ONE

A Philosophical and Aesthetic Orientation
for the Music of Guillaume de Machaut:
the Roles of Ratio and Sensus

Ernst Robert Curtius outlines the formal and symbolic properties which numbers carried for poetry during the late Middle Ages. In a brief excursus entitled "Numerical Composition" appended to his study of Medieval Latin Literature, Curtius considers the act of ordering the composition of the Medieval Latin lyric. His initial inquiry stems from the observation that the actual composition of a poetical work did not follow the rules of Medieval rhetorical theory. Not only were genres and the divisions within poems often quite obscure, but Medieval poets revelled in extensive digressions. His implicit question is that if rhetorical theory had “little to say” concerning practical compositional technique, what methods did poets use?

Curtius maintains that there was a clearly definable method which guided the actual compositional processes of the poetry:

The Middle Ages, however, possessed a substitute for the modern technique of composition in an entirely different principle, which I designate ‘numerical composition.’

He finds the origin of this technique in Antiquity where certain numbers, such as 24 (the number of books in the Iliad and Odyssey and the number of letters in the Greek alphabet)
were considered beautiful. A “sanctification” of this antique number symbolism, which gained particular significance during the Middle Ages, comes from The Wisdom of Solomon, 11:21:

omnia in mensura et numero et pondere disposuisti

Thou hast ordered all things by number, weight, and measure.

Curtius writes:

Through this verse, number was sanctified as a form-bestowing factor in the divine work of creation. It acquired metaphorical dignity. This is the imposing background of numerical composition in literature.

He is clearly correct in asserting that “Antique number-symbolism coalesced with Christian number-symbolism.” This confluence of ideas from Antiquity and Christianity is essential for an understanding of Medieval works of art. Such a confluence is perhaps best illustrated by Vergil’s Eclogue IV, an homage to the new Augustan Age but often interpreted during the Middle Ages as a prophecy of the coming of Christ. It is a famous example of a work from Antiquity becoming "sanctified":

Adgregere o magnos--aderit iam tempus--honores,
Cara deum subdoles, magnum Iovis incrementum. (ll.48-9)

Come soon, dear child of the Gods, Jupiter’s great viceroy! Come soon--the time is near--to begin your life illustrious!

This poem, along with early Christian commentaries on it, is a reason Vergil became the appropriate guide for Dante during the journey through the Inferno and Purgatorio.
Curtius also asserted the importance of the concept of number in Medieval cosmology: “All artes, to be sure, stem from God and are therefore good. Yet the science of numbers is superior to them all.” Number as a formal element in art, philosophy, and theology is central for an understanding of what may be called “the aesthetics” of the late Middle Ages. Understanding and knowing the metaphysical concept of number (later in this study to be equated with the term ratio) is the key to establishing how music was composed, what it meant and how it was perceived and judged in the Middle Ages.

Curtius elaborates three ways in which number can be useful for studying Medieval poetry. The most important one has to do with the relation of God and man.

“No numero dispositi.” God’s disposition was arithmetical! Must not the writer likewise allow himself to be guided by numbers in his disposition? This is where the use of number becomes a symbol of a cosmic ordering, linking God with the writer or composer by means of the act of imitation. God structured the universe by means of number, so the artist must organize his or her creation in the same way.

The second way is “serious number symbolism” where meaning becomes imbedded in a work by means of important symbolic numbers and ratios. In this way, number relates directly to an important theme of the work. Finally, Curtius describes the third way which is “literary trifling with numbers,” which would include techniques like gematria which
is employed by Machaut.

To begin to understand the background of the concept of number for Medieval aesthetics, it is necessary to study some thinkers whose writings were to become cornerstones for the definition of music. During the fourteenth century, as the following discussion will show, philosophy and apprehension of things with the intellect were basic to both the making and “hearing” of music. My choice of authors is based on the pertinence of their theories to the main subject of this study, Guillaume de Machaut. It will become evident that the selected authors are connected by common ideas which relate to Pythagorean philosophy.

Pythagoras and his followers form the beginning of this investigation. Pythagorean ideas of ratio and number symbolism are rife in the writings of medieval philosophers, biblical glosses and music theorists. In his book, Musical Beliefs, Robert Walker examines the importance of aesthetics and theoretical belief systems and their relationship to the “meaning” of music within various cultural contexts. With regard to Pythagoras, Walker writes:

Pythagoras and his followers were responsible for providing a well-developed theoretical framework for the marvels of number relationships, including the planets and such basic matter as air, fire, water, and earth.

But Pythagoras himself is elusive, and he remains a quasi-mythical figure whose ideas are known through the writing of others. Among the Pythagoreans can be listed Nicomachus who
wrote De Arithmetica, as well as the Latin translator of this work, Ancius Manlius Severinus Boethius (480-524). However, probably the most important and influential philosopher who put forth Pythagorean ideas was Plato.

Plato was known to the Middle Ages almost exclusively through the Timaeus. This work is a starting point for an investigation of Medieval aesthetics. In the fourth century A.D., Chalcidius translated the first 53 chapters of the Timaeus into Latin with an extensive commentary. This translation was to be the only virtually complete work of Plato to appear in Latin until the 12th century when Henricus Aristippus translated the Meno and Phaedo. These works were followed much later by Marsilio Ficinio’s translation of the Symposium in 1485. Other works of Plato, such as The Republic, were not unknown in the Middle Ages and continued to have influence through philosophers like Boethius who read Greek and used ideas from the Greek writings of Plato (as well as of Homer and others) in his Latin treatises. The Timaeus, as translated by Chalcidius, was the one of the most important sources of Platonic thinking during the Middle Ages.

