

Hammelrath (20) and Bourgery (21) have observed that the uncomplicated mezozeugma is so widely spread in Seneca's prose, that it could serve as a sure argument for his authorship. So a question arises whether the use of mezozeugma changes in the texts studied. After substituting a, x and y with concrete syntactical items, the following cases are obtained in which the differences in the occurrence of mezozeugma has been checked by the means of χ^2 criterion for alternative cases :

1.- *Verb common to a series of two or more clauses (proper zeugma)*

Under "non-middle position of the common predicate" one understands its pulling to initial or end position, as for ex. *De ira* III,8,4 : *offendet te superbus contemptu, dicax contumelia, petulans iniuria, lividus malignitate, pugnax contentione, ventosus et mendax vanitate*. When in middle position, the predicate is placed amidst the series, in the end of the first or one of the following sentences as in *De ira* II,16,1 : *iracundia leonem adiuvat, pavor cervos, accipitrem impetus, columbam fuga*. As proved by the statistical check, in this case the observation of Hammelrath and Bourgery is reasonable. Seneca prefers to put the common verb in inner position. This tendency acts with the same force in the earlier as well as the later texts.

2.- *Part common to some members of the sentence*

Typical example of a verb common to some verb predicates (2.a) in middle and non-middle position gives accordingly *De ira* III,14,4 ; *...et testis fuerat et causa* and *De ira* I,17,5 : *...iam fracta lenisque est*. In this class of zeugma all but the middle position is preferred. *De ira* I

and *De ira* II form again a couple, *De ira* III drifts apart, *De clementia* does not join either but remains in an indefinite position. The variation of *De ira* III may be individual or it may be a reflection of the general tendency for shifting the predicate toward the centre of the group *nomina praedicativa*, which tendency is not observed in *De clementia*. The ambiguity of the situation does not allow one to ascribe the distributive ability of the tendency to the increase of mezozeugma in this case.

The tendency of all but middle position of the common element remains still unchanged in the following sub-groups :

2.b) A predicate common to two or more subjects, type of middle position, gives *De clementia* I,2,2 : ...confusio sequitur et vitiorum eruptio and of non-middle position, *De ira* II,11,2 : non timetur febris, podagra, ulcus malum ?

2.c) Predicate common to two or more objects. Clearly exhibits the type of non-middle position *De ira* II,17,2 : ...non iram, sed vim adhibeat and *De clementia* I,23,2 : ...postquam saepius culleos vidimus quam cruces.

2.d) Predicate common to two adverbial phrases, expressed with a case and preposition. In the first book of *De ira* one meets examples of its non-middle position, 16,2 : ...in exilium et loca ignota mitteris and of middle position, 13,5 : ita non in adiutorium virtutis venit, sed in vicem.

2.e) Predicate common to some adverbial phrases expressed with ablativus. The two types obtain illustration from the third book of *De ira* :

non middle position 32,2 : ...et vinculis, carcere, fame vindicamus... and middle position 30,1 : frivolis turbamur et inanibus.

2.f) A noun common for two unagreed attributes. In *De ira* II could be found clear examples for non-middle position, 34,4 : ne irascamur inimicorum et hostium liberis... and middle position, 21,1 : ...nec vitii locum nec iam praecepti habet.

For a noun, common for two agreed attributes (2.g) however, a tendency for a change in the syntactical scheme appears to a more rare placing of the attribute in the middle of the group, i.e. the type demonstrated by *De ira* I,20,3 : ...veternosi et infelicis animi tends to prevail upon the type demonstrated by *De clementia* I,3,5 : ...sereni caeli et nitentis. The possibility of significance of the difference observed moves from 8 % (*De ira* II to *De clementia*) to about 24 % (*De ira* I to *De clementia*). The three books of *De ira* group and stand apart from *De clementia*.

In the comparative study of rhetorical figures the probability for significance of the differences observed has not obtained anywhere the critical value 95 %. But the distinctions, not clearly outlined in the beginning, in the course of the investigation cumulated, reinforcing each other, reciprocally supplementing and confirming.

Weight and reason for the treatment of this totality as a valid indication of the style differentiation gives us exactly this reciprocally confirming accumulation. The set of characteristics arranged in intensity separates *De ira* I and *De ira* II from the later dialogue *De clementia* and includes :

- 1) Low degree of use of the asyndeton, successfully competed by the polysyndeton.
- 2) Comparatively more often placing of the noun, common for two agreed attributed in a middle position.
- 3) More rarely met anaphora.
- 4) Weak tendency to more often occurrence of the polysyndeton.

