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***Rose, lis* Revisited**

Daniel Leech-Wilkinson

Analysis and History

A proposal that surfaced briefly some years ago, to update and expand certain articles from the journal *Music Analysis*, made it seem interesting for a moment to think about reworking a study I published there in 1984 on Machaut's rondeau *Rose, lis* (R10).[1] The justification for this solipsistic exercise was simply that permission to copy the original article was surprisingly often requested of the publisher. I suppose the reason for this odd statistic – for it was hardly standard *Music Analysis* fare – was that there was for a time relatively little else, and perhaps too that the article had a polemical tone that made it useful in class (if only to knock down). The article had two main themes, one that analysis of medieval music was necessarily and legitimately concerned with 'our' perceptions, not simply 'theirs', the other that an analytical approach directed at distinguishing between decoration and contrapuntal structure was one that worked well for this kind of music. In making those points it rode roughshod (I now think) over others, including the undying fascination, that no amount of polemic or reasoned argument will erase, with the attempt to find out how it was 'then', and also the evident fact (which I suppose belongs with the same view) that at least one of the voices was composed later and that this might reasonably have a bearing on one's reading of the way the piece worked.[2] Revisiting the study would offer an opportunity to look rather more sympathetically at these and other issues that had previously been given too little weight. The project never got off the ground, but the idea of returning to *Rose, lis* (R10) one day, and perhaps using it as a yardstick for changing views of Machaut, persisted at the back of my mind.

In the meantime a great deal has happened in Machaut analysis. In 1984 it barely existed as a sensible proposition, let alone a field of research. That analysis could shed any useful light on Machaut's music (or any other early music) was unclear. Similarly – and it seemed obvious at the time that these two attitudes were related – there was widespread doubt that Machaut, or any other medieval composer, was [250:] composing music in a way that would justify our considering a piece as a deliberately shaped whole (which is what analysis was then understood to be there to show). Even the proposition that Machaut really did know what he was writing was by no means

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[1] D. Leech-Wilkinson, "Machaut's *Rose, lis* and the Problem of Early Music Analysis," *Music Analysis* 3 (1984): 9-28.

[2] To be more specific: although the graphic analysis is reasonably well behaved in this respect, I think much more could have been made of the separability of the Triplum to moderate the rather extreme view of simultaneous or successive composition offered in the text. At the time the possibility of simultaneous conception was badly in need of rehabilitation; but now one could (and ought to) be much more sensitive to the interrelatedness of the horizontal and vertical in medieval polyphony.

universally accepted, as one could see from plenty of earlier literature on the subject, and as one learned in conversation with Machaut scholars who seriously doubted many of the technical dissonances that so characterized his work, suspecting that they might well be scribal errors. Over the years analysis has done a lot to put those views to rest and to increase our respect for Machaut's command of his musical materials. One of the achievements of analysis has certainly been to make it normal, no longer suspect, to admire one of Machaut's musical works in print. It is hard to remember now that a quarter of a century ago we simply did not know whether to think that he was a fine composer or just a prolific one. There is much less doubt about that now. Perhaps the most significant achievement of Machaut analysis – and it is principally Sarah Fuller's – has been to show that the layering of decoration over structure is a fundamental technique of Machaut's and all late-medieval composers. To demonstrate that using reductional analysis in the early 80s was heretical, anachronistic, misconceived, and so on. But now it is taken for granted, even in the most historicist circles: that is how the music works, how it relates to its theoretical context, and how it was taught as the decoration of a simple contrapuntal structure. One has to work quite hard to recall how dubious that seemed until quite recently.

Analysis, then, has transformed our view of Machaut and other medieval composers. Reductional analysis played a crucial part in this, and it has done so because it can be made to seem historical. *Contrapunctus* teaching explains compositions as decorated contrapuntal structures. From there it is only a small step to seeing finished compositions as reducible back to a *contrapunctus*. In fact that is exactly what one medieval theorist suggests: Petrus dictus Palma Ociosa's definition of decorated counterpoint is this:

> Flowers of measured music are so called when several pitches or notes, which is the same thing, notated variously according to one and the same quality, may be reduced to a single pitch or simple note containing the full quantit y of those pitches in just proportion.[3]

So it is easy to accept reductional analysis even while believing that analysis must proceed in terms a medieval musician would understand. And that belief has never been seriously eroded. In that respect my 1984 polemic signally failed to achieve its objective. Despite developments in other branches of the humanities, including medieval studies in literature, medieval studies in music – at least in the Anglo-Saxon world – are still largely devoted to a belief in the possibility of recovering the past as it was. Indeed, if anything, attitudes have been hardening recently. I am thinking particularly of Margaret Bent's recent article which speaks of 'valid' and 'invalid' approaches to analysis in a way that clearly shows that for her there are moral obligations on analysts to work 'historically' – 'pre-conditions' as she calls [251:]

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[3] 'Dicunt enim flores musicae mensurabilis, quando plures voces seu notulae, quod idem est, diversimode figuratae secundum uniuscuiusque qualitatem ad unarn vocem seu notulam simplicem tantum quantitatem illarum vocum continentem iusta proportione reducuntur.' (J. Wolf, "Ein Beitrag zur Diskantlehre des 14. Jahrhunderts," *Sammelbände der Internationalen Musikgesellschaft* 15 (1913–14): 504–34 [516–17].)

them.[4] From this point of view, abiding by medieval modes of musical thought is an essential qualification for scholarship in the field.

