

A NEW STATISTICAL ANALYSIS OF ACCENTUAL PROSE RHYTHMS IN IMPERIAL LATIN AUTHORS

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LATIN prose authors commonly employed rhythmical units, or clausulae, to round off and embellish their sentences.¹ There were two types of prose rhythm, metrical (or quantitative) and accentual.² The presence of metrical clausulae in the writings of classical authors, in particular Cicero, has been extensively documented in modern scholarship.³ Although Cicero himself used a variety of rhythms and resolutions, subsequent authors heavily favored Cicero's cretic-trochee, dactylic, and dactylic clausulae.

The metrical schemes were cultivated first: accent only later asserted itself over quantity, as clausulae came to be chosen from a range of accentual patterns. The forms of the accentual clausulae, however, were in fact modeled on the traditional cretic and trochaic rhythms of classical prose.⁴ Whereas the metrical rhythms had consisted of sequences of long

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1. Although ancient rhetoricians speak of rhythm in other parts of the sentence (for a judicious evaluation of the somewhat confusing ancient testimony, see L. P. Wilkinson, *Golden Latin Artistry* [Cambridge, 1970], pp. 150–52), we have concentrated our studies on sentence-endings only: cf. L. Laurand, *Études sur le style des discours de Cicéron* (Paris, 1907), p. 228; A. C. Douglas, "Clausulae in the *Rhetorica ad Herennium* as Evidence for its Date," *CQ* 54 (1960): 78, n. 2; W. H. Shewring and K. J. Dover, s.v. "Prose-Rhythm," *OCD*²; and especially T. Janson, *Prose Rhythm in Medieval Latin from the Ninth to the Thirteenth Century* (Stockholm, 1975), pp. 10 and 32, whose methodology for the identification of clausulae we follow.

2. We use the terms "rhythm," "rhythmical," "accentual," and "metrical" in the same sense as A. W. de Groot, *La prose métrique des anciens* (Paris, 1926), pp. 1–2, n. 1: "Par métrique, on entend tout ce qui concerne l'arrangement de syllabes longues ou brèves d'après leur quantité; par rythme en un sens particulier ["rhythmical"], tout ce qui concerne l'arrangement de syllabes accentuées ou non accentuées d'après l'accent du mot; par rythme en un sens général ["prose rhythm"], tous les phénomènes de métrique, de rythmique et tous ceux qui intéressent le rythme comme notion psychologique."

3. The bibliography is far too extensive to review here. We refer the reader to Wilkinson, *Golden Latin Artistry*, pp. 135–64 and 237–42; A. Primmer, *Cicero Numerosus: Studien zum antiken Prosarhythmus* (Wien, 1968); W. Schmid, "Über die klassische Theorie und Praxis des antiken Prosarhythmus," *Hermes*, Einzelschrift 12 (Wiesbaden, 1959); A. D. Leeman, *Orationis Ratio: The Stylistic Theories and Practice of the Roman Orators, Historians, and Philosophers*, 2 vols. (Amsterdam, 1963); Shewring and Dover, s.v. "Prose-Rhythm," *OCD*²; and H. Drexler, *Einführung in die römische Metrik* (Darmstadt, 1967).

4. Wilkinson, *Golden Latin Artistry*, p. 163, who follows E. Norden, *Die antike Kunstprosa vom vi. Jahrhundert v. Chr. bis in die Zeit der Renaissance*³, vol. 2 (Leipzig, 1915; repr. Stuttgart, 1958), pp. 950–51.

and short syllables, the accentual rhythm, or *cursus*, was a cadence of accented and unaccented syllables, in which the accents fell on what had been the first syllables of the metrical units. Three forms of the *cursus* were preferred by writers of late imperial and medieval Latin.⁵ The medieval grammarians labeled these forms *planus*, *tardus*, and *velox*.⁶

The major form of the *cursus planus* consists of a paroxytone followed by a trisyllabic paroxytone (e.g., *fide servántur*). As in the case of Cicero's cretic-trochee clausulae which the *planus* imitates, several other typologies were allowed: there are one-word clausulae like *tránscrediántur*, and secondary forms in which a trisyllabic proparoxytone is followed by a disyllabic paroxytone, so that the caesura comes after the third rather than the second syllable (*óculos cláúdat*).

The principal form of the *tardus*, which is the accentual equivalent of the dicretic, comprises a paroxytone followed by a tetrasyllabic proparoxytone (*divína custódiet*). An alternate form involves a proparoxytone followed by a trisyllabic proparoxytone, in which the caesura comes after the third syllable of the clausula (*ómnia ímpleant*).

The *velox*, which is the third type of the *cursus*, reflects the Ciceronian cretic-ditrochee. Its major form finds a proparoxytone followed by a tetrasyllabic paroxytone (*ánimus gratulétur*).

Finally, each of the *cursus* forms—*planus*, *tardus*, and *velox*—can have its longer word-units resolved by combinations of monosyllabic and disyllabic words, as long as the rhythm is retained. For example, the final tetrasyllable of the *cursus velox* can be represented by a trisyllabic paroxytone preceded by a monosyllable (*rescribere non cessáto*) or by two disyllables (*feliciter dici sólet*). Or, the second word-component of the *tardus* can be resolved by a disyllabic paroxytone and a monosyllable (*óneri míhi sum*) or by a trisyllabic paroxytone and a monosyllable (*stel-larúmque conténtus sit*).⁷

5. For a fuller discussion of the *cursus* and its forms, see G. Lindholm, *Studien zum mittellateinischen Prosarhythmus: Seine Entwicklung und sein Abklingen in der Briefliteratur Italiens* (Stockholm, 1963), pp. 39–54. For a bibliography on the *cursus*, see Janson, *Prose Rhythm*, pp. 128–31.

6. Some scholars admit another form of the *cursus*, called the *trispondaicus* (*ágnos admittátis*, equivalent in form to the paeon-trochee). It should be pointed out, however, that the inclusion of the *trispondaicus* in a testing procedure such as ours is dangerous. The frequency of this form is very high among nonaccentual authors, as much as 29 percent according to P. C. Knook, *De overgang van metrisch tot rhythmisch proza bij Cyprian en Hieronymus* (Ph.D. diss., Amsterdam, 1932), p. 85; cf. Janson, *Prose Rhythm*, pp. 21 and 40, whose tables here and passim for the most part corroborate Knook's findings. The *trispondaicus*, however, is found infrequently in accentual authors: e.g., Ammianus used it in only about 1 percent of his clausulae; Symmachus, 6 percent; Arnobius, 5 percent. If, therefore, the number of occurrences of the four *cursus* forms in an accentual and a nonaccentual text were added together, the results would be misleading: for as we will show below, the difference between the proportions of the three main forms of the *cursus* (*planus*, *tardus*, and *velox*) in accentual and nonaccentual prose is roughly 20 percent; but if we were to add in the 15–30 percent frequency of the *trispondaicus* in unaccentual prose and the 3–7 percent in accentual prose, the values would approach equivalency and no statistical differentiation could be made between the two proportions.

