

Author: Dentice, Luigi

Title: Dialogues on music, First Dialogue

Original title: Dialoghi della Musica, Dialogo Primo

Source: Florence, Biblioteca del Conservatorio 'Luigi Cherubini', MS B3797, f.<1r>-25r.

[Page numbers are given in accordance with the ones in the manuscript by a later hand.]

[<1r>-] Dialogues on Music by Signor Luigi Dentice from Naples in Manuscript

[-f.2r-] Eclogae:

[-f.3r-] To the most Illustrious and Reverend Cardinal Vitelli:

First Ecloga.

Daphnis and Tityrus:

Daphnis. Tityrus, you have gone out, and with you

The flock has gone to the beautiful and pleasant meadow,

To feed, while you lay down in the shade

Of the most beautiful, fresh and green trees,

Sacred to Jove and to the Goddesses of the woods.

With your pipes, you sing your verses

To the Nymphs, the Napeae and the Amadryades

While little birds among the branches

Salute the green and flowering April.

I myself, sad, as already you see,

Leave my homeland which is separated from me,

And I wander around the mountains with my dejected flock.

And when Apollo is in residence, and the savage Lion

Brings somewhere else in the world the cold winter,

And one hears only the tiring verse

and annoying cry of the Cicadas,

the flock suffers the lack of shade

where the shepherd may rest safe,

The flock suffers with the shepherd when it craves a small spring,

Where it may place his bitter-tasting tongue.

When the cold winter approaches us

He does not rejoice in his poor cave

[-f.3v-] albeit the countryside produces no pastures,

Until the time when the cold and cloudy winter

Desists from tormenting the fields with its ice

And the golden Phoebus returns

To his golden home and his golden site.

My flock runs from the darkness, from the meadows and the springs, while

Your flock instead feeds, and the hills delight

In your pipes and the playful landscape

Of the concave Apennine and of the valley

Which rebounds in your ears

The name of the Goddess in its first form.

Tityrus. The dear son of immense Jove

Allows me these joys and these gifts,  
And twice a year milk and wine  
I mix on his altars, and the red blood  
Of the offered sacrifice to this memorial.  
I spread palm leaves around in his honour,  
For him who awards us a serene and happy life.  
Can you not see, Daphnis, that those gifts and prizes,  
That can make our heart content,  
He gives us, presents us with them and pleases us?  
The Nymphs play and Love, the young child,  
Blows a perfumed cloud,  
Pan plays the cithara while the swans sing,  
And they seem to say with their sensitive verse:  
“Here is the pleasure, here one loves,  
Bacchus presses the grapes, and the little presses  
<aliqui versus desunt>

[-f.5r-]

Soardo. Serone.

Soardo. This garden appears so much more beautiful than all the others that surround our city, as much as in the favourable climate, the appropriateness of the position and the fertility of the land and in many other gifts provided to it by nature it exceeds all the other cities in Italy. What do you think Signor Giovan Antonio?

Serone. It is true. As far as what I have seen and heard from others, it is so. Leaving aside the straight paths that one sees in it, the disposition of the trees, the weaving together of citron trees, orange trees and myrtles, the abundance of the clearest and most perfect water, one feels that a constant prosperous wind blows here, which is so sweet that, by stealing freshness from the grass and perfume from the flowers and also by driving a melody produced by the song of different birds to the ears of who is intent on listening, it demonstrates at the same time the power of Nature and the beauty of the place.

Soardo. One cannot deny it. It is the deserved possession of Signor Colantonio Caracciolo, Marquis of Vico who demonstrated no less moral value than the nobility of his birth and of his conduct in all of his actions. Do let us sit down here, since this place appears to me to be very suitable to start our discourse, because yesterday were disturbed by the words aimlessly uttered by that young man.

Serone. Certainly one cannot bear persons of that ilk, but they will not be able to disturb us today, because I had the entrance to the garden locked, and this is the key.

