Different Strokes for Different Folks? On Tempo and Diminution in Fifteenth-Century Music

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It is now almost four years since Margaret Bent published her essay "The Early Use of the Sign ϕ," in which she advanced a new hypothesis about the early meanings of the mensural signature ϕ—a hypothesis whose potential implications are far-reaching and in some ways indeed breathtaking.[1] Thus far her argument appears to have attracted little comment in print.[2] In the present essay I propose to review some of the issues which it raises and to suggest areas where a reconsideration of the evidence may be in order.

The existing literature on the subject is virtually unanimous in defining ϕ and ¢ as signs of diminution in perfect and imperfect tempus, respectively.[3] According to this received view, the stroke would have told performers to "diminish" the notes ruled by the mensurations O or C. They could do this, for instance, by singing the notes faster (sometimes twice as fast), by substituting their next-smaller values in performance (longa by breve, breve by semibreve, and so on), by taking away part of their value (one-half or one-third), or by temporally compressing them according to a numerical proportion (normally 2:1). These various methods of diminution—speeding up (*acceleratio*), substitution (*diminutio*), devaluation (*semiditas, syncopatio*), and proportion

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1. *Early Music* 24 (1996): 199–225.

2. Beate Carl, "Metrum und Rhythmus in einigen Rondeaux von Guillaume Dufay: Anmerkungen zur Auffassung von Rhythmus und Metrum im 15. Jahrhundert," *Musiktheorie* 12 (1997): 147–64, at 149, quotes Bent's conclusions with apparent agreement.

3. For helpful summaries of the relevant issues, particularly as they relate to editorial and performance practice, see John Caldwell, *Editing Early Music* (Oxford: Clarendon Press, 1985), esp. 13–27 and 45–50; and Alejandro Planchart, "Tempo and Proportions," in *Performance Practice: Music Before 1600,* ed. Howard Mayer Brown and Stanley Sadie (Basingstoke, Hamps.: Macmillan, 1989), 126–44.

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(*proportio*)—represent different operations, yet as far as the end result was concerned they may have been interchangeable in many cases.[4] In fact they were often treated as synonymous in music treatises.

There is overwhelming theoretical evidence to confirm that the stroke called for these procedures. Yet the problem, as Bent observes, is that all of this evidence dates from after the middle of the fifteenth century. The sign ϕ, however, which is the focus of her inquiry, is much older. It is found in musical sources as early as the 1410s or 1420s, and may well have been in use before that date. As far as this sign is concerned, therefore, there appears to be a time lag between practice and theory, a historical gap which scholars have attempted to bridge by explaining its early musical applications with the help of later theoretical precepts.

Editors of early fifteenth-century music have often transcribed passages in ϕ with a "built-in" diminution by half—that is, usually, by quartering the note-values rather than halving them, thus implying a doubling of speed. When ϕ is combined with a different mensuration in another voice part (as is the case in the earliest known pieces using the sign), the "vertical" relationship between the voice parts confirms that the stroke calls for diminution by half. Yet such verification is unavailable in "horizontal" relationships, where all voice parts shift from ϕ to another mensuration (or vice versa) at once. Performers and scholars have been hesitant to conclude that a 2:1 diminution must govern these relationships as well. This is partly because the later theoretical evidence is ambiguous on this point. Many theorists leave room for either a slight speeding up or something approaching a 3:2 proportion, as alternatives to diminution by half—and these alternatives can be applied only in horizontal relationships, not vertical ones. Moreover, and for what it is worth, there are many compositions from the mid-fifteenth century in which downright doubling of speed under ϕ would make no apparent musical sense.

4. The most lucid exposition of the various methods of diminution in use by the late fifteenth century may be found in Franchino Gaffurio's *Practica musice* (Milan: Joannes Petrus de Lomatio, 1496), bk. 2, chap. 14; see Gaffurius, *Practica musicae,* trans. Clement A. Miller ([Dallas, Tex.]: American Institute of Musicology, 1968), 111–13. Generally speaking, substitution affects the shape of the notes, devaluation their value, proportion their number, and speeding up the underlying beat. (Cf. Rob C. Wegman, "What Is 'acceleratio mensurae'?" *Music and Letters* 73 [1992]: 515–24, at 521 n. 14.) Some theorists, especially Johannes Tinctoris, were careful to maintain these distinctions, but many others treated the procedures as more or less synonymous. The procedures did not always lead to the same musical results in all cases, however. For instance, it was possible to sing the breve in perfect tempus at double speed, or to replace it by a semibreve, or to sing two breves in the place of one (all of which amounted to the same thing), but one could not take away half of the breve's value, as it had a value of three, not two, semibreves in perfect tempus. It is probably for this reason that many theorists who defined the stroke as a sign of *syncopatio* understood ϕ to involve diminution *per tertiam partem* (rather than *per medium*) and thus to be equivalent to ○ with coloration or 3:2 proportion. See, however, Anna Maria Busse Berger, "The Myth of *diminutio per tertiam partem,*" *Journal of Musicology* 8 (1990): 398–426, and below, n. 49.

These doubts may only underline the question that is the starting point of Bent's inquiry: if the testimony of later theorists happens to agree with early practice in the particular case of vertical 2:1 relationships, does it follow that all other uses of ϕ in the early fifteenth century must conform to these later teachings as well? Apparently scholars have always assumed that this was the case. Yet the grounds for that assumption, Bent has argued, may be weak. Editions that implement an indiscriminate policy of "built-in" diminution for each and every occurrence of ϕ may merely beg the question. And insights gleaned from such editions, or from performances based on them, are necessarily vulnerable to the charge of circularity. To address the question with true impartiality, it seems, we must take several steps back. Thus Bent's decision to set aside the evidence of later theorists:

> All the theoretical evidence for any meaning of ϕ dates from the 1470s or later, and Tinctoris figures centrally in explanations of ϕ. But unless it is demonstrably still relevant, the tradition he represents has no special authority for music more than 40 years older, music that may even antedate his own approved period. . . . However valid the late theorists may be for late practice, we are faced earlier in the century with plural and changing traditions to whose early stages Tinctoris may not be a qualified witness. . . . Let us set these later theorists aside and approach earlier usage of ϕ without the prejudice of hindsight. (p. 202)

In taking this step, Bent may well be the first scholar to consider the possibility that ϕ might have had meanings other than diminution alone. After careful examination of nine Mass movements by such composers as Legrant, Binchois, and Grossin, she concludes that ϕ was a "general-purpose sign" with a broad range of meanings, of which diminution by half or slight speeding up were by no means the most important (pp. 219–23). The reader learns that the stroke in ϕ probably served mostly as a signal or a reminder to performers that something unusual was happening in the music, notably at division points between sections. Only later in the century was its apparent range of functions narrowed down to the specific meanings that were to be codified by Renaissance theorists. Prior to this change, ϕ was "more often used non-mensurally as an insertion point or place-finder" than as a sign of diminution. Strokes served usually as "signposts, repeat marks, and co-ordination signs," defined by "non-mensural functions" which had "no additional effect on tempo or proportion" (p. 219).

The implications of this hypothesis are many. They could affect not only the editions which we use in musical practice and scholarship, but also the performances and interpretations based on them. Bent concludes, for example, that there are no grounds for editorially supplying the sign ϕ when it is not attested by original sources, that editors should refrain from transcribing music under ϕ (in all voice parts) with a "built-in" diminution by half, and that performers should henceforth undo the effects of these practices when they encounter them in existing editions (p. 223).

However, before adopting these recommendations it may be worth stressing that we are still dealing with a hypothesis, and one that (as Bent concedes [ibid.]) remains in need of further exploration and testing. It raises several critical issues, factual as well as methodological. What, for example, is the basis for deciding that ϕ, in many contexts, was more probably a "general-purpose sign" than a sign of diminution? Can this contention be proved? If it seemed unpersuasive for some reason, would it be open to refutation? If proof or disproof were not available, could one at least point to compelling grounds for preferring Bent's hypothesis over the received view? For instance, might the latter view have flaws or problems that are satisfactorily resolved under the new hypothesis? Does that hypothesis explain significant phenomena that are left unaccounted for by the received view? In the first three sections of this article, respectively, I will address each of these questions.

The Logic of Proof

Bent's inquiry focuses on nine Mass movements from the early fifteenth century. In all of these, the use of ϕ coincides with a musical or notational feature for which it could have served as a signal or marker of some kind. Bent proposes that its function was to call attention to that feature in each case. A typical situation is the shift to ϕ in all voice parts accompanied by a change in scoring, say, at the beginning of a section. Several of the nine Mass movements indicate, according to Bent, that the stroke in ϕ might have served as a marker of such scoring changes. In the case of a Binchois Gloria-Credo pair, for instance, she writes, "ϕ here always *coincides* with—and I would suggest, *signals* —a change of scoring, and never follows uncut O unless there is such a change" (p. 213; my italics). Likewise, in a Gloria setting by Legrant she comments, in two successive sentences, "the ϕ signs *coincide* with changes of scoring . . . they *mark* the sections where the cantus is joined by tenor and contratenor" (p. 205; my italics).

There is no question that it is possible to read the sign this way. However, it may be worth reflecting what the existence of that possibility allows us to conclude. After all, the issue is not whether *we* can be persuaded that ϕ makes sense as a marker of a scoring change, but rather whether it can be established that composers and scribes intended it as such a sign. This distinction is important, and needs to be made also with respect to the received view. This view is not predicated on present-day judgments as to what makes apparent sense or not, but rather holds that fifteenth-century musicians, including composers and scribes, understood ϕ to be a sign of diminution—a claim that can be supported by a wealth of evidence. Importantly, if this received view were to be wrong in certain respects, one could predict exactly what kind of evidence might prove it wrong—for example, conflicting statements by contemporary theorists. Such evidence has not come to light, of course, nor has Bent

produced any; yet it is important to stress that the view is in principle open to disproof of this kind. Its falsifiability minimizes the risk of adhering to an erroneous theory without being able to *prove* that it is wrong.[5]

The new hypothesis follows a different logic of proof. At bottom, Bent reasons from our ability or willingness to read ϕ in certain contexts as a "general-purpose sign" to the assumption that this is what composers or scribes probably intended it to mean. How could one substantiate that assumption? Our subjective sense that it is *possible* to read ϕ in a certain way, however valuable in itself, does not constitute proof that this, and specifically this, is how it was meant to be read. After all, someone else could still insist on the possibility of reading it another way. In the cases mentioned above, for example, some readers might well argue that there is no significant relationship between ϕ and the scoring change, because changes in mensuration and scoring are generally most likely to occur at the beginnings of sections, and hence will often happen to coincide there. They might even contend that a statistical survey of all scoring changes in the early fifteenth-century repertory would probably reveal no significant correlation with the sign ϕ in particular. To mention another example, in some compositions all voice parts shift to ϕ when they repeat a section previously sung in O. Discussing this in the case of an Agnus Dei by Binchois, Bent writes that the stroke through the circle can be read as a marker signaling the repeat (pp. 216, 219). Once again the *possibility* of reading the sign this way is undeniable, yet this does not, in itself, furnish proof as to the intentions of the composer or the scribes, or the reading habits of contemporary musicians. It would be just as possible to argue that the stroke calls for a speeding up—which (as far as those intentions and reading habits are concerned) has the advantage at least of being backed up by later theoretical evidence.

At bottom, then, the new hypothesis holds that ϕ *can be seen to make sense* as a "general purpose sign" and *hence* is likely to have been intended as one. This hypothesis does not amount to proof, of course, but that need not be an insurmountable problem. After all, we often accept hypotheses in the absence of conclusive proof—for instance, when they provide a better explanation for more evidence than other hypotheses. Bent's argument could still be persuasive, say, in situations in which alternative explanations would be less convincing (see the following two sections). On the other hand, it does seem

5. For the concept of falsifiability I rely here on the work of Sir Karl Popper, who proposed that one should not systematically evade refutation—whether by introducing ad hoc definitions or auxiliary assumptions, or by questioning the significance of inconvenient empirical evidence—but expose hypotheses to refutation as unambiguously as possible. See Karl Popper, *The Logic of Scientific Discovery* (London: Hutchinson, 1959), 40–42 and 78–92. While it is true that few hypotheses in historical scholarship could ever be truly falsifiable in the sense required by Popper (the best we can hope for in most cases is a balance of probabilities; see below, "The Balance of Probabilities"), it remains useful to eliminate impediments to falsification that are inherent in the formulation of a hypothesis, rather than in the fragmentary nature of the evidence.

worrying that the new hypothesis fails to allow for the possibility of *disproof* as well. If it were even partly incorrect—as any hypothesis potentially may be —there would be virtually no way of establishing this.

There appear to be three reasons for this. In the first place, if the reader were unpersuaded that ϕ, as used in the examples given by Bent, can be useful or meaningful as a "general-purpose sign," this would not in itself disprove anything. For why should it follow that composers and scribes could never have intended it that way? History teaches us to accept many things that may tax our sense of what is plausible. Moreover, others might still counter that they, on the other hand, are quite persuaded. Where would such trading of opinions leave us?[6] Still, supposing that one did accept the onus of disproof, how could one begin to substantiate one's doubts?

Another option might be to look for counterexamples. Yet in this regard—and this is the second reason—Bent's hypothesis is probably even more resistant to disproof: it has a virtually unlimited capacity to accommodate new findings. No matter how many pieces one might choose to examine, there is in principle no limit to the number of purposes that a "general-purpose sign" may be found to have served. As Bent herself puts it, "The discovery of pieces where the sign cannot function as I have suggested need not in itself invalidate this hypothesis . . . but rather it may extend the range of general meanings" (p. 223). So long as the sign ϕ can be construed to have *some* meaning, therefore, whatever that meaning may happen to be, the hypothesis need not be invalidated at all. A truly incontrovertible counterexample would probably have to be a composition in which the sign ϕ was completely devoid of all apparent meaning and had been introduced for no conceivable purpose.[7] Such an example, if it existed, would of course refute every theory which held that ϕ had any meaning. That is to say, either Bent's hypothesis is valid or ϕ is meaningless.

6. For the argument from possible proof, see David Hackett Fischer, *Historians' Fallacies: Toward a Logic of Historical Thought* (New York: Harper and Row, 1970), 53–55, where it is defined as the "attempt to demonstrate that a factual statement is true or false by establishing the possibility of its truth or falsity."

7. The only example I could think of might be this: a simultaneous shift from o to ϕ in all voice parts unaccompanied by anything for which the stroke could have been intended as a signal (say, midstream in a continuous, even flow of polyphony). Even in that case, however, it would be possible to salvage the theory. One could do this, ironically, by adding the received interpretation of ϕ—diminution by less than half—to the other meanings already ascribed to the sign; in other words, by proposing an acceleration of tempo. After all, it would be remarkable if the *only* "purpose" to be excluded from Bent's "general-purpose sign" would be the one actually attested by theorists. Bonnie Blackburn kindly points out to me that midstream simultaneous shifts between o and ϕ do in fact occur in one of the three-part Masses of Tinctoris; here, as she has argued, the shifts seem to denote acceleration and retardation. See Bonnie J. Blackburn, "Did Ockeghem Listen to Tinctoris?" in *Johannes Ockeghem: Actes du XLe Colloque international d'études humanistes. Tours, 3–8 février 1997,* ed. Philippe Vendrix (Paris: Klincksieck, 1998), 597–640, at 610–12.

There is a third reason why the new theory is resistant to disproof. The working definition of Bent's inquiry is cast in such a way as to restrict the range of pertinent evidence to those works that happen not to contradict the hypothesis. This involves several major exclusions, all of which are announced at the beginning of the article. For instance, Bent decides that she "will exclude cases where 2:1 is confirmed by simultaneous use with another signature" (p. 203). That is to say, all evidence substantiating the received view is placed in a separate category, and eliminated from consideration on the grounds that it is separate. Of course, one can only perceive this as a separate category if one already accepts Bent's conclusion that diminution was "only one meaning of a more general-purpose sign" (p. 219). According to the received view, all that could conceivably be distinctive about this category is that the pieces in question allow us to verify what theorists write about the stroke, whereas other pieces do not. Yet regardless of whether verification is available or not, the received view still holds that all strokes have the same meaning, diminution, and hence that there is no basis for identifying categories that must be bracketed or excluded.

