

THE GREEK APPOSITIVES: TOWARD A LINGUISTICALLY ADEQUATE DEFINITION OF CAESURA AND BRIDGE

A. M. DEVINE and LAURENCE STEPHENS

1. THE PROBLEM

No fully satisfactory definition of the linguistic requirements of caesura and bridge has yet been formulated in Greek metrics. In particular, insufficient attention has been paid to the crucial cases of seemingly contradictory behavior where the same language sequence can stand both at a bridge and at the caesura, the evidence for which is especially rich in the trimeter.

Such cases commonly involve a special class of words that, on the grounds of both syntax and phonology, are recognized as distinct from full words in countless languages. This class most frequently involves short grammar forms, such as articles, prepositions, conjunctions, adverbials, interrogatives, pronouns, and numerals, although it may include other forms and exclude some of those mentioned. In Greek, the traditional name for members of this class is "appositives." A characteristic property of many appositives, in Greek as in other languages, is their liability to special word-order rules¹ which make them prepositive or postpositive to full words or to other appositives. Appositives may also display special phonological cohesiveness with the full word to which they are attached (head word), in terms of both the accentuation² and other phonological phenomena.³ Besides metrical evidence that appositives are permitted at bridges and avoided at caesurae, such diverse indications as word order, accentuation, liability to crasis and to the assimilation of final consonants (as indicated by spellings in inscriptions and papyri),⁴ and word punctuation in inscriptions attest appositive status in Greek.

1. An example would be Tagalog, where "the enclitic particles are a small but important class of words that occur in certain fixed word-order relations to other sentence elements" (P. Schachter and F. Otanes, *Tagalog Reference Grammar* [Berkeley, 1972], p. 82).

2. An example would be Syrian Arabic, where certain syntactic particles (including the article, a demonstrative, and certain conjunctions and prepositions) are accentually proclitic: M. W. Cowell, *A Reference Grammar of Syrian Arabic* (Washington, 1964), p. 18.

3. For example, in the west African language Fula, word-final glottal closure "is a feature of all nouns, adjectives, and verbo-nominals, but not of specifiers (near and far demonstratives), referentials, and interrogatives, nor of numerals" (D. W. Arnott, *Nominal and Verbal Systems of Fula* [Oxford, 1970], pp. 65-66).

4. Note particularly Boeotian, where no distinction is made between no boundary (word-medial position) and prepositive boundary for the historical sound change **kw- > -pp-*, e.g., *ἱππος* and *τὰ ππῆματα*; cf. *Θύοππᾶστος*. See C. Buck, *The Greek Dialects* (Chicago, 1955), p. 127. In Cypriot, consonant assimilations are extensive in the syllabary and the word-division sign is usually omitted with appositives. While word-medial spelling is used before postpositives (e.g., *a-u-la-ra-mi* = *αυταρ μι*, not **re-mi*), after prepositives we find word final spelling (e.g. *po-se-lo*, not **po-so*). Especially important is the fact that the phonological process that deletes word-medial, intervocalic *s* is extended in Cypriot to the final *s* of prepositives when they are followed by a word beginning with a

Table 1 provides examples of the contradictory behavior of appositives at a bridge and at the caesura. The first column presents the appositive or appositive class, the second column examples of its boundary at a bridge, the third column examples of its boundary at a caesura. A caesura or diaeresis is represented by /, stichos end by //, Porson's bridge by P, a resolution bridge by R. As far as possible, the examples have been chosen so that contrasting pairs display equivalent or comparable syntax, in order to eliminate the possibility of a purely syntactic explanation for the contradictory metrical distributions. Likewise, we have avoided instances from the first foot of the stichos.

The problem is, therefore: how is it that the appositive boundary meets the requirements both of the bridge (where full-word boundary is exceptional) and of the caesura and diaeresis (where full-word boundary is normal)? In this paper we shall examine the relative merits of three competing theories, each of which currently finds support with different authorities.

2. THE HYPOTHESIS OF METRICAL EXCEPTIONS: LANGUAGE AND METER

One interpretation, fairly widespread in philological circles, is that the appositive boundary is a true word boundary and as such "violates" the bridge, though not so seriously as a full-word boundary—why the violation is less serious is not explicitly stated. W. G. Arnott, for instance, writes⁵ that after prepositives "any break may be ignored," the suggestion being that in a particular linguistic context meter may ignore an aspect of existing linguistic structure that is not ignored in other linguistic contexts. But we shall argue that it is much more reasonable to assume that a prepositive may stand before a bridge precisely because there is no full-word boundary present to violate the bridge rule: there is nothing to "ignore." Similarly, in the case of elision in comedy, it is not that "breaks may generally be ignored" (Arnott), but rather that elision transforms the phonological marking of the boundary. D. Korzeniewski,⁶ in his recent handbook, thinks that, when appositives are involved, the violation ("Verstoss") of Porson's bridge is not serious ("nicht schwer"), although simply by defining the phonological word in slightly more sophisticated terms than as an entity with white space on either side of it in the printed text, one can avoid the implication that the tragedians wrote hundreds of unmetrical trimeters. In his note on *Bacchae* 246–47, E. R. Dodds calls a number of sequences of the type $\epsilon\sigma\tau'$ $\acute{\alpha}\xi\iota\alpha$, $\nu\omicron\upsilon\nu$ $\omicron\upsilon\kappa$ $\acute{\epsilon}\chi\omicron\nu$ "violations of Porson's law";⁷ such statements invite the reader to draw quite unjustifiable conclusions about the metrical structure of the trimeter in later Euripides. The "metrical exceptions" approach appears in its most stark and explicit form in the standard mono-

vowel; the word divider is usually omitted in these cases: e.g., $\#ka-a-i\#ta-u-ke-ro-ne = ka(\tau) \text{ } \alpha\upsilon\tau\iota \text{ } \tau\acute{\alpha}(\tau) \text{ } \upsilon\chi\acute{\epsilon}\rho\omicron\nu$ (no. 679 in E. Schwyzler, *Dialectorum Graecarum exempla epigraphica potiora* (Leipzig, 1923). See also n. 41.