Soardo. You did well. Now, yesterday morning I began to tell you that there are three sorts of music, the music of the cosmos, the vocal music and instrumental music. Now, I will continue my discourse so that you may master it better. I say that, first of all, the music of the cosmos has to be known in the [-f.5v-] entities that one sees in the sky or in the composition of the elements or in the different times of the year.

Serone. How could anyone build such a great and fast machine that moves with such a silent and quiet movement that its sound does not reach our ears?

Soardo. It is necessary that this should be so for many reasons. In fact, the very fast movement of such great bodies must produce some sort of sound, especially being so congruent to the course of the stars that nothing could be understood to be more joined or

mixed with it. In fact, since some hit higher and others lower, and so they revolve with equal tension so that good disposition governs their course, therefore this celestial revolution cannot but produce the sweetest combinations of sounds. And, in truth, who could make it such that the differences and the opposite powers of the four elements agree in a body and in a single machine, unless a definite harmony united them? Moreover, this very variety begets the variety of the seasons and their harvest in such a way that it renders the year a single body. Therefore, if one imagined in their hearts and minds that all those elements that create so much variety throughout the cosmos were removed, the entire creation would die, and, so to speak, there would not be anything that agrees in consonant accord. Thus, as in the low notes one must observe such a sort of voice that the low quality of the voice does not descend into silence, and, similarly, in the high notes one must observe such a height that the nerves, too tense in order to produce the highest possible sound, do not break, but everything must be proportionate to itself and appropriate, equally, one can also see in the music of the cosmos that nothing must be so overpowering that it destroys something else because of its power, but it must be such that either it bears its own fruits or it assists other in bearing theirs. In fact, what winter constricts, spring releases, [-f.6r-] summer dries it and autumn renders it mature, and the seasons, either they produce their own fruit or they prepare others so that they may produce them. Human Music is heard by everyone who concentrates on it, because what is it but the force that mixes unearthly vivacity with physicality but a musical composition? What combines low and light notes and tempers them so that it causes a consonance? What else joins together the parts of the Soul, which, as Aristotle maintains is a mixture of rational and irrational? What is but music that mingles the elements and that binds together the parts with a strong bond? The third kind of music is the one that is said to consist in all the instruments that can play along with the voice. This is produced by creating sounds through tension, as in the case of strings, or with the air, as in the flutes, or on water-based instruments, or through some percussion, as in the case where certain concave vases are hit with a brass stick. Hence, a variety of sounds is produced. Serone. Please, my Signor Paolo (since the music of the cosmos and vocal music are too high a subject for me, and more suited for you to discuss, rather than to my abilities) let us discuss a while this third instrumental music, which I have been wanting to review with you for several years, but Love, from which no peace can derive, in my opinion, was perhaps the reason that made us forget ourselves, as well as everything else. Soardo. Love was always a common ambusher of men as well as cause of disquiet for the mind. But you are too kind towards me and too strict with yourself in denying to understand what you understand perhaps much better than I do. But, since this is your will, I shall start, as long as we share the burden. We must know that the consonance which rules every musical composition [-f.6v-] cannot be achieved without sound, while percussion cannot be produced without motion. In fact, if everything were stationary, nothing could meet anything else and nothing could be moved by something else. Thus, if everything was immobile and devoid of motion, it would be necessary that no movement took place. Therefore sound is defined as being a percussion of the air which reaches the ear directly. Now, some of the motions are faster while others are slower, and within the same motions some are rare, others more dense. In fact, if one observes a continuous motion, he will be gauge the speed or slow motion from that. If one moves one's hand, he shall move it with frequent or infrequent motion. If the movement is slow and infrequent, it is necessary that said infrequency and slowness will produce slow sounds, while, if the motions are fast and frequent, it is necessary that the sounds produced are high-pitched. Similarly, in the case of the same string, the tighter it is stretched, the higher will be the sound that it produces, the less tight it is, the lower the sound. When the string is drawn

