THE POSITION OF THE ACCENT IN GREEK WORDS: A NEW STATEMENT

THE accent of Greek (Ionic-Attic) orthotonic words was mobile with limited freedom of movement, i.e. it could not stand outside a definite zone at the end of the word. Had the limit of this zone been the same for all words and had the accent been allowed to stand anywhere within it (as is the case in Modern Greek), there would have been no problem. Unfortunately, the length of the accentuable zone *did* vary whatever the unit we use (2 or 3 final syllables; 3 or 4 final vocalic morae) and there *was* a place within it where the accent was prohibited (the penult vocalic mora of some words). Hence the problem of explaining these 'irregularities'.

But before speaking of 'irregularities' and trying to explain them, we should make sure that the Greek accentuation patterns can be fitted into no regular scheme. The following is an attempt to find a more simple and consistent scheme than those suggested so far, to account for *all* the places which the accent can have in Ionic-Attic orthotonic words. The problem will be dealt with in a deliberately 'formalistic' manner, without appealing to any facts outside those mentioned by the Greeks themselves as relevant to the accentuation system of their language: the existence of two types of vowels, short and long, a long vowel being of twice the length of a short; the existence of two types of accent, the acute, standing on short vowels or on the second half of long vowels, and the circumflex, standing on the first half of long vowels. (We take it for granted that the 'grave'—nowhere mentioned by any ancient Greek—was a phrasal modification of the acute).

1. We know from the traditional accent-marking that the places where the accent could stand, if we group the words according to the three possible quantitative structures (I), (II), and (III) of their endings, were as follows:

	(A)	(B)	(C)
(I)	⏑ ´	⏑ ≃	◌́ –
(II)	⏑ ⏑ ◌́	⏑ ◌́ ⏑	◌̂ ⏑ ⏑
(III)	⏑ – ◌́	⏑ ≃ ⏑	◌̂ – ⏑

(where quantity signs denote *vocalic*, not syllabic, quantity and ⏑ stands for '*vowel* either long or short').

2. The traditional statements regarding the place of the accent transmitted to us by Greek grammarians are exhaustive, but complicated and reducible neither to each other, nor to any single principle: e.g. 'The acute may stand on any of the last three syllables, the circumflex only on the last or last but one. But the acute cannot stand on the last but two, nor the circumflex on the last but one, unless the vowel of the last is short.'[1] The only general principle deducible from this formula is the so-called 'law of the three final

[1] E. A. Sonnenschein, *Greek Grammar*[13], (London, 1929), 132 (quoted from W. S. Allen, op. cit. [below, p. 115 n. 4], 12). Cf. W. W. Goodwin and G. B. Gulick, *Greek Grammar*, (Waltham, Mass., 1958), 28 f. (§§ 129b, c; 130; 132), or С. И. Соболевский, *Древнегреческий язык* (Москва, 1948), 15 f. (§§ 56–65).

syllables' ('no accent can stand on any but the last three syllables of a word'), which is insufficient even to define the limit of the accentuable zone. It explains neither why in groups (II) and (III) the antepenult syllable, and in group (I) the penult, cannot, when long by nature, be circumflexed, nor why in group (III) the long penult cannot have the acute, nor even why in group (I) the antepenult cannot be accented at all.

3. The introduction of the concept of mora[1] seemed to provide a way out by suggesting a 'law of the three last vocalic morae' ('the accent must stand on one of the three final vocalic morae of a word'). This would have explained the prohibition of the circumflex on the long antepenult of (II) and (III) and on the long penult of (I), as well as the reason why the zone of (I) is only dissyllabic. But it was rightly rejected on the grounds that it failed to explain the prohibition of the acute on the long penult of (III) and—what is far worse—that it was directly contradicted by words of the (III-C) type, and thus could not be used even to define the limit of the accentuable zone.[2]