One may accept that or not. If one does, there remains the problem of knowing for certain in enough detail what those modes of thought were at a time and place relevant to the music in question. There may be underlying principles that remain consistent, for example through the fourteenth century, but how were they followed in practice? What do contradictions between teaching and surviving music mean: did someone make a mistake, or have we failed to understand? One has to take a view on these questions and argue it. If, on the other hand, one rejects this insistence on a purely historical approach to the music, it may be for any number of reasons. One may doubt the possibility of knowing adequately what a medieval view was, while still regarding its recovery as desirable; or one may argue variously in a direction whose end-point is the impossibility of unmediated perception; or one may object on political grounds that the very notion of insisting that only one approach leads to valid work is unacceptably authoritarian. And so on. The view for which I argued in 1984 was a pragmatic selection of arguments from the second and third of those options pointing towards what one might metaphorically call the 'Schoenberg is Dead' conclusion. That is to say that whatever kind of moral obligation you might feel we should have to the past, the fact remains that Machaut is dead and has been for over 600 years; we cannot owe him anything anymore. The only issue of any interest is what the music means to us. One can confine that meaning within a rigorous attempt at a historically constrained view if one so chooses; but one can choose not to, and there is no way to show that one choice is right and the other wrong.

Fundamentally, then, the question to ask before deciding on an approach is not 'what is right?' but rather 'what is interesting?', and the answer inevitably depends on an interaction of personal and period concerns that change, often radically, over time. Revisiting Machaut's *Rose, lis* (R10) after more than sixteen years, therefore, I find myself less persuaded by the analysis – where my interests have changed – than by the polemical argument, which I still largely accept; and so revisiting the song itself for this chapter I find that far from wanting to pursue a more historicist approach to the piece, I should like to offer a new way of studying how it sounds today. Because I remain interested in how Machaut conceived his music and how he heard it – while admitting that we can never know these things – I shall try to suggest that some of the things I am finding through this analysis are things that he also could have perceived. But I cannot prove that, and it is not essential to the validity of my analysis; by which I mean it is not fundamental to its usefulness today. The analysis has the same value (greater or lesser), regardless of whether Machaut would have understood it or agreed with it. My overriding concern and obligation is its interest for us.

Analysis and Performance

What I want to analyse is the sound of *Rose, lis* (R10). The sound of Machaut' s music, as heard by him and his contemporaries, is, above all, the thing that cannot [252:] be known. We have some words and some notes written down in the fourteenth century,

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[4] M. Bent, "The Grammar of Early Music: Preconditions for Analysis," in *Tonal Structures in Early Music*, edited by Cristle Collins Judd (New York & London: Garland, 1998), 15–59.

but the *quality* of their sound, either as imagined or as experienced *then*, we can never know. We can read them, or sing them, making what we can of the I materials that survive. But we cannot hear them as they were. Of course it would be wonderful if we could. Anyone interested in this music would love to know how it really sounded in the fourteenth century, and were there a way of finding out, few of us – even the most critically progressive – would look the other way. But we shall never know. Many believe that we have come closer, in the last generation, to understanding something of medieval performance practice. The *a cappella* hypothesis, over the last twenty years, has established itself firmly on the basis of documentary evidence and has gone on to produce a large number of wonderful performances that have transformed our hearing of this music. And it is reasonable to argue that the evidence for it is stronger than it was for the much older, and still widely followed voices-and-instruments hypothesis (though of course new evidence could turn that position on its head). But the decision to sing this music takes us, at most, only one step towards the sound of medieval song. The quality of that sound remains way out of reach. Christopher Page has argued recently that the concern of medieval theorists with accuracy of tuning suggests that the sound of medieval singing was very focused and lacked any vibrato, so that minute inaccuracies in tuning could be heard and corrected.[5] Page's ability to tease out ever more precise evidence from medieval writings is unequalled today, and is continually fascinating. Yet there are so many different kinds of sound that can be made by voices that even with these sorts of insights I do not believe that we can possibly feel confident that we have recovered, or ever will recover, even by accident, a style of singing (or playing) that would have been current in the Middle Ages.

In concentrating on the sound of Machaut's songs I want to get away from the question of how his music works in theory or on paper; instead, I want to start to look for an analytical approach that deals with sounds – with real sounds, not the abstract imaginary sounds that we hear in our heads as we read the notes that are written down. The raw material, therefore, will not be the notation but performances. Performances have been allowed almost no place, as yet, in the scholarly study of medieval music. Because performances cannot be historically correct they have been set aside as necessarily outside the bounds of scholarship, interesting, but unreliable. But of course this is to make that same insidious mapping of 'historical' onto 'scholarly' that I have already questioned. We tend to overlook that fact that music has this same problem built into it regardless of the period in which a performance takes place. For what a performer is doing, even a medieval performer, is turning back into sound something that was conceived and composed as sound, but then had to be cut down to a bare outline in order to be notated. The notation is not the piece, but only a set of incomplete instructions with which a performer can attempt to recreate the piece. It will not be the same piece obviously, but everyone knows that; the composer, performers and listeners accept that as part of the [253:] unspoken contract between them.[6] Consequently a

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[5] C. Page, "Polyphony before 1400," in *Performance Practice: Music before 1600*, edited by Howard Mayer Brown and Stanley Sadie (London: Macmillan, 1989), 79-104; see also C. Page, "Going Beyond the Limits: Experiments with Vocalization in the French Chanson, 1340-1440," *Early Music* 20 (1992): 447–59.

[6] For a particularly clear statement of the notating—performing—receiving process, and the discontinuities inherent in it, see E. Narmour, "On the Relationship of Analytical Theory to Performance and Interpretation," in *Explorations in Music, the Arts, and Ideas*, edited by Eugene Narmour and Ruth A.

performance is the piece in the fullest form in which it ever exists. Besides which, as I hope to show, a modern performance may contain more evidence of Machaut's sense of sound than we might suppose.