Likewise, in the same paragraph, we read that "strokes through other signatures [than O] are . . . scarce. They raise different issues, especially with respect to the early use of ¢ in relation to O. I shall not deal with them here" (p. 203). Now, pieces featuring the alternation between O and ¢ probably constitute the third major body of evidence corroborating the received view, after theoretical writings and vertical 2:1 relationships—both of which have already been excluded on different grounds. Fifteenth-century composers, almost as a rule, shifted to larger note-values when they moved from O to ¢, and as modern scholars and performers have generally agreed, these larger note-values would appear to suggest the very tempo increase presumably indicated by the stroke through ¢—thereby confirming, however indirectly, that the stroke is indeed a sign of diminution.[8] Needless to say, one can perceive "different issues" in this group, and subscribe to the criterion for its exclusion, only if one has already accepted Bent's conclusion that there are other issues besides diminution. However, at the beginning of her inquiry that conclusion still awaits persuasive demonstration. According to the received view the stroke raises only one issue, diminution, and this is (and remains) the issue regardless

8. The first scholar to study this phenomenon methodically in early fifteenth-century music was Charles Hamm, who distinguished between "breve-semibreve movement" and "semibreve-minim movement" in O, C, and ¢, and included tables showing the distribution of different note-values in the top voices of fifteenth-century compositions (*A Chronology of the Works of Guillaume Dufay Based on a Study of Mensural Practice* [Princeton, N.J.: Princeton University Press, 1964], e.g., 90–96). Shifts to larger note-values are analyzed statistically in Rob C. Wegman, "Concerning Tempo in the English Polyphonic Mass, C.1420–70," *Acta musicologica* 61 (1989): 40–65, and *Born for the Muses: The Life and Masses of Jacob Obrecht* (Oxford: Clarendon Press, 1994), 375–83. For a different method of quantifying overall rhythmic density, see Jerry Haller Etheridge, "The Works of Johannes de Lymburgia" (Ph.D. diss., Indiana University, 1972), 1:59–75.

of whether the tempus sign is O or C, or indeed whether the relationship is horizontal or vertical.[9] (As we shall see below, some of Bent's objections to the received view turn out to be predicated on these a priori exclusions: in those cases, to undo the exclusion is to refute the objection.)[10]

In any case, having made these exclusions, Bent further decides that even the sign ϕ itself will be dealt with "only in the context of successive sections" (p. 203). That is to say, "All the cases considered here change to ϕ for a section in all voice parts at the same time, whether or not that section is self-contained" (ibid.). Apart from anything else, this means that *all* strokes will be guaranteed, at the very least, to make "good sense as toggles simply giving graphic distinction to adjacent sections," as they are found to do in a Binchois Kyrie (p. 216; see also below, the section entitled "The Balance of Probabilities").[11] Of course, this turns out to be their primary function only in a minority of cases. Whenever adjacent sections happen to be additionally distinguished through differences in scoring or internal repeats, as is of course not unusual, it is these latter features to which the strokes are seen to call attention. To some extent, then, the outcome of the argument duplicates its initial premises: ϕ as used only in sections is found to have sectional uses—or, more precisely, is construed as a marker of things that typically happen at the beginnings of sections.[12] To sum up, the sample of pieces admitted as evidence

9. In fact, even within the terms of Bent's hypothesis it is unclear why "different issues" should be a reason for excluding ¢. As she herself notes, "The discovery of pieces where the sign cannot function as I have suggested need not in itself invalidate this hypothesis . . . but rather it may extend the range of general meanings" (p. 223). If strokes in different tempus signs appear to raise different issues, then, this should (if anything) corroborate her hypothesis.

10. It may be that these exclusions reflect the intent to demonstrate, for example, that the new hypothesis is always valid except when there is positive proof to the contrary—in which case there might appear to be no need to dwell unduly on the evidence to the contrary. However, this would give us a theory whose truth-claim is analogous to that of tautological statements like "It will rain or not rain here tomorrow" or "There is only music whose title begins with the letter 'X,' and music whose title does not."

11. Similarly, Bent proposes that the mensural layout [unsigned O] O ϕ in Guillaume Dufay's *Vergene bella* "may simply mark three successive sections, two *piede* and a *sirma,* in perfect time in the same tempo" (p. 219). On *Vergene bella,* see also below, in "Early Uses of the Sign ϕ." Bent derives the metaphor of the "toggle" from computer science (p. 210), where it denotes a key or command that is always operated the same way but has the opposite effect on successive occasions.

12. In fairness, Bent's logic of proof may not be entirely circular. In one instance she does identify a type of sectional use which, if discovered, would invalidate her interpretation: "Cut signatures are rarely used consecutively without an intervening uncut signature; if they were, such use would argue against, and defeat the purpose of, a toggle" (p. 216). However, it is precisely at this point that she resorts to the "open-endedness of meaning" argument: "When adjacent sections with strokes occur, there turns out to be a special significance" (ibid.). In the specific example she mentions, it emerges "that two adjacent ϕ," if encountered in a repeat scheme also involving uncut sections, "would in themselves be sufficient indication that the uncut section should come between them." Thus, ironically, it is precisely because the stroke is used in apparently redundant fashion that it must be hypothesized, in an evident *petitio principii,* to have had some function that would prove it to be not redundant after all. See also below, n. 33.

into Bent's study is defined by criteria of selection and exclusion that already presuppose the truth of the theory; this is the third reason why the hypothesis appears to be irrefutable on its own terms.

Altogether, this line of argument may make for a virtually unshakable theory, but not one distinguished for its methodological strength. To begin with, if a theory can insist on any of its readings simply on the grounds that it is not impossible, then there is no actual proposition to be contested or defended: its irrefutability, at bottom, comes down to the undeniability of the claim that possibilities do exist. Second, if a sign like ϕ can in principle mean any number of things, it will end up meaning nothing in particular: a foolproof conclusion would be purchased at the cost of explanatory power.[13] Finally, if the outcome of an argument duplicates its initial working premises, nothing has been added to what we knew from the beginning: a sure-fire methodology would be purchased at the cost of empirical content.

On the other hand, it has already been conceded that we often accept hypotheses, even if they are flawed or defective, when they provide a better explanation for more evidence than do competing hypotheses. In the present case there is of course the competing view that ϕ was a sign of diminution. If it could be shown that Bent's hypothesis has distinct advantages over that view, or brings significant improvements in areas where the latter was flawed or problematic, the methodological concerns it raises could still perhaps be set aside.

Aesthetic Sense

Bent challenges the received view on three counts. Her first objection, that the theoretical evidence supporting it is late and may represent the prejudice of hindsight, will be considered later (see the section "Theoretical Evidence," below). The second objection is that diminution in ϕ produces aesthetically unappealing results in some cases. In the early fifteenth century, Kyrie and Agnus Dei settings often involve repeats under ϕ of sections previously sung in ○, while settings of the Gloria and Credo sometimes feature duos and trios in which ϕ directly alternates with ○. Now, if the sections in ϕ were to be performed in diminution (which could be anything from a slight speeding up to a

13. Cf. Bent's summary of the meaning of the stroke in a more recent essay: "The sign is multivalent. It may lie anywhere on a spectrum from completely graphically arbitrary (a bar drawn through a clef) to specifically prescriptive. There is a range of meanings that in some way or other signals inequality, especially in simultaneous use with other signatures where the faster-moving part usually carries the stroke. It can signal some kind of coincidence, or link parts that perform together in alternation with other combinations, as in *alternatim* mass movements and Magnificats; it can indicate a new section, or at a page turn (inherited from any stage in its copying) it may indicate the continuation rather than the beginning of a movement" (Margaret Bent, "The Use of Cut Signatures in Sacred Music by Ockeghem and His Contemporaries," in *Johannes Ockeghem*, ed. Vendrix, 641–80, at 678).

2:1 proportion), there would of course be no uniformity of speed. Bent feels that such uniformity should be maintained on aesthetic grounds, irrespective of whether there is a stroke through o or not:

> The premise that identical music within the same composition, in the case of threefold Kyries, or similar music in the case of alternating sections, has to be performed at different tempos, one faster, even a little faster than the other, does not sit happily alongside aesthetic gleanings from this repertory; indeed, apart from the special cases of isorhythmic acceleration [in a motet tenor] and rare mensuration canons, we are entirely dependent on this interpretation of ϕ for the belief that such accelerations were ever applied to more straightforward music. (p. 202)

This, then, appears to be the problem: when o and ϕ alternate in successive sections, departures from a postulated uniform tempo (even if only "a little faster") would result in what Bent later describes as "the awkwardness of a tempo interpretation" (p. 216, this with reference to a Binchois Kyrie exemplifying alternations between o and ϕ in repeated sections; see also the section entitled "The Balance of Probabilities," below). The only conceivable way in which such departures might make aesthetic sense, perhaps, is if they were meant to relieve the potential monotony of constantly performing identical or similar music at the same unchanging tempo. This would be in line, for instance, with Tinctoris's "eighth general rule of counterpoint," according to which one must always aim for musical variety (*varietas*) in written and improvised counterpoint, on the grounds that this brings "vehement delight" to "the souls of listeners":

> [A] composer or improviser of the greatest talent may achieve this variety if he composes or sings now by one metre, then by another, now by one perfection, then by another, now by one proportion (*per unam proportionem*), then by another, now by one [melodic] interval, then by another, now with syncopated notes (*cum syncopis*), then without them, now with imitations, then without them, now diminished (*diminutive*), then unchanged.[14]

This passage alone gives us three of the four procedures that theorists associated with the stroke: *proportio, syncopatio,* and *diminutio.*[15] The one procedure that is not mentioned is speeding up (*acceleratio*), which is the meaning

14. Johannes Tinctoris, *Opera theoretica,* ed. Albert Seay, Corpus scriptorum de musica 22 ([Rome]: American Institute of Musicology, 1975–78), 2:155. See also Rob C. Wegman, "Sense and Sensibility in Late-Medieval Music: Thoughts on Aesthetics and 'Authenticity,'" *Early Music* 23 (1995): 298–312, at 307.

15. Of course, the stroke was one of several notational devices (along with proportion, coloration, and verbal canons) by which *proportio, syncopatio,* or *diminutio* could be effected, and not necessarily the only one. However, even if Tinctoris does not explicitly mention the stroke or speeding up, he clearly endorses the kind of musical variety that they could be used to bring about, and whose aesthetic sense Bent calls into question. It should also be noted that *syncopatio* usually meant the coloration of notes that were to be counted together in one mensural unit, even if they were separated by uncolored notes.

Tinctoris himself assigned to the stroke.[16] However, the point of his enumeration, surely, was not to exhaust all possible ways of creating musical variety, but rather to suggest an even wider potential range—one that might conceivably include the choice to compose or sing "now with acceleration of the beat, then without it."

It may be objected that Tinctoris's comments on *varietas* were shaped in part by the ideals of Ciceronian rhetoric.[17] On the other hand, he does name six contemporary pieces that exemplify the kind of musical *varietas* he endorses, and of these, the four works that can be identified all exemplify *acceleratio mensurae* in shifts from O to ¢.[18] Indeed, there is no question that there developed a practical performance tradition of speeding up for the sake of avoiding monotony. Glarean, for instance, reports in his *Dodekachordon* (completed by 1539, but printed in 1547):

> But whenever musicians [*musici*] wish to accelerate the *tactus,* which they consider should be done when they believe the hearing is fatigued, namely, in order to remove weariness, they draw a line downwards through the circle or semicircle, as ϕ, ¢, and they then call this alleviative quality *diminutio,* not because either the value or number of notes is lessened, but because the *tactus* becomes faster. So in the first Kyrie some composers [*symphonetae*] place the perfect circle, O, without the line, in the Christe the semicircle with a line, ¢, and in the last Kyrie a circle again, but with the line, as ϕ, so that they may not appear to have returned to the beginning of the song.[19]

Glarean's comment appears to indicate that strokes were introduced by musicians in general (*musici*), not necessarily always the composers themselves (*symphonetae*). This throws interesting light on the well-known fact that O and ϕ are often found as variants for the same music—whether in different sources or in different statements of the same section within a repeat scheme. In cases like that mentioned by Glarean, for example, O¢ϕ may be found in one source and O¢O in another. Because the notes are still the same, scholars sometimes assume that the stroke could not have made much difference, perhaps none at all, somewhat like an orthographic variant that does not affect pronunciation. Yet Glarean suggests the opposite: it is precisely because successive sections were the same, or very similar, that musicians preferred to

16. As argued in Wegman, "What Is 'acceleratio mensurae'?"

17. Cf. Manuel Erviti, "The Motet as an Expression of Socio-Cultural Value Circa 1500" (Ph.D. diss., University of Illinois at Urbana-Champaign, 1997), 42–44; and Sean Gallagher, "Models of *Varietas:* Studies in Style and Attribution in the Motets of Johannes Regis and His Contemporaries" (Ph.D. diss., Harvard University, 1998), 39–78.

18. Guillaume Dufay, *Missa L'homme armé;* Guillaume Faugues, *Missa Vinus vina vinum;* Johannes Regis, *Clangat plebs;* and Johannes Ockeghem, *Ma maistresse.*

19. Glarean, *Dodekachordon* (Basel: Henricus Petri, 1547), 205–6; quoted here after Heinrich Glarean, *Dodecachordon,* trans. Clement A. Miller (n.p.: American Institute of Musicology, 1965), 2:234. For the date of completion, see Clement A. Miller, "The *Dodecachordon:* Its Origins and Influence on Renaissance Musical Thought," *Musica disciplina* 15 (1961): 155–66, at 160–62.

perform some of them in a more lively fashion, even adding strokes to that end. When this choice to speed up was made in one musical center, however, it need not necessarily have been made in others as well. This may explain why we find so much source variation with regard to ○ and ϕ.

Of course, to project theoretical testimony from the 1530s on musical compositions written more than a century previously would be to invoke the very prejudice of hindsight which Bent proposes we should forgo.[20] On the other hand, it would surely be unreasonable to dismiss this and related evidence out of hand, merely because it happened to contradict "aesthetic gleanings" projected back as far as five and a half centuries. Those gleanings, whatever their authority or source, may not be representative of modern musical tastes in any case. A recent recording of Dufay's *Missa Sancti Jacobi,* a work that may date from the mid to late 1420s, has the following speeds (in beats per minute) for the semibreve in successive sections of the Alleluia *Hispanorum clarens stella:*[21]

[ϕ]	○	ϕ	○	[ϕ]
120	99	106	96	98

One may choose to fault the performers for not observing the implied tempo shift in the final section; yet the fact that they maintain no uniform speed could, in itself, hardly be claimed to present any "awkwardness." On the contrary, a major Dufay scholar, reviewing the disc for *Gramophone,* declared that this "is Dufay as I have always wanted to hear him," and commended the director of the ensemble specifically for his "uncanny ability to set the perfect tempo every time, so that the music emerges with its full force."[22] Not that this proves anything about how the Mass would have been performed in the 1420s. It does confirm, however, that there is no agreement even today on an aesthetic standard that would call for total uniformity of speed between ○ and ϕ.

Still, it appears to be this aesthetic problem of having to countenance differences in tempo between successive sections in ○ and ϕ that led Bent to search for alternatives:

20. On the other hand, just before the passage quoted here, Glarean discusses *prolatio major* augmentation, which had been in use for at least a hundred years prior to the 1530s (*Dodecachordon* 2:234).

21. Dufay, *Music for St James the Greater,* The Binchois Consort, conducted by Andrew Kirkman, Hyperion CD CDA66997 (1998); edition in Guillaume Dufay, *Opera omnia,* ed. Heinrich Besseler, Corpus mensurabilis musicae 1 (Rome: American Institute of Musicology, 1951–66), 2:27–29. The Alleluia survives uniquely in Bologna Q15, fols. 123v–125r, and is given there without a signature for the first section (which is to be repeated at the end). Hamm understood the initial mensuration to be ϕ (*A Chronology,* 56). There is indeed a shift to significantly larger note-values (relative to ○) in this section, as well as in the one designated ϕ. The average note-values (in all voice parts together) are [ϕ]: 1.486; ○: 0.952; ϕ: 1.6; ○: 1.152 (the unit being the semibreve; cf. the literature cited in n. 8 above). Thus, the sections in ϕ are firmly in breve-semibreve movement, and those in ○ in semibreve movement.

22. David Fallows, in *Gramophone* 76 (July 1998): 68. The disc was elected Gramophone Record of the Month for July 1998.

> Still troubled by the problem pieces introduced above, I set out to explore how ϕ had come to be understood in a proportional or accelerating sense and whether all reasonable alternatives had been exhausted. What else could it mean, instead or as well? Arguments that multiple meanings would have been confusing need not detain us. More than one meaning for ϕ is now assumed by several scholars: 2:1 for simultaneous use, and simply "faster" for successive use. . . . Once it is accepted that ϕ may not mean the same thing in all contexts, might it not mean yet other things than those hitherto proposed? (p. 203)

Here the new hypothesis could hardly be said to improve on the received view. Even if later theorists *had* described ϕ as a sign with "multiple meanings," it would not follow that this should have been the case in the early fifteenth century as well. After all, to assert this would be to perpetuate the very "prejudice of hindsight" from which Bent has elsewhere insisted we should demur. And even if their testimony were relevant to early fifteenth-century practice (as I will argue it is; see below, "Theoretical Evidence"), it is doubtful that anything they wrote could be taken to substantiate the open-endedness of meaning for which her hypothesis gives scope.

Johannes Tinctoris, for example, explicitly defines the stroke as having a singular, precise meaning: "it is proper to [the stroke] to signify acceleration of the beat (*acceleratio mensurae*)."[23] It is true that some of the examples he cites show a doubling of speed in vertical combinations; that in another example he describes the stroke as an approximate alternative to 3:2 proportion; and that the precise rate of acceleration is elsewhere left unspecified. However, all of these different uses are accounted for by the single definition of *acceleratio mensurae*. There is no implication in Tinctoris that the stroke may comprise more "meanings" than those covered by that definition. This being the case, the logic of Bent's rhetorical question, quoted above, comes down essentially to this:

> More than one meaning for [*acceleratio mensurae*] is now assumed by several scholars: 2:1 for simultaneous use, and simply "faster" for successive use. . . . Once it is accepted that [*acceleratio mensurae*] may not mean the same thing in all contexts, might it not mean yet other things than those hitherto proposed?

