WHAT IS 'ACCELERATIO MENSURAE'?

BY ROB C. WEGMAN

'IT IS PROPER to the stroke [drawn through a mensuration sign] to signify acceleration of the measure', wrote Johannes Tinctoris in his *Proportionale musices*. His statement has the conciseness and generality of a definition, yet unlike many similar statements in his treatises it did not enter the *Diffinitorium musicae*. Why not? It is unlikely that the omission was accidental, for Tinctoris's interest in the stroke does not appear to have been very strong anyway. In the passage from which I have taken his statement he merely mentions the stroke in passing, while dealing with an entirely different issue. Further on in the same treatise he mentions the stroke again, reporting its use by contemporary composers along with several other notational practices that he condemns, tolerates or (more rarely) applauds. It would appear from this that Tinctoris never regarded the stroke as a fundamental element of mensural theory, worthy of separate exposition. Nowhere in his writings is there a chapter entitled 'De tractulo', and his *Diffinitorium*, as already mentioned, has no entry for the stroke at all. This seems strange, given the widespread use of strokes in the musical repertory of the period. As editors and performers of that repertory we wish to know what such a widely used sign means. And although Tinctoris gives us a straightforward answer, it seems hardly a satisfactory one. 'Acceleration of the measure' gives scope for more interpretative freedom than we are used to in the mensural system, and so it leaves us wondering whether perhaps a narrower meaning was intended. What did Tinctoris mean by 'acceleratio mensurae'?

The relevant statements from the *Proportionale* have been discussed several times, but rarely has their full context been taken into account.[1] And it is precisely this context which reveals so much about Tinctoris's understanding of the stroke. This is illustrated by the first passage, Chapter 3 of Book I. The last part of this chapter is often quoted in discussions of the stroke, but in order to understand that part properly one needs to read what precedes it. Here is the full chapter:[2]

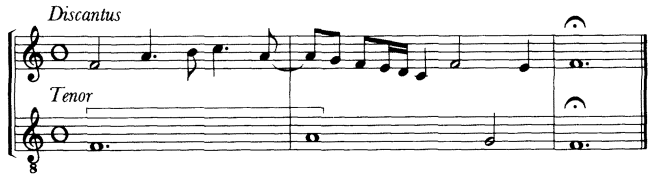
Proportionum vero aliae sunt aequalitatis, aliae inaequalitatis. Proportiones aequalitatis sunt quae ex aequalibus numeris conficiuntur, ut 1 ad 1, 2 ad 2, 3 ad 3, 4 ad 4, etc. Et huiusmodi proportionum aequalitatis species specialissimae sunt, nec nomina in eloquutione specifica nec signa in compositione positiva recipientes, nempe cum in aliquo cantu nullum inaequalitatis signum videmus, eum per aequales numeros compositum esse iudicamus, ut hic patet:

Among proportions some are of equality, some of inequality. Proportions of equality are those that are formed of equal numbers, as 1:1, 2:2, 3:3, 4:4, etc. And of such proportions of equality the species are unique, admitting neither specific names in discourse nor positive signs in composition; for of course when we see no sign of inequality in a piece of music, we judge that it was composed in equal numbers, as is shown here:

I am grateful to Bonnie Blackburn, David Fallows, Leofranc Holford-Strevens and Chris Maas for commenting on earlier drafts of this article.

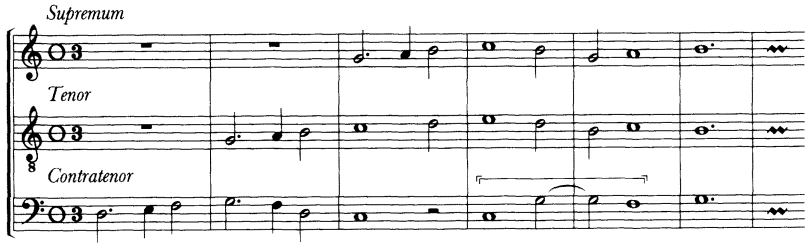
[1] See, for instance, Joannes A. Bank, *Tactus, Tempo and Notation in Mensural Music from the 13th to the 17th Century*, Amsterdam, 1972, pp. 162-3; Alejandro E. Planchart, 'The Relative Speed of *Tempora* in the Period of Dufay', *R.M.A. Research Chronicle*, xvii (1981), 36; Eunice Schroeder, 'The Stroke Comes Full Circle: 𝅝 and 𝅗𝅥 in Writings on Music, Ca. 1450-1540', *Musica disciplina*, xxxvi (1982), 133-7; Anna Maria Busse Berger, 'The Myth of *diminutio per tertiam partem*', *The Journal of Musicology*, viii (1990), 405-10.