Analysis of Performance

What we need to start to do, then, is to find ways of studying this music as sound. It will not be Machaut's sound, but to let that stop us is to abandon any hope of understanding anything significant about it. This is where we have to start to think new thoughts. Studying music as sound has barely been considered for any period as yet, and we have to start to think about what it might mean. It could mean studying acoustic properties of sound, and there are various ways of doing that. It could mean something much more closely linked to existing analysis, but with elements from the study of music perception. For example: How do these intertwining lines and the directed sonorities they form and the sounds of the words they set engage and occupy our minds? How do those special moments that stand out so strikingly in Machaut above all composers of his time work with their contexts and our with expectations to surprise and delight us? And then in turn, how can we perform this music in such a way as to maximize that delight at every moment? These seem to be much more general questions but they require a much more detailed and complex investigation than any we have attempted so far.

But I should like to start, because one has to start somewhere and this seems only a little bit beyond our current reach, with some more specific questions about the sonic ingredients of Machaut's song settings, questions about the way he uses vowels and musical sonorities. For example, how does he arrange and play with different qualities of vowel sound? Does 'i', as in 'rose lis', behave differently within the text or in relation to the music than the more complex vowel in 'fleur'? Do we perceive these very different sounds as having a function apart from the meaning of the words in which they belong? Similarly, does the sonority stretching though bb. 2–3 (Figure 17.1) have a quality different from the sonority that begins b. 5, and do we perceive it as having a function apart from its contrapuntal role as dissonance or partial resolution within a phrase? Do the qualities or functions of these text and musical sounds have any interrelation? First I think it is important to realize that there is no need to distinguish text and musical sounds as functionally of different kinds, at least on the level on which I want to work. They are all sounds and have the same status within the sounding whole at this stage in the discussion. Later we may wish to argue that they function with different weights, one kind of sound doing more to shape our perceptions of the whole than another. But for now let us regard the sounds of the text and the sounds of the music as equally interesting and potentially equally important in shaping the whole.

[254:]

Solie (Stuyvesant, NY: Pendragon Press, 1988), 317–40 (318), quoted with useful context in J. Dunsby, *Performing Music: Shared Concerns* (Oxford: Oxford University Press, 1995), 51–2.

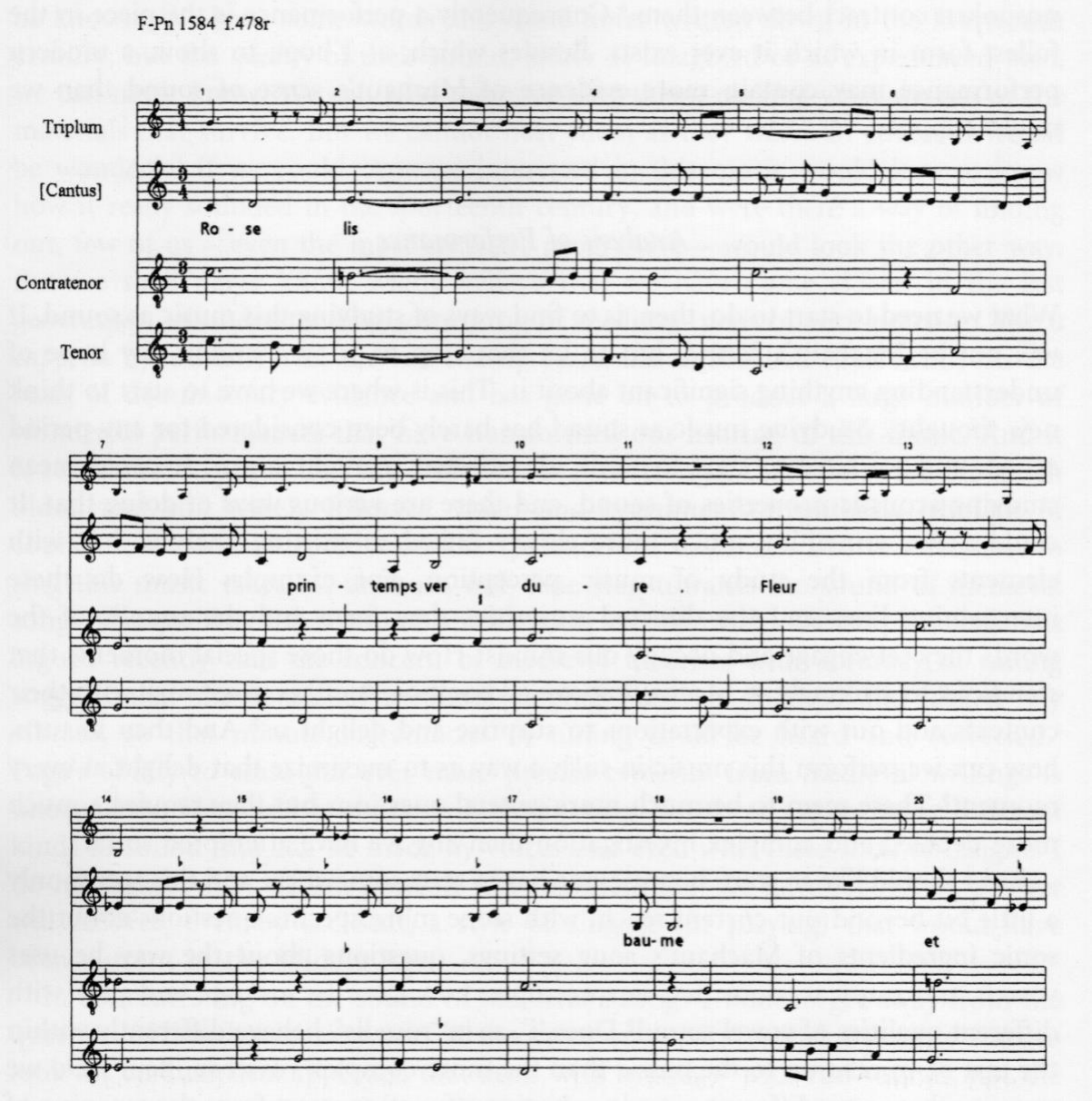

Figure 17.1: Machaut, *Rose, lis* (R10) in modern notation

Answering these questions is difficult only because we do not normally think about sounds in songs in these terms, and our attention as casual listeners is not deliberately directed to them by our training. When we listen to the first phrase of *Rose, lis* we generally concentrate our listening on the tune and the harmony that goes with it. In a three-part performance that is very easy to do; with all four parts it is a little trickier, because the tune is not always on top. The four-voice version is useful (in this context) for this reason, that it divides our attention, taking a bit of it away from the tune/accompaniment model, and tempting us to hear tune and top voice, at least, as separate but more nearly equal. The extent to which that happens depends on other factors, of course, on our willingness to try it rather than just to listen to the highest pitch all the time, and on the performance. In the four-part performance issued on disc by Gothic Voices in 1983 all four voices are texted, so it is not so easy to pick out the cantus, which is the only voice texted in the manuscripts, from the triplum, which is