To which the answer, of course, must be: not necessarily.[24] Even in the modern period, an indication like *più mosso* may well equate to 120 M.M. in one

23. Wegman, "What Is 'acceleratio mensurae'?" The conclusions of this article have meanwhile been challenged by Anna Maria Busse Berger, "Cut Signs in Fifteenth-Century Musical Practice," in *Music in Renaissance Cities and Courts: Studies in Honor of Lewis Lockwood*, ed. Jessie Ann Owens and Anthony M. Cummings (Warren, Mich.: Harmonie Park Press, 1997), 101–12. For a response to Busse Berger's article, see Blackburn, "Did Ockeghem Listen to Tinctoris?" 609–10 nn. 21 and 22.

24. As I emphasized in "What Is 'acceleratio mensurae'?" 521, Tinctoris understood *acceleratio mensurae* to have a singular meaning—one that can appear to comprise different connotations only if one attempts to redefine it in terms of something which it is not (for instance, a proportion; see ibid., 518). Bent's rhetorical question involves a tacit redefinition of this sort: the concept of *acceleratio mensurae* admits different rates of acceleration, and hence "simply faster" and "twice as fast" do not, as she appears to maintain, represent "more than one meaning" at all.

context and 84 M.M. in another, yet this does not compel us to consider that it might have been used, say, as a rehearsal sign, or a sign for *legato*—even if it were often found in passages where such signs could be construed to make sense. Whatever other grounds there may exist for suggesting that the stroke had multiple meanings besides diminution, there is no support for this contention in the theoretical evidence we do have—regardless of the relevance we allow for it with regard to the earlier fifteenth-century repertory.

The Balance of Probabilities

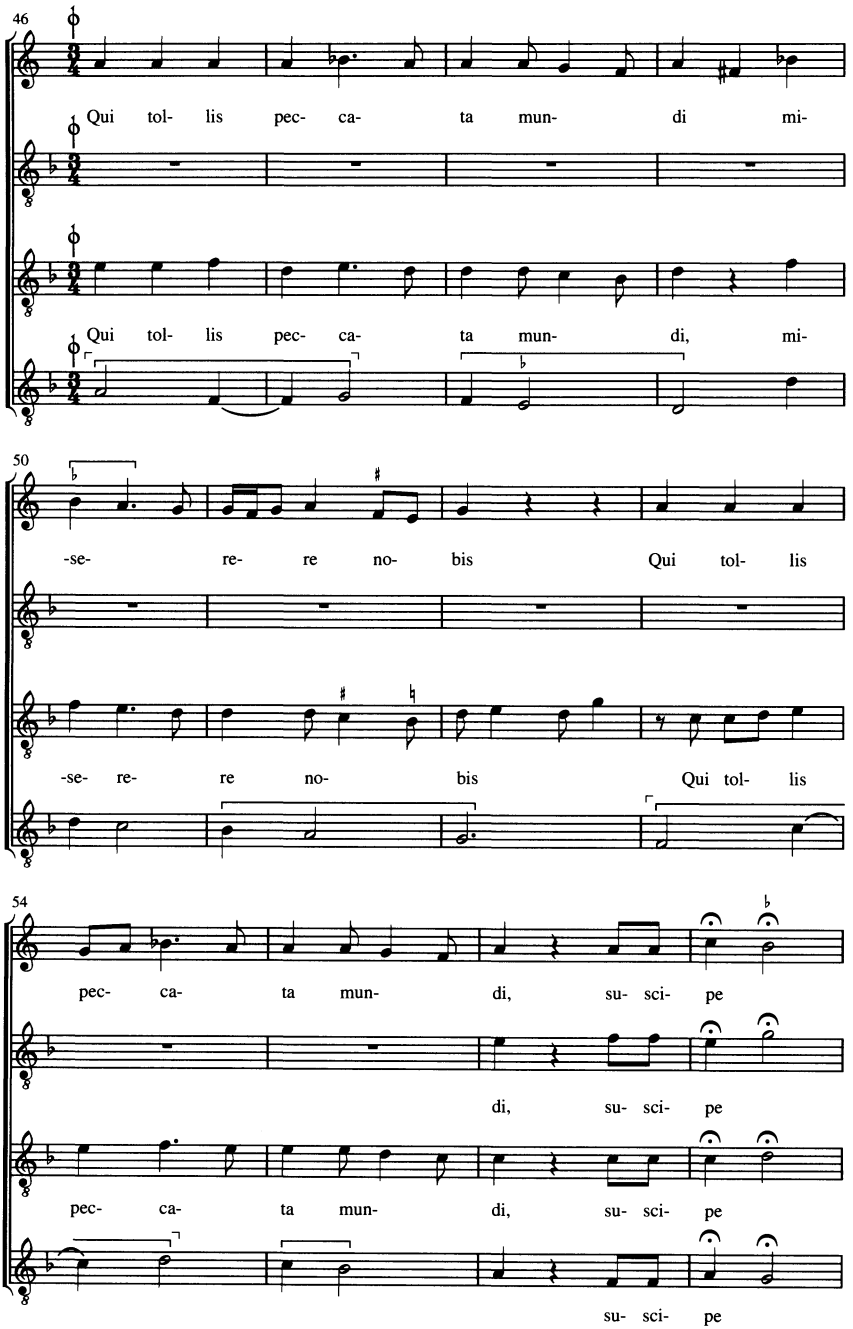
A further objection to the received view, according to Bent, is that some of the nine Mass movements she considers (or at least some of their sources) employ ϕ in apparently problematic ways that would be hard to explain by assuming that diminution was intended. If the new hypothesis allowed us to make better sense of these examples, the balance of probabilities might compel us to accept it provisionally, even in the absence of conclusive proof. To evaluate this point it will be useful to consider two pieces in more detail, both by Binchois: one of his Gloria settings (labeled 3a in the recent edition by Philip Kaye),[25] and the Kyrie *Angelorum*.

Let us begin with the "Qui tollis" of Gloria 3a, discussed by Bent on page 213. This is a four-part section in ϕ, yet one of the four parts, the contratenor, enters after ten measures of rest (see Ex. 1a). Trent 87 supplies the equivalent number of rests, yet here the sign ϕ does not come *before* those rests (as for example in Aosta, fols. 42v–43r) but *after* (see Ex. 1b as well as the list of source abbreviations, below). What is the significance of the sign's insertion at that point? According to the received view ϕ calls for diminution. Yet the other voice parts have had this sign since the beginning, and hence the contratenor could at best only join them in that regard. This would imply that the preceding ten measures of rest had been undiminished: perhaps the signature of the preceding section, O, was meant to be carried over here? That would contradict the received view, however, for the vertical relationship between the rests and the other parts is 1:1 not 2:1. In other words, ϕ in the other parts would signal no diminution. This problem would disappear under Bent's hypothesis, for the sign is inserted precisely at the point where the scoring expands from three to four parts. Its initial use in the other voice parts would also make sense, as the "Qui tollis" opens with a scoring different from the preceding "Domine Deus."

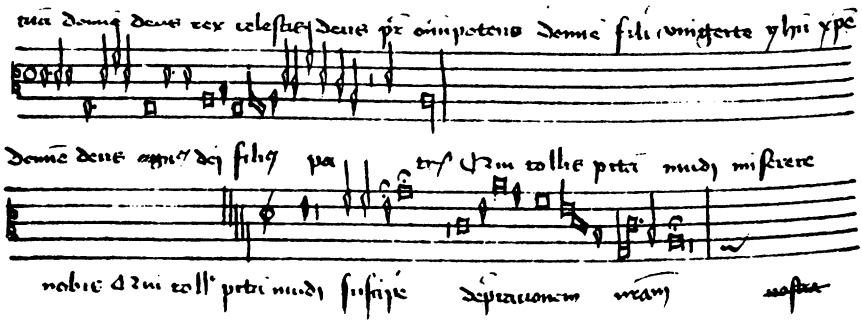
It does indeed seem hard to account for this case under the received view. One possible explanation that could be advanced, perhaps, is scribal error. Yet, although the Trent 87 reading is indeed not supported by the other sources—and is hardly free of apparent errors in any case—this is clearly a

25. Gilles Binchois, *The Sacred Music*, ed. Philip R. Kaye (Oxford: Oxford University Press, 1992), 31–36 and 290–91.

Example 1a Binchois, Gloria 3a, mm. 46–57, beginning of "Qui tollis . . . suscipe." After Philip R. Kaye, ed., *The Sacred Music of Gilles Binchois* (Oxford: Oxford University Press, 1992), 33–34.



Example 1b Trent 87, fol. 25v, music of contratenor for Binchois, Gloria 3a, "Domine Deus" and "Qui tollis . . . suscipe." After *Codex Tridentinus 87–[93]* (Rome: Bibliopola, 1969–70), 1:52.

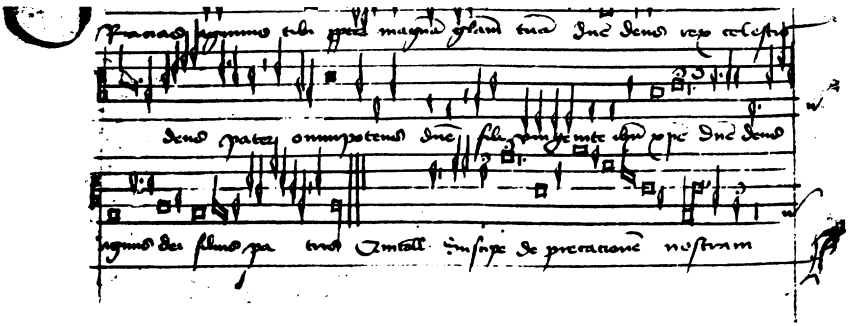


weak argument. To begin with, one cannot credibly sustain a theory by conveniently explaining away all exceptions as due to scribal error. Moreover, even though the Trent 87 reading may not have the distinction of reflecting the composer's intentions, it does attest to an early fifteenth-century usage of ϕ that made sense at least to its scribe, and probably (since the reading was never emended) to users of the manuscript as well. One has to account for this usage, and Bent's hypothesis plainly does—at least partially.[26]

One other explanation to consider is that the contratenor originally had no rests: such is the reading we find in Trent 92 (see Ex. 1c). To be sure, this would leave us with an obvious problem: how did the singers know at what point to join in? Trent 92 gave them no cue other than the text, "suscipe." (It does not even have a sign of congruence at the corresponding points in the other voice parts.) This cue is quite inadequate, however, for the actual syllable on which the part must enter is "-di" of the preceding word "mundi" (see Ex. 1a). The underlay of Trent 87 is more helpful in this regard: it supplies the

26. Of course, unless Bent were to maintain that it was somehow not abnormal for ϕ to stand in a vertical 1:1 relationship to o, the Trent 87 reading would require an explanation on the part of her hypothesis as well. Such an explanation might in fact strengthen her case. After all, given the categorical exclusion of all vertical relationships involving ϕ, it would surely undermine Bent's credibility to be making an exception for the one apparent example of a 1:1 relationship, and to insist both on the pertinence of this example and on the authority of the reading. Should one wish to make the case, however, there is another apparent example of a vertical 1:1 relationship between o and ϕ in Oxford 213, fol. 3v, "Qui cum patre" (contradicted by the other sources for this piece). Also, *Je suy exent* by Hugo de Lantins (Oxford 213, fol. 47r) opens with ϕ in all voice parts, but subsequent vertical relationships reveal that it is to be read here as undiminished o, the sign used in the second section of the song. See Willi Apel, *The Notation of Polyphonic Music, 900–1600* (Cambridge, Mass.: The Mediaeval Academy of America, 1942), 176–79. (I am grateful to Andrew Kirkman for drawing my attention to this piece.) One possibility, as Apel points out, is that "the sign ϕ of the first section has no proportional meaning, and indicates just simple *tempus perfectum*" (ibid., 179). Another possibility is that Lantins provided no signature at the beginning of his song, as was common in the early fifteenth century, and that a later scribe erroneously assumed the initial mensuration to be ϕ.

Example 1c Trent 92, fol. 25v, music of contratenor for Binchois, Gloria 3a, "Domine Deus" and "Qui tollis . . . suscipe." After *Codex Tridentinus 87–[93]*, 6:54.



whole text up to "mundi" over a stretch of empty staff, with the final syllable "-di" carefully aligned to the first note (see Ex. 1b). Yet while this is clearly an improvement over the Trent 92 reading, it does seem a rather laborious way of spelling out what could have been notated simply with five longa rests. In fact, if the rests had been there in the scribe's exemplar, there could have been no conceivable reason for him to do this. (I know of no other examples of such redundancy.)

On the other hand, if the rests had not been originally supplied, as is the case in Trent 92 and as I suggest for Trent 87 as well, it is not improbable that singers might still have found them helpful as an alternative to the textual cue and decided to write them in. In that case the obvious place to add the rests would have been right after the sign ϕ. This is where a singer might have intended to insert them, especially if he felt that he was correcting a copying error and hence emending the musical text to what it *ought* to have looked like. Yet as suggested above, and as the Trent 92 reading confirms, it may be difficult to speak of a scribal error in this case. What I am suggesting, then, is that the rests were added rather like a marginal note of clarification, helpful but not essential, and as such were entered simply where there was more space to write them, namely, before the mensuration sign rather than after.

Of course, to explain the Trent 87 reading in this way may be to risk the charge of special pleading. However, if I do indeed prefer the above explanation, it is not because I insist on salvaging the received view at any cost, but rather because Bent's interpretation invites more credible counterproposals. It is true, as she points out, that ϕ in the contratenor coincides with a shift from three to four parts. However, one does wonder what the singers of that part would have learned from the sign if it were really meant as a "vocal scoring indication" (p. 213). To judge from the musical context (Ex. 1a), it would have had to be something like this: "Warning: as you are about to sing the following music, please be advised that a scoring change will occur, namely, the one resulting from your own entry."

By this reasoning, any voice part in any composition would have needed the sign ϕ after an extended period of rest. To the credit of fifteenth-century musical culture, few singers seem to have needed reminders of this sort: thus far the Trent 87 example appears to be unique. (In fact, at the end of the Gloria the contratenor once again joins the other voice parts after an extended period of rest: all four parts are marked C and then O, and the Trent 87 contratenor now manages without the "vocal scoring indication.") The lack of corroboration by other sources, combined with the apparent futility of the sign within Bent's hypothesis, would seem to justify the search for alternative explanations irrespective of whether there were competing hypotheses or not. The explanation advanced above is not only consistent with the received view of ϕ, but, unlike Bent's proposal (which can be evaluated only for credibility), it is empirically falsifiable: if examination of the Trent 87 copy were to reveal that the rests are written in the same ink as the sign ϕ, and hence presumably by the original scribe after all, it would have to be rejected.

Let us now consider the second example, the Kyrie *Angelorum* by Binchois, found in nine manuscripts (pp. 213–16).[27] The music for this movement consists of four sections *a, b, c,* and *d,* which are arranged to yield nine Kyrie invocations: *aaa bbb cdc* (with some sources giving *ccd* or *ddd* for the final three invocations). Each of the four sections is written out only once: the multiple statements are indicated by two or three mensuration signs placed on top of one another, one for each statement. The repeat scheme is not fully specified in some sources (Trent 90 and 93), and one manuscript gives no mensuration signs at all (Munich). Yet it is clear from the source tradition as a whole that within each group of three invocations, the successive statements were to alternate between O and ϕ. Not all manuscripts agree on the specific order of the signs, however, and it is on this ground that Bent challenges the received view.

There is complete source agreement on the order for the middle three invocations (*bbb*) of the Christe: OϕO. In one manuscript (Trent 92) this pattern is used for the outer sets of invocations as well, yielding a "triptych" arrangement: OϕO OϕO OϕO. In most of the other sources, however, the principle of alternation is continued without interruption through all nine invocations, with ϕ as the initial signature, yielding the following arrangement: ϕOϕ OϕO ϕOϕ. Bent comments:

> If ϕ is a tempo indication, then we have to believe that users of one manuscript would have sung the sections slow-fast-slow, while others using another manuscript of the same piece would have sung the same music fast-slow-fast. . . . Such inconsistencies between pieces and between different sources belie any

27. Binchois, *The Sacred Music,* 78–79 and 298–99. For a useful diplomatic transcription and collation of the different versions as transmitted in the nine sources, see Marian W. Cobin, "The Aosta Manuscript: A Central Source of Early-Fifteenth-Century Sacred Polyphony" (Ph.D. diss., New York University, 1978), 212–31.

