THE MYTH OF THE *LEX DE POSITIONE DEBILI*
AND
A FUNDAMENTAL QUESTION IN METRICAL THEORY

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IN THE FIELD OF GREEK PROSODY there is a doctrine, never adequately evaluated, but venerable both in its age and the authority of its witnesses, to the effect that *correptio attica* is avoided in syllables which realize the resolved *longa* of the tragic trimeter.[1] It will suffice to note that this claim dates back at least to Kopp, and that scholars of the stature of Parker, West, Snell, Irigoin, and Zielinski have professed it.[2] Yet, as in textual criticism, so in a field that ought to be scientific, neither age nor authority are guarantors of truth. It would, however, be of little importance (except for textual criticism where a false criterion would be eliminated[3]) simply to refute this claim, as I shall do later. Rather, this seemingly minor peculiarity of *muta cum liquida* needs to be placed in a wider context, for its implications reach to the very basis of any scientific theory of metre. Unfortunately traditional metrics has been as unaware of the importance of its claim for *correptio attica* as it has been uncritical of the evidence adduced for it. A brief exposition of the issues involved must therefore precede an examination of the data.

Correptio attica is the traditional name for the phenomenon of a short vowel followed by a *muta cum liquida* cluster giving a light (or short) syllable. Before certain of these clusters (discussed below) this treatment

[1]No discussion of prosody or metrics is possible if the elementary distinction between the units of a metrical pattern and the syllables which realize or implement those units is not preserved. For this reason and in order to employ a fairly well known nomenclature I have adopted Paul Maas's terms (*Greek Metre* [Oxford 1962] 23 ff.). For example *elementum longum* (or simply *longum*) is distinguished from a heavy (or long) syllable. In this terminology the metron of the iambic trimeter, x -᷄ - , consists of an *elementum anceps, elementum longum, elementum breve*, and *elementum longum*. It should be noted that *longum never* means a heavy syllable realizing an *anceps*. In the case of resolution we are concerned here only with resolved *longa*, not *ancipitia*. I wish to emphasize that I have adopted Maas's terminology solely for the sake of convenience. Although it is perfectly adequate for the purposes of this article, his terminology ultimately rests on a faulty analysis: see A. M. Devine and Laurence D. Stephens, "Anceps," *GRBS* 16 (1975) 197–215.

[2]W. Kopp, *RhM* 41 (1886) 258; L. P. E. Parker, *Lustrum* 15 (1971) 68–69; M. L. West, *Glotta* 48 (1970) 186–187; B. Snell, *Griechische Metrik³* (Göttingen 1962) 11, 13; I. Irigoin, *REG* 72 (1959) 75; Th. Zielinski, *Tragodumenon Libri Tres* (Cracow 1925) 150 *et passim*. These works will be referred to by author's name.

[3]West, for example, rejects the reading for *PV* 2 supplied by the Homer scholia because ἄβροτον gives *correptio attica* in the realization of a resolution.

was the rule in the Attic dialect (as the prosody of comedy shows); elsewhere it was limited to a smaller set of clusters and even then more or less exceptional. In the language of tragedy, however, non-Attic practice was permitted to co-exist with native correption and we find such lines as *Antig.* 1240:

κεῖται δὲ νεκρὸς περὶ νεκρῷ τὰ νυμφικά

By the turn of the last century it had become evident that *correptio attica* involved two variables: 1) the nature of the consonants constituting the post-vocalic cluster, and 2) the morphosyntactic boundary between the vowel and the stop. (When compound boundary intervenes between the stop and the liquid or nasal, the resultant syllable is heavy.) With only one exception (βύβλου at Aesch. *Supp.* 761), when there is a high degree of adhesion ("close juncture") correption is found only with clusters of the following types: a) any stop followed by ρ, and b) any voiceless stop followed by λ, μ, and ν. A short vowel before a voiced stop followed by λ, μ, or ν (with very few exceptions depending on the strength of the boundary) results in a heavy sullable. The first group (a and b) traditionally have been called *coniunctiones leves* and the second group *coniunctiones graves*. The traditional terminology is convenient because it reminds us that before the *leves* a light syllable can occur, and that a short vowel before the *graves* results in a heavy syllable. In general phonological processes are sensitive to morphosyntactic boundaries, and those boundaries can be classified according to their correlation with the various processes and generally ranked in a hierarchy.[4] As just noted, the nature of the boundary between the vowel and the stop is an important factor which affects the frequency of correption. Now if we recognize a class of boundaries comprising those that occur after augments and reduplications, between constituents of compounds, before enclitics, after proclitics, and a few other categories definable in part by linguistic, in part by metrical criteria,[5] as intermediate between full word boundary and phonemes in a root, we can indicate[6] the interrelations of cluster type and boundary