5. "Split Anapaests with Special Reference to Some Passages of Alexis," *CQ* 7 (1957): 188 ff.

6. *Griechische Metrik* (Darmstadt, 1968), pp. 50–51.

7. *Euripides "Bacchae"* (Oxford, 1960), p. 101.

TABLE 1

Appositive category	Bridge	Caesura
Article plus noun or adjective	τὸν P κρείσσονα <i>Aj.</i> 456 ^a	τὸν // νέκυν <i>Ant.</i> 409
Anaphoric pronouns	τοῦδ' P ἐνδεής <i>Tro.</i> 906	τῶνδ' / αἴτιον <i>Phil.</i> 590
Demonstratives	ὁπαδὸν Ἰηπολύτου τόνδ' P εἰσorpῶ <i>Hipp.</i> 1151 δωμάτων τῶνδ' P ἐκπεσεῖν <i>Andr.</i> 875	ἡλίον τόδ' / εἰσorpᾶν ἐμοὶ φάος ^b <i>Phil.</i> 663 δόμων τῶνδ' / ἐξιόντι <i>Ion</i> 535
Possessive pronouns	σὺ P συγγόνῃ <i>Hel.</i> 978	σῆς / συγγόνου <i>Hel.</i> 1656
Negatives	οὐδεὶς P βούλεται <i>Alc.</i> 671 ^c οὐδὲν P δεῖ πονεῖν <i>OC</i> 1022 ^d οὐδὲν P γίγνεται <i>Eur. frag.</i> 497. 1 Nauck	οὐδεὶς / ἀντερεῖ <i>Alc.</i> 615
Conjunctions <i>et sim.</i>	καιρὸς P γὰρ καλεῖ <i>Phil.</i> 466 κάγῳ P τοί <i>Phil.</i> 801 μισεῖς P μὲν <i>Soph. El.</i> 357 ἀλλ' P ἐννοεῖς <i>OT</i> 300; cf. <i>ibid.</i> 831, <i>Phoen.</i> 897 ἀλλὰ P ψεύσεται <i>Andr.</i> 346 ἀλλὰ R δόλιον <i>Phut.</i> 1157 ὥστε R διὰ <i>Bacch.</i> 285 ὥστε R μετέχειν <i>Phut.</i> 345 ὑπὸ τῶν γλαυκῶν γε R τάλαιν' ἀπόλλυμαι <i>Lys.</i> 760 ὦ τύμπανα R καὶ κύφωνες <i>Phut.</i> 476	αὐδὴν / γὰρ δοκῶ <i>Aj.</i> 975 κάρτα / τοί <i>Aj.</i> 580 ἀνοῖξαι / μὲν <i>Eur. frag.</i> 824 N ἀλλ' / ὡς τάχιστα μοι <i>OC</i> 1475; cf. <i>Trach.</i> 1208 ἀλλὰ / μυρίων <i>Andr.</i> 562 ὥστε / τοῖς θανοῦσιν <i>Ant.</i> 560 ὀφθαλμοῖς γε / τοῖς ἀστοῖς <i>Aj.</i> 84 ῥμμα / καὶ φρένες <i>Aj.</i> 447
Idioms	νοῦν P οὐκ ἔχων (ἔχον) <i>Bacch.</i> 252, 271; cf. νοῦν P οὐδένα <i>Ant.</i> 68	νοῦν / οὐκ ἔχειν <i>Andr.</i> 252
Prepositive plus prepositive	ἡ τοῖς P δρωμένοις <i>OC</i> 1144 ἐν τῷ P δαίμονι <i>OC</i> 1443 ἐς τὴν P εὐβοτρυν <i>Phil.</i> 584 ἐκ τῆς P ποντίας <i>Phil.</i> 269 εἰ μὴ P τοῦ θεοῦ <i>OT</i> 1438	καὶ τοῖς / ἦθεςιν <i>Eur. El.</i> 385 ἐν τοῖς / μὴ καλοῖς <i>Trach.</i> 725 πρὸς τοὺς / δυσσεβεῖς <i>OC</i> 280 ἐκ τῆς / αἰχμαλωτίδος <i>Aj.</i> 1228 εἰ μὴ / τὰς φρένας <i>Hipp.</i> 1014
Prepositive plus postpositive	τὸ γὰρ P ἴσον <i>Phoen.</i> 538 ἐν γὰρ P τῷ μαθεῖν <i>OC</i> 115 ^e οὐ γὰρ P νῦν <i>Eur. El.</i> 275	αἱ γὰρ / συγγενεῖς <i>Tro.</i> 51 ἐν γὰρ / τοῖς πόνοισιν <i>Eur. Suppl.</i> 323 οὐ γὰρ / μὴ <i>Eur. Suppl.</i> 1069 οὐ γὰρ / εὐκλεεῖς <i>Med.</i> 236
Elision	σὸν πόδ' P ἐπὶ συννοίᾳ κυκλεῖς <i>Or.</i> 632 τὸν πατέρ' R ἐλαύνεις <i>Nub.</i> 29 τάμπόρι' R ἀνεψγμένα <i>Av.</i> 1523	τὸ θάκην' / ἐξαναγκάζει <i>OC</i> 1179 ἀντιτείνοντ' / αὐτόπρεμν' <i>Ant.</i> 714 ἡνίκ' / ἐξαηγόμην <i>Phil.</i> 571; cf. 800

^a It is possible that there is a caesura after τῆς at *PV* 589; contrast τῆς at Porson's bridge *passim*.