Stability showed chiasme, parallelism, the cumulation of synonyms, two subtypes of paronomasia as well as all types of zeugma with exception of the index, mentioned on the second place in the set and the type "predicate common for some predicative nouns", which divides the third part of *De ira* from the first two and from *De clementia* too. On the other hand, by three from the four components of the set, *De ira* III nears the dialogue written in the fifties. Following the study of the *figurae verborum*, we have to place *De ira* III not together with the first two books, which are remarkably similar from stylistic point of view, but with *De clementia* and to move therefore the third book to its upper *terminus ante quem*, 52 A.D.

Since the lexical analysis represents the quality and the quantity of the units by which stylistic figures are realized, it fills considerably the characteristics derived as a result of the treatment of these figures. A survey of the writings on classical philology where lexicostatistical methods have been used proves that it is in this section of the philological science that they are first used. The priority of Latin philology during the last years is ensured by the numerous worked out by a computer editions of L.A.S.L.A.

In order to have the possibility to compare our manually worked frequency vocabularies of *De ira* and *De clementia* with that of the Belgic team, the programm of L.A.S.L.A. has been used. According to it the Forcellini's Lexicon *Totius Latinitatis* serves as a basic information source (22). The data thus obtained for the four texts are as follows :

<i>De ira</i> I	N = 5519	V = 1589	(*)
<i>De ira</i> II	N = 7636	V = 1996	
<i>De ira</i> III	N = 9389	V = 2392	
<i>De clementia</i>	N = 8249	V = 1957	

(*) N = text length, i.e. forms ; V = vocabulary, i.e. lemmata.

The present statistical comparison of the texts embraces the comparison of the volume of their vocabularies, the frequency distribution of the lexems in general and the distribution of the identical lexemes in the different texts, i.e. the establishment of the degree of their lexical connection. The generic belonging is reflected by the proportions of the different parts of speech in the texts and the specific for the philosophical dialogue element "colloquiality" by the value of the pronominal index of Muller.

The critical survey of the lexicostatistical indices, used until now in similar analyses, shows that many of them do not match our case since they are either dependent on the length of the text (indices of Guiraud (23) and Kuraszkiwicz (24) for the lexical richness, entropy and redundancy

proposed by Sambor (25), index for the lexical connection of Muller (26) or are not sufficiently well worked out and this dependence is still not well traced (Golovin's indices (27) and some of Guiraud's, Muller's (28) and Mistrík's (29)) or a suitable comparative material for Latin is lacking (arithmo-semantic zones of Guiraud (30)). For that reason indices which are free from the defects mentioned above especially from the dependence on the text length have been used.

The comparison of the vocabulary volumes is made according to the method, proposed by Muller (31). In the classification thus obtained the third part of *De ira* occupies the first place with largest vocabulary and the later dialogue *De clementia* - the last or before - last place. The splitting of the couple *De ira* III—*De clementia*, both showing great similarity in use of the figures of speech, on one hand, and the location of *De clementia*, on other, do not allow to draw a reasonable conclusion that the tendency is toward increasing of the vocabulary volume. It does not, however, exclude the assumption that such an increase, realized in fact by fluctuations, may exist (32).

The statistical structure of the texts is compared by Yule's k-index, sensitive to high frequencies (33). The great values indicate less lexical multiformity and the smaller ones, greater. Again the first two parts of *De ira* stand apart (with corresponding values 78.08 and 73.39) from *De ira* III ($k = 57.18$), which is closer to *De clementia* ($k = 63.24$). In the later text a tendency to a more scarce use of the high frequency lexemes is observed. According to the data of the frequency vocabularies these are pronouns, conjunctions, prepositions, the particle *NON*, the

verbs *SUM* and *POSSUM*. The preponderance moves to the lower frequencies represented mainly by substantives, verbs and adjectives. The multiformity of the texts increases and at some point it is eventually realized by fluctuation.

Significant information for the lexical connection of two literary works gives a comparison of the distribution of the identical lexemes, i.e. the establishing of the degree of their lexical connection. For the analysis, a method analogous to Förstemann's in the comparative linguistics has been used (34). The distance of the texts was calculated according to the formula given by Baily (35). Our preliminary assumption is that, because of the common theme, the three parts of *De ira* will be in closer lexical connection than each of them separately with *De clementia*. The results are as follows :

Distance between... TEXT	<i>De ira</i> I	<i>De ira</i> II	<i>De ira</i> III	<i>De clementia</i>
<i>De ira</i> I	—	0.0160	0.0265	0.0275
<i>De ira</i> II	0.0160	—	0.0223	0.0265
<i>De ira</i> III	0.0265	0.0223	—	0.0192
<i>De clementia</i>	0.0275	0.0265	0.0192	—

De ira I and *De ira* II remain linked. Again the third part of the same dialogue moves apart from them and approaches *De clementia*. The preliminary assumption is not supported by the results.