> consistent performance tradition, whether of slow-fast-slow or fast-slow-fast; and they can be more easily accommodated through a non-mensural interpretation than a mensural one. (pp. 213 and 216)

The argument here centers on the postulate of a "consistent performance tradition": when ○𝄵○ and 𝄵○𝄵 are source variants for the same music, any notion of consistency would be negated by the assumption that ○ and 𝄵 have different tempo implications. In a sense, however, that is a paradoxical objection to the received view. It is this view, after all, which posits a totally consistent performance tradition not only for the early fifteenth century but for the entire Renaissance—one in which 𝄵 was always and consistently a sign of diminution, and theorists consistently said it was. Regardless of how the signature arrangement of the Kyrie *Angelorum* might have been transmitted by different scribes in different musical centers, the received view holds that singers everywhere would have known that 𝄵 calls for speeding up. If that does not represent a consistent performance tradition, one is tempted to wonder, then what does?

The root of the problem lies in the fact that Bent posits consistency of performance not so much for the sign (according to her, 𝄵 is indeed a "general-purpose sign," serving different purposes in different contexts) but rather for the composition. The unstated premise of her argument is that a performance tradition is consistent when it succeeds in preserving the integrity of the musical work—in fact even of the compositional conventions it is seen to exemplify. In the case of the Kyrie *Angelorum,* for example, her objection is essentially that its integrity as a work would be violated if 𝄵 called for speeding up, for that would make the piece appear in different guises in different musical centers, and different yet again from other Kyrie settings. To quote her rhetorical question, "Is the same piece, or the same kind of piece, really to be tolerated with the reversed tempo relationships suggested by the diverse order of mensural signs in its different sources?" (p. 216).

Needless to say, the very fact that the piece appears in different guises in different manuscripts could be taken to confirm what is well established in any case, namely, that scribes were not always particularly fastidious about preserving the *textual* integrity of musical works in the first place. (For instance, the Kyrie *Angelorum* of Binchois is already to be "tolerated" with a final set of invocations arranged as *cdc* in one source, *ccd* in another, and *ddd* in yet another.) Nor is it unknown for composers to change their minds about the final shape of their work. Compared to some of the revisions we find,[28] inverting

28. A good example from this period is the *Salve regina* by Johannes Reson, which survives in two sources, Bologna Q15 and Bologna 2216, in versions that differ with respect to the total number of measures, pitch of the final, use of proportions, and numerous musical readings; cf. CMM 11/ii: liii–lv and 111–14 (edition based on Bologna Q15), and, for a brief account of the variants, Bobby Wayne Cox, " 'Pseudo-Augmentation' in the Manuscript Bologna, Civico Museo Bibliografico Musicale, Q15 (BL)," *Journal of Musicology* 1 (1982): 419–48, at 430–31, with edition of the Bologna 2216 version on pp. 444–47.

the order of o and ϕ (in threefold statements of the same music) seems relatively harmless: it even leaves the principle of alternation unaffected. For Bent, however, even such a change would fly in the face of a "consistent performance tradition," if it meant that the relative speeds in Kyrie *Angelorum* and similar settings did not follow exactly the same order in all musical centers in Europe.

These are exacting standards of *Werktreue* to expect from late-medieval musical culture. In projecting those standards onto the early fifteenth century, Bent subscribes to an extreme form of the post-Enlightenment aesthetic of the musical work—an aesthetic whose earliest historic antecedents are not actually even traceable before the sixteenth century.[29] It is not clear, however, why the reader should accept such an essentially anachronistic perspective. In recent years there has been considerable reflection on the issue of source variation in fifteenth-century music, specifically as it relates to (and qualifies) modern notions of the integrity of the musical work.[30] This research (none of which is discussed or acknowledged in Bent's article) has persistently called into question the very assumption of *Werktreue*—a stable, authoritative musical text—which is the premise of her argument.

Even disregarding its anachronistic nature, however, that premise sets a problematic methodological precedent as well. After all, if Bent's argument were to be accepted, what would stop others from "demonstrating" in like manner that, say, sharps had no pitch implications in the fifteenth century? Given the precedent of the Kyrie *Angelorum,* all it would take is one work whose sources show significant disagreement on the transmission of sharps (for example, Domarto's *Missa Spiritus almus*),[31] and the "clinching" rhetori-

29. See especially Lydia Goehr, *The Imaginary Museum of Musical Works: An Essay in the Philosophy of Music* (Oxford: Clarendon Press, 1992), e.g. 220–32. For the emergence of a concept of the musical work in the early sixteenth century, see, for example, Walter Wiora, "Musica poetica und musikalisches Kunstwerk," in *Festschrift Karl Gustav Fellerer zum sechzigsten Geburtstag,* ed. Heinrich Hüschen (Regensburg: G. Bosse, 1962), 579–89; Hans Heinrich Eggebrecht, "Opusmusik," in *Studia musicologica aesthetica, theoretica, historica,* ed. Elzbieta Dziebowska (Cracow: Polskie Wydaw. Muzyczne, 1979), 137–51; Peter Cahn, "'Ars poetica' und Musica poetica—Quintilian und Horaz in der Musiktheorie und Kompositionslehre des 15. und 16. Jahrhunderts," in *Ainigma: Festschrift für Helmut Rahn,* ed. Freyr Roland Varwig (Heidelberg: C. Winter, 1987), 23–33; and Peter Cahn, "Zur Vorgeschichte des 'Opus perfectum et absolutum' in der Musikauffassung um 1500," in *Zeichen und Struktur in der Musik der Renaissance,* ed. Klaus Hortschansky (Kassel and New York: Bärenreiter, 1989), 11–26.

30. Martin Staehelin, "Bemerkungen zum Verhältnis von Werkcharakter und Filiation in der Musik der Renaissance," in *Datierung und Filiation von Musikhandschriften der Josquin-Zeit,* ed. Ludwig Finscher (Wiesbaden: O. Harrassowitz, 1983), 199–215; David Fallows, "Embellishment and Urtext in the Fifteenth-Century Song Repertory," *Basler Jahrbuch für historische Musikpraxis* 14 (1990): 59–85; Rob C. Wegman, "*Miserere supplicanti Dufay:* The Creation and Transmission of Guillaume Dufay's *Missa Ave regina celorum,*" *Journal of Musicology* 13 (1995): 18–54, at 50–54; and Andrew Kirkman and Philip Weller, "Binchois' Texts," *Music and Letters* 77 (1996): 566–96.

31. Rob C. Wegman, "Petrus de Domarto's *Missa Spiritus almus* and the Early History of the Four-Voice Mass in the Fifteenth Century," *Early Music History* 10 (1991): 235–303, at

cal question: is the same piece, or the same kind of piece, really to be tolerated with the different relative pitches suggested by the different placements of sharps in its different sources?

It is this insistence on total uniformity of performance practice, at least with regard to the musical work, that requires the tempo implication of ϕ to be neutralized, if ϕ○ϕ and ○ϕ○ are to be acceptable source variants for one and the same piece. Given Bent's assumption of a "consistent performance tradition," all sources must be seen to agree on the specific details of a work's performance: should they appear not to, then the notational sign responsible for the disagreement (here the stroke—but conceivably the sharp or some other sign) must be reinterpreted, so as to allow the performance tradition to be viewed once again as consistent.[32]

The inevitable corollary of this argument, ultimately, is that the stroke could only signify whatever the sources happen not to disagree on—in this case, the bare fact that one section follows another. To quote Bent again, "The inconsistent signatures make no sense as mensural signs, but good sense as toggles simply giving graphic distinction to adjacent sections, leaving no problem [*sic*] about source inconsistency, and resolving the awkwardness of a tempo interpretation" (p. 216). Now if ϕ is to function here as a sign at all, or even only as an aid to prevent confusion, the "good sense" it communicates by graphically distinguishing repeated statements must be something like this: "Reminder: as you sing this music three times, please keep in mind that the second time is not the first time, and the third is not the second."

What problems in the received view could be serious enough for us to consider a reading like this? Bent's principal objection, the apparent "awkwardness of a tempo interpretation," has already been addressed (see the section entitled "Aesthetic Sense," above). The only remaining objection, as far as one can tell from her discussion on pages 213–19, is the danger of circular proof: "Remember that the presumed meaning of ϕ to increase tempo is our *only*

275–76. Two sources for this work transmit altogether twenty-nine sharps, and agree on the particular placement of seventeen of these. Of the two fragmentary manuscripts, one shares seven sharps with either or both of these sources, and adds another six of its own; the second fragment similarly shares two sharps and adds one. Altogether, then, there are thirty-six places where a sharp is notated in any of these four sources. The fifth source, on the other hand, has no sharp anywhere in the entire Mass.

32. Bent makes a similar inference in the case of a Credo by Binchois (Credo 1b in Binchois, *The Sacred Music,* 8–16): one of its sources, Trent 92, shifts between ○ and ϕ when the scoring changes, whereas another, Cambrai 11, gives ○ throughout, with *signa congruentiae* marking the changes to full scoring, at the points where Trent 92 has the sign ϕ. "Are we really to believe," she asks on p. 213, "that these two evidently synonymous notations [ϕ and *signum congruentiae*] signal different ways of performance, or rather that the same thing is being notated using different general-purpose signs?" This is not so much a question, however, as it is a tautological inference: if one already assumes that two notations are "evidently synonymous," then of course one is not very likely to believe that they may signal different ways of performance. The inference still begs the question (as does Binchois's Kyrie *Angelorum*) whether the assumption of synonymity, and its underlying premise of *Werktreue,* is a valid one in cases like this.

evidence that identical textures might have been repeated at different speeds" (p. 216).[33] That is to say, any claim that it makes musical sense to sing some sections at faster speed would be circularly dependent on the very assumption that is being debated here.[34] This observation may be true enough in itself, but as an objection to the received view it highlights what may well be the most serious problem in Bent's hypothesis—the fact that it fundamentally misconceives the nature of ϕ as a *sign*.

To put this into perspective, a sign, by definition, signifies what users agree it to signify. Its meaning is not an objective truth to be verified, but a practical convention to be learned and applied.[35] That is why we turn to teaching manuals to learn what ϕ calls for. Now, in many compositions there may indeed be no "evidence" to confirm what these manuals tell us. But then, would it be logical to insist that the sign can only be read correctly if the music happens to confirm that reading? Surely it would be strange to assume that singers could never have implemented the meaning of the stroke except if there was positive confirmation that it called for diminution. That would be analogous to suggesting, for example, that car drivers need not stop before red traffic lights unless they have independent "evidence" to confirm, for each individual crossing, that the light signifies "stop." Whatever other symbols may call for a response of this kind, signs are not meant to function that way.[36]

33. To be fair, Bent does not always consider the lack of independent confirmation problematic; a similar argument is advanced in support of her own hypothesis, for example, on p. 216: "we can now see that two adjacent ϕ would in themselves be sufficient indication [that is, "our *only* evidence"] that the uncut section should come between them." See also n. 12 above.

34. By the same token, of course, any claim that it does *not* make musical sense to sing some sections at faster speed would be circularly dependent on the rejection of the assumption that is being debated here (see above, "Aesthetic Sense").

35. Throughout the later Middle Ages, musical notation was understood in terms of contemporary (medieval) sign theory. See, for instance, Max Haas, "Musik zwischen Mathematik und Physik: Zur Bedeutung der Notation in den 'Notitia artis musicae' des Johannes de Muris (1321)," in *Festschrift für Arno Volk,* ed. Carl Dahlhaus and Hans Oesch (Cologne: Gerig, 1974), 31–46; Blair Sullivan, "Nota and Notula: Boethian Semantics and the Written Representation of Musical Sound in Carolingian Treatises," *Musica disciplina* 47 (1993): 71–97; Rob C. Wegman, "From Maker to Composer: Improvisation and Musical Authorship in the Low Countries, 1450–1500," this **Journal** 49 (1996): 409–79, esp. 452–54; and Étienne Anheim, "Du symbole au signe: Remarques sur la parenté entre *ars nova* et nominalisme," *Médiévales* 22 (1997): 9–19. Medieval sign theory held that the nature of the bond between signifier and signified was essentially arbitrary. After God's punishment of man's pride at Babel, as St. Augustine had commented, signs could not be common to all people, and their capacity to signify necessarily depended on social convention (what he called a "pact"). Cf. B. Darrell Jackson, "The Theory of Signs in St. Augustine's *De doctrina christiana,*" *Revue des études augustiniennes* 15 (1969): 9–49, at 13–15 and 27.

36. One cannot help wondering, moreover, why musicians in need of a general-purpose sign would have chosen—of all possible symbols—one already in use for diminution in perfect tempus. There were plenty of other signs to choose from, as one can see from the range of symbols used in the Middle Ages to indicate insertions, omissions, and abbreviations. The sign ϕ, on the other hand, was bound to cause confusion: it looked like a mensuration sign, was used in the precise

As it happens, of course, there are very many compositions in which diminution is unambiguously confirmed by the musical context—for instance, when ϕ is used simultaneously with other signatures, or when larger note-values are used in ¢ relative to O. But as mentioned earlier, Bent has eliminated all these pieces from consideration, specifically limiting her inquiry to those works in which contextual confirmation for diminution happens to be lacking (see the section above, "The Logic of Proof"). In these remaining pieces, as she rightly points out, there is nothing but the convention to tell us that one has to observe that convention—that, after all, was the criterion for their selection. However, is it fair to suggest that this is a weakness on the part of the received view? To pursue our traffic analogy once again: if one were the only driver at an otherwise deserted crossing, the red traffic light would indeed be the only "evidence" that one had to stop. There would be nothing else to confirm its meaning, nothing even to indicate that it made any apparent sense to stop. And yet the meaning of the red light could not possibly be in doubt, precisely because it is a *sign*. For it is inherent in a sign that it has the potential to signify on its own when necessary—as indeed the stroke does, at least according to the received view.[37]

This brings us to the central issue of the whole discussion, and the essential difference between the two competing explanations: under the new hypothesis, ϕ is no longer a sign in the accepted sense of the word. "In the kinds of pieces affected," Bent writes at the end of her article, "the context made

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place where one would expect a mensuration sign, and typically appeared in conjunction with mensuration signs—and yet, according to Bent, in many cases was not to be read as a mensuration sign. This would have created unnecessary notational problems as well. One implication of Bent's argument, for instance, is that ϕ would have been unavailable as a sign of diminution in passages where there was nothing to confirm its meaning—without such confirmation, after all, her hypothesis posits a "general purpose" rather than diminution. This raises the question what the composers of the pieces discussed by Bent should have done if they actually *wanted* to notate diminution there—that is to say: how, according to her hypothesis, the notation should have been different from the way it already is. Needless to say, if the composers had wanted to spell out changes of section or scoring, as Bent assumes, it would have made no difference whether they used ϕ or not, since double measure lines and longa rests are already unequivocal in themselves.

37. It is true, of course, that a traffic light is still context-dependent in the sense that one could not confuse its meaning with that of, say, a lamp before the Sacrament in a Catholic church, or of window lights in a red-light district. However, Bent's hypothesis does not involve a consideration of context in this sense, and consequently exhibits just such confusion. On pp. 204–5, for instance, she argues that a musician in 1420 "was at least as likely to have encountered strokes, O and ϕ as general-purpose signs as to associate them solely with a fixed proportional meaning"—on the grounds, amongst others, that symbols resembling ϕ are found to have signified "zero" and *obiit* ("deceased") in nonmusical sources of the thirteenth and early fourteenth centuries. The sign ϕ is thus concluded to be general in purpose because, like a red light, it could mean different things in different contexts in different centuries. Yet it does not follow that a musician in 1420 must therefore have understood ϕ as a "general-purpose sign" within specifically musical contexts as well, any more than a driver would regard a traffic light as a "general-purpose sign" merely because red lights happen to have other meanings in other contexts.

it perfectly obvious which meaning was intended" (p. 219). This captures the issue in a nutshell: it is no longer ϕ which tells us how to read the music (as in the received view), but rather the music which tells us how to read ϕ. Without a change in scoring, a new section, or anything else that looks potentially signifiable, there is nothing in particular which ϕ can be said to communicate on its own. That is presumably what is implied in the paradoxical notion of a "general-purpose sign": ϕ has no specific purpose unless there is a context from which one might be construed—after which construal it is already past serving any practical purpose in any case. As a consequence, ϕ is less a sign than a riddle, one that must be solved by reading, singing, or transcribing the composition first, and then guessing from hindsight "which meaning was intended."

What may appear to make "good sense" as a solution to this riddle, however, need not make particular sense as the meaning of a sign—and here the distinction between sign and riddle is most clearly apparent. In both the Gloria 3a and the Kyrie *Angelorum* of Binchois, as we have seen, the meanings proposed by Bent made near-trivial sense when translated into the sorts of messages one might have expected a sign to convey. Only the dullest (or, perhaps, not even the dullest) would have needed reminding that the entry of their own voice part would bring about a change in scoring, or that a threefold statement of the same music would involve the statements being distinct rather than somehow confused or mixed up. Yet the new hypothesis will now require us to assume that every musician in the early fifteenth century needed reminders of this kind—a conclusion hardly more plausible than the premises and auxiliary assumptions that went into reaching it.

Theoretical Evidence

Let us now turn to a further objection to the received view: the apparent lack of theoretical support for ϕ as a sign of diminution in the early fifteenth century. Bent observes that "all theoretical evidence for any meaning of ϕ dates from the 1470s or later," and hence need not be relevant to the early decades of the century at all (p. 202; see also p. 219). This argument leaves room for qualification on a number of counts.