mainly but not always on top. Attempting to distinguish the cantus in this recording is a useful test of our ability to hear [255:]

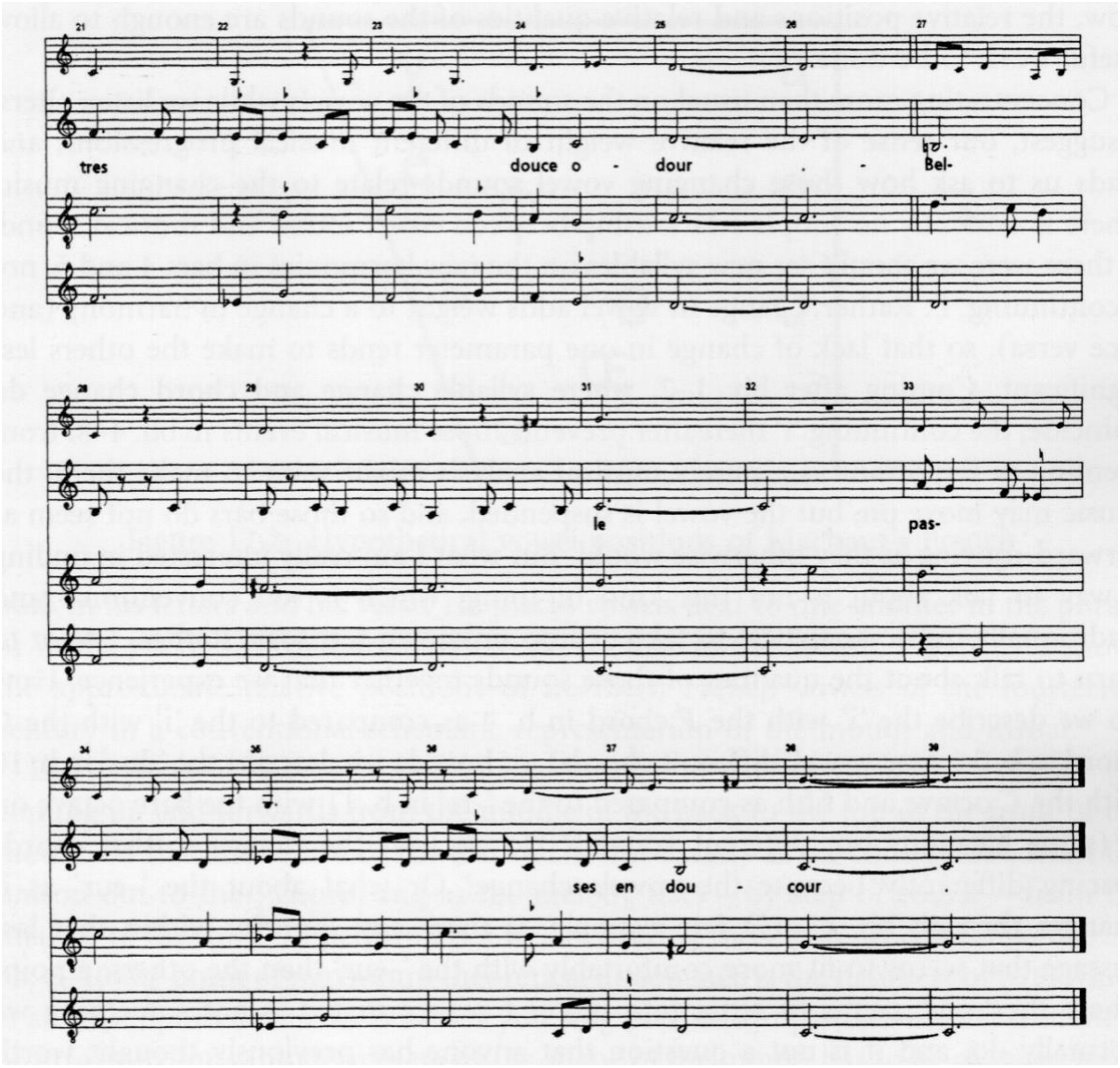

Figure 17.1 (cont .)

counterpoint in a linear way rather than as a whole, but for the purposes of this study it is just an exercise. The question I want to focus on for a moment is how we hear the text sounds in that phrase within the whole. To answer this the full texting helps, because the syllables are sung more or less simultaneously by all four people. I would ask readers with the recording to hand to listen to the first phrase of *Rose, lis* (bb. 1–12) concentrating as far as possible on the vowels:[7]

Ro- se- - lis - - - - - - - - - - - - - - - - - prin- - temps ver- - du- - - re
[ɔ] [ɸ] [i] [i] [a] [ɛ] [y] [ɸ]

[7] *The Mirror of Narcissus: Songs by Guillaume de Machaut*, Gothic Voices, dir. Christopher Page, recorded April 1983. Issued on LP as Hyperion A 66087 in 1983 (side 2, band 3); reissued on CD as CDA 66087 in 1987 (track 9). The observations that follow, however, are based on a live performance of the three-voice version (that is, without the triplum), again texted in all voices. (See note 9 below.)