[2] Johannes Tinctoris, *Opera theoretica*, ed. Albert Seay, iia (*Proportionale musices*) ('Corpus scriptorum de musica', xxii), Neuhausen-Stuttgart, 1978, pp. 13-15. The translation used here was made by Dr Leofranc



Ex quo confunditur inexcusabilis error Okeghem, qui suum carmen bucolicum 'Lautre dantan' ab omni parte numeris aequalibus compositum nedum signo proportionis, sed illo qui a quibusdam triplae, ab aliis sesquialterae per se et male attribuitur signavit, ut patet in praesenti exemplo:

Whence is refuted the inexcusable error of Ockeghem, who signed his rustic song 'Lautre dantan', which is composed in equal numbers in all parts, not merely with a sign of proportion, but with the one that some interpret as tripla, others as (an incorrect and single sign for) *sesquialtera*, as is shown in the present example:



Eodem autem signo Dufay suum 'Qui cum patre' in Patrem de [*Missa de*] *Sancto Anthonio* per duplam sesquiquartam proportionatum signare voluit, quo fit ut si ille bene, iste male signavit; diversae enim proportiones diversa signa requirunt. Sed sicut illum hic ita istum suo loco male signasse probabo, dum vero carmen praemissum, scilicet 'Lautre dantan', aut aliud similiter signatum habent, imperiti dicunt: 'Repente canamus, sesquialtera est.' O puerilis ignorantia aequalitatis proportionem inaequalitatis asserere! Nec existimo compositorem, quamvis ita secundum aliquos signaverit, ita dici voluisse, sed ut carmen suum concitae instar sesquialterae cantaretur. Ad quod efficiendum virgula per medium circuli cuiusque partis traducta sufficiebat. Nam proprium est ei mensurae accelerationem significare sive tempus perfectum sive imperfectum sit, ut in infinitis etiam suis compositionibus apparet, cuius in utroque forma talis est: ϕ ¢.

Now Dufay chose to sign his 'Qui cum patre' in the 'Patrem' of his [*Missa*] *S Antonii* [*de Padua*], proportioned in a duple *sesquiquarta*, with the same sign, so that if Ockeghem used the right sign, Dufay used the wrong; for different proportions require different signs. But in due course I shall show that both of them used the wrong sign; but of the aforementioned song, that is 'Lautre dantan', or another similarly signed, the inexperienced say: 'Let us sing it straight off: it is *sesquialtera*'. O the childish ignorance, to assert that a proportion of equality is of inequality! Nor do I think that the composer, even though according to some people he so signed, wished it to be so performed, but that his song should be sung like a speeded-up *sesquialtera*. To effect this, a stroke drawn through the middle of the circle of each part would have been enough. For it is proper to it to signify acceleration of the measure, whether the tempus is perfect or imperfect, as is evident in countless of his compositions; whereof in each the form is: ϕ ¢.

Holford-Strevens, to whom I express my gratitude for generously sharing his expertise on matters of Latin grammar and idiom.

The structure of the chapter is clear: after stating a general principle, Tinctoris criticizes Ockeghem for violating that principle, by using the sign **O3** in 'Lautre dantan'. What exactly is wrong with that sign, and which sign should have been used in its place? We can see that Tinctoris recommends the use of a stroke, but is the correct sign **Ø** or **Ø3**? In a recent article, Anna Maria Busse Berger has pointed out that **O3** was often regarded as a sign of perfect modus and perfect tempus, with implied diminution (the circle designating modus rather than tempus, and the figure 3 tempus rather than a proportion).[3] She argues that Tinctoris may have objected to the absence of a stroke to specify that diminution, and that he therefore proposed to write **Ø3** instead of **O3**. But this explanation is plainly unsatisfactory. First, as Busse Berger herself points out, Tinctoris had several other reasons for objecting to the use of **O3** as a modus-tempus sign.[4] If he believed that Ockeghem had intended it as such a sign, it would have been highly uncharacteristic of him to recommend any alternative short of the correct notation (which, if Busse Berger's interpretation were correct, might have been **Ø** with perfect long rests[5]). But in fact, and this is the second point, the theorist states explicitly that the sign in 'Lautre dantan' is one of tempus-proportion, not one of modus-tempus.[6] It goes without saying that he cannot emend a signature according to an interpretation he does not share in the first place. Third, and most important, it is apparent from the chapter that Tinctoris is not concerned there with either modus-tempus signs or implied diminution.