7. For the various combinations, see Lindholm, *Studien*, pp. 39–54, and her discussion of *consillabatio* on p. 27. Janson, *Prose Rhythm*, pp. 37–38, calls these forms "proclitic variants" (e.g., *violári non pótest* for a *planus*) and "heterotomous variants" (e.g., *cum pertinéntiis súis* for a *planus*). Variable word boundaries and resolutions for the *cursus* forms were certainly as much accepted in antiquity as in later centuries; one need only consult the tables in A. M. Harmon, *The Clausulae in Ammianus Marcellinus* (New Haven, Conn., 1910). Janson, p. 52, accurately points out that all the variants (proclitic and heterotomous) as well as the major forms of the *cursus planus* can be accounted for by describing

According to the received opinion, the *cursus* evolved out of the metrical clausulae of classical prose,⁸ passed through a transitional period of several centuries during which it coexisted with the metrical forms in a style commonly called the *cursus mixtus*,⁹ and finally emerged in its own right sometime in the fifth century, only to disappear in the seventh century until its revival in the twelfth.¹⁰ There is little agreement, however, concerning the motivations for the development of the *cursus* and the period of time and geographical areas in which it originated.¹¹

A major reason for the diversity of opinion is the absence of references to the *cursus* in imperial authors. Aside from the grammarian Sacerdos, who can be assigned to the third century, there is no one to trumpet the use of the *cursus*,¹² as medieval rhetoricians would do later,¹³ or as Cicero had done earlier for metrical clausulae. All questions concerning the *cursus* in imperial Latin prose, therefore, must be resolved by an examination and testing of the primary sources themselves. Accordingly, we have applied a new statistical methodology, which incorporates the comparative method and the laws of inductive statistics, in an attempt to determine the possible date and geographical origin of the *cursus* and the extent of its use in imperial Latin prose. We have reserved for later studies two areas of investigation which can be better discussed elsewhere. First, we have not considered the authors' use of specific types of accentual clausulae in relation to thematic content and style. We have contented ourselves

the *planus* as a "cadence with two unaccented syllables between the two last accents and one after the last accent." Likewise, the *tardus* in all its forms can best be thought of as two unaccented syllables between two accents with two unaccented syllables following the last accent; and the *velox* in all its forms as four unaccented syllables between two accents, with one unaccented syllable following the last accent. This was our method of determining accentual clausulae in our testing procedure. As Janson suggests, this system of the *cursus* was in all probability taught in schools by humming and by tapping on the desk.

8. This observation, first made prominent by W. Meyer, *Gesammelte Abhandlungen zur mittellateinischen Rythmik*, vol. 2 (Berlin, 1905), pp. 236–86, was more fully developed by M. G. Nicolau, *L'origine du "cursus" rythmique et les débuts de l'accent d'intensité en latin* (Paris, 1930).

9. The best study of this transitional period is H. Hagendahl, "La prose métrique d'Arnobe: Contributions à la connaissance de la prose littéraire de l'Empire," *Göteborgs Högskolas Årsskrift* 42 (1937): 1–114.

10. This view was first stated by N. Valois, "Études sur le rythme des bulles pontificales," *Bibliothèque de l'École des Chartes* 42 (1881): 259, and has been perpetuated in all the handbooks since then. This theory has, however, been disproved by more recent work, which has demonstrated the continuous tradition of the *cursus* from the seventh through the twelfth centuries: see Lindholm, *Studien*, esp. pp. 7–13; and Janson, *Prose Rhythm*, pp. 35–79, esp. 63–67.

11. A useful survey of the diverse theories on the origin and the date of the *cursus* can be found in Nicolau, *L'origine du "cursus" rythmique*, pp. 13–29.

12. Sacerdos' terminology is exclusively metrical, which has no doubt obscured his value; cf. Janson, *Prose Rhythm*, pp. 83–86 and 101, on the use of metrical terminology in medieval *Artes dictaminum*. It is abundantly clear from his examples, however, that Sacerdos has in mind only *cursus* forms: see Nicolau, *L'origine du "cursus" rythmique*, pp. 108–16. If the *Fragmenta Bobiensia* (GL 6. 627–29) belong to the fourth or fifth centuries, then this treatise also attests the existence of the *cursus* in late antiquity: see Nicolau, pp. 123–25.

13. For the medieval treatises on the *cursus*, see Janson, *Prose Rhythm*, pp. 80–103; M. Plezia, "L'origine de la théorie du *cursus* rythmique au XII^e siècle," *ALMA* 39 (1974): 5–22; P. Rajna, "Per il 'cursus' medievale e per Dante," *Studi di filologia italiana* 3 (1932): 7–86; and F. di Capua, *Fonti ed esempi per lo studio dello "stilus curiae Romanae" medioevale* (Rome, 1941).

with the simple determination that accentual clausulae are present. Second, there is the whole question of the *cursus mixtus*, which is far too complicated to be dealt with effectively here. Since an accentual text will contain naturally and fortuitously a rather high percentage of metrical clausulae, a two-fold methodology is needed: one procedure to handle the metrical forms, another, the accentual. We have devised such a methodology and promise a full discussion elsewhere. For the present, we can demonstrate with a high degree of probability whether any text contains accentual clausulae. Whether the author also intended his accentual clausulae to be acceptable as metrical clausulae must be resolved at a later time.