^b Appeal to the syntax seems impossible, since for the bridge in *Hipp.* τόνδ' belongs syntactically with the noun to its left, whereas for the caesura in *Phil.* τόδ' belongs syntactically with the noun to its right; i.e., in both, the syntactic cohesion conflicts with the meter.

^c The apparent violation has contributed to the decision of some editors to emend or condemn this line.

^d δεῖ is probably postpositive at *Or.* 1035.

^e The apparent violation has contributed to the decision of some editors to emend or condemn this line.

graph on the trimeter: of instances where a caesura stands after a prepositional, J. Descroix writes:⁸ "Or la métrique grecque est ici en réaction profonde contre la langue qu'elle versifie."

None of these authors has gone so far as to discuss the data of table 1, but, presumably, if (some or all) appositives violate the bridge, they cannot also violate the caesura. Consequently those supporters of the metrical-exceptions hypothesis who see a violation at the bridge must see a regularity when the same sequence or a comparable one occurs at the caesura. Unfortunately, most categories cited in table 1 occur more frequently at the bridge than at the caesura; evidently appositives had some corrupting influence that lured the poets into an excessive spree of violations which was not repeated with non-appositives.

The popularity of the metrical-exceptions hypothesis seems to arise from a disregard of the critical distinction between language and meter. Verse is language arranged into patterns. The patterns used in verse may be realized in different "modes"—visually, auditorily—and in any number of media—rows of trees or houses, sequences of flashing lights or mechanical noises or whatever. For any pattern, therefore, there must be a set of rules specifying how the distinctive "elements" of the pattern are to be implemented by units perceptible to the senses. Thus a metrical pattern presupposes a set of rules specifying the distinctive units of language that can implement the distinctive elements of the pattern. It follows that, out of the infinity of possible linguistic utterances, some are metrical and some are not, and the poet chooses those that are metrical. If a line seems to deviate from this principle, either the poet has changed the metrical pattern, or the rules for linguistic implementation of the pattern have been inadequately formulated by the analyst, or the linguistically relevant units have been wrongly analyzed. Especially in the case of a dead language, automatic recourse to the assumption that a poet is violating normal metrical practice subverts the scientific basis of metrical analysis. In other words, since the explanation for apparently unmetrical lines may well lie in previously overlooked factors in the poet's language rather than in the laxity of his metrical technique, sound procedure requires that we investigate all the linguistic possibilities before we decide that his versification is lax.

Consistent metrical practice does not preclude the existence of metrical variables: in a given poet or genre some bridge and caesura rules may be adhered to more strictly than others, and the same bridge or caesura rule may be differently adhered to in different genres, or even observed in one and disregarded in another. But it is unreasonable to expect that metrical variability will explain the contradictory behavior of the Greek appositives at bridges and caesurae illustrated in table 1—to assume, that is, that the poet may disregard bridge rules and caesura rules when it is convenient for him to do so—since for all word boundaries except those of the appositives these rules tend toward absolute validity. Thus the metrical-exceptions hypothesis is inadequate as a scientific explanation because it ignores the

8. *Le trimètre iambique* (Mâcon, 1937), p. 280.

salient fact that the class of words established on metrical criteria is almost identical to an existing class of words established on linguistic criteria. Since this correlation obtains, the solution to the problem will in all probability involve the substantive properties motivating the correlation: what is it about appositives that permits them to appear both at bridges and at caesurae, when other words cannot?

The two other hypotheses considered in this paper (§§6 and 7) address themselves to this question, and they are superior to the hypothesis of metrical exceptions in that they are at least founded on an understanding of the terms in which the problem should be approached.

3. SYNTAX AND PHONOLOGY

The literature on the appositives commonly refers to "tightly knit phrases"; the appositives show "artissima coniunctio" (K. Bernhardi)⁹ with their head word, so that "veluti in unum vocabulum coalescant" (S. L. Sobolevskij);¹⁰ Arnott¹¹ has rightly objected to the lack of explicit definition of the limits of "tight-knittedness," but the major problem with such explanations lies elsewhere, namely in the general failure of their proponents to specify the terms of their definition: it is not stated explicitly whether this cohesion is viewed as syntactic or phonological or both. Is it some close grammatical link between, say, article and noun that motivates their behavior like a single word at a bridge, or is it that they are, in some critical respects, pronounced like a single word, or is it both?¹²

There are a number of indications that make it unlikely that the syntax directly determines the permissibility of appositives at bridge and caesura. For instance, it is difficult to see why the placing of a prepositive before a syntactically cohesive phrase consisting of another prepositive plus head word should reduce the syntactic cohesion of that phrase; whereas a phonological explanation in terms of the rhythmical organization of utterances immediately suggests itself. For instance at *OT* 615 we find *καὶ ἐν / ἡμέρα*, whereas *ἐν / ἡμέρα* would be exceptional. The bridge and caesura rules of Greek meter are expressible indirectly in syntactic terms simply because phonological boundary rules reflect syntactic boundaries (often with some "readjustment"), but there is no direct correlation between meter and syntax in the matter of bridge and caesura rules, only an indirect correlation via the phonology.

