PROBLEMS OF PITCH ORGANIZATION IN STRAVINSKY

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ANYONE WHO undertakes an investigation of the essential relationships of tones in the works of Stravinsky may find himself somewhat at a disadvantage as a result of the fact that no significant body of theoretical writing has emerged to deal with the nature of twentieth-century music that is centric (i.e. organized in terms of tone center) but not tonally functional.[1] There are, to be sure, a number of labels in circulation for referring to this music: pantonality, pandiatonicism, antitonality, modality, tonicality—even "atonality" has been stretched to embrace it. But their function is largely identification, and where any one of them presumes to represent a theory, this is more likely to be descriptive of surface detail than in the nature of an interpretation of internal relations or structural significance. Moreover, instead of searching for the differentia of the music they designate by ascertaining, for example, its own unifying principles, the tendency has been to rely rather too heavily on the established rules of formation.

A worthwhile objective is certainly an approach that would no longer use tonality as a crutch, a new branch of theory, as it were, starting from what this music itself is, rather than dwelling upon its deviation from what music was previously. (Granted we might still be ultimately obliged to come to terms with traditional schemata, since it is untenable to claim for the music in question anything like the degree of cleavage with tonality that characterized twelve-tone composition.) But until such a theory is crystallized and implemented with a vocabulary of sufficient currency to make it reliable as a means of communication, we cannot legitimately be expected to more than simply attempt to gravitate in the general

[1]Tonality, according to the restricted sense in which it is construed here, is defined by those functional relations postulated by the structure of the major scale. A consequence of the fulfillment of such functional relations is, directly or indirectly, the assertion of the priority of one pitch class over the others within a given context—it being understood that context may be interpreted either locally or with respect to the totality, so that a hierarchy is thus established, determined in each case by what is taken as the context in terms of which priority is assessed. It is important to bear in mind, however, that there are other means besides functional ones for asserting pitch-class priority; from which it follows that pitch-class priority per se: 1) is not a sufficient condition of that music which is tonal, and 2) is compatible with music that is not tonally functional.

direction of the self-contained approach the new theory may someday provide. That the attempt might indeed be rewarding was one of my main thoughts as I undertook this discussion of Stravinsky's "pre-twelve-tone" works, prompted by a desire to assemble some observations that seemed to me interesting enough to share. In organizing the observations I found it convenient to group them into four sections: I) diatonic writing in which "tone center" is not functional "tonic";[2] II) a symmetrical scale used in such a way as to emphasize tritone relation; III) the same scale with minor-third emphasis; IV) interaction between diatonic elements of I and the symmetrical scale of II and III. The prognosis for self-contained treatment seemed encouraging to me in the ground covered in I and II, but III is a turning point—a concern with the traditional minor third itself, perhaps, being symptomatic. In IV the synthesis produces a curious alchemy that brings tonal functionality in its wake. Yet this conclusion does not, I trust, invalidate the initial intention; since it is better for tonal functionality to insinuate itself gradually, than for it to confine all discussion at the outset to the level of established theory.[3]

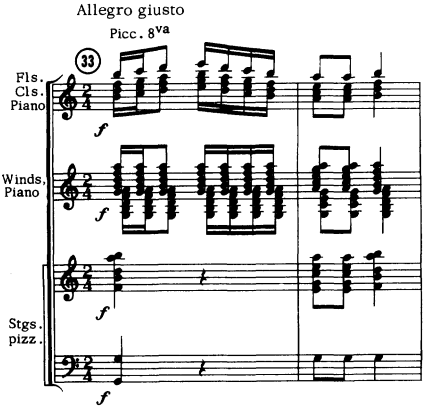
I

A suitable point of departure from which to approach one of the main problems of concern to us is the familiar *Danse Russe* (in the 1911 version),[4] where the "white notes"—which I take to conveniently represent the total content of any of the so-called "diatonic" scales—may be said to comprise the referential collection of pitch classes inferable from the main theme of the rondo and/or the codetta at No. 44. The referential order of intervals, on the other hand, varying independently of the referential collec-

[2] For purposes of non-tonal centric music it might be a good idea to have the term "tone center" refer to the more general class of which "tonics" (or tone centers in tonal contexts) could be regarded as a sub-class (see note 1).

[3] Any attempt at a statement of what I assume tonal functionality to be would, I fear, result in a disquisition—consigning the Stravinsky discussion to a postscript. This article could not have been written without the author's relying on the reader to supply the precariously evasive first principles and to take it on faith that thought has been given to the much needed revaluation of tonality that is now taking place. Indeed, as a gesture to this revaluation I have taken what may, perhaps, be the needless precaution of borrowing the latest terms (e.g. "simultaneity" where "chord" might have been perfectly adequate); but having done so, I feel I should say a few words, however informal, regarding them. In the first place, those who are in close touch with the rethinking responsible for the new nomenclature and who tend to forget its limited currency, are the ones whose obligation it is to define and justify it, which thus is not my intention here. To avoid the linguistic battle over what constitutes a "chord," I shall simply add to what I have already remarked about "simultaneity" that its attraction for me has something to do with its being a fair substitute for the German *Zusammenklang*. "Pitch class" (or "p.c.," in the folksy abbreviation used by a young contributor elsewhere in this issue) is useful to distinguish an observation about a pitch, say C, that may occur in any octave from an observation about a given C (such as middle C). Finally, notwithstanding the suggestion in note 2 regarding "tone center" vis-à-vis "tonic," for that future time when a new theory is evolved, I feel uneasy about present usage which equates them: hence the precautionary "priority," a more noncommital term than "tone center." By virtue of its freedom from conventional

tion, is defined by the pitch class to which priority is assigned, and this, in turn, is decided on the basis of contextual evidence. In Ex. 1, G priority is indicated by the simultaneities in the strings on the first beats of the odd-numbered measures (where G is emphasized by doubling and its "low" registral position); and at its first return (No. 38) it is confirmed by a G tremolo. (The melodic line itself gives inadequate information for this priority.)[5] The referential ordering of intervals that may be inferred from G as 0 yields the following scale (in semitonal measurement): 0, 2, 4, 5, 7, 9, 10.



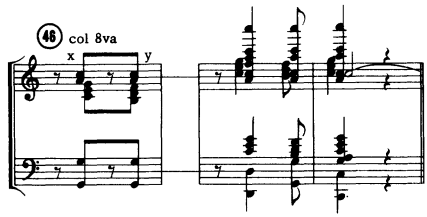
Ex. 1

associations it even lends itself to being applied below to a tone that is hierarchically at the head of a three-tone group in the "*Petrouchka* chord" without necessarily being a tone center as it is here understood. But normally "C priority" will mean "C is the tone center." It may be idle to add that the borrowing of these terms (as also the semitonal numbering, 0–11) is no more to be taken as evidence that the writer shares the total philosophy that gave rise to them than the use of the terminology of logic by some of my most esteemed colleagues is to be taken as a proof of the logical consistency of their arguments.

[4] Use of this version (except in one instance where the new orchestration is more practical for quotation) should avoid the objection that what are cited below as similarities between Stravinsky's early and recent practices are not altogether reliable simply because the new version of *Petrouchka* may embody some of his recent attitudes.

[5]The argument for G priority is supported by Stravinsky's own interpretation of this passage in the 1947 revision. Thus, among other things, the G is further emphasized by virtue of the fact that it is doubled by the basses not only, as in the old version, in its first appearance but in each subsequent appearance as well. Considerable "interference" qualifies G: e.g. an A pedal point (potentialized in the A priority of the subsidiary themes at Nos. 34 and 41) and a doubling of the tritone, to both of which I shall return later (see p. 22 below). In Exx. 1 and 2, the alternation of the triads B-D-F and C-E-G produces the whole step of the opening tremolo of the work (D-E or A-G)—a relationship that is made explicit when the opening section returns in its D-major metamorphosis at the beginning of the fourth tableau. Such are some of the large structural issues that are, of course, also relevant in different ways to other musical examples given here, insofar as complete data in terms of the totality of relations is to be sought. But especially since music is heard in time, local events may also, I believe, be considered as having independent validity, since they are more than a *tabula rasa* to be inscribed by total structure.

The codetta affirms the familiar referential ordering of the C major scale, for which the main evidence is the cadence, and especially the final simultaneity (Ex. 2b), which gradually materializes over a G pedal after No. 44 (*x* in Ex. 2a) and then persists to the end.



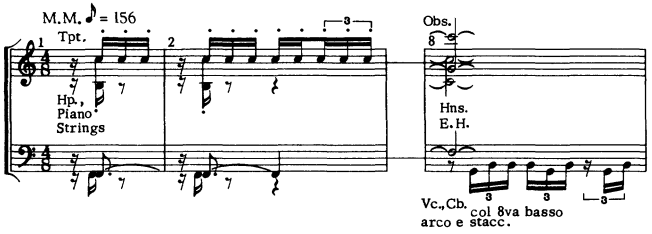
Ex. 2a Ex. 2b

It may be wondered why we should be burdened with two referential categories: the collection and the ordering of intervals, since theme and codetta could both be referred to the C major scale, in terms of which the G-emphasis could be regarded simply as a prolonged functional "dominant seventh"; or the theme could be referred to one interval-ordered pitch-class collection, and the codetta to another. Now, the first alternative leads to the proverbial historical search for correspondences which we should like to avoid if possible; while the second alternative, although it allows the independence of a G priority among white notes—and is to this extent preferable—ignores common pitch-class content. To retain both categories, therefore, seems desirable.

Since the major scale and tonality are strongly inter-identified, however, it may be insisted that the functioning of the referential collection tonally when the referential ordering is that of the major scale, but not tonally when the same referential collection has the referential ordering of the other available white-note scales, engenders an interaction between tonal and non-tonal procedures—such interaction being implicit in the very existence of common pitch-class content. It would therefore seem to follow from this that what to some may appear to be unjustifiable tonal bias is not only legitimate but necessary for dealing rationally with this music. A self-contained theory, in order to refute this argument, would ultimately have to demonstrate that, though elements of the major scale provide the conditions for tonal functionality, Stravinsky does not significantly realize these conditions.

