

Excerpts from Anthony Pople, “Messiaen’s Musical Language: an Introduction,” in *The Messiaen Companion* (Faber & Faber, 1995), 15–50.

Of all great composers, Messiaen’s musical character is arguably one of the most clearly defined. The vast majority of his works deal with subjects drawn from nature or Christian theology; most of them are written for ‘organ, piano or orchestra. His melodic invention ranges from the liveliness of ecstatic dance to the serene austerity of plainsong; his rhythms are infused with the freedom of Indian classical music; his harmonies have an abundant and joyous richness, though their place in his music is not calculated for the effect of the moment, as might be said of Wagner, Debussy or Strauss. Yet beside these broad brushstrokes, which depict Messiaen’s musical world with remarkable fullness, stand a number of conundrums that make his position in the history of twentieth-century music considerably more difficult to assess. One may hear echoes or pre-echoes of his style in works by composers as different as Debussy, Skryabin, Ravel, Stravinsky, Gershwin, Jehan Alain, Ohana and Stockhausen, and he is frequently cited as a crucial influence in the establishment of ‘total serialism’ in Europe. Yet his stylistic roots are far from obvious, despite his thorough and conventional Conservatoire training and his long service as a church organist - that most established of musical offices - and he founded no school,¹ though he was a revered teacher numbering some great composers and many fine ones among his pupils.

Language

Music and language were strongly linked in Messiaen’s life from the very beginning. As a boy, he wrote plays before turning to musical composition, and as a young but established composer

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he published a book entitled *Technique de mon langage musical* (1944).² This title nicely reflects a family background in which the techniques of language were continually in focus: his father was an English teacher and translator of Shakespeare, his mother a poet. Perhaps in keeping with this, Messiaen’s music does not use its ‘language’ to narrate, to dramatize, nor even to express, but rather to represent. In some cases, this is because the subject matter is conceived as an eternal truth (as in *Couleurs de la cité céleste*) or as an archetypal natural scene (as in the *Catalogue d’oiseaux*). In many other pieces, the retreat from narrative comes through the presentation of stories such as those of the Nativity or the Resurrection, which have been told so often that their narrative aspect has been entirely dissipated through mythologization. Such stories stand transformed into icons: their language is that of reflection and contemplation; they may be viewed from different angles or aspects (as in the *Vingt regards sur l’Enfant-Jésus*). Messiaen chose not to disentangle their details in such a way as to be able to articulate them more clearly by means of a time-bound, left-to-right exposition. He preferred to reach inside them only so as the better to understand— and therefore to represent—their essence.

This obsession with the eternal was bound to be profoundly subversive in the context of the Western humanist tradition, and particularly so in a musician, since that art had since the Enlightenment, if not since the Renaissance, aspired more and more to the condition of discourse.

As Messiaen's career proceeded, his subversiveness manifested itself through a number of musical techniques, defining his 'language' with increasing clarity through its contrast with that of his predecessors and contemporaries. True, many of these techniques may be seen to have palpable connections with the work of others - and indeed Messiaen did not hesitate to list his sources alongside the hundreds of examples from his own work which illustrate *Technique de mon langage musical*. But the rich brew he created from these ingredients, and the clarity with which it was used to project his view of the world, turned this master of synthesis into one of the twentieth century's great originals.

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Mode

Among Messiaen's earliest works was an organ piece entitled *Esquisse modale* (1927), and though the composer never published it one may see from its title that the idea of modal writing was one of his first technical concerns. He was not alone in this: modality of one kind or another was commonplace in French music of the late nineteenth century, and was central to the technique of composers so apparently diverse in style and sensibility as Faure, Satie and Debussy. The interest in modes among French musicians of this era had much to do with the revival of plainchant in the mid-nineteenth century, which engendered a familiarity with the ancient Greek diatonic modes.³ The improvisation of modal accompaniment to plainsong melodies soon became part of a composer's training at the Paris Conservatoire, transforming theoretical knowledge into the ease and fluency of diatonic modal thought that is so characteristic of Faure's music, and was also to be heard in Messiaen's organ improvisations at La Trinité.