[4]For a discussion of boundaries in phonology see Devine and Stephens, "The Status and Function of Boundaries in Phonology," in A. Juilland ed., *Linguistic Studies Presented to Joseph Greenberg* (Saratoga, California 1976).

[5]On the categories mentioned see, e.g., H. Fränkel, *Wege und Formen frühgriechischen Denkens* (Munich 1968) 142–147; and A. W. Bulloch, *CQ* 20 (1970) 258–268. For a more complete treatment incorporating recent advances in linguistic theory see Devine and Stephens, "Metrical Data and Linguistic Interpretation," forthcoming.

[6]Indicate, but no more: proper statistics require a knowledge of the total number of correpted and non-correpted *leves*, and the total number of non-correpted and correpted *graves* for each boundary rank. It is impossible to fill in the empty cells in the following table from published material available to me:

strength in their effect on correption in the tragic trimeter by the follow-
ing table which gives statistics for exceptions to normal (non-literary)
preference.[7]

Boundary Rank	graves light syllables	leves heavy syllables
I (word)	7	6
II (intermediate)	5	26
III (close)	1	766

We see that as the separation between the vowel and the stop increases a
light syllable before the *graves* becomes slightly more acceptable, and
before the *leves* it becomes almost obligatory. If we denote the *leves* by
TR, and a short vowel by $\breve{V}$, and stipulate that the context between the
dashes, - . . . -, contains no boundary of ranks I or II, then -$\breve{V}$TR- sym-
bolizes all those cases subject to *correptio attica* proper. As will be dis-
cussed below, it is the syllabification of the -$\breve{V}$TR- sequence that ulti-
mately determines the quantity of the resultant syllable. Here we should
note that the quantity and therefore the option in syllabification is most
open where it least conflicts with boundary rank.

Boundary Rank	graves ˘	graves –	leves ˘	leves –	totals
I	7	21		6	
II	5	22		26	
III	1			766	
Totals	13			798	

The statistics that I have been able to give are drawn from lists and indices given by
J. Schade, *De correptione Attica* (Diss., Griefswald 1908) and Kopp, 259–265, and 376–
386 who examined all tragic trimeters known at that time. Two points should be made
about Schade's work: 1) to his credit, he does not believe that correption is avoided in the
syllables of resolutions (*poetas Graecos non dubitasse intelligimus ante mutam c. l. arsi
soluta correptionem Atticam admittere*, 16); and 2) the ratios he gives for *productiones . . .
quae mediis in vocabulis ante mutam c. l. exstant, ad correptiones eiusdem loci*, which are
quoted by W. S. Allen, *Vox Graeca* (Cambridge 1968) 103, are misleading, since they are
based on a list of 161 + 10 words given by H. Darnely Naylor, *CQ* 1 (19) 5–9: N. lists
only "doubtful" words, omitting 403 in which -$\breve{V}$TR- always gives a light syllable; thus
these ratios are considerably exaggerated as a measure of the degree of compromise
between the Attic dialect and the *Dichtersprache*.

[7] At this time a fresh count of -$\breve{V}$TR- in the tragic trimeter would not justify the effort:
what is badly needed is a comprehensive study of Greek phonological statistics for
phonemes, clusters, and syllable types, into which a coherent analysis of *muta cum liquida*
could easily be incorporated.

