

INTONATION AND METRICAL THEORY¹

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IN this paper, I want to examine the nature of the non-segmental variation found in oral performance in poetry, and the way in which aspects of this variation have been and can be considered to be identifying features of this genre.² My feeling is that certain important kinds of variability (in particular, the kinds of patterning generally referred to as 'intonation') have been underestimated or ignored, and my hypothesis is that if these factors are given a proper role in any discussion of 'poetic identity', a more adequate account of the phonological basis of poetic effect will be obtained. Put briefly, this paper is yet another exercise in metrical theory—a topic which has received considerable discussion in many linguistic and critical journals over the last few years, but which oddly has received little attention from this Society.

¹ This paper was originally presented at a meeting of the Philological Society on 7 May 1971, under the title 'Competence in performance: phonological variables in literary effect'. The present title better reflects the final content of the paper. I am most grateful to Roger Fowler, Geoffrey Leech, Frank Palmer, Ron Brasington and Peter Field for their constructive comments on an earlier version.

² By 'non-segmental', I am referring to sets of mutually defining phonological features which have an essentially variable relationship to the segmental/verbal items of an utterance as opposed to those features (e.g. vowels, consonants, syllabic structure) which have a direct and identifying relationship. I avoid the term 'suprasegmental', because this belongs to a phonological theory which I believe inadequate (see below, p. 16). Non-segmental features contrast auditorily in pitch, loudness, duration, or silence, and they expound meanings of an attitudinal, grammatical, or social kind. I have argued elsewhere that these features are best viewed as being organised into *prosodic systems* of pitch-direction, pitch-range, loudness, tempo, rhythmicality, and pause—but I shall avoid the term 'prosodic' in the present paper until my final section, because of its much more restricted sense in metrics. Intonation, in this view, is seen not as a single system of contours or levels, but as a complex of features from different non-segmental systems, primarily pitch-range, pitch-direction, and loudness. Non-prosodic variability is referred to as paralinguistic. A full discussion of this analysis is found in D. Crystal, *Prosodic systems and intonation in English* (CUP, 1969).

Apart from a few valuable papers of a descriptive kind, no paper on the bases of metrical theory seems to have been presented to this body since Professor Skeat's most germane discussion in 1898.³ Mr. Thomas Barham put it—a trifle optimistically—in a paper to the Society in 1860, that metrics is not difficult, simply neglected.⁴ These days, metrics is no longer neglected, but its true complexity has begun to be better perceived, and it is, most assuredly, difficult!

The linguistic discussion of metre⁵ seems to have produced considerable agreement about its nature and function; but any agreement is to a great extent obscured in the various publications by differences in terminology, an absence of definition of central concepts, and a failure to suggest procedures of analysis capable of producing anything empirically verifiable. This point may be seen if we look briefly at the common conception of the nature of metre, as presented in this literature. There is almost total agreement that metre, however defined, should not be identified with the psycho-physical analysis of utterance, as displayed in any reading of a text.⁶ Metre is held to be an abstraction, in some sense, and is not to be identified with

³ W. W. Skeat, 'On the scansion of English poetry', *TPS* (1898), 484–503.

⁴ 'On metrical time, or, the rhythm of verse, ancient and modern', *TPS* (1860), 45.

⁵ By this, I am referring to the discussion which has been taking place over the past ten years or so, stimulated largely by the articles in *The Kenyon Review*, 18 (1956), pp. 412–77, by Whitehall, Chatman, Stein, and Ransom; and by the articles and discussion in the Indiana University Conference on Style held in 1958, and published as *Style in language*, ed. T. A. Sebeok (MIT, 1960). A thorough discussion of most issues considered relevant at this time is to be found in S. Chatman, *A theory of meter* (Mouton, 1965); and most of the important articles are to be found in S. Chatman and S. R. Levin (eds.), *Essays on the language of literature* (Houghton Mifflin, 1967), D. C. Freeman (ed.), *Linguistics and literary style* (Holt, Rinehart, Winston, 1970), and H. Gross (ed.), *The structure of verse: modern essays on prosody* (Greenwich, 1966). For convenience, in this paper references to articles will where possible refer to these volumes, using the conventions 'in Freeman, p. 000', etc.

⁶ An apparently physicalist sense of metre may be found in K. Shapiro and R. Beum, *A prosody handbook* (Harper and Row, 1965), p. 63, or P. Fussell, *Poetic meter and poetic form* (Random House, 1965), p. 5.

performance.⁷ But in which sense? The various possible interpretations of the term 'abstraction' are well represented in this literature, but the word itself is not, as far as I am aware, ever defined. There is, for instance a fairly widespread interpretation in terms of 'regularisation' or 'normativeness'. Metre is a 'normative fact' to Wimsatt and Beardsley (in Chatman and Levin, p. 92), and almost the same words are used by Lotz (in Sebeok, p. 207) and Hollander (in Sebeok, pp. 402-3, cf. p. 302), amongst others. This use of normative is not too clear, but it seems to mean that metre is the underlying principle governing the formal characteristics of the poetic text in some regular way.⁸ It is objected to by some—for instance, by Chatman, who prefers to see metrical analysis as 'the process of summing the scansion of all intelligible recitations', and who thus sees metre as 'a consensus, not a normative formulation' (op. cit., p. 105). Alternatively, one may see metrical abstraction in a general sense of theoretical construct (as Hrushovski, in Sebeok, p. 179); as idealisation (Whitehall, in Sebeok, p. 201); as mental construct of the author (as Chatman, in Sebeok, p. 158) or of the reader/native speaker also (Beaver, in Freeman, p. 445); as perceptual effect (Thompson, in Freeman, p. 342); as potentiality (Chatman, in Sebeok, p. 158); as derivable solely from poetic performance (Wells, in Sebeok, p. 199) or requiring additional knowledge

⁷ For representative statements on the point, see S. Chatman, op. cit., pp. 103, ff., Wimsatt and Beardsley (in Chatman and Levin, pp. 95-6), Fowler (in Freeman, p. 348), and Jakobson (in Sebeok, pp. 366-7). (One must, I think, disregard Jakobson's loosely phrased comment on p. 364 of Sebeok, that the metre that underlies the structure of poetic lines is *not* 'an abstract, theoretical scheme'. The context suggests that he is using the adjectives in a derogatory sense of 'abstruse'.)

⁸ This point may be more readily appreciated through the idea of divergence from a norm, which is a major theme of structuralist metrics. Expectancies are established, which may be broken at specific points to produce effects. 'Ordinarily the audience knows the pattern, or the poet makes his pattern known to the audience by repeating it clearly in his language as the poem beings' (Thompson, in Freeman, p. 340). 'Poets seem to adopt strict forms and meters *in order that* they may proceed to violate the normal or canonical "we" of that form or meter' (Hollander, in Sebeok, p. 403).

(Beaver, in Freeman, p. 439) ; as linguistic systematisation involving only phonology (as most people) or phonology plus grammar and lexis (Fowler, in Freeman, p. 348) or this plus non-linguistic events (as Jakobson, in Sebeok, pp. 365, 367) ; or defined explicitly with reference to a particular linguistic framework (such as that of Trager and Smith⁹) or linguistic theory (as in the generative concept of metrical 'competence', seen in Halle and Kayser (in Freeman, p. 367) and in Freeman's own work in this volume, p. 481). Doubtless one could make further discriminations, if there were any purpose to be gained by doing so.¹⁰ Agreement over any one interpretation of 'abstraction', however, does not necessarily produce an agreed definition of metre. One has still to consider whether the normative role, for instance, of metre is aesthetic in function, or structural, or both. Or again, if a text displays deviations from some postulated norm, are the deviations to be considered as distinct from the poem's metre, or are they part of it, in some way? As Bateson put it, in an editorial postscript to an article by Hawkes, 'I want a definition of metre that includes the *discordia* as well as the *concordia*'.¹¹ This is one position : if it is taken, then how much deviation, or 'license' is to be permitted? As Halle and Kayser say, we want a 'principled basis' to explain the fact that only certain deviations are tolerated and not others (in Freeman, p. 371). When a set of definitions are systematically examined and such questions asked, it is clear that a definition of metre has to do with a great deal more than talk solely of abstraction.

Distinguishing the notion of an underlying system from its actualisation in any discussion of metre is however crucial. As Morris Halle puts it, in a recent article, it is fundamental

⁹ See E. L. Epstein and T. Hawkes, *Linguistics and English prosody* (Buffalo, 1959).