more tightly, its pulsation is faster, it oscillates more frequently and more frequently and thickly it hits the air. When the string is more relaxed, its pulsations are more relaxed and slow, and, because it hits the air less strongly, it does so also less frequently. Nor should you think that the sounds correspond to the number of times that the string is hit, or as many as the percussions that occur on the string, but the air will be hit as many times as it is hit by the trembling note. However, since the speeds of the sounds approach each other and are fused together to such a great extent, therefore the ear cannot hear anything but a low or high sounds, although each consists of several ones, the low one of the slowest and most infrequent ones and the highest one of the fastest and most frequent ones.

Serone. Therefore, if the high sounds are produced by fast and frequent motions, and the low one by slow and infrequent ones, [-f.7r-] it is necessary that, if the motions are increased, they should progress from the low to the high register, and conversely, if the motions are decreased, that they should progress from the high to the low register.

Soardo. It is so, because a high sounds consists of more motions than a low one. The larger number of these creates this difference, and it must necessarily consist in some number. Every small quantity compared to a large one are represented by the comparison between two numbers, and all the quantities that are compared according to numbers, some are equal between each other and others are separated by their being unequal. There can be no consonance in any way in the notes that do not differ according to any inequality, because the consonances is the result of notes that are different one from the other and are reduce to concord.

Serone. You are giving me life. Please continue.

Soardo. All musical consonances consist either in the dupla, tripla, quadrupla, sesquialtera or sesquitercia proportion. The interval represented in numbers by the sesquitercia proportion is called diatessaron, which means fourth. The one represented in numbers by a sesquialtera, is called diapente, as an interval, which means fifth. The one represented by the dupla proportion is called diapason, as a consonance, which means octave. The tripla proportion is called diapente and Diapason as a consonance, or twelfth. The quadrupla is called bisdiapason or fifteenth.

Serone. These words are not new to me because I have heard them often used by men expert of music and I remained surprised that they do not prefer to use our own terms, since they satisfy the meaning of meaning completely.

Soardo. You are correct, but this is how they learned them in that studies. Moreover, they want to honour the language in which that art was first taught.

Serone. It seems to me that they should honour much more our art, especially where it is able to receive and illustrate the meaning. However, to avoid obstructing [-f.7r-] the flow of the reasoning that was started, tell me, how were the measures of the consonances discovered?

Soardo. I will tell you this, although it appears that the entire basis of this art of music appears to consist in the sense of hearing, because in no way one could discuss the notes without it. Nevertheless, everything else about the perfection and strength of perception has its roots within reason, which, as it is based on true and certain rules, cannot deviate from the truth in any way. The same does not occur in the case of the senses, because not everybody has the same capacity to understand, nor this capacity is always constant within man. Therefore, those who pursue the truth in every matter do less then well in entrusting this variable judgement. This is why the Pythagoreans adopted the middle way, because they did not assign the entire task of judging to the ears, but also they made most of their discoveries with the help of the ears. Therefore, the consonances are measured with the sense of hearing, but, as to the distance by which they differ, this judgment is not entrusted to the ear, whose judgement is cloudy, but to the rules and to reason instead.