The point he does make is one that would seem trivially self-evident, indeed casuistic, to modern eyes. Tinctoris states that if a given number of notes in one voice is equivalent to the number of the same notes in another voice, there is a so-called proportion of equality between the voices. Proportions of this kind, he adds, must not be notated, since any relationship is naturally assumed to be equal unless otherwise indicated. He cites Ockeghem's song as a transgression of that rule. The argument runs briefly as follows. 'Lautre dantan' has **O3** in all parts, but the number 3 can be logically explained only as meaning 3:3, since in each voice three semibreves are equivalent to three in the others. As 3:3 is a proportion of equality, the notated '3' is redundant.[7] It is clear from this that whatever Tinctoris's emendation looked like, it cannot have contained the very target of his criticism, the figure 3. And it follows that he could still have objected to the sign which Busse Berger believes to be his emendation, **Ø3**. But why would an argument about such far-fetched mensural matters involve the stroke?

[3] 'The Myth of *diminutio per tertiam partem*', pp. 406–8.

[4] Ibid., p. 407.

[5] Cf. Book III, Chapter 5, of the *Proportionale*, where Tinctoris proposes **¢** with perfect long rests as the correct alternative for the modus-tempus sign **O2** (*Opera theoretica*, iia. 55–56; see also 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*, x (1991), 256–7).

[6] 'Ockeghem, who signed his rustic song "Lautre dantan", which is composed in equal numbers in all parts, not merely *with a sign of proportion* [my italics], but with the one that some interpret as tripla, others as . . . *sesquialtera* . . .' The possibility of implied diminution, let alone modus-tempus notation, is nowhere raised in the passage. This is not surprising, for if Tinctoris perceived Ockeghem's **O3** as a modus-tempus sign, 'Lautre dantan' would scarcely be relevant to the point he is making, which is about proportions of equality (see below).

[7] This issue kept exercising theorists in the following century; cf. Orazio Tigrini's similar comments in his *Il compendio della musica* of 1588: '[Sesquialtera] is a proportion of inequality; hence, wanting to make it as it should be made, it will always be when one or more parts sing two semibreves, or two minims in one tactus, and the other parts sing in contrast three semibreves, or three minims; and not as some, who in their compositions, under the sign of sesquialtera, cause all the parts to sing equally three semibreves, or three minims, against three others' (quoted after Michael B. Collins, 'The Performance of Sesquialtera and Hemiola in the 16th Century', *Journal of the American Musicological Society*, xvii (1964), 8).

In what follows, Tinctoris tells us that some singers are ignorant and inexperienced enough to read **O3** as $\mathbf{O}\frac{3}{2}$. He gives short shrift to that interpretation: nowhere in the song is there such a relationship, either horizontally or vertically. The only relationship he can detect is 3:3, so the '3' cannot possibly refer to anything but that proportion. Obviously Tinctoris is reluctant to include Ockeghem among the ignorant singers, yet he comes close to doing just that: if the '3' is manifestly incorrect, then why did so eminent a composer use it? Tinctoris can come up with only one explanation: Ockeghem wished to prescribe performance 'like a speeded-up *sesquialtera*'. That is a hypothetical possibility, of course, for so long as Ockeghem did not write out the full proportion (be it $\frac{3}{3}$, $\frac{3}{2}$ or $\frac{3}{1}$), it is anybody's guess what exactly he wished to prescribe. (Incompletely notated proportions were a source of considerable annoyance to Tinctoris: in Chapter 2 of Book III he devotes two paragraphs to criticizing this 'maximus error'.) But granted that this is indeed what Ockeghem intended (in which case the '3' can only be an approximation of $\frac{3}{2}$), Tinctoris says that it would have sufficed to put a stroke through the tempus sign. Since the theorist objects to the '3', and since the tempus is perfect, this means that he is advocating **Ø**.