I

Adherents of the comparative method believe that, although a text may have been written without any intention of achieving prose rhythm, it will nonetheless contain a certain number of fortuitous clausular forms.¹⁴ The researcher tries to determine the frequency range of these fortuitous clausulae, which can then be used as a standard in testing for intentional rhythm: for if he finds that the actual number of clausular forms in a particular text is significantly different from the expected norms in un-rhythmical prose, he can conclude that there has been a deliberate attempt at rhythm.¹⁵

In order to obtain the values of these norms, we are in need of a Latin text devoid of prose rhythms. Previous researchers of metrical clausulae, such as De Groot and Knook, have used ecclesiastical treatises of the nineteenth century and the Latin translations in Migne's *Patrologia Graeca*,¹⁶ since in their opinion the authors of such works would have been ignorant of prose rhythm or at least would not have used it.¹⁷ This method,

14. Comparative statistics were first applied to the problem by A. W. de Groot. His chief publications on the subject are *A Handbook of Antique Prose-Rhythm*, vol. 1 (Groningen, 1919); "Philologie und Mathematik," *BPhW* 40 (1920): 1244–48, and *BPhW* 41 (1921): 502–4; *Der antike Prosarhythmus*, vol. 1 (Groningen, 1921); and *La prose métrique des anciens*. De Groot's student Knook followed his mentor's methodology in *De overgang van metrisch tot rhythmisch proza bij Cyprian en Hieronymus*.

15. The significance of all proportions or percentages must be statistically demonstrated and checked for reliability. Past researchers of prose rhythm, with the exception of Janson, have not used statistics to verify their findings, and we suspect that many of their conclusions are in error. For example, 20 percent of 300 must be thought of as a value between 13 percent and 27 percent, since that is the range of the reliability of this percentage for the sample size (see n. 29 below). It follows that, in some cases, two sample percentages which seem to indicate a significant difference (e.g., 12 percent and 22 percent) might actually indicate a degree of association: see below concerning the chi-square (χ^2) test.

16. De Groot, *Der antike Prosarhythmus*, 1:106–7, used as his ametrical text the Latin translations of the treatises of Athanasius and Gregory of Nyssa in *PG* 25 and 46; Knook, *De overgang*, pp. 84–85, examined the same translations of Athanasius and the monograph *Vitae aliquot excellentium Batavorum* by P. Peerlkamp (1865).

17. No real knowledge of the principles of Latin prose rhythms existed before the end of the nineteenth century; for a discussion of scholarly work on the subject before 1880, see Laurand, *Études*, pp. 223–28. It is possible that the translators of Athanasius' treatises were influenced to some extent by the style of the original Greek text: cf. M. Novotný, *État actuel des études sur le rythme de la prose latine*, *Eus*, Suppl. 5 (Lwów, 1929), p. 32.

albeit based on a priori assumptions,¹⁸ remains the best available, as even a wary critic will concede.¹⁹ Moreover, De Groot's findings tally well with the results of a more recent study of nineteenth-century texts,²⁰ and with what we expect to find in the case of classical authors such as Tacitus and Sallust, who are assumed not to have used prose rhythms.²¹

These studies, however, have concentrated on the determination of norms for ametrical rather than unaccentual prose.²² Accordingly, we sought out an unaccentual text which we could use in comparative tests for the presence of the *cursus*. We selected the treatise *De philosophia* by René Descartes (1644), since we thought it unlikely that Descartes would have been influenced, consciously or unconsciously, by the principles of accentual prose rhythm.²³ Renaissance scholarship had already proscribed the *cursus* as barbarous,²⁴ and the *cursus* does not appear in texts after the first decade of the sixteenth century.²⁵ We made a semi-random selection of one thousand sentence-endings in the *De philosophia*²⁶ and noted the total number of the accentual patterns of the *planus*, *tardus*, and *velox* forms (see n. 7). In all there were 577 instances or, expressed as a proportion, .577 (577/1,000).

Since we have assumed that the *De philosophia* is representative of unaccentual prose in general, can we say that .577 is the absolute norm for all other accentual texts? We cannot, for the simple reason that .577 itself is not the absolute value of *cursus* forms in the *De philosophia*. We took only a sample from the whole range of possibilities (or "population"), and statistics tells us that we should not expect two samples from the

18. See the reservations expressed by Nicolau, *L'origine du "cursus" rythmique*, pp. 30–31, 34–39; Novotný, *État actuel des études*, pp. 32–33, 45–46; Hagendahl, "La prose métrique d'Arnobe," p. 20; Wilkinson, *Golden Latin Artistry*, p. 140; and H. Broadhead's review of Hagendahl's study in *CR* 52 (1938): 148.

19. See, e.g., Wilkinson, *Golden Latin Artistry*, pp. 140–41, and Hagendahl, "La prose métrique d'Arnobe," pp. 21–22.

20. Douglas, "Clausulae in the *Rhetorica ad Herennium*," pp. 65–78, esp. p. 67; cf. idem, review of *Studien zum mittellateinischen Prosarhythmus* by G. Lindholm, *CR* 15 (1965): 126.

21. For a good discussion of this, see Wilkinson, *Golden Latin Artistry*, pp. 140, 160–62. The recent book by H. Aili, *The Prose Rhythm of Sallust and Livy* (Stockholm, 1979), does not change this observation. Aili's figures have the attraction of being based upon the statistical test of the chi-square; nevertheless, they do not determine whether conscious clausal rhythms are present in Sallust's prose (cf. Aili's own remarks, p. 97). The figures can be interpreted in several ways: on one interpretation, Sallust's clausulae could reflect purposeful avoidance of Ciceronian rhythms and would not necessarily indicate a particular historical system. Aili does demonstrate (p. 128) that Tacitus is indeed indifferent to all clausal tendencies.

22. Several scholars have attempted to determine the values for an unaccentual text: cf. De Groot, *La prose métrique des anciens*, p. 58; and Nicolau, *L'origine du "cursus" rythmique*, pp. 126–27. Nicolau gives values for the occurrences of four accentual forms, *planus*, *tardus*, *velox*, and *trispindaicus*; but he is incorrect in considering the *trispindaicus*—see our remarks in n. 6 above.

23. Of course Descartes might have been aware of the principles of metrical prose, since such Renaissance scholars as Strabaeus and Erasmus had previously mentioned the metrical system of Cicero.

24. See the testimonia in P. Toynbee, *Dante Studies* (Oxford, 1921), p. 4, n. 1.

25. A. de Santi, *Il cursus nella storia letteraria e nella liturgia*² (Rome, 1903), pp. 32–34. See also Lindholm, *Studien*, pp. 198–201, who studied the decline and disappearance of the *cursus* on the Continent and in England in the late fifteenth century.