To begin with, ϕ was discussed by several theorists before the 1470s, and their comments turn out to be of direct relevance to the question of its origins. The sign is mentioned, for example, by Anonymus XII, whose treatise has been dated around 1460 by some scholars, and a copy of which is in any case known to have been made in 1471.[38] The author describes ϕ as an exam-

38. Anonymus XII, *Tractatus et compendium cantus figurati*, ed. Jill Palmer, Corpus scriptorum de musica 35 (Neuhausen-Stuttgart: Hänssler, 1990), 65; see also Edmond de Coussemaker, ed., *Scriptorum de musica medii aevi* (Paris: A. Durand, 1864–76; reprint, Hildesheim: G. Olms,

ple of *syncopatio,* a concept analogous here to diminution: "When the line is traced through the middle of a full circle that lacks a dot, thus: ϕ, one does not take away half of the song, but only a third; which is to say that it is sung faster than if the line were not there." Another early theoretical witness for ϕ is Anonymus XI, whose treatise has been thought to date from about 1450.[39] He cites ϕ as an example of *diminutio,* describes it as the sign of perfect tempus "in half" (*per semi*), and reports that "according to the most recent singers" it is the same as o2—a comment which would make historical sense only if the treatise was written well before the middle of the century.[40]

However, the most interesting text may well be the anonymous Middle-French treatise on proportions that was copied in 1460 by Georg Erber, a German student at the University of Paris.[41] The relevant sentence reads, "And one recognises [duple] proportion by this sign: ϕ, or by this: ¢, or by this: 2, which signs were specifically assigned to this same proportion." There are several grounds for assuming that this treatise, which takes up about four pages in manuscript, was written well before the copying date of 1460. In the final sentence the anonymous author comments that the seven proportions

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1963), 3:484. For discussions of the relevant passage, see Alejandro Enrique Planchart, "The Relative Speed of *Tempora* in the Period of Dufay," *RMA Research Chronicle* 17 (1981): 33–51, at 35; Eunice Schroeder, "The Stroke Comes Full Circle: ϕ and ¢ in Writings on Music, Ca. 1450–1540," *Musica disciplina* 36 (1982): 128–32; and Anna Maria Busse Berger, *Mensuration and Proportion Signs: Origins and Evolution* (Oxford: Clarendon Press, 1993), 134–37. For the date of ca. 1460, see Planchart, "The Relative Speed," 35; Jill Palmer reports that one of the sources for the treatise was probably copied shortly after the middle of the fifteenth century (Anonymus XII, *Tractatus et compendium cantus figurati,* 34).

39. Richard J. Wingell, "Anonymous XI (CS III): An Edition, Translation, and Commentary" (Ph.D. diss., University of Southern California, 1973), 155 and 330; and Coussemaker, *Scriptorum de musica* 3:469. For a discussion, see Busse Berger, *Mensuration and Proportion Signs,* 137–38. For the date, see Lawrence Gushee, "Anonymous Theoretical Writings," in *The New Grove Dictionary of Music and Musicians* 1:441–46, at 444; see also below, n. 40, however.

40. "Similiter illud ϕ [equivalet] huic o2 secundum modernissimos cantores" (Wingell, "Anonymous XI," 155). This observation would have been accurate in the 1420s and perhaps even in the 1430s, when o2 was still current as a sign of diminished perfect tempus, with the breve equaling three semibreves. By the 1440s, however, o2 was generally understood to be a sign of perfect modus, with the longa equaling three breves, and was no longer treated as equivalent to ϕ. For the difference, see Rob C. Wegman, "Another Mass by Busnoys?" *Music and Letters* 71 (1990): 1–19, at 2–3. The earliest known use of o2 as a sign of perfect modus is in the Trent 88 Mass Propers, composed by Guillaume Dufay in the 1440s (Busse Berger, *Mensuration and Proportion Signs,* 22 and 155–56), and Petrus de Domarto's *Missa Spiritus almus* of ca. 1450 (Wegman, "Petrus de Domarto's *Missa Spiritus almus,*" 256–57). This might suggest a date well before the middle of the fifteenth century for the treatise by Anonymus XI.

41. Renate Federhofer-Königs, "Ein Beitrag zur Proportionenlehre in der zweiten Hälfte des 15. Jahrhunderts," in *Bence Szabolcsi Septuagenario,* ed. D. Bartha (Budapest: Akademiai Kiado, 1969), 145–57, at 148 and 153: "Et cognoist on ceste proportion [dupla] par ce signe ϕ, ou par cestuy ¢, ou par cestui .2., les quelx signe[s] hont esté imposés expressement a ycelle proportion." (Note that the photographs on pp. 153–57 should be read in the following order: pp. 153, 157, 154, 156, 155.)

discussed in the treatise[42] "were lately invented [*novellement trouvées*] because of the agility of the voices of those singing today."[43] This would have been a strange remark in 1460, when the earliest songs featuring these proportions had been out of the repertory for at least two generations, and their composers would have been regarded as "ancients" in relation to such recent masters as Dufay, Binchois, and Ockeghem. For example, only twelve years later, in 1472–73, Tinctoris referred to some "ancients" (*veteres*) who had notated musical proportions by writing out their Greek names (such as *emyola* or *epitritus*) rather than through ciphers.[44] This practice can indeed be documented in two songs copied in the manuscripts Chantilly (ca. 1400) and Turin (ca. 1415).[45] Given that musicians active in the period 1395–1415 could already be described as "ancients" by the early 1470s, the obvious question is this: up to what date could their innovations have been truthfully described as "lately invented" on account of "those singing today"? In view of the major stylistic and notational changes that were to take place around 1430,[46] my suggestion would be the early 1430s at the very latest.

There are other grounds for proposing an early date as well: all seven proportions are defined here as mensural relationships involving the breve or the semibreve in 𝔠 or ⊙. This touches on an issue of major significance to the interpretation of 𝔬 to which I must return below (under "Early Uses of the Sign 𝔬"); suffice it to say at this point that the semibreve in 𝔠 or ⊙ would probably have been the standard unit of reference for any singer up to about 1430—the unit in relation to which 𝔬 was almost certainly conceived, and indeed happens to be defined in this treatise: "Like [someone] who would sing a [perfect] tempus in minor prolation [𝔬] upon a semibreve in major prolation [𝔠]."[47]

The anonymous author illustrates this with a musical example in score, showing the vertical combination of 𝔬 and 𝔠 (Ex. 2a). The relationship between these two mensurations is visualized in Example 2b: as one can observe, 𝔬 simply copies the rhythmic configuration of 𝔠 in doubled note-values, and, given the 2:1 relationship in vertical combinations, is merely a different way of writing out the same thing. It is this particular relationship that we find in the earliest known compositions employing the sign 𝔬: these are two songs by Baude Cordier, *Tout par compas* and *Belle, bonne, sage,* which were both en-

42. The proportions in question are 2:1, 3:1, 3:2, 4:3, 9:8, 8:3, and 9:4. See Busse Berger, *Mensuration and Proportion Signs,* 166–68, for the historical context relevant to this treatise (table 6 on p. 167 should be emended to include "8:3" for the treatise copied by Georg Erber).

43. Ibid., 150 and 155: "Et ce suffise quant a la demonstration des proportions novellement trouvées pour l'abillité dex [*sic*] voix des presentement chantans."

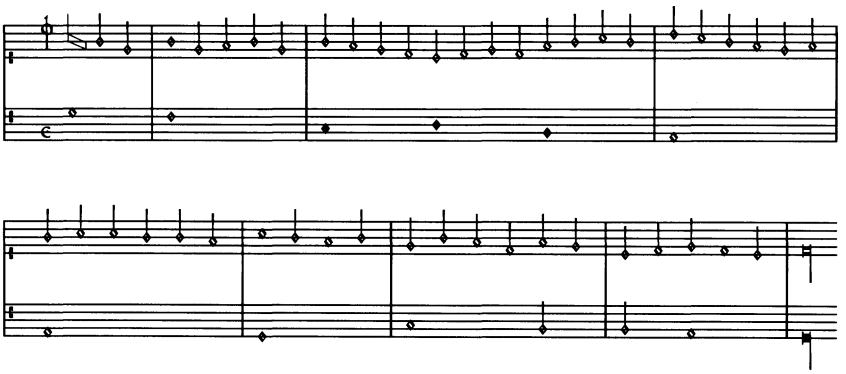
44. Tinctoris, *Opera theoretica* 2a:43–44.

45. Ursula Günther, "Der Gebrauch des tempus perfectum diminutum in der Handschrift Chantilly 1047," *Archiv für Musikwissenschaft* 17 (1960): 277–97, at 294.

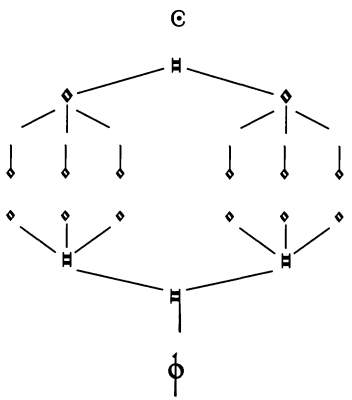
46. Cf. Heinrich Besseler, *Bourdon und Fauxbourdon: Studien zum Ursprung der niederländischen Musik* (Leipzig: Breitkopf und Härtel, 1950; rev. ed., 1974), 109–24.

47. "Comme qui chanteroit ung temps [parfait] de mineur prolation sur une semibreve de maiour prolation" (Federhofer-Königs, "Ein Beitrag zur Proportionenlehre," 148).

Example 2a Anon., *Sequuntur proportiones declaratae et manifeste* (treatise copied by Georg Erber at Paris in 1460); Innsbruck, Universitätsbibliothek, MS 962, fol. 142v; example in score showing the vertical combination of ϕ and ϵ, as an illustration of duple proportion



Example 2b The mensural relationship between ϕ and ϵ, as illustrated in the treatise copied by Georg Erber



tered as addenda to the Chantilly manuscript of ca. 1400, possibly as late as the 1410s.[48] Up to the early 1430s, the 2:1 relationship with ϵ was probably the defining context for ϕ (see below, "Early Uses of the Sign ϕ"). After that, ϵ and ʘ rapidly disappeared from the repertory (at least in voice parts other than the tenor), and ϕ came to be understood principally in relation to a different mensuration which was now becoming more prominent: uncut ʘ (see

48. CMM 11/i: x–xi and 9–12. For diplomatic transcriptions showing the use of ϕ against ϵ, see Joannes A. Bank, *Tactus, Tempo and Notation in Mensural Music from the Thirteenth to the Seventeenth Century* (Amsterdam: Annie Bank, 1972), 102 and 106. For a discussion, see Günther, "Der Gebrauch des tempus perfectum diminutum," 278–83. There are of course several other songs by Cordier in which the sign ϕ is used; see below, n. 59.

below, "Early Uses of the Sign ϕ").[49] (It is in the relation to O, apparently, that ϕ began to imply diminution by less than half.) The anonymous French treatise reflects the situation as it prevailed before this major change; it probably dates from the 1420s.

Yet dates are not the most important issue here. Whenever the first treatises to mention ϕ were written—and plainly this was well before the 1470s—the point is that these earliest citations cannot be said to represent the beginnings of a new theoretical tradition. In each of the three treatises, ϕ is mentioned merely in passing, as an instance or an example, within a longer discussion typically devoted to diminution, proportion, and/or syncopation. Discussions of this latter type were well established already by the beginning of the fifteenth century and continue to be found throughout the sixteenth—usually including at least a passing reference to the sign ϕ.[50] In fact, when it comes to diminution (and related practices) in voice parts other than the tenor, there is a continuous didactic tradition in which the same definitions and narrative formats tend to be used over and over again, evidently because theorists modeled their discussions on the same pedagogy. It is within the context of this tradition that the sign ϕ made its first appearance in treatises—possibly as early as the 1420s (in the treatise copied by Erber) and quite definitely by the 1440s or 1450s (in either or both of the treatises written by Anonymi XI and XII)—and continues to be cited for well over a century.

This places the whole issue of the "prejudice of hindsight" in a different perspective. Given that the earliest comments about ϕ, whatever their precise date, are embedded within a theoretical tradition that can be traced back to the beginning of the fifteenth century, there is little point in debating the question whether theoretical evidence should be admitted or excluded. The real issue, from Bent's point of view, is surely this: if ϕ was truly a sign of diminution from the beginning, then why do the earliest theoretical discussions of diminution (in voice parts other than the tenor) make no reference to the sign? But by analogy it would be just as reasonable to ask: if ϕ was truly a "general-purpose sign" from the beginning, as Bent proposes, then why is there not a single theorist who ever says it was?

To begin with the first question, there are at least two answers one could give. First, ϕ *was* already mentioned as a sign of diminution in a treatise that may date from the 1420s, and that in any case was written at a time when proportions could still be said to have been "lately invented." Second, it is well es-

49. Besseler, *Bourdon und Fauxbourdon,* 111–16. The question whether ϕ is defined in relation to C or to O is of cardinal importance: in relation to C it must call for diminution *per medium,* but in relation to O it was defined by many theorists as a sign of diminution *per tertiam partem.* See above, n. 4, and Ross W. Duffin, "Dufay and the Sign ϕ: Proportion and Tempo 1420–1440," paper read at the Forty-ninth Annual Meeting of the American Musicological Society, Louisville, Ky., 1983, p. 20 n. 45 (reporting a suggestion by Bobby Wayne Cox; I am grateful to Professor Duffin for sending me a copy of this paper).

50. Schroeder, "The Stroke Comes Full Circle"; Busse Berger, *Mensuration and Proportion Signs,* 120–48.

tablished that diminution as a practice, even in voice parts other than the tenor, had existed long before the earliest known uses of ϕ, and was originally indicated by means of verbal canons or the cipher "2," or, in most cases, was to be inferred from the vertical relationships between voice parts (see below, "Early Uses of the Sign ϕ"). Treatises reflecting this early historical stage may well have continued to be copied for decades after ϕ began to be used, and the first manuals to mention the sign may likewise have survived only in late copies such as Erber's manuscript of 1460. Neither of these latter suggestions is particularly implausible, of course, yet Bent's decision to eliminate the "prejudice of hindsight" means that they cannot even be considered as possibilities. However, even if the sources we have today were to indicate the time lag she perceives between practice and theory, as is debatable in itself, it would be hard to share Bent's sense of conviction that this apparent delay cannot be due to the usual vagaries of transmission and survival. To sum up, the received view can credibly maintain—without invoking any "prejudice of hindsight"—that music theorists had understood ϕ to be a sign of diminution well before the middle of the fifteenth century.

On the other hand, the complete absence of any theoretical support for the new hypothesis, even from later decades (let alone from the early fifteenth century itself), surely requires explanation if its conclusions are to be accepted. The nearest Bent comes to accounting for that absence is in a more recent study, where she argues that, "in any case, theorists are not generous in their explanations of general-purpose signs."[51] This may be true, yet it does not really answer the question. For of course one could hardly expect theorists to be generous in their explanations of "general-purpose signs," since they have never told us that such signs exist in the first place—that is precisely the issue. And if one were to assume that it is somehow in the nature of a "general-purpose sign" to defy straightforward theoretical explanation, then this would not really answer the question either. For of course, one could hardly expect a theorist to give a clear-cut definition of a "general-purpose sign," given that such a "sign" (were it to exist) could not, by definition, mean anything in particular—that, as we have seen earlier, is the central problem of the whole hypothesis.[52] That problem is not somehow diminished just because it appears to explain the existence of another problem, namely, the complete lack of any theoretical support for the hypothesis in the first place. Nor does the latter problem go away simply by disregarding all theoretical evidence whatsoever.[53]

51. "The Use of Cut Signatures," 645.

52. As Bent acknowledges, "it is in the nature of a non-prescriptive general-purpose sign to resist definition" (ibid., 644). In this regard there could be no parallel with the *signum congruentiae* (as Bent appears to suggest in "The Early Use of the Sign ϕ," 203), for the latter sign was in fact given straightforward definitions by several theorists; cf. Anonymus XII, *Tractatus et compendium cantus figurati,* 64; and Tinctoris, *Opera theoretica* 1:197.

53. Bonnie Blackburn kindly points out to me that she has discovered a theoretical statement which appears to lend support to Bent's hypothesis. In the anonymous *Tractatulus de cantu mensurali* (whose only surviving copy dates from 1462) ϕ is mentioned as a sign of repetition:

Earlier in this article it was noted that we often accept hypotheses, even if they are flawed or defective, when they provide a better explanation for more evidence than competing hypotheses. Yet Bent's theory could not possibly be said to account for more evidence than the received view. Her a priori decisions, first, to set aside all theoretical evidence, second, to exclude simultaneous 2:1 relationships, third, not to deal with the use of ¢ in relation to O, and fourth, not to consider nonsectional uses of ϕ, have the combined effect of severely delimiting the explanatory scope of her hypothesis. Even in the best of circumstances, the new theory could be said at most to provide a better explanation for *less* evidence than the received view. However, as we have seen above in the sections entitled "Aesthetic Sense" and "The Balance of Probabilities," where Bent's hypothesis was evaluated within these self-imposed limitations, it cannot even be maintained to have that distinction. Not only is the received view the more plausible one in the specific examples Bent has chosen to discuss, but it accounts as well for the various categories of evidence she has excluded. For that reason alone the received view could credibly be maintained to provide a better explanation for more evidence than the new hypothesis.