Now if it were true that *correptio attica* were avoided in the linguistic realization of the metrical resolved *longa*, the following would be the empirical meaning: the frequency of occurrence of -V̆TR- would be significantly less among the syllables realizing resolved *longa* than among those realizing the *brevia*. By "significant" we mean that there is high probability that the difference between the two frequencies is not due to chance. (We shall return to this matter later.) For the sake of exposition, let us accept the traditional doctrine: two possibilities then present themselves: 1) -V̆TR- is indeed avoided among the syllables realizing the resolved *longa*; or 2) not -V̆TR- itself, but some other factor upon which the occurrence of -V̆TR- is dependent, is avoided. The latter could be the case, if, for instance, there were severe lexical restrictions governing resolutions; in fact, of course, this is not the case: yet it might be quite difficult and involve rather extensive statistical checks to exclude all likely instances of possibility 2). But let us go on to accept possibility 1) as the correct analysis. It follows that the (basic principle of the) explanation given by traditional metrics must be correct: the avoidance of -V̆TR- can only be accounted for in terms of *phonetic* duration and its significance in the realization of metrical patterns.[8] For traditional metrics to which all too often even the distinction between phonology and phonetics is foreign, such a result may seem natural and need no demonstration; however, even confined to the Greek language and the iambic trimeter alone, we can see that an invocation of purely phonetic discriminations is something unexpected.

It is unfortunately still necessary to spell out the difference between (phonological) quantity and (phonetic) duration: every linguistic segment trivially has duration if it is realized phonetically; this duration may vary quite greatly above the threshold of what is perceptible: however, if such variation in duration can be shown always to be dependent on other factors, it is not functional linguistically. If on the other hand, there is, as Lehiste puts it,[9] a manipulation of duration so that it is independent of conditioning factors, it becomes linguistically relevant. The term "quantity" refers to the latter case. Thus if there is a contrast in quantity between two segments, their phonetic durations must differ (at least

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[8] All the accounts are basically the same: e.g., Snell (11): "offenbar in dem Bestreben, solche Kürze besonders kurz zu halten," and Parker (69): "such syllables are too long for shorts produced by resolution."

It has been suggested that phonetic differences must be relevant anyway in order to explain the various bridge laws and the rule governing the "shape" of resolutions: #CV̆·CV̆- (TR disregarded for the moment). The problem of boundaries and their durational correlates is an immense one; in verse there is the further complication of metrical sandhi, which in some cases definitely affects the metrical regulation of boundaries. See Devine and Stephens, *New Approaches to Greek Metre*, forthcoming.

[9] *Suprasegmentals* (Cambridge, Mass. 1970) 2.

relative to some standard, see below) but neither the converse nor the contrary (no difference in quantity, no difference in duration) is necessarily true. Now quantity in Greek applies not only to the segment but to a higher-level phonological unit, the syllable: σοφός/σοφώτερος, λεπτός/λεπτότερος; ὠμός/ὠμότερος. In both cases it is a binary contrast: vowels are short or long; syllables are light or heavy (to employ Allen's distinction in terminology[10]). It must be clearly understood that a binary distinction in quantity does *not* require a fixed ratio of phonetic durations. Although an average ratio for V̆/V̄ close to 1/2 is frequent for languages with two degrees of quantity, there are many complicating factors; the variation is wide, and no minimum ratio necessary for contrast can be established at the present time.[11] As an illustration, it is worth noting that the phonetic duration of a phonemically long, stressed vowel in one context may actually be less than the duration of a phonemically short, unstressed vowel in another. For example, Tarnóczy[12] in a study of Hungarian reports that the duration of the second (short, unstressed) vowel in [ta:tog] is 145 msec., and the duration of the first (long, stressed) vowel in [ta:togɒto:k] is 120 msec.

In addition to the theory that regards the linguistic syllable as the realization of metrical units (neglecting for the moment the common appeal to their phonetic duration), there is another traditional theory that seeks to deny the relevance of linguistic syllables, and therefore bypass the binary phonological distinction of quantity. In effect the syllable is replaced by a sequence of vowels and all following consonants before the next vowel[13] (-VCC . . . -); this, of course, conflicts with natural language where -CV- is universally favored. The fact that -V̆TR- in verse sometimes realizes metrical *brevia* and other times *longa* is explained by the syllable theory in this way: the clusters TR permit both hetero- and homo-syllabification: -V̆·TR- yields a light syllable and -V̆T·R- a heavy syllable in accordance with rules elsewhere obtaining in the language; on the other theory, the clusters TR are assigned to a status of ambiguous weight somewhere between -C- and -CC-. Now by distinguishing two factors, vowel quantity, and the intervocalic "interlude," the second theory could easily be applied to our presumed problem of the avoidance of -V̆TR- in resolutions. Devine and Stephens, however, have shown in their forthcoming book that the "interlude" theory must also assume that syllabification is the critical factor, and that TR is not simply a class of clusters of

[10]Allen (above, n. 5) 97–98.