The vowels shown here (using the International Phonetic Alphabet) are those sung by Gothic Voices, derived from Middle French. I should perhaps add that recovering Machaut's exact pronunciation is not essential to the process, though it would be nice (and the early music revival has produced far more practical material on early pronunciations than any other area of medieval studies). But for [256:] now, the relative positions and relative qualities of the sounds are enough to allow useful work to be done.

Concentrating more than usual on the sounds of the vowels while we listen alters, I suggest, our sense of the relative weight of different musical progressions, and leads us to ask how those changing vowel sounds relate to the changing music. There is evidently no simple relationship between vowel sound and musical sound. If there were we should see new syllables on the new harmonies in bars 4 and 5, not a continuing 'i'. Rather, change in vowel adds weight to a change in harmony (and vice versa), so that lack of change in one parameter tends to make the others less significant. Coming after bb. 1–2, where syllable change and chord change do coincide, the continuing 'i' thereafter prevents those musical events in bb. 4–8i from seeming as important as a purely musical analysis might want to make them; the music may move on, but the vowel is suspended, and so those bars do not seem as forward-moving as they otherwise would. But what I am really interested in finding a way to talk about is not this kind of thing, which is too conventional and traditionally music-analytical to take us into unknown territory. Rather, I want to learn to talk about the qualities of those sounds together that we experience. How do we describe the 'i' with the *F* chord in b. 4 as compared to the 'i' with the *C* chord in b. 5 (same vowel, different chords), or how do we describe the 'du-' in b. 10 with the *C* octave and fifth as compared to the '- re' in b. 11 with the bare octave on *C* (same harmony but different vowels)? Do we hear the change in that chord-spacing differently because the vowels change? Or what about the '-eur' as it changes through bb. 12–17? For example, is there any sonority within that last passage that seems to fit more comfortably with the '-eur' than the others, a point where the '-eur' seems to settle into place? I realize that it is not something we normally do, and it is not a question that anyone has previously thought worth asking, but supposing we did try to find that syllable more at home with one sonority than with any of the others? Could there be a process at work that we have not been aware of up till now, in which certain kinds of vowel match in some potentially demonstrable way certain kinds of musical sonority? How about the turn to the *E*-flat chord? Could we say that there is some kind of affinity between that vowel, coming from very far down in the throat, and that lowering flatted sonority, and that the lesser affinity with the other sonorities in the phrase draws the most attention to that moment, so striking in music-analytical terms because of the way it turns the harmony unexpectedly flatwards? I am suggesting, in other words, that that moment sticks out within the phrase partly because the vowel already in play momentarily 'clicks into place' with the music before the music moves on to other areas.

As another example of the expressive use of particular vowel positions (vowel positions in the mouth), I should like to look at four passages in which Machaut does similar but unusual things with the counterpoint. (In fact the piece is peppered with brilliantly controlled dissonance, so momentary one hardly notices in

performance, but no less innovative or masterly for that.) These passages are bars 1–2 ($\begin{smallmatrix}12346\\11233\end{smallmatrix}$), bars 9–10 ($4\,\begin{smallmatrix}668\\435\end{smallmatrix}$), bars 24–5 ($\begin{smallmatrix}468\\335\end{smallmatrix}$) and bar 27 ($\begin{smallmatrix}456\\333\end{smallmatrix}$). At the start of the song Machaut does what he does so often with vowel patterns in his poetry. This has not really been commented on, I think, but it seems to me to be absolutely characteristic, and perhaps the main ingredient in the sound of Machaut's texts, [257:]

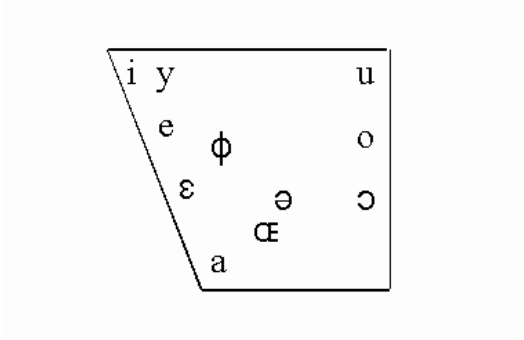

Figure 17.2: Hypothetical vowel positions of Machaut's French

both in his letters and his verse. **He places vowels next to one another in the phrase or in the poetic line that are next to one another in the mouth.** Figure 17.2 shows the approximate relative positions of northern French vowels of the fourteenth century in a conventional schematic representation of the mouth and throat.

Let us look at the beginning again, 'o–e–i', in this performance [ɔ] [ɸ] [i], coming up and forwards from the middle of the back to the top of the front of the mouth, so that the sound of the text opens out exactly as the music does, from the unison out to the chord, and as the melody rises – by step of course – from the final up to the third. In performance we are hearing those two processes together. In bb. 8–10 the point of maximum theoretical dissonance is the first beat of b. 9, which is an unsupported fourth. Whether you sing pr[i]nt[a]mps (late-medieval French) or pr[a]nt[ɔ]mps (modern French) the shape of the mouth has to be changed more radically between those two syllables than between any other pair in the line. And they are set to the largest and most striking melodic interval in the musical phrase. Also interesting is the way the resolution in b.10 begins with a relatively tense syllable ' u' [y] on the octave plus fifth, followed by the more relaxed 'e' [ɸ] on the bare and momentary octave. That is a particularly effective moment because its weakness allows the previous phrase to tail off as the next begins in the tenor voice, rolling into the underpinning of the new phrase at 'Fleur'. Then at b. 24 'douce' on the dissonance requires a big change of mouth position ('tres douce'), but only gradually moves out of it through the stepwise sonorities of the next three syllables ('douce o-dour'). Then in the second half (b. 27), 'belle' has its first more tense syllable stretched out (which of course makes it more tense as the mouth holds its position: 'be - - - - - -') over the 12 beats of a relatively dissonant prolonged cadential preparation – an amazing passage for its time – before resolving into the more relaxed '-le'. And the effect is even stronger the second time around when the diphthong 'ie' of 'bien' is prolonged through that very tense passage.