¹⁰ I am not of course suggesting that the labels in the previous sentence are in any way a satisfactory summary of the theoretical position of any of the scholars cited at any one time. I simply want to indicate the widely different emphases which may emerge from a single term.

¹¹ T. Hawkes, 'The matter of metre', *Essays in Criticism*, 12 (1962), 413-21. See p. 423 for Bateson's comment.

' to bring out the distinction between the METER of a poem, which is a sequential pattern of abstract entities, and the MAPPING or ACTUALIZATION of this meter by concrete sequences of words, syllables, or sounds that make up the lines of the poem '.¹² The terms of the definition of metre must be independent of the terms used to define its actualisation ; hence any definition which introduces a term like ' stress ' or ' prominence ' (and most definitions do) is confusing levels of abstraction, and should be avoided. I would accordingly define metre as the hierarchic system of continuous recurrent non-segmental phonological equivalences which constitute the organising principle of a poetic text. The idiosyncrasy of this definition will emerge in due course, but I would make a few comments by way of clarification here and now. First, hierarchy refers to the taxonomic relationship operating between the notions of ' text ', ' stanza ', ' line ', ' foot ' and ' syllable ', as manifested phonologically ; in my account, as we shall see, only text, line and syllable are obligatory members of the hierarchy. ' Continuous ', secondly, refers to the fact that a metrical pattern, defined at a particular level in the hierarchy, is not interrupted, except insofar as a set of permitted deviations from a norm of equivalences may be recognised. Thirdly, concerning the definition's restriction to phonology : if a more general view was required, e.g. allowing in syntactic or lexical recurrence, one could substitute the term ' linguistic ' for ' non-segmental phonological ' here. But on this point, I agree with Wimsatt and Beardsley (in Chatman and Levin, p. 103), who argue that ' To get a meter, some other kind of equality has to be added to the succession of syntactic entities . . . The meter . . . is some kind of more minute recurrence '.

We may now move on to the question of actualisation. What expounds the equivalences referred to in the definition ?

¹² ' On meter and prosody ', in M. Bierwisch and K. G. Heidolph (eds.), *Progress in Linguistics* (Mouton, 1970), p. 64. Cf. Freeman (in Freeman, p. 489).

Here too we find an area of apparent agreement in the linguistics literature. Here it is said that English metre uses the syllable as its primitive unit of measurement, and stress as parameter of contrast.¹³ This is the traditional view, and on the whole the linguists do not depart from it. It stays remarkably uncriticised, in fact—perhaps because of the way in which stress was lauded as a ‘better’ explanation of metre than quantity, in the traditional debate. There is considerable discussion about how many degrees of stress are required in metrical analysis, as one might expect for this period of linguistic history; but the nature of stress itself seems largely to be taken for granted. Apart from a detailed discussion in Chatman’s *Theory of meter*, there is little attempt to define what is involved; and as every author uses the term, agreement is sometimes more apparent than real. All the different approaches to stress, familiar from the general phonetics literature, are to be found here—physical, physiological, and auditory views, and senses which seem to be based on combinations of criteria under these headings.¹⁴ Particularly confusing (in view of the care most phoneticians take to keep the

¹³ It is a pity that the linguistic discussion concentrates so much on English to the exclusion of other languages. The absence of any regular reference to the detailed discussion and analyses of the Russian and Czech metrical literature (see below, p. 18) is particularly unfortunate. Over-concentration on a single language inevitably leads to premature generalizations, and these abound in metrics. In the absence of any large-scale typological work, statements such as ‘the iambic measure is particularly suited to English’, which are common, are largely meaningless. The prematurity of such statements is reflected in the naivety of rhythmic typologies in general, e.g. the distinction between syllable-timed and stress-timed languages, cited by Pike, Abercrombie, and others, which is very much a simplification, and misleading in the sense that it tends to blind one to the existence of languages which manifest rhythmicity of both kinds, or of a totally different kind. cf. T. F. Mitchell’s review of D. Abercrombie’s *Elements of general phonetics*, in *Journal of Linguistics*, 5 (1969), p. 156. Similarly, why should there be only a triadic typology of metrical systems, viz. quantity v. tone v. stress (cf. Jakobson, in Sebeok, p. 361; Lotz, in Sebeok, p. 140)? Systems involving other variables, or combinations of these variables, are perfectly conceivable, and probably common (e.g. Anglo-Saxon, Welsh).

¹⁴ For a general review, see Crystal, *op. cit.*, pp. 113, ff.

terms apart) is the loose interchangeability of the terms 'stress' and 'accent'. For instance, Wimsatt and Beardsley say, 'for our discussion of English meters, stress is the thing', and then immediately refer to 'stress or accent' (in Chatman and Levin, p. 103). Another common confusion is between 'stress' and the more general notion of prominence. Since the work of Fry and others,¹⁵ the complexity of prominence variation in language has been abundantly clear, with pitch, duration, and other factors being involved as well as, loudness; but all too often one finds authors using the notion of prominence (e.g. in the definition of 'ictus'), equating this with variations in stress, and equating this with variation in loudness.¹⁶ Fortunately a considerable measure of agreement is imposed upon the use of the term by the majority of authors' using the Trager/Smith framework of analysis. Here, as is well known, stress is viewed phonemically as an independent variable from pitch and juncture, based on perceptual variations in degrees of loudness.¹⁷ In other work using the concept of stress, also, there is usually no incompatibility in the approach taken with a view of stress seen in terms of loudness. For such reasons, then, it seems fair to assume that when metrists talk of stress, they are referring to a pitch-independent

¹⁵ For example, D. B. Fry, 'Experiments in the perception of stress', *Language and Speech*, 1 (1958), 126-52.

¹⁶ The notion of 'metrical stress', as most authors use the term, illustrates this confusion. It is sometimes used to refer to syllables whose prominence is primarily due to loudness, sometimes to those where pitch is the primary perceptual correlate. More subtly, one should note the way in which the fairly general notion of syllabic prominence is oriented towards stress through the use of a terminology of 'weight', e.g. in Lotz (in Sebeok, p. 203): 'The only thing that matters in English meter is the differentiation between the two types of syllabics: the heavier and the lighter'. Fowler is very clear about the need to define prominence generally (in 'What is metrical analysis?', *Anglia*, 86 (1968), p. 300). He states: 'A prominent syllable may be so by reason of any or all of . . . quality of the syllabic vowel, length, stress, pitch'; but even he cites examples of 'metrical stress' where it is difficult to see how the contrastivity involved could not primarily involve pitch.

¹⁷ See G. L. Trager and H. L. Smith, *An outline of English structure* (Buffalo, 1951), pp. 35-6.

variable of which the primary perceptual correlate is loudness ; and it is such a view of stress as the only important factor in English metre which I shall take as the basis for discussion in the rest of this paper.

One of the irritating things about published versions of conferences is that they never put discussants' comments in phonetic transcription. The tone of voice of many an interjection, accordingly, remains no more than an intriguing possibility. At the Indiana Conference on Style, Voegelin's comment, I feel, is particularly intriguing : ' I don't want to introduce a new topic, but I do have a question : I miss a discussion of intonation patterns ' (in Sebeok, p. 203). So do I. Indeed, I miss a discussion of the relevance or otherwise of the whole range of prosodic and paralinguistic features of language in relation to metre.¹⁸ On the whole, apart from a few worthy exceptions which I shall discuss below, intonation is dismissed as being irrelevant to the discussion, without any reason being given, e.g. Lotz (in Sebeok, p. 138), ' intonation patterns are not metrically relevant in English ', and also Wimsatt and Beardsley (in Chatman and Levin, p. 93), Wells (in Sebeok, pp. 198-9), and Hollander (in Sebeok, p. 203). Or

¹⁸ There is some discussion of features other than stress and intonation (which I shall discuss separately below), usually in the context of performance. See, for instance, R. Fowler, ' What is metrical analysis ? ', *Anglia*, 86 (1968), pp. 318-20 ; S. Chatman, ' Linguistics, poetics, and interpretation : the phonemic dimension ', *QJS*, 43 (1957), pp. 252-3, and in his book *The theory of meter* (Mouton, 1965), pp. 185-6 ; and S. R. Levin, ' Suprasegmentals and the performance of poetry ', *QJS*, 48 (1962), p. 368. H. L. Smith, rather ambiguously, talks of English metre ' drawing on ' paralinguistic features (in ' Towards redefining English prosody ', *SIL*, 14 (1959), p. 68)—he refers to pause and drawl features ; and after emphasizing that ' stress is not the whole story ' (p. 70), he goes on to say ' The necessary placing of terminal junctures contributes both to meter and to rhythm as do the required occurrences of pitch phonemes within intonation patterns ' (p. 74). But ' contributes ' and ' required ' need to be amplified before we can interpret this sentence. (Against this, however, one should note Hawkes' reference to an unpublished paper of Smith's, where apparently ' paralinguistic pause ' was not considered part of prosody, but of performance. See *REL* (1962), p. 39, fn.)

again, 'Intonation in English is a variant feature [i.e. not relevant for the metric structure, DC]; we can have a line with any intonation pattern and the line remains metrically the same' (Lotz, in Sebeok, p. 203).