For some composers, the use of modal melodies and harmonies remained associated with a Hellenistic sensibility and a generally classical outlook. This is the case with Satie's famous *Gymnopédies*, for example - their title referring to dances performed by Greek youths. But Messiaen's interest in the non-Western connotations of modes was less fanciful, more genuinely exploratory: he looked to India and the East, where modal improvisation remained the mainstay of traditional music. In his explorations of these cultures he benefited from the scholarship of Maurice Emmanuel, who was his history of music tutor at the Conservatoire - and also from Emmanuel's example as a composer, for it was his *30 chansons bourguignonnes* (1913) which, Messiaen later explained, 'converted [me] to modal music'.⁴ Non-Western modes offered the composer a more varied melodic and harmonic palette than did the modes of plainchant. Messiaen also heard non-diatonic modes in the music of those composers whose harmonic techniques carved out a broad France-Russian axis - among them Debussy, Skryabin and Stravinsky.⁵ Coincidences like this fascinated him.

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One historically important thing that all these modal explorations had in common was that they offered an alternative to the predominant musical force of post-Wagnerian chromatic tonality. Escaping Wagnerism was something dear to the hearts of many French musicians both before and

after the Franco- Prussian war of 1870; but there were also those who followed the example of Cesar Franck in attempting to emulate the German master within the generic constraints of French musical culture. Conventional histories of French music in this period tend to overemphasize the distinction between those who taught or studied at the Conservatoire –who are said to have eschewed Wagnerism – and those who worked in the orbit of Vincent d’Indy at the Schola Cantorum – who are said to have followed the Wagnerian trail, albeit transmuted through Franck's distinctive contributions. In reality there was much traffic of individuals and ideas between the two camps: even Debussy was deeply influenced by Wagnerian models, as Robin Holloway has shown.⁶ Maurice Emmanuel worked in both institutions, and Messiaen himself taught at the Schola Cantorum in the 1930s before returning to the Conservatoire after the Second World War. Messiaen knew much of Wagner’s music as a child,⁷ and the immense impact on him of Debussy’s music came through the crypto-Wagnerian opera *Pelléas et Mélisande* - its score a treasured tenth-birthday gift from his boyhood harmony teacher.⁸ To say that this work was a great influence on Messiaen would be something of an understatement: his writings and recorded conversations show that it remained a musical talisman for him throughout his life.

It is not surprising, then, that Messiaen’s use of modes has none of the ascetic quality that distinguishes a piece like Satie’s *Gymnopédies* from late-Romantic tonal music. Satie’s piece exhibits many of the characteristic features of diatonically modal music: an avoidance of both chromatic dissonance and conventional harmonic progressions, for example, and a tendency towards wandering melodic lines that cadence in unusual ways. The typical features of non-diatonic modal music - and this applies as much to Bartók or Szymanowski as to Messiaen⁹ - are by comparison more positively drawn. The melodies are