4. LOGICAL STRUCTURE OF EXPLANATORY HYPOTHESES

Before we can evaluate substantive explanations, we first must understand the logical structure of the problem. We must analyze the data in terms of

9. "De incisionibus anapaesti in trimetro comico graecorum," *Acta Soc. Phil. Lipsiensis* 1 (1872): 245-86.

10. "Ad locutionem graecam cognoscendam quid conferat versuum structura?" *Eirene* 2 (1964): 143 ff.

11. "Split Anapaests," pp. 188 ff.

12. The latter does not imply the former, nor, obviously, the former the latter; but, in general, phonological appositive status is correlated with syntactic structure. Cf. M. Bierwisch, "Regeln für die Intonation deutscher Sätze," *Studia Grammatica* 7 (1966): 99-201.

the distribution of linguistic units in metrical positions before we attempt to identify the linguistic and metrical properties motivating that distribution.

The metrical positions in question are the bridge and the caesura; the linguistic units variously distributed in those positions are different types of word boundaries (including zero boundary, i.e., word-internal sequences). Of the four logically possible distributional classes, three actually occur: the first class comprises those boundaries which appear at the caesura and not at the bridge; the second class comprises those boundaries which appear at the bridge but not at the caesura; the third class comprises those boundaries which appear in both positions. If we examine the members of the classes, we find that all members of the first class are full-word boundaries, all members of the second class are either zero boundaries or appositive boundaries, and all members of the third class are appositive boundaries.¹³

A substantive explanation will have to define the three classes, not merely by labeling their members, but by discovering the properties of language which motivate the distributional classification (and which, therefore, are the properties required by the caesura and the bridge). An economical explanation will have one of two possible logical structures: either there will be a single linguistic property of which there are three relevant degrees, or there will be two linguistic properties present or absent in different combinations in each class. The former model implies a linguistic feature of graduated strength, the latter a second linguistic feature taking different values from the first. The only alternative to these two explanatory schemata is the assumption that the meter has access to a minimum of two linguistic systems in which the values of a single binary feature are differently distributed from one system to the other.

5. PHONOLOGICAL PROPERTIES OF WORD BOUNDARIES

At this point substantive considerations have to be introduced into the argument. We start with the bridge. The nature of the property assigned by phonological rule at boundaries, to which the meter is sensitive at bridges, has been the subject of much discussion recently, constituting as it does the point of departure for Sidney Allen's stress theory.¹⁴ Since Greek meter is evidently durationally based, it has been common to see in duration the phonological property in question. This implies sensitivity on the part of the meter either to the added duration of pause or to a phonological rule increasing the duration of syllables (*ceteris paribus*) before certain boundaries. There is no direct evidence for such a rule. The most that can be said is that such a rule is not uncommon in the languages of the world: e.g.,

13. Note that the linguistic class of appositive boundaries is thus divided into two classes on the criterion of metrical distribution. (Since there is nonmetrical evidence for appositive status, no circularity is involved, at least in theory, in this analysis.)

14. W. S. Allen, "Prosody and Prosodies in Greek," *TPhS*, 1966 (1967), pp. 107-148; "Correlations of Tone and Stress in Ancient Greek," *To Honor Roman Jakobson* (The Hague, 1967), 1:46-62; *Accent and Rhythm* (Cambridge, 1973).

English,¹⁵ Swedish,¹⁶ Hungarian,¹⁷ and Finnish.¹⁸ For the purposes of the hypothesis which we favor (see §7), the precise nature of the phonological rule in question is not revelant, and we are well content to be able to keep an open mind. However, since such problems are most generally approached on the basis of durational increments, either segmental or due to pause, it is only right to see first whether a satisfactory solution is available in those terms.

For the caesura, on the other hand, the basic linguistic implementation is presumably pause for which there are various functional equivalents¹⁹ under certain circumstances (including durational increment). It will therefore be assumed for the sake of argument that full-word boundaries in Greek showed durational increment and pause or its functional equivalents and that word-internal sequences (zero boundaries) showed neither. However, although we have here two linguistic properties, we cannot use them for the two-feature model presented in §4. The appositive boundaries that occur both at bridges and at caesurae cannot be characterized by either of the two remaining distinctive combinations (the presence of pause in conjunction with the absence of durational increment or vice versa), because the presence of either pause or durational increment would contradict the requirements of the bridge. Therefore, within the framework of the durational approach, we are left with the alternative model presented in §4, which assumes three values of a single feature to account for the three distributionally distinct classes of boundaries.

6. THE HYPOTHESIS OF AN INTERMEDIATE CATEGORY

That the appositive boundary stood in some way between full-word boundary and zero boundary is a view we have already met superficially in the metrical-exceptions hypothesis, which assumed that the "violation" of the bridge was less grave for appositive boundaries than for higher-ranked word boundaries. Thus an intermediate category was posited (not to account for the contradictory data in table 1, but) on the mistaken assumption that, since appositives were words, they had to be characterized, albeit to a minor degree, by all the junctural properties of full words and could not be identical to non-words in any respect. In any case, no attempt was made to specify the linguistic property avoided at bridges, the property of which the appositive boundaries had a quantity intermediate between that of full-word boundaries and that of zero boundaries.

The durational approach appears implicit, although not worked out in detail, in current thinking on bridges and appositives. For instance, the

15. I. Lehiste, *An Acoustic-Phonetic Study of Internal Open Juncture*, *Phonetica*, suppl. 5 (Basel, 1960).

16. E. Gårding, *Internal Juncture in Swedish* (Lund, 1967).

17. T. Tarnoczy, "Can the Problem of Automatic Speech Recognition be Solved by Analysis Alone?" *Rapports du 5^e congrès international d'acoustique*, vol. 2 (Liège, 1965), pp. 371-87.