4. These difficulties were met in two different ways. One of them consisted in saving the 'law of the three morae', both as definition of the places of the accent and as definition of the limit of the accentuable zone, by postulating that the penult of (III) comprised—from an accentological point of view—only one mora.[3] What had been the fourth mora (counting from the end of the word) of (III-C) words thus became the third (antepenult) and the fact that the long penult of (III) could have only one kind of accent (III-B) was thus explained. But the question, why this one kind of accent should be a circumflex, not an acute, was left unanswered. Besides, this conception introduced a peculiar accentual type of mora—the mora as 'tonic unit'—alongside the vocalic mora—the mora as 'duration unit'.[4]

5. The other solution to the contradictions of the 'law of the three morae' was to substitute for the expression 'antepenult mora' the expression 'mora preceding the syllable containing the penult mora'.[5] All the difficulties mentioned were thus met, and the place of the accent could be defined as follows:

The accent in Ionic-Attic Greek orthotonic words could stand on any of the following three places: (A) on the last vocalic mora; (B) on the vocalic mora immediately following the mora defined in (C) below; and (C) on the vocalic mora immediately preceding the syllable containing the penult mora.

Hence the zone of accentuation could be defined as consisting of the final mora+the syllable containing the penult mora+the mora preceding this

[1] See J. Vendryès, *Traité d'accentuation grecque*[2] (Paris, 1929 [[1], 1904], 55; R. Jakobson, in *TCLP*, iv (1931), 166 f.; R. Jakobson, in *Mélanges J. van Ginneken* (Paris, 1937), 25 ff. (= *Selected Writings* i [The Hague, 1962], 254 ff.); N. Trubetzkoy, in *Scritti in onore di A. Trombetti* (Milano, 1938), pp. 155 ff.; N. Trubetzkoy, *Grundzüge der Phonologie* (= *TCLP*, vii) (Prague, 1939).

[2] Hence the sceptical attitude of E. Hermann, *Silbenbildung im Griechischen und in den andern indogermanischen Sprachen* (*Ergänzungsheft zur Ztschr. f. vergl. Sprachforschung*, ii, 1923), 88, who believed that Greek accentuation was the historical result of the successive action of three different laws (the 'law of the three syllables', the 'law of the three morae', and the law requiring the circumflex on the long penult when the final is short) and thus denied the existence of any single synchronic accentuation system in Greek.

[3] J. Vendryès, op. cit. 55, 57 (cf. R. Gauthiot, *La Fin de mot* [Paris, 1913], 215). This view is now upheld by P. Garde, *L'Accent* (Paris, 1968), 144 f.

[4] J. Vendryès, loc. cit.

[5] R. Jakobson, in *Z zagadnień poetyki* (Prace ofiarowane Kazimierzowi Wóycickiemu) (Wilno, 1937), 72 ff. (Engl. transl. in *Selected Writings*, i. 262 ff.).

syllable (the first two units coinciding in group (I)); and the 'limit of recessive accentuation' (i.e. the (C)-accent) could be formulated thus: 'The span between the accented and the final mora cannot exceed one syllable.'[1]

6. The hugeness and lack of unity of the formula induced some scholars to try to find means of simplifying it. One of these simplifications was achieved by introducing the concept of 'final *ensemble*', defined as the part of the word composed of the last vocalic mora and of the syllable containing the penult vocalic mora.[2] Place (B) of the accent can then be defined as the first vocalic mora of the final *ensemble*, and place (C) as the vocalic mora preceding the final *ensemble*.[3] This improvement, however, is only terminological, since each place of the accent is still defined on different lines, and the structural meaning of the 'final *ensemble*' remains obscure.