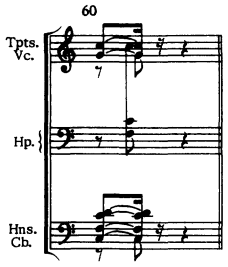
This is something I am not prepared to demonstrate now. However, it is not insignificant in the present regard that in *Agon* (a transitional work between the "neoclassic" and the "twelve-tone" periods), relations similar to those in *Petrouchka* appear four decades later, with C priority (i.e. as distinguished from a tonal functional "C major") still treated as just one referential ordering among all the others obtainable within the white-note

collection. The *Pas-de-Quatre* from *Agon* and the *Danse Russe* differ markedly from one another on every conceivable level, so that apprehension of any similarity requires a high degree of abstraction. For example, the pitch class C is prominent from the outset of the former, while in the latter it is not. But if we discount the support this C gets in *Agon* from repetition and instrumentation, the B-C in the first simultaneity (Ex. 3a) may be said to have its counterpart in *Danse Russe* (*y* in Ex. 2a), though its appearance in the *Petrouchka* movement is, of course, delayed until almost the end. Furthermore, the measures with the triplet figure (Ex. 3b) carry in distilled form the G implications of the *Danse Russe* theme, return in like rondo fashion (MM. 21 and 36, though the last time with a problematic B♭), and stand in analogous relation to the C-dominated simultaneity at the movement's end (Ex. 3c).



Ex. 3a

Ex. 3b



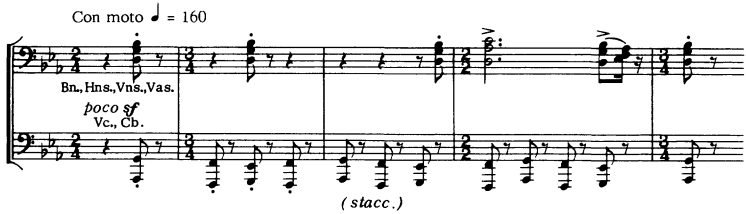
Ex. 3c

Having taken due cognizance of the parallelism, however, let us pause over this last simultaneity.

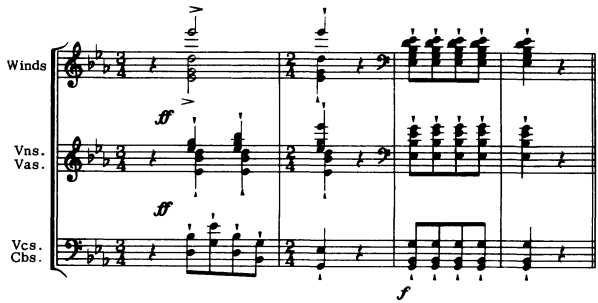
G gives C the acoustical support of the fifth—the assumption of the possibility of such acoustical support being indispensable to this entire discussion. At the same time, G's association with D, and even, to a certain extent, with F, forms a sub-complex of the simultaneity relating directly to the referential order that governed the measures with triplet figure. There are other ramifications, since F serves a double purpose, being also associated timbrally (in the harp) with C, in such a way as to allude to F's role on a secondary level of importance—as lowest tone both in the opening simultaneity and in the one in winds in Ex. 3b. As such, the F may be

compared to the A in the final simultaneity of *Danse Russe,* except that this A is not only an allusion to earlier events in the movement, but also a simple continuation of an insistent element of the immediately preceding measures. The main point, however, is that the G supporting C in the final simultaneity of *Danse Russe* does not, unlike the G at the end of *Pas-de-Quatre,* directly relate back—by virtue of special contextual associations—to the G priority that accounts for so large a part of the *Petrouchka* movement as to make the absence of such a relationship quite perceptible.[6]

Another example of what I have in mind—less complex than the one from *Agon* because the movement has less complex relationships—is provided by *Dumbarton Oaks* Concerto, where the referential white-note collection is that of "E♭ major." Extra doubling and the neighbor-note motion around G at the opening of the finale substantiate the triad G-B♭-D (Ex. 4a), defining a referential ordering of the scale: 0, 1, 3, 5, 7, 8, 10, whose normal abstract representation (always reading upwards), incidentally, indicates an ordering of intervals retrograde-inversionally related to the ordering of the major scale, similarly represented. The last eleven measures of the movement do not deviate from the pitch content of E♭ major, but E♭ priority has only begun to gradually infiltrate the original G priority since about No. 74, and even now, in the final simultaneities, retains from the G priority a G (as lowest voice), and a D (Ex. 4b).



Ex. 4a



Ex. 4b

[6] The abruptness of the ending may well be a theatrical allusion to the character of a peasant dance. Thus, something of the same nature occurs on another dimension when the long continued motion ceases at this same cadence without warning.

Despite its triadic elements, the ending, like that of *Pas-de-Quatre,* is far from a "resolution" in the harmony-book fashion, yet in an empirical sense, the basic structural issues are all resolved.

It may have occurred to some readers that this discussion could benefit from the paraphernalia of "modality," which would seem so very appropriate for the identification of the different interval-orderings within the white-note collection. But quite apart from the multifarious confusions with which this notion is laden, it does not really apply here. To claim that the finale of *Dumbarton Oaks* is "Phrygian" discloses nothing of the peculiar symbiotic relationship between scales with common referential collection but different interval orderings. It is quite frankly only on the most trivial level that "modality" can be helpful, i.e. by freeing us from dependence on the concept of "major" scale for identifying the referential collection. "D-mode," "E-mode," etc. rid modern modal nomenclature of extraneous historical implications; and by simple substitution of "scale" for "mode" (e.g. "D-scale") we, in turn, may derive a nomenclature that analogously circumvents the implications of "modality," both modern and archaic. According to such a convention, each letter-name can define a different ordering of the white-note collection (including C), the same letter-name being retained for transpositions, so that *Dumbarton Oaks* may be said to open in the E-scale on G and to close in the C-scale on E♭.

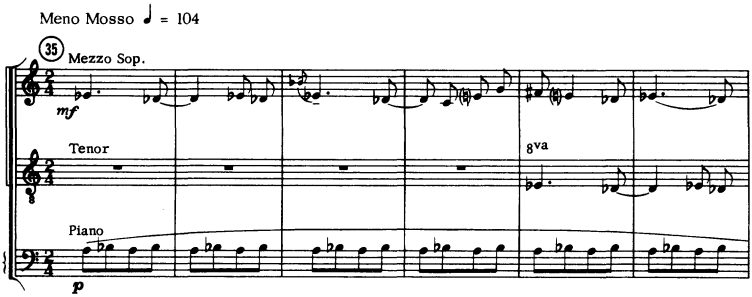
Before dispensing with "modality," it is tempting to make a special case for the *Hymne* of *Sérénade en la,* which has an opening section in the E-scale on A (with few deviations from the referential collection up to m. 19), closes with a transitory allusion to it (m. 77), and has about a third of the movement (mm. 52-76) dominated, despite "black" patches, by a transposition of the E-scale to the form referable directly (i.e. without transposition) to the white-note collection. The symbiotic relation between referential order and referential collection seems unimportant here, until attention is drawn to the inside pun of the opening measures, at which point the modal interpretation collapses. In these measures, the referential ordering of the C-scale (transposed to F), which played such important a part in *Danse Russe* and *Dumbarton Oaks*, covertly intrudes by way of the elements of the triad F-A-C which, in a narrow grammatical sense, account for most of the simultaneities through the third beat of m. 5. But any realization of their potency for the assertion of F priority is studiously avoided owing to their employment in such a way as to firmly assert A by virtue of various kinds of articulation: repetition, doubling, registration (A in outer voices and the more exposed inner ones), and accentuation (both quantitative and qualitative).

This by now classic example of the extent to which pitch-class priority may be stipulated by compositional procedures, serves as an appropriate transition from contexts referable to the white-note collection to contexts

referable to a more complex collection. In the latter, all possible modes of articulation become more necessary than ever for the assertion of pitch-class priority—so much so, in fact, that the absence of such articulation, as it soon will be seen, may place the music in those interstitial realms between the centric and noncentric.

II

Without criteria for selection of certain pitches over others, the passage from *Les Noces* (Ex. 5) cannot be referred to the white-note collection, though an observer with strong tonal bias might claim that, except for what may be regarded as a "closely related" E, all the tones are accommodated by B♭ "harmonic minor"—and thus (so the argument would go) what results is simply another "diatonic" scale of the white-note class.