26. Our method of sampling the *De philosophia* was somewhat crude, but effective: we examined the clausulae on every third page of an edition which contained 360 pages of text. The size of our sample (1,000) was dependent upon the requirements for the accuracy of a proportion, i.e., its confidence level: see n. 29 below. We followed the model of Janson, *Prose Rhythm*, pp. 30–32, in examining the placement of accent and in observing hiatus.

same population to yield the same results. Chance errors and variances in the sampling process will cause our values to change. We can still, however, put any one sample proportion to a number of uses: in particular, we can estimate the population proportion (that is, the proportion of all *cursus* forms in the *De philosophia*), and we can state our confidence, say 95 or 99 percent, in that estimate. This is done by calculating the confidence interval of the proportion.

To illustrate this, let us take our sample proportion of .577. Using standard statistical laws for computing 99.9 percent confidence intervals,²⁷ we get a range of values of from .525 to .629. What this range of values means is this: we can be 99.9 percent confident that if we were to sample every sentence-ending in the *De philosophia*, the actual proportion of *cursus* forms would be somewhere between the limits of .525 and .629. Or to put it another way, there is a one in one thousand chance that the interval which we calculated does not contain the true proportion of all *cursus* forms in the *De philosophia*²⁸ and, to carry this one step further, in any other unaccentual text.²⁹

We tested this interpretation by examining one thousand randomly selected sentence-endings in each of two texts which we assumed also to be devoid of accentual rhythms. First we studied the *Commentaria Senecae "De clementia"* written by Jehan Calvin in 1532. The number of *cursus* forms was 561, or, as a proportion, .561 (561/1,000). This value easily falls within the .525-.629 interval for the *De philosophia* and is in

27. The procedures for calculating confidence intervals can be found in any handbook of statistics. We consulted the following: J. A. Handel, *Introductory Statistics for Sociology* (Englewood Cliffs, N.J., 1978), pp. 297-98; C. A. Nikerson and I. A. Nikerson, *Statistical Analysis for Decision Making* (New York and Princeton, 1978), pp. 179-81; and R. B. Ellis, *Statistical Inference* (Englewood Cliffs, N.J., 1974), pp. 293-305.

28. To be precise, this interval means that if we successively drew an infinite number of samples of 1,000 clausulae from the *De philosophia* (and our sampling is to be considered as one of these samples), computed the proportion of *cursus* forms in each sampling, and calculated the 99.9 percent confidence interval of each proportion, 999 out of every 1,000 intervals would contain the population proportion. Expressed in another way, only 1 out of every 1,000 intervals would fail to contain the population proportion.

29. There is a handy table for evaluating sample sizes and their 99 percent confidence intervals in A. G. Johnson, *Social Statistics without Tears* (New York, 1977), p. 211, which we reproduce below. For each sample size in the left column, the right column completes the statement: "The 99 percent interval of a sample size _____ is the sample percentage plus or minus _____ percent."

Sample Size	Sample Percentage Plus or Minus
50	18 percent
100	13 percent
300	7 percent
500	6 percent
800	5 percent
1,000	4 percent
1,500	3 percent
2,000	3 percent
3,000	2 percent

Thus, if a researcher states that 55 percent of 500 clausulae that he studied were metrical, this really should imply that there is a 99 percent probability that the true percentage lies somewhere between 49 percent and 61 percent. The figure 55 percent actually has little significance in itself. This is why we must be wary of the results in past studies of prose rhythm.

fact quite close to the sample proportion (.577). Even the 99 percent confidence interval of Calvin's proportion (.521–.601) is close enough to that for the *De philosophia* to justify the observation that Calvin did not use the *cursus*.

We also examined one thousand sentence-endings in the first two *Philippics* of Cicero. The number of *cursus* forms was 579, or .579 as a proportion. The 99 percent confidence interval of this proportion is .539–.619. All these values were so close to those determined for the *De philosophia* that we could conclude that Cicero did not employ the *cursus*.³⁰

We now had a range of values for unaccentual prose, that is, the confidence interval calculated for the *De philosophia* (.525–.629). We then made comparative tests of Latin prose works of the first through fifth centuries A.D.; for, as we stated above, the *communis opinio* is that the *cursus* came into existence sometime during these centuries.

We selected for examination certain works of eighteen pagan and Christian authors, the eleven *Panegyrici Latini*, and three *Vitae* from the *Historia Augusta*. We also evaluated the results of two studies of the clausulae in the writings of Jerome and Ambrose.³¹ Table 1 contains our results. The abbreviations of the first three columns are as follows: R = the total number of *cursus* forms occurring in each sampling; T = the total number of clausulae investigated; p_s = the sample proportion (R/T); and in parentheses, the symbols p_{lc} and p_{uc} are the lower and upper limits of the 99 percent confidence interval for the proportion p_s . This latter category is most important, because it tells us not only how reliable our sampling was, but also the estimated range of values wherein the true proportion lies.

II

We have stated that Descartes' *De philosophia* is a representative example of unaccentual prose in general. As the table indicates, however, no other sample proportion is the same as that for Descartes (.577). How do we account for such a variance? Simply by recalling that no two samplings from the same populations (in our case, the same populations of unaccentual prose) should be expected to yield identical results because of variances built into the sampling procedure. Even if both Descartes and another author whom we studied did not use the *cursus*, we should nonetheless expect to observe some differences between their proportions.

30. This of course is to be expected, but it is important to test a prose text which we can safely assume would have no tendency toward accentual rhythm. A. C. Clark, however, in *The Cursus in Medieval and Vulgar Latin* (Oxford, 1910), pp. 22–23, stated that the *cursus* is present in Cicero's letters to Atticus; for a rebuttal of Clark's views, see Novotný, *État actuel des études*, p. 74. Clark adduced as evidence only a few paragraphs of text in which there are no more *cursus* forms than one would expect in any nonaccentual text. Our study of these letters found 173 *cursus* forms in 311 randomly selected sentence-endings: this yields a proportion of .556 with a 99 percent confidence interval of .483–.626, which hardly indicates the presence of the *cursus*.

31. M. K. Delaney, *A Study of the Clausulae in the Works of St. Ambrose* (Washington, D.C., 1934), and M. C. Herron, *A Study of the Clausulae in the Works of St. Jerome* (Washington, D.C., 1937). We can not now be certain that their figures are valid. We will reexamine these works by Jerome and Ambrose at a later date, when we study all Latin texts of the mid-second through fifth centuries.