7. Still another approach to the problem—though it has not yet produced any full definition of the place of the accent—is worth mentioning. Its main feature is the replacement of the concept of 'accent' by that of 'contonation'.[4] The 'contonation' of a word would include not only the high tone (the 'accent' proper), but also a post-tonic high-to-low glide, extending over the whole of the syllable containing the mora which follows immediately that of the high tone (some more details will be given below, § 14). The result is that words with (A)-accent—or (A)-contonation—have a 'catalectic' contonation, i.e. are left without glide, a feature which would explain the special 'grave' accent mark used for *oxytona* as denoting the lowering, or the neutralization, of the high tone required to 'compensate' the lack of transitional glide (as a matter of fact, the concept of contonation was introduced precisely to interpret the 'grave' accent-mark). And another result is a simplification of the statement (end of § 5 above) regarding the limit of recessive accentuation, viz.: 'Not more than one mora may follow the contonation.'[5]

One may ask oneself whether it is possible in the same way—by substituting 'contonation' for 'accent'—to simplify the full definition of the place of the accent given in § 5. Indeed, (A)-, (B)-, and (C)-contonations, unlike the accents, differ from each other not only by their places, but also by their length, and could be characterized respectively as 'monomoric', 'dimoric', and 'trimoric'.[6] But this additional difference gives no new clue for defining their places, since the places of the high tones are those of the accents, and the places of the last morae of the contonations, with reference to the end of the word, are not deducible from the length of the contonation (contonations (I-B) and (III-B)—as well as (I-C) and (III-C)—are identical in length, but have different positions with respect to the final mora). Still, as will be shown further on, the concept of 'contonation', if somewhat modified, may prove very helpful.

[1] Ibid. 73 (= *Selected Writings*, i. 263). It should be noted that this formula states only the upper limit of recessive accentuation.

[2] This concept was introduced by J. Kuryłowicz, *L'Accentuation des Langues indo-européennes*[2] (Wrocław–Kraków, 1958) ([1], Kraków, 1952), 107, and applied to Jakobson's formula by I. M. Tronskij (see next note).

[3] И. М. Тронский, *Древнегреческое ударение* (Москва–Ленинград, 1962), 51 ff.

[4] W. S. Allen, in C. E. Bazell *et al.* (eds.), *In Memory of J. R. Firth* (London, 1966), 10 ff. (cf. W. S. Allen, *Vox Graeca* (Cambridge, 1968), 111 ff.).

[5] Ibid. 13 (cf. 14 n. 30 and *Vox Graeca*, 114). This formula also states only the upper limit of recessive accentuation (cf. above, n. 2).

[6] With the sad exception of (II-C), which should be 'dimoric'.

8. The main defect of the formula quoted in § 5 (and of its further modifications) is that it consists in fact of three definitions for each of the places (A), (B), and (C) of the accent. Each of these definitions is drawn along separate, though interconnected, lines. Place (A) is defined with reference to the end of the word, place (B) with reference to place (C), place (C) with reference to the 'syllable containing the penult mora', the location of which depends in its turn on the structures (I), (II), or (III) of the word and has reference (through the penult mora) to the end of the word. Thus three points of reference, two directions of count (backward and forward) and two units of count (the mora and the syllable) are necessary.[1]

The problem, then, is to find a more adequate system of counting, with a single unit, a single point of reference, and a single direction of count. (A secondary point is that the concept of 'vowel' should be strongly preferred to that of 'syllable', not only for the sake of simplicity—'short vowel' is easier to say than 'syllable containing a short vowel'—, but also on account of the important fact that the place and quality of the Greek accent were absolutely independent of syllabic quantity as such, being wholly determined by vocalic quantity.)

9. The point of reference should obviously be the end of the word and, therefore, we should count only backward. But the unit of count can be neither the vocalic mora, nor the vowel (the 'syllable'), and must be a combination of both. An example of such a combined unit is given by the expression used above, 'syllable (= vowel) containing the penult vocalic mora'. Let us call *'moric vowel'* a vowel thus defined by a mora it contains and let us try to generalize this concept with respect to the three ultimate vocalic morae of the word. Hence the three following definitions of the moric vowels corresponding to the three ultimate vocalic morae:

—the *last* moric vowel of a word is the vowel containing the last vocalic mora of the word;

—the *penult* moric vowel of a word is the vowel containing the penult vocalic mora of the word;

—the *antepenult* moric vowel of a word is the vowel containing the antepenult vocalic mora of the word.