The Timaeus, often described as Plato’s “Book of Genesis,” is a discussion of the creation of the world, the nature of the four elements, and the ways in which the interrelationships of these four elements affect matter. A central theme in the Timaeus became essential to the understanding of the aesthetics of the Middle Ages. According
to Plato, there are two ways of knowing the world: through a mathematical or logical knowledge (ratio) and through an empirical knowledge (sensus). For Plato, mathematical knowledge is superior because empirical knowledge does not have the self-validating demonstrable quality of mathematical knowledge. Deductive reasoning as a form of ratio is the highest form of intellectual activity for the Platonic thinker.

The Timaeus begins, curiously enough, with Socrates counting:

Persons of the Dialogue:
Socrates, Timaeus, Hermocrates, Critias

I. Socrates. One, two, three--but where, my dear Timaeus, is the fourth of my guests of yesterday who were to entertain me today?
Timaeus. He has fallen sick, Socrates...

This opening passage can be read as already introducing Pythagorean ideas. To return to Robert Walker’s Musical Beliefs:

There were thought to be nine heavenly bodies in the sky, including the earth and the moon. To make ten, and so enable conformity to the notion of the perfection of the number 10, the Pythagoreans postulated that there must be a tenth planet hidden behind the sun that was never visible to earth. Hence the ten planets mark the limit of the universe. Consequently, all developments in the universe can be derived from the tetrad 1,2,3,4. These numbers were thought to contain the secrets of all life matter as well as divine truth. Pythagoreans swore an oath to the tetrad ... They named the number 10 the tetractys, the sum of the first four numbers.
For Pythagoras, ten is the perfect number and Socrates counts to four—deducing, in a way, the tetractys or “supreme principle.” This is the exposition of this work. In music, as is commonly taught from Pythagoras, the most important and universal intervals are found to be ratios of the first four whole integers: the octave 2:1, the fifth 3:2, and the fourth, 4:3.

Returning to the Timaeus, one sees that the first word out of Socrates’ mouth is “one”. One was not even considered a number by the Greeks or even by later Medieval philosophers. It stands instead for a much more important and rich concept of wholeness, completeness, and divine unity. Isidore of Seville (ca.560-636), in a chapter entitled “De unitate” from the treatise, Liber Numerorum, writes about one in the following manner:

One is therefore the seed of numbers, it is not a number. For from it the others proceed or are brought into being...

*Idem autem unus semen numerorum, non numerus. Ex ipso enim caeteri manant, vel procreantur...*

It was important for Plato to prove that the universe was one rather than plural:

Are we then right to speak of one universe, or would it be more correct to speak of a plurality or infinity? One is right, if it was manufactured according to its pattern; for that which comprises all intelligible beings cannot have a double.

The universe is formed “according to its pattern” or “*iuxta exemplum formatus est.*” It is important to examine
further what this “exemplum” is and how “unity” is defined. It will become clear that unity is not a monolithic, indivisible concept, but a collection of perfect parts which are perfectly joined together. The process of the formation of unity might be thought of as similar to the making of a quilt or the composing of a motet.

Plato further postulates that the universe is a whole which remains the same and unchanging, rather than constantly changing and developing. As such, it follows that the universe is apprehensible by reason:

Let us return to our question, and to ask to which pattern did its constructor work, that which remains the same and unchanging, or that which has come to be?

That being so, it must have been constructed on the pattern of what is apprehensible by reason and understanding and eternally unchanging; from which again it follows that the world is a likeness of something else.

The world is a likeness of something else: of some other pattern. The world is also a unity which can be apprehended by reason, that is by what will be termed ratio, and divided into parts. The world is consequently modeled on a paradigm. According to Plato, the actions of God are of utmost importance because they are a paradigm for the actions of man.

E.H. Gombrich’s book, *Art and Illusion* (1960), makes it clear that paradigm--the use of formulas and the process of imitation--is important to, among other things, the
compositional processes of artistic creation.

...it is all the more interesting to continue the search for those common human traits which survive any change of aesthetics and shift in purpose: the need for acquired formulas.

That this need is paramount in medieval art is universally recognized. For almost a thousand years, between the third and the thirteenth centuries A.D., the contact of art with the visible world had been extremely tenuous. For the purpose of narrative and of teaching the doctrine, the artist relied on the formulas evolved by classical art, suitably adapted and transformed to fit the new contexts.

There would be, according to Plato, one paradigm which is that of God creating the universe. Plato’s paradigm of the actions of God can be applied to the Medieval artistic thought which underlies compositional processes.

The explanation in the *Timaeus* of the “order of the soul” is speculation, in Pythagorean terms, about this ideal paradigm. Plato defines the order of the soul in terms of numerical relationships:

[God] first marked off a section of the whole, and then another twice the size of the first; next a third, half as much again as the second and three times the first, a fourth twice the size of the second, a fifth three times the third, a sixth eight times the first, a seventh twenty-seven times the first.

It is apparent from constructing these numerical relationships that they all are in some way related to the “first,” or the “one.” The final step in constructing the order of the soul is to “link” the double and treble intervals which produced the intervals of 3/2 and 4/3 and 9/8
as the diagram below shows.

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   1
  2  3
 4  9
 8 27
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It is these intervals in Plato’s order of the soul which find their place in Boethius' De institutione musice with regard to music.

Plato’s conception of God and his understanding of creation has much in common with later Christian cosmology. For Plato there is one God or “Founder of the Universe,” translated by Chalcidius as “conditor universitatis deus.” The word “conditor,” implies that God is the “founder,” “the one who puts together,” or the “composer” of the universe. It is a term which Boethius also associates with God in the fifth poem of the first book of Consolation of Philosophy. There, God is addressed as, “O stelliferi conditor orbis.” The Latin word conditor is also found at the close of Musica Practica, an early fourteenth-century treatise by Johannes de Muris:

> For knowledge and opinion move in cycles, turning back on themselves in circles, as long as it pleases the supreme will of Him who has freely created and voluntarily segregated everything in this world.