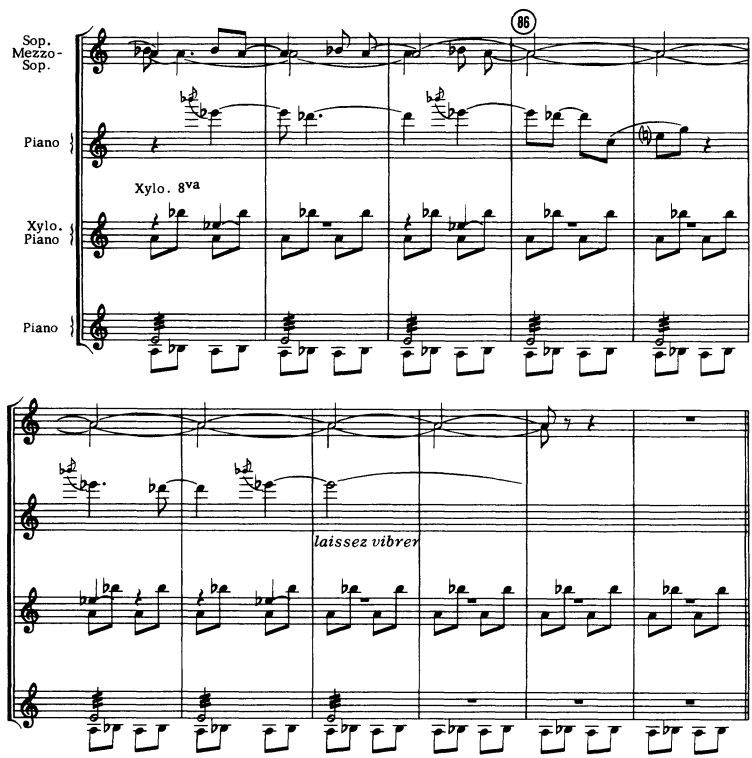
Ex. 5

Now I do not wish to tangle here with questions of the "hybrid" minor formations, except to stress that they do not fulfill the conditions of the white-note collection of being capable of having its elements arranged in an uninterrupted series, the first and last tritone-related and the adjacencies separated by the identical interval—the only such possible interval being, within the white-note collection, the fifth. But even if the interpretation of the "hybrid" minor scales was acceptable in its tonal functional sense, it would be hard to prove that the F♯ (G♭) is treated *functionally,* so that if it is to be said that there is any correlation at all with B♭ minor it would seem to be more statistical than anything else.

Should this, too, be considered insufficient grounds for rejecting the "B♭ minor" interpretation, there would still remain the more serious objection that may be levelled against the low hierarchical position assigned in this scheme to the E♭—namely as appoggiatura to D♭. Thus the dyad formed by the linear expression of E♭-D♭ associates with D-C of the preceding section (No. 27ff.), where D may be interpreted as the pitch class of priority, as well as with the E-D at the opening of the work, where the insistence on the soprano's E_5 leaves no doubt at all as to the priority of E. The position of E♭ is, then, hierarchically of a higher order

than that of appoggiatura to D♭, though there is insufficient evidence to establish its priority as *the* tone center; therefore, when the mezzo-soprano line at No. 35 is heard in transpositions on C (No. 38) and on A (No. 39) these tones by analogy also have a certain potentiality for assertion of priority, each tone in its turn.[7] If an assessment is made of the relative weight of these transpositions, it is observed that A priority receives most substantiation: 1) from the A's on each quarter beat of the pianos' ostinato at Nos. 35-40; 2) from the significant reinforcement just before No. 39 by the octave doubling and by the new A_4 on the offbeats; 3) from the bass voice's entrance (6 measures after No. 36 and 3 measures after No. 37) with what starts on A as another transposition, but continues as a variant that will be prominent at No. 40.

These bits of evidence, while not particularly effective in asserting A in this section of *Noces,* are significant in the light of the A priority ultimately realized in the modified return of the material at Nos. 82-87:



Ex. 6

[7] In the two transpositions, the original undergoes the following slight modifications: in both of them, m. 6 is truncated and the (B♭) grace-note omitted; where the transposition on C has the contour A-C-E, identical interval order calls for A-C♯-E, which is restored when this transposition recurs at No. 85.

where the E tremolo acoustically supports A_3 of the pianos, and the A priority operative since No. 78 predisposes the ear toward the continued acceptance of this priority as asserted by the A's of long duration at No. 82.

But the question remains: why, given reasonable evidence to verify it, is A priority still in a certain doubt at Nos. 35-40? A search for the answer may lead one to contemplate the curious consistence that pervades forty-five measures at Nos. 35-40, and the same number of measures (of slightly longer duration because of some 3/4 meter) at Nos. 82-87, as a result of which everything, both linear successions and simultaneities, fits together like well-meshed gears, so that it is not surprising to discover, from a tabulation of the total pitch content, that a single referential collection of eight pitch classes accounts for it all—with a few exceptions so marginal as scarcely to require mention (some dozen tones, mainly ornamental, and most of them at Nos. 35-40). If it is granted that the pitch class A is the most likely element to determine the referential order within the collection, the scale drawn from the collection may be represented as follows:

	i	ii	iii	iv	v	vi	vii	viii	(i)
	a	B♭	c	D♭	e♭	E	f♯	G	(a)
pitch numbers:	0	1	3	4	6	7	9	10	(1)
intervals:		1	2	1	2	1	2	1	(2)

A formal approach to this scale (hereafter referred to as "octatonic") would calculate the structure and enumerate the properties at once.[8] Here the approach will be inductive, so that only such properties will be considered as are demonstrated by the musical examples discussed. Thus, the passage from *Noces* makes us aware of the high degree of similitude that the scale generates to the end that it yields identical interval content for the reproduction of the linear configuration at 0, 3, and 6 (hence the lower-case letters in the scale representation above). Substantial preservation of pitch content from one transposition to another is also available. The form on A, for example, requires no pitch classes not present at the original statement on E♭—provided the piano's A is counted. Naturally, what holds true for 0, 3, and 6 will hold true for 9, and indeed a transposition on this element is ultimately suggested between Nos. 83 and 84, where we are again reminded of the common pitch content, since it is

[8] Messiaen classifies this scale among "modes of limited transposition" in *Technique de mon langage musical* (Paris: Leduc, 1944, pp. 52f.). Its limitation to three transpositions becomes evident when the twelve pitch classes are arranged into the three available diminished-seventh chords: combination of any two yields the scale's total pitch content, and only three such combinations are, of course, possible. Also, between any two collections of scale content there will be one of these chords in common. (If the chords are designated X, Y, and Z, they yield XY, YZ, and XZ.) Taking his cue from Messiaen, Roman Vlad draws attention to Stravinsky's use of the scale (*Stravinsky*, London: Oxford University Press, 1960, pp. 7f.), without, however, exploring the special properties that will presently be seen to arise out of the ordering in which there is a semitone between first and second degrees.

produced as a result of the transposition at 0 crossing over to the one at 6.

Since each trichordal partition defines the interval order: 1, 2, it is easy to see what accounts for the symmetry. In combination, the four partitions produce a scale of whole and half steps. The fifth scale degree, at the interval of 6 semitones from A, is an axis around which the two halves of the octave are symmetrical; and at the interval of 3 or 9 there is another axis around which two quarters of the octave (halves of the tritone) are analogously symmetrical.

When we had only the simpler relations of the white-note collection to cope with (in Part I), the following condition prevailed: within any given white-note collection, for each pitch class there was only one possible referential interval ordering in which it could have priority. Within any given octatonic collection, by contrast, the first element of any of the partitions of the octave at 0, 3, 6, and 9 has the potentiality of being the pitch class of priority in an identical ordering referable to the same given octatonic collection, and this also holds true, analogously, for 1, 4, 7, and 10, with respect to a different ordering, of which more will be said later. That is to say, not only is each of the partitions a "transposition" of the other, in a sense, but the interval ordering of the total collection defined in relation to the first element of each partition is also identical; hence, each of the four possible orderings is also a different "transposition" of the octatonic scale. (Strictly speaking, this is really "rotation," since the collection has only three transpositions—see footnote 8.) Therefore, in the interval ordering of the scale as represented above, there are, loosely speaking, four potential "tone centers" of equal weight and independence.

In *Noces*, the two-part partition of the octave concerned us more and seemed more prevalent than the four-part partition. If the octave is assumed—as I have already assumed the fifth—then a hierarchy is thus established, contingent on the octave as a fundamental construct within the semitonal system. This attaches special importance to the fact that A-E♭ and its complement E♭-A are intervals each adding up to 6 semitones, while A-C, which is 3 semitones, has a complement of 9. For if the octave takes precedence the symmetrical position of 3 within the tritone is of less consequence than the relation of 3 to the octave, thus placing it on a different, or "lesser," hierarchical plane with regard to its potentiality for symmetry than the relation of 6 to the octave, but on a higher plane with regard to its potentiality for differentiation.

The, so to speak, equality (i.e. numerically) between the interval of a tritone and its complement is, if not the final verification, then at least highly symptomatic of the identity relation between these "two" intervals, or between their elements, or, specifically in *Noces,* between A and E♭. In addition, each tritone-related element has the potentiality, within the octatonic scale, to stand in an identical relation to any available interval ordering (this order and relation being parallel rather than symmetrical)

—i.e. to be an element of a transposition with identical interval ordering and/or identical interval content. Therefore, given any two tritone-related pitch classes within the octatonic scale, to establish the priority of one over the other within the scale's limits, this identity between the configurations of which they are respectively the members must be eliminated. One of the ways in which this can be brought about is demonstrated by the section of *Noces* between Nos. 82 and 87, where the high degree of similitude observed earlier at approximately No. 39, between the elements gravitating around A and those gravitating around E♭, is now scarcely present at all, as a result, on the one hand, of the continuing fifth (the E tremolo)—the E♭'s fifth being transitory—and on the other, of the sustained A's, all of which leaves no doubt as to the pitch class of priority, even though the transposition at 6 lingers on after No. 86 in very nearly its original form.