It is not difficult, in retrospect, to see why stress was emphasised so much, and intonation discounted in this way. The label 'stress' had a long and revered metrical history, and to analyse metre was for many people to trace a historical tradition (cf. Hollander's comment on this point, in Chatman and Levin, p. 125); the fact that the one label obscured a multitude of senses and ignored other linguistic factors was not appreciated. Or again, a common gloss for intonation was 'speech melody'; but musical notions were too close for many metrists' comfort to the traditional view of quantitative metrics, which was often presented in a quasi-musical format. But by far the most important reason lay in the uncritical acceptance of the Trager/Smith framework of analysis, which gave prior treatment to stress, and relegated many aspects of intonation to the extra-linguistic darkness of metalinguistics. It is important not to underestimate the influence of this framework on other disciplines. Within linguistics, we know, their approach is no longer in vogue, and it has been severely criticised.¹⁹ But in such other fields as anthropology, psychiatry, and semiotics, it is still widely used, and its phonological approach is still the basis of such widely used teaching

¹⁹ For example by D. L. Bolinger, 'Intonation and analysis', *Word*, 5 (1949), 248-54; N. Chomsky, M. Halle and F. Lukoff, 'On accent and juncture in English', in M. Halle *et al.* (eds.), *For Roman Jakobson* (Mouton, 1956), 65-80. A general discussion of their position is to be found in D. Crystal, 'Paralanguage', to appear in Volume 12 of *Current Trends in Linguistics* (Linguistics and the Adjacent Arts and Sciences). I do not mean to imply, of course, that the neglect of intonation is *solely* due to the Trager/Smith approach. The neglect is more widespread, e.g. D. Abercrombie does not mention intonation in his discussion of line-end markers in 'A phonetician's view of verse structure', in *Studies in phonetics and linguistics* (OUP, 1965), p. 25. But the majority of linguistic metrical discussions adopt the Trager/Smith model, at least for the purposes of argument.

handbooks as Gleason's and Hockett's.²⁰ It was this model which provided the first really systematic attempt to apply linguistic ideas to metrical analysis, and it was accordingly used with an authority and definitiveness which certainly Trager and Smith themselves never claimed it possessed. As usual, the disciples were more dogmatic than the discoverers. Thus there was continual reference in the late fifties and early sixties by literary scholars to the approach of 'the linguists'. Repeatedly, scholars outline the Trager/Smith system and then apply it to the analysis of some piece of text (the best-known example being the book by Epstein and Hawkes, referred to above, p. 4). The various assumptions about four levels of stress, pitch, and so on, are consistently referred to as 'facts' by many,²¹ instead of what they are, hypotheses. A few writers, it is true, seem to be aware that the Trager/Smith model is precisely that, an artefact—and, moreover, one whose theoretical presuppositions had not been questioned—but not many. For instance, McLoughlin, replying to an article by Chatman in the *Quarterly Journal of Speech* (1958, p. 176), points out that this system should not be taken for granted; a similar point is made by Pace,²² and Chatman himself hints at the point (in Sebeok, p. 205): 'I also do not believe that intonation is relevant to English metrics, at least not in terms of the present analysis of English which separates stress and intonation as different phonemic entities'. But on the whole these comments do not attract attention, and remain unamplified. And as a result, the stress phoneme principle, with its associated problems (e.g. which phoneme should be assigned to which syllable), became the sole focus of phonologists' attention.

²⁰ H. A. Gleason, *Introduction to descriptive linguistics* (Holt, Rinehart, Winston, 1961), C. F. Hockett, *A course in modern linguistics* (Macmillan, 1958). For semiotics, see T. A. Sebeok, A. S. Hayes, M. C. Bateson (eds.), *Approaches to semiotics* (Mouton, 1964).

²¹ For instance, T. Hawkes, 'The problem of prosody', *REL*, 3 (1962), pp. 36, ff.

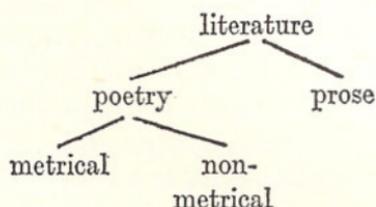
²² G. B. Pace, 'The two domains: meter and rhythm', *PMLA*, 76 (1961), p. 413, fn.

The main objection I had to the metre-as-stress approach when I first read this literature was to its dogmatic tone. The question demanding to be answered is Why? On what grounds, other than Tradition, has stress been singled out from the other phonological features of verse and been identified with metre? What experimental evidence is there to justify the priority of stress in this way? None has been provided; the assumption is axiomatic. Even Lotz, for instance, in his valuable article on metric typology, while accepting that in principle any prosodic feature can be used in a metrical system, denies all but stress to English (in Sebeok, p. 138), but gives no reasons. Or again, he argues (in Sebeok, p. 204) that a well-established metrical scheme must be present before intonation can be called into play, as a modifying factor. But on what grounds was intonation excluded from the metrical scheme in the first place? None are given. Or, as a third example, Whitehall points out that 'higher pitches usually occur at points of primary stress and reinforce the stress peaks in both the metrical and isochronous line even as they help to cut the line into its syntactical segments'.²³ But if this is so, then why was stress singled out at the expense of pitch in the first place?

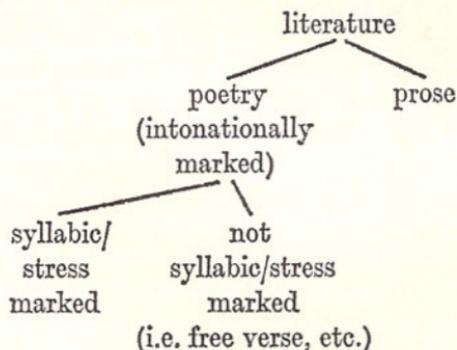
It seems to me that there are both general and practical grounds for adopting an alternative approach, in which intonation is considered a constitutive factor in English metre (or, indeed, metre in general). I shall discuss some empirical evidence bearing on the point below. Here, I should simply like to note that such an approach is likely to provide a much more integrated theory of poetic form. Any account of metre in terms of syllabification and stress alone is bound to lead to the recognition of two formal categories of poetry—a distinction difficult to maintain on semantic or critical grounds, and usually not sought. So-called 'free verse', for instance, will have to be defined in some such way as 'poems which

²³ H. Whitehall, 'From linguistics to criticism', *The Kenyon Review*, 18 (1956), p. 419.

have no consistent metrical scheme' (thus says Hrushovski, in Sebeok, p. 183; cf. Thompson, in Freeman, p. 342). If, however, one can show that features of intonation (or some other factor) are in common to both 'standard' versification and the more 'esoteric' kinds,²⁴ and are organised in such a way that they satisfy a general definition of metre (see below), then such unilluminating dichotomies might be avoided. In other words, instead of an analysis of



we have



Taking a fairly simple-minded view of poetry (e.g. the material collected in our library shelves under that heading), the latter

²⁴ Free verse is suggested as being based on intonation and pause by Jakobson, in fact, in Sebeok, p. 360. A detailed presentation of this position is to be found in J. Mukařovský, 'Intonation comme facteur de rythme poétique', *Arch. néer.phon.exp.*, 8-9 (1933), pp. 153-65. He analyses cases of free verse in French, Czech, and German, and claims that in each the same principle of rhythmic organisation manifests itself: 'une intonation spéciale, caractérisée surtout par une formule mélodique très marquée, à la fin de chaque vers; le canevas rythmique y est donné rien que par cette intonation' (p. 155).

model is more powerful because it accounts for more of what we want to call poetry. As Halle and Kayser state (in Freeman, pp. 369, ff.), metrical theory must account in a principled way for most lines of poetry. It may not be possible to develop an absolutely clear distinction between poetry and prose using a definition of metre as the only criterion (cf. Lotz's notion of metre as the 'distinctive characteristic' of verse, in Sebeok, p. 135); but if we have a criterion which will handle most cases, then the 'metrical grammar' we set up can be left to determine the status of the unclear cases.²⁵ Hammond, referring to the problem of free verse (in Sebeok, p. 207) says: 'If we could find a formula based on some general principle of equivalence in poetry, we might arrive at a broader vision of our subject'. My suggestion is that this general principle is primarily intonational in character.