*Currunt enim opiniones et scientiae revolutiones ad circulum revertentes, quam summae placuit voluntati eius, qui non necessitatis omnia condidit in hoc mundo, et omnia voluntarie segregabit.*
One main activity of God in creating the world involves division or separation—organizing elements which were confused in primeval chaos. A comparison of the Timaeus with the Old Testament is illuminating in discovering the main activity of God to be imitated. The following passage from the Timaeus brings the Book of Genesis to mind—the earth was “without form and void.” The main activity of God is clear:

God is a divine divider:

Chapter 35
Before that time they were all without proportion or measure; fire, water, earth and air bore some traces of their proper nature, but were in the disorganized state to be expected of anything which God has not touched, and his first step when he set about reducing them to order was to give them a definite pattern of shape and number.

Thus within this one universe, the primary creative action of God was one of dividing and organizing the elements according to a numerical pattern. Consequently, God is rational, He creates according to reason. The act of dividing or separating disparate elements is common also to the God of the Old Testament:

and God separated the light from the darkness. (Genesis 1:3)

And God made the firmament and separated the waters which were under the firmament from the waters which were above the firmament. (Genesis 1:6)

And God said, “Let there be lights in the firmament of the heavens to separate the day from the night; (Genesis 1:14)
Things are separated only to create a more perfect unity. Separation is the beginning of unity. An example can be found in Love’s Body, an exploration of Christian cosmology mixed with Freudian psychology, by literary scholar and philosopher Norman O. Brown. Brown, in a chapter entitled “Unity,” cites a character from a poem by William Butler Yates who underscores the theme of imitating a God whose action is to divide.

Crazy Jane in William Butler Yates--Crazy Jane who is both student and teacher says,

Nothing can be sole or whole
That has not been rent.

In other words, the division of something precedes its “wholeness.” The act of creation is a “coming to unity” that begins with the division and separation of a whole. Musical correlates for this concept are relatively easy to call to mind. The so-called “division manuals” of the late 16th century suggest that musical ornamentation should be thought of as one longer note being proportionally “divided” into shorter ones. Perhaps more appropriate to the present study is the Boethian monochord where the unity of a single string becomes perfect and useful when it is divided by ratio--by number. The Medieval notation system also reflects this idea since it is based on the division of longer notes (longs) into shorter ones (breves).

In the Timaeus, the action of the conditor universitatis deus is represented as a paradigm, one to be imitated. In the following passage, the “Father of the universe” addresses the
Gods:

"...In order therefore that there may be mortal creatures and that the whole may be truly a whole, turn your hands, as is natural to you, to the making of living things, taking as your model my own activity in creating you."

Consequently, the Gods’ actions of enclosing the immortal soul into the mortal body is described:

his [belonging to the “Father of the universe”] children [enclose the immortal soul into the mortal body] ...in imitation of their own maker...

The activities of God in the Platonic cosmology can be summarized as a process of dividing and separating followed by a proportional structuring to create unity. Seeing and understanding these actions, it is man’s responsibility to consider God’s work as a paradigm and consciously to imitate it. The compositional process is: taking as a model, imitatio.

Plato’s cosmology is important to the understanding of the Medieval artist. The method of imitating the basic process of divine creation was considered essential by early fourteenth-century music theorists such Johannes de Muris and Jacques de Liège as we shall see. Returning to Curtius, who also makes this connection, we read: “God’s disposition was arithmetical! Must not the writer [or composer] allow himself to be guided by numbers in his disposition?”

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Ancius Manlius Severinus Boethius (480-524) has long been regarded as an important philosopher whose work represents a coalescence of the Pythagorean and Platonic traditions. In his Études d’Esthétique Médiévale (1946), Edgar de Bruyne writes the following about two books by Boethius, De institutione musice and De arithmetica:

Or, c’est dans ces deux ouvrages que l’on découvre une esthétique détaillée de la proportion. L’esthétique de Boèce est donc de caractère pythagorico-platonicien.

It is in these two works that one discovers a detailed aesthetic of proportion. The aesthetic of Boethius is thus of the Pythagorean-Platonic character.

The widely disseminated writings of Boethius were one of the most important ways in which Platonic philosophy became known for the following ages. By translating the ideas of thinkers such as Plato, Pythagoras, and the writings of Ptolemy, and Nichomachus into Latin, Boethius provided a window through which the learned of the Middle Ages and Renaissance could see and understand ancient philosophy. Although often essentially a translator, Boethius became an important auctoritas in his own right, since the art of translation had more authority in the Middle Ages than it does today. This is especially true for Boethius who selected and organized his translated materials in such a way that his work became “original.” Other authors of the later Middle Ages also wrote translated material. Geoffrey Chaucer is an outstanding example. He translated works by both Boethius
(Consolation of Philosophy) and Machaut: material from various poems by Machaut makes up a large part of Chaucer’s The Book of the Duchess.

It is in the writings of Boethius that the term “quadrivium” first appears. Quadrivium represents a grouping of the four mathematical subjects as they were taught in the Medieval university: arithmetic, geometry, music, and astronomy. Boethius may have written discrete treatises concerning each of these four subjects. The two which have survived and have been accepted by scholars are the De Institutione Arithmetica and the De Institutione Musica. The Arithmetica was an “extended translation” of the Introduction to Arithmetic by Nicomachus of Gerasa (fl. 2nd Century AD), a fact which Boethius himself reveals by using various phrases such as, “ut ait Nicomachus.” The De Musica, on the other hand, while it relies on several authors (including Nicomachus and Ptolemy), becomes more of an “original” work by means of what material is selected and how it is organized. In an excellent article on Boethius, John Caldwell speculates on the contemporary following of Boethius and his greater importance later:

The educational system of the ancient world was still nominally intact [during Boethius’ lifetime], but contemporary readership of this book [De Institutione Musica] can only have been small. ... it was to be of the most profound significance in the development of Western musical thought from Carolingian times on; and that is the real importance of Boethius for music history.
The work of Boethius remained significant to musical theorists from the Middle Ages through the Renaissance and even up to the time of Hermann Helmholtz who knew Boethius’ treatise on music and whose important work *On the Sensations of Tone* (1885) represents a nineteenth-century “scientific” approach to the composition of musical pitches. It was mainly through Boethius that the basis for the idea of “numerical composition” came to the art of music. As Caldwell suggests, “the chief significance of the *De Institutione Musica* for its time is that it revived and presented Pythagorean theory for Latin readers.” An examination of *De Institutione Musice* shows how Pythagorean-Platonic ideas of creation and concepts of number and proportion are central to the writings of Boethius.

