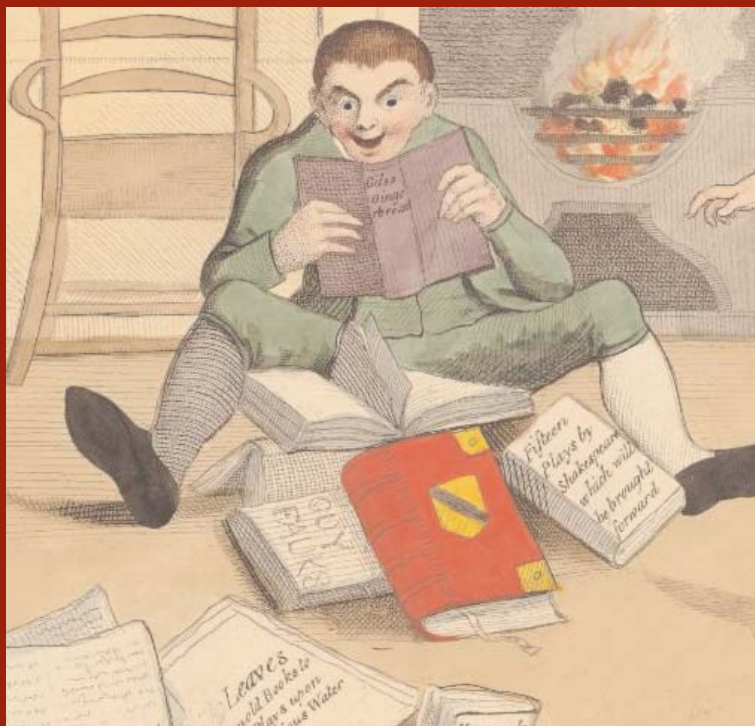


Javier Martínez (ed.)

Mundus vult decipi

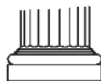
Estudios interdisciplinarios
sobre falsificación textual
y literaria



EDICIONES CLÁSICAS

Javier Martínez
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THE PROBLEM OF AUTHORSHIP OF XENOPHON'S *CYNEGETICUS**

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This paper deals with the problem of authorship of the technical writing *Cynegeticus* or *On Hunting* traditionally attributed to Xenophon. This work is indeed cited in the list of the writings of Xenophon by Diogenes Laertius and, as far as we know, this list dates back to the cataloging work of the Alexandrian philologists in the third century BC. Plutarch (Plu. *Mor.* 1096c) mentions it and Arrian himself, fervent admirer of the 'attic bee', wrote another *Cynegeticus* with the intention of completing the omissions found in the former, as he explains: Arr. *Cyn.* 1.1 Προοίμιον, ἐν ᾧ καὶ τὰ Ξενοφῶντι παραλειφθέντα εἰπεῖν Ἀρριανὸς ἐπαγγέλλεται, "This is the preface in which Arrian offers to say what Xenophon omitted". In this regard it is important to emphasize the fact, as Gray remarks (1985: 157), that Arrian, who was very familiar with the work of Xenophon, did not identify any anomaly or peculiarity which made him suspicious of its authenticity. In fact, the problem of authorship and authenticity of the Xenophontine *Cynegeticus* was not raised in antiquity, like so many similar controversies, but during the late nineteenth century. From that moment on, its authenticity has been strongly questioned and sharply denied. Since then scholars have been lining up on the respective sides in favor of a full, partial, or negative authorship of Xenophon. In the varied works of Xenophon there are included, as it is known, a number of small technical writings such as *The Cavalry Commander*, the excellent *On the Art of Horsemanship*, and the short treatise *Ways and Means*. Accordingly, Xenophon could certainly have written a small manual on hunting, which would fit perfectly with his character, personality and lifestyle. This paper will attempt to determine whether Xenophon was indeed the author of the *Cynegeticus*, the manuscript tradition has left us.

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In other cases, such *quaestiones* have served a useful purpose, significantly increasing our level of knowledge on the topic. Consider, for example, how our knowledge of Homer has developed due to the Homeric question. With respect to *Cynegeticus*, this question, of course, has much less impact. However, it is important to stress the high number of great works, all of them very rigorous, which have been produced as an attempt to solve the mystery of *Cynegeticus*' authorship. The studies produced under this scholarship are of such quality that they all present compelling and persuasive arguments. Clearly not all these arguments can be correct, but their profusion leads to the inevitable conclusion that the research methods used to date have been exhausted.

Most of the evidence for each side of the argument is exposed in the articles of Radermacher (1896 and 1897) and Gray (1985), taking opposite sides, and by the main editors of the text: Marchant-Bowersock (1968 [1925¹]), Pierleoni (1937), Delebecque (1970), and Gracià (2001). This paper will not explore in depth the different elements that make up the debate, but it is necessary to quickly sum up the key points that have caused the dispute over the last century.