The content community of the three parts of the dialogue *On Anger*, which finds reflection in the higher frequency of use of the lexemes, joined with the theme "Anger", does not guarantee their close lexical connection. As it is established by two sings, identity of the lexemes and their frequencies, the separation may be due to thematic or structural causes, which act in the same or in the opposite direction. Using now the results of applying Yule's criterion, reflecting only the structural differences, one can draw the conclusion that the separation of *De ira* III can be attributed to the structural cause, prevailing upon the thematic and acting for its approach to *De clementia*, different as regarding the theme, but similar as to the statistical distribution of lexemes.

The result of the combination of the two indices permits the change in the use of the high frequencies to be taken as a sign for chronological division. In the earlier works the high frequency lexemes predominate and in the later ones a transition to vocabulary units with middle and low frequencies is obtained.

The generic characteristic of the philosophical dialogue is represented by the proportions of the different parts of speech in the texts, i.e. their "temperatures" (37). The table of distribution of the classes of the parts of speech in the four texts totally is :

<i>Substantivum</i>	25.46 %	<i>Coniunctio</i>	12.04 %
<i>Verbum</i>	24.81 %	<i>Praepositio</i>	5.36 %
<i>Adiectivum</i>	8.46 %	<i>Numerale</i>	0.43 %
<i>Adverbium</i>	7.68 %	<i>Exclamatio</i>	0.08 %
<i>Pronomen</i>	13.32 %	<i>Particula</i>	2.36 %

Latin philosophical dialogue though belonging to genres with marked colloquiality, in which the proportion of the verb is greater (38), appears as a remarkably well balanced system of verbs and substantives. This is clearly demonstrated by the identical participation of the verb and the substantive in the text (about 25 %).

The tendency of change of the colloquiality is investigated by the pronominal index of Muller (39). Again there appears the known separation of *De ira* III (value of pronominal index 2.20) from *De ira* I (pr. ind. 3.30) and *De ira* II (pr. ind. 3.20), again the third part approaches *De clementia*, which shows the lowest degree of colloquiality (pr. ind. 1.90). Therefore, in the later dialogue one gets an impression of a much more abstract conversation.

In its essence the development of the theme in the dialogue proceeds as a confrontation of two theses, represented by two or more personages. While in Cicero the later are still not deprived of individuality, in Seneca's dialogue-diatribes the opponent has disappeared; only his rejoinders have remained marked most often by the verb "*inquit*" (40). Their frequency speaks of his participation in displaying of the debate. In confronting the four texts regarding the frequency of the rejoinders, there appears again the disharmony separating the three parts of the dialogue, traditionally connected in a single entity.

	Rejoinders of the adversary marked with "inquit" or introduced without it	Rejoinders of the listener marked with "inquis"
<i>De ira I</i>	15	1
<i>De ira II</i>	14	1
<i>De ira III</i>	3	10
<i>De clementia</i>	3	1

While in the two first books the adversary continuously and aggressively interrupts the author, *De ira III* and *De clementia* have a more smooth and undisturbed run. *De ira I* and *De ira II* are actually a dispute, a controversy, while *De ira III* and *De clementia* flow as a talk in which the listener takes a major part, in *De ira III* and disappears as an acting personage in *De clementia*. Thus Seneca's dialogue obtains the features of a *suasoria*, an *exhortatio*. The pronominal index of Muller and the comparison of the frequency of the adversary's and the listener's rejoinders show that in the texts observed a transition of Seneca's dialogue from the type "controversia" to the type "suasoria" is accomplished.

The set of characteristics of the earlier dialogue is supplemented with :

- 1) More intensive use of high frequency lexemes.
- 2) Greater colloquiality.
- 3) Better expressed participation of the fictive adversary.

De ira III approaches *De clementia* by even more indices. The crosschecking of the results, obtained on different levels and by different procedures, is the strongest argument to the thesis that the third part of this

dialogue is separated from the first two by the time of writing with a period of several years and is thus near to *De clementia*.

The appearance of the differences between the earlier and the later dialogues is the basis for the first conclusion that Seneca's style changes by realizing some more general stylistic principles. The first one is the principle of organisation "stacatto" observed by Bourgery and Coccia (41) as characteristic for Seneca and indicated here more intensively because it affects most elements on the two levels. In *De ira* I and II its action is evident by the splitting of the flow of exposition (by the means of the rejoinders) in great intervals - in volume from period to chapter - situated abruptly, without transition. In the interior the rupture and the smoothness balance each other (asyndeton to polysyndeton). In the later dialogue this principle, having already left the surface (more rare adversary rejoinders) enters deeply in the structure of the speech where on "molecular" level it appears in the preference to the asyndeton; in tangent points of the abruptly arranged commata, cola and clauses the increase of anaphora is claimed by the need of inderlining and by the tension. This is the way, in our view, of the development of the manner, for which Seneca is mostly blamed by Quintilian (42), viz. that he has broken the gravity of the content (*pondera rerum*) in miniature sentences (*minutissimis sententiis*), a manner used so perfectly by Seneca in his later writings, for ex. *Epistulae ad Lucilium*.

