

Harmony and Melody as "Imitation of Nature" in Rameau and Rousseau

(Sketch of the oral presentation)

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ABSTRACT: Jean-Jacques Rousseau and Jean-Philippe Rameau, the two emblematic figures of the Querelle des Bouffons, could very well agree that music is an imitative art, but what it imitates, nature, was understood by them in very different ways. While Rameau identified nature with the Galilean/Cartesian realm of physical laws expressible in mathematical relations, for Rousseau nature meant the inner world of human passions and sentiments. Accordingly, harmony, as the science of consonant combinations of sounds based on the resonance of physical bodies, and melody, as the art of expressing the passions by means of the accents of the spoken word, were the musical dimensions that one and other author respectively took as the privileged medium in which the imitation of nature should properly take place.

Structure:

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II Nature and music in Rameau

III Nature and Music in Rousseau

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I Rameau and Rousseau

Relations between the two men:

Jean-Jacques Rousseau (1712-1778)

Jean-Philippe Rameau (1683-1764) - 30 years older than Rousseau

1) First contact (non personal) – Rousseau studies Rameau's *Traité d'Harmonie* around 1735, when he lived with Mme de Warens in Chambéry.

2) Rousseau's Project of a reform of musical notation: Rousseau arrives in Paris in 1742, bringing in his luggage his play *Narcisse* and the project of a new musical notation. Letters of recommendation led him to M. Boze, secretary of the Academy of Archaeology who became interested in the project and introduced Rousseau to Réaumur, famous scientist, who arranged that the project was presented to the Academy of Sciences. There was a preliminary interview with the presence of d'Alembert, in

which Rousseau seems to have done well, but a committee appointed to examine the project recommended its rejection. Rousseau was greatly displeased and later accused, unjustly, the commission members of not having enough musical knowledge.

What was Rousseau's system? Basically it was a replacement of notes by numbers, associated with degrees of the scale and not fixed notes. The system, in fact, might have been useful for people without much musical training to learn to sing a melody line (Rousseau's own case) but it would be not practical for a player who had to play a lot of notes (chords) simultaneously. This was an objection that Rameau himself raised a little later and Rousseau judged pertinent, but in fact this objection had also been made by the committee itself, and Rousseau never mentions that.

What is important here is to observe that up to this time Rousseau seems to have maintained a great admiration for Rameau

3) *Les Muses galantes*. Rousseau began to compose this opera-ballet in 1743 (along the lines of Campra's *L'Europe Galante* (1698) and Rameau's *Les Indes Galantes* (1735)) before traveling to Venice, and completed it in 1745. Rousseau was introduced to Alexander La Poplinière, a wealthy patron of the arts, who was also patron of Rameau, and here the problems began. Rameau was asked to examine the score, but refused to do it, saying that reading the music would be very tiresome. It was decided then that some excerpts, whose parts Rousseau extracted and copied, would be privately performed by some musicians and singers. Rameau was extremely uncomfortable and rude during the whole performance (which Rousseau attributed to jealousy before a newcomer competitor), claiming all the time that music an autodidact of the province could not be any good, and his final judgment was that the work had excellent passages and passages that were quite bad, implying that Rousseau had plagiarized the good passages. Thereafter, Rameau will be seen by Rousseau as an enemy. A further performance of the work at the house of M. de Bonneval was well received, but Rousseau failed to get a presentation at Versailles or the Opera.

4) Another contact with Rameau - *La Princesse de Navarre*: this was a reworking of Rameau's opera with text by Voltaire, with an adaptation of the original text and a new title (*Les Fêtes de Ramire*). Neither Voltaire nor Rameau wanted anything to do with this revision and the job was finally offered to Rousseau (revision of both text and music). This occasion marks Rousseau's first contact with Voltaire, who later would also become his enemy, but at this time the contact was very friendly. Several changes were made by an unknown hand without Rousseau's knowledge, and today it is unclear what his real contribution was. Rousseau did not receive credit nor earned a penny for his work. Both Rameau and Voltaire, his heroes in the past, appear now as disappointing characters.