[11]See Lehiste (above, n. 9) 6–53, for a survey of the whole problem.

[12]*Rapports du 5ᵉ Congrès International d'Acoustique* 2 (Liège 1965) 371–387; and cited in Lehiste, *op. cit.*

[13]Cf. Verrier, *Rev. de phon.* 4 (1914) 134–150; E. H. Sturtevant, *TAPA* 53 (1922) 35–51; and A. Schmitt, *Glotta* 23 (1935) 80–95.

ambiguous weight, whether or not the ultimate motivation for the order-
ing of syllables by weight is durational or not. We are left with only syl-
lable quantity at the phonological level: i.e., whether the option in syllabi-
fication is available or not is irrelevant: πα in πατρός is light just as is πα
in πάθος, and πατ in πατρός is heavy just as πατ in πάττυλος. It is obvious
that our presumed metrical disparity cannot be accounted for in terms
of phonological parity. If this presumed disparity is substantiated statisti-
cally, metre must therefore require distinctions in phonetic duration
which are irrelevant linguistically. If this were true it would establish a
principle of great importance for general metrical theory: either the
phonological level is bypassed in the generation of the verse line, or at
least some purely phonetic distinctions filter through the phonological
level producing a phonetically based cross-cut of the phonological struc-
ture. This in turn has profound consequences for the structural analysis of
abstract metrical patterns.

Let us now turn to the evaluation of the traditional doctrine concern-
ing -V̆TR-. Although Kopp had called attention to what he thought was
"die Seltenheit dreisilbiger Füsse mit correptio attica bei Aeschylos,
Sophocles, sowie in einigen Stücken des Eur. (*Rhes.*, *Alc.*, *Med.*, *Hec.*,
Heraclid.) . . ." as one of the "drie auffällige Erscheinungen" brought to
light by his study,[14] it was the importance and authority of (the other-
wise well reasoned) *Tragodumenon, Lib.* II which established Zielinski's
ninth law as the source of our doctrine for all subsequent scholarship:

IX. *Lex de positione debili. Utramque solutae arseos syllabam natura brevem esse oportet,
positione debili non admissa.*   (Zielinski 150)

Unfortunately neither Zielinski nor the scholars that have followed him
seem to have understood the meaning of this law; rather, proceeding from
subjective or *a priori* conceptions, they considered the observed frequency
of -V̆TR- that did turn up in the linguistic realization of *arses solutae*,
i.e. resolved *longa*, to be sufficiently small to be classed as *exceptiones*.
This is, of course, a *petitio principii*: it is clear that if the frequency of
"exceptions" does not differ significantly from the frequency of -V̆TR-
in the syllables that realize the metrical *brevia* (where the law does not
apply), then there is no justification for calling them exceptions—indeed,
no justification for the law itself. This circularity was facilitated by Ziel-
inski's failure to employ comparable measures of the frequency of correp-
tion in the two cases: for the *arses solutae* he gives the relative frequency
in terms of the ratio: Occurrences of -V̆TR- to number of resolutions
for each stylistic/chronological group; whereas for the *theses* he uses the
ratio of -V̆TR- to the number of trimeters for each tragedy.[15] Now prop-