Early Uses of the Sign ϕ

In the final section of her article, Bent moves from particular pieces to a broader historical canvas and works out the wider implications of her argument (pp. 219 and 223). Extrapolating from the nine Mass movements by Legrant, Binchois, and Grossin, she now postulates a more general validity for her theory in the early decades of the fifteenth century. In the last paragraph

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"However, the sign of repetition [*signum reinceptionis*] is a whole circle with an upright line in the middle of the circle, in the manner of a diameter, dividing the circle into two equal parts, like this: ϕ. Others however prescribe another sign of repetition, namely this one :II: or this one: :III:" See F. Alberto Gallo, ed., *Tractatulus de cantu mensurali seu figurativo musice artis,* Corpus scriptorum de musica 16 ([Dallas, Tex.]: American Institute of Musicology, 1971), 37. I am not aware of musical settings in which the sign ϕ is used in this way. (The sign read as ϕ in Bent's example 5a, shortly after a verbal instruction to repeat ["recita"], is surely a scribal flat; see Margaret Bent, "*Rota versatilis*—Towards a Reconstruction," in *Source Materials and the Interpretation of Music: A Memorial Volume to Thurston Dart,* ed. Ian Bent [London: Stainer and Bell, 1981], 65–98, at 93 m. 29.) One possibility is that the anonymous theorist referred to tenor repeats in Masses and motets, which could indeed be signaled by the sign ϕ placed under the initial mensuration of the tenor, denoting both repetition and diminution. On the other hand, ϕ was by no means the only sign to be used in such a way, and the theorist clearly made no reference to the mensural significance of the sign. The treatise seems to be based in part on an otherwise unknown fourteenth-century source (cf. Gallo, *Tractatulus,* 9–10), but there are also references to such notes as the fusa and semifusa (ibid., 17–18) which did not become current until the later fifteenth century. It is thus possible that the comment on ϕ was written close to 1462 (thus reflecting "the prejudice of hindsight" like the other comments excluded from Bent's inquiry), but it may also go back to a much older source, now lost.

Bent even formulates a set of new guidelines for the transcription and performance of ϕ:

> We can bid farewell to most of the unwritten but presumed ϕ signatures added by editors to early 15th-century music, and the tempos that go with them. The case for supplying them editorially with mensural significance to unsigned sections now seems very weak. Editors should reduce note values consistently throughout a piece, making no mensural adjustment for ϕ. Singers should be alert for editions that have made such reductions without warning, and undo their effect. (p. 223)

The definitive terms in which these guidelines are cast make one wonder whether the reader actually has an option here. It may be one thing to suggest possible meanings for ϕ in nine selected Mass movements; it is surely another to posit a comprehensive theory of "the" early use of the sign, one that "should" henceforth replace the received view in all our editions and performances. More to the point, it is one thing to grant those suggestions the benefit of the doubt, yet quite another to forfeit the very option of doubt, and blithely to accept a radically new strategy for performing and editing early fifteenth-century music in the future.

At issue here is extrapolation—the induction of general rules and observations from a limited number of examples. If editors and singers are indeed to observe the new guidelines, then surely these should have a broad foundation in the surviving evidence. It is not clear that this is the case, however. Whether due to the a priori exclusion of several categories of evidence, or to the fact that Bent virtually ignores the existing literature on the subject,[54] the final pages of her article maintain a precarious relationship with the musical and theoretical sources. This is nowhere more obvious, perhaps, than in the opening lines of the last section:[55]

> Let us sum up. ϕ is discussed by *no* theorist before the 1470s [Bent's emphasis]. Inescapable use as a proportion occurs in no early manuscript except the two Cordier songs (of uncertain date). Indeed, the sign is more often used non-mensurally as an insertion point or place-finder. The earliest sectional uses with the non-mensural meanings here proposed are coeval with or earlier than the establishment of a 2:1 tradition in simultaneous use. ϕ is unknown as an initial signature until the 1430s, and then it is rare. (p. 219)

54. For instance, chap. 7 ("Der neue Stromrhythmus") of Heinrich Besseler's *Bourdon und Fauxbourdon;* Ursula Günther, "Die Anwendung der Diminution in der Handschrift Chantilly 1047," *Archiv für Musikwissenschaft* 17 (1960): 1–21; Günther, "Der Gebrauch des tempus perfectum diminutum"; chaps. 3 and 4 of Hamm, *A Chronology,* 37–74; Cox, "'Pseudo-Augmentation' in the Manuscript Bologna," 419–48; chap. 6 ("The Problems of Tempus Perfectum Diminutum") of Robert D. Reynolds, "Evolution of Notational Practices in Manuscripts Between 1400–1450" (Ph.D. diss., Ohio State University, 1974), 350–403; and Duffin, "Dufay and the Sign ϕ."

55. These comments have already been quoted as the current authority in Beate Carl, "Metrum und Rhythmus," 149.

These claims may leave room for qualification. For example, Bent argues that the two Cordier songs featuring the 2:1 relationship between ϕ and ϲ are really exceptions, since that relationship is otherwise found "in no early manuscript." However, one is bound to ask what is meant by "early manuscript" —and indeed what evidence there is for suggesting that the apparent use as a "general-purpose sign" may be "coeval with or earlier than" the role of ϕ as a sign of diminution.

Bent seems not to dispute the view that the earliest known musical source to transmit the sign ϕ is Chantilly, in which the two Cordier songs were copied as later addenda (see above, the section entitled "Theoretical Evidence"). After this, the earliest surviving manuscript for any composition invoked in support of her own theory is the first layer of Bologna Q15, compiled in the early 1420s (p. 205). Bent claims that in this layer "there is one use of ϕ, and one only," and that the work in question, a Gloria by Guillaume Legrant, "may be the earliest piece to use ϕ with *any* meaning after the two Cordier songs, and the first use for any purpose in a sacred genre" (ibid.; Bent's emphasis). However, elsewhere in the same layer, on folios 252v–253r, is Johannes Rondelly's *Verbum tuum / In cruce,* which is not only a sacred motet (for Easter) but features a vertical 2:1 relationship between ϕ and ϲ—exactly as in the two Cordier songs.[56] Thus, if we take "early" to mean "before about 1425," then there are two early manuscripts attesting to the use of ϕ, both of which have compositions exemplifying "inescapable use" (as Bent puts it) of ϕ as a 2:1 proportion. In fact, with the sole exception of the Legrant Gloria that Bent has singled out for discussion in her article, all compositions using ϕ in sources up to the mid 1420s (altogether four pieces, as we have seen) involve it in a 2:1 relationship with ϲ.

Even the inclusion of sources up to the early 1430s would yield no support for Bent's claims. In the second layer of Bologna Q15, for example, there are several works exemplifying the vertical 2:1 relationship between ϕ and ϲ.[57] Of these, pieces datable in the 1420s include such settings as Dufay's *Missa Sancti Jacobi* and *Rite majorem* (both from the mid to late 1420s), and the motet *Carminibus festos / O requies populi* by Anthonius Romanus (apparently composed in 1423 for the election of Francesco Foscari as doge of Venice).[58] An even more telling picture is provided by Oxford 213. Here, the densest

56. Bobby Wayne Cox, "The Motets of MS Bologna, Civico Museo Bibliografico Musicale, Q15" (Ph.D. diss., North Texas State University, 1977), 1:210–13 and 2:474–81 (mm. 83–94). For the layers of Bologna Q15, see Margaret Bent, "A Contemporary Perception of Early Fifteenth-Century Style; Bologna Q15 as a Document of Scribal Editorial Initiative," *Musica disciplina* 41 (1987): 183–201, esp. 198.

57. For a discussion of these and related compositions, see Cox, " 'Pseudo-Augmentation' in the Manuscript Bologna."

58. Dufay, *Missa Sancti Jacobi,* Offertory *In omnem terram,* mm. 81–90; for *Rite majorem,* see Hamm, *A Chronology,* 37–38; for the Romanus motet, see Cox, "The Motets of MS Bologna," 1:81–86 and 2:143–54, and CMM 11/vi: xxxiv–xxxv and 171–77. The latter motet has ϕ as an initial signature, which, given its apparent date of 1423, contradicts Bent's claim that such use is "unknown" before the 1430s.

concentration of pieces using ϕ in vertical 2:1 relationships (almost always with ϲ) occurs in gatherings 5–8, which constitute a retrospective anthology of music mostly predating the mid 1410s. In this part of the manuscript we find no fewer than nine such pieces (by figures like Cordier, Velut, and Billart),[59] as against only two in the more "up-to-date" gatherings 1–4.[60] In the light of this, the claim that the 2:1 relationship between ϕ and ϲ occurs "in no early manuscript except the two Cordier songs," and "was only weakly established before 1430" (p. 219), appears odd to say the least. One cannot help but ask what *other* use of ϕ could have been "strongly" established, by comparison.

Still, Bent not only argues that the Cordier songs are exceptions, but invokes their "exceptional" status to suggest that they must be late, perhaps even later than the earliest apparent use of ϕ as a "general-purpose sign." Thus, we read,

> The constant exception that has to be made for the Cordier pieces, and the 30-year gap that would separate an early dating (before 1400) from his other songs in Oxford 213 (1430s), leads me increasingly to believe that they may be considerably later than 1400. . . . a date late in the 1410s or even in the 1420s would accord better with their style and usage. (p. 223)

Two qualifications seem to be in order here. First, it is well established that the particular gatherings of Oxford 213 which contain songs by Cordier (fascicles 6–8) are largely devoted to repertory predating the mid 1410s, and in fact contain several pieces datable (on the strength of their concordances) to the 1370s and 1380s.[61] Even if those gatherings were compiled as late as the 1430s, one wonders why this latter dating should occasion a revised chronology for Cordier in particular, when so many of the other songs in that layer are accepted to have been as much as twenty-five to fifty years old.[62]

59. Anon., *Je ne vis pas* (fol. 97r), CMM 11/ii: 25–26 (mm. 1–3); Gilet Velut, *Laissiés ester* (fol. 100r), CMM 11/ii: 122–24 (mm. 42–46), cf. Bank, *Tactus, Tempo and Notation,* 101 and 105; anon., *Il n'est dangier* (fol. 108r), CMM 11/iv: 49–50 (mm. 12–13, 30, and 45–48), cf. Hamm, *A Chronology,* 42; anon., *Se fortune s'est tournée* (fol. 109r), CMM 11/iv: 10 (mm. 23–25); Billart, *Salve virgo virginum / Vita via veritas / Salve regina* (fols. 114v–115r), PS, 159–66 (mm. 13, 19–24, 32–35, 41), cf. Reynolds, "Evolution of Notational Practices," 166–70; Baude Cordier, *Dame excellent* (fol. 116r), CMM 11/i: 12–15 (mm. 16–17 and 21–23); Baude Cordier, *Amans amés* (fol. 123r), CMM 11/i: 7 (mm. 3 and 6), cf. Hamm, *A Chronology,* 22–23, and Bank, *Tactus, Tempo and Notation,* 100 and 105; anon., *Ma douce amour* (fol. 123v), CMM 11/iv: 21 (mm. 10–11); and anon., *Tant plus vous voy* (fol. 124r), CMM 11/iv: 23–24 (mm. 12, 14–15, 19, and 22).

60. Johannes de Sarto, *Verbum patris hodie* (fols. 12v–13r), PS, 280–83 (mm. 35–87); and Dufay, *O Sancte Sebastiane,* Dufay, *Opera omnia* 1:xiii–xiv and 24–29.

61. Cf. David Fallows, ed., *Oxford, Bodleian Library MS. Canon. Misc. 213* (Chicago and London: University of Chicago Press, 1995), 19–20 and 44–56.

62. Craig Wright's tentative identification of Baude Cordier with the harper Baude Fresnel would provide a *terminus ante quem* of 1397–98, the death-date of Fresnel. See Wright, "Tapissier and Cordier: New Documents and Conjectures," *Musical Quarterly* 59 (1973): 177–89. Reinhard Strohm argues that the two Cordier songs "have to be dated around 1410 at the very latest, even if the identity Fresnel / Cordier were denied" (*The Rise of European Music, 1380–1500* [Cambridge: Cambridge University Press, 1993], 141).

Second, and more important, not only are the Cordier songs quite unexceptional in their combination of ϕ and ϵ, as we have seen, but in fact the mensural relationship itself was entirely conventional—irrespective of what notational practices were used (or not used) to specify it. As Ursula Günther demonstrated nearly forty years ago, the relationship that was to be expressed by the signs ϕ and ϵ had been well established long before the stroke made its first known appearance.[63] Even in the late fourteenth century, composers and scribes could at any point, for whatever reason, decide to notate (or renotate) part or all of a composition in doubled note-values, to be performed at twice the speed of the original. If the composition was in unsignaled [ϵ], as was usually the case, then this doubling resulted in the temporary creation of what we would call, rightly or wrongly, *tempus perfectum diminutum* (see Ex. 2b).[64] There appears to have been no special sign for this procedure at first, certainly not one to imply (as ϕ was to do) that it somehow involved a change of mensuration.[65] For what was useful about writing in doubled values, evidently, was not that it made available perfect tempus, but rather that it provided an alternative way of writing out music in ϵ—one that seems to have been used especially for the notation of passages or voice parts involving small rhythmic values.[66] It is precisely this redundancy, the fact that one way of writing effec-

63. Günther, "Die Anwendung der Diminution" and "Der Gebrauch des tempus perfectum diminutum."

64. Cf. Cox, " 'Pseudo-Augmentation' in the Manuscript Bologna," 421 n. 14a. Adam von Fulda, writing in 1490, appears to be the first theorist to describe ϕ as the sign of "tempus perfectum per diminutionem" (rather than "per semi" or "per medium"); cf. Martin Gerbert, ed., *Scriptores ecclesiastici de musica sacra* (Saint-Blaise: Typis San-Blasianis, 1784; reprint, Milan: Bollettino bibliografico musicale, 1931), 3:362.

65. Anonymus X, writing in the late fourteenth or early fifteenth century, reports that "often" (*sepe*) a song is notated in such a way that the notes are to be sung "not as they appear at first sight" (*ut prima fronte apparent*), but that, when such a song is more discriminatingly considered (*ut talis cantus subtilius consideretur*), it turns out that all notes must be halved—a manner of singing called "diminutio" by musicians (Coussemaker, *Scriptorum de musica* 3:415). The implication, clearly, is that music may call for diminution even when there is no sign to make that operation explicit. Meanwhile, Bent has argued, building on the conclusions of "The Early Use of ϕ," that cases like these were neither "strongly associated with cut signatures nor construed in any straightforward way as diminution." See Margaret Bent, "The Myth of *tempus perfectum diminutum*," paper read at the Sixty-second Annual Meeting of the American Musicological Society, Baltimore, November 1996.

66. Günther, "Der Gebrauch des tempus perfectum diminutum," 281 (but see also p. 283); and Cox, " 'Pseudo-Augmentation' in the Manuscript Bologna," 422 and 436. A concrete example is the anonymous *La belle se siet* in Bologna 2216, fol. 104v, which was apparently adapted and expanded by Dufay in the three-part version that survives in Oxford 213, fol. 31r, involving the renotation of a passage with flagged semiminims (in unsigned ϵ) in doubled note-values under "2" (see Hamm, *A Chronology,* 33, for a parallel diplomatic transcription). Jeffrey Dean has pointed out to me that Jacobus of Liège, in the 1320s, had objected to the invention of smaller note-values on the grounds that one could perform the existing notes at faster speeds in any case. See Jacobus of Liège, *Speculum musicae,* ed. Roger Bragard, Corpus scriptorum de musica 3 ([Rome]: American Institute of Musicology, 1961), 7:34–36.

tively equals another, that drew the criticism of a theorist like Prosdocimus de Beldemandis in 1412:[67]

> And because of this those moderns greatly err, in both the French art and the Italian art, who make use of augmentation and diminution not only in varied tenor repeats [in a motet], but also in tenors that are not repeated; and not only also in tenors, but even in top voices, and this without any necessity, as they could certainly notate their songs in proper note-values without magnifying the notation of their songs.

There are many compositions from the decades around 1400 that contain passages or voice parts written in note-values doubled in relation to ¢ (usually unsignaled). Interestingly, these sections are written in perfect tempus, yet there is no sign or indication to spell out their mensural relationship, and it is left to singers to infer the implicit 2:1 proportion.[68] Likewise, there are compositions that survive in "doubled" values (under perfect tempus) in one source and "normal" values (under major prolation) in another—neither provided with any mensuration signs.[69] In fact, there is evidence that musicians knew and remembered certain pieces as being in ϕ even though the sign might not be actually notated in the music as it survives: a Gloria by Hugo de Lantins in Oxford 213 has no mensural signature in any voice part

67. *Tractatus practice de musica mensurabili ad modum italicorum;* Coussemaker, *Scriptorum de musica* 3:247.