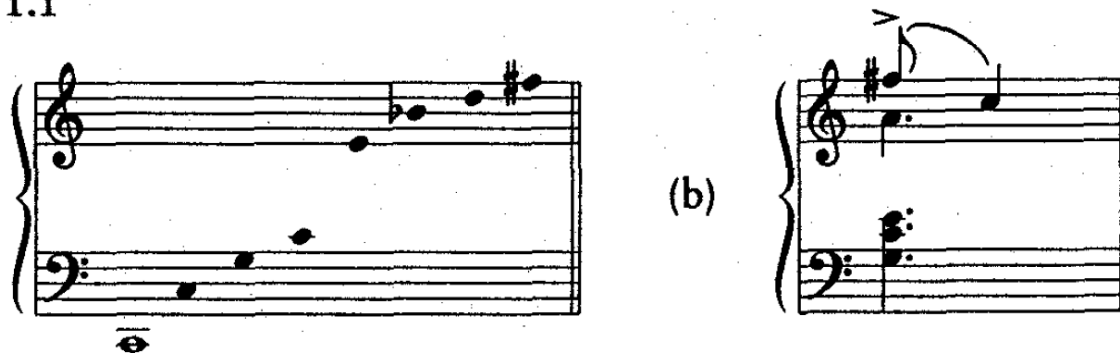
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sharply characterized by recurrent intervals, often those which are but rarely found in diatonic music, and there is a pervasive harmonic ‘atmosphere’, all of this tending to give an aura of exoticism. In both cases, however, the underlying technical reason is the same. Whereas the melodic and harmonic patterns that underlie Romantic tonal music – scale and arpeggio formulae in the melodic lines, ‘functional’ chord progressions in the harmony – have a quality of temporal articulation that contributes strongly to the sense of phrasing, the concept of mode implies far less of this kind. All that is necessary for music to be modal is that it should adhere to the notes of a mode, and, this being so, it is hardly surprising that the most telling characteristic of both diatonic and non-diatonic modal music is a sense of improvisation - whether contemplative or frenetic - within a static atmosphere.

This point is confirmed by the many references in *Technique de mon langage* musical to Marcel Dupré’s *Traité d’improvisation*.¹⁰ Indeed Messiaen’s book, so far as it goes, is quite candid in every respect about the sources of his technique. This in itself seems deliberate, as if he were attempting to show that his music was legitimate and accessible. The factual tone serves to disguise a number of assumptions, however, such as a constant reliance on the overtone series to validate modal and harmonic formulae that might otherwise seem merely contrived. For example, one of his favoured devices of

melodic cadence, the falling tritone, is introduced by the statement that ‘a very fine ear clearly perceives an F[#] in the natural resonance of a low C’ (Ex. I.Ia).¹¹ So far, so good: there is nothing substantive here with which a psychoacoustician would disagree. ‘This F[#]’, Messiaen however continues, ‘is endowed with an attraction toward the C, *which*

I.I



Ex. 1.1

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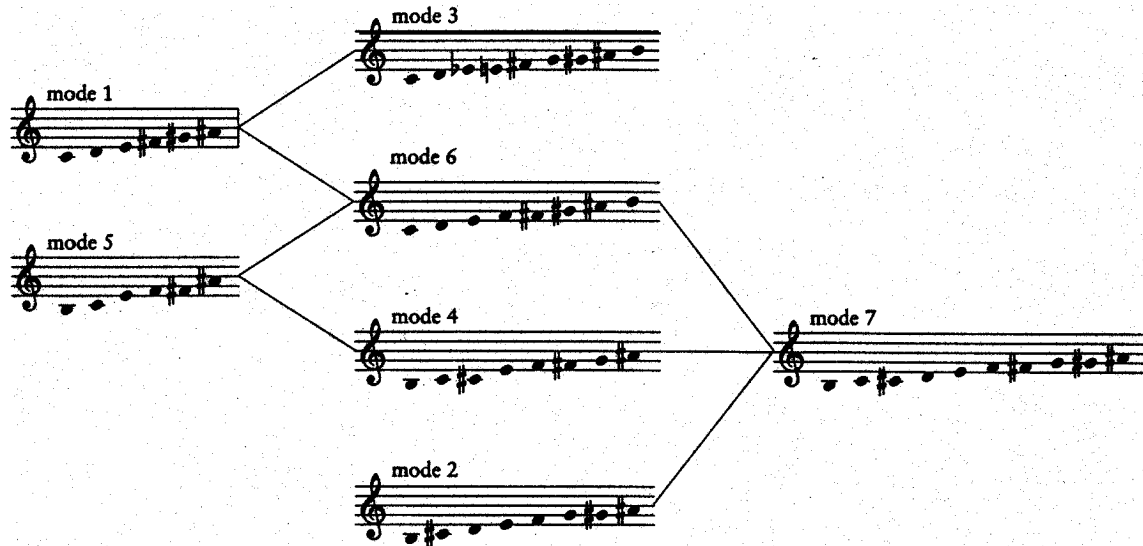
becomes its normal resolution’ (Ex. I.Ib, my italics). This certainly does not follow from the acoustical premise, but it is more useful to examine the underlying reason for Messiaen’s difficulty than to criticize his logic – since, plainly, a composer may use his materials however he chooses. One explanation for Messiaen’s inability to come up with a sounder argument is that, in modal music, the very idea of a ‘normal resolution’ is itself difficult to maintain. This is not to say that modal music cannot proceed through melodic formulae – indeed, Messiaen’s example serves to prove that it can – but rather that the duality of chord and scale, through which in tonal music the idea of ‘resolution’ is defined, is lacking. Whereas in tonal music it is thoroughly established that non-chordal notes normally ‘resolve’ to adjacent chordal notes by downward motion through the associated scale,¹² a mode has neither the linear force of a scale nor an associated set of harmonies. Thus no concept of ‘normal resolution’ within a harmonic context is strictly viable. But having decided to bring the idea of resolution back into his synthesis, Messiaen was of course at liberty to decide for himself just what was normal and what was not.