Just as mathematical knowledge is seen to have priority over empirical knowledge in the *Timaeus*, and number is considered superior to all of the *artes*, so Boethius is quick to point out the dichotomy between perception with the senses and inquiry with the mind.

Boethius begins his work on music with the following passage:

**Introduction**: Music forms a part of us through nature, and can ennoble or debase character. Perception through all the senses is so spontaneously and naturally present in certain living creatures that an animal without them cannot be conceived. But knowledge and clear perception of the senses themselves are not so immediately acquired through inquiry with the mind.
By beginning to define music, Boethius presents the reader with the challenge of the entire work. That the senses are spontaneous and naturally present in all living creatures seems clear. The problems to follow involve the knowledge and clear perception of these senses by means of "inquiry with the mind" or "firma investigatione animi." The senses are a given faculty in every living creature but must play a subservient role to the mind before what they perceive can be judged and valued. Another passage elucidates this point:

Not all judgment ought to be given to the senses, but reason ought more to be trusted. Concerning the deception of the senses in this matter.

Non omne iudicium dandum esse sensibus sed amplius rationi esse credendum, in quo de sensuum fallacia.

Later in the treatise concerned with the nature of a consonance, Boethius writes:

Although the sense of hearing recognizes consonances, reason weighs their value.

Consonantiam vero licet aurium quoque sensus diiudicet, tamen ratio perpendit.

It is clear that senses of hearing (sensus aurium) may guide the judgement, but reason (ratio) has the final say. These passages introduce an essential dichotomy which will be the subject of a growing debate for music theorists throughout
the Middle Ages.

The complex definition of the Latin word “ratio” and the ways in which this word relates to the philosophy and aesthetics of Medieval music is of central importance to this study. Lewis and Short cite several definitions, many of which are pertinent. These include: 1) to make a computation, to compute, calculate, 2) a sum, or number, 3) judgement, understanding, reason, 4) a rule or law, and finally 5) a theory or doctrine. Multiple meanings of this word will often be called for when it appears in the context of the philosophy of Boethius or in later music treatises.

Music, like the senses, is an integral and spontaneous part of the human spirit and is consequently also subject to inquiry with the mind:

...there can be no doubt that the order of our soul and body seems to be related somehow through those same ratios by which subsequent argument will demonstrate sets of pitches, suitable for melody, are joined together and united.

Quia non potest dubitari, quin nostrae animae et corporis status eisdem quodammodo proportionibus videatur esse compositus, quibus armonicas modulationes posterior disputatio coniungi copularique monstrabit.

* * *

...it appears beyond doubt that music is so naturally united with us that we cannot be free from it even if we so desired...so it does not suffice for musicians to find pleasure in melodies without also coming to know how they are structured internally by means of ratio of pitches.
Boethian philosophy entails an apprehension of truth by means of exploring important relationships. That relationship here is between the ratios which form the pattern of Plato’s human soul (which in turn is a microcosm for the pattern of the universe) and the ratios in music. In the above passage, the ratio of the universe and the human soul becomes a paradigm for the ratio of music.

Discovering what these ratios are represents the beginning of a full comprehension of music in both its practical and speculative aspects. For Boethius, an understanding of music, together with all of the other mathematical disciplines of the quadrivium leads to an understanding of the "truth,"

...since there happen to be four mathematical disciplines, the other three share with music the task of searching for truth; but music is associated not only with speculation but with morality as well. For nothing is more characteristic of human nature than to be soothed by pleasant modes or disturbed by their opposites.

Unde fit ut, cum sint quattuor matheseos disciplinae, musica vero non modo speculationi verum etiam moralitati coniuncta sit. Nihil est enim tam proprium humanitas, quam remitti dulcibus modis, adstringi contrariis...

Boethian philosophy follows in the tradition of Plato. In
Plato, the primary dichotomy existed between the mathematical and empirical ways of knowing whereby the mathematical way was superior. The Boethian dichotomy is ratio versus sensus where ratio is favored because it is closer to the truth and it leads to better judgement.

For Boethius, the study of ratio in music is always an attempt to show the relationship between musical ratios and those of the human soul. This speculation about music was a vital theoretical construct throughout the Middle Ages. As time progressed, however, musical philosophies began to change in their emphasis. Alison White points out in her article, “Boethius in the Medieval Quadrivium,” that “by the thirteenth century, there was a growing distinction between speculative and practical works.” It was this distinction which eventually led to new and hotly debated ideas which changed the concept of the art of music.

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The philosophy of Plato as brought to the Middle Ages by Boethius can be witnessed in writings closer to Machaut's time. Early fourteenth-century theory treatises were concerned with the parallel issue of the relative importance of musical speculation and practice. One of these works is De musica by Johannes de Grocheo (fl. 1300). Grocheo's treatise is one of the few documents of the late Middle Ages which defines various genres of music both sacred and secular
including the *formes fixes*. In so doing, *De musica*, which contains theoretical speculation about music, also stresses the practical aspects of music by including fairly substantial information about the compositional processes as well as descriptions of the situations in which various pieces of music were performed and heard. The contents of this work, emphasizing the distinction between these two different ways of thinking about music--theoretical and practical--put Grocheo’s treatise in line with later works by theorists who often divided their books into two parts: *musica speculativa* and *musica practica*.