5) The musical articles in the *Encyclopédie*: Rousseau was commissioned by d'Alembert in 1748 to write the articles on music for the Encyclopedia. Apparently Rameau had originally been invited by Diderot, but refused the work. This was a new occasion of confrontation with Rameau, as Rousseau took the opportunity to attack many of Rameau's musical doctrines (although d'Alembert softened many passages), while still showing good agreement with him on fundamental theoretical points (in fact Rousseau had not yet developed his theory the relationship between music and language that allowed him to assert the superiority of melody over harmony).

6) The “quarrel of the buffoons” (1752-53): long episode, already relatively well known and discussed, so that I will not dwell on it. There was a lot of leafleting, and the only text with theoretical and analytical interest was Rousseau’s *Lettre sur la musique française* (1753), which changed the controversy from a dispute over taste to a serious argument about aesthetics. The *philosophes* had attacked French music but spared Rameau, whom they respected (D’Alembert had written in the same year a very favorable book on Rameau’s system). Rousseau was more consistent than them, and brought the discussion to the philosophical level, where he found a terrain in which he could face Rameau with superiority, unlike the purely musical terrain (Rameau was a formidable opponent for an inexperienced musician like Rousseau). In the *Lettre* Rousseau attacked the foundations of Rameau’s system of Rameau without mentioning his name once.

7) Rameau’s response to the *Letter* in 1754 - *Observations sur notre instinct pour la musique*, which defends the priority of harmony.

8) Rameau’s criticism of the Encyclopedia articles written by Rousseau: *Erreurs sur la musique dans l’Encyclopédie*. Rousseau’s response: *Exam des deux par principes advances M. Rameau* – unpublished, as well as the *Principle of melody* and the *Essay on the Origin of Languages*. Rousseau, already secure of his reputation, did not want to give Rameau the honor of a public response, although the vol. VI of the Encyclopedia I in the Avertissement, contains a response to Rameau (probably written by d’Alembert).

II Nature and music in Rameau

What is ultimately Rameau’s theory on the fundamental principles of music?

Rameau identified two principles: 1) harmony is the basis for the melody and 2) harmony has a natural basis.

In the *Traité d’Harmonie* Rameau had already said that melody is derived from harmony:

On divise ordinairement la musique en harmonie et en mélodie, quoique celle-ci ne soit qu’une partie de l’autre, et qui’ il suffise de connoître l’harmonie, pour être parfaitement instruit de toutes les propriétés d la musique, comme il sera prouvé dans la suite (p. 1)

However, although the *Traité d’Harmonie* already contained Rameau’s most important practical contributions to harmony (such as the notion of *basse fondamentale* and inversions of chords), it still lacked a basis to justify theoretically these innovations.

It was only in later works that Rameau established the theoretical principles of his system, whose main basis is the physical phenomenon of resonance of bodies. Especially in the *Démonstration du principe de l’harmonie* (1751) Rameau considered this discovery a breaking point with the old musical theory, and we today agree in taking this as the origin of modern theory of harmony.