Thus, the senses will be almost like an obedient servant and the reason will be the judge and master. Also, although the momentous events of all the arts and of life itself are the product of the occurrence of the senses, so to speak, nevertheless no solid or secure judgment will be produced by them whenever they become separated from the judgment of reason. In fact, it is clear that the perception of the senses is corrupted and liable to making mistakes in judging the smallest and large entities, as it cannot perceive the smallest because of their lowliness, while, as to the large ones, it becomes confused, as one can see in the case of the notes which, if they are very small, the ear can perceive them only with difficulty, while if they are large, it is deafened by their size. The same occurs in the case of sight. Thus, the eye is incapable to stare [-f.8r-] at the lively light of the Son, as it is unable to distinguish objects in the dark. Moreover, it is often deceived in perceiving the very object that it can distinguish and focus on. One can experience this by throwing a stone into a pool of water, as it will appear doubtlessly larger than it is in reality. I maintain the same to be the case with the other senses, which are deceived by anything too extreme. Therefore, this was the very strong reason why Pythagoras abandoned the judgement of the ear and endeavoured to discover the most important rules of music. Since he did not trust the human ear, whose perception is subject to be changed by extrinsic accidents and by age and since he did not trust musical instruments, recognising that they were very variable and unstable because the strings are relaxed when the air is humid and tight when it is dry, and because the greater gauge of the strings makes the sound lower and the smaller gauge make the sound higher, or because in certain other ways the original state of the sound is altered, and since he found that this occurs in all musical instruments, which prompted him not to trust them very much, he was looking constantly for a method to establish and learn the size of the consonances. One day, because of a certain divine design, he walked by a blacksmiths' workshop and he heard that a definite resonance of different sounds was produced by the hit of the hammers. Thus, he was surprised to be coming close to finding what he had been seeking for a long time. He thought it over for a short while and he arrived to the conclusion that the strength of those who beat the iron produced the variety of the sounds. Therefore, in order to discern this more clearly, he ordered them to exchange the hammers between them. However, the specific character of the sounds was not located in the arms of the men, because, once the hammers were exchanged, they produced always the same sound. He realised this and moved on to consider their weight. There were five of them. He found that the ones that were twice the weight of the other produced [-f.8v-] the consonance of a diapason, while the one that was twice the weight of the other was in sesquitertia proportion with the one that sounded the diatessaron with the other one, and he understood that the one that was united to the same one of the consonance of the diapente was in double sesquialtera proportion to the previous one. The other two, compared to which the previous was in double sesquiterza and sesquialtera proportion, were weighed, compared and found to be in sesquiottava proportion. The fifth, since it was dissonant with each of the others, was left aside. Although the musical consonances were called some diapason, some diapente and some diatessaron, which is the smallest consonance, before Pythagoras, nevertheless he was the first who discovered which proportions were assigned to them in this fashion.

Serone. It was certainly a beautiful invention and one that was found thanks to divine will, in truth. It seems to me that you have been a little obscure as to the weight of the hammers that produced the consonances, and I have been unable to understand much of the reason behind it. Therefore I would like you to explain them more clearly.

Soardo. Let us do so. Let the weight of four hammers be such that they correspond to the following numbers, namely, 12, 9, 8 and 6. The hammers that weigh 12 and 6 will sound

the diapason consonance represented by the dupla. The hammer weighing 12 and the one weighing 9, as well as the ones weighing 8 and 6 form an Epitrite proportion and sound the diatessaron. The ones weighing 9 and 6 and 12 and 8 produced the consonance diapente, while the two weighing 9 and 8 sounded the tone.

Serone. Now I understand well.

Soardo. Pythagoras, after he returned home from the blacksmiths' workshop, then examined within himself many times if the entire reasoning behind the consonances consisted in these proportions. Thus, he arranged the correct weights to some strings and judged with his ear the consonances that they produced, while on other occasions he found out what the truth was from the pipes, by halving them, doubling them in size and measuring them according to all the other proportions. Very often he placed certain vases (that Pliny describes as weighing ten drachmas) as a means of measurement into the vases, namely [-f.9r-] into certain vases called hemina by the Romans, and again he hit those vases of different weight with a beater of brass or iron, but he did not discover anything different from what he thought. Therefore, he was pleased with the confirmation of his theory and he started to examine the length and thickness of the strings, and in this way he discovered a rule which took its name from its effect. A rule is not just a line against which the length of the string and the sound are measured, but that it is statement so true and fixed that it may not fail to achieve all that it looks for when scrutinised by an unconvinced judge.