In the preface to his work, *De musica*, Grocheo focuses on the dichotomy which we have seen in Boethius:

> It [music] emphasizes sound, which is perceivable by our own senses and which is the object of our apprehensive ability.

> Videtur enim esse magis de sono, qui inter sensibilia propria reperitur et potentiae apprehensivae objectum est.

It should be noted that while he writes about *ratio* and *sensus* at this early stage of the treatise--or to put it more accurately, the senses *versus* intellectual judgment--Grocheo does not necessarily elevate one above the other as Boethius did. At the end of the Preface, Grocheo brings up another dichotomy which is of interest:

> At the present time many people seek the practical side of this art (music), but few pay attention to its speculative character. For this reason, many speculative thinkers make a secret of their
calculations and their discoveries, not wishing to reveal them to others, although any man ought to publish the truth about them for the praise and revelation of derived truth.

Licet enim plures diebus istis practicum huius artis quaerunt, pauci tamen de euis speculatione sunt curantes. Et adhuc quidam speculativi suas operationes et inventiones abscondunt nolentes aliis publicare, cum tamen quilibet vir debeat in talibus veritatem manifestare ad laudem et manifestationem veritatis in creatae.

There are a few concepts in this passage which are vital to 14th-century aesthetics and the concept of music. Underlying everything is the Boethian idea that an understanding of music leads to truth achieved by deductive reasoning. The calculations of speculative musicians ought to be revealed to show the “derived truth.” The essential dichotomy of the excerpt quoted above is the practical art of making music versus its speculative character. An echo can be found for this in the description of the three types of musician in Boethius’ De Institutione musicae. The essential difference lies between the first and second types on the one hand, and with the third type of musician on the other. According to Boethius, the first two classes of musician are unaware of the value of speculation. The first class is that of instrumentalists who “act as slaves” because “physical skill serves as a slave, while reason rules like a mistress.” The second class are the poets, who are slightly above instrumentalists in the hierarchy, although they create song “not so much by thought and reason as by a certain natural instinct.” It is only the third and most elevated class of
musician who has the “faculty of forming judgments according to speculation or reason.”

Another echo, almost a translation of Boethius, appears in the fourteenth-century treatise Speculum Musicae by Jacques de Liège. This passage, from a chapter entitled “Quod est musicus,” points to the central contemporary dichotomy between theory and practice:

And music is of a dual nature, that is to say theory and practice. The truly and especially great music is that which has a theory to order and rule the practice.

Et, cum duplex sit musica, theorica scilicet et practica, ille vere et proprie magis musicus est qui theoreticam habet, quae practicam dirigit et sibi imperat.

Returning to the early pages of De musica, where Grocheo defines the word "music," one sees clearly who his authorities are:

In Plato's book entitled the Timaeus, he has stated the number of elements, since he has striven to discover between two extremes two proportional means. And Boethius, who is the Latin scholar following them [he includes not only Plato but Pythagoras and Nicomachus], in his book on harmonic perspectives has tried to define these consonances through number.

Unde in libro {Platonis}, qui Timaeus intitulatur, numerum elementorum declaravit eo, quod inter duo cubica <nisus> est semper duo media proportionalia invenire. Et Boetius, ubi Latinus istos <est> sequens, in libro de proprietatibus harmonicis istas consonantias per numeros nisus est declarare.

At the end of his definition of music, Grocheo tries to summarize and define the art for his day:
Certain people, considering its form and material, describe music by saying it is a science of number related to sound. Others, looking at its performance, say that it is an art devoted to singing. We, however, intend to take it in both ways, considered as a tool and necessarily taken as one of the arts. Just as natural warmth (of the body) is a first tool through which the soul exercises its functions, so art is a principal tool or rule through which the practical intellect explains and exposes its functions. We may say, therefore, that music is an art or science concerning numbered sound taken harmonically, designed for singing easily. I say both a science, insofar as it treats the knowledge of principles, and an art, insofar as it rules the practical intellect in performing, concerning harmonic sound, since it is this basic material with which it is concerned. By number its form is defined. But by singing performance is touched upon, to which it is properly designated.

Describunt autem musicam quidem ad formam et materiam considerantes, dicentes eam esse <scientam> de numero relato ad sonos. Alii autem ad euis operationem considerantes dicunt eam <esse> autem ad cantandum deputatam. Nos autem utroque modo notificare intendimus eandem, sicut notificatur instrumentem et quaelibet ars notificari debet. Sicut enim calidum naturale est primum instrumentum, mediante quo anima exercet suas operationes, sic ars est instrumentum principale sive regula, mediante qua intellectus practicus suas operationes explicat et exponit. Dicamus igitur, quod musica est ars vel scientia de sono numerato, harmonice sumpto, ad cantandum facilius deputata. Dico autem scientiam, in quantum principiorum tradit cognitionem, artem vero, in quantum intellectum practicum regulat operando. De sono vero harmonico, quia est materia propria, circa quam operatur. Per numerum etiam euis forma designatur. Sed per cantare tangitur operatio, ad quam est propri deputata.

The manner in which Grocheo writes this passage suggests that there is a contemporaneous debate regarding the philosophical
meaning of music. The debate is centered around the relative importance of the practical and speculative aspects of music, whose relationship is important for the aesthetics of fourteenth-century music. Grocheo, a very "practically" oriented theorist, resolves the debate in a diplomatic way. He defines the debate as that in which, to paraphrase him: some people say that music is a 'science of number' while others take it as an art 'devoted to singing.' With an authoritative "dico"--"I say"--Grocheo explains that it is both. Grocheo is clearly saying something about music which has much in common with what Boethius says, although Grocheo says it in a different way. By phrasing it differently, however, Grocheo opens up new ideas about what music is. This is an important deviation from Boethius. For Grocheo, the speculative, numerical and rational element of music is described, but he expressly defines music as also containing an equally important practical element. The outward sensual appearance (sound) of music is important because it is the conduit by which a principle idea or truth is exposed. De musica is a treatise which moves away from the Boethian idea of music as defined by deductive reasoning and emphasizes the practical aspects of music and definitions of genres.