If the stroke prescribes performance 'like a speeded-up *sesquialtera*', what are we to understand by such performance? That question cannot be answered yet; but one important point does emerge from what has been established so far. If **Ø** in all voices is correct while **O3** is not, it follows that for Tinctoris a stroke is *not* a sign of proportion. For if it were (for instance 2:1, 3:2 or 4:3), he could again have objected that it describes a relationship that does not exist within the song. Nor can the stroke describe the only relationship he does acknowledge, 3:3, since it is the point of the chapter that relationships of this kind should not be indicated. So whatever the stroke signifies, it cannot define or affect the proportional relationships in any way. That a stroke does not denote a proportion is, of course, hardly a novel interpretation: Eunice Schroeder arrived at the very same conclusion on the basis of a statement elsewhere in the *Proportionale* (discussed below).[8] But it confirms the consistency of Tinctoris's comments on this point. When he wrote his remarks he knew exactly what he was saying—even though as yet we know only what the stroke is *not*.

Franchinus Gaffurius, as is well known, joined the debate on 'Lautre dantan'. In his *Practica musicae* of 1496, he gives a music example of the song in which the mensuration sign is **Ø3**, rather than **O3** (as in Tinctoris). Busse Berger has seen this as confirmation of **Ø3** being Tinctoris's emendation, pointing out that Gaffurius 'agrees with Tinctoris on every other aspect of the mensural system'.[9] But he did not agree about 'Lautre dantan'. This can be inferred from the relevant passage in *Practica musicae*, but it is in fact stated explicitly in his early treatise *Tractatus practicabilium proportionum* (*c.*1482).[10] Here Gaffurius defends Ockeghem against Tinctoris's criticism. The intended proportion in 'Lautre dantan', he argues, was 3:2. Although that relationship does not exist within the piece (as Tinctoris had objected), it is to be postulated externally, with imaginary preceding notes written under **O**:[11]

[8] 'The Stroke Comes Full Circle', pp. 133–7.

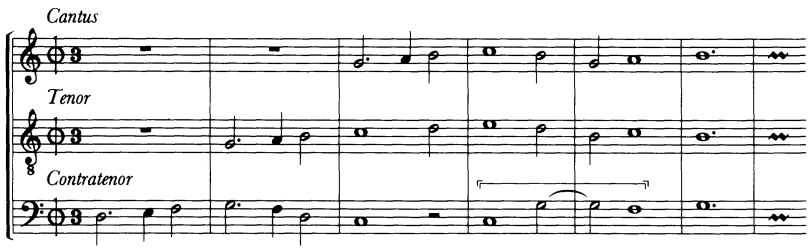
[9] 'The Myth of *diminutio per tertiam partem*', pp. 408–9.

[10] Unpublished; but surviving in the manuscript Bologna, Civico Museo Bibliografico Musicale, A 69. On this treatise, see Clement A. Miller, 'Early Gaffuriana: New Answers to Old Questions', *The Musical Quarterly*, lvi (1970), 367–88.

[11] Bologna, MS A 69, ff. 5^{v}–6^{r}.

Et hoc modo inaequalitatis proportionem per aequa signa aequasque proportiones diversarum compositionum posuit Okegem in cantilena 'Lautre dantan', constituens omnes eius compositiones in sexqualtera proportione unica scilicet ternarij numeri ziphra mediante, hoc modo.

And in this way Ockeghem has placed a proportion of inequality in different voice parts of the song 'Lautre dantan' with identical signs and identical proportions, setting up all of its voices in *sesquialtera* proportion, indicated with one cipher, namely the number 3, in this way:



Voluit enim compositor ipse figuras cuiuscunque compositionis per sexqualteram referri ad precedentes, seu ad ordinem processivum precedentium, que per circulum declarantur, nam unusquisque cantus per proprium signum quantitativi accidentis demonstratur, cognoscitur et procedit. Et sic impugnatur arrogantia Johannis Tinctoris qui, in suo proportionabili opere, capitulo tertio, praefatum Okegem redarguit, asserens ipsum puerili ignorantia processisse, quoniam scilicet aequalitatem diversarum compositionum per inaequalitatis proportionem constituit proferendam. Non enim notulas unius compositionis ad notulas alterius constituit in sexqualtera proportione referendas, sed, ut promissum [*sic*] est, ad precedentes que per signum temporale considerantur. Erravit tamen Okegem ipse in signo proportionis omittendo ziphram binarij ad quam ternarij ziphra sexqualteram ipsam regulariter vero monstrat iuditio, ut hic: $\overset{3}{2}$.