18. I. Lehiste, "Juncture," *Proceedings of the Fifth Congress of Phonetics* (Münster, 1964), pp. 172-200.

19. H. Fränkel, "Der homerische und der kallimachische Hexameter," *Wege und Formen früh-griechischen Denkens* (Munich, 1960), pp. 142-47.

treatments of L. Havet,²⁰ B. Snell,²¹ Korzeniewski,²² and A. M. Dale²³ are explicitly durational as far as they go. The most recent discussion of appositives at bridges is that of Sobolevskij,²⁴ and it clearly emerges from his statement that, in his view, appositives can stand at a bridge because they do not show the "mora . . . ne tantula quidem" that is prohibited at the resolution. It seems clear that for a considerable number of metrists the characteristic property of word boundary relevant to the bridge is a durational (or pausal) increment; and for some scholars the conflicting data of table 1 are resolvable if appositive boundaries are assumed to constitute an intermediate category between full-word boundaries and zero boundary with respect to the property of durational increment. For Havet, whom Descroix takes as his model ("je crois . . . être resté fidèle à sa doctrine"),²⁵ a caesura after a prepositive is "à peine marquée."²⁶ Nevertheless a "coupe" after a prepositive which implements the first syllable of an anapaestic resolution in the trimeter is strong enough, in Havet's opinion,²⁷ to prove his theory of the extra duration of the first of the two brevia of the anapaest in the trimeter. Arnott's statements quoted in §2 could be interpreted also as suggesting that "breaks" with appositives are not identical to other "breaks" for metrical purposes, i.e., they form a separate class. Most recently Korzeniewski has claimed that appositive boundaries constitute minor violations of Porson's bridge; yet he also thinks that they fail to make an acceptable caesura.²⁸ It follows immediately from these premises that appositive boundary would have to be a third or intermediate category between full-word boundary and no-word boundary, a category that fails to meet completely either the metrical requirements satisfied by full-word boundary or those satisfied by no-word boundary. The intermediate-duration hypothesis accounts for the permissibility of certain appositive boundaries at both bridge and caesura by assuming an overlap between the durations permitted by the caesura and those permitted by the bridge, an overlap into which fall the intermediate durations postulated for appositive boundaries.

The linguistic assumptions of the intermediate-duration hypothesis find some typological support in recent experimental phonetics. Experiments, primarily on English and Swedish, seem to establish definitely the existence of two levels of durational increment: word-final and the longer, utterance-final (pre-pausal) increments.²⁹ Categories of durational increment inter-

20. *Cours élémentaire de métrique grecque et latine*⁵ (Paris, n.d.), pp. 109–121.

21. *Griechische Metrik*⁸ (Göttingen, 1962), pp. 11–12.

22. *Griechische Metrik*, pp. 19–20.

23. "Stichos and Stanza," *Collected Papers* (Cambridge, 1969), p. 175.

24. "Ad locutionem graecam," p. 44.

25. *Trimètre*, p. vii.

26. In fact his examples all show a sequence of two prepositives.

27. Reported by Descroix, *Trimètre*, pp. 213–14.

28. *Griechische Metrik*, p. 19.

29. See, for example, D. K. Oller, "The Effect of Position in Utterance on Speech Segment Duration in English," *Journal of the Acoustical Society of America* 54 (1973): 1235–47; B. E. F. Lindblom, "Some Temporal Regularities of Spoken Swedish," in G. Fant and M. A. A. Tatham

mediate between word- and utterance-final increments and correlated with hierarchically ranked syntactic phrase and clause boundaries, while they have not been ruled out, will require more sophisticated experimental designs for adequate tests of their existence.³⁰ In particular, it will have to be established that such durational distinctions are to be expected as linguistically natural between word boundary and lower-ranked boundaries such as appositive boundaries.

In any case, it should be clearly understood that any prosodic-metrical hypothesis will involve assumptions of two different orders: (1) that the phonological categories involved (such as the intermediate durations here) actually exist in the language; (2) that the definition of the metrical categories (here bridge and caesura) is in keeping with what is known about Greek meter and meter in general, and in particular with what is known about the way in which linguistic categories are grouped for their function in meter. So far we have discussed only (1); but there are also problems at the level of (2). The *prima facie* mutually exclusive categories of bridge and caesura have to be defined on the intermediate-duration hypothesis in such a way that their requirements overlap (so that the intermediate duration may satisfy either). The more normal and natural situation is one in which intermediate categories in the language are grouped with one of the two extreme categories, and, consequently, the metrical categories remain mutually exclusive and binary. For instance in Estonian trochaic meter the (generally accepted) three categories of syllable quantity in the language are reorganized for the meter in such a way that the intermediate category is grouped with the long extreme category, and the distinction between them is thus neutralized for the purposes of the meter.

Furthermore, the hypothesis of intermediate duration has some embarrassing consequences. Single postpositives after the caesura are far rarer than single postpositives after Porson's bridge: it can only be assumed that

(eds.), *Auditory Analysis and Speech Perception* (London, 1975), pp. 387-96; and Bertil Lyberg, "Some Observations on the Timing of Swedish Utterances," *Journal of Phonetics* 5 (1975): 49-59. A very useful survey of the literature is to be found in D. H. Klatt, "Linguistic Uses of Segmental Duration in English: Acoustic and Perceptual Evidence," *Journal of the Acoustical Society of America* 59 (1976): 1208-1221.