Of course, it depends what one means by intonation. This is yet another term which is rarely defined in the metrical literature, and when it is, it is sometimes given a very specific sense (e.g. pitch variation only), and sometimes a more general sense.²⁶ Moreover, one would want to avoid the highly restrictive account of intonation, as presented by Trager and Smith, for instance, as their description is inadequate in many respects (p. 16): it would indeed be difficult to develop an account of metre using a pitch-phoneme model of intonation, as I shall argue below. But the main difficulty with the concept of intonation with which we are presented in the metrical

²⁵ The reason for the difficulty of making a clear distinction is discussed below, p. 31. As De Groot pointed out, the discussion is sometimes blurred by people assuming that the opposition poetry v. prose is in parallel with that of poetic v. prosaic, which is by no means the case. Prose can be poetic, and poetry prosaic, but poetry cannot be prose, and vice versa. (Cf. A. W. De Groot, 'Phonetics in its relation to aesthetics', in B. Malmberg (ed.), *Manual of phonetics* (North-Holland, 1968), p. 534. What makes a theoretical distinction unclear are the perceptual difficulties involved in rating the amount of equivalence between the various units of a poetic text; see p. 31.

²⁶ cf. Chatman's definition (in 'Robert Frost's "Mowing": an inquiry into prosodic structure', *Kenyon Review*, 18 (1956), p. 422) as 'an amalgam of stress, pitch, and juncture'.

discussion is that it is an oversimplification. Whenever intonation is raised, it is always in an all-or-none way. Is it a feature of performance, or is it not? Is it relevant to metre, or not? The possibility of there being a compromise theoretical position—that some aspects of intonation may be relevant and others not—does not seem to have been raised. But it is surely time we moved away from the simplistic position that intonation is a single ‘feature’ of language, which one ‘acquires’, or ‘makes errors in’.²⁷ Intonation is a much more complex notion than this. The term, as it is generally used, is simply a convenient label summarising a large variety of formal patterns which use pitch movement as the basis of identification. In my view, the pitch movement is best seen as being organised into distinct systems of contrastivity (pitch direction and pitch range, in particular); features from these systems work combinatorially to produce specific configurations (described in terms of tone-units, tonicity, etc.); and the configurations have a variety of functions, ranging from a centrally linguistic grammatical function, through various kinds of conventional attitudinal and social function, to the non-linguistic, indexical, person-identifying features.²⁸ The various features, and combinations of features, display a clear hierarchical structure, as has often been pointed out.²⁹ What has not so often been pointed out is that the features

²⁷ The view that intonation can be ‘acquired’, as it were ‘all at once’, is common in the literature on early language acquisition. For a discussion, see D. Crystal, ‘Prosodic systems and language acquisition’, in P. Léon (ed.), *Prosodic feature analysis* (Didier, 1970), pp. 77–90.

²⁸ The basis of this view is fully explained in Crystal, *op. cit.* (1969), apart from the notion of social function of intonation, which is discussed and illustrated in ‘Prosodic and paralinguistic correlates of social categories’, in E. Ardener (ed.), *Social anthropology and language* (Tavistock, 1971), pp. 185–206. The term ‘indexical’ is used by J. Laver, ‘Voice quality and indexical information’, *British Journal of Disorders of Communication*, 3 (1968), 43–54.

²⁹ For instance, by M. A. K. Halliday, *Intonation and grammar in British English* (Mouton, 1967), pp. 12, ff.; K. L. Pike, ‘The hierarchical and social matrix of suprasegmentals’, *Prace filologiczne*, 18, 95–104. Cf. also Jakobson, in Sebeok, p. 374.

of intonation are not equivalent in terms of the amount of linguistic contrastivity (or 'valeur') they expound. Elsewhere, experimental evidence has been presented to suggest that tone-unit boundaries, nuclear tone placement (tonicity) and tone type (falls, rises, etc.), along with other features, are graded in the amount of contrastivity they expound.³⁰ This view of the various features of intonation in terms of 'graded contrastivity' is part of a more general model of non-segmental phonology as a whole in terms of a scale of linguistic contrastivity. It is discussed at some length in Crystal (1969), *op. cit.*, p. 129, ff. :

Some non-segmental features have a very high degree of internal patterning and contrastivity, similar to the segmental contrasts and duality implicit in the rest of language ; others have substantially less discreteness of definition and systemicness of function, being much closer to the range of completely non-linguistic vocal effects. . . . At the 'most linguistic' extreme [of the scale] would be placed those prosodic features of utterance, describable in terms of closed systems of contrasts, which are relatively easily integrated with other aspects of linguistic structure, particularly grammar, and which are very frequent in connected speech At the other, 'least linguistic' end would be placed those paralinguistic features of utterance which seem to have little potential for entering into systemic relationships, which have relatively little integrability with other aspects of language structure, are very infrequent in connected speech, and are much less obviously shared, conventional features of articulation, being more frequently confusable with voice-quality or physiological vocal reflexes than any other non-segmental features

A concept of graded contrastivity in non-segmental phonology, and particularly in intonation, is of considerable relevance to

³⁰ See R. Quirk and D. Crystal, 'On scales of contrast in English connected speech', in C. E. Bazell *et al.* (eds.), *In memory of J. R. Firth* (Longmans, 1966), pp. 359-69.

metrical analysis, as it permits us to recognise that different non-segmental features make a varying contribution to the metrical identity of a text: it does not force us to assume that all intonational features, say, are equally important from the metrical point of view. Some intonational features seem to have a central, obligatory role to play (see below); others have a negligible role, from the viewpoint of establishing the underlying phonological system of a text, and would seem to be needed solely in relation to a description of performance.³¹ The question of how and where to draw the boundary-line now raises itself, and this is a separate topic which I shall discuss further below: at this point, I simply want to emphasize that when I argue for intonational relevance in metrics, I am not committing myself to seeing all aspects of intonation as having a metrical role to play, or all aspects as having the same metrical role.

In passing, one should note that the 'graded contrastivity' concept is quite contrary to the phonemic approach of Trager and Smith, of course. There, the assumption is that the various non-segmental variables can be analysed into two clearly distinct types: phonemic (microlinguistic) and non-phonemic, which in terms of their analysis are non-linguistic (strictly,

³¹ Such features (e.g. the pitch height of unstressed syllables, or the direction of syllable movement in the 'tail' of a tone-unit), along with various paralinguistic features (such as tremulousness, resonance) are sometimes cited as performance features in this way; but of course it does not follow that all intonational contrasts operate in the same way.

Brief references to the possibility that indices of metricity might best be seen as organised in terms of a scale have been made, e.g. by J. J. Lynch,

The tonality of lyric poetry: an experiment in method', *Word*, 9 (1953), 211-24, who refers to a 'scale of relative values', and distinguishes between metrical stress, syntactic stress (which subsumes certain intonational features), and 'prominence due to repetitive utterance' (reduplications, such as alliteration). Pace, *op. cit.*, p. 418, also argues that 'the search for a norm requires a weighting of rhythmic significance', and suggests that stress and terminal junctures are always significant, pitch is sometimes significant, and plus juncture occasionally is. His approach seems correct in principle, though I would disagree with his ordering. Cf. further Jakobson's view that there are both obligatory and highly probable features of metre (in Sebeok, p. 361).

metalinguistic). There is no gradation. For me, 'the principle of linguistic significance in phonetic difference' (Wimsatt and Beardsley, in Chatman and Levin, p. 93) covers far more than phonemic contrastivity. Tempo variations, for instance, are meaningful, though they are not as linguistically central as, say, pitch-range variations. Attitudes to this point are unclear in the literature, because of a failure to be specific about what is idiosyncratic in an utterance (i.e. linguistically unimportant) as opposed to what is shared. There is a tendency to suggest that anything which is not clearly phonemic is 'merely' expressive or individual. For example, Wimsatt and Beardsley (*op. cit.*, p. 98) refer to dragging and clipping syllables as individual features which sound 'odd, affected, or funny'. But these features *can* 'change the meaning', and there *can* be a 'public pattern' for them (as they put it).