The first problematic aspect of *Cynegeticus* is the two versions or redactions of the preface in its opening chapter. Some editors of the text have chosen to merge the two redactions into one, but the most conservative approach and probably most successful, that of Delebecque and Pierleoni, is to edit them separately. The version transmitted by manuscript A is designated by the letter A, and the version from the remaining manuscripts is designated by the greek letter Σ. The basic difference between these two versions is that A is slightly shorter than Σ, and thus tends to be seen as a later edit in order to improve the style. What remains unknown is whether this later edit was performed by the same author, or not. The unity of the writing as a whole is just one of the points that detractors of its authenticity have questioned. This is because they perceive three distinct sections in the text: the prologue, the main body of text, which is the technical section devoted to the art of hunting, and, finally, an epilogue in the last two chapters of the work, which surprisingly contains a severe attack on the Sophists.

After questioning the overall unity of the text, and in view of the problem posed by the two versions of the preface, it is precisely this section of the work that is the most thoroughly dissected and attacked. Scholars have emphasized the alleged presence of stylistic elements rare in Xenophon, especially rhythmic recurrences that seem to suggest influences either of the Asianism (RADERMACHER 1897: 36), or the second sophistic (NORDEN 1974: 431-434), which in either case would suggest a much later date than the fourth century BC. They also add linguistic elements not usually found in Xenophon, at least in their opinion. Radermacher has carried out the most comprehensive study in this

direction, and the anomalies that he collects refer to the poverty of particules and their combinations (1896: 611 ff.), asyndeton, uniformity of style, abuse of ellipsis and simple syntax (1896: 613), some syntactic features, as surprising, from his point of view, as the use of the infinitive *pro imperativo* (1896: 618), use of transitive verbs as intransitive (1896: 619 ff.), use of prepositions (1896: 622 ff.), lexicon (1896: 615 ff.), with an extensive review of poetic vocabulary (1896: 616 ff.), etc. His conclusions are so devastating that it is worth reproducing them in this extensive quotation (RADERMACHER 1896: 622-3):

Der Stil des *Cynegeticus* ist charakterisirt durch die geringe Kunst des Satzbau und die Einfachheit der Satzverbindungen, ferner durch die Einseitigkeit in der Verwendung gewisser Figuren und durch Nachlässigkeit in Bezug auf scharfe grammatische Beziehung. Die Ausdruckweise enthält mancherlei, was der Sprache des Volkes entlehnt zu sein scheint; als volksthümlich darf man auch vielleicht einige syntaktische Merkwürdigkeiten betrachten. Überall aber liessen sich deutliche Unterschiede gegenüber der Sprache und dem Stile Xenophons nachweisen.

Radermacher does not recognize any virtue in the style of this writing, due to its limited artistic qualities in syntactic terms, vulgarity of rhetoric, lack of rigor in grammatical constructions and the popular tone of the syntax. In his opinion all these features differ significantly from the standard language and style of Xenophon. Breitenbach (1983²: cols. 1910-1921) places the book in an appendix entitled 'Ps.-Xenophon' within the extensive entry on Xenophon (BREITENBACH 1983²: cols. 1566-2051), but offers no reason for this, although the influence of Radermacher is clear in this sense, as we will see soon. Schütrumpf is still more succinct (2010: col. 830): "authenticity disputed".

This negative assessment is a little extreme and excessive, but, at least in part, there is a degree of truth in what he states. However, it is important to be very careful with any statement regarding the use of asyndeton, such as Radermacher's (1896: 603) observation that:

Die bemerkenswertheste Eigenthümlichkeit des Schriftstellers aber ist seine Vorliebe für Asyndeta, die soweit geht, dass ich überhaupt keinen griechischen Autor weiss, der sich hierin mit ihm vergleichen liesse.

I cannot agree on this point. In fact, as this paper will demonstrate, the asyndeton is syntactically irrelevant in this text. Following Radermacher, Breitenbach also makes the following remark (1983: 1915): "wie kein anderer griechischer Schriftsteller verwendet er Asyndeta".

Xenophon's style is highly variable, flexible and changing. It therefore seems highly daring to speak in the sharp terms that Radermacher employs. Let us take the following case as an example. It is true that in the *Cynegeticus* we detect the lack of some combinations of particles very characteristic of Xenophon's style, such as *καί... δέ*, with *δέ* (coord.) in a more delayed position than normal (postponed in the second position), as in X. *Eq.* 1.3 *καί τῷ νόφῳ δέ ἔφη Σίμων δῆλους εἶναι τοὺς εὐποδας, καλῶς λέγων, X. Eq.* 5.9 *καί τὴν ὑπό*