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The controversy which can be inferred from Grocheo’s treatise is played out in actuality by two other theorists who were writing during the early fourteenth century:
Johannes de Muris (ca.1300-1350) and Jacques de Liège (ca. 1260-after 1330). The exact topic of disagreement between these two theorists is not exactly the same as that concerning the controversy in Grocheo’s treatise, but it can be directly related. Grocheo mentions some people who argue that music is a speculative science ruled by number, and others who feel music is an art devoted to singing. De Muris and de Liège argue about a pivotal issue which was to be a definition of the Ars Nova: the perfect versus the imperfect division of the breve. Despite the fact that these are two different points of controversy, it is clear that all three theorists have been profoundly affected by Boethius. All three use speculation and Boethian ideas to prove themselves closer to the truth.

While Grocheo’s De Musica can be regarded as defining music in two ways: speculatively and practically, its importance for music history is that it stresses the practical. In the work of Johannes de Muris, this division becomes more obvious as he devotes two completely different works defining the separate ways of studying music: Musica speculativa secundum Boetium (1323) and Musica practica which is a section of Ars nove musice (1321).

De Muris is less than resolute about his own views of theory of the new music. This may have been due to the fact that his ideas were relatively new and must have been hotly contested. The following passage from Musica practica illustrates that he may have expected his thoughts to be met
with disagreement:

In this “Ars musicae” are included some things as it were obscured by being left implicit which, were they made explicit, would stop ever so many now disputing together about certain conclusions. It will be useful, then, if we, more from love of the disputants than for novelty’s sake, were to demonstrate in an elegant way the truth of some conclusions regarding which there is among the masters growing doubt.

In arte musica hac inclusa sunt aliqua, quasi abscondita intus latentia, quae si essent exterius enodata, cessarent statim quamplurimi, super aliquibus conclusionibus iugiter altercantes. Interest, quod nos amore ipsorum magis quam novitate aliquas conclusiones, super quibus inter magistros est orta dubitatio, concinne volumus approbare.

Obviously, there is much doubt among the “masters,” and this doubt shows itself clearly in the ways in which De Muris writes. He wants to present new ideas about music “in an elegant way” which will appease these masters. Following the above passage, de Muris then proceeds to give his nine conclusions, two of which are:

2. That the breve may be made imperfect by the semibreve.
9. That the “tempus” may be divided into any number of equal parts.

* * *

2. Quod brevis possit imperfici per semibreven.
9. Quod tempus possit dividì per quodlibet partes aequales.

These statements are illustrations of the end of the Ars Antiqua philosophies in music, as well as the crux of the
disagreement among music theorists. From our late twentieth-century perspective, the controversy appears to be rather simple-minded. Yet the writings of de Muris oppose a deep-rooted ideology, stemming from Plato and Boethius, which defines music as a philosophy of ratio which must reflect the perfect order of the soul. The question of how De Muris supports this near heresy can be raised.

It appears at first that de Muris wants to support his musical ideas by a means which would help to convince his opponents. He wants to discover the “limits of division” by apprehending these new ideas by reason. The influence of Boethian philosophy in the early fourteenth century is too strong for him not to approach his problem in this way. While he attempts to make a case for imperfection using ratio, it seems that his proof, based on the old philosophy, is a failure. The following passages illustrate that the overall sense is that de Muris is mainly interested in theorizing a way of notating sung music:

And music is sung with perfect notes in perfect time, or with imperfect ones in imperfect, whichever is fitting.

Et ex perfectis de perfecto, et imperfectis de imperfecto, sicut convenit, decantatur.

* * *

For what can be sung can also be written down.

quoniam sicut contingit ex ore proferre, sic potest et nominare.
What may be implied in these passages is that a musical notation must be found which can write down more exactly what is sung. This requires that a music theory be based not only solely on speculation, but on practical music making as well. In one further passage, de Muris, who was unable to find authoritative support for the use of imperfection in music, claims that:

...it is not possible for the mind of one man...to comprehend the whole truth of any science.

Nam in capite unius hominis non est possibile...totam cuiuslibet scientiam quiescere veritatis.

This is his “apology” for the theory of the “new art.” While the more traditional theorists believed that music was something which could be apprehended and explained fully by reason, de Muris found an element in music which was not in agreement with the older speculative philosophy and claimed a limit to man’s understanding of this “science.”

Johannes de Muris helped to move musical theory away from a purely speculative science toward a practical art. Although he was obliged to try to support his arguments with ratio and the wisdom of Plato and Boethius, whom he knew well, the actual support for his argument came from what was practiced by the singers.

Jacques de Liège represents the conservative side of this debate. Liège constructs a direct attack on those “moderni” who favor the new art of music. His enormous
treatise, consisting of seven books—five speculative and two practical—is dedicated to the Holy Trinity, as if to infer that his response to de Muris and his support of perfection is sanctified by the Father, Son, and Holy Ghost. In the most pointed terms and apparently responding directly to de Muris, Liège maintains that imperfection in music was a desertion of truth and “he who deserts truth deserts God, since God is truth.” His rebuttal is, as one might expect, said to be founded in reason:

Reason follows the law of nature which God has implanted in rational creatures.

*Ratio legem insequitur naturae quam indidit Deus rationali creaturae.*

Liège cites the ancient authorities on music—including Pythagoras and Boethius—to dismantle further the ideas of his opponent. In the following passage, Liège responds directly to the nine conclusions which de Muris lists in *Musica Practica*:

They rejoice in having found nine new conclusions about mensural music; in this I am content to defend the ancient ones, which I deem reasonable.