[14]Kopp 258. Resolved *ancipitia* are analyzed separately in this study.
[15]E.g., 160–161 as against 205. Fortunately Zielinski's logical fallacies do not vitiate

erly interpreted this law asserts the existence of a significant difference between the sort of syllables allowed as realizations of resolutions and the sort allowed for *brevia*, namely that the proportion of syllables involving -V̆TR- in the former is less than that in the latter. We have a straight-forward problem in the comparison of two proportions. The simplest way to obtain these proportions from published works[16] is, for whatever corpus is under consideration, to divide the number of occurrences of -V̆TR- by twice the number of resolutions (i.e., corrected syllables/total syllables) in the first case, and in the second to divide the number of occurrences of -V̆TR- by three times the number of trimeters (i.e., corrected syllables/total syllables). The law can be tested against the alternative that -V̆TR- is really just as frequent among the realizations of resolved *longa* as among those of the *brevia*. If this alternative is correct, and the law false, the two proportions will differ by an amount that would be expected between two samples of the same proportion, i.e., the difference will be due solely to chance. This question can be decided by a χ^2 test corrected for continuity.[17] It is standard practice to consider the difference a significant one if there is a 5% chance or less that the value of χ^2 obtained will be exceeded. Only if a χ^2 corresponding to such a level of probability is obtained should Zielinski's law be accepted and the alternative rejected. For the tables below this value is $\chi^2 = 3.84$.

We can begin our test of the law with an evaluation of the most popular evidence adduced in its support: Zielinski reports (25): *Immo in omnibus severiorum tragoediarum 4445 trimetris septem inveni exceptiones.* Irigoin (26): "Zielinski . . . n'a relevé que sept exceptions à cette règle dans les cinq tragédies (4445 trimètres) qu'il estime les plus anciennes." And Snell (13, who strengthens the rhetoric but weakens the argument): "In

his chronological criteria: Euripides's use of *correptio attica*, in both resolutions and *brevia*, together and separately, does vary significantly from chronological/stylistic group to group (increasing up to the *Stilus Liber* and falling off in *Liberrimus*). Thus what Zielinski has done is to use the overall rate of correption as a chronological variable and to estimate that rate by a sample consisting of resolutions alone. This procedure works only because there is *no* difference between resolutions and *brevia*: the proportion of corrected syllables in each is a sample of the same distribution, i.e., the overall proportion of correption. Zielinski has simply misunderstood the nature of his criterion. It should be emphasized that this is a meaningful criterion: it represents an encroachment of the Attic dialect upon the *Dichtersprache*, and then a reversal of this tendency.

[16]As noted above (note 7) it was not deemed worthwhile to prepare a new count. This has several consequences: 1) in the statistics that follow the strict distinction between boundary ranks is not preserved, as earlier authors considered only the orthographic word; this, however, will not affect the relation of the two ratios; and 2) it has sometimes been necessary to supplement the work of one scholar with that of another:[8] ll counts vary somewhat from one another, and this is as good a way to take minor errors into consideration as any.

[17]See any elementary statistics textbook for a discussion of χ^2, e.g., Snedecor and Cochran, *Statistical Methods*[6] (Aimes, Iowa 1972) 20–31, and 199–227.

den ältesten 3 Stücken des Eur. nur 2 Ausnahmen." In its present form all of this is simply rhetoric and useless as evidence: all we are given is a contrast between a "large" number (or a "great" bulk) and a "small" number: it boils down to a meaningless comparison of the denominator of one fraction and the numerator of another. The relevant data for the five tragedies (*Alc.*, *Medea*, *Hcld.*, *Hipp.*, *Rhesus*) can be clearly presented in the following 2 × 2 table:[18]

<div align="center">TABLE I</div>

	-V̆TR	-V̆(C)-	totals
brevia	a 337	c 12,998	e 13,335
resolved *longa*	b 7	d 545	f 552
totals	g 344	h 13,543	N 13,887

The entries in the first row give the frequencies of syllables involving -V̆TR- (a) not involving -V̆TR- (i.e., -V(C)-) (c), and the total number of syllables (e) that realize *brevia*; the second row similarly for the realizations of resolved *longa*; N is the total number of light syllables (neglecting as is necessary *ancipitia* where correption cannot be detected): a + b + c + d = e + f = g + h = N. The proportion of correpted syllables for the *brevia* is found by dividing the entry in cell *a* by the entry in cell *e*: a/e = 2.5272%; the proportion of correpted syllables for resolutions is b/f = 1.2681%. Now, although the first proportion is almost twice as large as the second, both are small, and two samples from which they are drawn are very unequal. With one degree of freedom Table I has $\chi_c^2 = 2.8584$: this is less than 3.84 which is the value required for significance at 5% probability. The observed difference between the proportion of correption for *brevia* and for *resolutions* is not significant: we do *not* have evidence for the rejection of the alternative that resolutions and *brevia* are the same in respect to *correptio attica*. Traditional metrists are mistaken in thinking they have produced evidence for their law.

