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Reflecting on the Generation of Zero, Lombardus Anonymous and Guido

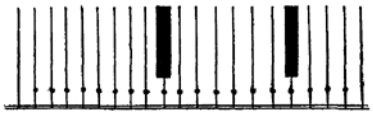
Annotation

The didactic theory of late Renaissance, confident within its own aura of catechism, shaped its perception of medieval musical thought to its own prescription, forging music theory anew to its own conceptual accord with the unintentional patronage of Boethius, leading through the Age of the so-called Reason directly into the Age of the so-called Enlightenment. In this manner, it also paved the way for the future attestation that was to be found in the so-called tonal theory whose features also helped carving, in its own reflection image. In this respect the shape of harmony and voice leading has been driven by normative adjustment and regulatory dicta in place of the existent tonal and intervallic characteristics, already inherent in both the tonic and the tonal system whose birth and laws is in the deep past, irrespective of whether they had been detected or not.

Keywords: generation of zero, Lombardus Anonymous, Guido, musical systems, musical scales, medieval musical scales, musical scales of Renaissance, musical scales of antiquity, ancient musical scales, keyboard, tuning systems, tonal systems.

Looking at its own reflection

In 1511, in the middle of the Renaissance, a book by Sebastian Virdung (*Musica getutscht*) was published. It was the earliest treatise on instruments, including the supporting theory behind them. In the book a drawing of the medieval keyboard, used to explain the status and the evolution of the musical system is presented, stating: "When Guido wrote about the monochord, he considered only the diatonic genus and for a long time the clavichord, in accordance with this (genus) had no more than twenty one keys, like this."[1]



Example 1a. Medieval keyboard (*Musica getutscht,* 1511)

On this keyboard, there is only one black key (B♭) and seven white ones (C D E F G A B) marking thus the first distinction of the functional role of the tones in relation to one another, carving a primitive type of tonal relations in which B♭ is considered to have a different function than B, expressing thus two categories of tones, one with seven and another with one (B♭).[2] A few pages later a drawing of the Renaissance keyboard appears having five black keys, being the natural evolution of the previous, adding 'the chromatic genus' of the ancients to the 'diatonic genus' of the Middle Ages.

Example 1b. Renaissance keyboard (*Musica getutscht,* 1511)

Virdung had obviously never seen a medieval keyboard but he had seen a Renaissance one, hence his argument is based on a subtractive procedure, starting from the keyboard he has seen, subtracting black keys until he reaches the hypothetical medieval, inadvertently exhibiting the perceptual perspective of his period.

His claim lies on the principle that there are seven phthongs of the same stature (white keys) and one of a different (black), which in his mind constitutes the medieval structural matrix of Guido, who is known to the Renaissance as the one who introduced the seven letters for the tones and also invented the syllables ut re mi fa sol la, although the letter names were 150 years older. Nevertheless, that it was impossible to detect it due to the intentionally imposed speculative darkness permeating the Middle Ages, throughout the Renaissance.

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1 Virdung (1511) 1993: 124.

2 The inclusion of B♭ constitutes the use of artificial (i.e. non-natural) division of the tone, proving thus that all tones were divisible and all 'artificial' semitones possible. The exclusive reference to B♭ belongs to the practice of theory as the medieval composers were using F♯ quite normally, adding eventually E♭, C♯ etc.

In many respects, this is not Virdung himself arguing: he simply states the Renaissance theory being only the messenger, expressing the way his time understands theory. His confidence is drawn directly from the study of the most important text of the Renaissance, *De institutione Musica* written 1000 years earlier by Boethius,[3] to whom he resorts every time there is a dispute, as does almost every other scholar of the Renaissance. In reality, he does not resort to Boethius but to what Boethius represents, i.e. the ancient scriptures. In that respect, Guido is only a provincial inventor of names useful to singers to find their notes, who does not in any way belong to the notion of Boethius, and who carried into the Renaissance the neo-Platonic view that music relates first to the elements of the universe (musica mundana), then to the human existence (musica humana) and finally to the practicality of its making (musica instrumentalis), resulting in what he characteristically states: "The one who has mastered Musica Speculativa and only he, can truly judge the work of a composer or a performer both of whom are concerned only with music, while the philosopher understands the whole of music."[4]

Reflections from the dark

Back in the medieval time, c. 1000, two different men lived in the area of Lombardia. The one born c. 995 was Guido, who was later to remain in historiography as a kind of popular scholarly hero for his invention of the syllables for the tones. The other, born about 30 years earlier, remained in obscurity and became a member of posterity in a rather idiomatic way, being mixed-up with another theorist, Odo de Cluny because he was made to use the name Pseudo-Odo instead of his proper name Lombardus Anonymous. Nevertheless, at about the year 1000, in the area of Milan a treatise called *Dialogus de Musica* by Lombardus Anonymous was published.[5]

