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## The Notation of Time: a Reply

This essay began as an instinctive reaction to the ideas expressed in James Ingram's article entitled 'The Notation of Time' in the last issue of *Contact*:<sup>1</sup> ideas to which I had previously been exposed in Darmstadt in 1984. The somewhat polemical tone of Ingram's contribution, as well as my own fundamentally opposed convictions, led me to think that a 'reply' would be not only appropriate but also desirable. Nothing would be lost — quite the opposite, in fact — if questions relating to notation and to its connections with the musical scheme of things were to be discussed on a continuing basis in a journal such as this. It has always seemed to me that the evolution of notational practices which are relevant and integral to the characteristics of an envisaged music is essential to its composition in a less incidental way than is usually supposed. This is not to say, of course, that music is to be conceived in terms of notation, although there are composers who work in that way. I mean, rather, that the presentation of an efficiently communicative score is not a matter to be brushed under the carpet for reasons of mental slackness.

James Ingram is certainly not to be accused of mental slackness; the development of his ideas on 'the notation of time' has obviously involved a considerable amount of thought. I find it difficult, however, to accept the premises upon which many of these ideas are founded. I shall not waste time recapitulating the points of Ingram's essay here; I hope readers will check my reactions against the original for themselves. I shall, however, attempt to give a certain idea of the specific areas of conflict.

He begins with a rather conjectural history of the notation of time with which I can leave musicologists to disagree. It is here, though, that the essential direction of his thought becomes obvious. Conventional notation, its expansion into the realm of 'irrational' durations and the expressive inexactitude of proportional (space-time) notation are, he argues, all symptoms of a dualistic, 'Newtonian' world-view, and are thus to be expunged in favour of 'a practical, non-dualistic, approach to the problem of notating musical time'.<sup>2</sup> The dualistic outlook is reflected in the basic 1:2 ratio by which rhythmic notation divides timespans; it is also reflected in general by the assumption, for reasons of convenience, that horizontal space in notation may be equated with a conjectured linear passage of time. In other words, a dualism is stated to exist between an 'ideal world' (notations) and the real one (experiential time).

The 'non-dualistic' programme of Ingram's investigations and the conclusions he reaches seem to be (as these things often are) prompted more by a consideration of the needs and implications of an individual aesthetic than those of proposing a generalisable theory of notation. This can be seen even in his title: he writes of the notation of *time* rather than that of *rhythm*. In fact the word 'rhythm' does not occur at all in the text. Is it therefore possible for Ingram to state his goal as being 'a practical [my italics] . . . approach to the problem of notating musical time'?

I would argue that, at any rate, he has not achieved it. Numerous observations and remarks are made by him on related matters, some of which make perfect sense. Others, however, do not. The idea, for example, that every shade of duration between  $\frac{1}{4}$  and  $\frac{1}{16}$  is to be represented as  $\frac{1}{4}$  (admittedly within a rigid spatial layout) not only removes a whole area of potential for composition, but also admits of a degree of 'inaccuracy' in the sounding realisation which would seem to contradict Ingram's careful vertical alignments in the example from his work *beyond the symbolic*. Presumably the title of this work refers directly to its notational manner; presumably the performed result is therefore 'beyond inaccuracy'. It becomes obvious that such notations lend themselves only to the encoding of a music which does not require, or which at least does not request, the precise synchronisation of events in different instrumental or vocal parts. Such notations thus fail to overcome the problems of ensemble posed by proportional notation and similar techniques, the only potentially effective solution to which would seem to be that employed by Hans-Joachim Hespos. In this case each performer is given a full score and can immediately see the required alignment; again, though, this would be unsuitable for music which cannot be written out with frequent opportunities for page-turning.

More importantly, returning to Ingram, it is my opinion that *rhythm*, in the sense of iterations referring to a constant or changing pulse, is a far more fundamental aspect of musical discourse than is the division of a timespan into more or less irregular segments. A view of musical 'time' based upon the concept of rhythm would seem to be more congruent with the mechanisms of perception; at least, they would be with mine. The phenomenon of iteration, of durational cyclicity, is one which has been at the heart of human culture for a long time – and at the heart of the 'in-time organisation' of physical and biological systems for a good deal longer. Such phenomena are surely too deeply ingrained in the way we think about and listen to music to be ignored in favour of a spurious notational simplification.