γαστέρα δὲ ἄγαν κάθαρσιν μειοῦν χρή, X. *Eq. Mag.* 1.20 καὶ ἐν ταῖς μελέταις δὲ ταῖς πρὸ τῆς ἀνθηπασίας καλὸν ἐξάγειν ἄλλοτ' εἰς ἀλλοῖον τόπον, X. *Eq. Mag.* 3.2 καὶ ἐν τοῖς Διονυσίοις δὲ οἱ χοροὶ προσεπιχαρίζονται ἄλλοις τε θεοῖς καὶ τοῖς δώδεκα χορεύοντες, X. *An.* 1.1 καὶ τῶν παρ' ἑαυτῷ δὲ βαρβάρων ἐπεμελεῖτο, etc. However, the absence of a linguistic feature such as this is not conclusive anyway. On the other hand, there is a curious passage in the *Cynegeticus* which exhibits two very striking linguistic features, namely the infinitive of command, so surprising in the eyes of Radermacher, and ἵνα with subjunctive as imperative (not as purpose clause), more surprising still in the fourth century BC. In fact, this passage would be an ideal candidate to use as a grammatical explanation of the various syntactic procedures for the expression of a command in ancient Greek: X. *Cyn.* 6.5-7

Τὴν δὲ στολὴν ὁ ἀρκυωρὸς ἐξίτω ἔχων ἐπὶ θήραν μὴ ἔχουσαν βάρος [...], καθαρὰς ποιοῦμενος τὰς ἀρκυστασίας, ἵνα δ' αὐτῶν μηδὲν ἀντέχηται, πηγνύειν δὲ τὰς σχαλίδας ὑπίτιας, ὅπως ἂν ἐπαγόμεναι ἔχωσι τὸ σύντονον

May the net-keeper go hunting with a light clothing [...], impeccably putting the lines of nets, and may nothing of these objects put in front of them, and may he (*sc.* the net-keeper) fix the stakes backwards, so that when pulled they may stand the strain.

In this passage expressing a command, a combination of imperative, the rare ἵνα as imperative in the fourth century BC and the unusual infinitive of command in prose, can be read. However, this syntactic construction of ἵνα with subjunctive as imperative is documented and attested in genuine works of Xenophon himself (X. *An.* 1.3.16 and X. *An.* 3.2.11), as well as in earlier texts of Sophocles (S. *OC* 155-156) and Euripides (E. *Hel.* 1202 and E. *Or.* 1628), as discussed in another paper (LABIANO 2008). In short, the linguistic arguments that are put forward in the case of the *Cynegeticus* can lead in opposite directions.

Gray, a strong supporter of Xenophontine authorship, writing exactly a century after Radermacher, has produced an excellent rejoinder that is as devastating or more, but in opposite terms. Gray argues convincingly for the unity of style, and therefore she claims that the *Cynegeticus* is a work of great unity in which internal cross-references abound, so that, if the preface is removed, it would break many of these references. She concludes that it does not seem reasonable to propose separate sections. On the contrary, she believes that there is a clear unity of authorship, composition and date (GRAY 1985: 161-2). She also finely demonstrates that certain stylistic elements that are reminiscent of Gorgias have been exaggerated, thus also invalidating the argument of chronology (GRAY 1985: 167). But one of her major remarks and contributions, in my opinion, is her discovery that all stylistic and linguistic peculiarities of the *Cynegeticus* are also found in the *Corpus Hippocraticum*, to the extent that this seems to be the style of scientific and technical writings, which she summarizes

in these words (GRAY 1985: 169): “1. infinitive of command; 2. asyndeton; 3. ellipse; 4. lack of particle variety; 5. short, basic sentence structure”. Gray thus reaches the conclusion that the similarity between the style of the descriptions of animals in *X. Cyn.* and that of the *Corpus Hippocraticum* suggests a tradition that, from what we know of the *CH*, was already developed in the late fifth century BC. This paper will later have occasion to ponder the value of this possible affinity of styles. In short, Gray argues in her conclusions (1985: 172) that the *Cynegeticus* is a piece of *παραίνεσις*, with the conventions that are specific to this genre, that it was written by one author in the fourth century B.C., and that this author is unquestionably Xenophon. Delebecque (1970: 33) had previously made clear his own position in favor of the Xenophontine legitimacy: “Idées, sentiments, composition à la fois une et diverse, manière d’écrire, tout porte la marque de Xénophon”. Jaeger (1957: 979) is also in favor, taking a similar direction when he states that the preamble does not differ substantially from similar passages found in the works of Xenophon, though he admits that he does not like to dissent from the authority of Norden. For their part, and more recently, Vela (1998: 50) and Gracià (2001: 98) both add their own agreement to this opinion of Xenophontine authorship, apparently convinced by the solid arguments of Gray. An inevitable consequence of radical importance of Delebecque and Gray’s statements is that, undeniably, the *Cynegeticus* was written in the fourth century BC. The validity and credibility of the Xenophontine authorship can be disputed, but the time frame seems solid in all cases, unlike other proposed later dates.