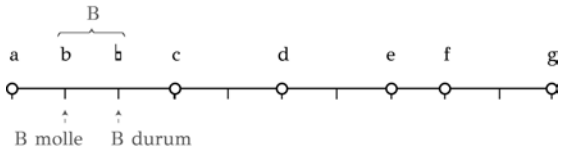
Contrary to Renaissance belief, which accredits Guido for it, Lombardus Anonymous used the letter names for the tones approximately thirty years earlier, having taken them from yet an earlier writer, Hucbald who invented them c. 880, numbering also the modes from 1 to 8, replacing the ancient tribal names used by Boethius and other writers, which were irrelevant in terms of meaning and are nevertheless still in use today.[6]

In his formation of the horizontal succession Lombardus Anonymous uses eight different tones marked with letters (C D E F G A ♭ ♮) the last two being derived from the letter B, one round and one square.[7]

Forma toni I.	C. to.	D. to.	E. Sem.	F. to.	G. to.	a. Sem.	b.	♮ Sem.	C. to	d

Example 2a. The series (Lombardus Anonymous)

Thus, there are eight tones in total, using respectively eight names, which however derive from only seven letters, from which Musica Speculativa counting the signifier instead of the signified theorized eventually the existence of seven tones in a mode.[8]



Example 2b. The origins of the series

[3] The complete works of Boethius were published in 1492.

[4] Boethius, 1.34.223. This notion is repeated almost identically by the renaissance scholars, a thousand years later (Gaffurio, 1967: 41).

[5] Initially it was thought that the treatise belonged to Odo de Cluny (878–942) but when it was realized that this hypothesis was wrong, in order to facilitate the scholars themselves (when making reference to the treatise to each other) instead of giving him his rightful name, labeled him Pseudo-Odo, regardless of the fact that the *pseudo* prefix did not relate to his scholarship but to theirs.

[6] Consequently, the zealous didacticism of the theory used both the numbers and the tribal names following the paradigm of Boethius, as the numbers alone were apparently too simple for scholarly oratory.

[7] Called respectively molle and durum, according to their function, meaning soft and sharp.

[8] Looking at the example there seems to be a scale encompassing the diapason (C to C) with an additional D at the top. This D, however, is not separated as being outside, but emphasized as constituting the final.

This series, although it is only a sequence of distances abiding by the laws of the tetrachord, was presented by the Renaissance writers as being fixed in terms of pitch, commencing on the tone C, as is today, described in this sense initially by the Renaissance and consequently the classical theorists. Bartolomeo Ramos in 1482 explains that

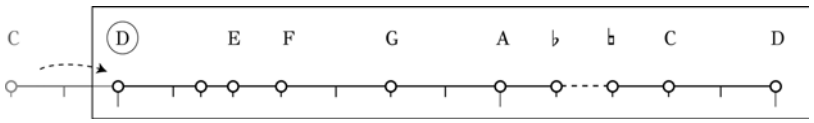
> We therefore have decided to begin the melody on C in this our new form of a very beautiful, wonderfully pleasing art, both because that pitch is a better known sound, as will be shown later, and also because, as Guido himself says, we find it first in the nature of the numbers … In fact it has been found that through instruments that ancient monochords began on the same low C. For this reason we decided to begin on the same letter in singing, although in the monochord according to the Greeks Boethius has been followed on A.[9]

D for Lombardus Anonymous is not a pitch but a point at the end of a distance, being either a tone or a semitone apart from the next letter, as it had been earlier for Hucbald. Thus, his apparatus is no more than a ruler of distances, commencing on D, bearing no relevance to the actual sound being produced. Thus, his ruler is purely schematic representing distance, starting on any pitch, without relating to any specific frequency.

The other important aspect of this apparatus is that it starts on C and ends on D, seemingly not being guided by the span of the diapason.[10] Lombardus Anonymous considers thus that the horizontal succession covers the distance from D to D and descents one sound below, to C.

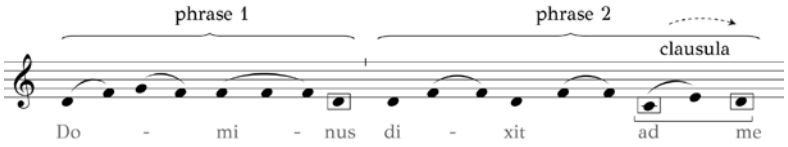
Example 3. The series as a ruler (Lombardus Anonymous series)

In this respect, the succession meant begins on D and it is in minor mode, contrary to the didactic theory preaching about the naturalness of C as the first note of the system, which was supposedly both scientifically and historically major, carried through to the 20th century by the classical theorists. Thus, the first tone of the series being C has been given for centuries an importance it does not really possess as being the beginning of the so-called natural scale.[11] In the treatise of Lombardus Anonymous, however, C has a different role, being the subtonus, the phthong below the final.