Serone. You said a little earlier that the consonance is the reduction to agreement of different voices together, since one finds in arithmetic that all quantities that are unequal between each other can differ from each other according to five types of inequality, so that either one quantity exceeds another by multiplicity in one or in more parts, or in multiplicity and one part, or in multiplicity and several parts. Therefore, the first species of inequality is called multiplicity and it is the one where the larger number contains the smaller number two, three or four time, and there is nothing left or lacking. This is called dupla, tripla or quadrupla, so that one can continue following said sequence ad infinitum. The second species of inequality is called superparticular, and it occurs when the larger number contains within itself the whole of the smaller one and a part of it, either half of those parts, as in the proportion from three to two, which is called sesquialtera, or the third part, which is called sesquitercia. The third species of inequality occurs when the larger number contains the whole of the smaller one and some parts of it. If the larger exceeds the smaller by two parts, it will be called of soprabipartiente proportion, as in the case of five and three, while, if it exceeds it by the parts, it will be called sopratripartiente, as in the case of seven and four, and all the others are similar to these. The fourth species of inequality is the one produced by the union of the multiplex and the superparticular. It takes place when the larger number contains the smaller two, three or as many parts as you like, and some portion of it. If the larger number contains the smaller twice and half of the smaller, it will be called double sesquialter, as in the case of five and two. If it contains twice the smaller and a third of it, it will be called [-f.9v-] double sesquitercio, as in the case of seven and three. If it contains the smaller three times and a half, it will be called Triple sesquialtero, as in the case of seven and two. Their names are varied in this way according to multiplicity and superparticularity. The fifth and final species of inequality is called multiplex superpartiente, and it takes place when the larger number contains the entire smaller one more than once, and more than a part of the smaller one. If the larger number embraces the smaller one twice, and two parts of it, it will be called dupla soprabipartiente, as in the case of eight and three. If it contains it three times and two parts of it, it will be called tripla soprabipartiente as in the case of eleven and three. However, I would like to know which of these species are appropriate to the musical

consonances.

Soardo. Out of these species of inequality which you have discussed, I shall leave aside the last two, because they are mixed, and I shall talk about the previous three. The multiplex has the first place among the consonances and the superparticular the second. However, the soprapartiente inequality deviates from consonant harmony, because only quantities that are of a simple nature are lauded as appropriate to make comparisons, and, since the high and low consist in quantities, the ratios that will appear to be able to preserve the nature of consonance are the ones that will be able to preserve the property of discreet quantity. In fact, since there are two sorts of quantity, one discreet and the other continuous, the discreet will be the one that is finite in its smallest part, while proceeds ad infinitum in its largest, as the unit itself in that type of quantity is finite, while the range of multiplicity increases ad infinitum. Therefore, the number that begins and derives from the finite unit grows without indefinitely. The continuous quantity will be entirely finite but decreasing ad infinitum. The line is a continuous quantity, since it is of a finite length – a foot or other finite measurement – which divides into an infinite number of parts. Similarly, multiplicity, since it is infinite in increasing, preserves the nature of number, [-f.10r-] namely the discrete quantity, while superparticularity, which diminishes and divides into infinite parts, preserves the property of continuous quantity. The smaller number is reduced, whenever it contains as much as it is and one half, a third or a fifth of it, and the part that is lacking draws its name always from the large number, In fact, since one third is named from the number three and one fourth from the number four, since four exceeds three, the fourth rather the third is found to be reduced. In some ways, the suprapartiente departs from simplicity, because it will have two, three or four parts, and, since it departs from simplicity, it will exceed in certain plurality of parts. But multiplicity contains everything as a whole number within itself, because the dupla contains the entire smaller number twice, the tripla three times and so on the others. Now, the first term of superparticular proportion does not contain anything in its entirety, but there is always a remainder of a half, a third part, a fourth or a fifth part. Nevertheless, the division is made with simple parts, while the superpartiente does not preserve the whole of the unequal quantities, but it simply subtracts their parts. For this reason, according to the Pythagoreans, it does not represent the musical consonances.