The studies of Radermacher and Gray are laudable for the rigor of their arguments, both presenting well-founded conclusions. Both arguments are convincing, and only the impossibility of the fact that both are absolutely right leads to the need to explore other methods in order to resolve the problem. The compromise between the two solutions, proposed by Marchant-Bowersock (1968 [1925¹]: XLII-XLIII), suggesting a partial authorship in which Xenophon is the author of all but the unusual preface, is not an acceptable solution for the problems affecting the entire text. For the time being, the study of the content, language and style of *Cynegeticus* has reached these limits, but has drawn no definitive conclusions. Rather than leave the matter in abeyance, this paper proposes to use statistical linguistics to tip the balance in the argument, by attempting to clarify some of the ambiguity and contradictions that surround it.

This procedure has been successfully applied to other medical writings of the *Corpus Hippocraticum* in previous studies by the research team of the Universidad Complutense de Madrid (UCM), led by Rodríguez Alfageme, author of the fundamental working hypothesis. See Ángel (2003) for *Ep. V* and *VII, Nat. Hom.* (2011), Sierra de Grado (2003) for *VM, Aër., Carn. and Prorrh.* II, and especially Rodríguez Alfageme for *Gland.* (1992), *Vid. Ac.* (1993) and for *Loc. Hom.* (2010). See also Labiano (2004 and 2013) for the Surgical treatises.

Some of the ideas concerning this method and its description will be reproduced almost literally in this paper.

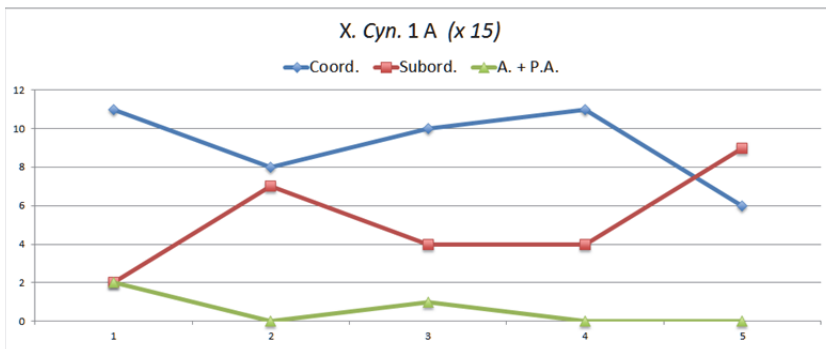
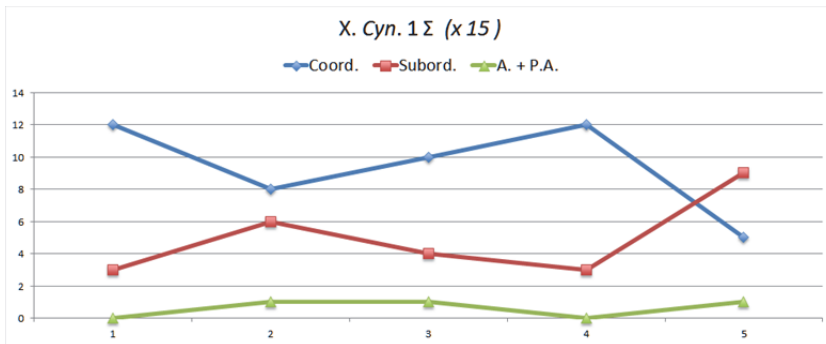
In short, this method involves a count of syntactic links (particles of coordination, links of coordination and subordination, asyndeton, genitive absolute), in groups of 25 sentences over a text, in order to compare the average and statistical deviations, using the Student's *t* test, within two texts, or different sections in a text. This will determine whether the two compared texts may originate from the same writer, in terms of statistical probability. The first stage, therefore, is to 'translate' the text into numbers, in order to make statistical analysis possible (MULLER 1973: 15). Through comparisons of sets of two texts and their statistical deviations, several types of relations can be established between them based on statistical probabilities. These are relations of common/divergent authorship, proximity/distance in time, in style, etc. Analysis of syntactic distribution of sentences and links throughout one text allows us to obtain a syntactic pattern, a syntactic style, unique to each writer, with a constant rate in every era. The use and distribution of these links, present or absent (asyndeton), in relation to the content of the text, reflects the logical and psychological methods each writer applies to his text, his attention to style, etc. In short, this syntactic pattern is a unique and personal way to represent what a writer wants to communicate. It is a personal brand; *his* personal brand.