Example 4. The use of subtonus (Lombardus Anonymous)

The lower C is not then part of a scale but part of an apparatus and its role as explained in the treatise, is to approximate the final D.[12]

An example from the music testifying the actuality of its usage in this manner is found in the monophonic psalm *Dixit Dominus* of about 800.

Example 5. C approaching the final as part of the clausula (Anonymous, *Dixit Dominus,* c. 800)

[9] Ramos, 1993: 95–96.

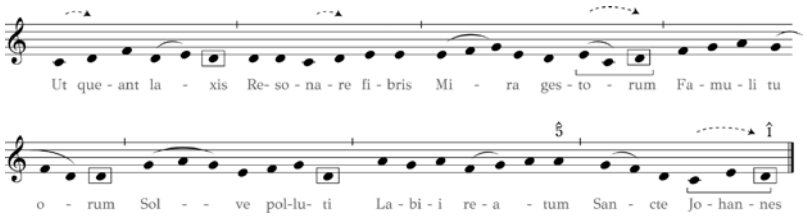
[10] In the earlier treatise of Hucbald it was precisely the case using the letters from A to P to name all the tones bypassing the octave division.

[11] One spanning from C to C, including the naturalization of ♮ in the same manner presented by Virdung among others.

[12] Tonic theory stopped using the term subtonus, which was substituted by the term leading note (note sensible) eliminating B♭ from the 'natural' scale, forcing thus the interval of a tone below the tonic to become semitone by decree.

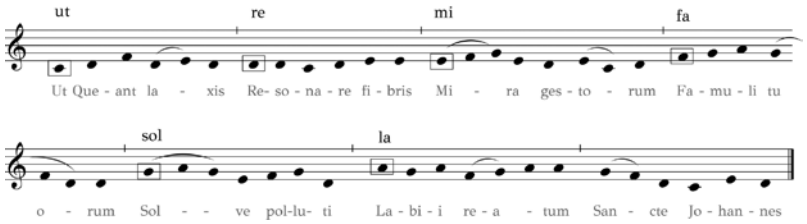
As it can be seen in the actual music, C is neither first nor it has the functionality of final. Its importance therefore lies exclusively on the theoretical impression of being significant for the mere reason that it has been first in the taxonomic order, carried from treatise to treatise, and reinstated in the make-believe style of the so-called enlightenment era, as a fundamental rule.[13]

The same type of horizontal handling is also evident in the composition of the other major thinker of the period, Guido, presented in order to demonstrate the syllables marking the distances between the phthongs (ut re mi fa sol la), which has also been misinterpreted as 'starting on C', due to the fact that the first phthong of the hymn is C.

Guido has thus been ascribed as being the instigator of the scale commencing on C as it was passed by the Renaissance scholars such as Gaffurio, Ramos and others, while in fact the hymn is also in minor mode, and it does not have C as its final but D. In this sense, C appears in the role of subtonus according to the principle of Lombardus Anonymous, marking the end of sentences, and at the beginning of phrases 1 and 2 on the arsis, leading to D, following the syntactical flow of the text, as it ought to.

Example 6a. C as subtonic approximation to D (Guido, *Ut queant laxis*, c. 1027)

In this manner C, acting as the subtonus below D, having no functional role other than approximating the final, is being used solely as a cadential element.

The reason C has been understood as commencing the series, is mainly a result of the didactic theory preoccupied exclusively with the task of simply marking the syllables of the six guidonian tones at the beginning of each phrase.



Example 6b. The use of the hymn by theory as a vehicle to show the syllables (Guido, *Ut queant laxis*, c. 1027)

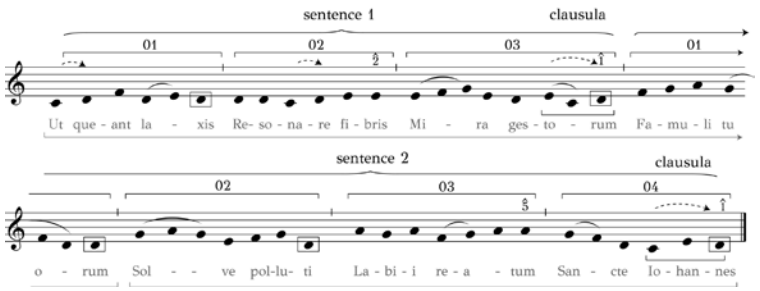
Thus, the relation of the syllables to the ascending series has been given the ultimate attention using the hymn as an exclusive proof of it, manifested as being of outstanding significance, although it bears no relation to the functionality of the system, adding only an encyclopedic aura of knowledge, characteristic to Musica Speculativa.[14]