Now we have to ask ourselves whether this difference in value can be attributed to chance variation between samples from the same populations, or whether the difference is great enough to suggest that the populations from which we drew are themselves somehow distinct, the one from the other. Let us take our proportions from the *De philosophia* ($= p_1$) and from Lactantius' *Institutiones divinae* ($= p_2$), .577 and .608 respectively: does the difference of $-.031$ between them ($.577 - .608 = -.031$) suggest here two different populations, or could we expect the occurrence of this variation by chance in samples from the same populations?

Because there is a difference between the proportions, we can hypothesize that the populations from which the proportions were drawn are not the same. We test this hypothesis by assuming that the opposite is true, namely that the populations are identical. We then determine whether the test data justify our rejection of this hypothesis. This is the method of statistical hypothesis testing: we affirm a hypothesis by rejecting its opposite. To rephrase this in our terms, we assume that the populations of *cursum* forms in the *De philosophia* and in the *Institutiones* are really the same, despite the difference of $-.031$ between the sample proportions. If we can reject that hypothesis, called the null hypothesis (here, $p_1 = p_2$), then the alternative hypothesis ($p_1 \neq p_2$) is affirmed.³²

To test the null hypothesis we use the χ^2 -test of the difference between proportions.³³ We calculate the differences between the actual frequencies and expected frequencies, and use the test statistic $\Sigma(f - e)^2/e$, where f is the actual frequency, e is the corresponding expected frequency, and Σ is the summation of the items. If the null hypothesis is true (i.e., if $p_1 = p_2$), then the testing statistic has a sampling distribution that can be approximated by the χ^2 distribution with the degrees of freedom equal to $(r - 1)$, where r is the number of samples that are being compared. Our formula, therefore, is $\chi^2_{\text{observed}} = \Sigma (f - e)^2/e$. Since our degree of freedom is 1, however, we must add Yates' correction of -0.5 and modify the formula to $\chi^2_{\text{observed}} = \Sigma(|f - e| - 0.5)^2/e$. In general we reject the null hypothesis, that $p_1 = p_2$, if χ^2_{observed} is greater than χ^2_{α} , where α is the desired significance level of the test. We accept the null hypothesis if the value of χ^2_{observed} is less than or equal to χ^2_{α} .

In our test of the proportions from the *De philosophia* and the *Institutiones*, we chose a significance level of .05, which means that we run only a 5 percent risk of rejecting the null hypothesis if it is correct.³⁴ With a degree of freedom equal to 1, the critical value of $\chi^2_{.05} = 3.84$. This means that the probability is .95 that a value of χ^2 selected at random

32. At the risk of confusing the reader, we must point out that when the null hypothesis is rejected, the alternative hypothesis is not proved—it is only affirmed or supported. No test ever proves a hypothesis; it only upholds a hypothesis by rejecting what it is not. In our case, we can demonstrate that an author did not use the *cursum*. We cannot prove that he did use it, although we can show strong probability (95 out of 100) that he did.

33. For the χ^2 -test and procedures, see Handel, *Introductory Statistics*, pp. 308–19; Nikerson and Nikerson, *Statistical Analysis*, pp. 238–46; and Ellis, *Statistical Inference*, pp. 163–83.

34. We used the 95 percent confidence level, since that is the standard level of significance found in statistical testing. The actual confidence level used by a researcher depends upon the objectives and the level of Type I and Type II errors to be allowed, although the confidence level is always somewhere between 90 and 99 percent.

TABLE 1

DATE (A.D.)	AUTHOR AND TEXT	R	T	p _s	(p _c -p _{ac})	$\Sigma(f-e)^2/e$	DECISION ($\chi^2_{.05} = 3.84$)
1596-1650	Descartes, <i>De philosophia</i>	577	1,000	.577	(.525-.629)		
1509-1594	Calvin, <i>Commentaria Senecae clem.</i>	561	1,000	.561	(.521-.601)		nonaccidental
106-43 B.C.	Cicero, <i>Philippicae orat. I and II</i>	579	1,000	.579	(.539-.619)		nonaccidental
ob. 65	Seneca, <i>De clementia</i> ^a	309	548	.564	(.509-.619)	0.20	nonaccidental
ob. 60?	Petronius ^b	308	520	.592	(.537-.648)	0.27	nonaccidental
ob. 100?	Quintilian	227	405	.560	(.497-.624)	0.26	nonaccidental
ob. 112	Pliny the Younger, <i>Panegyricus</i> ^c	537	900	.597	(.554-.639)	0.68	nonaccidental
100-166	Fronto ^d	227	400	.568	(.504-.631)	0.07	nonaccidental
fl. ca. 170	Apuleius ^e						
	<i>Apologia</i>	572	1,000	.572	(.532-.612)	0.03	nonaccidental
	<i>Metamorphoses</i>	254	437	.581	(.520-.642)	0.008	nonaccidental
	<i>Florida</i>	160	282	.567	(.491-.643)	0.05	nonaccidental
	<i>De deo Socratis</i>	96	178	.539	(.443-.636)	0.73	nonaccidental
	<i>De Platone</i>	218	308	.708	(.641-.775)	16.35	accidental
	<i>De mundo</i>	206	290	.710	(.642-.779)	16.20	accidental
	<i>Περὶ ἐμπειρίας</i>	114	167	.683	(.590-.776)	6.18	accidental
	<i>Asclepius</i>	245	351	.698	(.635-.761)	15.46	accidental
ob. 180?	Aulus Gellius	236	410	.576	(.513-.639)	0.0001	nonaccidental

TABLE 1 (Continued)