68. On p. 224, n. 10, Bent reports one example of this in the Old Hall manuscript (Gloria, no. 24); cf. Andrew Hughes and Margaret Bent, eds., *The Old Hall Manuscript,* Corpus mensurabilis musicae 46 ([Rome]: American Institute of Musicology, 1969–73). Other examples are Leonel Power, Gloria (Old Hall, no. 22); anon., Credo (Old Hall, no. 82); Power, Credo (Old Hall, no. 83; cf. Cox, "'Pseudo-Augmentation' in the Manuscript Bologna," 435–36); Power, Sanctus (Old Hall, no. 115); Goscalch, *En nul estat* (cf. Günther, "Der Gebrauch des tempus perfectum diminutum," 283–85); Matheus de Perusio, *Helas merci* and *A qui fortune* (Modena A, fols. 38v and 43v; cf. Willi Apel, *French Secular Compositions of the Fourteenth Century,* Corpus mensurabilis musicae 53 [Rome: American Institute of Musicology, 1970–72], 1:xxxvii–xxxviii, 119–20, and 122–23); Christoforus de Monte, *Dominicus a dono* (Bologna Q15, fols. 227v–228r; cf. Cox, "The Motets of MS Bologna," 1:145–48 and 2:290–99); Nicolas Grenon, *Plasmatoris / Verbigine* (Bologna Q15, fols. 230v–231r; CMM 11/vii: xvi and 25–30); Anthonius Romanus, *Ducalis sedes / Stirps Mocinico* (see below, n. 86); Soursby, Sanctus (Aosta, fols. 251v–253r); anon., Gloria (Trent 92, fols. 128v–130r).

69. For example, Borlet, *He, tres doulz roussignol;* cf. Günther, "Der Gebrauch des tempus perfectum diminutum," 287–89, and Cox, "'Pseudo-Augmentation' in the Manuscript Bologna," 440 (significantly, the version in doubled values survives without any indication of diminution in Chantilly, but was supplied with the verbal canon "per diminutionem" in the lost Strasbourg manuscript); Binchois, *Jamais tant que je vous revoye* (cf. Fallows, "Embellishment and Urtext," 62–66). For earlier examples, see also Kurt von Fischer, "Zur Entwicklung der italienischen Trecento-Notation," *Archiv für Musikwissenschaft* 16 (1959): 87–99; and Eugene Fellin, "The Notation Types of Trecento Music," *L'Ars Nova Italiana del Trecento* 4 (Certaldo, 1978), 211–23. The practice of "updating" compositions by doubling their note-values under a sign of diminution is, of course, found in later periods as well. See, e.g., James Haar, "Josquin as Interpreted by a Mid-Sixteenth-Century Musician," in *Festschrift für Horst Leuchtmann zum 65. Geburtstag,* ed. Stephan Horner and Bernhold Schmid (Tutzing: H. Schneider, 1993), 179–205.

but is identified in the index as "Et in terra pax . Ugo de Lantins .ϕ. [fol.] 62."[70]

It is well established that sections or compositions in doubled note-values were widely understood and referred to as being "in half." For instance, Tinctoris, in 1472–73, reports a vernacular expression for songs at double speed, as well as for the stroke in vertical combinations, which he translates into Latin as *ad medium* and *per medium*—presumably *à moitié* or *à demi* in Middle French.[71] The tradition which he reports can be traced back to the late fourteenth century, both in theoretical descriptions and in verbal canons.[72] For instance, Suzoy's *Pictagoras,* in the Chantilly manuscript, contains a three-measure passage in the top voice with the written instruction "this is to be sung *per medium* until the sign [c]."[73] Likewise, Anthonello de Caserta's *Dame d'onour en qui* is supplied with a canon for the contratenor reading "[sing] while diminishing *per medium.*"[74] A Gloria by Gervasius de Anglia in the Old Hall manuscript (ca. 1415–20) has the designation "per dimidietatem" at the beginning of a section signed o in all voice parts.[75] Likewise, the anonymous Sanctus no. 101 in the Old Hall manuscript has a final section in o with the canon "per dimidietatem." Borlet's *He tres douls rossignol* carried the designation "per diminutionem" in the lost Strasbourg manuscript; elsewhere it survives in a version with halved values in c (unsignaled).[76] The anonymous *Se j'ay perdu toute ma part* in Oxford 213 (fol. 114r) has a canon

70. Oxford 213, fols. iir and 61v; edition in PS, 118–22; other pieces are identified in the index by their mensuration signs as well. This recalls the index of Aosta, in which the Gloria and Credo of a Mass pair by Binchois (both of which begin with sections written in ¢) are identified as "Et in terra brevioris imperfecti *per medium*" and "Patrem super eodem brevioris imperfecti *per medium*" (my emphasis). See Sören Meyer-Eller, *Musikalischer Satz und Überlieferung von Messensätzen des 15. Jahrhunderts: Die Ordinariumsvertonungen der Handschriften Aosta 15 und Trient 87/92* (Munich: W. Fink, 1989), 22 n. 35, and 26.

71. Bent writes that her interpretation is "encouraged by the absence of a simple term for [ϕ]" (p. 210). However, simple terms like *ad medium, per medium,* or *per semi* (of which the latter was associated with ϕ already by Anonymus XI; see above, n. 40) appear to have been current in the vernacular throughout the fifteenth century, as Tinctoris confirmed in 1472–73 (*Opera theoretica* 2a:45): "quo cantus *vulgariter* 'ad medium' dicitur" (my emphasis). See also ibid., 2:125, and the definition of *cantus per medium* in the *Diffinitorium* (Coussemaker, *Scriptorum de musica* 4:179).

72. This may perhaps answer Bent's perplexing claim that "unless it is demonstrably still relevant, the tradition [Tinctoris] represents has no special authority for music more than 40 years older" (p. 202).

73. Günther, "Die Anwendung der Diminution," 17–18: "hec cantetur per medium usque ad signum."

74. Modena A, fol. 40v: "per medium diminuendo"; Apel, ed., *French Secular Compositions of the Fourteenth Century* 1:xxxiii and 7–8.

75. Gloria, no. 31; Hughes and Bent, eds., *The Old Hall Manuscript* 3:20. The editors note that the instructions "probably have the same force as the sign ϕ, used somewhat later in the century" (ibid.). For a diplomatic transcription of the relevant passage, see Bank, *Tactus, Tempo and Notation,* 93. For the next sentence, see *The Old Hall Manuscript* 3:35.

76. See above, n. 69.

calling for performance "per medium"; the rondeau text itself adds that the song loses "la moitié."[77] The tradition may even be reflected in the Middle-French treatise copied by Erber, dating presumably from the 1420s, in which ϕ is described as "faster by half" ("la moitié plus tost") than ϲ—clearly meaning "twice as fast."[78] And, as already noted, Anonymus XI, writing before or around the middle of the century, defined ϕ as the sign of perfect tempus *per semi* (see above, n. 40).

As these examples confirm, the designation "in half," when supplied to music written in perfect tempus (as it usually is), has the very same function as ϕ. Indeed, given that ϕ was to be known and referred to as the sign of perfect tempus *per medium* or *per semi* (that is, "by half"), the designation could even be regarded as its direct historical precursor. There is another precursor for ϕ as well, however: the cipher 2. In the decades around 1400 we regularly find it on its own as a sign of diminution in perfect tempus, especially in relation to ϲ.[79] Thus Legrant's *Se liesse est* in Oxford 213 has "2" (before music in unsigned [o]) in the top two parts, with ϲ in the tenor, the relationship being identical to that between ϕ and ϲ.[80] Likewise, Baude Cordier's *Pour le default,* in the same manuscript, opens with o2 in the top voice against unsigned [ϲ] in the tenor, again in a relationship identical to that between ϕ and ϲ.[81] Here we might recall that the earliest known theoretical statements about ϕ both emphasize its synonymity with o2: "And one recognises [duple] proportion by this sign: ϕ, or by this: ¢, or by this: 2" (from the treatise copied by Erber), and "Likewise this ϕ is equal to this o2 according to the most recent singers" (Anonymus XI; see above, "Theoretical Evidence," and n. 40).

Thus, when the sign ϕ first appeared in the two songs by Baude Cordier (or at least in the copies that we have today), it was merely a different way of

77. CMM 11/iv: xxi, xxix, and 13–16. The text of this rondeau seems to provide an ironic allusion to the practice of diminution, as in lines 5–6: "Cest chant pas ensy ne se part, car la moitié pert et sy vaut"; cf. Reynolds, "Evolution of Notational Practices," 244–46, who translates these lines freely as "this song does not go as it stands, for it loses the half, and this is its value." Anne Stone has pointed out to me that the correct reading is probably "cest chaut" ("this heat") rather than "cest chant," but that this can still be plausibly construed as an allusion to diminution.

78. Evidently the anonymous author conflated *semiditas* (half the value) and *acceleratio* (twice as fast). See also the fifteenth-century treatise by Antonius de Luca, *Ars cantus figurati,* Corpus scriptorum de musica 38 (Neuhausen-Stuttgart: Hänssler, 1997), 51, where music in ¢ is described as "per medium."

79. Cf. Reynolds, "Evolution of Notational Practices," 329–36, and the conclusion on p. 349: "the standard meaning of 2 within ϲ or o is the same as ϕ"; also Hamm, *A Chronology,* 10–11.

80. CMM 11/ii: xxxvii and 68–69; an identical situation can be found in Nicolas Grenon's *Prophetarum fulti suffragio / Ave virtus / Infelix* (Oxford 213, fols. 120v–121r); PS, 194–202, mm. 133–63.

81. CMM 11/i: ix and 2–3; cf. the diplomatic transcription and discussion in Bank, *Tactus, Tempo and Notation,* 100 and 105. The coloration of the second breve in measure 2 confirms that o2 is conceived here as a sign of perfect tempus in duple proportion; cf. Busse Berger, *Mensuration and Proportion Signs,* 22 and 154–55.

clarifying a relationship that was already widely known, understood, and described, and which at this time could also be indicated verbally (*per medium, per semi, per diminutionem,* or *per dimidietatem*), by the cipher "2," or indeed left for singers to infer. Nothing is exceptional about the two songs in this regard, at least not if one is prepared to consider the wealth of evidence bearing on their historical background. The direct relevance of that evidence is confirmed by the existence of source variants for the various ways of notating the ϕ-𝔠 relationship. To add one more example to the ones already given, Dufay's *Qui latuit in virgine* survives in Munich as a piece in ϕ in all voices, the sign being supplied in the discantus.[82] However, the same piece survives in Trent 87 with the tenor in 𝔠 (with note-values half as large as those in Munich), while the other two parts are in unsignaled [𝔬], both with the verbal canon "per diminutionem."[83]

Even after the gradual disappearance of 𝔠 (in voice parts other than the tenor) around 1430, there remain many contexts in which ϕ is probably better understood as "𝔠 in disguise" than as "𝔬 speeded up."[84] This is directly suggested, for example, by such works as the Lymburgia Kyrie in Bologna Q15, whose three successive sections are notated ϕ𝔬ϕ in the top voice, against 𝔠𝔬𝔠 in the others, and which is part of a cycle in which other movements have ϕ𝔬ϕ in all voice parts.[85] Similarly, in the same manuscript Anthonius Romanus's motet *Ducalis sedes / Stirps Mocinico* of 1415 has an implied 2:1 relationship between unsignaled [ϕ] in the top two parts and unsignaled [𝔠] in the tenor

82. Munich, fol. 1r; Dufay, *Opera omnia* 1, no. 20. For what follows, see Trent 87, fol. 109r.

83. Examples like these are of course open to the objection that they may presuppose a notion of *Werktreue* as well. There is no question, as I argued before, that many compositions must have been performed in different ways in different places. However, my argument here is that the designations ϕ and "per diminutionem" do not amount to a difference of this kind. This is what theorists explicitly state, and it is their testimony which accounts for the source variation. There is thus no need for the variants to supply the kind of proof that Bent has invoked, in the absence of theoretical support, in the case of Binchois's Kyrie *Angelorum.*

84. See above, n. 49. In "'Pseudo-Augmentation' in the Manuscript Bologna," Cox convincingly argues that many early instances of notated ϕ may in fact be scribal adaptations of music originally conceived in 𝔠. The author reports one case, the motet *Aurea flamigeri* by Anthonius Romanus, in which the scribe of Bologna Q15 appears to have been converting music from 𝔠 into ϕ during the very act of copying, doubling the note-values as he went along, yet accidentally retaining the old signature instead of replacing it by ϕ: "It is as if the scribe were copying from an exemplar in 𝔠 and revising the piece by writing in *tempus* values and neglecting to correct the signatures" (p. 442).

85. The layout of the corresponding Gloria is almost identical: ϕ𝔬ϕ in the top voice, 𝔠𝔬𝔠 in the contratenor, and [ϕ]𝔬[ϕ] in the tenor. Bologna Q15, fols. 161r–162r; edition in Etheridge, "The Works of Johannes de Lymburgia," 2:100–113. The Credo and Agnus Dei of the Mass cycle follow the mensural layout ϕ𝔬ϕ in all voice parts. Likewise, the motet *Carminibus festos / O requies populi* by Anthonius Romanus has ϕ𝔠ϕ𝔠 in the top parts against 𝔠 𝔠 𝔠 𝔠 in the tenor and contra (Cox, "The Motets of MS Bologna," 2:143–54).

and contratenor.[86] Interestingly, the three-part version of this motet as it survives in the later manuscript Bologna 2216 has ¢ in all voice parts throughout (signaled in the discantus), the note-values in the top parts being half those used in Bologna Q15. It may even be possible to suggest that some early pieces which survive today with the layout [ϕ]○ϕ for successive sections, such as Dufay's *Vergene bella,* were to all intents and purposes conceived (and perhaps originally notated) in ¢○¢, the sectional arrangement we find in songs like *Resvelliés vous* or *Mon chier amy.*[87]

Bent takes no account of this historical background, however, or of the literature outlining it. Instead, she prefers to locate the "prehistory" of ϕ in symbols that graphically resemble it, even if they have to be found in disparate and chronologically remote contexts. Thus we learn, as mentioned above, that symbols resembling ϕ were used as abbreviations for "zero" and *obiit* in thirteenth- and fourteenth-century Italian sources and were used also as place-finders in fourteenth-century musical fragments from England (where, incidentally, the stroke was not even used as a mensural sign until the later fifteenth century). "These extra-musical uses," she adds, "whether or not in musical manuscripts, further establish a range of meanings for ϕ" (p. 205)—as if there were a necessary historical connection between all of them, and as if nothing else but that connection could explain why it occurred to musicians to indicate music in perfect tempus, when sung *per medium,* by a stroke "through the middle of a circle," as Anonymus XII put it.[88]

Bent's position, evidently, is that no evidence can be said to bear on the use and meaning of ϕ unless it specifically mentions or involves the sign, or some symbol resembling it. Hence the decision to exclude all theoretical evidence—including everything on the subject of diminution—on the grounds that ϕ appears to be mentioned (as she views it) only after the period she has chosen to consider. Hence the wholesale dismissal of all relevant musical evidence from the decades around 1400, except for nine Mass movements that happen to conform to a set of predetermined criteria. Hence, also, the attempt to elevate those movements to paradigmatic status, which then allows the obstinate Cordier songs to be marginalized as "exceptions." In the end, only this can explain how Bent's recommendations for editorial and performance practice, on page 223, can end up flatly denying a possibility which she never seriously addressed in the first place—namely, that a great deal of early fifteenth-century

86. For an edition and discussion of the Bologna Q15 version, see Cox, "The Motets of MS Bologna," 1:183–91 and 2:408–18; see also Cox, "'Pseudo-Augmentation' in the Manuscript Bologna," 432–34.

87. See especially Cox, "'Pseudo-Augmentation' in the Manuscript Bologna." The average note-values of *Vergene bella,* in all voice parts together, are as follows (cf. above, nn. 8 and 21): [ϕ]: 1.594; ○: 0.982; ϕ: 1.25 (the unit being the semibreve).

88. Anonymus XII, *Tractatus et compendium musices cantus figurati,* 65 ("paragraphum . . . in medio unius circuli").

music written in perfect tempus may call for diminution even when there is no actual sign (or vertical combination, or source variant) to alert us to the possibility.

I wish to conclude this article with a contention which, for reasons of space, must await fuller elaboration in a later study. It is that the received view remains an attractive one not only for its explanatory power (compared to the new hypothesis advanced by Margaret Bent), but even more so for its explanatory potential—especially when it comes to the momentous developments in mensural practice that took place in the 1430s and 1440s. Several major changes that might otherwise appear unmotivated, or even inexplicable, can be plausibly accounted for, I believe, by the historical background already established by numerous scholars in this area, and which I have summarized here under "Theoretical Evidence" and "Early Uses of the Sign ϕ." Exploration of that potential, I suggest, could bring significant advances in historical understanding. At the same time, it is clear that no such exploration could now avoid a critical engagement with the new interpretation proposed by Margaret Bent. Her hypothesis is too important and too far-reaching to be ignored. For this reason it has been necessary to write the present article, as a preliminary study clearing the way, as it were, for future research on these issues. This is not to imply that there remains no scope for further debate on the new hypothesis. In the interests of mensural practice as a field of study, I can only welcome critical responses not only from Margaret Bent herself, but from other scholars as well. Still, I do hope to have established that it may not be unreasonable for scholars to continue working, however critically, on the received interpretation of ϕ. The interpretation remains a viable one, and it has important strengths that are not easily matched by alternatives, however attractive the latter may seem in the light of its limitations.