The formal structure of the piece is comprised of one period of two sentences, the first of which contains three phrases and the second four, corresponding to the seven lines of the first stanza of the hymn. Each sentence is marked with a clausula, leading stepwise to the final from both directions.[15]

[13] To this, the fact that not all treatises known today were known to the renaissance theorists was contributed, which could either be coincidental or the direct result of their discriminative stance towards the medieval culture, resorting back to Boethius each time a dilemma would arise.

[14] Whether such a piece (as *Ut queant laxis*) does exist or not, bears no significance as to the validity of the system of Guido. That which matters instead is its bare functionality, the piece itself could only serve as a reference tool to singers, which is what probably did, although a table could be just as good. Its use as a snapshot of the syllables by a later theory, without any further examination of its characteristics, points more to the tendency of the theory to state the obvious and its dedication in carrying the torch of knowledge to the centuries, satisfying thus its inner need to be utterly didactic and magnanimously enlightening.

[15] There is a discrepancy between the phrases of the music (3+4) shown by the clausulas and that of the text (4+3) as suggested by its meaning. The comparative study by Harbinson, 1971, indicates that the phthongs at the end of the first sentence on the word *gestorum* are potentially different from the ones accepted as being original (F C D instead of E C D).



Example 6c. Music and text (Guido, *Ut queant laxis*, c. 1027)

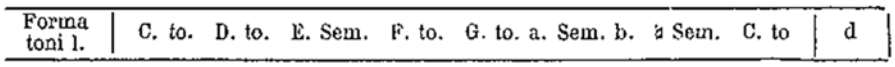
The final phrases of both sentences end on the final D, being approached by the two phthongs of the clausula (E and C), a cadential characteristic occurring only in these two places. The two penultimate phrases end respectively in E (2̂) and A (5̂) preparing the clausulas. Thus the three phrases of the first sentence end in 1̂ 2̂ 1̂ and the four of the second in 1̂ 1̂ 5̂ 1̂. The text, however, follows the syntactical form of 4+3 lines.[16]

The first note of the piece as well as of each phrase is in every respect irrelevant, since that which defines a phthong is not its taxonomic position within the series but the way it relates to the rest of the phthongs within the mode, rendering more important the final rather that the initial phthong. The reason for the tendency to focus on the starting tone lies more in the fact that there is no functional distinction between the point of the tonic system (tone) and one of the mode (phthong) for the Renaissance writers, although they know and use the ancient names such as Mese, Hypate, Nete etc., however, not in their functional sense but as historical descriptive alternatives to the letters.

> Tone is a mere pitch within the tonic system with no other properties except its position and physical distance, while a phthong relates syntactically to other phthongs within tonality. In this respect, there are no tones inside a composition nor there are phthongs in the tonic system. An analogy could be made to money in a pocket, having only a metrical distance from each other, without relating to anything and money in the market, having buying value, involved as a result in a multiplicity of relations.
>
> Their difference in terms of use lies in the fact that the second (phthong) has a 'social' role hence its functionality is based on value whereas the first (tone) has not, hence its basic functional property is being governed solely by rate. In this respect, Mese is not the property of the tonic system but of early tonality, lying right in the middle (being the tonic center) rather than at the end (and the fact that a phrase ends on it does not justify the use of the term final), in the same sense that the main train station is also central and not final.

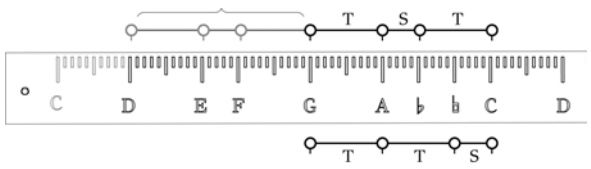
Reflecting on the intervals

In the treatise of Lombardus Anonymous in order for the distance to be demonstrated from one tone to the next, the intervallic syllables to(nus) and sem(itonus) have been used between the points represented by letters, as seen in the next example.



Example 7. Formation of the series (Lombardus Anonymous)

His ruler, although seemingly simple, is not just a mere measuring tool but primarily a tool for calculating the intervals governing the relations of the phthongs to one another, lingering more towards (the phthongs of) tonality than towards (the tones of) the tonic system.