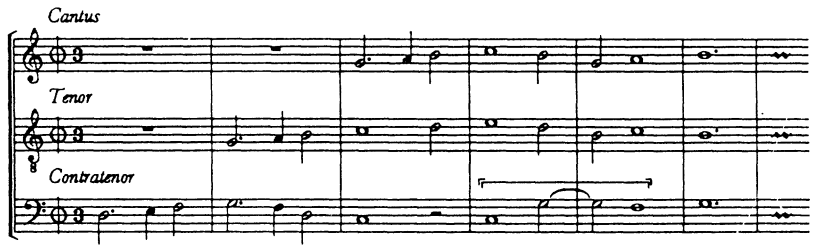
The composer wished the notes of every part to relate in *sesquialtera* to preceding ones, or to a sequential order of preceding ones, which are designated with the circle; for every song is indicated, recognized and proceeds through its own sign of quantitative accident. Thus is the arrogance of Johannes Tinctoris rebuked, who in the third chapter of his work on proportions berated the aforesaid Ockeghem, asserting that he acted with childish ignorance in representing the equality of different parts [3:3] with an incompletely notated proportion of inequality ['3' = 3:2]. For [Ockeghem] placed the notes of one part in *sesquialtera* not against the notes of another [part] but, as already said, against preceding ones which are to be considered in the sign of tempus [**O**]. Ockeghem did err in the sign of proportion, though, by omitting the binary number with which, properly judged, the ternary number has a sesquialtera relationship, as here: $\overset{3}{2}$.

Given his disagreement with Tinctoris, Gaffurius could hardly have preferred the latter's emendation over Ockeghem's notation — as he perceived it. The fact that he gives **𝅝3** in his example thus speaks against rather than in favour of its being that emendation, for obviously he cannot defend Ockeghem if the latter is seen to conform to the teachings of his critic. That **𝅝3** *cannot* in fact have been the emendation is apparent from Gaffurius's reference to the *Proportionale*, whose points he summarizes accurately (the only exception being, of course, that Tinctoris had never quite accused Ockeghem of being childishly ignorant). Although the two theorists are in disagreement, they are clearly talking about the same issue: proportions of equality.

In his *Practica musicae*, published some fourteen years later, Gaffurius has not changed his mind: again he is concerned to defend the use of the same unequal proportion in all voices, even if there is no such proportion within the piece. He gives an example of a composition having the sign **C2** in all its parts. Since the proportion is again notated incompletely (something that bothers Gaffurius as well), the question remains open whether it is equal (2:2) or unequal (2:1). This is how Gaffurius resolves the question:[12]

Sic enim sumenda est huiusmodi concentus consyderatio: ut notulae acutioris ad tenoris vel contratenoris notulas vel econverso secundum aequalitatis proportionem consimili signo hinc inde descriptam minime conducantur, verum potius cuiuscunque partis notulas in duplo velociores consimilibus imperfecti temporis signo presuppositis tamquam precedentibus in proportione censeo computandas, quod et Olreghem in cantilena 'Lautre dantan' disposuit hoc modo.

Such a composition is to be treated such that the notes in the top voice are not related to those in the tenor and contratenor, or vice versa, according to the proportion of equality ['2' = 2:2] marked in all parts; rather I am of the opinion that the notes of each part are to be counted twice as fast in proportion ['2' = 2:1] as the same notes under the sign of imperfect tempus, imagined as if preceding it, which Ockeghem did in the song 'Lautre dantan' in this way:



Nec tamen solius numeri dispositionem in proportionis demonstratione non egre fero: namque pretactum est proportionem minus quam in duobus terminis non posse constitui.

Nevertheless, I can hardly tolerate the use of one number to show a proportion, for we already stated that a proportion cannot be formed with fewer than two numbers.

Gaffurius now appears to be less passionate about the issue: his disagreement with Tinctoris is stated only implicitly, and the accusation of arrogance is withdrawn. But he has not taken a single word back: again he argues that it is possible to indicate a proportion even if it does not establish a relationship with any written music. The issue can now be summarized as follows:

(1) Tinctoris objected to the number 3, since the only proportion within 'Lautre dantan' to which it could correctly refer was one of equality (3:3), and this kind of proportion needed not to be indicated.
(2) He conceded, though, that Ockeghem might have wanted to prescribe performance 'like a speeded-up *sesquialtera*'.[13] Gaffurius, for his part, was certain that the composer had intended an exact 3:2 proportional relationship with **O**.