It would be a rash man who attempted to argue for such a change of view as that presented here without looking for *some* support in the previous literature.³² There are in fact a number of comments suggesting that intonation may be metrically relevant—though little discussion of what intonation is, how it correlates with stress, or how fundamental the relationship of intonation to metre might be. It is always a relief to find Jakobson on one's side, for instance. 'No linguistic property in the verse design should be disregarded. Thus, for example, it would be an unfortunate mistake to deny the constitutive value of intonation in English meters' and 'Whatever is the reciter's way of reading, the intonational constraint of the poem remains valid' (in Seboek, p. 365). *Why* it would be a mistake, and what such terms as 'constitutive' and 'constraint' actually mean, is not explained further

³² By way of digression, I am reminded of Professor Skeat's apologia, in his 1898 paper, *op. cit.*, p. 500: 'For the rest of this paper, I crave indulgence. The subject is one of some difficulty; and I beg leave to remind the reader that, by the nature of the case, he cannot be otherwise than deeply prejudiced against the explanation which I have to offer. He will probably, at first, be somewhat shocked; and, unless he can free himself from preconceived ideas, may perhaps remain so. Nevertheless, I may as well endeavour to set forth what I believe to be the truth'.

in his paper ; but from his other writings one can see what he means,³³ and of course Jakobson here is but one voice among many in the Russian formalist metrical tradition and in Prague school metrics. In the work of Mukařovský, Tomaševskij, Kuryłowicz, Kopeczyńska, and others, we can see a firm insistence on the relevance of intonation for metrical analysis.³⁴ For example, Zhirmunski says, 'The complicated rhythmic pattern specific to accentual verse is based on the peculiarities of [this] intonation';³⁵ and Mukařovský, using Karcevski's view of intonation as a basis, argues at length for an underlying recurrent intonational pattern in a poem (cf. p. 12 above), and concludes at one point (p. 155), 'C'est donc du côté de l'intonation qu'il faudra diriger nos recherches'. De Groot maintains this also, but without amplification: 'It should not . . . be overlooked that some indications that may seem to concern recitation are actually a matter of linguistic form, especially so-called emphasis, indicated, e.g. by underlining or italicizing, which is actually a matter of sentence intonation'.³⁶ More recently, Taglicht has argued that intonation is metrically relevant in English, illustrating his views with reference to the function of tone-unit boundaries and tonic syllables in segmenting and distributing prominence within

³³ For instance, his discussion of certain types of line in Slavic verse in terms of intonation, in 'Slavic epic verse', in *Selected writings of Roman Jakobson*, IV, pp. 454-5.

³⁴ See J. Mukařovský, 'Intonation comme facteur de rythme poétique', *Arch. néer. phon. exp.*, 8-9 (1933), 153-65, and other references there; J. Kuryłowicz, 'Accent and quantity as elements of rhythm', in *Institute of Literary Research Volume, Poetics*, II, ed. R. Jakobson et al. (Mouton, 1966), p. 164; Z. Kopeczyńska & L. Pszczolowska, 'Le rôle de l'intonation dans la versification', in *Poetics*, Proceedings of the First International Conference of Work-in-Progress Devoted to the Problems of Poetics (Warsaw and The Hague, 1961), I, 215-24.

³⁵ V. Zhirmunski, 'The versification of Majakowski', in *Poetics* (1966), op. cit., p. 232.

³⁶ A. W. De Groot, 'Phonetics in its relation to aesthetics', in B. Malmberg (ed.), *Manual of phonetics* (North-Holland, 1968), p. 537. In passing, he notes (p. 542) that 'An interesting problem is whether in English verse the metre . . . has features of pitch. Unpublished experiments by Buiskool [which I have not seen, DC] seem to point in this direction'.

utterances ;³⁷ and G. Faure, in an important book which I saw too recently for me to be able to take account of its detailed reasoning in this paper, argues that intonation is the 'decisive element' in metre.³⁸

As I have suggested, intonation is rather ignored than argued against in the metrical literature: the papers cited in the previous paragraph are exceptional in the extent of their references. I know of only one place where a case is made against bringing intonation in, and that is in the otherwise very useful article by Fowler, 'What is metrical analysis?' (*op. cit.*). Here (p. 298), he argues that intonation can make little contribution. 'Suprasegmentals do not uniquely specify syntactic structures in a systematic way, are not reliably diagnostic for syntax except in some very broad distinctions, and are manifestly not indispensable (written language exists). . . . conscious reference may be made to intonation contours in rare cases where context is inadequate', and he refers to Hult  n for support. But Fowler is considerably underestimating the structural significance of intonation in speech (or in poetry, for that matter), when he adopts this position. I would not wish to interpret the notion of intonation as grammatically as, say, Halliday does,³⁹ but there is still far more to the grammatical function of intonation than Fowler seems to allow. Not only sentences (which he accepts), but also clauses, and elements of clause structure regularly have their boundaries indicated by intonational criteria; and where the elements of clause structure are at all complex, intonation may be used to demarcate elements of group structure

³⁷ J. Taglicht, 'The function of intonation in English verse', paper given to the 2nd International Congress of Applied Linguistics, Cambridge, 1969.

³⁸ *Les   lments du rythme po  tique en anglais moderne* (Mouton, 1970), p. 35; and see in particular his Chapter 6. For other brief mentions of the relevance of pitch, see J. W. Hendren, 'A word for rhythm and a word for meter', *PMLA*, 76 (1961), p. 305; Pace, *op. cit.*, pp. 415, 416; and Leech, *op. cit.*, p. 125.

³⁹ See M. A. K. Halliday, *Intonation and grammar in British English* (Mouton, 1967). My reasons for this statement are given in a review of this book in *Language*, 45 (1969), pp. 378-94.

(especially in the noun phrase).⁴⁰ There are many more cases of intonationally resolved ambiguities in syntactic structure than he seems prepared to accept, particularly using tonicity and tone type contrasts (see Crystal, *op. cit.*, pp. 264–5, 273) : there are relatively few syntactic structures involved, certainly, but each potential ambiguity is of very frequent occurrence in the language, and problems of an intonational kind thus turn up often in everyday speech.⁴¹ It is in any case premature to minimise the role of intonation in these matters, in view of the fact that one of the areas of grammatical structure most likely to display intonation as an ambiguity-resolving factor, namely discourse structure, has hardly been studied at all from this point of view at the present time.⁴² Also, broadening one's view of intonation to include both pitch-range contrasts over polysyllabic stretches of utterance and tone-unit sequences allows a much larger number of possible contrasts of a grammatical nature to be expounded under this heading, e.g. the marking of parenthetic utterance by means of pitch-range. The necessity of punctuation in writing, or other graphetic cues (such as colour or type-size), in order to avoid ambiguity, seems to dispose of Fowler's parenthesis. Moreover, in his examples, and in his citing of Hultzén, Fowler seems to be confusing the very different prosodic systems of two varieties, conversation and poetry. Whatever the intonation system of poetry turns out to be, it is undoubtedly far more complex, and permits far more discriminations in meaning, than does conversational language, about which most of the intonation analysts, such as Hultzén, talk (see p. 000). If the criterion

⁴⁰ The data on which these statements are based is given in Crystal (1969), *op. cit.*, pp. 257–63.

⁴¹ A very clear indication of the kind of complexity involved, and of its extent, is the case of sentence-adverbials; see H. Hartvigsson, *On the intonation and position of the so-called sentence modifiers in present-day English* (Odense, 1969).