DATE (A.D.)	AUTHOR AND TEXT	R	T	p _s	(p _c -p _{uc})	Σ(f-e)/e	DECISION (χ ² ₀₅ = 3.84)
ob. 258	Cyprian ^b	236	277	.852	(.797-.907)	69.72	accutual
	<i>De lapsis</i>	193	232	.832	(.769-.895)	51.12	accutual
	<i>De mortalitate</i>	203	261	.778	(.711-.844)	34.52	accutual
fl. 295	Arnobius ⁱ	402	441	.912	(.877-.946)	155.73	accutual
240-320	Lactantius						
	<i>Institutiones divinae</i> ⁱ	304	500	.608	(.552-.664)	1.12	nonaccutual
	<i>De opificio Dei</i>	291	409	.711	(.654-.769)	21.63	accutual
	<i>De moribus persecutorum</i>	315	444	.709	(.654-.765)	22.29	accutual
	<i>De ira Dei</i>	314	503	.624	(.569-.680)	2.90	nonaccutual
	<i>Epitome inst. div.</i>	354	525	.674	(.622-.727)	13.30	accutual
21 April 289	<i>Panegyricus Latinus X^a</i>	155	205	.756	(.679-.833)	22.14	accutual
21 July 291	<i>Panegyricus Latinus XI</i>	171	226	.757	(.683-.830)	24.26	accutual
1 March 297	<i>Panegyricus Latinus VIII</i>	182	229	.795	(.726-.864)	36.49	accutual
Spring 298	<i>Panegyricus Latinus IX</i>	135	199	.678	(.593-.764)	6.66	accutual
31 March 307	<i>Panegyricus Latinus VII</i>	151	191	.791	(.715-.867)	29.89	accutual
July 310	<i>Panegyricus Latinus VI</i>	172	222	.775	(.702-.847)	29.12	accutual
312	<i>Panegyricus Latinus V</i>	125	160	.781	(.697-.866)	23.24	accutual
313	<i>Panegyricus Latinus XII</i>	176	232	.759	(.686-.831)	25.38	accutual
1 March 321	<i>Panegyricus Latinus IV</i>	257	322	.798	(.740-.856)	50.20	accutual
1 June 362	<i>Panegyricus Latinus III</i>	226	275	.822	(.762-.881)	54.40	accutual
389	<i>Panegyricus Latinus II</i>	347	425	.816	(.768-.865)	73.98	accutual

ob. ca. 395	Ammianus Marcellinus ^l	525	554	.948	(.923–.972)	235.66	accentual
ob. ca. 395	Ausonius, <i>Gratiarum actio</i>	195	232	.841	(.779–.903)	54.77	accentual
ob. 402	Symmachus, <i>Orationes</i> ^m	449	488	.920	(.888–.952)	178.71	accentual
348?–420	Jerome						
	<i>Vita monachorum</i>	290	469	.618	(.560–.676)	2.09	nonaccentual
	<i>Adversus libros Rufini</i>	433	623	.695	(.647–.743)	22.25	accentual
	<i>Epistolae</i>	5,464	7,762	.704	(.691–.717)	66.08	accentual
	<i>De viris illustribus</i>	190	359	.529	(.461–.597)	2.26	nonaccentual
	<i>Adversus Pelagianos</i>	235	390	.603	(.539–.666)	0.65	nonaccentual
	<i>Commentaria in Isaiam</i>	350	509	.688	(.635–.741)	16.96	accentual

^h The figures are our own. Others have studied Cyprian's accentual clausulae, e.g., Knook, *De overgang*; E. de Jonge, *Les clausules métriques dans Saint Cyprien* (Louvain and Paris, 1945); and L. Bayard, "Les clausules chez Saint Cyprien et le cursus rythmique," *RPh* 48 (1924): 52–61.

ⁱ The figures are our own. Hagendahl, "La prose métrique d'Arnobé," 78, states that, out of 1,760 sample clausulae in Arnobius' *Adversus gentes* (which we studied also), 1,565 contain one of the three forms of the *cursus* and represent the value of .889 (or 88.9 percent).

^j The metrical aspects of Lactantius' clausulae in this treatise have been documented by Hagendahl, "La prose métrique d'Arnobé," pp. 19, 257–60.

^k Some scholars have tried to find metrical clausulae in the *Panegyrici Latini*; see, e.g., É. Galletier, *Panegyriques latins*, vol. 1 (Paris, 1919), pp. xxxiv–xxxv.

^l We studied the speeches by Symmachus. L. Havet, *La prose métrique de Symmaque et les origines du "cursus"* (Paris, 1982), who advanced the notion that the *cursus* did not appear until the Middle Ages (see also his *Manuel de critique verbale* [Paris, 1912], p. 58), studied Symmachus' letters. Although Havet found 777 occurrences of the three forms of the *cursus* in the 940 clausulae that he examined, for a value of .827 (82.7 percent), he still refused to accept the presence of the *cursus* in Symmachus' letters. R. Badali, "Premessa ad uno studio sulla natura delle clausole simmachiane," *RCCM* 8 (1966): 38–52, gives a good review of scholarly work on Symmachus' clausulae. Badali himself believes that Symmachus' prose is both metrical and accentual—the style of the *cursus mixtus*. See also K. Thraede, "Sprachlich-Stilistisches zu Briefen des Symmachus," *RAM* 111 (1968): 260–89.

TABLE 1 (Continued)

DATE (A.D.)	AUTHOR AND TEXT	R	T	p _s	(p _c -p _{ac})	Σ(f-e)/e	DECISION (χ _{0.05} = 3.84)
ob. 397	Ambrose						
	<i>De excessu fratris</i>	278	405	.686	(.627-.746)	14.03	accutual
	<i>De paradiso</i>	141	212	.665	(.581-.749)	5.26	accutual
	<i>De virginibus</i>	564	791	.713	(.672-.755)	34.76	accutual
	<i>De officiis</i>	280	534	.524	(.469-.580)	3.70	nonaccutual
	<i>De mysteriis</i>	128	191	.670	(.582-.758)	5.38	accutual
	<i>In Psal. CXVIII expositio</i>	216	346	.624	(.557-.691)	2.18	nonaccutual
	<i>Hexameron</i>	1,726	2,548	.677	(.654-.701)	31.34	accutual
	<i>De bono mortis</i>	262	440	.595	(.535-.656)	0.36	nonaccutual
	<i>Epistolae</i>	317	464	.683	(.627-.739)	14.59	accutual
	<i>De obitu Theodosii</i>	231	319	.724	(.660-.789)	21.45	accutual
	<i>De sacramentis</i>	194	289	.671	(.600-.743)	7.90	accutual
	<i>De lapsu virginis</i>	130	188	.691	(.605-.778)	8.14	accutual
ob. 430	Augustine ⁿ						
	<i>Sermones</i>	7,063	11,877	.595	(.583-.606)	1.12	nonaccutual
	<i>De civitate Dei</i>	323	411	.786	(.734-.838)	54.12	accutual
ca. 400?	<i>Historia Augusta: Severus Alexander</i>	349	582	.600	(.547-.652)	0.69	nonaccutual
ca. 400?	<i>Historia Augusta: Elagabalus</i>	168	287	.585	(.510-.660)	0.03	nonaccutual
ca. 400?	<i>Historia Augusta: Aurelianus</i>	216	350	.617	(.550-.684)	1.56	nonaccutual
ob. 521	Ennodius, <i>Panegyricus</i>	248	296	.838	(.783-.893)	66.05	accutual

ⁿ The figures for the *Sermones* are from M. J. Brennan's *A Study of the Clausulae in the Sermons of St. Augustine* (Washington, D.C., 1947). The figures for the *De civitate Dei* are our own. There is a study of the clausulae in this treatise by G. Reynolds, *The Clausulae in the "De Civitate Dei" of St. Augustine* (Washington, D.C., 1924). The best overall examination of the metrical and accutual clausulae in Augustine's writings, although subject to revision in several areas, remains F. di Capua, "Il ritmo prosaico in S. Agostino," *Miscellanea Agostiniana*, vol. 2 (Rome, 1931), pp. 607-764.

from the distribution will be less than or equal to 3.84. Only 5 percent of the time will values of χ^2 selected randomly from this distribution exceed 3.84.