Abbreviations

CMM 11	Gilbert Reaney, ed., *Early Fifteenth-Century Music,* 7 vols., Corpus mensurabilis musicae 11 ([Rome]: American Institute of Musicology, 1955–76)
PS	Charles van den Borren, ed., *Polyphonia Sacra: A Continental Miscellany of the Fifteenth Century* (Burnham, Bucks.: The Plainsong and Mediæval Music Society, 1932)
Aosta	Aosta, Biblioteca del Seminario Maggiore, MS 15 (*olim* A^1 D19)
Bologna Q15	Bologna, Civico Museo Bibliografico Musicale, MS Q15
Bologna 2216	Bologna, Biblioteca Universitaria, MS 2216
Cambrai 11	Cambrai, Bibliothèque Municipale, MS 11
Chantilly	Chantilly, Bibliothèque du Musée Condé, MS 564
Modena A	Modena, Biblioteca Estense e Universitaria, MS α.M.5.24
Munich	Munich, Bayerische Staatsbibliothek, MS Lat. mon. 14274
Old Hall	London, British Library, MS Add. 57950
Oxford 213	Oxford, Bodleian Library, MS Canonici Misc. 213

Trent 87–92	Trent, Museo Provinciale d'Arte, Castello del Buon Consiglio, MSS 87–92
Trent 93	Trent, Museo Diocesano, MS BL
Turin	Turin, Biblioteca Nazionale Universitaria, MS J. II. 9

Works Cited

Sources and Editions

Anonymus XII. *Tractatus et compendium cantus figurati.* Edited by Jill Palmer. Corpus scriptorum de musica 35. Neuhausen-Stuttgart: Hänssler, 1990.

Antonius de Luca. *Ars cantus figurati.* Corpus scriptorum de musica 38. Neuhausen-Stuttgart: Hänssler, 1997.

Apel, Willi. *French Secular Compositions of the Fourteenth Century.* 3 vols. Corpus mensurabilis musicae 53. Rome: American Institute of Musicology, 1970–72.

Binchois, Gilles. *The Sacred Music.* Edited by Philip R. Kaye. Oxford: Oxford University Press, 1992.

Borren, Charles van den, ed. *Polyphonia Sacra: A Continental Miscellany of the Fifteenth Century.* Burnham, Bucks.: The Plainsong and Mediæval Music Society, 1932.

Codex Tridentinus 87–[93]. 7 vols. Rome: Bibliopola, 1969–70.

Coussemaker, Edmond de, ed. *Scriptorum de musica medii aevi.* 4 vols. Paris: A. Durand, 1864–76. Reprint, Hildesheim: G. Olms, 1963.

Dufay, Guillaume. *Music for St James the Greater.* The Binchois Consort, conducted by Andrew Kirkman. Hyperion CD CDA66997. 1998.

———. *Opera omnia.* Edited by Heinrich Besseler. 6 vols. Corpus mensurabilis musicae 1. Rome: American Institute of Musicology, 1951–66.

Fallows, David, ed. *Oxford, Bodleian Library MS. Canon. Misc. 213.* Late Medieval and Early Renaissance Music in Facsimile 1. Chicago and London: University of Chicago Press, 1995.

Gaffurio, Franchino. *Practica musicae.* Translated by Clement A. Miller. Musicological Studies and Documents 20. [Dallas, Tex.]: American Institute of Musicology, 1968.

———. *Practica musice.* Milan: Joannes Petrus de Lomatio, 1496.

Gallo, F. Alberto, ed. *Tractatulus de cantu mensurali seu figurativo musice artis.* Corpus scriptorum de musica 16. [Dallas, Tex.]: American Institute of Musicology, 1971.

Gerbert, Martin, ed. *Scriptores ecclesiastici de musica sacra.* 3 vols. Saint-Blaise: Typis San-Blasianis, 1784. Reprint, Milan: Bollettino bibliografico musicale, 1931.

Glarean, Heinrich. *Dodecachordon.* Translated by Clement A. Miller. 2 vols. Musicological Studies and Documents 6. N.p.: American Institute of Musicology, 1965.

———. *Dodekachordon.* Basel: Henricus Petri, 1547.

Jacobus of Liège. *Speculum musicae.* Edited by Roger Bragard. 7 vols. Corpus scriptorum de musica 3. [Rome]: American Institute of Musicology, 1961.

Reaney, Gilbert, ed. *Early Fifteenth-Century Music.* 7 vols. Corpus mensurabilis musicae 11. [Rome]: American Institute of Musicology, 1955–76.

Tinctoris, Johannes. *Opera theoretica.* Edited by Albert Seay. 2 vols. Corpus scriptorum de musica 22. [Rome]: American Institute of Musicology, 1975–78.

Wingell, Richard J. "Anonymous XI (CS III): An Edition, Translation, and Commentary." Ph.D. diss., University of Southern California, 1973.

Secondary Literature

Anheim, Étienne. "Du symbole au signe: Remarques sur la parenté entre *ars nova* et nominalisme." *Médiévales* 22 (1997): 9–19.

Apel, Willi. *The Notation of Polyphonic Music, 900–1600.* Cambridge, Mass.: The Mediaeval Academy of America, 1942.

Bank, Joannes A. *Tactus, Tempo and Notation in Mensural Music from the Thirteenth to the Seventeenth Century.* Amsterdam: Annie Bank, 1972.

Bent, Margaret. "A Contemporary Perception of Early Fifteenth-Century Style; Bologna Q15 as a Document of Scribal Editorial Initiative." *Musica disciplina* 41 (1987): 183–201.

———. "The Early Use of the Sign ϕ." *Early Music* 24 (1996): 199–225.

———. "The Myth of *tempus perfectum diminutum.*" Paper read at the Sixty-second Annual Meeting of the American Musicological Society, Baltimore, November 1996.

———. "*Rota versatilis*—Towards a Reconstruction." In *Source Materials and the Interpretation of Music: A Memorial Volume to Thurston Dart,* edited by Ian Bent, 65–98. London: Stainer and Bell, 1981.

———. "The Use of Cut Signatures in Sacred Music by Ockeghem and His Contemporaries." In *Johannes Ockeghem: Actes du XLe Colloque international d'études humanistes. Tours, 3–8 février 1997,* edited by Philippe Vendrix, 641–80. Collection "Épitome musical" 1. Paris: Klincksieck, 1998.

Besseler, Heinrich. *Bourdon und Fauxbourdon: Studien zum Ursprung der niederländischen Musik.* Leipzig: Breitkopf und Härtel, 1950. Rev. ed., 1974.

Blackburn, Bonnie J. "Did Ockeghem Listen to Tinctoris?" In *Johannes Ockeghem: Actes du XLe Colloque international d'études humanistes. Tours, 3–8 février 1997,* edited by Philippe Vendrix, 597–640. Collection "Épitome musical" 1. Paris: Klincksieck, 1998.

Busse Berger, Anna Maria. "Cut Signs in Fifteenth-Century Musical Practice." In *Music in Renaissance Cities and Courts: Studies in Honor of Lewis Lockwood,* edited by Jessie Ann Owens and Anthony M. Cummings, 101–12. Detroit Monographs in Musicology/Studies in Music 18. Warren, Mich.: Harmonie Park Press, 1997.

———. *Mensuration and Proportion Signs: Origins and Evolution.* Oxford: Clarendon Press, 1993.

———. "The Myth of *diminutio per tertiam partem.*" *Journal of Musicology* 8 (1990): 398–426.

Cahn, Peter. "'Ars poetica' und Musica poetica—Quintilian und Horaz in der Musiktheorie und Kompositionslehre des 15. und 16. Jahrhunderts." *Ainigma: Festschrift für Helmut Rahn,* edited by Freyr Roland Varwig, 23–33. Bibliothek der klassischen Altertumswissenschaften, 2d ser., 78. Heidelberg: C. Winter, 1987.

———. "Zur Vorgeschichte des 'Opus perfectum et absolutum' in der Musikauffassung um 1500." In *Zeichen und Struktur in der Musik der Renaissance,* edited by Klaus Hortschansky, 11–26. Musikwissenschaftliche Arbeiten 28. Kassel and New York: Bärenreiter, 1989.

Caldwell, John. *Editing Early Music.* Early Music Series 5. Oxford: Clarendon Press, 1985.

Carl, Beate. "Metrum und Rhythmus in einigen Rondeaux von Guillaume Dufay: Anmerkungen zur Auffassung von Rhythmus und Metrum im 15. Jahrhundert." *Musiktheorie* 12 (1997): 147–64.

Cobin, Marian W. "The Aosta Manuscript: A Central Source of Early-Fifteenth-Century Sacred Polyphony." Ph.D. diss., New York University, 1978.

Cox, Bobby Wayne. "The Motets of MS Bologna, Civico Museo Bibliografico Musicale, Q15." 2 vols. Ph.D. diss., North Texas State University, 1977.

———. "'Pseudo-Augmentation' in the Manuscript Bologna, Civico Museo Bibliografico Musicale, Q15 (BL)." *Journal of Musicology* 1 (1982): 419–48.

Duffin, Ross W. "Dufay and the Sign ϕ: Proportion and Tempo 1420–1440." Paper read at the Forty-ninth Annual Meeting of the American Musicological Society, Louisville, Ky., 1983.

Eggebrecht, Hans Heinrich. "Opusmusik." In *Studia musicologica aesthetica, theoretica, historica,* edited by Elzbieta Dziebowska, 137–51. Cracow: Polskie Wydaw. Muzyczne, 1979.

Erviti, Manuel. "The Motet as an Expression of Socio-Cultural Value Circa 1500." Ph.D. diss., University of Illinois at Urbana-Champaign, 1997.

Etheridge, Jerry Haller. "The Works of Johannes de Lymburgia." 2 vols. Ph.D. diss., Indiana University, 1972.

Fallows, David. "Embellishment and Urtext in the Fifteenth-Century Song Repertory." *Basler Jahrbuch für historische Musikpraxis* 14 (1990): 59–85.

———. Review of *Music for St James the Greater,* by Dufay (Hyperion CD CDA66997). *Gramophone* 76 (July 1998): 68.

Federhofer-Königs, Renate. "Ein Beitrag zur Proportionenlehre in der zweiten Hälfte des 15. Jahrhunderts." In *Bence Szabolcsi Septuagenario,* edited by D. Bartha, 145–57. Studia musicologica Academiae Scientiarum Hungaricae 11. Budapest: Akademiai Kiado, 1969.

Fellin, Eugene. "The Notation Types of Trecento Music." *L'Ars Nova Italiana del Trecento* 4 (Certaldo, 1978): 211–23.

Fischer, David Hackett. *Historians' Fallacies: Toward a Logic of Historical Thought.* New York: Harper and Row, 1970.

Fischer, Kurt von. "Zur Entwicklung der italienischen Trecento-Notation." *Archiv für Musikwissenschaft* 16 (1959): 87–99.

Gallagher, Sean. "Models of *Varietas:* Studies in Style and Attribution in the Motets of Johannes Regis and His Contemporaries." Ph.D. diss., Harvard University, 1998.

Goehr, Lydia. *The Imaginary Museum of Musical Works: An Essay in the Philosophy of Music.* Oxford: Clarendon Press, 1992.

Günther, Ursula. "Der Gebrauch des tempus perfectum diminutum in der Handschrift Chantilly 1047." *Archiv für Musikwissenschaft* 17 (1960): 277–97.

———. "Die Anwendung der Diminution in der Handschrift Chantilly 1047." *Archiv für Musikwissenschaft* 17 (1960): 1–21.

Gushee, Lawrence. "Anonymous Theoretical Writings." In *The New Grove Dictionary of Music and Musicians,* edited by Stanley Sadie, 1:441–46. London: Macmillan, 1980.

Haar, James. "Josquin as Interpreted by a Mid-Sixteenth-Century Musician." In *Festschrift für Horst Leuchtmann zum 65. Geburtstag,* edited by Stephan Horner and Bernhold Schmid, 179–205. Tutzing: H. Schneider, 1993.

Haas, Max. "Musik zwischen Mathematik und Physik: Zur Bedeutung der Notation in den 'Notitia artis musicae' des Johannes de Muris (1321)." In *Festschrift für Arno Volk,* edited by Carl Dahlhaus and Hans Oesch, 31–46. Cologne: Gerig, 1974.

Hamm, Charles. *A Chronology of the Works of Guillaume Dufay Based on a Study of Mensural Practice.* Princeton, N.J.: Princeton University Press, 1964.

Hughes, Andrew, and Margaret Bent, eds. *The Old Hall Manuscript.* 3 vols. Corpus mensurabilis musicae 46. [Rome]: American Institute of Musicology, 1969–73.

Jackson, Darrell. "The Theory of Signs in St. Augustine's *De doctrina christiana.*" *Revue des études augustiniennes* 15 (1969): 9–49.

Kirkman, Andrew, and Philip Weller. "Binchois' Texts." *Music and Letters* 77 (1996): 566–96.

Meyer-Eller, Sören. *Musikalischer Satz und Überlieferung von Messensätzen des 15. Jahrhunderts: Die Ordinariumsvertonungen der Handschriften Aosta 15 und Trient 87/92.* Studien zur Musik 8. Munich: W. Fink, 1989.

Miller, Clement A. "The *Dodecachordon:* Its Origins and Influence on Renaissance Musical Thought." *Musica disciplina* 15 (1961): 155–66.

Planchart, Alejandro Enrique. "The Relative Speed of *Tempora* in the Period of Dufay." *RMA Research Chronicle* 17 (1981): 33–51.

———. "Tempo and Proportions." In *Performance Practice: Music Before 1600,* edited by Howard Mayer Brown and Stanley Sadie, 126–44. The New Grove Handbooks in Music. Basingstoke, Hamps.: Macmillan, 1989.

Popper, Karl. *The Logic of Scientific Discovery.* London: Hutchinson, 1959.

Reynolds, Robert D. "Evolution of Notational Practices in Manuscripts Between 1400–1450." Ph.D. diss., Ohio State University, 1974.

Schroeder, Eunice. "The Stroke Comes Full Circle: ϕ and ¢ in Writings on Music, Ca. 1450–1540." *Musica disciplina* 36 (1982): 128–32.

Staehelin, Martin. "Bemerkungen zum Verhältnis von Werkcharakter und Filiation in der Musik der Renaissance." In *Datierung und Filiation von Musikhandschriften der Josquin-Zeit,* edited by Ludwig Finscher, 199–215. Quellenstudien zur Musik der Renaissance 2. Wiesbaden: O. Harrassowitz, 1983.

Strohm, Reinhard. *The Rise of European Music, 1380–1500.* Cambridge: Cambridge University Press, 1993.

Sullivan, Blair. "Nota and Notula: Boethian Semantics and the Written Representation of Musical Sound in Carolingian Treatises." *Musica disciplina* 47 (1993): 71–97.

Vendrix, Philippe, ed. *Johannes Ockeghem: Actes du XLe Colloque international d'études humanistes. Tours, 3–8 février 1997.* Collection "Épitome musical" 1. Paris: Klincksieck, 1998.

Wegman, Rob C. "Another Mass by Busnoys?" *Music and Letters* 71 (1990): 1–19.

———. *Born for the Muses: The Life and Masses of Jacob Obrecht.* Oxford: Clarendon Press, 1994.

———. "Concerning Tempo in the English Polyphonic Mass, C.1420–70." *Acta musicologica* 61 (1989): 40–65.

———. "From Maker to Composer: Improvisation and Musical Authorship in the Low Countries, 1450–1500," this **Journal** 49 (1996): 409–79.

———. "*Miserere supplicanti Dufay:* The Creation and Transmission of Guillaume Dufay's *Missa Ave regina celorum.*" *Journal of Musicology* 13 (1995): 18–54.

———. "Petrus de Domarto's *Missa Spiritus almus* and the Early History of the Four-Voice Mass in the Fifteenth Century." *Early Music History* 10 (1991): 235–303.

———. "Sense and Sensibility in Late-Medieval Music: Thoughts on Aesthetics and 'Authenticity.' " *Early Music* 23 (1995): 298–312.

———. "What Is 'acceleratio mensurae'?" *Music and Letters* 73 (1992): 515–24.

Wiora, Walter. "Musica poetica und musikalisches Kunstwerk." In *Festschrift Karl Gustav Fellerer zum sechzigsten Geburtstag,* edited by Heinrich Hüschen, 579–89. Regensburg: G. Bosse, 1962.

Wright, Craig. "Tapissier and Cordier: New Documents and Conjectures." *Musical Quarterly* 59 (1973): 177–89.

Abstract

The stroke in the mensural notation sign ϕ (which turns up in musical sources shortly after 1400) has generally been understood to signal diminution in perfect tempus. According to a new interpretation advanced by Margaret Bent, however, this was not its primary meaning until the later fifteenth century. Before then, she has argued, ϕ was in use as a "general-purpose sign," with a broad range of meanings of which diminution was only one. This interpretation is open to challenge on both factual and methodological grounds. At present, there appears to be no basis for abandoning the received interpretation of ϕ.