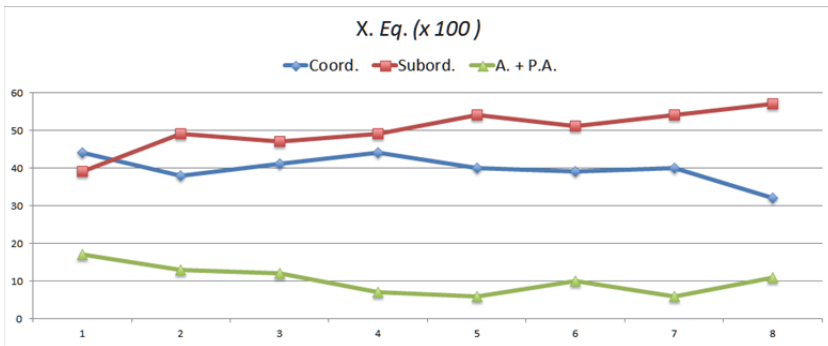
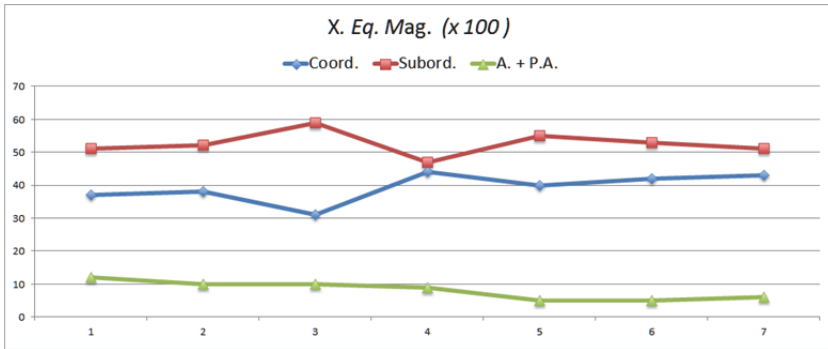
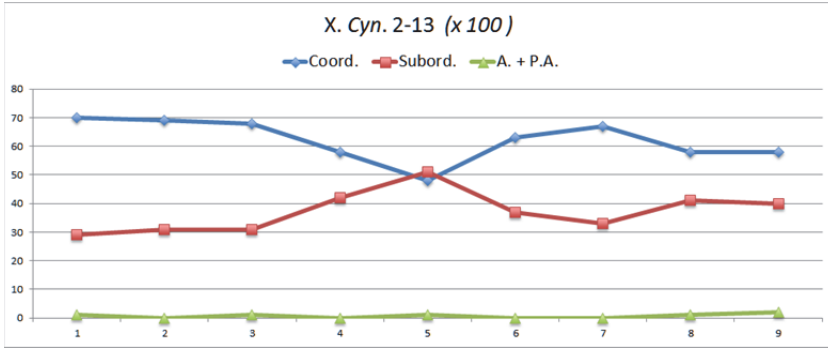
According to these statistical probabilities –and it is important to emphasize that they are statistical– it can be shown *statistically* that two texts are from the same writer or, at least, that they belong to the same period. It is also possible, on the other hand, to deny all these connections. It is the main hypothesis, or null hypothesis, that two texts come from the same writer/author, whereas the alternative hypothesis is the opposite (the two texts do not come from the same writer/author). After making comparisons between pairs of texts, this paper will explore whether it is possible to accept or reject the null hypothesis in statistical terms. At this point, it is important to explain that the act of not rejecting the null hypothesis does not necessarily imply that it has been accepted as fact. However, the act of rejecting the null hypothesis *does* require acceptance of the opposite. In this way, the act of rejecting the null hypothesis provides more information than the simple act of not rejecting it, because there are no statistical probabilities against it (MULLER 1973: 124). For general details of the method, see Dixon/Massey (1966) and Muller (1973). For more specific details, application to *CH* and counting of links, see Rodríguez Alfageme (1992, 1993 and 2010) and Sierra de Grado (2003, mainly 405-409).

The statistics give us objective evidence for further studies (linguistic, philologic, historical, etc.). Given the problems listed above, this will hopefully prove to be a good starting point. This paper only deals with this statistical study in order to establish relations of proximity between the different sections

in the *Cynegeticus* and other Xenophontine works. First, the two different versions of the first chapter will be compared, and then these in turn with the rest of the text. This allows us to test, regardless of who is its author, whether the *Cynegeticus* comes from a single hand or whether, as proposed by Marchant-Bowersock, the preface contained in the first chapter and the rest of the text were written by different hands. A later step involves comparing this data with other Xenophontine writings of similar style, genuine works of Xenophon, such as *The Cavalry Commander*, the *On the Art of Horsemanship*, and the *Ways and Means*. This will verify what relationship they share with each other.

Before discussing these statistical operations, some graphs will help us to better explain this process visually, that is, the syntactic pattern of each text obtained through the syntactic distribution of links and sentences, by groups of 15 or 100 sentences. The X-axis represents the groups 1, 2, 3 and so on of 15 or 100 sentences, as indicated, with the Y-axis representing the number of coordinated and subordinated sentences by group, as well as the number of asyndeton (A.) plus genitive absolute (P.A.).