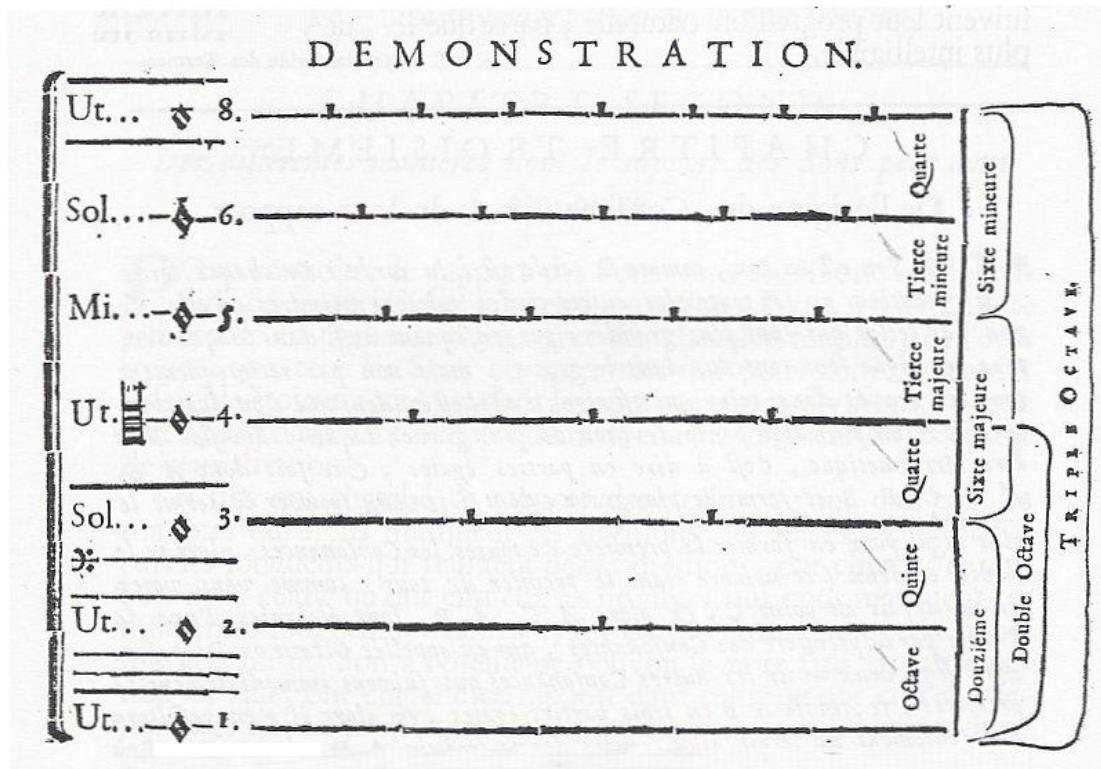
In fact, Rameau declared that the ancients did not know the foundation of harmony and therefore, although they have made wonders in composing melodies, they did this

blindly, guided secretly by nature. He also observes that they considered only the eighth, fourth and fifth as consonances. Thirds and sixths were considered dissonances.

To understand better the importance of Rameau's proposal, let us see a bit of the history of the theory of consonance.

It is attributed to Pythagoras and his school the discovery that consonant musical intervals correspond to simple numerical proportions.

According to tradition, Pythagoras divided the monochord into 2, 3 and 4 parts -



obtaining the octave 2:1 ratio

obtaining the fifth: 3:2 ratio

obtaining the fourth: 4:3 ratio

The difference between the fourth and the fifth provides the whole tone that serves as a basis for mounting the Pythagorean diatonic scale: $3/2 : 4/3 = 3/2 \times 3/4 = 9/8$

One should notice that, although in this scale the octave, fifth and fourth are expressed in simple numerical ratios, the major third (defined in this system as the sum of two tones) corresponds to $81/64$ ($9/8 \times 9/8$), a relationship that is far from simple, and in fact the Pythagorean third and the sixth do not sound "tuned", they are not "pure".

Accordingly, until the middle of the XIVth Century, Western music used only octaves, fifths and fourths as the basis of harmony and chords.

Later in the fourteenth century (transition to the Renaissance) musical practice began to adopt thirds and sixths on harmonization (as is common today). Correspondingly, musical theory was obliged to give them a place. It was Gioseffo Zarlino (1517-1590) who inaugurated the modern primacy of harmony in triads (root, third and fifth)