Whether these kinds of relations between sounds are planned or accidental is interesting but not of fundamental importance. A Machaut rondeau has a lot of notes for very few syllables, so that there is a great deal of leeway for the composer to match text and music purposefully, or for scribes to move things around afterwards. In this

piece the very close and obvious relation between rhythm and harmony and syllable placement encourages the belief that what we have is what [258:]

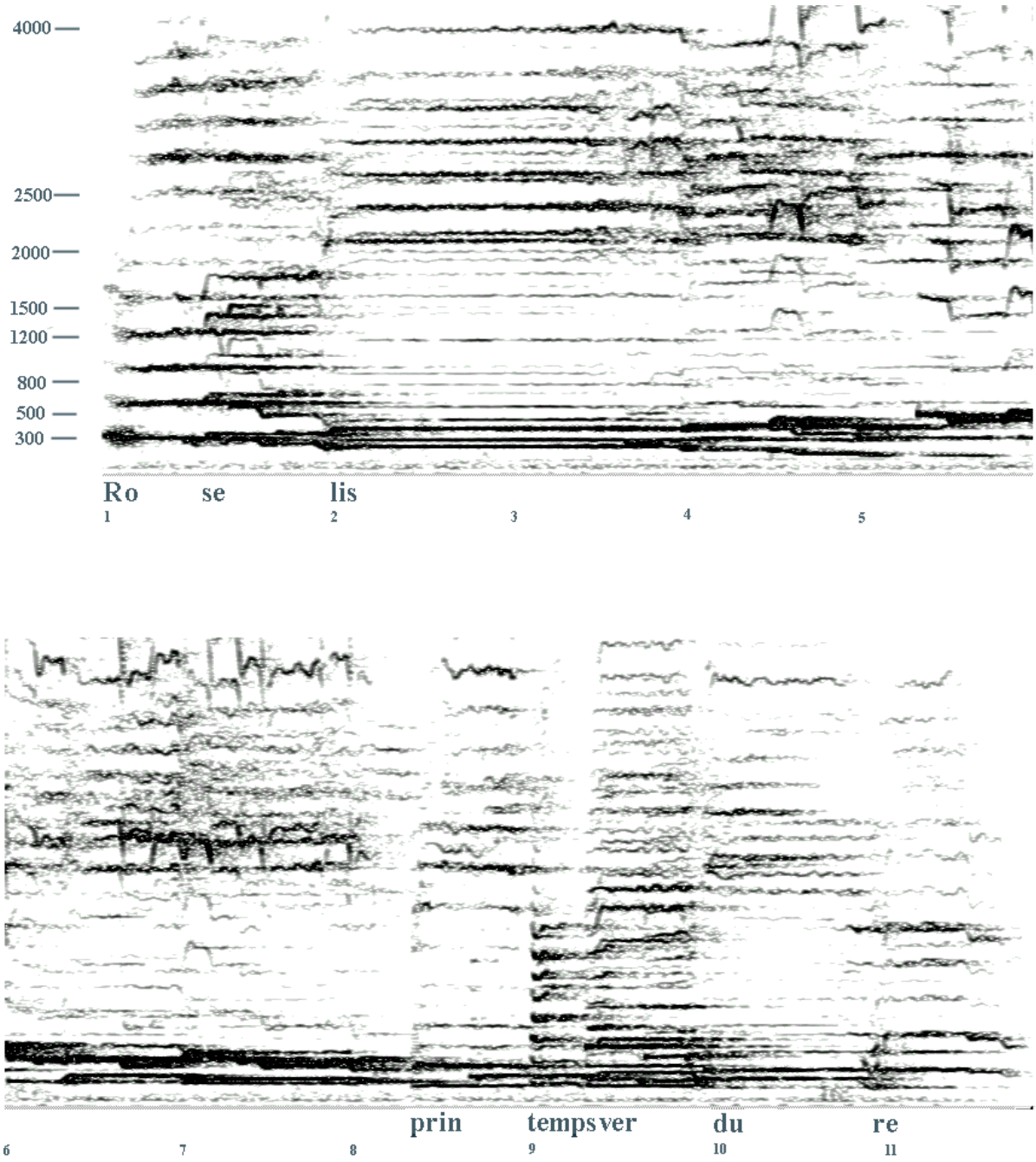

Figure 17.3: Machaut, *Rose, lis* (R10), bb. 1–11: spectrogram of a three-voice performance by Gothic Voices

Machaut wanted. But I want to emphasize that matching of vowel qualities and musical sonorities does not have to be consistent to be interesting. Always matching tense vowels to tense chords would be far too crude and regular for a piece by Machaut. And it would not even be convenient. Music has its own requirements just as a line of text does. Consequently a piece like this is going to be produced through some planning and some accident, and we cannot possibly be certain which is which. The whole question

of authorial intention, therefore, is a distraction. What is interesting is how it sounds. Another thing to remember is that one is much more aware of the sound of the text when one sings it oneself than when one listens to it being sung. And if anything is clear from the way Machaut arranges his vocal lines it is that he had precise knowledge of what it was like to sing [259:]