⁴² The related question of the extent to which semantic presuppositions are affected by intonation (specifically, tonicity) is given some discussion in N. Chomsky, 'Deep structure, surface structure, and semantic interpretation', in R. Jakobson and S. Kawamoto (eds.), *Studies in General and Oriental Linguistics* (Tokyo, 1970).

of relevance for intonation to be considered metrical is the extent to which it can disambiguate utterances, as Fowler suggests (p. 298),⁴³ then one can readily argue that in poetic performance it is used in precisely this way most of the time. Where one places the tonic syllables, where the tone-unit boundaries, where the subordinate and superordinate contours, and so on—all these decisions, and others like them, are being continuously made in the performance of a text, and a large number of these decisions *must* be made if intelligibility is to be retained and the 'correct' meaning expounded. The potential semantic discriminations found in a poetic text are extremely fine—much more so than in conversational English, where subtle contrasts and nuances are on the whole absent or ignored—and the role of intonation as disambiguator thus becomes more crucial (as for instance in the way in which it is used to distribute emphasis in a line via the placement of tonic syllables, or lines in a verse, by the use of polysyllabic pitch-range contrasts). On any criterion of disambiguation, then, intonational contrasts cannot sensibly be excluded from metre. The reasoning that is applied to show that stress is relevant metrically seems to apply equally to intonation.⁴⁴

⁴³ This criterion is widely accepted, though little understood. The question of the nature of poetic ambiguity in metre has been given some discussion, for instance by Chatman (in Sebeok, p. 206, and in his 1957 paper, *op. cit.*); but in the absence of any clear theory of meaning within which to work (which would provide criteria for synonymy, specify the relationship between cognitive and affective meaning, and so on), the discussion is largely unintelligible or vacuous, e.g. Wells' comment (in Sebeok, p. 198) that 'the inadequacy of any inadequate record [of a poem] lies in its being ambiguous', adding that it may happen that 'the ambiguities . . . are resolved by appeal to the general principles of the language'.

⁴⁴ Fowler seems to accept this point in practice, but does not make the appropriate theoretical generalisation. Three of his four rules which enable one to discover the distribution of ictus and non-ictus in an English poem require intonation to work, most of the time (see pp. 300–2), and, as he says, the notion of intonation contour is 'central' to any discussion of caesura and enjambement (p. 302). In the light of such statements, I find it difficult to understand why he wants to play down the role of intonation so much. But perhaps I am being confused by his terminology: a crucial term in his paper, ictus, is not defined, and his use of the term 'contour' is oddly restricted (p. 311).

But perhaps the most important reason for the over-concentration on stress at the expense of intonation lies in the syllabic orientation of traditional and linguistic metrics. As many of the quotations used so far in this paper make clear, the syllable is considered to be the primitive unit of measurement for metre, in terms of which a typology of combinatorial possibilities (i.e. the types of feet) is developed. As stress is generally considered to be a feature of syllables (or words, cf. the notion of 'lexical stress'), whereas intonation is a feature of phrases or sentences, the two notions of syllable and stress are viewed, accordingly, as complementing each other. A clear statement to this effect is found in Chatman (1965), *op. cit.*, p. 58. 'Stress is a fundamental property of full vowel monosyllabic words, and of one syllable in polysyllabic words, which in any environment, accented or not, can serve to distinguish them from what are otherwise homonyms' . . . 'Accent, on the other hand, is the prominence which one syllable in an uttered phrase receives when it is the center of the pitch contour'.⁴⁵ But while a distinction between stress and accent is undoubtedly of value, one wonders why the 'center of the pitch contour' has been recognised in the theory, whereas the contour as such has not. W. Haas has made the point, with which I agree, that the recognition of a contour in one step 'cannot be avoided'.⁴⁶ The historical reason for the omission I have suggested above: intonation patterns are not given primary significance in the model used by linguists, nor are units of measurement larger than the syllable.⁴⁷ In

⁴⁵ The influence of D. L. Bolinger, 'A theory of pitch accent in English', *Word*, 14 (1958), 109-49, is acknowledged.

⁴⁶ 'The identification and description of phonetic elements', *TPS* (1957), pp. 155-6. Cf. the remarks on Gestalten below, p. 24.

⁴⁷ cf. Lotz (in Sebeok, p. 138). To be fair, there have been a few references to the possibility of alternative models. The most well-developed of these is Nist's view that word-groups are 'the basic building blocks of English rhythm' (see J. Nist, 'The word-group cadence: basis of English metrics', *Linguistics*, 6 (1964), p. 76). The basic unit of metrical structure is a *cadence* which (for English) is 'that rhythmical pattern of accentual collocation which occurs between the actualized major junctures' (p. 77). Stress is still the basic phenomenon involved, however, though he does mention that

other words, this seems to be a clear case of a particular model of analysis being retained and applied further than its insights warrant. It is always difficult, of course, to throw away a carefully constructed model that has proved illuminating; but one must also be aware that models are little more than analogues whose validity is temporary, and evaluated very largely by the nature of the insights they provide.⁴⁸ In the present case, I am suggesting that the stress phoneme/syllable unit model has far outlived its usefulness in metrics; and in attempting to apply it to the analysis of *all* categories of poetry, one very quickly comes up against many problems, which are solely by-products of weaknesses in the model. It has a value in the partial description of some kinds of poetry still, of course: I do not in fact want to throw away this model altogether. But in order to handle problems such as free verse, there seems little point (and a great deal of harm) in trying to force them into a syllable stress/foot framework (into which they will not go) when one could be trying to devise a fresh model which will handle these categories of poetry as well as the traditional ones equally readily. And the model I am suggesting uses the notion of line, expounded by reference to the intonation contour, and related prosodic features, as its basic element.

The line, indeed, has been suggested before, though the concept is not usually defined. To De Groot, in fact, the *only* formal distinction between prose and poetry is that 'a poem has a strong continuous correspondence between successive series of words, called "verses" or "lines"'.⁴⁹ Now while I

pitch and 'prolongation' are important. Cf. also Bateson's views, below, fn. 49; and for early (and very forceful) opposition to a foot/stress model, and support of a view in terms of 'accent-groups' ('tones', 'accents', 'cadences', and 'extensions'), see Skeat, *op. cit.*, p. 484.

⁴⁸ For a fuller discussion of the notion of model, see Y. R. Chao, 'Models in linguistics and models in general', in E. Nagel *et al.* (eds.), *Logic, methodology and philosophy of science* (Stanford, 1962), 558-86.

⁴⁹ Bateson also suggests 'that this basic pattern [i.e. the underlying metre, DC] is not to be found in the foot but in the line—and that the necessary element which is the distinguishing characteristic of English verse . . . is the

agree with De Groot's general emphasis here, I would not wish to argue that the line is the *only* criterion of difference—there are other phonological distinctions operating too. But it is in my view the fundamental criterion. The concept of line should not be viewed as the incidental result of a process of syllable arithmetic. A much more illuminating and powerful model is obtained if the line is taken as a primitive unit of metrical theory—in De Groot's terms, as an initial Gestalt, whose total 'weight' is the unit of measurement for poetic organisation.⁵⁰ What, then, is a line? I take it as axiomatic that any metrical theory must be capable of accounting for oral poetry, on the one hand, as well as poetry seen from the viewpoint of the hearer (as opposed to the author, or reader): in other words, a purely visual notion of line must be avoided. 'Line' for me, therefore, is a term for a unit in a phonological hierarchy. It enters into larger phonological units (e.g. verses), and consists of smaller units (e.g. syllable prominences). While it may conceivably be given some definition in segmental (e.g. syllabic) terms, in my view its identifying exponents are non-segmental, a *prosodic contour*. A prosodic contour is a perceptual unit primarily organised using variation in pitch, but sometimes using phonological features from any of the other non-segmental systems in the language (loudness, tempo, rhythmicity, pause, paralinguistic). This definition is not particularly helpful unless the rules governing the nature of the pitch variation and the use of these 'other' features are made explicit; but it at least indicates clearly the direction in which I want the argument to go. On this basis, a number of more specific hypotheses can be formulated, e.g. that the (non-segmental) phonological system of poetry is different from that of prose; that the normal exponent of a line is a

total stress-weight of the line' (see his editorial postscript to Hawkes in *Essays in Criticism*, 13 (1963), pp. 200-1.

⁵⁰ The term 'Gestalt' is also used by Mukařovský, *op. cit.*, who warns against the distortions of an atomistic approach, and asks, 'Quel est le facteur essentiel et indispensable pour la formation de la forme-figure ("Gestalt") du vers?' (p. 154).

single tone-unit ; that this is usually sufficient to provide unambiguous indication of line-end boundary ; and that deviations from this are tolerated only if other non-segmental features are introduced to act as structural markers. What evidence, then, can be brought to bear ?