It is evident that the last and penult moric vowels, when the last vowel of the word is long, and the penult and antepenult moric vowels, when the last vowel of the word is short and the penult is long, coincide; they should be nevertheless considered as *different* moric vowels, though they are identical ordinary vowels.

10. Using these new units, we can easily define places (A) and (B) of the accent. (A) is the *last*—or sole—vocalic mora of the last moric vowel and (B) is the *first*—or sole—vocalic mora of the penult moric vowel. The case of (C), though, is somewhat more difficult, since only words of groups (I) and (II) corroborate the definition of place (C) as the *last*—or sole—mora of the antepenult moric vowel. If this definition were applied to group (III), the accent

[1] Tronskij's modification of Jakobson's formula (using the 'final *ensemble*' concept of Kuryłowicz) seems partly to avoid this complexity, for all the accentuable places are defined in it with reference to the 'final *ensemble*' (places (A), (B), and (C) are respectively the final, the first, and the 'first but one' morae of the 'f. *e.*'). But all the same difficulties re-emerge as soon as we attempt a synthetic definition of the '*ensemble*'. See § 6 above.

would have to stand on the penult mora, not on the fourth mora from the end of the word. So we are still faced here with an exception which should also be fitted into the scheme.

11. To deal with the problem from the purely 'formal' point of view adopted here, this difficulty may be surmounted in two ways: *either* by modifying the above definition of the moric vowel in order to include the vowel containing the fourth mora (from the end) of group-(III) words in the category of *antepenult* moric vowels; *or* by postulating a restrictive rule, which, given certain conditions, would forbid the accent generated by the antepenult moric vowel to stand where it should.

The first is easier to achieve if we replace the words 'final', 'penult', and 'antepenult' by numbers one, two, and three (counting from the end). Then the moric vowels would be defined thus: 'Moric vowels numbers 1, 2, and 3 are the vowels containing *respective* vocalic morae numbers 1, 2, or 3, unless they contain as well a second mora bearing an *even and smaller* number, or—in the latter case—the vowels immediately preceding these.' Then all the places of the accent could be defined as follows: 'The accent may stand only on the odd vocalic morae of the odd moric vowels numbers 1 and 3 and on the even vocalic mora of the even moric vowel number 2' (where 'odd' and 'even', applied to morae, mean respectively 'first or sole' and 'second or sole' counting from the end of the vowel).

The second solution creates no difficulties, since words of group (III) provide the only case where, according to the general rule (outlined in § 10 above), the place of the accent generated by the *antepenult* moric vowel (defined as in § 9) would be *closer to the end of the word* than that generated by the *penult* moric vowel. The definition of the places of the accent would then be the same as the one offered earlier in this paragraph, but the moric vowels should be understood in it as defined at first, and the following proviso should be added: 'unless the order of the three places generated by the moric vowels is different from that of the numbers of these vowels, in which case the latter is restored by transferring the 'ill-placed' accentuable place one vowel backwards.'

It is obvious that this second solution should be preferred to the first, for two reasons. The definition of the moric vowels needed by the first formula is too complicated and the restriction incorporated into it inexplicable. On the contrary, the external restriction of the second formula affords a structurally very plausible explanation: the invariability of the order of the accentuable places, which should coincide with that of the moric vowels generating them.

12. Let us sum up our conclusions. The possible places of the accent in Greek words are generated by units called *moric vowels*, reflecting the vocalic—both quantitative (moric) and syllabogenic—structure of word-endings. To determine these places we need the following

Definitions:

(*a*) The final, penult, antepenult, etc. vocalic morae of a word are respectively called *vocalic mora number 1, 2, 3, etc.*

(*b*) A *moric vowel* is a vowel named after the number of the vocalic mora it contains; if the vowel contains two morae, it is named after both.