This sleight of hand is supplemented by a harmonic repertoire which similarly recalls tonal music. In *Technique de mon langage musical*, Messiaen himself explains at some length how his modes can simulate dominant-seventh chords and tonic triads – albeit with many foreign pitches brought into the orbit of these chords by the constitution of the modes themselves. This is as good a place as any, then, to list the seven ‘modes of limited transposition’ which were partially outlined by Messiaen in his preface to *La Nativité du Seigneur* (published in 1936) and more definitively treated in his later book.¹³ They are shown in Ex. 1.2 in a way which indicates their relations to each other:

- i) all six notes of mode 1 are found in both mode 3 (nine notes) and mode 6 (eight notes)

- ii) all six notes of mode 5 are found in both mode 6 and mode 4 (eight notes)
- iii) mode 7 (ten notes) includes modes 6 and 4, and also includes all eight notes of mode 2

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These inclusion relations hold only in the case of certain transpositions of these modes, of course, as shown in Ex. 1.2. But since Messiaen explicitly avoids mode I (the whole-tone scale) - because 'Claude Debussy, in *Pelléas et Mélisande*, and Paul Dukas, in *Ariane et Barbe-bleue*, have made such remarkable use of it that there is nothing more to add',¹⁴ - this table serves to show overall that the most distinctive of the modes he uses are numbers 3, 6, 4 and 2, none of which is closely related to another.¹⁵ Each of the modes comprises a succession of a few intervals which is repeated at least once within the octave span.

It is this feature, combined with the lack of inclusion relations between them, that gives each of these four modes the propensity to generate melodies with a characteristic vocabulary of leaps and scalar motions. The corollary, applicable to all seven modes, is that each mode may only be transposed a few times before repeating itself - as distinct from the diatonic scale, for example, which may appear on any of the twelve available pitch levels.

This is most economically shown with reference to mode 2, which in the Stravinsky literature has come to be known as the octatonic collection, or octatonic scale.¹⁶ Ex. 1.3 shows this mode in successive transpositions beginning on C, C[#], D and E^b. Allowing for the fact that the pitches are notated enharmonically (so that F^b equals E, and so on), it is clear that the fourth transposition contains exactly the same notes as the first. This means that the next transposition (on E) would be synonymous with that on C[#], and so on. In other words, there is only a



Ex. 1.3

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limited number of transpositions of this mode – three in all. This corresponds mathematically with the fact that the mode comprises a succession of intervals – semitone, then whole tone – which is repeated four times within the octave. Three (transpositions) multiplied by four (intervallic cells) gives twelve (notes in the octave). Like coincidences, such simple mathematical truths meant a great deal to Messiaen.