Let us now turn to the data for the extant tragedies of each poet. First all of Euripides:[19]

<div align="center">TABLE II</div>

	-V̆TR-	-V̆(C)-	totals
brevia	a 1,538	c 50,974	e 52,512
resolved *longa*	b 203	d 6,779	f 6,982
totals	g 1,741	h 57,753	N 59,494

[18]From a reworking of figures provided by Zielinski.
[19]From a reworking of figures provided by Zielinski.

The proportion for the *brevia* is a/e = 2.9247%; for resolved *longa* b/f = 2.9083%. These are so very nearly equal that if Zielinski had bothered to calculate them, he would have seen the absurdity of positing his *lex de positione debili*. Table II has the very small $\chi_c^2 = 0.0038$, a value too small to be entered in the tables; the probability of a greater χ_c^2 exceeds 90%. Euripides confirms the hypothesis that there is no difference between the syllables realizing *brevia* and those realizing resolutions. Table III gives the data for Sophocles:[20]

<div align="center">TABLE III</div>

	-V̆TR-	-V̆(C)-	totals
brevia	a 603	c 22,017	e 22,620
resolved *longa*	b 13	d 827	f 840
totals	g 616	h 22,844	N 23,460

The proportion of correption for the *brevia* is a/e = 2.6658%, and for resolved *longa* b/f = 1.5476%. The value of χ_c^2, however, is 3.5353: the difference is still not significant (probability greater than 5%). The alternative cannot be rejected on the basis of Sophoclean evidence.

When we turn to Aeschylus,[21] we find something surprising.

<div align="center">TABLE IV</div>

	-V̆TR-	V̆(C)-	totals
brevia	a 333	c 12,586	e 12,819
resolved *longa*	b 27	d 547	f 574
totals	g 360	h 13,033	N 13,393

The proportion of -V̆TR- for resolved *longa* is now actually greater than the proportion of -V̆TR- for *brevia*: b/f = 4.7038% and a/e = 2.6658%. With $\chi_c^2 = 8.5290$ the difference is significant (probability less than 5%): Aeschylus *prefers* to have *correptio attica* in syllables realizing resolved *longa* rather than in those realizing *brevia*. We should, however, think it very rash to set up a reverse *lex de positione debili* on this evidence.[22]

In conclusion we may state the proportions for all the extant tragedies: for syllables realizing *brevia* 2.8129%; for syllables realizing resolved

[20]From Kopp, 257, and R. F. Earp, *The Style of Sophocles* (Cambridge 1944) 121.

[21]Based on Kopp, *ibid.* and J. Descroix, *Le Trimètre Iambique* (Paris 1931) 110–111.

[22]The sample would be too small for conclusions about all tragedy. Furthermore it should be noted that if *PV* 2. ἄβροτον is rejected and the occurrences of the proper name *Eteocles* are eliminated, the difference is no longer significant: $\chi_c^2 = 3.7745$.

longa 2.8942%; the proportion of correpted syllables overall (i.e., resolved *longa* and *brevia*) is 2.8200%. Although our *Gegenprobe* cannot refute all claims that purely phonetic distinctions are relevant for metrical purposes,[23] it has refuted one of the best arguments heretofore adduced for this claim, and it should make us more critical of similar claims in the future.

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[23]E.g., in support of Dionysius of Halicarnassus's notorious μακρὰν βραχυτέραν in the dactylic hexameter (*De comp. verb.* 70.17 U-R) J. Irigoin (*GGA* 217 [1965] 228 ff.) presents statistics showing a higher frequency of "longer" types of heavy syllable in the contracted *biceps* than in the *longum* (and *vice versa* for "shorter" types) as proof of metrically significant durational differences. In "The Homeric Hexameter and a Basic Principle of Metrical Theory" (to appear in *CP*) Devine and Stephens examine the logic of statistical arguments in metrics and refute Irigoin's hypothesis.