30. In particular, the appearance of intermediate mean values for durational increments at particular phrase or clause boundaries does not necessarily establish the existence of intermediate linguistic categories, inasmuch as such mean values can result from averaging over variation between application and non-application of the rule for one and the same durational increment and from the fact that the rate of application of that rule can be correlated with the type of syntactic boundary. On the other hand, the correlation of duration may extend down the hierarchy of grammatical boundaries to the level of the boundary in productive *-ness* suffixes as illustrated by the fact that the [ai] in *slyness* is longer than the [ai] in *minus* but shorter than the [ai] in *sly Nestorian*. (This, however, may be an artifact of English stressing rather than a phenomenon purely determined by boundaries.) Nevertheless, nothing like a distinct durational increment associated with appositive boundaries has been clearly demonstrated for any language. Interesting for a class of potentially appositive words in English is the finding of N. Umeda and C. H. Coker ("Subphonemic Details in American English," in Fant and Tatham, *Auditory Analysis*, pp. 539-64) that "boundaries between function words do not lengthen consonants; boundaries with strong content words lengthen consonants more than the average . . ." (p. 543). This observation suggests that, for the allophonic rules of consonant duration, (potential) appositive boundary may be classed phonologically with zero boundary rather than as a third category intermediate between zero and full-word boundary.

single postpositives meet the requirements of the bridge better than they meet those of the caesura. A sequence of two prepositives, on the other hand, is quite common before caesura and before bridges, and thus might be thought to meet the requirements of both equally well. But elision of a full word in tragedy is rare at a bridge and relatively common at the caesura. To account for these asymmetries, the intermediate duration has to be split into three new intermediate categories of metrically relevant duration, giving a total of five. Further statistical data of this nature (correctly weighted for the varying potentialities of occurrence) would rapidly generate an ever more complex and suspect system of degrees of durational increment and pause. Secure typological evidence is, to our knowledge, lacking to indicate whether such a system of multiple durational increments is possible in any language, and, if it were, whether it could be metrically relevant without the expected simplification.

In short, therefore, the linguistic assumptions of the intermediate-duration hypothesis are still somewhat speculative, and the metrical assumptions are counter to the expectations of general metrical theory. In the next section we shall examine a third explanatory hypothesis superior on both counts: its linguistic assumptions find substantial theoretical and typological confirmation, and its metrical assumptions require no departures from the expectations of general metrical theory.

7. THE PHONOSTYLISTIC HYPOTHESIS

The concept of phonostylistic variation allows us to formulate an explanation for the conflicting data of table 1 without invoking recourse to the intermediate categories or the additional feature required by the models discussed in §§4 and 5. In favor of this hypothesis we find only two brief, but authoritative statements, from Hermann Fränkel³¹ and from Sidney Allen.³²

It is well known that there are certain dialect variations that a poet can draw on in writing his verse, linguistic variations correlated with regional, social, age, or sex distinctions: in Greek, for instance, the availability of *πατρός* trochee beside *πατρός* pyrrhic in tragic dialogue is one such variation of dialectal origin. But even *within* a particular regional or social dialect (or within a literary dialect based on one or more spoken dialects), there are multiple variations of a stylistic nature. Such variations at the phonological level are called phonostyles, and may be considered to form a parameter stretching from *lento* and formal to *allegro* and informal (some phonological rules are at one and the same time dialectal and phonostylistic).³³ Phonostyles differ from one another mainly in having different sets of phonological

31. "Hexameter," p. 143.

32. *Accent and Rhythm*, p. 26.

33. Phonostyles have been recognized as far back as H. Osthoff, who invoked them to explain variations in Latin syncope ("Die lateinischen Adverbia auf *-iter*," *Arch. Lat. Lex.* 3 [1888]: 464). Important recent work includes especially I. Lehiste, "The Role of Temporal Factors in the Establishment of Linguistic Units and Boundaries," in W. Dressler and F. V. Mareš (eds.), *Phonologica 1972* (Munich, 1974), pp. 115-22; W. Dressler, *Allegroregeln rechtfertigen Lentoregeln: Sekundäre Phoneme des Bretonischen*, Innsbrücker Beiträge zur Sprachwissenschaft, 9 (Innsbruck, 1972); idem, "Methodisches zu Allegroregeln," *Phonologica 1972*, pp. 219-34.

rules. For instance, in English in *lento* phonostyle there is probably no difference between *this morning* and *this mourning*,³⁴ but in *semi-allegro*, in the more fossilized phrase (the former), [ðis] can become [ðəs] for some speakers, and in *allegro* the vowel can be deleted entirely giving [θsmə-nɪŋ], or even with two additional phonological reduction rules [smə:nɪ].³⁵ Or again, in Diegueño (southern California, northern Mexico) in *allegro* or *casual* style "additional [phonological] alternations can be observed, particularly across word boundaries when no phonetic pause is observable."³⁶ And indeed phonostylistic variation, although common in any context, is particularly important for the description of the phonology of word boundaries: "The occurrence of juncture phenomena in actual speech depends heavily on such factors as style, tempo, length of the utterance under investigation, etc.," writes W. Jassem.³⁷ In Mandarin Chinese, for instance, some of the tones can be predicted on the basis of surrounding tones in the same "phonological phrase"; the rules for doing so are called "tone sandhi rules." But the size of the phonological phrase, and thus the domain of these rules, increases along the parameter from *lento* to *allegro*.³⁸ In Korean, *osul nipko* ("wearing clothes") may be pronounced *osil ipko*, *osillipko* or *osiripko* according to whether the correct boundary for the various phonological rules to apply appeared in the different phonostylistic representations.³⁹

Particles in particular are subject to considerable phonostylistic variation in languages all over the world. Thus in English *to* may be pronounced with a long back vowel, a short back vowel, a short centralized vowel, or even no vowel at all. In the Micronesian language Ulithian,⁴⁰ the preposition *mê*, "from," has its vowel elided before initial *i-* in *allegro* but not in *lento*. Some very close parallels to the Greek data of table 1 from Ilocano (Philippines) are given below (pp. 325 f.). Such instances from all over the world suggest a typical pattern of behavior for appositives; and it would, therefore, be natural for the appositives to show phonostylistic variation in Greek, too.