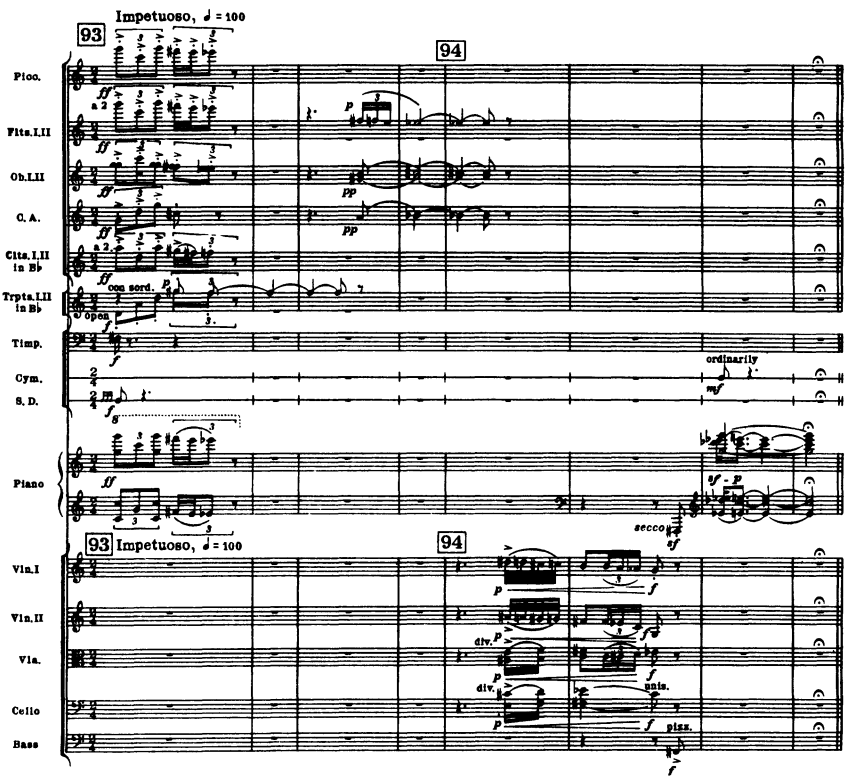
Since each scale degree of the octatonic scale is tritone-related, the noticeable presence of this interval is stipulated for any context referable to the collection of this scale; and any part of *Noces* where it is used will be more or less associated with the basic simultaneity at No. 1, where E is in the voice and B♭ is in the piano. (Thus, the mezzo-soprano's E♭ and the piano's A at No. 35 actually reverse the opening roles of the "black" and "white" notes.) Similarly, in *Petrouchka* it is clearly evident to the ear that the scale emerges directly out of the frequent expression of the tritone as a dyad (usually linear) in the first tableau: B♭-E at Nos. 7, 9, 17, 22; F-B at Nos. 8, 11, 23; both forms alternately between Nos. 24 and 27, and, the form of most immediate concern here, C-F♯ in the interlude between the first and second tableaux. (In the total structure, the limited associations of identical pitch-class content also lend significance to F-B in the main simultaneities of *Danse Russe* (Ex. 1 above) as a veriticalization of the linear dyads at Nos. 8, etc. According to this interpretation, G priority is a prolongation of the fourth degree of the basic D-scale of the first tableau, indeed, of the whole work; and the A pedal is an allusion to the supporting fifth of this D priority, an allusion clearly pointed up by the return of the tritonal dyads of No. 8 in the section of *Danse Russe* following No. 42.)[9]

To regard C-F♯ of the interlude as a foreshadowing of the "*Petrouchka* chord" is to admit some evidence for the standard interpretation of this configuration as a confluence of two sub-complexes "based" on these two pitch classes, rather than as a unitary sonic event. So Stravinsky considered it, and, to judge from one of his most recent published remarks, probably still does: "I had conceived of the music in two keys in the second tableau as Petrouchka's insult to the public. . . ."[10] However, since the entire configuration may now be subsumed under a single collection with a single referential order, i.e. the octatonic scale, the dubious concept of

[9] See note 5. [10] *Expositions and Developments,* New York: Doubleday & Co., 1962, p. 156.

"polytonality" need no longer be invoked; nor does such an interpretation make it impossible to acknowledge a certain compound nature of the configuration, since this can be done entirely within the referential collection of the octatonic scale, by means of the partitions.

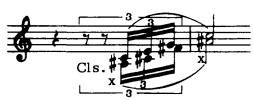
To evaluate the pitch-class priority, if any, of the "*Petrouchka* chord," it is well to determine beforehand toward what priority the ear may be disposed at its entrance, especially since the eight measures that precede this entrance deploy the octatonic scale from which the "chord" is drawn. The brief introduction to the second tableau involves, to begin with, the placing in the clearest relief a prolongation of G as the supporting fifth of the C which is carried over from the final simultaneity of the first tableau (Ex. 2b above) by a kind of liaison—the liaison, namely, of the C of the linear tritone in the interlude between tableaux. Example 7 shows how the piano both articulates the C-G and segregates, from the intervening stepwise semitonal activity (mm. 3-6), the following six elements of the octatonic scale: c, D♭, e♭, E, f♯, G. (Since all the essential features are preserved in the more concise 1947 orchestration, this version is quoted here. No. 93 of the new version corresponds to No. 48 of the original.)



Ex. 7

The simultaneity in the woodwinds in the third and fourth measures dissociates itself from the prolonged "neighbor-note" motion of the intervening elements by virtue of its duration, so that its content, all of it referable to the octatonic collection, may be applied to the higher level on which the scale is deployed—especially the A, which is not supplied by the piano. Whether the A♯ at No. 94 is similarly qualified to be applied to that level is very dubious, despite the octave doubling, accent, and exposed position at the beginning of a phrase. The understatement of this A♯ is far more striking—viz. the descent from G of m. 1, in Ex. 7, via flutes and violins, to G of m. 6, which deviates from stepwise semitonal motion only to avoid it, with the result that "in the place" of A♯ there is an extra B.

A♯ is a crucial element in more than one way; kept in reserve, essentially, for the first dyad of the "*Petrouchka* chord" (Ex. 8), it provides special conditions for a relationship which strongly counterpoises the tritone-related triads of the standard interpretation. Thus, if we assume that the horizontalized C triad of the first clarinet preserves the registration of the same pitch classes just as they occurred in the piano left hand at No. 93, the A♯, which can belong to an identically ordered triadic complex in relation to F♯, is precisely the element that avoids the identity by initiating a registral distribution for the F♯ triad (i.e. a first inversion) that is different from the registration of the C triad. Furthermore, the interval of 2 semitones formed by the simultaneity of this A♯ with C becomes a principal defining agency of the total configuration. (Notice how it is stressed by the registral extremities of the contour at *x* in Ex. 8.)[11]



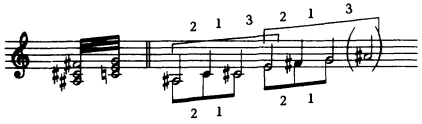
Ex. 8

The other vertical dyads in Ex. 8, if less prominent than that just indicated, should also be weighed against the tritone-related triads, since these dyads, along with the A♯-C, describe the interval content of the conjunct trichordal partitions of the octatonic scale: 2, 3, 1, in that order.

When, however, during the vertical statement at No. 51 (to return to the 1911 version), there is a concurrent linearization from which the F♯ triad is filtered out, isolating the C triad (cornets and trumpets), the interpretation of the chord as two triadic sub-complexes is strengthened, as is also the priority of C. Then, in the continuation of the linear statement, when the sub-complexes intersect, the balance shifts to the unified

[11] A♯-C verticalizes the important unifying whole step, i.e. the opening D-E (see footnote 5). The interval's prominence as a linear dyad in *Noces* will also be recalled.

interpretation, substantiated by an arrangement of the elements (Ex. 9b) in what corresponds to "stepwise" representation of an incomplete octatonic scale "gapped" at two parallel positions (namely, where the interval of 3 occurs):



Ex. 9a Ex. 9b

A♯ is first element in the above representation not because of priority, but on contextual grounds (the registration of the tremolo in piano and strings as in Ex. 9a); for in so symmetrical an arrangement even C priority, with all its backing (among other things, the support of the fifth) is not conclusive. Surely, an eventuality of this order must be what Stravinsky had in mind when he spoke of "polarity" in *Poétique Musicale,* and though he now cautions us that the book was one of those "written through other people,"[12] I take the liberty of quoting him on that concept:

> What preoccupies us, then, is less tonality, properly so called, than what might be described as the polarity of a sound, of an interval, or even of a sonic complex [*complexe sonore*].[13]

While the meaning is perfectly clear, it is tempting to speculate on whether Stravinsky's choice of "polarity," a word which cannot accurately be applied (as he applies it) to one thing without its opposite, either had implications that escaped the intermediary who transcribed his thoughts, or—which seems more likely—reflected an awareness, if only on a subverbal level where it was difficult to articulate, of the special properties of the tritone which make it possible for pitches at 0 and 6 (capable of graphic representation as "poles" in a circle of fifths, whether or not one accepts the assumption on which this circle is predicated), by virtue of similitude or equal and thus independent weight, to remain in equilibrium or—to the end that a tone center is asserted by neither—to stand in a certain opposition. This speculation might easily take flight in a direction which would establish, as a necessary condition of "polarity," the denial of priority to a single pitch class precisely for the purpose of not deflecting from the priority of a whole *complexe sonore.* And from here, it would be a simple step to the conclusion that short of twelve-tone and so-called "atonal" procedures, nothing provides this condition better than the

[12] *Op. cit.,* p. 153.

[13] *Poétique Musicale,* Cambridge, Mass., Harvard University Press, 1942, p. 26 (translation mine). Later statements of the pre-twelve-tone Stravinsky take a more positive attitude toward tonality. Only a decade ago, speaking of his Cantata, he declared, "tonality is my discipline" (New York *Herald Tribune,* December 21, 1952; sec. 4, p. 5).

octatonic scale. It is not the intention, however, to make exalted claims for this scale, but rather, to observe its behavior in such concrete manifestations as the "*Petrouchka* chord," to which, after this digression, we had better promptly return.

From the vantage point of the "gapped" scale, the C and F♯ can figure just as prominently as they do in the familiar interpretation, with the important distinction that they now function as basic elements not so much in terms of two triads, but primarily, in terms either of two trichords, each with the interval order of 2, 1 (the notes with stems down in Ex. 9b), or of two tetrachords, each with the order of 2, 1, 3 (the notes with stems up)—in the latter case, the result of a partitioning of the octave to produce two conjunct segments. And the reason C and F♯ rather than, say, A♯ and E, are hierarchically higher terms for defining the relationship, is that since C has a certain priority, F♯, which stands in an identical relation to its two adjacencies, will also have analogically a certain priority within its own trichord (though one priority may be more strongly asserted than the other)—which brings us back to the statement made above as to the scale's potentiality for more than one tone center.