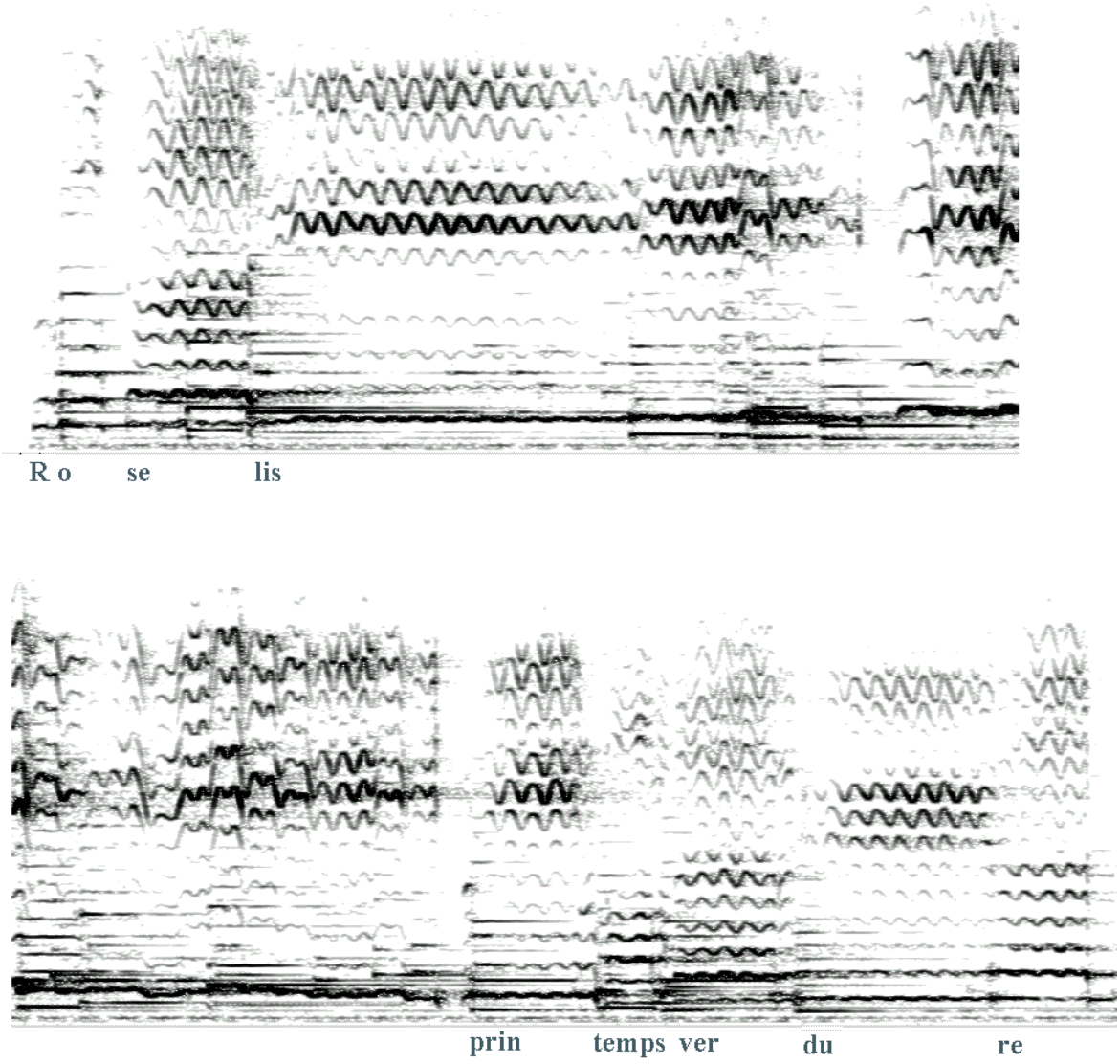

Figure 17.4: Machaut, *Rose, lis* (R10), bb. 1–11: spectrogram of a four-voice

his music. And he was a poet. It is hard to imagine a more acute set of sensibilities for understanding the sound of these pieces.

So, one approach to studying these songs as music is to consider the sounds of the text on an equal footing with the sounds of the music, to make as little functional distinction between them as possible, to consider them as part of a sonic whole.

Obviously how they work will vary from performance to performance. And that is fine, because it is music in performance that we are trying to get at.

Figure 17.3 shows another approach to it.[8] This is a spectrogram of the first [260:] eleven bars in an unpublished 3-voice performance by Gothic Voices.[9] The image shows all frequencies above a set amplitude threshold (in this case -60 dB) plotted on a frequency/time axis: the fundamentals are clear along the bottom of the picture, the upper partials, reproduced here up to about 4000 Hz, spread out above. Relative amplitude is indicated by the depth of colour: the blackest lines are the loudest. Thus on the first syllable, 'Ro-', the strongest frequencies are below 1600 Hz. Then with '-se' the upper partials get stronger in the 550-1800 band, and above that from 2500–4000 Hz, with a gap between 1800 and 2500; then the change of syllable to 'lis' switches that over, so that 550–2000 is left relatively quiet, while 2000–2800 is filled. This is a function of the acoustic properties of different vowels.[10] Just how much of the information derives from vowels rather than from the colour of the voices is clear from a comparison with the same passage in a four-part performance using instrumental accompaniment, made by the Waverly Consort in 1973 (Figure 17.4).[11] Despite the very different manner of performance the spectrograms are strikingly similar in the respects that I am discussing here, simply because the text is the same. The main differences come from the Waverly singer Constantine Cassolas's vibrato and the quieter accompaniment of harp, lute and two vielles.

The frequency information that comes from the vowels – their 'colour' – plays a vital part in our experience of the music. What you see in this picture is a much fuller and more precise representation of what we hear than is offered by a score. (In fact, for reasons to do with the reflective properties of our head and shoulders, those upper frequencies sound louder to us than to the computer, so the features we see are actually emphasized for us when we hear.) Now let us look at the counterpoint in this passage (Figure 17.1). It begins on 'Ro-' with a unison *c*, where all the voices are concentrated on one pitch, just as the frequencies are concentrated in one area of the spectrum. And then the counterpoint fans out through '-se' to a tense imperfect consonance on 'lis'. The extreme though momentary dissonance on '-se' is matched to

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[8] A clearer colour reproduction of the spectrogram is (at the time of writing) available at www.kcLac.uk/kis/schools/hums/music/dlw/sound/rlspect.jpg (100Kb). Spectrographic analysis of musical compositions was pioneered in R. Cogan, *New Images of Musical Sound* (Cambridge, MA: Harvard University Press, 1984). His first example, of a plainchant extract, provides the closest predecessor of the analysis offered here. I first read Professor Cogan's work in 1986 and, though finding it full of potential, felt that little could be done by others while producing the spectrograms required such specialist equipment. In the last few years, however, the situation has been transformed and this kind of visual readout of a piece is available to anyone with a home or office computer: Cogan's work deserves to be re-evaluated now that further research can easily be done. The software used for the present study is 'Spectrogram', available at the time of writing as freeware from www.monumental.com/rshorne/gram.html (254Kb). The settings used were as follows: Channel Right, Scale -30 dB, Time Scale 10 msec, Frequency Scale Linear, FFT Size 4096, Frequency Resolution 10.8, Band 0–11025, Spectrum Average 1.