The example Messiaen uses to illustrate how these modes may be aligned with common tonal harmonies is summarized in Ex. 1.4a.¹⁷ The chords on the upper staff within each bar use notes from only a single transposition of mode 2 – Ex. 1.4b shows the transposition used in bar I, Ex. 1.4c shows that used in bar 2, with the notes of the central harmony highlighted in both cases. Perhaps the first thing that stands out here is the enormous extent to which the notes that embellish each chord depart from the F# major scale with which the central harmonic progression would be associated in tonal music. Messiaen lets this go by almost without comment, merely asserting that this ‘modulation of the mode to itself’ happens ‘without the tonality’s giving way’.¹⁸ Secondly, one should recognize that the two transpositions of mode 2 that are heard here could have encompassed a further seven dominant-to-tonic cadences, as shown in Ex. 1.4d, not to mention a vast number of other harmonic progressions involving minor-seventh and half-diminished-seventh chords. And finally, one should consider the layout of the chords on the upper staff: the notes used here are of course in one sense arbitrary, being chosen only as representatives of the modes concerned, for the sake of explanation; but in another sense they are not arbitrary at all – they have been chosen according to Messiaen’s musical sensibility, and are thus revealing of it. What emerges is that the chords on the upper staff are themselves common chords of tonal music – sometimes noted enharmonically – though none is synonymous with the chord it supposedly embellishes.

It is instructive to compare this schematic example, which is indeed typical of Messiaen, with a passage from Stravinsky’s *The Rite of Spring* (1913) that shares so many common features one must be inclined to regard it as a close forebear of Messiaen’s

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(a)

(b)

(c)

(d)

Ex. 1.4

style (Ex. 1.5). Like Messiaen's example, the Stravinsky passage is rooted in a slow-moving progression of common chords decorated by homophonic quaver movement in the upper register. Indeed, the descending upper-voice scales in the second violins (first bar, diatonic), and the woodwinds (fourth and fifth bars, octatonic) recall directly the second bar of Messiaen's example.

But the differences are, if anything, more revealing: Stravinsky's lower woodwind harmonies are not just

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Ex. 1.5 Stravinsky, *The Rite of Spring*

8

fl 1
fl 2
fl 3
b cl
ha

8

fl 1
fl 2
fl 3
b cl
ha

26

8

plain triads and seventh chords, but are themselves richly elaborated with modal notes; and the harmonies in the upper voices, while triadic as in Messiaen, proceed mainly through alternation – only in the last two bars of the passage is a semblance of Messiaen’s parallel stepwise motion through the mode suggested.

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Both Messiaen’s clarification of such modal thought and his tendency to place unadulterated tonal harmonies within the resultant embellishing frame may be seen even in his earliest compositions, such as the seventh of his *Préludes* for piano (1928, Ex. I.6a). The first fourteen bars, and the last eight, of this 3 2-bar miniature are rooted to the spot, in a nine-note mode from which every pitch of the melodic and harmonic material is drawn (Ex. I.6b).²⁰ This mode is actually a variant of mode 2 - it simply has a note added – and is not itself a mode of limited transposition. Like the Stravinsky example discussed above –

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(a) *Lent*

pp *expressif*

(marquez le chant et la voix intérieure)

Ex. 1.6, *Préludes* 7, 'Plainte calme'

28

(b)

and indeed much octatonic music of Russian origin – Messiaen's prelude is dominated by the sound of the dominant-seventh chord, which occurs in mode 2 at four transpositional levels each a minor

third apart.²¹ In the prelude, the detail that confirms this sound as a musical priority occurs in bar 3, where the additional dominant-quality sonority afforded by its ninth modal note (E) is sounded. This is indeed the only harmonic appearance of this note, which is otherwise heard simply as a melodic passing note between E^b and F.