[12] *Practica musicae*, Bk IV, Chap. 3; translation based on Clement A. Miller, *Franchinus Gaffurius: Practica musicae* ('Musicological Studies and Documents', xx), American Institute of Musicology, 1968, pp. 159–60.

[13] Busse Berger speculates that this is 'perhaps even as fast as in *proportio dupla*' (op. cit., p. 408), but I see no reason to believe that Tinctoris means anything but what he says: the word he uses is *sesquialtera*, not *dupla*. It is

(3) The effect of a speeded-up *sesquialtera*, according to Tinctoris, would have been correctly achieved by drawing a stroke through the circle (𝅗𝅥).
(4) Since notating 𝅗𝅥 in all parts does not amount to writing out a proportion of equality, whereas **O3** does, a stroke cannot be a sign of proportion.

The last conclusion has far-reaching consequences. In the chapter quoted above, Tinctoris goes on to provide the definition with which I opened this article: 'for it is proper to [the stroke] to signify acceleration of the measure' ('acceleratio mensurae'). This confirms that, for him, the stroke is not a sign of proportion, not even of diminution or halving.[14] The latter practices assume clearly defined initial situations from which to arrive at the intended results. Whether that situation is defined in terms of beats, numbers of notes or values of notes, the lowest common denominator and ultimate point of reference is always the *mensura*, the measuring-unit or beat; hence the intended results can be described with numerical precision. The stroke, however, affects that very point of reference. If the beat itself is to be speeded up in all voices—as Tinctoris proposed for 'Lautre dantan'—there is no yardstick left within the mensural system to quantify the acceleration. In the absence of any external point of reference (such as a metronome), theorists had no way of specifying the rate of acceleration.

This is a fundamental point. Tinctoris is unable to define 'acceleratio mensurae' with any precision because he lacks the tools to do so. The stroke cannot mean any more to him than what an indication like 'più mosso' means to us. If that conclusion seems disappointing, it is so only in terms of our own expectations. One can certainly empathize with Busse Berger's belief that 'it is extremely unlikely that a theorist obsessed with explaining the most unusual proportions which result in a rational performance of the most minute temporal differences between different sections and parts would have recommended an irrational proportion for a sign as common as 𝅗𝅥'.[15] But 'irrational proportion' is something quite different from 'acceleration by an unspecified amount', and it is certainly not what Tinctoris is recommending. Proportion is the comparison of numbers of notes (something which cannot be 'irrational' by definition); 'acceleratio mensurae' refers to the speed of the counting unit and does not involve comparisons of this kind at all. To demand that the stroke should necessarily signify *some* proportion is thus to raise a question that is inherently flawed.

Only when this is recognized can one appreciate the care with which Tinctoris selected his words. He was well aware that when 'acceleratio mensurae' takes place right at the beginning of a piece, it is impossible to describe the acceleration in

easy to understand why Tinctoris believed that Ockeghem intended a 'speeded-up *sesquialtera*', as opposed to a simple speeding up or an exact *sesquialtera*. Simple speeding up would not explain why Ockeghem wrote a '3', and an exact *sesquialtera* would suggest 'puerile ignorance'—of which Tinctoris was careful not to accuse Ockeghem (see above).

[14] Gaffurius elaborated this point in detail in his well-known threefold division of 'diminution', which was taken over by many sixteenth-century theorists (*Practica musicae*, Bk II, Chap. 14, f. cc liiij^{r-v}). Although diminution, proportion and acceleration often produce the same practical results, each arrives at them in a different way. With diminution in the traditional sense, the singer has to 'replace' each note by the next smaller note; since the latter assumes the mensural qualities of the former, all mensural relationships are shifted by one level. Proportion affects the number of notes in relation to another number of the same notes; with proportions such as 4:3, 3:2 and in some cases 2:1, this involves a change (rather than shift) of the mensural relationships. Halving (*semiditas*) involves taking away half the value of a note (expressed in numbers of next smaller notes). This presupposes that the value is binary in the first place; it can therefore be applied only in all-imperfect mensurations, where it does not change the mensural relationships in any way. Acceleration differs fundamentally from all these practices (see below).