At first glance there are already some interesting observations beginning to emerge. However, what is really significant and conclusive is the statistical evidence drawn from Student's t test. The various sections of the *Cynegeticus* that need closer scrutinizing will now be compared in pairs using Student's t test and the results will be carefully examined and explained.

T Student: α value		
	X. Cyn. 1 Σ / X. Cyn. 1 A	X. Cyn. 1 Σ / X. Cyn. 2-13
Coord.	0.8864	0.8503
Subord.	0.8964	0.7634
A. + P. A.	1	0.1138

The representation of the data has been simplified and the value of α provided directly, which will be explained subsequently. In hypothesis testing, the significance level, usually denoted by the Greek symbol α , is the criterion used for rejecting the null hypothesis. Traditionally, experimenters have used either the 0.05 level (sometimes called the 5% level) or the 0.01 level (1% level), although the choice of levels is largely subjective. The lower the significance level, the more the data must diverge from the null hypothesis to be significant (MULLER 1973: 127). For further safety the 0.05 level or 5% level will be used in this study as the acceptable significance level. Assuming at this first stage the null hypothesis is true (that is, the two texts come from the same writer), if the probability (α value) is less than or equal to the significance level (0.05), then the null hypothesis is rejected and the outcome is said to be statistically significant (the two texts do not come from the same writer).

As can be seen in all cases the values of α for the coordination and subordination are much higher than 0.05, so that we can safely accept the null hypothesis. In other words, all sections of the *Cynegeticus* come from the same hand. When the two versions of the first chapter are compared the values of α 0.88 and α 0.89, for coordination and subordination respectively, leave no doubts. As seen in the graphs, the value of the coordination is almost always higher than subordination, that is, coordination prevails over subordination. This preference for parataxis fits Radermacher's observation (1896: 622) of simplicity in clause combination. The asyndeton, on the other hand, despite presenting a high value of α 1, is completely irrelevant. This is because the syntactic feature of asyndeton and absolute participial construction is almost nonexistent in this text, meaning that the statistical results do not have any valid meaning. Comparing the section X. *Cyn.* 1 Σ with the rest of chapters, X. *Cyn.* 2-13, the values of α 0.85 for coordination and α 0.76 for subordination are equally conclusive and convincing. We can safely accept the null hypothesis of common authorship for both sections. In X. *Cyn.* 2-13 the same syntactic behavior patterns of coordination, subordination, and the almost nonexistent asyndeton (*pace* RADERMACHER 1896: 603) are exactly observed. The hypothesis of Marchant-Bowersock is therefore rejected, and accordingly the idea of the strong unity of authorship of this work, which was proposed and argued so convincingly by Gray, obviously prevails. Now the question remains whether Xenophon can be identified as the author, or not.

On the issue of the virtual absence of asyndeton as syntactic procedure, it must be noted that this paper has followed the criterion of Sierra de Grado (2003: 406), whereby we do not consider sequences of verbs in the infinitive (appositive infinitives), along with their complements, to be new sentences. This syntactic pattern is very common in the *Cynegeticus*, together with the aforementioned preference for the ellipsis, but has more to do with the extension and expansion of existing sentences than with the articulation of new ones.

The criterion to separate and count sentences must be clear and homogeneous. This criterion is the one previously used in other statistical analysis, which will be compared, in turn, with the data obtained at this time.

Now the test will be used to compare genuine works of Xenophon: *Eq. Mag*, *Eq.* and *Vect.* If the statistical method works, the values of α should support a clear acceptance of the null hypothesis of a common author. Here are the details:

T Student: α value			
	X. <i>Eq. Mag.</i> / X. <i>Eq.</i>	X. <i>Eq. Mag.</i> / X. <i>Vect.</i>	X. <i>Eq.</i> / X. <i>Vect.</i>
Coord.	0.7752	0.6314	0.4891
Subord.	0.1514	0.3506	0.8052
A. + P. A.	0.0761	0.0465	0.5664

The statistical method, as observed in the table above, works correctly. All values of α , much higher than 0.05, lead us safely to the acceptance of the null hypothesis. Indeed these three technical treatises have come from the same hand, and, for all we know, that hand belongs to Xenophon. Before comparing these with X. *Cyn.*, it should be noted that the syntactic pattern of these three works is inverse to that observed previously. That is, in *Eq. Mag*, *Eq.* and *Vect.* subordination prevails in all cases over the coordination, which does not bode well for the unity of authorship. Now, however, let us observe what the statistics say. It is sufficient to take the section of X. *Cyn.* 2-13 as a representative of the whole work in order to proceed with comparisons in pairs.