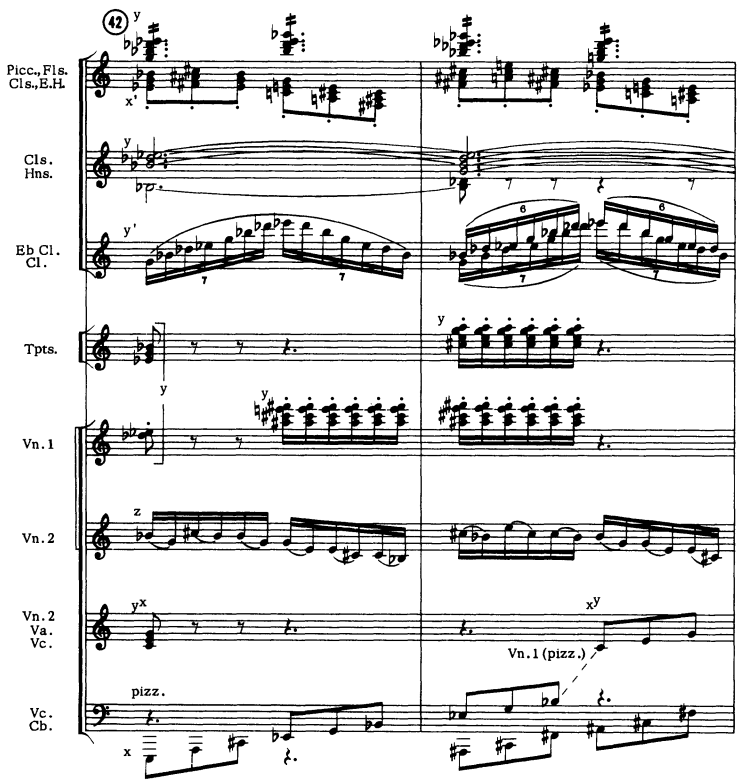
The inexhaustible "*Petrouchka* chord," needless to say, is far from accounted for by this brief treatment, the ramifications of which the reader will have to infer for himself. Yet, before leaving it, two small points should be resolved. First, there is the A♯, whose important function would seem to render it worthy of consideration for priority. Such priority, however, would yield the interval order 2, 1, for the conjunct trichords of the complete octatonic scale, instead of 1, 2, which—for reasons that will later become more apparent—has been posited as the fundamental form for Stravinsky. If nowithstanding this, A♯ priority is still considered, it might be well to keep in mind that it makes for conditions distantly akin to those determined by the "B♭ minor" interpretation in *Noces*. But, as the reader must be aware, though evidence has been given for C priority of the chord, no firm commitment has been made here with regard to this or any other priority at all. Which brings us to the second point: namely, the "polytonality" of the chord. Though I realize the disadvantages of making such a statement without a disquisition on one's theory of tonality, a "polytonal" interpretation, insofar as it may have any validity at all, is even more problematic than the determination of single priority. For the "gapped" scale affords far too little information for the delineation of "keys" of any kind.

III

Let us make a fresh start, at a place in no way remote from this discussion up to here, but somewhat closer to the generally accepted analytical approaches. For it is untenable to pass from the tritone-related

elements to those relations defined by the interval of 3 semitones without acknowledging Stravinsky's acceptance, until very recently, of the triad and its related chordal complexes, the permutations of which, often metamorphosing but never completely disguising the "basic" interval content (by such means as doubling, vertical spacing, inversion, etc.), have produced results admittedly very far indeed from the concept "triad" called to mind by the textbook representation. That this acknowledgement of preassumed interval complexes will not involve relinquishing the notion that certain compositional procedures arise directly out of the independent choice of intervals should soon become evident. Meanwhile, it will be necessary to resort to chordal nomenclature—though often purely denotationally.

To say that *Jeu de rapt* is a veritable primer of the ways in which the octatonic scale may be arranged into four major triads or seventh chords is not to deny its abundance of detail. In considering the six measures at Nos. 42-43 of *Sacre* (two representative measures of which are given in partial reduction in Ex. 10), I shall ignore most of this detail (articulation, etc.) and concentrate upon the chordal regimentation of the elements



Ex. 10

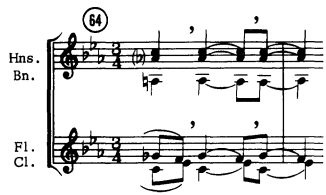
ushered in by the return of the first simultaneity (that at No. 37) as a kind of signal for the filtering out, at this point, of all pitch content not referable to the octatonic scale. In triadic terms, these are the discernible configurations: 1) major triads on C, E♭, F♯, and A (horizontal at, for example, *x*; vertical at *x'*—the latter being double-reed timbre rather than simultaneities as such); 2) dominant sevenths in first inversion (horizontal at *y'*, but mostly vertical, *y*); 3) a brief vertical statement of the C triad at y^x (part of the simultaneity of No. 37); 4) a linear expression of the diminished-seventh chord (*z*).

Configuration *z* places directly in evidence a determining factor of similitude: it partitions the octave at different positions from those at which the four roots drawing the pitch-class content of their triads and dominant sevenths from it partition the octave; at the same time, *z* has an interval content identical with that of the only possible configuration (another diminished seventh) that can be formed by these chord roots; and the two semitone-related diminished sevenths (or any two diminished sevenths with no "common tones" at all) will, of course, always contain the total collection of an octatonic scale (see *Sacre*, Nos. 30 and 70, where these parallel diminished sevenths, horizontalized, are articulated to show their "whole-step" relation). The identity is stressed by the order in which the vertical configurations enter: y^x(C) and *y* on E♭ (the latter being the second element by virtue of duration), then *y* on F♯, and finally, *y* on A—piling up a simultaneity of three sub-complexes in m. 2 (note the weak articulation of G in the dominant on E♭). The "pyramided" entrances of *y* on E♭, F♯, and A are twice repeated; but the C triad (which took the form y^x at No. 42) does not recur in its original vertical form, though it is significant that among the linear triads (*x*) the one on C is timed to replace y^x (in Ex. 10, x^y is the beginning of one of these). Each tritone-related pair (either *y* on E♭ and A, or the combination of y^x with *y* on F♯) inevitably contains the same interval content as the "*Petrouchka* chord," but note in the combination of y^x with *y* on F♯ the similar interval order as well. (Pitch-class content, incidentally, is identical, too.)[14] It should also be noted that the tritone-related triads and/or dominant sevenths, such as are contained in the "*Petrouchka* chord," are not very different from those complexes that are related by the interval of 3 and/or 9. For by simply exchanging, in the "*Petrouchka* chord," the

[14] This is a mild form of a phenomenon that may be observed again and again in much more noticeable fashion in Stravinsky, as will become apparent from a comparison of the musical examples presented in the course of this discussion: namely, the association of given chordal relations with fixed pitch classes. In this sense, as in many others, Stravinsky is like the old masters who, as has often been remarked, for each key had their special way of writing. Thus Mozart, for example, had his "E-flat" manner or style, and this was different from his "C-major" style, etc.

F♯ for an E♭, we derive a configuration whose sub-complexes are the dominant sevenths on C and E♭—all of which is nothing but a function of the diminished seventh that is the common pitch-class source for the chord roots that define the other diminished seventh encompassed by the octatonic scale.

If, from Ex. 10, the interval content of any two transpositions with adjacent roots (i.e. related by the interval of 3 semitones) is extracted out of the four available ones, the tritone-related triads are no longer present, but it follows from what has been just said, that there will still remain a substantial degree of interval content in common with the "*Petrouchka* chord"; and if, moreover, the amount of timbral differentiation that was present in the passage from *Sacre* is reduced to a minimum in the articulation of these two triads as sub-complexes in a larger configuration, common interval content will then be supplemented by another common factor: the special timbral consistence of the famous "chord." From all this, a family resemblance should result—as may be observed in the configuration of brief duration in *Dumbarton Oaks*:



Ex. 11

where, when the elements are apprehended as a whole, the typical Stravinskyan "accordion"-effect, much retarded, but belonging to the same general class as the "*Petrouchka* chord," will be recognized by anyone who does not take the analogy too literally. With sufficient confidence, therefore, it may be said that what passes for one of the most peculiarly Stravinskyan "sounds," rises out of the octatonic scale.

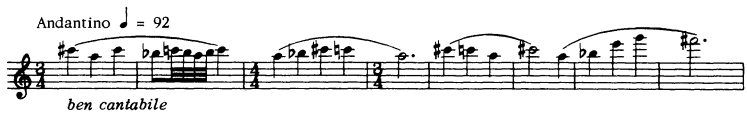
Detailed analysis of this excerpt, to be sure, reveals the subtleties of differentiation to which the referential relationships lend themselves, and it becomes apparent that, in compensation for absence of marked timbral differentiation, the longer durations on the alternate beats dwell separately on each dominant seventh: first, the one on A♭, then the one on F. This phenomenon, of course, is simply a product of the different intersections of the stationary element (A♭-A-C) and the vertical dyads in the flute and clarinet lines; and in this process, according to conventional interpretation, A♭ and A each assume the opposite roles of "chord tone" and "non-chord tone"—roles that they reverse when the intersection changes.

Whereas *Jeu de rapt* delineated two diminished sevenths—one formed by the dominant-seventh roots and the other formed by the common pitch-class content source of the dominant sevenths—only the second type is evident here, demarcated by the octave-doubled C in terms of which the elements of the diminished seventh are clearly apprehended as agents of the four-part partition. But the diminished seventh seems to me, in significance, to be secondary to the trichordal stationary element which is capable of providing a modest exemplification of a useful compositional procedure, the preserved consistencies of which it would be profitable for us to follow within contexts referable to the octatonic scale.

