoted verses is far from romantic. Three reasons for sexual intercourse in the early periods of mankind are presented: mutual lust, the man's violence and libido, and, finally, payment in the form of nuts, berries or fruit. The quotation gives an example of alliteration: four words in a row in v. 964 begin with a *v*, which seems to make the *vis* of the *vir* extremely *violenta*. Lucretius also describes a moment of love among the four-footed, namely horses and their 'bewinged love': *inter equas ubi equus florenti aetate iuvencus | pinnigeri saevit calcaribus ictus amoris | et fremitum patulis sub naribus edit ad arma*' (1074–6). However, the mating act is used just to illustrate one kind of neigh, different from the kind uttered by the animal if beaten.

Juvenal has a large repertoire when it comes to terms connected with sexual life: *meretrix, lupanar, leno* and three times *moechus* are words that characterize the persons and the places they go to. There are a number of bed words: *lectum, cubile, torus* and as many as three words for bedspreads, *teges, cento* and *lodex*. The parts of the body involved are *papillae, ardens volva* and *inguen*. As a cover for the latter part of the body, certain actors use a *subligar*, a popular souvenir for Roman wives; they also need a *fibula*, a sort of safety lock designed to obstruct sexual activity. In the descriptions of the sexual act, Juvenal uses such words as *excitare, tentigo, amplexus, concumbere* and *anhelare*.

Words that the two poets have in common are *amare, iungere, libido* and *Venus*. Furthermore, both use words that *may* allude to sex, like *nox, cubile* and *nudus*. The latter adjective is used in Lucretius' description of human life back then (*tum*): *silvestria membra | nuda dabant terrae nocturno tempore capti* (970 [969]f.). Also *nudantia* (1064) was marked in my list as a potential 'sex word'. However, the context is that the throats of the big Molossian dogs 'denude' their hard teeth. In Juvenal, on the other hand, *nuda* is used as apposition to the implicit subject, Claudius' wife, and is accompanied by *papillis* in the ablative and the finite verb *prostitit*. Thus, while Lucretius' humans were naked because they did not know how to make clothes, the motive in the case of the empress was, apparently, to entice the men who came by.

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[37] Lucretius' main treatment of sexual life is found in Book 4, 1037–1287.

The word *nox* occurs four times in Lucretius in different contexts: three times men's rest at night is referred to, and the fourth time it is sunset. In Juvenal, a word with the meaning 'at night' is used in the context where the 'you' of Satire 6 is recommended, instead of marrying, to take himself a young boy *qui noctu non litigat* (35). Another related word is used in the episode of the empress and her nightly activities; she leaves the palace *dormire virum cum senserat uxor*. As one understands, this is a nightly excursion, even though grammatically the adjective *nocturnos* is connected to her cloak, *cucullos*. Between the two words is the subject, the shocking combination *meretrix Augusta*. The last occurrence of a nocturnal word in the Juvenal excerpt is connected to the morning gift, *quod prima pro nocte datur* (204). Thus *nox* and *nocturnus* in Juvenal are used in sexual contexts each time, while all four occurrences in Lucretius have the plain meaning connected with night and rest.

In his description of sexual life, as in general, Lucretius seems objective and unbiased. He has presented different models of explanation for the movements of the celestial bodies, the seasons and so on; now he does the same with reasons for intercourse: mutual lust, rape or prostitution. And, on the other hand, how else would a Juvenal use words like *nuda* and *nocturnus*, if not in order to give a sketch of his lascivious women and their environment?

CONCLUSION

The paper is an attempt to test the hypothesis that the degree of complexity in a certain text is connected to genre; it also represents an experiment in method. Two excerpts are compared, with focus on style and complexity, through a number of computer-based examinations. The methods provide so much material that, even though the excerpts are restricted to 211 hexameters each, only a few of the results could be analysed further within the limits of an article.

Lucretius, in his project to explain Epicurean philosophy to the Romans, makes use of a narrative style primarily in the present and imperfect tenses. He has an equal share of plural and singular verb forms, and even if the third person dominates among the finite verb forms, the first and second person are used a few times in order to activate the receiver. The sentences are long, with a good deal of subordinate clauses. Lucretius demonstrates inventiveness, particularly in the many ways of using the infinitive, which contributes to emphasizing the *general* aspect. The thematic words examined are normally used in a direct and concrete meaning, thus contributing to the receiver's understanding of the text. The repetition of certain expressions, for example *saecla ferarum*, imitates epic narrative and also contributes to a quiet style, like the waves of a tranquil ocean.

Juvenal likes to use individuals as *exempla*, as shown by the high number of personal names and also the preponderance of singular verb forms. His sentences are shorter and he has fewer subordinate clauses than Lucretius, but the variation in the syntax is demonstrated by the many different verb forms. The variation is found also in the thematic words; for example, animals are used as metaphors, ironically, as allusions and also in a direct sense. To read Juvenal is like meeting a master fencer: you never know where and when the satirist is going to strike next time.

One may conclude that other factors are equally important for the complexity of these texts as those used in Björnsson's readability test. This does not mean that word and sentence length are irrelevant in studies of style, but that some supplement is needed. Complexity in syntax is demonstrated not only by sentence length; arguably,

syntactic variation may be quite as challenging to the receiver as a series of long sentences with similar structures. And whereas the percentage of long words is an indication of the level of abstraction, such a calculation cannot grasp other difficulties such as the use of metaphor and irony. The examination of thematic words and their use was, in my opinion, better suited to describing and revealing differences of this kind between the texts.

The study confirms, whatever the results of the readability testing, that Juvenal's Sixth Satire is complicated. Hence, readers' interpretations differ. To be sure, these differences do not originate from the word level or the level of the syntactic structure, but concern the understanding of the text as a whole, its message, and the distance between the expressed words and passages and the way they should be interpreted. As one would expect, this distance is more marked in satire – a genre that of necessity uses irony and extreme examples in order to shock the receiver – than in didactic poetry, which has understanding as its primary aim. Satire as a genre is more challenging, and in the final resort there is no one-to-one relationship between the text and its 'real meaning'.

The methods described can be applied to all kinds of texts to establish fresh material for analysis and comparison. Through simple counting and sorting, and through the focus on individual words, similarities and differences come to light; thus, these methods may lead to a greater degree of precision in stylistic analysis. The Word Class and the Alpha-Thematic methods are both very flexible; the criteria for sorting may be varied almost indefinitely and can be chosen on the basis of preliminary observations. On the negative side, it must be admitted that the methods are time-consuming.

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