In general the following factors are likely to condition the appositive status of words: (1) syntactic constituent class, (2) semantics, (3) syntactic environment, (4) degree of progress toward status as an idiom, (5) frequency of occurrence, (6) phonological shape, and (7) phonological environment. By and large, the more resistant an appositive is to phonological weakening on one or more of the above counts, the more *allegro* the phonostyle required for such weakening to take place.

34. J. Rubach, *Variability of Consonants in English and Polish* (Warsaw, 1974), pp. 137 ff.

35. Insofar as these rules can affect *this mourning*, we suspect that, with neutral emphasis in both cases, they will always be a step behind the idiom *this morning* for any given phonostyle.

36. M. Langdon, *A Grammar of Diegueño; The Mesa Grande Dialect*, University of California Publications in Linguistics, 66 (Berkeley, 1970), p. 76.

37. Reported by Rubach, *Variability*, p. 249.

38. C. C. Cheng, "Domains of Phonological Rule Application," in J. Sadock and A. Vanek (eds.), *Studies Presented to Robert B. Lees* (Edmonton, 1970), pp. 39-59.

39. C. W. Kim, "Boundary Phenomena in Korean," *Papers in Linguistics*, 1970, pp. 1-26.

40. H. M. Sohn and B. W. Bender, *Ulithian Grammar*, Pacific Linguistics, series C, no. 27 (Canberra, 1973), p. 37.

Since phonostyles are clearly a natural phenomenon in language and since language is the “given” material that the poet arranges into metrical patterns, it is proper to ask how this arrangement is affected by phonostylistic variations. It is vital to remember that the metrical relevance of phonostylistic variation is not a matter of performance tempo or style; it is far more abstract than that. In order to create a pattern the meter requires certain phonological phenomena: these are introduced into phonological representations by phonological rules. However, as we have seen, phonostyles may have different representations (especially different boundaries) and different rules. Consequently, for any particular sequence there are three possibilities: (1) it (always) violates the bridge; (2) it does not (ever) violate the bridge; (3) it violates the bridge in some phonostyles but not in other phonostyles. The last description may be expanded to indicate for which segment of the parameter of phonostylistic variation the bridge is not violated. The poet is theoretically at liberty to choose forms from any segment of the parameter that does not conflict with the style in which he is writing. The distinctions formal–informal, lento–allegro are clearly open to exploitation for stylistic ends; but it would be mistaken to think that all instances of such variation are motivated by purely stylistic considerations. Rather, there are presumably occasions when the degree of formality is not critical and other criteria, even metrical convenience, apply to the choice between phonostylistic variants.

In general only a fraction of the phonostylistic variations of a language are represented in its standardized orthography; it follows that evidence now available to us for phonostylistic variation in Greek will be meager. Variations of identical sequences in the matter of synizesis, elision and ν ἐφέλκυστικόν, or both (ἔστ’, ἔστιν) appear to be phonostylistic in character. It is quite likely that the variations in inscriptional spellings of the type $\tau\omega\mu$ $\pi\omicron\lambda\iota\tau\alpha\nu$ (F. Bechtel et al., *Sammlung der griechischen Dialekt-Inschriften* [Göttingen, 1884–1915], no. 3004), and $\tau\omicron\mu$ $\mu\epsilon\gamma$ $\chi\omicron\iota[\rho\omicron\nu]$ (ibid., 3636. 34) testify to phonostylistic variation with the appositives in Greek, when they are not simply fluctuations between morphophonemic and phonetic spelling. Such an interpretation might also be given to variant spellings involving postpositives in Hellenistic papyri.⁴¹ But durational increments, predictable as they are on the basis of syntactic boundaries, are unlikely to be represented at all in spellings, let alone with their full complex of phonostylistic variations.

It is clear that those pre- and postpositives that stand both at Porson’s bridge and at the caesura in tragedy do so because they are treated, for the sake of the metrically relevant phonological rule, as separate phonological words in lento and as part of the following (or preceding) phonological word in allegro. That this is a reasonable claim receives strong support from identical variation found in the Philippine language Ilocano, where “some [enclitic attributes] are always added in close juncture; others seem

41. E.g., $\alpha\nu$ $\omicron\upsilon\mu$ $\pi\omicron\eta\sigma\alpha\iota\varsigma$ P. Cairo Zeno 59028; $\epsilon\iota\sigma\iota\gamma$ $\gamma\alpha\rho$ P. Cairo Zeno 59433; $\sigma\upsilon\mu\beta\epsilon\theta\eta\kappa\acute{\epsilon}\mu$ $\mu\omicron$ P. Mich. Zeno 23; $\epsilon\acute{\alpha}\mu$ $\mu\eta$ P. Mich. Zeno 43.