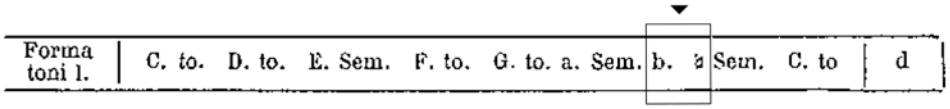


Example 8. The double function of the ruler

[16] For the syntactical layout of the text, see Appendix.

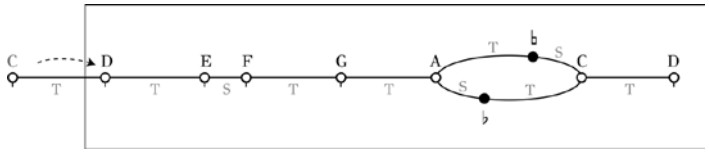
Thus, the succession coming upward from G would either be a repetition of the first minor tetrachord from D (T S T) using the soft B (G A ♭ C) or use the sharp B following the other minor tetrachord T T S (G A ♮ C), while one starting on F would have to follow the soft (♭) by default in order to have the correct intervals, according to the tetrachordal succession, resulting in F G A ♭.[17]

However the most interesting aspect of this formation is the fact that there is no intervallic syllable between the two Bs (♭ ♮), which is perhaps the most significant observation for the functionality of the system, surpassing any other and being far more important than the way the diapason keeps being repeatedly divided in treatises to smaller intervals, from the Renaissance onwards, in an almost fatalistic quest since as long as two semitonal divisions within the tone exist, any additional arithmetic action of division, rendering decimal points, is destined to be functionally superfluous.[18]



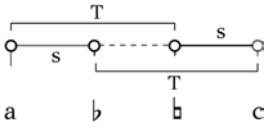
Example 9a. The missing interval (Lombardus Anonymous)

As explained in the treatise, the distance from A to ♭ is a semitone, so is the distance from ♮ to C. Also the distance from ♭ to C and A to ♮ is a tone. Thus, in order for the distance from A to C to be crossed, a calculative jump is being required, whether moving up or down.



Example 9b. Syntactical crossing of the gap

This observation determines the manner of the horizontal movement, both upwards and downwards (showing possibly the earliest signs of mirroring design) in terms of functionality, marking at the same time two different categories of tones, C D E F G A on the one hand and ♭ ♮ on the other, dividing the tones into two functional categories, one containing six and another containing the remaining two phthongs. The most important statement of the treatise however is that the distance between B molle and durum is neither a tone nor a semitone.[19]



Example 10a. The obscure distance (Lombardus Anonymous)

The distance (from ♭ to ♮) is of course a semitone and Lombardus Anonymous is well aware of it, since in the first part of the treatise has already presented the division of the monochord, arriving at both points with both brevity and precision. It is not then a matter of tones and distances but one of functionality, the distance is there, facing the theory, however there is no functional connectivity to either of these two points. This is perhaps one of the most interesting statements of early medieval theory, setting the primal foundations of

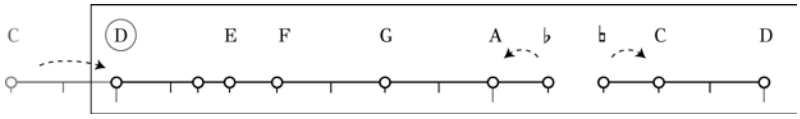
17 On the fact that the second tetrachord is identical to the first (from D) is based on the notion that G, having the same intervallic characteristics as the first, is considered functionally also the final, giving thus importance to the phthong of the lower dominant, which constitutes the beginning of the plagal mode (G A B♭ C D E F), in which the so-called final lies (both visually and functionally) in the middle instead of at the beginning, resembling thus the Mese, which is understood functionally as the center (and not the end) of ancient tonality.

18 In the first part of the treatise a meaningful functionally division is provided by Lombardus Anonymous, sparing intricate calculations pertaining to the exhibition of the art of division.

19 *Prima vero nona ♭ et secunda nona ♮ ad se invicem neque tonum neque semitonum. Nulla autem mensura vel numero semitonii spatium ad tonum.*

tonality, as it does not refer to the actual distance, which is in every respect obvious, but to the tonal attitude of the phthongs, in relation to one another.