Originally, my impressions of the intonational organisation of poetry were based solely on what seemed to me to be the most obvious features of individual performances. There have been few experiments to try to go beyond this.⁵¹ I have, accordingly, tried to obtain some experimental information bearing on the above hypotheses ; but I am not sure whether I have used the best methods for doing so, and I should be grateful for advice on this point. Presumably, any such evidence would have both productive and perceptual aspects, and so far I have concentrated on the former. Two experiments have been carried out. In the first, I had a number of poetic texts read by people of different degrees of experience : professional actors/readers ; colleagues and students from my own department, none of whom had had experience of reading aloud ; and non-academic friends. No speakers who had speech markedly deviant from RP were included. The texts were : Wordsworth's lines composed upon Westminster Bridge, the first verse of Gray's *Elegy*, an extract from T. S. Eliot's *Prufrock*, and an extract from the same author's *The Dry Salvages*. The first two were chosen because they displayed a fairly simple metrical pattern (in the traditional sense), and would be relatively familiar to most readers, thus not presenting much in the way of a textual problem ; the Eliot for the opposite reason.⁵² Another reason for including some straightforward pieces of text right at the beginning was that there

⁵¹ The few suggestions for experiments which were made in the early period of metrical discussion (e.g. Osgood's in Sebeok, pp. 208-9) do not seem to have been followed up.

⁵² Specifically, the first extract was the passage beginning 'The yellow fog . . .' and ending ' . . . and fell asleep ', eight lines in all ; the second was the extract beginning 'The sea howl . . .' and ending ' . . . Clangs the bell ', 22 lines in all.

seemed to be little point in developing a theory which might be able to handle the difficult cases if it were unable to handle the easy ones (the majority)! Each speaker was asked to read aloud the extracts; the order of presentation of the extracts was varied. The readings were then transcribed using the system of analysis I have outlined elsewhere.⁵³ I also had the readings rated for 'success' by colleagues in the English Department using a 7-point scale, the poles being identified, without further definition, as 'good reading' v. 'bad reading'. The tentative generalisations below derive from an analysis of readings which were allocated to all but the bottom three points.

In a second productive test, there were two groups of informants. One group was presented with two texts of poems that they did not know, and were asked to read them aloud. The other group was presented with the same texts set out as prose. A conventionally metrical text and a sample of free verse were chosen. Then the reverse procedure followed. A piece of prose was read as such, and then set out as poetry, with the line-endings corresponding to grammatical boundaries, various possible lineations being tried.⁵⁴ The results were transcribed, as above.

The analysis produced the following information, valid for all texts used.

(i.) All lines were coterminous with tone-unit boundaries, with the sole exception of cases that would traditionally be called 'enjambement'.⁵⁵ Also, additional polysyllabic

⁵³ See Crystal (1969), *op. cit.*

⁵⁴ One example being (from the opening chapter of A. Warren and R. Wellek's *Theory of literature* (Cape, 1949)):

We must first make a distinction
Between literature and literary study.
The two are distinct activities:
One is creative, an art;
The other, if not precisely a science,
Is a species of knowledge or of learning.

⁵⁵ In these cases, the intonation contour is interrupted, and completed on the next line (cf. G. N. Leech, *A linguistic guide to English poetry* (Longman,

prosodic features (such as allegro, low pitch range, forte) tended not to overlap line-endings, again with the exception of enjambement.

(ii.) 80% of all lines consisted of a single tone-unit. A number of lines contained more than a single nuclear tone, but in almost all cases, a subordinate tonal relationship existed.⁵⁶ In other words, one of the nuclear movements is maximally prominent within a line, this usually occurring (as has often been pointed out) towards the beginning or towards the end of the line. In the few cases where a subordinate relationship did not seem to be operating—i.e. the various tone-units involved seemed to be of equal status (e.g. before and after what is traditionally termed a caesura)—usually a prosodic cohesion

1969), p. 125). But not all cases of enjambement are like this. Often a tone-unit boundary does occur, and the enjambement is signalled by the use of other non-segmental features which 'override it', particularly common being an increase in tempo and loudness as the end of the run-on line approaches, and the use of a 'holding' articulation which anticipates the initial segment at the beginning of the next line (cf. Crystal (1969), op. cit., pp. 153-4). For example, in the line 'This City now doth, like a garment, wear/The beauty . . .', the end of the line displays increasing crescendo, the phrase 'like a garment' is spoken allegro, and the closure for the initial 'th' of 'the' is heard immediately after the vowel of 'wear', and held for an instant. There is far more to enjambement even than this, though. In some cases in the second test, cases of enjambement occurred where there was little clear prosodic cue, but line-ending was correctly assigned by the majority of informants. In such cases, the informants may have been relying on their knowledge of the previous structure of the poem, i.e. awareness of line-units which did display clear boundaries. But this does not always work. The one case of utter confusion in my informants was caused by the penultimate line of the extract from *The Dry Salvages*, which was put in largely to see what would happen here :

And the ground swell, that is and was from the beginning,
Clangs
The bell.

Even with pauses before and after 'clangs', extra loudness, and drawled 'ng', the dominant tendency was to see the last two lines as one.

⁵⁶ 'The primary characteristic of the subordinate tone-unit is that its pitch-contour, while having a complete and independent shape within itself, falls broadly within the total contour presented in the superordinate tone-unit', Crystal, op. cit. (1969), p. 245. In these cases, the nuclear type postulated as subordinate repeats the direction of the superordinate nucleus, the pitch width of the nuclear movement being the greater in the latter case.

is superimposed upon the line, e.g. by saying the line using a descending pitch movement, as in

|Shíps| |tówers| |dómes| |théatres| 'and |tèmples lie|'
(' indicate crescendo, e a drawled syllable) or by introducing a marked rhythmic movement into the line.⁵⁷

(iii.) Within lines, points of prominence are usually pitch-contrastive, not loudness-contrastive. Readers read the Wordsworth text using between 35 and 40 prominent syllables; of these, about 90% in any reading would be tonic, or use marked features of syllabic pitch-range, viz. perceptible stepping-up or -down in relation to the previous syllable.⁵⁸

(iv.) The range of features needed to transcribe the contrasts made use of in the poetry readings was much greater than that needed for prose. For example, in earlier work on conversation, spoken prose, etc.,⁵⁹ it was found necessary to postulate but one degree of pitch height on either side of a norm, in order to account for any semantic contrastivity expounded by pitch-range, e.g. the notion of parenthesis. A transcription of 'low', 'high' and 'zero' was adequate to identify any contrast, and degrees of height or depth were disregarded, on the grounds that they did not correspond to meaning differences which could be established with any kind of consistency or agreement by judges. In the transcription of the poetic texts, however, it proved easy to distinguish two degrees of pitch height on either side of a norm, and sometimes the need for a

⁵⁷ Rhythm, interestingly, was not an unambiguous criterion of poeticity in the above tests. Both prose and poetry versions in test two retained certain features of any rhythmic identity the text had. The readers did not try to make the prose text scan, when it was printed as poetry; and the traditionally metrical poetic text retained its rhythm to a great extent in its prose 'counter-part'. Rhythm seems to be a prosodic feature which can be introduced into a poetic line for a particular effect. Many categories of poetry do make regular use of it, in addition to intonation; but it cannot be taken as a primitive, because (a) it is inessential to many kinds of poetry, as we have seen, and (b) it is much less able to maintain a structural function (segmentation, etc.) than intonation. (Interestingly, the better the reader, the more likely he is to *avoid* making his reading rhythmically 'pat'.)

⁵⁸ See Crystal, *op. cit.* (1969), pp. 144-6.

⁵⁹ See D. Crystal and D. Davy, *Investigating English style* (Longman, 1969).

third suggested itself.⁶⁰ Similarly, it proved essential to allow a further degree of pause contrastivity into the poetry readings than was necessary for prose, and also there was the need to develop a much more refined rhythmic typology (to handle the perceptual phenomena associated with traditional typologies of trochaic rhythm, etc., which are generally not found in prose). In addition, much greater use is made of fixed configurational patterns, extending over more than one line, and identifying larger units in the phonological hierarchy, such as the couplet or the verse.⁶¹ A greater range of subordinate tone-unit configurations is needed, for instance, and there is considerable use made of complex patterns of loudness, pitch-range, and speed. I have not gone into this in any depth, but for instance there seems to be a fairly rigid constraint on the patterns of ascending and descending pitch-range used in a four-line verse, such as those of Gray's *Elegy*, of which the lower height of the final line is the most obvious feature. Or, to take a clear, if trivial example, the prosodic constraints on a limerick are probably total—a 'prosodic idiom'.