Now our χ^2_{observed} is 1.12. Because the null hypothesis of $p_1 = p_2$ is true if $\chi^2_{\text{observed}} \leq \chi^2_{\alpha}$, we accept the null hypothesis. In other words, our conclusion that the two sample proportions were drawn from the same populations of unaccentual prose is true with only a 5 percent margin of error.

We ran the same χ^2 -test on the other sample proportions in the table to ascertain whether any of the populations from which the proportions were drawn was the same as the population of Descartes' *De philosophia*. The results are given in the two columns on the far right in the table. The column $\Sigma(f - e)^2/e$ gives the observed χ^2 -test statistic. The last column states our conclusion as to whether each work in question is accentual or nonaccentual. The decision is based upon the comparison of the value of $\Sigma(f - e)^2/e$ with the critical value of $\chi^2_{.05}$, which is 3.84. If $\Sigma(f - e)^2/e > \chi^2_{.05}$, then the null hypothesis that $p_1 = p_2$ is rejected; otherwise, it is accepted. The probability of error in each decision is only one in twenty.

III

Relying on the evidence in the table, we can offer the following survey of the history of the *cursus*.³⁵ The *cursus* appears in none of the texts we examined which are definitively ascribed to the first and second centuries. At the beginning of the third century the *cursus* was not employed by Tertullian and Ampelius. But already in the first half of this century the *cursus* appears in works by Minucius and Cyprian, and by the late third and early fourth centuries in Arnobius, the panegyrist, and in certain treatises of Lactantius. The late fourth century saw extensive use of the *cursus* by Ausonius, Ammianus, Symmachus, and the panegyric writers. But Jerome, Ambrose, and Augustine, like Lactantius earlier, seem to have disregarded the *cursus* in certain writings, while allowing it in others. After the early fifth century the *cursus* became the standard mode of rhythm and the mark of elegant prose. Although we studied only the *Laudatio* by Ennodius, the presence of the *cursus* in the works of such

35. Because of the problem of authenticity, we except from our survey the four works attributed to Apuleius, which our evidence has determined to be accentual. The scholarly consensus, as summarized by E. T. Salmon, s.n. "Apuleius," *OCD* ², is that the first four works, which we have listed as Apuleian and have determined to be nonaccentual, are genuine, while the rest are of doubtful authenticity or, in the case of the *Asclepius*, clearly spurious. Axelson, "Akzentuierender Klauselrhythmus bei Apuleius," and Redfors, *Echtheitskritische Untersuchung*, have argued for the genuineness of the *De Platone* and the *De mundo*, but their proposition has not been accepted; see the reviews of Redfors' study by J. Rexine, *CP* 57 (1962): 40-41, and R. Browning, *CR* 11 (1961): 299.

writers as Cassiodorus,³⁶ Leo,³⁷ and Gregory³⁸ has already been firmly established.

Quite clearly Latin prose experienced a profound change in the generation or so that separated two African authors, the arrhythmical Tertullian and Minucius Felix, whose dialogue *Octavius* is the earliest document we can verify as accentual.³⁹ The fact that two accentual authors, Cyprian and Arnobius, chronologically follow Minucius and are also Africans suggests the tentative theory that the *cursus* was of provincial origins⁴⁰ and also provides evidence that the *cursus* was firmly entrenched by the late third century.

Extant prose authors from the late second and early third centuries are few and do not allow us to speak with much certainty about stylistic developments in that period or to answer definitively the crucial question, why the change from metrical to accentual rhythms occurred. Moreover, while the preponderance of evidence shows that the *cursus* is predominant in the third and fourth centuries, there are certain dilemmas which are not easily resolved, for they potentially involve questions of authenticity, stylistic preferences, and stylistic innovation—all of which deserve more comprehensive study. For example, we possess from the hand of Arnobius' pupil, Lactantius, both accentual and nonaccentual works. It is conceivable that Lactantius in part earned his reputation as the Christian Cicero by his rhythmical habits, insofar as he sometimes archaized in Cicero's metrical fashion;⁴¹ at other times, however, he adhered to the newer practice of the day in employing the accentual clausulae.

From Africa the focus shifts to Gaul, from which come the eleven *Panegyrici Latini* whose publication dates range from A.D. 289 to 387. That they are all accentual lends credibility to the notion that the *cursus* is of provincial origin. In fact the fourth century must be regarded as having something of a Gallic stamp upon it. Ausonius, whose *Gratiarum actio* displays the *cursus*, informs us in his *Commemoratio professorum Burdigalensium* that four of his countrymen served as distinguished rhe-

36. See M. J. Suelzer, *The Clausulae in Cassiodorus* (Washington, D.C., 1944). Hagendahl, "La prose métrique d'Arnobé," pp. 79–88, examined the clausulae in Book 1 of Cassiodorus' *Variae*. His conclusion that the *cursus* was indeed used by Cassiodorus verified the observations by De Jong, *Les clausules métriques*, pp. 132–34, and H. Bornecque, *Les clausules métriques latines* (Lille, 1907), pp. 410–15.

37. The *Letters* were studied by F. di Capua in "De clausulis a S. Leone Magno adhibitis," *S. Leonis Magni "Epistolae contra Eutychis Haeresem,"* *Texta et documenta, Series theologica*, vol. 15 (Pontifica Universitas Gregoriana, 1934), pp. xxiii–xxxii, and *Il ritmo prosaico nelle lettere dei papi e nei documenti della cancellaria romana del IV al XIV secolo*, vol. 1, 1: Leone Magno (Rome, 1937).