to vary."⁴² Likewise the sequence of prepositive plus prepositive (πρὸς τοὺς, ἐκ τῆς, etc.) will be followed by a word boundary and its phonological reflexes in *lento*, but not in *allegro*; hence it can appear before Porson's bridge as well as at the caesura. Similarly in Ilocano proclitic *kas* ("as") plus proclitic *la* ("that") becomes proclitic or non-proclitic *kasta* ("like that").⁴³ The same will be true of the Greek sequence prepositive plus postpositive. Similarly in Ilocano proclitic *kas* ("as") plus enclitic, e.g., *la* ("only") or *ka* ("though"), becomes proclitic.⁴⁴

The phonostylistic hypothesis receives further empirical corroboration in that it is able to make a scientific prediction which is confirmed by philological data. Comedy is written in a more familiar style of language than tragedy: it follows from the phonostylistic hypothesis that the class of appositives should be more extensive in comedy than in tragedy, and indeed bridges are satisfied in comedy by sequences that are not found, and probably are not permitted, at bridges in tragedy. For instance, in tragedy we find ἐν R ἀπέχθημα *Tro.* 425, in comedy further δέκα R μῆνας *Thesm.* 741, μίαν R ἡύρον *Nub.* 76, ἐννέα R παίδων *Thesm.* 637. Such variation between appositive and non-appositive status is paralleled by Ilocano *narud* ("so, therefore"), which, except when it stands as the first word of a sentence, varies phonologically between enclitic and full word.⁴⁵

We have established that phonostylistic variation is a typical and natural linguistic phenomenon, and a fundamental factor in a realistic theory of meter. However, the intermediate-durations theory attempts to explain the conflicting bridge and caesura data without invoking it as a factor (but neither stating explicitly that there was no phonostylistic variation in Greek—an extremely improbable and indeed demonstrably wrong assumption—nor explicitly claiming such phonostylistic variation as there was to be irrelevant to the explanation of the conflicting bridge and caesura data). We have also argued that the durational hypothesis with its intermediate categories of duration was the only viable choice within the framework of the logical alternatives set out in §4. It must now be evident that these alternatives were established on the basis of oversimplification. They are valid only in a framework in which language is treated as a monolithic structure and variation ignored or discounted. The phonostylistic solution enables one to avoid all the difficulties associated with an intermediate category, since for any given phonostyle the language organizes the phonetic parameters into two distinctive categories interpreted as presence or absence of the relevant physical properties.

The discrepancies between tragedy and comedy, and the internal discrepancies within each genre, involving the appositives are thus explicable by the assumption of *linguistic variables* as well as the traditionally assumed *metrical variables*. We shall indeed have to know the percentage of bridge

42. L. Bloomfield, "Outline of Ilocano Syntax," *Language* 18 (1942): 193–200, at p. 199.

43. *Ibid.*, p. 200.

44. *Ibid.*

45. *Ibid.*, p. 198, n. 3.

or caesura violations in any particular position in the stichos in any particular genre in any particular author, etc.: these are the metrical variables. But we shall also have to know the linguistic variables, not only the facts of dialect variation usually considered, but also the full range of phonostylistic variants available to the author, a proper appreciation of which may cause a revision of the description of the metrical variables and on occasion of certain textual decisions.

8. BRIDGE AND CAESURA

In the preceding discussion we have argued that there is likely to be variation from one language style to another in those phonological properties to which bridge and caesura are sensitive. From the relevance of phonostylistic variation to bridge and caesura it follows that the normal practice of defining bridge and caesura merely in terms of the linguistic properties required by the meter is inadequate: the definition must also specify the phonostyles to which it refers. Now, as the phonostyle becomes more *lento*, more formal, the incidence of boundary marking increases and consequently the requirements of the caesura are more frequently met. Conversely, as the phonostyle becomes more *allegro*, boundaries are less and less marked and consequently the requirements of the bridge are more frequently met. But the poet does not normally choose freely from the entire range of phonostylistic variation: recourse to the extremes is constrained. Therefore a complete definition of the caesura will specify the degree of *lento* that defines the lower limit of the phonostylistic range from which the poet may, with suitable statistical limitations, draw sequences that meet the requirements of the caesura. And a complete definition of the bridge will specify the degree of *allegro* that defines the upper limit of the phonostylistic range from which the poet may draw sequences that meet the requirements of the bridge. Thus *no definition of bridge and caesura can be entertained which neglects the fact of phonostylistic variation.*

9. CONCLUSION

The problem of exactly what sequences are metrical at a caesura and, respectively, at a bridge has been discussed by classical scholars for centuries. Conflicts between bridge and caesura, such as those cited in table 1, remained, and the general assumption seemed to be either that such conflicts were due to overlap between the metrical requirements of bridge and caesura (so in the intermediate-category hypothesis) or, worse still, that the rarer member of the conflicting pair was simply unmetrical. These theories grew out of a rather subjective assessment of data collected primarily for the purposes of textual criticism. Recent work in linguistics has brought an increased awareness of the phenomenon of language variation and of the importance of typology in the study of dead languages.⁴⁶ It has become clear that a combination of the former substantive advance with

46. See A. M. Devine, "Etruscan Language Studies and Modern Phonology," *SE* 42 (1974): 123-51.

the latter methodological refinement could provide a sounder basis for an explanation.

Not only do phonostyles provide the key to a simple explanation of variations with appositives, they are also a cardinal factor in any attempt to use Greek meter as a source for precise data about the Greek language and, conversely, to use the Greek language as a basis for discovering the various structures and rules of Greek meter. Moreover, without the concept of phonostylistic variation, a scientifically adequate definition of bridge and caesura is impossible.

Stanford University