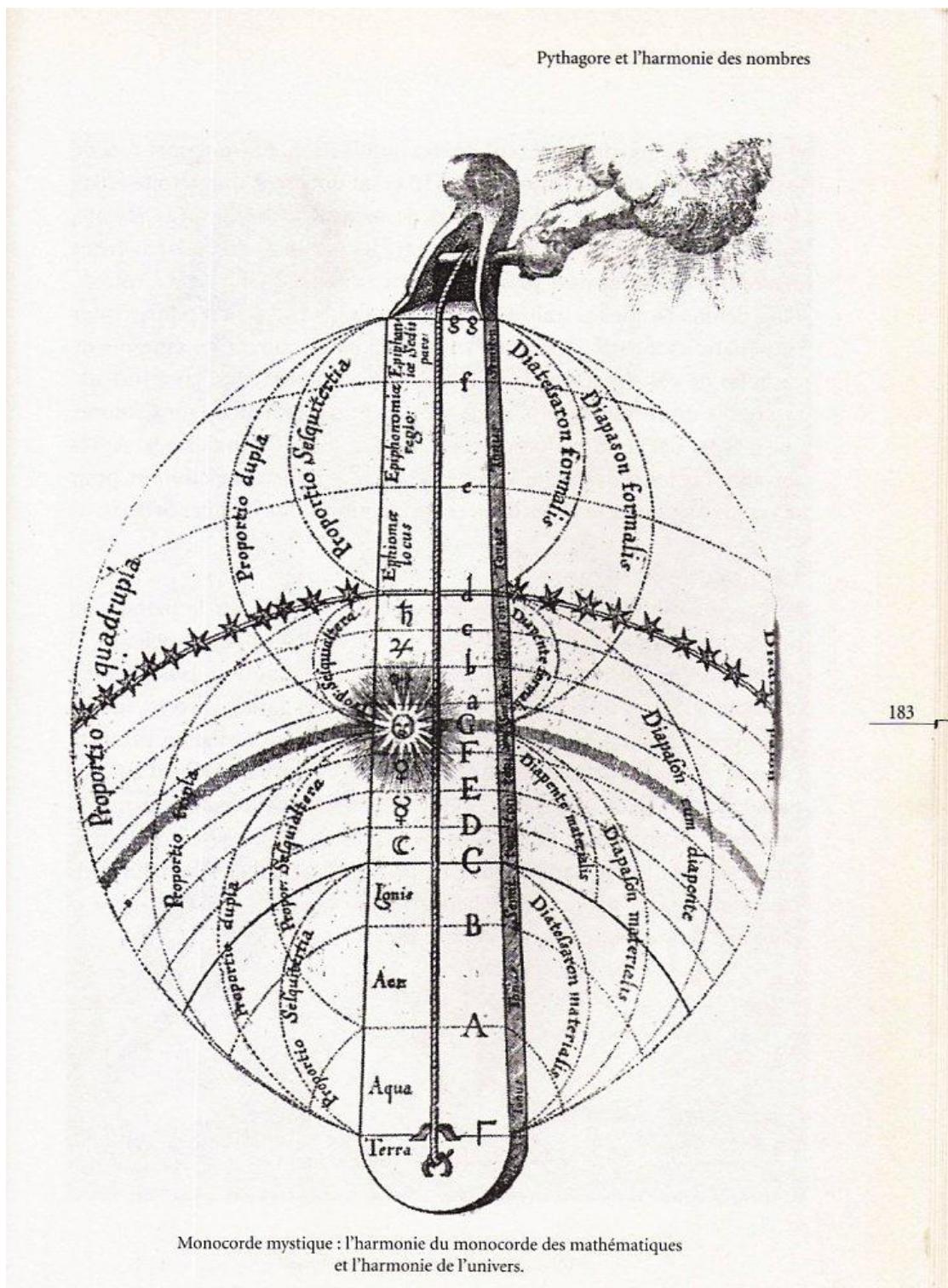
To obtain a consonant third, Zarlino divided the monochord in 5 and 6 parts. This generates the following relations: 5:4 (major third), 6:5 (minor third), 5:3 (major sixth) – one can see that these numerical relationships are simple. But to obtain the minor sixth (also consonant) it is necessary to divide the string into 8 parts. But this raises a problem, for to divide the string into 8 parts presupposes that one could also split it into 7 parts, but the proportions involving the number 7 did not produce consonances and not even notes of the diatonic scale.

Why, then simple numerical ratios as 6:5 and 8:5 produce a consonance, and a 7:6 ratio, that seems equally simple, does not produce it? Zarlino proposed the theory of the *senary*, according to which the division goes only up to 6 (for several reasons, such as because 6 is the first perfect number, because there are six planets, because God created the world in six days because there are twice six apostles, etc etc.) All consonances are contained in senary, and relationships based on the number seven are thereby excluded. But what about the minor sixth (8:5)? It goes beyond senary, but Zarlino brings it back to it by means of an Aristotelian distinction saying that 8:5 is contained *potentially* in the senary since $8 = 2 \times 4$. Not very convincing.