Serone. I had understood that Ptolemy says that the superpartiente genus is also allowed in the musical consonances, and this is found in the ninth Chapter of Boethius' Music, when he wants to demonstrate that the diapason with the diatessaron is a consonance. He says there that the diapason is almost a note and a consonance that in a way produces a single sound, since it is aequisona, and any other consonance that is added to it is not changed in any way, nor can it be made consonant if it is dissonant. This is the reason, namely, that, just as the consonances diapason and diapente added together preserve the diapason with the diapente in the proportion called tripla, therefore, the consonance of the diatessaron together with the diapason produces another consonance. Therefore, according to Ptolemy, the union of the diapason and diatessaron is established in the multiplex superpartiens genus represented by the proportion dupla superpartiente, namely from eight to three, as the number eight contains the number three twice and two thirds of it or two units.

Soardo. [-f.10v-] Pay attention, please. It is necessary for consonances to be found in those ratios of low and high that are 'measured together', namely, that they have a friendly measure in common, as the number two in the multiples, which is the difference between the two extreme numbers. In fact, in the case of two and four, the number two is contained exactly in one and the other; between two and six, which is the tripla, the same occurs, while between nine and eight the common number that divides both exactly is the

unit. Now, in the sesquialtera proportion, the number two is the only one that is both their difference and divides one and the other exactly. If the proportion is sesquitertia, as between six and eight, the same number two is contained exactly in one and the other, which does not occur in the other genera of inequality such as the superpartiente. In fact, if we consider the ration between five and three, the number two, which is their difference, is not contained exactly in either of them, as, compared to the number three it is smaller and doubled it is greater. Hence, this type of inequality is not related to the nature of the consonances. Moreover, there are many similarities in the numbers that form the consonances. This is the demonstration. The number two is nothing but twice the number one, the number three is three times one and the number four times one. The sesquialter is half of two, the sesquitercius a third of three, which is something not easily found in the other species of inequality. However, among all the consonance that we have considered, one must judge diligently with the aid of the ear as well as of the mind, to establish which is the best of them all, as the ear has the same relation to the sound as the eye to an object and the judgement of the mind towards the numbers or the continuous quantity. In fact, given a number [-f.11r-] or a line, nothing is easier than to consider its double with the eye or with the mind. After the double, one has to consider in his mind the half, after the half the triple, after the triple the third part. Thus, as it is easier to think of the double, according to Nichomachus, the diapason would be the best consonance, followed by the diapente, which holds the half, and then the Diapente with the diatessaron which holds the triple. In this way and form Nichomachus considers the rest of the consonances.

Serone. It is so. Therefore, we judge the individual quality of everything through our senses, and so, if the consonance that is most regarded as such by everyone universally is the dupla, there is no doubt that the Diapason is the first of all the consonances.

Soardo. This is because of the supremacy of the mind, but, according to the Pythagoreans, the others follow necessarily the sequence dictated by the widening of the multiplicity and narrowing of the supraparticularity. Hence, it has been demonstrated that unequal multiplicity surpasses in antiquity the superparticular proportions. Therefore, if we lay out the natural number from the unit to the number four i. ii. iii. iiii. and we compare one and two, we shall see that the dupla proportion is created and the consonance of the diapason, which is known universally for its extreme simplicity. If we compare three and one, the union of the diapason and the diapente will be produced, while if we compare the number four and the number one, the result will be the quadrupla or the consonance of the bisdiapason. If we compare three with two, the product will be the diapente, while it will be the diatessaron if we compare four and three. As we said, this is the order resulting from the comparison of all of them with each other. In fact, the comparison between number four and number three falls into the dupla proportion, as does the one between number two and number one, as we said above, hence the diapason will be the first of them all; the second one will be the diapason with the diapente; the third one the bisdiapason; the fourth one the diapente and the fifth one [-f.11v-] the diatessaron.