In other words, in poetry we seem to be dealing with a distinct non-segmental phonological system, and the range of distinctiveness is best described by reference to the unit line. I do not know the full extent of the systemic differences from prose. For some of the more subtle prosodic contrasts, especially those which seem to have a solely aesthetic function (such as variations in the pitch height of unstressed syllables), it proved

⁶⁰ This was particularly so in those readings by the professional actors, on the whole, those which were rated highest for 'success'. (In passing, it seems to be the case that better performance correlates with better 'control' of pitch features, especially tonal subordination. But the extent to which metrical and other training can condition performance ability is very little understood, at the moment. Conversely, a reading is much more likely to be labelled pejoratively, e.g. 'doggerel', when there is minimal use of pitch variation, the prominence in the line being expounded by stress alone.

⁶¹ The nearest we get to this is the 'tonal paragraphs' of BBC news-readers. Hrushovski (in Sebeok, p. 189) argues thus regarding the organization of Whitman's lines.

impossible to get judges to agree on a transcription.⁶² But it is not necessary to have a complete inventory of systemic differences before concluding that the systems are different. And in fact, for the prosodic features which seem to be centrally diagnostic, such as tone-unit, tonicity, nuclear-tone type, syllabic pitch-range type and placement, and polysyllabic pitch-range type, there was almost total consistency in identification. These are some of the features which seem to contribute obligatorily to the identification of a prosodic contour ('line'), and which, I would claim, are thus constitutive factors in metre; but they are probably not the whole story.⁶³

(v.) However, to define line as a prosodic contour is not to achieve an account of metre. The line is simply the unit which can be used for establishing equivalences, and the specific

⁶² This underlines the need for caution in presenting *any* results in this area. Assertions that there is a 'contrast' between two phonetic effects need to be supported by statements about meaning (e.g. in terms of distribution of emphasis, segmentation, syntactic disambiguation, presuppositions, as well as the more familiar, although vaguer questions of aesthetic 'appropriateness' of sound to sense); and obtaining consistent agreement here is naturally going to depend very much on the auditory and critical sensitivity of the judges (and oneself). I have not controlled for this in the present investigation, apart from having all my judges literary critics. Teachers of drama would doubtless impose finer discriminations, for instance, as would phoneticians. At least the intuitions of my judges will stand a better chance of corresponding with those of the majority of people who have contributed to the literature on this topic, and who will thus be judging the claims of the present paper!

⁶³ The most striking omission from the discussion so far is the extent to which the distribution of phonological features in relation to syntactic and lexical structure differs between poetry and prose. It undoubtedly does, but demonstrating this would require a separate paper. Mukařovský, for instance, thought this point so important that he made it a cornerstone of his view of the poetry/prose distinction, the difference lying in 'le déplacement de la scission mélodique dans le vers par rapport à la prose' (op. cit., p. 157). He accepts that there is also a difference in phonological system; for him, this is the superimposition in poetry of two intonational schemes, one indicating semantic structure, one indicating rhythmic structure. Cf. p. 163: 'Il semble donc possible de définir la différence entre le rythme du vers et celui de la prose en disant que, en prose rythmée, il n'y a pas de superimposition de deux schèmes mélodiques virtuels, mais seulement une suite de segments mélodiques à peu près égaux, donnés par l'intonation de la phrase'.

contour identifying any one line could in principle occur in prose reading too. In metre, however, the equivalences themselves are the thing, whereas in prose these are very few, they are not continuous (cf. my requirement above, p. 5), and if they do occur, they depend on syntactical parallelism (e.g. rhetorical climaxes in political speeches). There are, of course, various ways in which equivalences can be established; at any given level of abstraction, we may talk in particular in terms of length (e.g. number of tone-units, or of tonic syllables, or of non-tonic pitch prominences) or structure (the distribution of non-segmental contrastivity within any one unit, e.g. the structure of the tone-unit, or of the head of the tone-unit). Total equivalence would occur if lines were isomorphic in respect of all non-segmental features operating at all levels in the hierarchy—a state of affairs unlikely to occur unless there were considerable grammatical and lexical similarities also. And what this suggests, of course, is that equivalence is not an all-or-none thing, but rather a scale, running from the theoretical maximum just indicated to the theoretical minimum of non-isomorphism at any level (cf. the scale of metricality mentioned on p. 16). Developing a set of criteria for establishing degrees of equivalence on this scale, quantifying the amount of recurrence, and, in addition, determining whether or not there is a natural boundary between levels of perceptual equivalence which are consistently labelled 'poetry' and those labelled 'prose'—these are tasks for future psycholinguistic research (if my general hypothesis is considered sufficiently acceptable to warrant the effort). Perceptual and semantic judgements about metrical identity of different lines would have to be correlated with controlled variations introduced into the formal features of these lines; and this will be no small task, in view of the multivariate combinatorial possibilities. I have hardly begun to do any experimental work along these lines. I have not, for instance, tried to develop a technique for assigning equivalence values for lines. Impressionistically, one can see great similarities between lines, at least in relation to the more general kinds of prosodic contrast (e.g. tone-unit structure).

And the contrast with prose is very marked. In prose, or conversation, it is rare to find two tone-units with identical patterns of pitch-prominence, but in poetry of *all* kinds, this is fairly normal, i.e. the prosodic structure of any one line permits the correct prediction of the structure of the majority of other lines in the text. I *have* however looked briefly at the extent to which judges seem to 'expect' equivalence, independent of visual stimuli, by asking people to assign line-boundaries to readings of texts, some poetry, some prose, which they did not know. A set of short texts, some very regular (in the traditional sense), some not, and some prose, were presented to informants. In the poetic texts, there were segmental indications of line-ends (rhyme, etc.). The readings used had all previously been rated as successful. Firstly, one group of informants was asked to judge whether the texts were poetry or prose. As one might expect, in view of the characteristics of poetry noted above, this was done with complete accuracy (though this does not prove very much, in the absence of precise controls over the nature of the prosodic variability in the readings); but it is nonetheless an interesting result, in view of the absence of visual stimuli. A separate group was given the same texts, told that *all* were poetry, and asked to assign line-endings. Two things emerged here. There were hardly any errors in the poetic texts, whereas there was considerable inconsistency among judges for the prose texts. What errors there were in the poetry, naturally enough, clustered around the problem of the abnormally short lines in the free verse. What is interesting, from my present point of view, is that when a short line is missed, it is 'made up' into a long line of approximately the same length as those established previously as a prosodic norm. For example, the sequence

And under the oppression of the silent fog
The tolling bell
Measures time not our time, rung by the unhurried
Ground swell, a time
Older than the time of chronometers, . . .

was usually transcribed as

And under the oppression of the silent fog
The tolling bell measures time not our time,
Rung by the unhurried ground swell,
A time older than the time of chronometers . . .

This kind of response might be taken as direct evidence of a psychological expectation of equivalence ; but in view of the fact that some judges did get the lineation right—presumably responding to the prosodic cues which (to my ear, at least) were certainly present in each line—I would not want to make too much of this point.

In conclusion, I should emphasise that my notion of ‘ prosodic contour ’ is not merely a terminological switch from, say, ‘ syllable stress pattern ’. By using this term, I have tried to suggest a whole new orientation, an emphasis away from the atomistic approach of the syllable and stress phoneme—or at least (anticipating the unsympathetic), towards a different kind of atomistic approach ! The term relates to a model where the basic units are perceptually and semantically meaningful, where gradation in linguistic contrastivity is an important factor, and where the notion of exponence is sufficiently flexible to permit the same abstract metrical result to be achieved in a variety of different ways. In other words, I hope that the principles which are suggested here are sufficiently general to allow us to talk of a text as being *organised* as poetry. There remain many questions—not the least being the interrelation of the phonological patterns noted with syntax. But until an adequately unpreconceived account of the whole range of non-segmental phonological contrastivity is developed, so that we are aware of the resources which are available for the metre-creator to tap (cf. Householder and Stankiewicz, in Sebeok, p. 346, pp. 204–5 respectively), it is unlikely that much progress will be made on this front, or any convincing typology developed.

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