This conclusion does not render it necessary to advocate an 'overuse of rigid tempos',<sup>3</sup> as Ingram puts it. A coherent flexibility may be achieved, leaving aside the consideration of metre for present purposes, by the hierarchical ordering of 'disturbances' in a train of iterations; in other words, by rendering compositionally meaningful the use of 'irrational' subdivisions, which are specifically excluded from the Ingram notation. A subdivisional hierarchy may be brought about, from binary and ternary subdivisions (2:1, 3:2) to more and more distant 'harmonics' of a pulsation (e.g. 9:7, 13:10, etc.); this would seem satisfactorily rooted in the fundamentals of musical perception. (The harmonic series itself, with its analogous hierarchy, is after all a physical fact, in contradistinction to, for example, the ordering of harmonic materials in serial music, which has its own well-documented perceptual problems.)

The use of these subdivisions – which are not to be treated as the equal divisions of a single timespan but, as I have suggested, as a quantum of 'harmonic tempo' – becomes not only musically valid but also a source from which to generate relationships and processes in sound. Using an idea analogous to Klarenz Barlowe's 'indigestibility values',<sup>4</sup> it is possible to quantify the 'remoteness'

of subdivided iterations from unsubdivided ones. This is realised in my own work by translating the 'remoteness' gradient into an exponential probability gradient: that is, the frequency of occurrence of a particular subdivision will be exponentially proportional to the inverse of its 'remoteness'. In a hypothetically accurate realisation, this system renders all subdivided values perceptible as more or less extreme departures from an implied 'fundamental'. This is of course only one, and seldom the most obviously important, level of discourse in a music which is perhaps most readily characterised by its multi-layeredness, but in which an attempt is made to compose directly with all available levels in a mutually interrelated network of musical possibilities. My mention of it is by way of illustrating what I see as a fatal oversimplification in Ingram's article. (The first of my compositions to attempt the described approach is *Coigitum* for five performers, written between 1983 and 1985.)

There seems, finally, to be little justification in presenting the so-called 'dualistic' aspect of the notation of time as an evil to be avoided if possible, although of course if that music which Ingram imagines demands such an approach, then this is justification enough with respect to his own 'stylistic' purposes. Also, his conclusions concerning barlines, spacing, positioning of accidentals, etc. are sufficiently generalisable; anyone interested, as I am, in visually efficient performing material would do well at least to consider them.

It is indeed impossible for me to lay any claim to having successfully resolved the implications of my own preoccupations in the domain of rhythm/duration and its notation. This is partly, at least, because there is as yet no adequate provision to train performing musicians in the realisation of notations with expanded scope; Ingram must also, of course, be suffering the same problem. When the majority of performers are not only ignorant, usually through no fault of their own, of the strategies for perception and execution of such notations, but actually unable to accept and react rationally to them, the degree of alienation which exists between composer and performer is hardly surprising. The main victim has been precisely the area of rhythmic notation, the performing problems in this area having arisen initially as a byproduct of the integral-serial manipulations of the early 1950s. It is true that the situation has not been assisted by the sloppy thinking, and notating, of many composers. It is, nevertheless, a pity that someone as thoughtful as James Ingram obviously is has produced only an evaporation of a musical domain whose potential for compositional exploitation has only just begun.

<sup>1</sup> James Ingram, 'The Notation of Time', *Contact* 29 (Spring 1985), pp.20-27.

<sup>2</sup> Ibid., p.22.

<sup>3</sup> Ibid., p.21.

<sup>4</sup> See Klarenz Barlow, *Bus Journey to Parametron* (Cologne: Feedback Studio, 1980).

Both Heaton's and Barrett's articles are in their different ways controversial, and they are therefore eminently suitable as the basis, or bases, of a continuing discussion in the pages of Contact. The issues raised by these authors – one of whom is in any case responding to an article in the previous number of the journal (his article actually began life as a Letter to the Editor) – obviously overlap to a degree; prospective contributors to the debate may accordingly decide to respond to one article rather than the other, or to both. Responses – which can be of any length, though anything above 2,500 words might have to be considered for a later issue – should be received by the editors at the Goldsmiths' College address on page 3 by 30th June if they are to be considered for Contact 31.

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