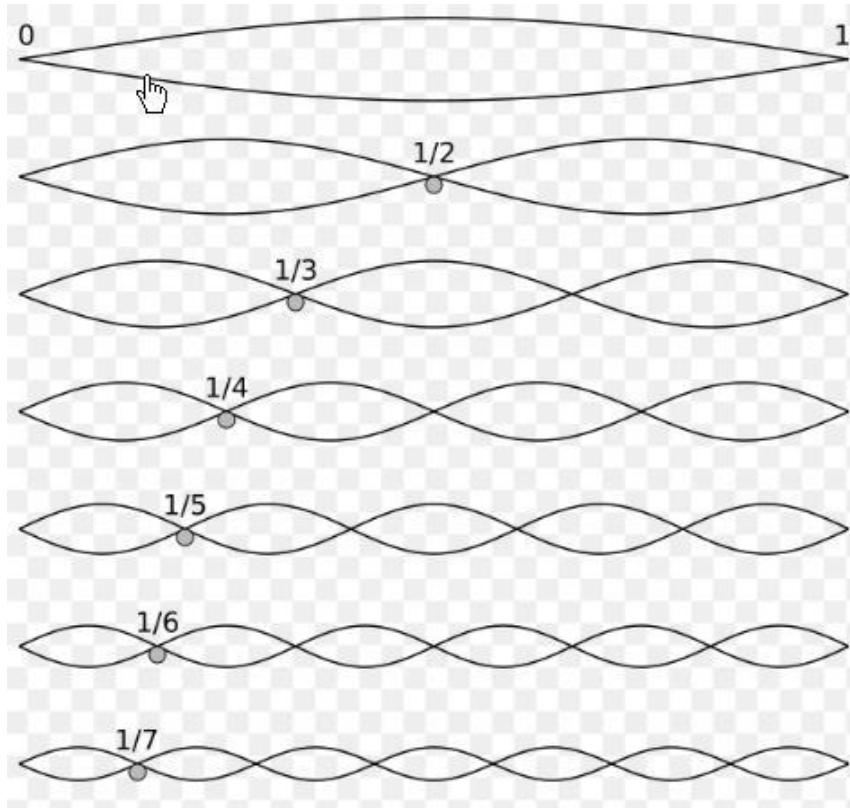
Kepler proposed that the consonances would only be obtained for numbers that can divide the circle following a procedure achievable with ruler and compass. One can divide the circle in 5, 6, 8, 9 parts but not in 7 parts. This also is not convincing, since Gauss showed in the 18th century that one can divide the circle into 17 parts with rule and compass, and 17 does not create consonances)

All these explanations are unconvincing because they do not explain why the arithmetic relationships produce consonances after all, and have rather a mystical (numerological) character. Cf the image of the mystical monochord below.

Pythagore et l'harmonie des nombres



But Rameau, for his part, is a man of modern times, has no patience for numerology and follows the scientific method of Galileo and Descartes. His point of departure is the discovery of the harmonic vibrations of physical bodies made by Joseph Sauveur (1653-1716):



A physical object, such as the string of an instrument or a column of air vibrates in several ways simultaneously, producing sounds corresponding to those parts of various lengths. As a result, the hearing of a sound always involves these other components (harmonics). These first harmonics will generate the eighth, the double fifth, the double octave and the third. (Rameau stops here, saying that the others harmonics are inaudible). So there is now an answer to the question of why certain combinations of sounds sound consonant - this is part of the very physical nature and our perception of a consonance results from the apprehension of a relationship that is not merely numerical, but derives from the very nature of things (physical-materialist model)

The science of music, therefore, consists in replicating the relationships between sounds that correspond to relations which are physical in nature. For Rameau, in developing a pleasant harmony, or a coherent melody, the musician is reproducing the rules that nature itself has established for the resonance of physical bodies.

So, in what sense, for Rameau, music is "imitation of nature"? Firstly, a melody will sound good and be aesthetically pleasing when it is based on ratios derived from the harmony. And harmony, in turn, reproduces the relationships that are grounded in the very constitution of material bodies. Music mimics nature not because it reproduces its concreteness and particularity, but because it reflects universal and necessary laws. Rameau is perfectly within the framework of classical aesthetics, in that theater and painting, for example, do not reproduce the concreteness and contingency of events in the world, but go after what must necessarily occur.