Nevertheless, Eubolides and Hippasus order the consonances in a difference sequence. In fact, they say that the increasing of multiplicity corresponds strictly to the decreasing of superparticularity, and thus there cannot be double without the half nor the triple without one third, so that, they say, since it is double, the consonance of the diapason is produced, and, because it is one half, the sesquialtera proportion, which represents the diapente, is produced, as if by opposite division. They say that the two of them, namely the diapason and the diapente, added together produce the tripla, which contains both of those consonances, and also, by opposite division, the third part of the tripla, which produces the diatessaron, while the tripla and the sesquitertia added together produce the

quadrupla, hence it occurs that the diapasondiapente, which is a consonance, and the diatessaron added together are in quadruple proportion which is named bisdiapason. Hence, the sequence will be as follows: diapason, diapente, diapasondiapente, diatessaron and bisdiapason. Nevertheless, Nichomachus does not think of them as having an identical but opposite lay-out, but he says instead that in the way that in arithmetic the unit is the principle of enlargement and reduction, thus, equally, the consonance of the Diapason is the basis of all the others and it can create them in relation to itself via the principle of opposite division. One will be better able to understand this when it is shown with the numbers. Let us lay out the unit and those two groups, the one containing the multiples and the submultiples.

[Dentice, First Dialogue, 11v; text: I, II, III, IIII, V, il mezzo, la terza parte, quarta, quinta]

Now you can see, since the two is twice the unit, its opposite part shows the half of the same unit. The number three, being three units, has on the opposite side the third, the four, being four units, shows on the opposite side the fourth, and so on increasing and decreasing gradually the unit is the principle of everything else. Now we observe the same with regard to the consonances. [-f.-12r-] The diapason, or dupla, will be placed as the supreme principle, while the rest are placed in the opposite division in this way, so that the sesquialter in corresponds to the triple and the sesquitercius to the quadruple. This is demonstrated in the following way. The first sesquialter is the same treble of the principal unit, because the number three itself is the first treble in relation to the unit and compared to the number two it is the first sesquialter. If one takes again the number three by the same difference that it has with the number two, of which it is sesquialter in its natural position, it is treble. Therefore, the sesquialter is in a specular position to the triple, hence the diapente is similarly opposed to the diapasondiapente The quadruple is in inverse opposition to the sesquitercius. Here is the demonstration. The number four compared to the unit is the first quadruple, while compared to the number three it is sesquitercius. Moreover, because of its difference with the number three, it becomes quadruple. Hence it follows that the sesquitercia proportion, which represents the diatessaron, is in divided inversely to the quadrupla proportion, which represents the bisdiapason. Now, the dupla, since it has no opposite proportion and it is not sesquialtera to any (namely, it has a remainder to which the number two, which is first double, may be added in superparticular proportion) exceeds the form of the contrary proportion, and, for this reason, according to Nichomachus, the Diapason acquires the status of basis of all the other consonances.

[Dentice, First Dialogue, 12r; text: diapason, diapente, diapente et diapason, bisdiapason, diatessaron]

However, although the entire matter lays in these terms, nevertheless (Nichomachus says) all the multiplex proportions relate better to the consonances than the superparticular, as I stated above, since the consonance is a firm concomitant emission of two notes and since the sound of the voice is the product of tension, because every sound derives from percussion and percussion is produced by motion. However, some motions are equal others unequal. The unequal ones can be such to a higher, lesser or medium degree, since equal sounds do not derive from equality, but from inequality. Therefore, we say that moderately unequal entities create manifestly the first and most simple proportions, which are the multiplex (dupla, tripla, quadrupla) or superparticular (sesquialtera and sesquitercia) and represent the consonances. Of these, those inequalities expressed by the

remaining proportions, which are either varied or not very clear or at a great distance one from the other, produce the dissonances.

Serone. You are right, but do let us return to the demonstration of whether the diapasondiatessaron is a consonance.