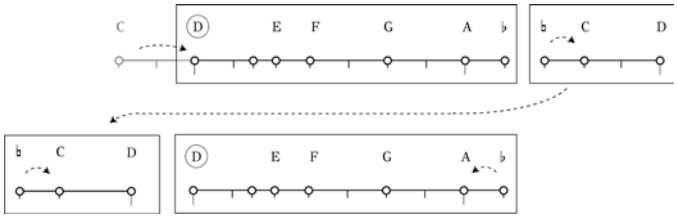
In the way it has been expressed, the non-distance between the two Bs contains an implication that there is a gap right in the middle of the series, which requires a functional jump to the next section, in either direction.[20]



Example 10b. The functional break in the middle

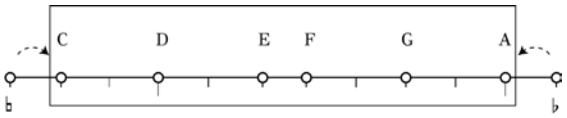
In this manner for it to continue, a leap is necessary from A either to ♮ or from ♭ to C, in order to reach the final D. Thus, in the lower section the approximation of the D through the subtonus is explained, while in the upper the continuation from A through the break all the way to D, which functionally represents the final. The use therefore of two Ds, while just one would have been sufficient, is needed in order to show the two different aspects idiomatic to the horizontal movement.[21] In this respect, this does not constitute a (tonic) scale but a (tonal) apparatus.

The gap appears to be in the middle of the series but as it is natural, there is no such thing as 'middle of the series' since there are two different components comprising it, the second of which could equally serve its purpose placed at the beginning.



Example 10c. The two components of the series

In this respect, the seemingly second part of the series (being essentially formed on the same tones of the beginning) could be placed on the other side, eliminating thus the doubling of tones. A rearrangement therefore towards a functional representation of the series could be drawn as follows.

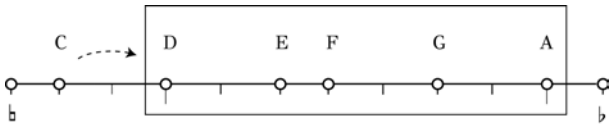


Example 11a. The rearrangement of the series

In this arrangement as it becomes obvious the series having dropped the unnecessary repetitions of tones, becomes an apparatus of phthongs that also explains the use of the two forms of B (♭ ♮) leading to their respective phthongs, C and A, in which case the early modal depiction, points at something quite more interesting in terms of how the tones relate to one another, constituting one of the earliest manifestations of tonality, provided that not only the distances following the tetrachordal order (S T T S T T S) but also the role of the phthongs is taken into account, in which case (as C is the subtonus of D) the outer ends are not C and A, but D and A.

[20] Shown also in Example 9b.

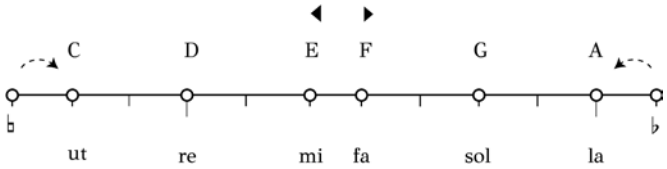
[21] The higher denoting the upward movement from A to D and the lower the downward movement from the final to the subtonus, in the cadential implication of which D is perceived as central instead of final.



Example 11b. The outer ends, D and A

In this manner, the so-called final is no longer at the end of the series but in the middle, functionally identical to the ancient Mese, pointing at a different interpretation of the system, one that includes tonality.

This also points to the *Deductio* of Guido, the only difference being the addition of the syllables (ut re mi fa sol la) indicating exclusively the distance between the tones, running in both directions having in the middle the semitone mi-fa, arriving at the mirroring intervallic form T T S T T with the two additional semitones at both ends (S T T S T T S).[22]



Example 12. The *Deductio* of Guido

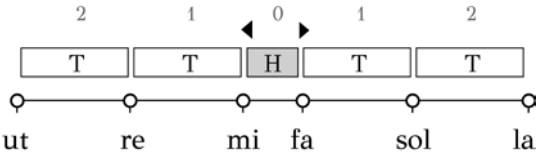
In reality, both thinkers of the medieval practice, who constitute perhaps one of the most important generations for the advance of musical understanding, which as a result of the darkness imposed by historiography on them, have not been studied for their intricate observations but instead in a superficial generic manner pertaining to the western notion of 'achievement', being mentioned in relation to the so-called main points of their work, according to the Renaissance and classical didactic mould initially, and the 20th century one equally generic, afterwards.[23]

Thus, they have both been considered mere contributors, in accordance to the linear view of history, by the guild of Musica Speculativa, where the evolution of theory is directly tied to time, advancing as time does.

Reflecting the distance

Guido presents two different kinds of elements, claves, i.e. points on the tonal spectrum at a certain distance from each other, according to the tetrachordal arrangement, having the letter names from A to G and intervallic syllables (ut re mi fa sol la) showing the distance of the movement within a certain horizontal succession, not related in any way to a specific pitch.

In terms of distance, his series of intervallic syllables begins on ut, which is not C, as each one belongs to a different measuring system representing different units, and ends on A, leaving out both Bs, neither of which has been given a syllable. The selected tones have been put in order forming a mirroring apparatus with the semitone (mi-fa) lying right in the middle, having ut and la on their respective ends.