(*c*) Moric vowels with odd numbers are called *odd*, moric vowels with even numbers are called *even*.

(*d*) The last and first vocalic morae of a long moric vowel are also respectively called *odd* and *even* (i.e. 1st and 2nd from the end of the vowel); the single mora of a short moric vowel may be called both.

These definitions enable us to formulate the three following

Rules of accentuation:

(I) *Unless Rule (II) forbids it, the only accentuable vocalic morae in Greek (Ionic-Attic) orthotonic words are vocalic morae of moric vowels numbers 1, 2, and 3, viz.: the odd vocalic morae of the odd moric vowels and the even vocalic mora of the even moric vowel.*

(II) *The order of the accentuable vocalic morae must be the same as that of the moric vowels responsible for their accentuability.*

(III) *When Rules (I) and (II) are incompatible*—which happens when the accentuable mora generated by moric vowel number 3 is vocalic mora number 2 —, *Rule (II) prevails and the order is restored*: mora number 2 looses its accentuability in favour of mora number 4.

One of the consequences of these Rules is that there can be no simple statement of the limits of recessive accentuation (= of the commencement of the accentuable zone):

The limit of recessive accentuation (= the first mora of the accentuable zone) is the odd vocalic mora of moric vowel number 3, unless this vocalic mora follows the even vocalic mora of moric vowel number 2, in which case it is the odd vocalic mora of moric vowel number 4.

13. *Appendix.* The formula suggested regarding the position of the accent may raise many doubts concerning the linguistic reality, origin, and phonetic nature of the moric vowel. In what follows a few chance remarks and guesses will be ventured, but the reader should be warned against taking anything in them for granted, since much more research is still needed.

Two features of the moric vowel deserve, as it appears, special mention. First of all, the fact that the moric vowel was most certainly a *structural* unit. The Greek accentual system has survived for about a millennium,—an extraordinary performance, if we compare it with the systems of so many other languages. Had it been some sort of transitional system between two 'regular' accentual systems (say, of pre-Greek and Modern Greek), it would not have been so stable. And to be stable, it must have had a structure of its own.[1] (This, by the way, does not exclude the existence of eventual understructures or external influences interfering with it.) Up to now, this structure seemed undetectable. Only the concept of moric vowel makes it possible to find a general principle underlying the whole of the system: the relationship between the three final moric vowels and the place of the accent as expressed by Rule (I).

The second feature is the evidently *complex* nature of the moric vowel. It is fairly obvious that it is the result of some interplay between two simple units: the mora (the smallest vocalic unit) and the vowel (the smallest syllabogenic unit). The moric vowel could be compared with the force resulting from the combination of two forces acting upon a body in different directions. The trajectory of the body is determined not by the values and directions of the two elementary forces, but by the force resulting from their combined action.

[1] This is a strong argument against scepticism such as E. Hermann's (see above, p. 114 n. 2).

To the body subjected to them, the complex force is the only real one, since it could have resulted from the combinations of many other elementary forces having other values and directions, provided their 'sum' is the same. In the same way the place of the accent is not deducible from the action of the simple units (mora and vowel) taken separately, even though only the latter can be said to exist 'really', i.e. to have a phonetic reality for the possessors of the language.

Now, 'structural' means *synchronic*, and 'complex' means non-existent if the elementary units do not combine (have no object to act upon together). It is therefore very probable that the moric vowels never existed independently of the Greek accentuation system and had no part in its genesis, being themselves a result of it (as well as the condition of the stability of the system). Since one of the main features of the Greek system of accentuation was the confinement of the accent to a limited accentual zone, it is very tempting to consider the genesis of the moric vowels as a result of the 'squeezing' of the accentuable places of pre-Greek, with their morae and vowels, into this zone. But a careful study of Indo-European accentuation (especially Vedic) is necessary before anything certain can be said about this.