The nature of these manifestations becomes apparent from a correlation of the stationary trichord a♭-A-C with a trichord formed from elements of the combined dyads: E♭-f-G♭. In each trichord the common intervals (the semitone and 3 semitones) are in a different arrangement. Or if it is assumed that the somehow "disembodied" intervals constitute a "basic cell," then they may be said to have undergone "transformation." Now, since each conjunct partition of the octatonic scale contains the intervals of 1 and 3, the scale is singularly adapted to transformation involving these two intervals. Hence when the above-mentioned trichords are conjoined, other transformations will result: f-G♭-a♭; f-a♭-A; G♭-a♭-A.

At the same time, it would be injudicious to ignore the conventional interpretation of "non-chord tone" and "major-minor" when the interval of 3 or 4 is taken as a "fixed" quantity and the semitone as a "movable" one, so that the latter is—to pursue the metaphor of the "disembodied" intervals—like something capable of being "attached" at any of the four possible positions "inside" or "outside" either form of the third (which is sometimes said, as a result, to be "bracketed"). But if somewhere in the background the procedure of transformation exerts any effect at all as an operation in which essentially no single interval has any priority, chances are very good that the implications of such a procedure will insinuate themselves into a context that is either tonal or otherwise centric, with the result that the choice or assertion of the "fixed" interval may be insidiously placed in doubt; and it is thus that there arises in Stravinsky's music another occasion for the pun, different in detail from that of the *Sérénade*, but not altogether dissimilar in intent.

In this regard, the theme with variations from the *Octuor* (Ex. 12) is singularly apropos:



Ex. 12

for here, permutations of four pitches, to which the main linear aspect of the theme is entirely confined through the B♭ of m. 7, horizontalize such transformations as those just discussed. The representation of the scale of *Noces* (p. 20) could serve here, too, and though it cannot be claimed that relations between one work and another are compositionally valid, a study of both contexts enables us to check one against the other to substantiate the A priority. The *Octuor,* to be sure, shares this priority only insofar as the position of A within the linear statement of the melody is concerned, since the simultaneities on the offbeats assert D. The A may thus be said to have "second-order" priority, for, as the dominant segment of D, it both supports and is subservient to D. At No. 39, the second-order is replaced by first-order priority, since the context also asserts A.

The pun this passage was chosen to illustrate involves both A and B♭. Thus, whereas A offers acoustical support to the D minor of the simultaneities, the collection to which the linear statement that gravitates around A is referable has no D at all! Furthermore, the pitch succession of the linear statement is to D minor something like what the passage in Ex. 5 from *Noces* is to B♭ minor—namely, to a certain extent the affinity is purely statistical: as witness, the "irregular" progression of C. The very foundations of A-C♯ as the "fixed interval" are thereby shaken—hence, the irony of B♭, which carries with it implications of the statistical B♭ minor that was rejected in *Noces* but that becomes more compelling here, owing to 1) the fact that the "foreign" E and irregular F♯ are not heard until m. 7; 2) the separate timbral plane of the melody (so that the ear may hear it as something unaffected by the D minor harmony), and 3) a degree of B♭-orientation among the simultaneities. From the viewpoint of a basic cell, B♭-C♯ could be the "fixed" element onto which C and A are variously "attached."

Into the larger context of the D minor, B♭ introduces a doubt, and the doubt is an irresistible excuse for the pun which assumes the form of a susceptibility to the accidental suggestion only to make it immediately apparent that within the octatonic collection it is the A, rather, that has priority. What fleetingly takes place is like that familiar optical illusion, which makes us see checks of a linoleum, alternately with white in relief on black, and black in relief on white. To equate this with "keyshift," "polytonality," and such, is to miss the point, for it is rather, as may be seen below, merely a function of the affinity between the minor and the octatonic scales (Roman numerals denote scale degrees; the sixth degrees of both minor forms are included):

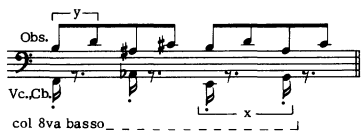
	i	ii	iii	iv	v	vi	vii	viii
	a	B♭	c	D♭	e♭	E	f♯	G
B♭ minor	VII	I	II	III	IV		VI	VI
D minor	V	VI	VII	VII		II		IV

Other ambiguities interpretable mainly in terms of basic cell and/or major-minor are observable in the relation between the melody and chordal accompaniment. For example, D-f-F♯, formed by the indirect relation of the simultaneities of mm. 1-2 with those of m. 3, results from the infiltration of the linear A-c-C♯, or its retrograde inversion, a-B♭-C♯, into the rest of the context.

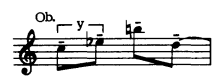
From the frequency with which this interval complex (i.e., 1 and 3) occurs in the *Octuor* it is obvious that the most important determinants of both motivic and structural relationships in Stravinsky's "neoclassic" music were already crystallized in 1923—such determinants, for example, as those that were to invest *Orpheus* twenty-five years later with a special imprint, and in their most familiar form, dominate the *Symphony of Psalms.*

IV

"[T]wo minor thirds joined by a major third":[15] such is the way Stravinsky recently characterized the "double" version of the basic cell as manifested in *Psalms,* from which it is evident that both major-minor and the semitone-related dyads defined the relation in his mind. The arrangement of the four pitch elements is the same as in the *Octuor;* and here once again we encounter the pun, but on a higher structural level, where the "optical illusion" is exploited in such a way that, to pursue the image, both white checks and black checks are alternately validated, each for a substantial period of time. Equating "fixed" with "priority," in the first movement of the *Psalms,* the lower third of the pair may be said to be the "fixed" element (*x* in Ex. 13a); whereas in the C-minor fugue, the relationship is reversed (*y* in Ex. 13b). The motive on B, the supporting fifth (*y* in Ex. 13a) which has second-order priority, anticipates the relationship as it is found in the fugue subject.



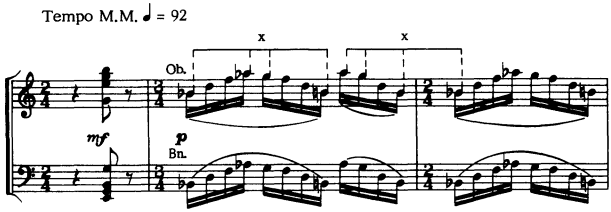
Ex. 13a



Ex. 13b

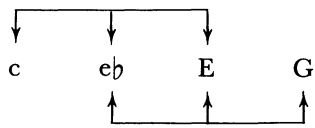
The four-element configuration receives mostly simple motivic treatment in the first movement. Versions of the basic cell like those in mm. 2-3 (e.g. at *x* in Ex. 14), articulated by the extremities of the contours and their directional changes, are rare here. Transformation is much more likely to be found in the last movement, but details of that movement are beyond the scope of the present discussion.

[15] PERSPECTIVES OF NEW MUSIC, Fall, 1962, p. 16.



Ex. 14

The broad structural plan, unifying the main pivots of all three movements, also reveals the influence of the configuration, *qua* basic cell. Taking the main pitch classes of priority, without regard to temporal ordering, they could almost have outlined the motive if E-G-e♭ were followed by G♭. That the tritone-related C, instead, is the other term in this relationship, not only places the whole plan in the category of transformation but has provocative implications as to the significance of the octatonic scale for compositional structure. Among these implications, the presence of supporting fifth is a significant one to which I shall return, but right now let us contemplate the symmetry (absent from the parallel dyads of the motive) created by the two intersecting retrograde-inversionally related trichords:

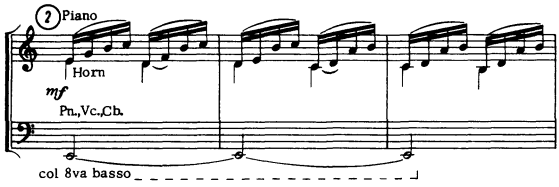


While the basic cell provides the means to circumvent triadic interpretation, it is very doubtful indeed that such interpretation, along with its tonal implications, can be ignored here, especially in view of the fugal statements. Even the first movement, which least calls for such an interpretation, since of all three it is the one where the octatonic scale plays the largest role, cannot readily escape it altogether, dominated as it is by an E-minor triad. True, the celebrated "*Psalms* chord" is like no E-minor triad that was ever known before, but if its uniqueness should be considered by anyone to free it from tonal association, its implications do not; for it is implicated indirectly with the fate of C minor through that special registration that exposes the octave doublings of G in the quasi-mirror arrangement of intervals. Whenever the "*Psalms* chord" punctuates the movement, it not only asserts E priority but prefigures the alternate G priority which will eventually serve as dominant of C minor.

Thus, the "*Psalms* chord" is involved, either directly or indirectly, with all three of the principal structural issues of pitch-class priority with which the first movement is concerned. (E♭ priority does not become an issue until later.) As to these issues themselves in terms of the broad plan of the

present discussion, they are particularly significant inasmuch as they return us by a circuitous route to the white-note scales that occupied us in Part I. The E-, G-, and C-scales, it will be recalled, were precisely those that Stravinsky favored among the orderings available in the white-note collection.

In dealing with these three priorities, let us take them in order by first observing (Ex. 15) the simple expression of those tones that may be referred to the interval ordering that E defines within the white-note collection:



Ex. 15

The white-note collection stated at No. 2 without deviation provides the basis for bringing the G- and C-scales into direct contact with the E-scale in what was described above as a symbiotic relation. Whereas formerly such a symbiotic relation was achieved with either the E- or G-scale vis-à-vis the C-scale, now for the first time we have all three scales at our disposal at once—which should provide optimum conditions for the diatonic exchange. That this result does not obtain, derives from the fact that both the number and character of the terms involved in the symbiotic relation have now been expanded to encompass the octatonic scale, which acts as a catalyst upon the others.