T Student: α value			
	X. <i>Cyn.</i> 2-13 / X. <i>Eq. Mag.</i>	X. <i>Cyn.</i> 2-13 / X. <i>Eq.</i>	X. <i>Cyn.</i> 2-13 / X. <i>Vect.</i>
Coord.	0.000000000000000002	0.0000000000000001	0.00000000017660
Sub.	0.0000000005764275	0.000005581437614	0.000018294160621
A.+P.A.	0.00000000310341283	0.000000001134351	0.000000666167621

The results cannot be more convincing: with these values of α extremely remote and far below 0.05, there is more than enough margin of safety to reject the null hypothesis. The conclusion is clear and simple: X. *Cyn.* does not match any of the other three Xenophontine texts (*Eq. Mag*, *Eq.*, and *Vect.*), and so Xenophon is not the author of the *Cynegeticus*, the manuscript tradition has left us.

Although the style of Xenophon is very flexible and variable, Radermacher was correct to note that the *Cynegeticus* does not fit the style of Xenophon, particularly regarding syntax. Furthermore, though Gray's view that Xenophon is the author cannot be accepted, there is no reason to disagree with her proposal regarding the unity of the author, as confirmed by statistical analysis, nor is there any obstacle to accepting the dating of this text in the early fourth century BC. This *Cynegeticus* is not from Xenophon, but it could well have been. The observations of Gray (1985: 172), and, in particular, Delebecque (1970:

33-35), on the intellectual atmosphere in which the treaty was developed, fit perfectly with this period.

There is a further detail of no small importance that needs mentioning: earlier we noted that Gray (1985: 169) had found a significant affinity of styles between the *Cynegetic* and the medical literature of the late fifth and early fourth century BC. This affinity in the language and style requires closer examination. If we subject the *Cynegeticus* to the same statistical Student's *t* test, comparing it with, for example, the Hippocratic treatises *Joints* and *Fractures*, this data is obtained:

T Student: α value		
	<i>X. Cyn. 2-13 / Hp. Art.</i>	<i>X. Cyn. 2-13 / Hp. Fract.</i>
Coord.	0.2008	0.1021
Subord.	0.8204	0.5030

The value of asyndeton has not been considered in all these texts because it is not valid, but it can be seen that the values of α for the coordination and subordination, although not as conclusive as previously, are higher than α 0.05. One possible and plausible interpretation of this statistical data leads us to propose that these three works share a similar state and style of language, both for its chronology as for its writing style, typical of scientific literature. Gray was correct in this matter. The Hippocratic treatises *Art.* and *Fract.* belong to the same author, as demonstrated in a previous paper (LABIANO 2004: 99). Concerning their date of composition, it has also been conjectured (LABIANO 2004: 108-109) that *Hp. Art.* is the oldest of the two, standing at the end of the fifth century BC, while quite possibly *Hp. Fract.* dates from the dawn of the fourth century BC, like other surgical treatises of the *Corpus Hippocraticum*. This time range fits quite well with the opinions of Delebecque and Gray. Statistical analysis confirms for its part the proximity of the state of language of these texts.

However, it may be interesting to perform an additional statistical test in order to confirm this data, and to more accurately interpret the results already obtained. For this additional test, the ten most representative syntactic links are selected. These are then arranged by number of appearances in each text, and a numeric value assigned to each link. The most frequent link is assigned a rank of 1, the next one a rank of 2, and so on until 10 (DIXON/MASSEY 1974: 290). Specifically these ten syntactic links, sorted in descending frequency in *X. Cyn. 2-13*, are: $\delta\acute{\epsilon}$, $\gamma\acute{\alpha}\rho$, relative clauses, $\eta\tilde{\nu}$, $\kappa\alpha\acute{\iota}$, temporal clauses, $\omicron\tilde{\nu}\nu$, $\epsilon\acute{\iota}$, $\acute{\epsilon}\omega\varsigma$ and, finally, asyndeton. The ranges of numbers obtained for each text are compared with each other in pairs, and, using the Pearson correlation coefficient (MULLER 1973: 210), a value is obtained ranging from -1 to +1 with the following meaning: +1 signifies that the two classifications of links are identical, -1 signifies that they are exactly the opposite, and 0 means that there is no relation

between them, or weaker dependence (Muller 1973: 203). The correlation coefficient provides basic information about a given state of language in a specific chronological period, in which some specific links are preferred over others. The probability of reaching or exceeding, just by chance, a coefficient of 0.76, is 0.01 in the present case (with $N = 10$). This probability is 0.02 with a coefficient of 0.71, 0.05 with 0.63, and 0.10 with 0.54. In these cases it is better to accept the null hypothesis of perfect independence of the two sets of ranks. Therefore a coefficient of 0.76 will be the considered reference. The results of the comparison of the *Cynegeticus* with the Hippocratic treatises *Art.*, *Fract.* and *Aër.* are as follows:

(Pearson) Correlation Coefficient		
X. <i>Cyn.</i> 2-13 / Hp. <i>Aër.</i>	X. <i>Cyn.</i> 2-13 / Hp. <i>Art.</i>	X. <i>Cyn.</i> 2-13 / Hp. <i>Fract.</i>
0.8548	0.9515	0.8060

All these coefficients are much higher than 0.76, so that the ten most common syntactic procedures in these writings maintain a clear proximity to each other, and not by chance. The strong dependency between them could be explained, as previously mentioned, by proximity in time and proximity of their state of language. This data confirms in principle the dating of the *Cynegeticus* to the end of the late fifth century BC and early fourth century BC. This test also confirms the results obtained using the Student's t test. For these reasons it seems highly unlikely that the text was written at a later date.