[9] This was a live performance broadcast by BBC Radio 3 from the Henry Wood Promenade concert on 25 August 1988. At the time of writing the extract discussed here (bb. 1–11) is available as an MP3 file on www.kcl.ac.uk/kis/schools/hums/music/dlw/sound/rose3.mp3 (204Kb).

[10] For a basic introduction to vowel spectra see J. Clark, and C. Yallop, *An Introduction to Phonetics and Phonology* (Oxford: Blackwell, 2nd edition, 1995), especially 253–82.

[11] *Douce Dame: Music of Courtly Love from Medieval France and Italy*, The Waverly Consort, recorded 1973, first issued on LP as Vanguard VSD 71179, reissued on CD as OVC 8201 (1997), track 12.

the wide spectrum of the vowel, and the hollow chord on 'lis', which seems wide and empty after the initial unison and the process that has led the voices from it, is matched by the empty space in the spectrum of 'i'. Machaut had no way of knowing this. But he could have sensed the different qualities of those sounds, and the way that the sounds of text and music seemed to feel right together, as he worked out those first few moments of his song. So this kind of analysis allows one some access to the quality of sounds that I was discussing in a more abstract way at the beginning of this chapter.

Turning to the rest of this first musical phrase, the long prolongation of 'lis' is filled out with activity arising out of the mobile counterpoint, and the space between about 600 and 1800 Hz is bubbling with activity as a result, though it is still much less saturated than the band immediately above, where the vowel is most audible. Moving on to the last part of the phrase, the change to 'prin-' is mainly [261:] articulation, because the vowel remains unchanged ('lee preen' in this performance), but 'temps ver-' suddenly fill out the harmonic space. As listeners we are more aware of the melodic leap 'prin-temps', and (in this performance) the rhythmic spring of 'temps ver-', but whatever you concentrate on as a listener what is actually happening in the sound is all about change, and it is concentrated on those two chords that prepare the cadence ('temps ver-'), the points of maximum tension in the counterpoint. 'Du-' then becomes a point of some repose, the resolution of the cadence at the end of the phrase, and you can see the space emptying again in the 750–1850 Hz region of the spectrum, leaving the same 1850–2600 band sounding as throughout 'lis prin-'. But what happens next is what is really interesting. We already saw, when I was talking about the sounds of the text, that 'du-re' is a key transition between two phrases where the basic harmony remains fixed but the syllables change and the tenor leaps up to lead into the next phrase, so that on the one hand – in the harmony – we have stasis, on the other – in rhythm, melody, text – we have movement. See here how the spectrum changes with that syllable change. 'Du-' has sound in the first and third bands but a hole in the second, '-re' has sound in the first and second but a hole at the third, so that the upper partials are leaping down (as it were) just as the tenor is leaping up. The pitches and the upper frequencies are both moving inwards, concentrating the sound both at the level of the fundamentals and the upper partials. Inevitably this must be contributing to the sense of concentration and release that one is so aware of when the tenor leaps up in order to fall back, apparently so naturally, into the new phrase. In other words the vowels here are working with the music in a very purposeful fashion. To understand the total effect fully one then has to add-in the sense that the voice gives, through the mouth positions, of relative tension on 'du-' and relative relaxation on '-re'. All these factors are sensed together by singer and listener, and of course are sensed also by the composer as he imagines this passage. It seems entirely possible that these syllables played a part in the selection of these pitches and these progressions, because the composer could so easily sense that they worked well together. They felt natural, in other words. And it seems to me that this is one of the ways in which Machaut is so wonderful as a poet-composer: he has such an acute sense of the interaction of vowel and counterpoint. In the traditional cliche, so much used in musicology and so under-explored, Machaut has the most acute sense of the interaction of text and music.

So to summarize, on the one hand I am suggesting that Machaut brought his musical instincts as a composer to bear on his writing of poetry, placing next to one another vowels that were adjacent in the mouth in rather the same way that in his

melodies he places next to one another pitches adjacent in the scale. And just as his melodies are articulated by carefully placed leaps that are their points of maximum tension, so his poetic lines are articulated by careful placement of disjunct vowels. Being a composer made him a more eloquent poet. At the same time, I am also suggesting that Machaut brought his acute sense of the colour of text to bear on his setting of it to music, matching to some extent the sound of a vowel to the sound of a chord. So being a poet made him a better composer. To put it in its simplest possible form, the poet in Machaut influenced the compositions, the composer in him influenced the poetry. No wonder we experience his poetry and his music with such intense satisfaction. [262:]

How widely these findings apply through Machaut's work, how differently other poets and composers arrange sounds, in proximity and in relation to one another, could be subjects for future study. What I hope to offer with this approach to analysis is a way of understanding, independently of the meaning or imagery of the words and (potentially) independently of the pitches of the music, the self-evidently mellifluous character of Machaut's poetry and music. Of course, pitches and meanings matter vitally, but they are not the whole story of the way we perceive Machaut's songs, or indeed anyone else's. The sound, as well, is an essential part of their sense.

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