*Ipsi novi novas conclusiones in musica mensurabili invenisse se letantur; mihi sufficiat in hac parte antiquas, quas puto rationabiles, sustinere.*

According to Liège, defending the ancients is more in agreement with the concept of *ratio*. Here he also argues the age difference by suggesting that the old masters of music
who protect the wisdom of the ancients are more honorable than those “moderni” who detract from them.

Liège also indicates that the new art strays too far from pure speculation. According to Liège, de Muris is concerned with being able to write down what singers were singing. This is a practical approach. It would have been less offensive for the conservative side of the argument if ideas about imperfection had been supported by theoretical speculation:

If the new art spoke of the said imperfections only in a speculative way, it would be more tolerable; but not so, for they put imperfection too much into practice.

*Quod si ars nova de tactis imperfectionibus speculative solum loqueretur, magis esset tolerandum, sed non si est. Imperfectionem enim praxim nimis extenderunt.*

Despite the vigor of Liège's arguments, it appears clear that the older, more speculative method of defining music is losing ground to the more practical way.

Liège also incorporates new terminology into his argument, which relies on proving that the old art is perfect and the new art eschews perfection. An adjective enters the discussion, one which probably comes from the writings of his opponents.

It may be asked, what is the source of this subtlety in the moderns and this rudeness in the ancients? For if subtlety comes from a greater and more penetrating intellect, who are to be reputed the subtler: those who discovered the principles of this art and found out what things are contrary to
them, but have scrupulously followed these principles, or those who protest their intention of following them but do not, and seem rather to combat them?

_Sed quaeri potest ista subtilitas unde veniat in Modernis et ruditas in Antiquas. Si enim subtilitas venit ex maiore ingenio et magis penetrativo, qui subtiliores reputandi sunt? Qui huius artis repererunt principia contra quae inverunt, sed quasi ad unguem illa observaverunt, vel illi qui principia illa observavuros se protestantur nec observant illa, sed impugnare videntur?_

The obvious irony in the passage is Liège's mocking assertion that the ancients, including the great philosopher Boethius, were rude and less “subtle” than the present-day figures of the _ars nova_. This type of attack is common to many periods of music history—including the early seventeenth and early twentieth centuries. The word “_subtilitas_” however, does become attached to the _ars nova_, which, in turn, gives way to the more subtle art or “_ars subtilior_” which emerged in the late fourteenth century. In light of this passage, Johannes de Muris may be said to be a theoretician, and Guillaume de Machaut a practitioner of the “_Ars Subtilis_.”

So far, a sense of the aesthetical issues current to fourteenth-century music have been discussed. The important dichotomies of _ratio_ versus _sensus_ and speculation versus practice have been touched upon. Fourteenth-century theorists were always informed of the work of Boethius, and of the necessity to create a theory of music which was in the same tradition as that of the Boethius: based on reason and marked by speculation. De Muris attempts to mollify his detractors
by expressing his knowledge of the relationships between the perfection as represented by God and that of music. At the same time, however, practical issues are asserted and it is ultimately these issues which change the face of music.

For the music of the fourteenth century, there is no clear answer to the debate between Johannes de Muris and Jacques de Liège. The breve did become divided imperfectly yet the influence of Boethius and speculation about music based on reason remained very strong. The place of Machaut within the context of these issues is the next concern.

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Since Guillaume de Machaut (ca.1300-1377) left no formal theoretical treatise, it is only possible to discover how his art stood in relation to these philosophical and aesthetic issues by reading his poetry and by analyzing his music. Of course, it is not possible to equate the beliefs of Machaut himself with those of any of his characters. There is a temptation to do so, especially concerning the Voir dit, where the narrator takes Machaut’s name and has many of his characteristics; and certain parallels and facts can be assumed, but are not entirely sure. It is possible, however, to examine some excerpts from his texts and consider them in the light of the preceding discussion.

Machaut was directly influenced by Boethius--both in certain exact images and in more general philosophical
issues. Machaut’s narrative poem entitled Remede de Fortune is a didactic work about courtly love. The work essentially consists of a dialogue between a lover, Amant, and Lady Hope, Esperance. This dialogue is a discussion of the various aspects of courtly love, including the unpredictable ways of Fortune, with specific reference to a certain lady. The poem has much in common with Boethius’ final work, Consolation of Philosophy. In their introduction to the English translation of the Remede, James Wimsatt and William Kibler write that:

The didactic nature of Remede is also manifested importantly in its series of intercalated lyrics, complete with appropriate musical settings. One model for such insertion was Boethius with his thirty-nine lyrics set between the proses. Philosophy sings some of these to Boethius even as Esperance sings two to Amant in Remede.

As these editors explain, both works are essentially didactic and engage their primary narrators in discussion with a stronger, more knowledgable female figure--Lady Philosophy for Boethius and Lady Hope for Machaut. Each contains shorter lyric poems, which serve to capsulize the thoughts or events just described, within the narrative framework. There are also more precise similarities. Machaut begins with saying that to learn any skill entails the learning of twelve things, therefore possibly acknowledging Boethius who, in Consolation of Philosophy, describes the twelve labors of Hercules. Also, the description of the character Fortune from the Remede de Fortune comes directly from the Consolation of Philosophy.
Boethius is mentioned by name in the following passage which offers a strategy for enduring the whims of Lady Fortune:

*Mais Boeces si nous raconte
Qu'on ne doit mie faire conte
De ses amis.*

But Boethius tells us that we must pay no heed to the pain she inflicts.

The theme of *ratio* versus *sensus* is central to the *Remede*. The *Amant* goes through a learning process in his dialogue with *Esperance* which leads him from the reliance on the senses to the reliance on reason. It is interesting, however, that the senses are called upon in the following passage which concerns itself with making songs:

*Et pour ce que n'estoie mie
Tousdis en un point, m'estudie
Mis en faire chansons et lays,
Baladez, roundeaus, virelais,
Et chans, selonc mon sentement,
Amoureaus et non autrement;
Car qui de sentement ne fait,
Son oeuvre et son chant contrefait.*

And since I was not always in one mood, I learned to compose chansons and lais, ballades, rondeaux, virelais, and songs, according to my feelings, about love and nothing else; because he who does not compose according to his feelings falsifies his work and song.