[15] Op. cit., p. 408; see also p. 423.

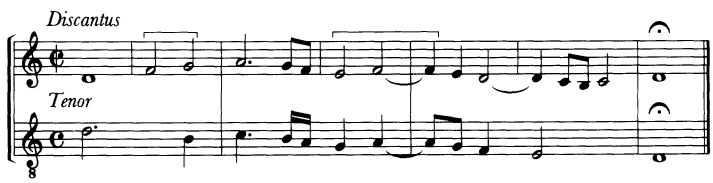
terms of a proportion. His objection to the *sesquialtera* interpretation of **O3** in 'Lautre dantan' was that it describes an exact 3:2 relationship with a term that does not exist (which is why Gaffurius had to presuppose it). Without such a term, no proportional relationship of any kind is conceivable. In this type of situation **𝅝** is nevertheless a correct signature, according to the theorist. It follows that **𝅝**, apart from not being a proportion, cannot even be conceived here in terms of a proportion. Surely it was for this reason that Tinctoris avoided saying that **𝅝** equals **O3**. Rather, he said that the sign prescribes performance '*like* a speeded-up *sesquialtera*'. This is the closest he gets to describing what the mensural system cannot describe: the rate of acceleration in all voices.

But what if the acceleration does not take place in all voices at the same time? Obviously in such circumstances the stroked signature *must* assume some exact relationship with its counterparts. But this is an essentially different situation, for the very reason why an exact relationship is now required is the fact that the other mensurations provide the point of reference that was lacking in 'Lautre dantan'. To put it briefly, necessity is created by feasibility.

Tinctoris discusses such a situation in Book III, Chapter 2, of his *Proportionale*. He repeats that a stroke signifies 'acceleratio mensurae' and adds that if the sign **𝅜** takes the place of **C𝅗𝅥** in a vertical combination the result of this is commonly called 'cut-in-half'. Tinctoris does not say that this is the only correct interpretation of **𝅜**: he merely reports a common practice. But he is willing to go along with that practice, motivating his judgement in notably non-committal terms:[16]

Alii vero pro signo duplae signum temporis imperfecti minorisque prolationis cum tractulo traducto, accelerationem mensurae ut praemissum est denotante, quo cantus vulgariter ad medium dicitur tantummodo ponunt, ut hic patet:

Others place for the sign of *dupla* only a sign of imperfect tempus with a stroke drawn through it, indicating, as said before, acceleration of the measure, by which a song is commonly called cut-in-half, as is shown here:



Quod, ut De Domarto et Faugues in Missis *Spiritus almus* et *Vinus* ita signantibus placeam, tolerabile censeo propter quandam aequipollentiam illius proportionis ac istius prolationis. Dum enim aliquid ad medium canitur, duae notae sicut per proportionem duplam uni commensurantur.

Which, so that I may be pleased with De Domarto and Faugues using this sign in their Masses *Spiritus almus* and *Vinus*, I consider tolerable because of a certain equivalence between the former proportion [**C𝅗𝅥**] and the latter prolation [**𝅜**]. For when something is sung in half, two notes are measured to one, just as in a duple proportion.

[16] *Opera theoretica*, iia. 45–46. For discussions of this passage, with reference to the Masses by Faugues and Domarto, see Rob C. Wegman, 'Guillaume Faugues and the Anonymous Masses *Au chant de lalouete* and *Vinnus vina*', *Tijdschrift van de Vereniging voor Nederlandse Muziekgeschiedenis*, xli (1991), 42-56, and 'Petrus de Domarto's *Missa Spiritus almus*', p. 257.

It is difficult to conclude from this that Tinctoris had very strong feelings about what the stroke must mean—other than what he says it means: the speeding up of the beat.[17] There is only a certain equivalence with duple proportion, so that the accelerated notes relate to others just as in *dupla*, while not being in *dupla*. Note that Tinctoris is careful not to cross the line between acceleration and proportion: although the end results are the same in this case, he knows that they are achieved through different conceptual steps.