While this gives an illustration of how Messiaen makes play with the sound of common tonal chords in non-diatonic modal surroundings, the next passage in the prelude (bars 15-16, Ex. I.7a) shows him, conversely, using unusual harmonies in a diatonic modal context. Each bar in turn adheres to a single diatonic mode (Ex. I.7b), but the harmonic sonority employed is determinedly unconventional. (Again, it is alternated at a number of transpositional levels, confirming its musical value as a sonority per se.) What is perhaps more surprising still is that the diatonic notes employed in each bar - six of the available seven - also lie within a transposition of the original nine-note mode (see Ex. 1.7c). The result is that the two passages together preserve the modal purity of the composition while affording contrast to the listener through exactly obverse references to tonal norms. ...

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Rhythm

Like his use of modes, Messiaen's rhythmic language was developed from a few simple ideas that could be related to Western practice in order to suggest a synthesis, but whose exoticism remained powerful, and importantly so. Messiaen regarded his rhythmic innovations as his most far-reaching contribution to Western music, which may well turn out to be the judgement of history also; but it was the mere separation of pitch and rhythm – and indeed other musical parameters – rather than any specific rhythmic practices, that was influential in his own time. To some extent, this separation of parameters was implied by the removal from his pitch materials of those factors that had traditionally accomplished the articulation of phrases, for it was then necessary to develop alternative means to deal with rhythm and phrasing. Messiaen found resonances of this approach in the separation of *râga* and *tâla* in Indian music, and also in medieval Western practices such as isorhythm. There is indeed much in Messiaen's music, both technical and otherwise, that confirms him as standing outside the humanist tradition that dates from the Renaissance in Western Europe – though in the twentieth century he could hardly do so without at the same time appearing determinedly individual. Whether he brought the components of his musical language into a genuine synthesis remains a matter for debate, but given his outlook it was perhaps not necessary for him to do so; it was sufficient merely to do the right things consistently and in quantity.

The most fundamental feature of Messiaen's rhythms – some

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8.

2 solo vns 1

4 solo vns 2

3 solo 'as

2 solo vcs

2 solo dbs

p

p

p

p (*presque mf*)

p (*presque mf*)

(sourdine)

p (sourdine)

p

p

Ex. 1.9, Turangalila Symphonie 9, 'Turangalila III'

8

The musical score on page 34 consists of eight staves. The first two staves are in treble clef, the next two are in alto clef, and the last four are in bass clef. The music is in 2/4 time and features complex rhythmic patterns and melodic lines. The score is marked with a '8' at the top left. The notation includes various note values, rests, and dynamic markings.

8

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thing which he found both in Stravinsky's *The Rite of Spring* and in classical Indian rhythms – is that they are ametrical.²⁴

This is not to say that there is no regular pulse. On the contrary, they are always built from multiples of a basic unit but this basic unit is generally faster (by a factor of 2 or 3, say) than the succession of notes that we hear, whereas in most Western music the notes either move more or less with the pulse, or are at least clearly placed in relation to it. Ex. 1.10, from Messiaen's *Quatuor pour la fin du temps*, illustrates the opposite tendency, where the constant semiquaver pulse is comparatively obscure to the ear, although every note in the passage is a simple multiple of it. Instead, the ear hears a succession of pulses, varying in length between four and eight semiquavers (these are bracketed below the example), which alternate in a fluid succession. Furthermore, whereas classical Western music tends to fall not only into metres but into hypermetres - larger, but still regular periods²⁵ – Messiaen's phrase cannot do so, since it is irregular at even the most immediate level of rhythmic structure.

Rhythms of the kind exemplified by the extract from Messiaen's *Quatuor* are often described as additive: this refers principally to the manner in which small units are put together by the accretion of notes based on a common underlying unit, so that a group that is five semiquavers in length, for

example, may be constructed as 2 + 2 + 1 (quaver-quaver-semiquaver). The first rhythmic technique that Messiaen identifies in *Technique de*