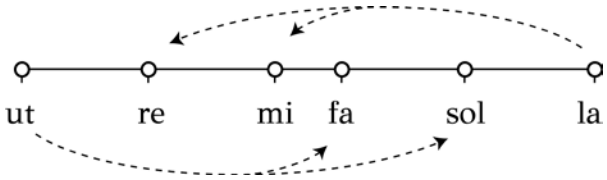
Example 13. *Deductio* and its mirror properties of intervals

[22] The *Deductio*, constituting the basic grundgestalt formation after all repetitions have been removed, having been misunderstood is renamed to 'hexachord' by the renaissance theorists (in the manner of tetrachord, pentachord etc.) in order to comply with the ancient terminology brought to them by Boethius.

[23] This is supported by the fact that the first translations from the Latin took place in the 20th century, one of the two being out of print just after its first publication in 1978.

One of the most important aspects is that Guido's apparatus renders a mirroring image not of tones but of intervals and obviously includes the notion of zero, contrary to the following generations, which did not seem to be aware of its necessity for the formation of neither the tonic nor the tonal systems, capitalizing exclusively on the 'starting point' of an exclusively ascending series, as though music could be thought as movement based on a starting point, without consideration of the actual travelling, which cannot exist unless there is a destination towards which the intervals advance.[24]

Guido's measuring apparatus does not start anywhere in particular, it only measures the distance between the tones in order to render the right intervallic relations, turning thus the tones of the tonic system into phthongs, the relation of which constitutes the principle of tonality.



Example 14. *Deductio* and its tonal reflection

In this respect the relation from ut to fa and sol is functionally inversely analogous to the relation from la to mi and re (both of them known to ancient Greeks representing the distance from the Mese to Hypate and Nete)[25] with respective symmetric analogies from both ends (ut and la) pointing directly to the undetected properties of bimodal tonality (one with two tonic centers).

The missing zero

Both the generation of zero as well as the entire Renaissance all the way to Jean-Philippe Rameau, use the Roman numerical system in their writing, which has a very idiomatic element built in its structure. It lacks not just the number itself, but the entire notion of zero, being unable to perform calculations involving mirroring, hence they resort to a starting point from which afterwards move up, such as the series of numbers starting on 1 or the series of notes starting on C. The only difference between the two is that the generation of zero had no notion of it as it was brought to Europe by Leonardo Pisano two hundred years later in 1202, while the Renaissance scholars, already having access to the Hindu-Arabic system,[26] perhaps did not possess the necessary stamina or perhaps the necessary curiosity for it, in order to incorporate it in their scholarship in a system such as the tonal, which is inherently enantiomorphic. Thus, in their calculation, using the truncated Roman system to mark the places of the tones, measuring tones instead of intervals upwards from C, since according to the comforting to the Christian church, Aristotelian notion supported by the pre Hindu-Arabic numbers, nothing existed below 1, hence nothing existed below C.

In this manner, they arrived at a system, which contained two defects: one the lack of mirroring design and the other similarly problematic: it calculated its function in reference to points, not distance, counting therefore not the intervals but the tones, which are mere points, calling them notes.

Thus before 1500, Renaissance theory, after having turned B durum into a degree, calling it eventually B natural, including it in the same functional order as the other six tones, it was destined to arrive at a philosophical medieval keyboard, forging two categories of functional tones, one containing seven tones and the other one.

In this manner, after the canonization of B durum into 'B natural' they kept repeating a series of seven tones, the heptachord, instead of a series of intervals, with the ultimate result the inclusion of the tritone inside the series, inventing subsequently rules to avoid it, as if it were an inherent idiom of the system and not their own invention.[27]

[24] It would be similar to determining the movement of a train by registering only the station of departure, within which it would be implied that since the first phthong of Mozart's Symphony No. 40 in G minor, is E flat that a theory for the relations of the mode could be built on it, as a result.

[25] Middle, with the equivalent of upper and lower dominants.

[26] The Hindu-Arabic system was first brought to Europe by Gerbert d'Aurillac (later Pope Sylvester II) before 1000, without the zero.

[27] Natural are considered the intervals within the tetrachord, the ones i.e. which do not form a tritone. The naturalization therefore of ♭ which does, is expressly artificial, gestating the necessity for additional rules for its evasion.

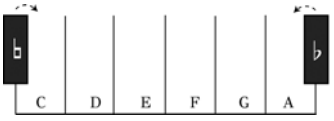
The reflection from the medieval keyboard

It has been obvious that both phthongs stemming out of the letter B (♭ ♮) have identical properties, they function therefore in the same manner.[28] This presents a conflict of functionality between the two views, as the description coming out of the hypothetical medieval keyboard, invented by the Renaissance scholars, identifies the two forms as having a different function each, one being similar to the other six tones (♮) and the other different (♭), while the medieval writers convey a different meaning considering both (♭ and ♮) functionally identical.