See Aristotle (*Poetics IX*): "It is not the poet's craft to narrate what [merely] happened, but to represent what is possible according to the likelihood and necessity ... Hence

poetry is something more philosophical and more serious than history, because it mainly refers to the universal and the latter to the particular."

For Rameau, therefore, musical art consists in combining musical sounds according to the universal principles that nature itself determines for these combinations, and manages thereby to please the listener, in the same way as classical theater shows characters and actions in accordance with the general principles governing the conduct and human passions. In both cases convention and artifice are involved, but far from moving away from nature, these are tools to debug the facts and reach the deeper nature of what it intends to represent (imitate)

III Nature and Music in Rousseau

With this preparation, we are able to better understand Rousseau's contribution, or rather the subversion he brought to the field of classical aesthetics. We may well get to the bottom of the matter, surpassing that most superficial level in which the quarrel between advocates of Italian and French music unfolded. This debate, and even the debate over the primacy of melody or harmony, appears as mere consequences of a deeper change of reference: the very conception of that nature which is to be imitated.

For Rousseau, nature is no longer the physical, material, nature, with its immutable laws, and that demands an effort of abstraction to be grasped behind the veil of appearances. Rather, nature is what is immediately given to our experience and especially the passionate and emotional charge that accompanies this experience.

(Cf. Emile) *"It is in the heart of man that resides the life of nature's spectacle: to see it you must feel it.* The child perceives the objects but does not perceive the relationships that bind them, and cannot hear the sweet harmony of their agreement. It is necessary an experience she has not, and feelings she has not experienced to feel the composite impression that results from all these feelings taken simultaneously... How would a birdsong cause a voluptuous emotion to her if the accents of love and pleasure are still unknown? ...

Thus, the notion of *imitation of nature* acquires a new meaning. The point is not to imitate the sounds of the forest, for such pure onomatopoeia has no artistic value, but rather to produce by means of the musical accents a replica of the emotional states that one experiences before this spectacle. Music mimics not outward objects as the forest, or sea, etc., but the inner feeling produced by the contemplation of these objects. And the possibility of this representation is due to Rousseau's conception of music as the closest form of the original language focused on the communication of passions.

If music has its origin in the expressive accents of human voice that serve to communicate the passions, it follows immediately the priority of melody over harmony, which acquires a merely auxiliary role in enhancing the expressive melodic line, and should not intrude in its way or be noticed by itself. Another consequence is that, if music is directly connected to the ethical-passionate, or spiritual, field, then the considerations that Rameau extracts from the physical basis of harmony cannot provide the basis for musical understanding and, in the eyes of Rousseau, must lead to a misconception by trying to explain music in physical terms

IV Conclusion

In this presentation I spoke more of Rameau than of Rousseau, on the one hand because Rousseauians are usually more familiar with the aesthetic theories of Rousseau, and on the other, because it is necessary to dig the depth and scope of the doctrines of Rameau in order to show the magnitude of the challenge Rousseau embraced when he confronted such a formidable opponent. Moreover, we must avoid the simplifications: one can not speak of a victory of Rousseau over Rameau, but only the historical replacement of a way of thinking about music by another (the Romantic esthetics). And if Rousseau was more philosophical than Rameau, this does not mean that his music can face a comparison with the French musician, who was one of the greatest composers of his century. If Rameau theoretically favored harmony, that does not mean he has not given importance to the melody, which, in his operas, is highly expressive. He just thought that the expressiveness of melody, and its ability to affect the passions, stemmed from the fact that it reproduced the proportions and relationships established by its harmonic basis. Conversely, one should not think of Rousseau as a sentimental devoid of technical knowledge of harmony - his responses to Rameau (particularly in the *Exame des deux principes avancés par M. Rameau*) show an excellent assessment of some weaknesses of the system of that great theorist. No embate desses dois homens que representavam cada qual uma época e suas convicções, apreciar a grandeza de um só nos torna mais consciente do mérito do outro. In the clash of these two men, each representing an era and its convictions, appreciating the greatness of one only makes us more aware of the merits of the other.