While this passage appears to be in favor of the senses when composing, the didactic process of the *Remede* leads the *Amant* to a greater understanding of love because Lady Hope has helped him to understand the role of *reason* in love:
His [Machaut’s] art of love aims at refinement of emotion rather than conquest. The philosophy of love also differs from the *Roman de la Rose*’s presentation in which the God of Love and the God of Reason are rival and conflicting figures, with Reason basing her opposition to Love mainly on arguments drawn from Boethius. By contrast, in *Remede* it is for the purpose of defending Amour that Esperance, Amant’s main docent and bulwark, draws many of her lessons word-for-word from Lady Philosophy.

Consequently, it becomes clear that the relationship between Boethius and Machaut has its foundation in philosophical issues. In *Consolation of Philosophy*, Lady Philosophy teaches Boethius to overcome adversity by means of reason just as Esperance teaches the Amant to “refine” his love with reason.

Later on, as Amant listens to Esperance, he learns: “Gardes que Raisons te maistrie” and, “te vueil prover par raison.” Reason remains the surest way of attaining the truth and love. After a discussion with Esperance, Amant, referring to his lady, deduces the following:

\[
\begin{align*}
Et c’estoit chose neccessaire, \\
Puis que je me voloie traire \\
Vers celle que Raisons doctrine, \\
Que j’ensuisse sa doctrine \\
Et que souvent m’en souvenist
\end{align*}
\]

And since I wanted to go to her whom Reason instructs, it was necessary that I follow Hope’s teachings and recall them constantly.

And later he esteems his Lady:

\[
\begin{align*}
Mais la bonne et bien enseignie \\
Que Raisons gouverne et mestrie
\end{align*}
\]

And the polite and well-bred one who is ruled by
reason...

Reason becomes the guiding principle of actions:

Si y venimes tuit après
Ma dame qui devant aloit.
Drois fu, car Raisons le voit.

We all followed after my lady, who went there before us. This was proper, for Reason wished it.

This characterization of Reason as the most wise, knowledgable, unarguable, true element is also important in other poetic works of Machaut, including *Jugement de le Roi de Behaigne* and the *Jugement de le Roi de Navarre*. This quality is attached to the lady when the Amant, in hope that his attentions will be heeded, says:

Et qu’elle eüst com raisannable
Mon petit service aggreadable.

to have her accept as reasonable my pleasant little attentions.

The above discussion serves to show that Machaut was addressing important issues of *ratio* and *sensus*. These concepts are derived from Pythagorean-Platonic philosophy and come to fourteenth-century in the writings of Boethius, Grocheo, Johannes de Muris and Jacques de Liège. In Machaut, there appears to be a split between the use of the senses in composing songs and the value of reason as a characteristic of a worthy lady.

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I have attempted to outline the basis for the philosophical and aesthetical trends of the fourteenth century, when Guillaume de Machaut was composing music and poetry. Machaut’s significant philosophical and aesthetical outlook was based mainly on Boethius but also possibly on the writings of music theorists such as Johannes Grocheo, Johannes De Muris, and Jacques de Liège. As the fourteenth century progresses, there is a tendency (at least in treatises on music theory) to bring music away from its purely speculative aspect, where it is a vehicle for the “reasonable” apprehension of philosophy, and to guide music toward a field of practice more oriented to the senses.

By considering a single genre--the rondeau--I will investigate Machaut’s compositional processes and discover how the above discussed philosophical and aesthetical framework affected the creating of his work.


Curtius, European Literature, 502.

Curtius, European Literature, 504.

Curtius, European Literature, 503.


Curtius, European Literature, 504.

Curtius, European Literature, 505.


Walker, *Musical Beliefs*, 64.


Lee, ed., Plato’s *Timaeus*, 43.


Lee, ed., Plato’s *Timaeus*, 41.

Lee, ed., Plato’s *Timaeus*, 41.


For further exposition of this section of the *Timaeus*, see the edition by Francis Cornford (London: Routledge & Kegan Paul, 1956), 66ff.


Lee, ed., Plato’s *Timaeus*, 73.


Ibid., 58.

Curtius, *European Literature*, 505.


Caldwell, “The *De Institutione Arithmetica* and the *De Institutione Musica,*” 143.

Ibid., 143.


Boethius, *De Institutione Musica*, 195.


Boethius, *De Institutione Musica*, 220.


Boethius, *De Institutione Musica*, 186.


Boethius, *De Institutione Musica*, 187.


Boethius, *De Institutione Musica*, 179.
Caldwell, "The De Institutione Arithmetica and the De Institutione Musica," 182.


Grocheo, Concerning Music, 2.

Grocheo, De musica, 112.

Boethius, Fundamentals of Music, 50-1.


Grocheo, Concerning Music, 5.

Grocheo, De musica, 114.

Grocheo, Concerning Music, 9-10.

Grocheo, De musica, 122.


Johannes de Muris, Musica practica in Gerbert, Scriptores, III:296.


Johannes de Muris in Gerbert, Scriptores, III:297.

Johannes de Muris in Strunk, Source Readings, 174.

Johannes de Muris in Strunk, Source Readings, 178.

Johannes de Muris in Gerbert, Scriptores, III:296.

For further discussion of this topic, see Kevin Brownlee's *Poetic Identity in Guillaume de Machaut* (Madison: University of Wisconsin Press, 1984).


Machaut, *Remede de Fortune*, lines 401-408.


Machaut, *Remede de Fortune*, lines 2947-51.


Machaut, *Remede de Fortune*, lines 3907-09.