Examination of this symbiotic relation not only reveals more clearly the nature of different referential interval orderings and Stravinsky's reasons for bringing some rather than others into contact with the octatonic scale, but in addition—as another aspect of the same thing—it illuminates the structure defined by the order of intervals in the octatonic scale itself. Further, it even answers questions that may have been bothering the reader in regard to it—such as, in particular, why is the form with the semitone between first and second degrees fundamental?

To this end it will be useful to set up the octatonic scale as a norm against which to measure degrees and types of similitude and differentiation of each ordering, along the lines of what was done above to collate the minor and octatonic scales. Let us imagine the octatonic scale acting as a filter through which only the intersecting elements will pass. Now, as may be seen from comparison of Tables A and B, the results are very different, according to whether the intersecting white-note scales start on odd or even degrees of the octatonic scale.

TABLE A*

	i	ii	iii	iv	v	vi	vii	viii
	e	F	g	A♭	b♭	B	c♯	D
	0	1	3	4	6	7	9	10
C	I			III		V	VI	
D	I		III			V	VI	VII
E	I	II	III			V		VII
F	I			III	IV	V	VI	
G	I			III		V	VI	VII
A	I		III			V		VII
B	I	II	III		V			VII

TABLE B

C	VII	I	II		IV			VI
D		I	II	III	IV			VI
E		I		III	IV		VI	
F	VII	I	II			IV		VI
G		I	II		IV			VI
A		I	II	III	IV		VI	
B		I		III	IV	V	VI	

TABLE C

C	III	IV	V			VIII		II
D	II	III	IV			VI		I
G	VI	VII	I			III		V
E (on G)		VII	I	II	III			V
"A" (on C)		IV	V	VI	VII			II

* (Large Roman numerals refer to white-note scale degrees.)

The results of rotation, inferable from comparison of Tables A and B, concern us mainly where they reveal a reversal of the entries under columns v and vi, so that while the lower tetrachords remain more intact in Table B, the perfect fifths above the pitch classes of priority are "filtered out"—a critical loss in terms of the assertion of nonfunctional tone center, assumed as fundamental to the organizing principle of the music being considered here. In this sense, the scales represented by the intersecting elements in Table B stand hierarchically lower than those in Table A in their relationship to the octatonic scale. Certain qualifications of this statement, however, are in order: (1) the B-scale, by its nature, cannot fulfill (because the diminished fifth is its normal fifth degree) what is here assumed to be Stravinsky's requirements; and since he treats it generally as the usual stepchild that it has long been taken to be, it may

be eliminated altogether; (2) the C- and A-scales, with but four intersecting members in Table A, are at a disadvantage, not only numerically, but because their so-called "pentatonic" arrangement does not fulfill the conditions of the white-note collection with regard to the tritone and the series of fifths mentioned above (p. 18), so that, depending on what is assumed to be their "filtered-out" elements, the C-scale could equally be the F- or G-scale, and the A-scale could be the D or E; and even where this is rectified, in Table B, the absent third of the C-scale leaves room for the possibility of "minor," while the fourth degree of the A-scale is particularly "weighted" by the presence of its associated triad (i.e., B♭-D♭-F).

Since the special value placed on the presence of the fifth in support of the first degree is due to the fact that we are dealing with a system based on pitch-class priority, it follows that every other means for defining this first degree is of primary importance. In this regard, it is immediately striking that the E-scale, under the conditions of intersection of Table A, is the only scale (i.e. satisfying the requirements of supporting fifth) that retains both elements that stand in relation of adjacencies to its first degree. On the other hand, it could be argued that the tetrachords remaining intact in Table B provide significant means for identity, precisely in the environment of any potential tone center. The tetrachord with interval order 2, 1, 2, it could be pointed out, is one that proliferates in manifold folktune-derived motives and melodic fragments throughout Stravinsky's "Russian" period, especially in the compound form that yields the D-scale (cf. *Petrouchka,* Nos. 5, 8, 20, 42, 103, etc., etc.). What could be more natural than a merger of two predilections—the other being his well-known one for the tritone—out of which would issue a new scale: D, e, F, g ; G♯, a♯, B, c♯, two tritone-related tetrachords thus bringing the D-scale into the orbit of the octatonic scale? The answer to this question is fundamental: if such were the case the octatonic scale would suffer a severe loss of identity. Thus, in terms of the important first degree (or of each "accented" element of the disjunct dyads in the normal representation of the scale), the succession of consecutive scale degrees would yield nothing different from any referential ordering of intervals in the familiar white-note vocabulary until the fifth degree were reached—and even this, in terms of Classical practice, could be a so-called "tendency tone." It is the new "rhythm," in the ordering of intervals, that defines the uniqueness of the relations Stravinsky employed: namely, an ordering that gives up its secret, not at the fifth, but at the *fourth* degree, defining a tetrachord whose first and fourth elements are related by the interval of 4 semitones.

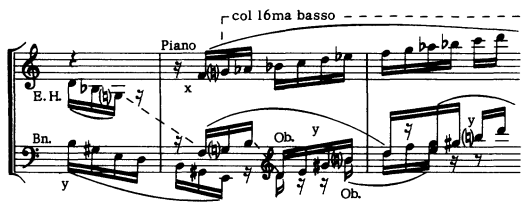
We may now, after this digression, return to *Psalms* and the "minor thirds joined by a major third, the root idea of the whole symphony"; and by the same token, the "root idea" of the octatonic scale, of which this work is an epitome, since in its motive and/or basic cell, as expressed at No. 7 (Ex. 13a), on both B and E, in terms of E priority, there is clear

delineation of the scale's total interval content. The minor thirds define the conjunct symmetrical equal partitions of the octave; and the "major third" defines the tetrachord. And the motive, along with its transposition at the tritone (starting on B in the second and fourth oboes in diminution), yields the scale's total pitch content. The similitude between the octatonic scale and the E-scale, moreover, is such that any statement to the effect that the first movement is in the E-scale, is immediately subject to qualification, since it is almost equally in the octatonic scale.

That this movement is less tonally oriented than the others, is a function of this E priority, whether in the form referable to the white-note collection or not. An important symptom of this function is the absence of the "subdominant," A, from the intersection of the E-scale with the octatonic, subdominant having no structural function here. Stravinsky does, however, make a minimal concession to tonal treatment of E in m. 8, where A, the first deviation from the octatonic collection, brings F♯ in its wake, with the significant effect that nowhere else but here is the "*Psalms* chord" attacked without caesura—thus giving a sense of "E minor cadence," "justified" ostensibly by the liaison, or vice versa. (Compare F♯ followed by F♮ before No. 12, and also m. 10 of the *Concerto per due pianoforti soli.*)

Pursuing the image of the symbiotic relation, let us consider further the E, G, C (priorities) and the octatonic scale's effect on them. Both the E and G priorities will come into contact with C priority, but the relationship will not be established through common pitch-class content, such as we observed much earlier in *Danse Russe,* for example, since the C priority reached will be not that of C major, but that of C minor (of the fugal exposition). Moreover, since the pitch class C is not referable to the collection of the octatonic scale deployed here, that scale will be prevented from being placed in a direct relation with any C priority. (It is also quite significant that E♭, too, is absent from this octatonic collection.) If E priority has potentiality for relating to C minor, such potentiality is a product of the octatonic influence on G priority.

As intermediary, G priority assumes the various characteristics of all the others. For example, just before No. 2, in the piano, there is a linear statement of the E-scale on G (*x* in Ex. 16) in anticipation of the first "pure white" statement of the E-scale.



Ex. 16

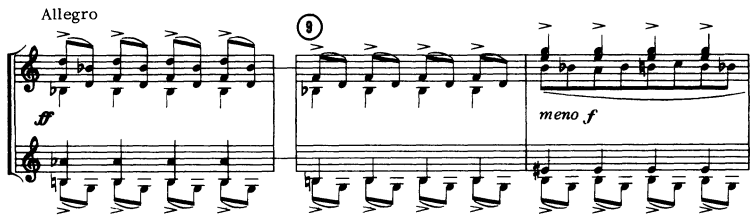
A certain symmetry between E and G here flows out of those by now familiar properties of the octatonic scale, as a result of which G can define the octave partitioning on 3 in terms of E as 0, each one capable of relating to identical interval order and/or content. At the same time, it should be noticed that the present characteristics of G-priority may also be interpreted in relation to C minor, as a linear expression of the pitch content of the A-scale on C (what is called "natural" minor)—compare *E (on G)* and *A (on C)* in Table C.

The chameleon-like behavior imposed in the compositional process on the tones surrounding G whenever it comes into prominence, is adumbrated in the first three measures, where allusion is immediately made to the three main structural pitch classes. (I shall not discuss the usual claims as to the anticipations of E♭ major.) I cannot even begin to defend this statement in available space, but I should like to draw attention to these conditions favoring G: (1) the "*Psalms* chord" predisposing us to it; (2) the change of contour where G follows Ab; (3) G-B in the "chord," returning —this time as a familiar element— after B♭-A♭.