Thus the medieval keyboard does not relate to the one of the Renaissance, which is based functionally on one black key (♭) as it has not one but two black keys on both molle and durum, one relating to A and the other to C, both being phthongs of approximation. This, by default increases (in relation to the Renaissance view) by one the black keys to two, reducing also by default the white keys to six.

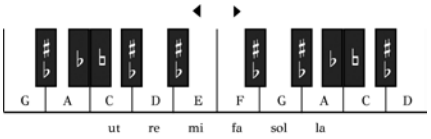
Example 15a. The medieval keyboard

In this respect the functionality of durum is to approximate C from below while the functionality of molle is to approximate A from above, rendering justice to Lombardus Anonymous who in the year 1000 detected that the distance between them is neither a tone nor a semitone.



Example 15b. Keyboard C to A and phthongs of approximation

One then could follow the example of Virdung, starting from the medieval keyboard onwards adding black keys, arriving perhaps at a sensible keyboard, which might not exactly look like the one made on the directive of the imperative theory, but perhaps one that matches the way music functions, since the possibility to play music is rather greater than play the reflections of theory on it.



Example 15c. The syntactical layout of the keyboard

In this sense, the keyboard following the tetrachordal sequence of intervals, contains twelve different tones, eight of which constitute the basic phthongs in its expression of mode (instead of seven) containing three functionally reciprocal semitones (E-F, ♮-C, A-♭) all of them necessary for the syntactical horizontal movement, where both ♮ and ♭ are phthongs of approximation, without the forced intrusion of the tritone, which is the direct artifact of the arbitrary naturalization of ♮, brought forth out of the ardent desire to theorize.

The other side of reflection

Thus both thinkers of the year 1000, the medieval generation of zero, arrived at the same system of relations between the phthongs, being perhaps too early, perhaps in a too hostile scholarly and social territory, to distinguish a tone from a phthong, and the tonic system from tonality. Not having the terms available did not hinder them, however, from expressing an infallible notion of tonality, where phthongs relate to each other in a meaningful way towards structural narrative, having known that natural tones are not any. The only things that exist are natural intervals, following the tetrachordal principle of the ancients, who as their myths prescribed,

[28] See examples 9b, 11b.

when humans appropriate the divine laws or exhibit insolence, are haunted by the Erinyes with (more) reflections of the theory, in which the road to redemption passes through constant rectification of rules.

At the same time, both writers proved that opening the way could never be enough, as long as on the path of time Musica Speculativa keeps staring, with its studied innocence – also in accordance with the ancient myth – at its own profound reflection.

Appendix

The text of the hymn, exhibiting the 4 plus 3 line syntax, conflicting with the musical phrases, which follow the 3 plus 4 order (Ex. 6c).

Latin	Line-by-line	Meaning
Ut queant laxis *Resonare fibris* *Mira gestorum* *Famuli tuorum*	So that with relaxed may resound voices your miraculous deeds your servants	So that your servants may resound your miraculous deeds with relaxed voices
Solve pollute *Labii reatum* *Sancte Iohannes*	free from the burden their (our) stained lips Sancte Iohannes	free their (our) stained lips from the burden Sancte Iohannes

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Mąstant apie nulinę kartą, Lombardijos anonimą ir Gvidą

Santrauka

Dogmatiškos katekizmo dvasios persmelktoje didaktinėje vėlyvojo Renesanso teorijoje randame pagal naujųjų laikų receptūrą pakoreguotą viduramžių muzikinio mąstymo supratimą ir iš naujo perrašytą muzikos teoriją pagal to meto įsivaizdavimą ir iš Boetijaus rankų (jam nežinant) perimtą antikos palikimą. Tokiu būdu Renesanso teoretikai peršoko iš vadinamojo Proto amžiaus tiesiai į vadinamąjį Apšvietos amžių. Jie taip pat paruošė dirvą tam, kas vėliau įsigalėjo kaip vadinamoji tonalios muzikos teorija, iš kurios bruožų ėmė klostytis jos pačios atspindys.

Šiuo požiūriu harmonijos ir balsavados bruožus labiau lėmė prisitaikymas prie normų ir reguliavimo principai, o ne tonacinėje ir tonalioje sistemose egzistuojančios tonų bei intervalų ypatybės, susiformavusios gilioje senovėje ir paklūstančios saviems dėsningumams nepriklausomai nuo to, ar jie buvo atrasti ir įvardyti, ar ne.