38. See K. Brazzel, *The Clausulae in the Works of St. Gregory the Great* (Washington, D.C., 1939).

39. We concur with the opinion of most scholars, who date Minucius to the first half of the third century; cf. H. v. Geisau, s.n. "M. Minucius Felix," *RE Suppl.* 11 (1968): 952–58. Even if this date is incorrect, the presence of the *cursus* in Cyprian indicates that it was being used by the middle of the third century.

40. See, e.g., Nicolau, *L'origine du "cursus" rythmique*, pp. 24–27, and Hagendahl, "La prose métrique d'Arnobé," pp. 89–90.

41. See the figures in Hagendahl, "La prose métrique d'Arnobé," pp. 19, 257–60; cf. also Norden, *Die antike Kunstprosa*, 2:946.

tors in the capitals of the Empire.⁴² Symmachus, who along with Ammianus shows the highest incidence of the *cursus* among the later authors whom we studied, was himself schooled by a Gaul and sought a Gallic rhetor for his son.⁴³

The clausulae of the *Historia Augusta* add to already vexing questions about date and authorship. The lack of accent in the three biographies which we sampled is an oddity, if we accept the late fourth-century date now commonly ascribed to their composition.⁴⁴ The nonaccentual nature of the *Vitae* we examined could perhaps be attributed to idiosyncratic preference.

We come now to the three Church Fathers of the late fourth and early fifth century, Augustine, Ambrose, and Jerome. The use of the *cursus* in their works is in great need of individual attention. How do we account for the fact that Augustine's *De civitate Dei* is accentual and his *Sermones* are not? We might speculate that Augustine felt that the rhetorical *cursus* was more suitable for a quasi-historical work than for addresses to his flock; conclusions are difficult to draw with regard to the *Sermones*, however, because some are known to be spurious, while the authenticity of others is suspect.

Ambrose and Jerome used the accentual system in some works but not in others. Their usage reveals no pattern at this stage in our researches; but it might be useful to note Cicero's own practice in the case of metrical clausulae. Cicero employed the metrical forms in his orations and in his rhetorical and philosophical writings, but he was capable of avoiding the metrical forms in his letters when he chose to do so.⁴⁵ In their respective schools, a Cicero may have been taught the metrical system and an Ambrose or Jerome or Augustine the *cursus*. But there is no reason to assume that an author could not employ or avoid at will a device as patently artificial as a metrical or accentual pattern. Sallust and Tacitus ignored metrical clausulae⁴⁶ and presumably so did the Atticists who rebelled against the rhythmical excesses of Asianism.⁴⁷ We know of no such re-

42. Viz., Tiberius Victor Minervius, who was possibly the teacher of Symmachus (see following note); Attius Patera; Censorius Atticus Agricius; and Aemilius Magnus Arborius, who was Ausonius' uncle: on their careers, see most recently A. D. Booth, "Notes on Ausonius' *Professores*," *Phoenix* 32 (1978): 239-48.

43. For Symmachus' own education with an elderly rhetor of Bordeaux (*senex* . . . *Garumnae alumnus*), see *Epist.* 9. 88; for evidence that Minervius of Bordeaux (see preceding note) may have been Symmachus' teacher (insofar as he was at Rome, and probably a *senex*, at the appropriate time), see Jerome *Chron.*, s.a. 352. Concerning Symmachus' designs for his son's training, see *Epist.* 6. 34.

44. See especially R. Syme, *Ammianus and the "Historia Augusta"* (Oxford, 1968), pp. 72-79 and 176-91; and more recently H. Szelest, "Die *Historia Augusta* und die frühere römische Geschichte," *Eos* 65 (1977): 139-50, and L. Marriott, "The Authorship of the *Historia Augusta*: Two Computer Studies," *JRS* 69 (1979): 65-77. A recent study by E. Birley, "Fresh Thoughts on the Dating of the *Historia Augusta*," *Bonner "Historia Augusta"-Colloquium 1975-1976*, ed. J. Straub (Bonn, 1978), pp. 99-105, would move the authorship of the *HA* to the fifth century.

45. See Wilkinson, *Golden Latin Artistry*, p. 157 and n. 2.

46. See the figures cited in W. Shewring, "Prose Rhythm and the Comparative Method," *CQ* 25 (1931): 13-16. For a contrary opinion concerning Sallust's prose, cf. Aili, *The Prose of Sallust and Livy*.

47. Cf. Wilkinson, *Golden Latin Artistry*, pp. 159-60 and notes.

vulsion against the *cursus*, for among the authors of the mid-third through fourth centuries whom we tested none completely ignored accentual patterns. Apparently accentual prose rhythms had become by the end of the third century such a widely accepted and proven stylistic tool that their absence, rather than their presence, is remarkable and would, therefore, warrant further study. Particular areas of investigation should include stylistic tastes, the audiences addressed, and problems of authenticity.

In the case of Ennodius, a product of the late fifth and early sixth centuries, it should come as no surprise that we have detected the *cursus*. He belongs to an era in which, as modern research has shown, metrical clausulae were discarded in favor of the accentual.⁴⁸

While admitting the need for a great deal more research, we suspect that the impetus for the change from metrical to accentual clausulae resulted from dialectal speech patterns in the provinces, notably Africa and Gaul. W. S. Allen has recently argued that the metrical forms, which are in accord with Greek accentuation and which clash with natural Latin stress, would be fully understood and appreciated only by an elite few who were fully aware of their Greek origin.⁴⁹ It is possible that Minucius Felix and his successors were far enough removed from the influence of Greek metrical practices and more closely attuned to the accentual patterns of their fellow countrymen; for metrical clausulae by now did not reflect the dialectal speech patterns of the writer's audience. It would have been a rare individual who at this time was able to comprehend the subtle complexities and various quantitative resolutions of the Ciceronian system.⁵⁰ Accentual clausulae, however, could be easily understood: for although they were artificial in the sense that they were imitative of metrical forms in their basic rhythmical schemes, they would nevertheless have appealed more to the ears of the listener through their use of sound patterns distinguishable by all alike.

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48. See, e.g., the studies cited in nn. 36, 37, and 38 above.

49. *Accent and Rhythm: Prosodic Features of Greek and Latin: A Study in Theory and Reconstruction* (Cambridge, 1973), pp. 338 ff., esp. p. 340.

50. Allen, *Accent and Rhythm*, pp. 339–40, questions whether even a typical member of Cicero's audience would have appreciated the metrical manipulations of the orator.