14. If Rule (I) had been the only rule regulating the place of the accent, we would have had in (III-C) the accentuation * ⏜ ⏑. It would be interesting to know what phenomenon prohibited it. It is not excluded that the answer may be found by appealing to W. S. Allen's concept of 'contonation', already mentioned above (§ 7).

The main grounds for introducing it (besides its role for explaining the 'grave') were (1) that 'in the closely related Vedic system we know that in addition the pre-tonic syllable carried a specially low variant of the low tone, and the post-tonic syllable carried a high-to-low glide variant;[1] in fact in the *RigVeda* it is the pre- and post-tonics that are marked, the high tone itself being unmarked (thus e.g. *agnínā* appears as *agnìnā*)'; (2) that in Greek musical fragments a similar falling glide may be traced; (3) that in Greek, as well as Vedic, the high tone and the falling glide could occur within a single long syllable (= the circumflex), the Indian term '*svarita*' being used for 'contonation' both within a long syllable and extending over two syllables, and the Delphic hymns showing a similar musical treatment of both; and (4) that the unidentified 'middle' tone mentioned by Aristotle (*Poet.* 1456^{b}33; cf. *Rhet.* 1403^{b}29) and other writers may have referred to the glide of the syllable following the high tone.[2] But the explanation of the 'grave' based on the concept of contonation (briefly expounded above, § 7) would have missed its mark without the very important proviso that in Greek, *unlike Vedic*, the glide could not extend across the word-boundary.[3]

It is tempting to examine this difference between Greek and Vedic together with another one: the complete freedom of the accent in Vedic and its limited freedom in Greek. They might both have arisen from a tendency of pre-Greek to achieve a clearer demarcation between words (lacking in Vedic, hence the '*pada*' tradition).[4] This demarcation, to be possible, needs either a fixed accent,

[1] 'Cf. W. S. Allen, *Phonetics in Ancient India* (O.U.P., London, 1953/61), 87 ff.' (note by W. S. Allen).

[2] W. S. Allen, in *In Memory* . . ., 10 and 13 nn. 10–16.

[3] Ibid. 11.

[4] The '*pada*' (word-isolate) tradition was necessary 'to ensure correct word-division in the transmission of oral texts' (ibid. 11 and cf. 14 n. 21).

or an accent with limited freedom, each place of which would differ from the others not only by its distance from a given place (the end of the word), but also by the quality of the contonation for which it is responsible. Thus (A)-contonations differ from (B)- and (C)-contonations by the absence of glide, and clearly indicate that the word ends with them. W. S. Allen's definition of the contonation does not unfortunately provide any such difference between (B)- and (C)-contonations. Now, if it really existed, this difference could have been, for example, the presence in (B) and the absence in (C) of the *pre-tonic especially low tone*, which must then be included into the definition of contonation. (A)-contonations would then have comprised a low tone and a (lowered) high tone, but no glide; (B)-contonations a low tone, a high tone, and a glide; and (C)-contonations no low tone, a high tone, and a glide. But, whatever the precise nature of the difference, it is obvious that the prohibited 'regular' accentuation * ⸍ ⏑ (*III-C) would have stood closer to the end of the word than the permitted accentuation ≃ ⏑ (III-B) and would have wrongly pointed to a *more distant* end of the word than the latter. This would have spoiled its role of demarcation sign, and may be the reason for restrictive Rule (II).

This hypothesis—if right—still leaves many questions unanswered. What was the intonation of the part of the word outside the contonation (left unmarked in Vedic just as the high (!) tone)? Had the pre-tonic low tone of Greek a fixed position (e.g. that of the (C)-high tone) or did it always immediately precede the high tone of (B)- and (A)-contonations? What prevented the low tone from appearing in (C)-contonations? Did all the contonations clearly indicate where the word ended—in which case there must have been some difference between the *identical* contonations (I-B) and (III-B), (I-C) and (III-C)—or was the demarcation only approximate? To clear these and some other similar points, a meticulous reconstruction of the genesis of the Greek accentuation system is needed, and that cannot, of course, be attempted here.

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