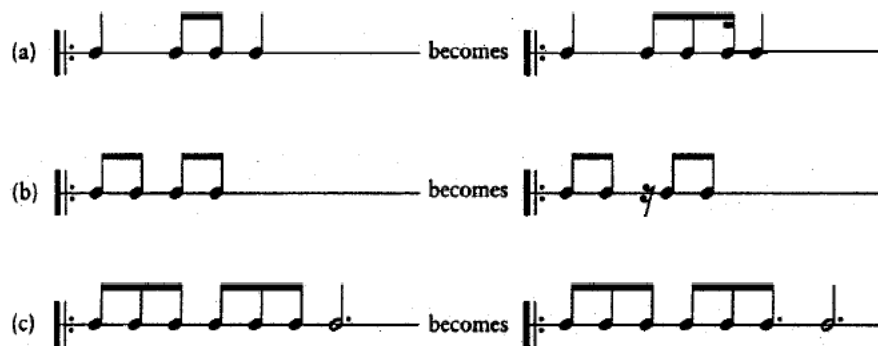
EX. 1.10 *Quatuor pour la fin du temps* 6 'Danse de la fureur, pour les sept trompettes'

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mon langage musical makes this additive principle explicit. The 'added value' is conceived as a way of irregularizing regular patterns: it can be an extra note (Ex. 1.11a), an interpolated rest (Ex. 1.11 b), or a lengthening of a single note within a pattern (Ex. 1.11a c).²⁶ Of course, not just any extra note, rest, or lengthening will do. It is important to note that the added value in each case is calculated to knock the rhythmic pattern from the realm of Western (hyper-)metrical music into Messiaen's ametrical style. The way in which it is calculated is quite clearly shown in Ex. 1.11a: the pulse in these examples starts out in the first two cases as a crotchet, in the third case as a dotted crotchet; the added value is a semiquaver, turning a four-semiquaver unit into one of five (Exx. 1.11a a, 1.11a b) or a six-semiquaver unit into one of seven (Ex. 1.11c). The resulting rhythms can no longer be assimilated into a metre.

It is no coincidence that the lengths of both these units – five and seven semiquavers – are measured by prime numbers.

Although it is of course possible to write metrical and indeed hypermetrical music using such units, simply by repeating them (as Hoist did in the relentless 5/4 of 'Mars' in *The Planets*), Messiaen's constant mixture of units makes a literally metrical perception impossible, as there can be no common divisor between a unit of prime length and its subdivisible - or other prime - neighbours. A group of five will never combine metrically with an adjacent group of three, four, six or seven, for example. Prime numbers, applied in this way, constitute another



Ex. 1.11

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Of those simple phenomena of nature that were especially prizes by Messiaen. ...

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Magic

The 'charm of impossibilities' indeed holds the key to Messiaen's sensibility. Conceived as a self-sufficient guarantee of musical value, it confirms his general fascination with things magical, which also lies behind his emphasis on the mystical and the miraculous in Christian epic. It is this quality of magic that links the further elements of Messiaen's music with the materials and methods discussed in *Technique de mon langage musical*, which do not, of course, tell the whole story, even in respect of the works composed up to that time. No less characteristic are his use of harmony, orchestration and resonance interchangeably to suggest visual colours,³² his direct use of ciphers and number symbolism to encode theological ideas, his use of extremes of tempo, such as the desperately slow $\text{♩} = 13$ (notated as $\text{♩} = 52$) of *Le banquet céleste*, and his use of cyclic repetitions of pitch patterns or rhythmic units. ...

Notes

1. This is not to overlook Messiaen's membership of the group *La Jeune France*, established in 1936. However, theirs was a loose association which was barely established before the Second World War interrupted French musical life. The composers involved - Messiaen, Andre Jolivet, Daniel-Lesur and Yves Baudrier - had little in common stylistically, though a

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number of Daniel-Lesur's pupils went on to compose music which recalls Messiaen's harmonic and coloristic sensibility.