The second principle - *varietas* - is the tendency towards an increase of lexical multiformity, expressed by Yule's index and the frequency of the polyptoton. As the frequency vocabularies testify, the multiformity is not

due to an increase in the Greek lexemes borrowed. The decrease of the uncomplicated zeugma for the noun, common for two attributes, cannot be yet sufficiently explained. It is possible that it reflects the action of the stylistic principle "search for the unexpected".

A second conclusion, already closely connected with the chronology of the philosophical dialogues of Seneca is that chronologically *De ira* III is separated from the two first parts of the same dialogue and can be placed between 49 and 52 A.D. Thus the theses of Albertini and Pohlenz (43) who ascribe *De ira* III to the year 49 as well as Faider's observation of a resemblance of *De ira* III with *De clementia* (44) are supported. An additional newly found argument of a different type is that *De ira* III provides plenty of example of ruling people abstaining from their anger (45). It is possible that the shaping of *De ira* III in such a tutory tone is influenced by the role of Seneca as young Nero's preceptor after 49 A.D.

The investigation carried out does not exhaust all stylistic peculiarities of Seneca's prose and still leaves many disputable points. But, in our view, the statistical approach to the stylistic problems gives a solid basis for solving the complicated questions of chronology in general.

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- (4) After *De clementia* I,9,1.
- (5) *De clementia* does not belong to *codex Ambrosianus*, containing the so called "philosophical dialogues", but it is generally accepted that this work also has the diatribic form-Giacotti, F., p.18; Albertini, E., *La composition dans les ouvrages philosophiques de Sénèque le philosophe*, Paris 1923, p. 307; Bourgery, A., p. 95.
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- (12) More details about the separation and the statistical treatment of the anaphora in our paper "The anaphora in the dialogues *De ira* and *De clementia* of Lucius Annaeus Seneca", *Annuary of the University of Sofia, Faculty of Western Philologies*, 1968, LXII, p. 51 sqq. (in Bulgarian with an abstract in English); about the other figures, the paper "Observations stylistiques et lexicales des dialogues *De ira* et *De clementia* de L. A. Sènèque" in n. 13 of

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- (13) For the two figures see *Ad Herrenium* IV,41,30; Quintilianus, IX,3,50 sqq.; Lausberg, H., S. 345; Stolz-Schmalz, S. 663.
- (14) *Ad Herrenium* IV,20,27; Quintilianus, IX,3,75 sqq.; Lausberg, H., S. 359 sqq.; Stolz-Schmalz, S. 805.
- (15) The little differences of a unity in the average frequencies between the present paper and the paper "Observations...", mentioned above are due to the specifying of the frames of some figures. This does not affect the tendencies of change, which remain the same.
- (16) The principles of separation of another figure aiming symmetry, namely the homoioteleuton (identical ending of immediately following commata, cola and sentences), treated in our dissertation, p. 112 sqq., and the paper "Observations...", has to be specified once more taking into account the complete phrase-sounding as well as alliteration and assonance.
- (17) Stolz-Schmalz, S. 825 sqq. See also Quintilianus, IX,3,45.
- (18) *Ad Herrenium* IV,21,29; Quintilianus, IX,3,66 sqq.; Stolz-Schmalz, S. 799; Lausberg, H., S. 326.
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- (32) For a similar case about Corneille's drama "Attila" see Muller, Ch., Initiation, p. 64, and Etude, p. 251.
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- (35) Beili, N., Matematika v biologii i meditsine, Moskva 1970, str. 162.
- (36) The distance were calculated on the basis of 50.02–50.40 % covering of text. A preliminary experiment has shown that in increasing of the covering the distance changes in one direction from 0.003 to 0.0020 and in the classification itself displacings are not observed.

- (37) We adopt the term "temperature" used by M. Yanakiev in the mentioned stylistics of the Bulgarian language, p. 68.
- (38) Muller, Ch., Etude, p. 117 sqq.
- (39) Muller, Ch., Etude p. 125.
- (40) Bultmann, R., Der Stil des Paulinischen Predigt und die kynisch-stoische Diatribe, Göttingen 1910, S. 10 sqq.; Norden, E., Die römische Literatur, Leipzig 1961, S. 88.
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