In summary, the main conclusions of the study are as follows. The *Cynegeticus* is a work of great unity that, according to Gray (1985: 159), follows the rhetorical and stylistic conventions of parenetic literature like *Nicoles* of Isocrates. Its author is not certainly Xenophon, as demonstrated in statistical terms according to its syntactic pattern of distribution of sentences, and the true author's identity remains unknown. However, the statistical linguistics analysis clearly places this technical writing in the style of the scientific and medical literature of the late fifth century BC and early fourth century BC, although it is true that there are many detailed issues to be analyzed. The state of its language is indeed very close to that of the Hippocratic treatises *Air, waters and places*, *Joints* and *Fractures* of the same dates. The intellectual atmosphere reflecting hostility to the Sophists and their excesses also confirms this time frame. There is no solid argument to push back the date of composition until centuries later. Radermacher, Delebecque and Gray, authors of the three best studies on the matter, have all provided reasoned arguments, without which the question of authorship of the *Cynegeticus*, as well as related matters such as unity and affinity with other texts and dates, could not be resolved satisfactorily. Statistical linguistics has only helped to confirm, reject and clarify some of the ideas already expressed by these three brilliant scholars.

REFERENCES

- ÁNGEL, J. (2003), *Comentario sintáctico-estilístico de Epidemias V y VII*, Madrid, E-Prints Complutense.
- (2011), “En torno a la unidad del tratado hipocrático *De natura hominis* a la luz de la estadística lingüística”, *CFC(G)* 21: 45-64.
- BREITENBACH, H.R. (1983²), “Xenophon von Athen”, *RE IX A.2* (1967):1566-2051. Cf. particularly the Appendix “Ps.-Xenophon”, 1910-1921.
- DELEBECQUE, E. (1970), *Xénophon. L'art de la chase*, Paris.
- DIXON, W.J. / MASSEY, F.J. (1966), *Introducción al análisis estadístico*. Madrid (spanish translation).
- GRACIÀ MUR, G. (2001), *Xenofont. Cinegètic*, Barcelona.
- GRAY, V.J. (1985), “Xenophon's *Cynegeticus*”, *Hermes* 113: 156-172.
- JAEGER, W. (1957), *Paideia: Los ideales de la cultura griega*, México (spanish translation).
- LABIANO, M. (2004), “Los tratados quirúrgicos del *Corpus Hippocraticum*. Aplicación de análisis de estadística lingüística”, *CFC (G)* 14: 91-109.
- (2008), “La cronología de ἴνα con subjuntivo en expresión de mandato: la lengua de Sófoles, Eurípides y Jenofonte”, *CFC (G)* 18: 55-72.
- (2013), “The Surgical Treatises of the Corpus Hippocraticum. Statistical Linguistics and Authorship”, in J. MARTÍNEZ (ed.), *Ergo decipiatur* (forthcoming)
- MARCHANT, E.C. / BOWERSOCK, G.W. (1968 [1925¹]), *Xenophon VII. Scripta Minora*, Cambridge (Mass.).
- MULLER, Ch. (1973), *Estadística lingüística*, Madrid (spanish translation).
- NORDEN, E. (1974 [1915³]), *Die Antike Kunstprosa*, Vol. 1, Darmstadt.
- PIERLEONI, G. (1937), *Xenophontis Opuscula*, Roma.
- RADERMACHER, L. (1896), “Über den *Cynegeticus* des Xenophon”, *RhM* 51: 596-629; (1897) 52: 13-41.
- RODRÍGUEZ ALFAGEME, I. (1992), “Sobre la fecha de Hipp. *De glandulis*”, *Epos* 8: 549-566.
- (1993), “La atribución de Hipp. *De visu*”, *CFC (G)* 3: 57-65.
- (2010), “*De locis in homine*: intento de datación”, *CFC (G)* 20: 25-44.
- SCHÜTRUMPF, E. (2010), “Xenophon of Athens”, in *Brill's New Pauly*, Leiden-Boston, 15: 824-833.
- SIERRA DE GRADO, C. (2003), *Rasgos de estilo y recursos de composición en algunos tratados del Corpus Hippocraticum*, Madrid, E-Prints Complutense.
- VELA, J. (1998), *Post H. R. Breitenbach: tres décadas de estudios sobre Jenofonte (1967-1997)*, Zaragoza.