2. Olivier Messiaen: *Technique de mon langage musical*, 2 volumes (Paris, Leduc, 1944). Volume I, translated by John Satterfield as *The Technique of My Musical Language* (Paris, Leduc, 1956). Volume 2 consists of music examples, drawn principally from Messiaen's own compositions.
3. It was symptomatic that the revival of religious music was the express aim of those who founded the Schola Cantorum in Paris in 1894.
4. Messiaen: 'Maurice Emmanuel: ses "trente chansons bourguignomes"' , *Revue musicale*, 206 (1947), p. 108, cited in P. Griffiths: *Olivier Messiaen and the Music of Time* (London, Faber and Faber 1985), pp. 26-7.
5. See Richard S. Parks: *The Music of Claude Debussy* (New Haven, Yale University Press, 1989); Manfred Kelkel: *Alexandre Scriabine: sa vie, l'ésotérisme et le langage musical dans son oeuvre* (Paris, Champion, 1978); Pieter C. van den Toorn: *The Music of Igor Stravinsky* (New Haven, Yale University Press, 1983).
6. Robin Holloway: *Debussy and Wagner* (London, Eulenburg, 1979).
7. Claude Samuel: *Entretiens avec Olivier Messiaen* (Paris, Belfond, 1967); translated by Felix Aprahamian as *Conversations with Oliver Messiaen* (London, Stainer & Bell, 1976), pp. 67-8.
8. *Ibid.*, p. 69.
9. See Malcolm Gillies: *Notation and Tonal Structure in Bartók's Later Works* (New York, Garland, 1989); Ann K. McNamee: 'Bitonality, Mode, and Interval in the Music of Karol Szymanowski', *Journal of Music Theory*, 29/i (1985), pp. 61-84.
10. Marcel Dupré: *Traité d'improvisation* [vol. 2 of *Cours complet d'improvisation d l'orgue*] (Paris, Leduc, 1926).
11. Messiaen, *The Technique of My Musical Language*, vol. I, p. 31; vol. 2, Exx. 70-1.
12. A distinction is normally observed between 'diatonic' dissonances, which resolve by motion through a diatonic scale, and 'chromatic' dissonances, which resolve by chromatic motion.
13. Messiaen, *The Technique of My Musical Language* vol. I, pp. 58-62; vol. 2, Exx. 3 12-57.
14. *Ibid.*, vol. I, p. 59.
15. This point is also made by Rosemary Walker ('Modes and Pitch-Class Sets in Messiaen: A Brief Discussion of "Premiere communion de la Vierge"' , *Music Analysis*, 8 (1989), pp. I 59-68). Messiaen himself makes it clear that mode 5 is of little consequence. (*The Technique of My Musical Language*, vol. I, p. 62).
16. See especially Arthur Berger: 'Problems of Pitch Organization in Stravinsky', in Benjamin Boretz and Edward T. Cone (eds), *Perspectives on Schoenberg and Stravinsky* (New York, Norton, 1972), pp. 123-54; P. C. van den Toorn, op. cit.

17. Messiaen, *The Technique of My Musical Language* vol. 2, Ex. 366.

18. *Ibid.*, vol. I, p. 65.

19. On a broader level, one ought not to overlook how both the slow descent

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in the first violins and the ascending motion in the bass follow the scale of D major - this ordered diatonic mode interacting differently from bar to bar with the local diatonic and other modes that fall within the scope of the phrase.

20. Modes illustrated schematically in this chapter are set out on the page as if they were ascending scales. This is merely a convenience, however, and it is important to bear in mind that the sense of melodic progression inherent in a modal conception is far less fixed than the scalar presentation might seem to imply. The fluid melodic contour of Messiaen's prelude affords a good illustration of this point.

21. See P. C. van den Toorn, *op. cit.*, pp. I 3-15 et passim.

24. Messiaen, *The Technique of My Musical Language*, vol. I, pp. 14.

25. An influential treatment of this phenomenon may be found in Fred Lerdahl and Ray Jackendoff: *A Generative Theory of Tonal Music* (Cambridge, MA, MIT Press, 1983), pp. 12-30.

26. Messiaen, *The Technique of My Musical Language*, vol. I, p. 16; vol. 2, Exx. 6-9.

32. See Jonathan Bernard's contribution to this volume, pp. 203-19.