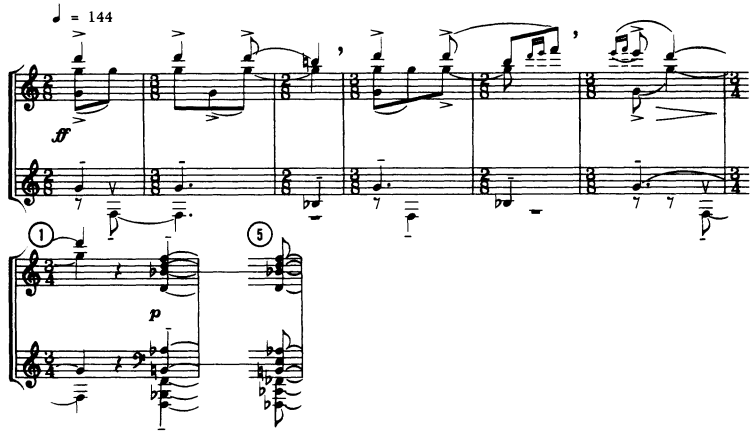
If all this is so interpreted because of the later contextual amplification of the G-relation, it is nonetheless significant that the elements are here already present: e.g. the intersections of the E-scale on G and of the G-scale itself, respectively, with the octatonic scale—see Tables A and C. And the other set of elements that should be mentioned here is the similar intersection of the E-scale itself. (In each of these cases, there are the five intersecting scale degrees observable in the Tables.) While there are other intersections as well, these are the ones concerning us, because in this movement they will be the predominant issues. It will be noted that according to this interpretation, the "harmonic" minor of C results from the further intersection, on a "lower" level, between the E-scale on G and the G-scale.

Though a resemblance to the relationship that obtained among the three dominant sevenths in *Jeu de rapt* (on E♭, F♯, and A) may still be observed, it is obvious that there is less identical interval content here, with E as root of a minor triad, G as root of a dominant seventh in first inversion, and B♭ as root of a dominant seventh in root position. The dominant seventh on E, in woodwinds (*y* in Ex. 16), could, of course, if used at the opening, have restored some of the parallelism. But the composer of *Psalms* avoids such parallelism, much more than the composer of *Sacre.* Thus, a comparison of what are, broadly speaking, the same relations, in four different works—two earlier examples (Ex. 17a and b) with two more recent ones (Ex. 17c and d)—reveals, in the last two, the establishment of the relationship in mm. 1-2 of *Psalms* as a kind of norm—the relative emphasis varying considerably from one work to the other. The

different degrees of—to borrow Edward Cone's concept[16]—"stratification" (that is, the merging of "strata," their intersection, coexistence, separation, etc.) would make a fruitful study in which the comparison, not simply of one work to another, but rather—and far more significantly—of the various parts of the *Psalms* itself, would yield manifold relational fluctuations of such a kind that these degrees could be virtually represented on a graph.

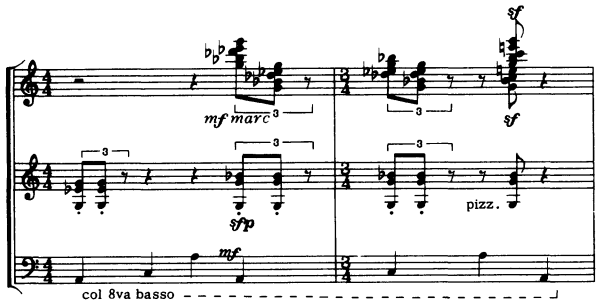


Ex. 17a, "Danse du diable," *Histoire du Soldat*

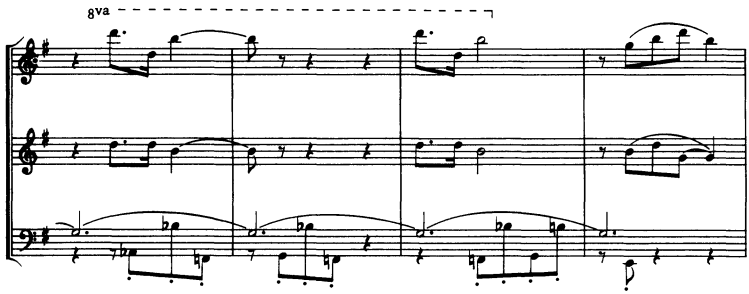


Ex. 17b, *Symphonies of Wind Instruments*

[16] "Stravinsky: The Progress of a Method," PERSPECTIVES OF NEW MUSIC, Fall, 1962, pp. 18-26. Though, as it should be obvious by now, my "harmonic" analysis would be somewhat different from Cone's, I find that the "stratification" approach has possibilities for further development in, so to speak, a "stratification of strata." The various dimensions could be stratified—priority itself, for example—both in themselves and in relationship one to another. It is significant that Cone places Nos. 4-6 on a single stratum, which is appropriate in view of the perseverance of the octatonic scale. A stratification within this stratum or on another level could draw attention to the shift from a stratum for E priority to a stratum for G priority.



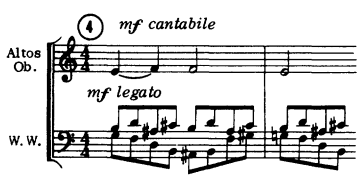
Ex. 17c, Symphony in Three Movements



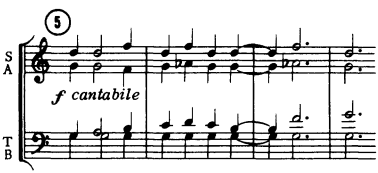
Ex. 17d, *The Rake's Progress,* Act II, Sc. 3

Note that in the earlier examples (17a and b) the entrance of the E (F♭ in the *Symphonies*), which is the first element in *Psalms,* is delayed; while in Ex. 17d it is near at hand but still the last of the elements to be heard. Ex. 17c, the only one of the three in which the relations are transposed (the A corresponds to E of *Psalms*) is otherwise closest to *Psalms* in the temporal order in which the three chords are presented, and in their disposition.

The elements of mm. 1-2 of *Psalms* are encountered again in prolongation at Nos. 4-6, where the octatonic scale perseveres for eleven measures (Exx. 18a and b), which is longer than anywhere else in the work. (There is a notable deviation in the tenors at No. 5—the A, which again tries to upset the octatonic hegemony.)



Ex. 18a



Ex. 18b

Assertion of E priority at No. 4 is followed by a shift to G priority at No. 5, articulated timbrally and by increased density and loudness, though within the ostinato context of pervasive eighth-notes suffused in double-reed sonority, the differentiation is not serious. The implications, by contrast, are very serious, indeed, since this is as close as the music will ever come to the outlining of tones of a dominant of C, such as that at the movement's end. If the fugato had started at No. 6 as the result of a ruthless cut, the approach to it, loosely speaking, would be similar to what it actually is.

Though the movement of F to D (sopranos at Nos. 5-6) does not favor tonal functional interpretation, the vertical B-D-F at No. 6 (Ex. 19) invests this section—retroactively, as it were—with dominant seventh association:

Ex. 19

In this reciprocal relation the simultaneity at No. 6 has the function of a continuation of whatever degree of dominant seventh is, indeed, associated with Nos. 5-6, establishing the conditions for one of Stravinsky's most striking ironies: here, ostensibly within easy reach, is the goal not only of the movement, but of the entire work. Yet, we shall not achieve it now, as long as the "incomplete" dominant seventh is not "resolved." Since, moreover, the "key" implied is that of the referential ordering defined by C within the white-note collection, it may be said, pursuing further this anthropomorphic description of tonal behavior, that the referential ordering defined by E within the white-note collection, "wants to"—insofar as its influence is indirectly exerted here—go to "C major." But C is not referable to the octatonic collection, which repeatedly in the course of the movement exerts its influence against the assertion of the pitch class C.

Confronted with broadly tonal issues such as these, the critical question is, again, where to draw the line between an intervallic, incipiently serial, "non-tonal" interpretation of this music and the tonal bias that obviously governed its conception. To be sure, since there is no "resolution," there is no yielding here to the imperatives of tonal functionality. Furthermore, it is significant that what tonal implications do present themselves are distinctly parenthetical—part of the irony being that the most important issue of the whole composition is tossed off in a little woodwind aside, well-nigh frivolous in this reverent atmosphere. It is also true that the context is typically "neoclassic,"—more precisely,—"neo-Baroque"; so

that the transitory tonal investiture could conceivably be regarded as merely a form of parody, *à la manière de . . .*, of a kind not to be expected from the "Russian" works. But then all at once one may think of the F at No. 46 in *Sacre* which, despite the intervening measures, is similarly related to the octatonic collection at No. 42 as a pitch class not subsumed within the collection—the C-major triad operative since the beginning of *Jeu de rapt* having prepared all along for this goal.

If an adequate theory is to be developed to deal with such relationships as have just been discussed, what attitude should be adopted toward them? Are they actually tonal functional relations or are they "semblances,"[17] and if the latter, in what sense? Surely it is illuminating to approach Stravinsky's music from the angle of the octatonic scale and the basic cell. But Stravinsky, for all his genuine independence and original musical outlook, was born into a generation that had, in a manner of speaking, a "congenital" orientation toward those concepts of "traditional harmony" that are now being questioned.

Consequently, even though an attempt was made here to avoid tonal theory as a norm from which to depart, we found ourselves eventually obliged to confront it as a result of certain potentially tonal interpretations which arose out of what I believe to be the essential nature and significance of the music. The validity of these interpretations, their relation to tonal functionality or, conceivably, their relevance to a functionality of a new order—these are problems that ought to be seriously explored, preferably in a concerted effort. Our ultimate desideratum in doing so should be an approach from the vantage point of contemporary concepts. But it need not follow from this that because music is written today without reference to the postulates of tonality these should not be taken into account when they illuminate structural meaning in such works as those composed by Stravinsky before he undertook the discipline of twelve-tone composition. (That they should be applied to the music he wrote since undertaking that discipline, I am not, however, convinced.) Thus, any residuum or—if such is the case—"semblance" of tonality must be dealt with accordingly, both in the light of our total theoretical knowledge and in the light of interval relationships, whether of the basic cell, independent pitch-class formations, or the diatonic and symmetrical scales. I leave these considerations as a query in the hope that a new branch of theory may someday provide an answer.

[17] I choose this word instead of "resemblance" for the reason that somewhere in back of my mind I have the archaic sense, according to OED, of "an appearance or outward seeming *of* (something which is not actually there or of which the reality is different from its appearance)."