This should be kept in mind when considering the apparent inconsistency between the two passages discussed here. In the first, Tinctoris advocates the use of 𝅝 in all voices to approach the effect of a speeded-up 3:2 proportion. In the second, he describes 𝅗𝅥 as a 'tolerable' alternative for 𝅗𝅥 in vertical combinations, there being 'a certain equivalence' between the signs. So what does the stroke mean: 3:2 or 2:1? The flaw in this question should now be evident. It is only when we expect Tinctoris to define the stroke in terms of what it is *not* (a sign of proportion) that his statements seem uncharacteristically imprecise and inconsistent. In terms of what he says it is, the lack of precision makes sense and the inconsistency evaporates. For both cases satisfy the only definition he gives: 'acceleration of the measure'. Vertical combinations merely represent a special type of acceleration in that the only option there is twice as fast. But there is no justification in Tinctoris's writings for extrapolating a hard and fast rule from that type of situation.

The great majority of late fifteenth- and sixteenth-century theorists describe exactly the either/or situation that we find in Tinctoris. The standard definition, which is repeated again and again in various variants, runs: 'either the notes must be beaten a little faster, or exactly twice as fast'. But what distinguishes Tinctoris from his colleagues is the consistency, watertight logic and careful language with which he expounds and applies mensural theory. On a purely intellectual level, one can only admire him for that. But the theorist did not live in an ivory tower. His statements on the stroke make excellent practical sense. There are numerous examples of horizontal relationships between 𝅝 and 𝅝 where anything in excess of 'a little faster' would produce musically unacceptable results. I am thinking in particular of the many 'ut supra' Kyries and Agnus Deis in which the same music is to be performed first in 𝅝 and then in 𝅝.[18] As we have observed, the expression 'a little faster' (or variants thereof) was used by numerous theorists in connection with the

[17] Tinctoris's follower Gaffurius uses similarly non-committal terms in his definition of the stroke (in the passage referred to in note 14 above). Having pointed out that the sign affects the duration of the beat, he continues: 'But since duple proportion is better known than the other proportions, and easiest in division and performance, singers often take the diminution of this beat, indicated by means of a stroke, twice as fast, that is, equivalent to duple proportion'. Gaffurius clearly implies that a stroked signature can in principle assume equivalence to several different proportions, while not being identical with any of them. Like Tinctoris he avoids saying that there is only one orthodox interpretation: he merely reports that singers usually choose *dupla*. And they do so not because this is what the stroke means, but because *dupla* is more familiar and easiest to carry out—a purely pragmatic reason.

[18] These pieces recall Heinrich Glarean's well-known and very interesting remark: 'But every time when musicians want the tactus to accelerate (which they think necessary to prevent boredom when they believe the hearing has grown tired) they will write a vertical line through the circle or semicircle, thus: 𝅝 𝅗𝅥, and call this modification "diminutio", not because the value or number of notes is diminished, but because the tactus becomes faster. Thus some composers write a whole circle without line, 𝅝, at the first Kyrie; a semicircle with line, 𝅗𝅥, at the Christe; and again a whole circle, but with a line, 𝅝, at the last Kyrie, in order not to give the impression that they have returned to the beginning of the music' (trans. from *Dodekachordon* (1547), Vol. III, Chap. 8, p. 205). Note that Glarean's formulation is fully consistent with Tinctoris's views. Another type of situation which is relevant here is the frequent occurrence of 𝅝 and 𝅝 as source variants for the same music.

stroke.[19] Busse Berger may well be right in pointing out that this formulation 'does not exclude diminution by one-half' or, more correctly, doubling of speed.[20] But it could be argued that in certain circumstances (which include the 'ut supra' Kyries and Agnus Deis) common sense does. No one was more aware of this than Johannes Tinctoris, when he argued that if a piece in **O** were to be performed at effectively twice the normal speed, 'a difficulty of pronunciation and even a destruction of the whole melody would be heard because of the excessive speed'.[21] It is a great credit to the theorist that, for all his learning and erudition, he never lost sight of musical common sense.

[19] See Busse Berger, 'The Myth of *diminutio per tertiam partem*', p. 414. The phrase was used not only by Germans; see Bank, *Tactus, Tempo and Notation*, p. 205: 'Ⓘ means beating a little more quickly' (Marc'Antonio Balbi).

[20] Although one wonders why it was then so often distinguished from that option in an either/or formula ('The Myth of *diminutio per tertiam partem*', pp. 414, 417, 418).

[21] *Opera theoretica*, iia. 49. Tinctoris considers here what would happen if the 'Et in terra' of Petrus de Domarto's *Missa 'Spiritus almus'* (which is in **O**) were performed in duple proportion.