Soardo. Let us do so. You must know two notes considered jointly can be dissonant, consonant, in unison, aequisonant or emmeles. The ones that are dissonant are the ones that do not agree at all, the consonant are the fifth, the twelve, the nineteenth and the other compounded ones. The emmeles are the one that can be adapted to a melody or that can be interspersed among the perfect consonances, namely, the thirds, sixths and all the others. Now, the Pythagoreans say that consonances placed on top of other consonances produce other consonances, because the diapente and the diatessaron added together produce the diapason. [-f.13r-] Also, if one adds the diapente to a diapason, the result will be a consonance, whose name will derive from the name of both consonances and will be diapason diapente. Equally, if a diatessaron is added, the Bisdiapason will be created, represented by the quadrupla proportion. So, what will happen if we add the diatessaron and the diapason together? According to the Pythagoreans, they will not produce any consonance, because this falls in the superpartiens genus of inequality and it does not preserve the order of the multiplex genus of the simplicity of the superparticular. Now, let us lay out the numbers in order that this may be observed more easily. Take the number three, of which six is double or corresponding to the ratio of the diapason. Add to it the sesquitercia, namely, the number eight, which we have said to be the diatessaron, which is also in the proportion of the diatessaron with the number six. If we compare the number eight to the number three, the number eight will contain it twice, but as it is not its multiple, will contain some parts of it, with are also not simple, because it exceeds it by two units, which are two thirds of the number three, which we place as the first and smallest term. Therefore, lay out the terms in this way iii vi viij, and you will see that the one that falls between two consonances next to it it is not a whole double, so that it may represent the diapason, nor it is triple, so that it represents the diapasondiapente. If a tone is added to it, the triple mode of the proportion will be created because the diapason and the diapente together correspond to the triple and the diatessaron and the one tone to the diapente. However, if the diatessaron is added to the diapason, it will produce certainly a dissonant interval, because one cannot observe naturally a proportion of multiplicity between double and triple, and if to that one adds one tone, the result is the diapasondiatessaron and one tone. One might say that this [-f.13v-] corresponds to the diapasondiapente, because the diatessaron and one tone constitute the diapente. Now, if the Diapason is iii and vi, the Diatessaron vi and viii and the diapente iii and viiiij, the tripla proportion will be iii vi viij viiii. However, although Nichomachus many observations about this, nevertheless I have demonstrated (partly because of the very opinions of the Pythagoreans, and partly deriving some of my arguments from them) that if the diatessaron is added to the diapason, the result is not at all a consonance.

Serone. Therefore the consonance of the diapason is represented by the dupla, as i and ij, the diapente by the numbers 2 and 3, the diatessaron by the proportion 3 et 4, the tone, which does not contain a consonance, in the numbers 8 and 9, the diapason with the diapente is reduced to the proportion of the tripla, such as 2 4 6, the bisdiapason of the quadrupla, or 2 4 8, while the diatessaron joined with the diapente produces a diapason represented by this proportion 2 3 4.

Soardo. You understand it well, because, if a note is in dupla proportion with another one upwards or downwards, the result is a diapason, if it is in sesquialtera, sesquitercia or sesquiotava proportion upwards or downwards, the result is, respectively, the interval of the diapente, of the diatessaron and the tone. Also, if one adds the sesquialtera and the

sesquitertia, namely the diapente and the diatessaron, represented by the ratios 2 to 3 and 3 to 4 are added together, the result will be the dupla, which is the diapason. In fact, 4 to 3 represents the sesquitertia proportion, 3 to 2 [-f.14r-] the sesquialtera and 2 to 4 the dupla. Therefore, the sesquitertia proportion creates the diatessaron and the sesquialtera the diapente, the dupla creates the diapason and the sesquialtera joined with the diapente creates the diapason, but the tone cannot be divided into two equal parts. The reason why this is so will be explained later on. For now be satisfied with knowing that the tone can never be divided into two equal parts.

It is demonstrated that this is true, by the numbers sesquiottava proportion 8 9, as no number can occur between them because 9 comes straight after 8. However, let us increase them by doubling them. Twice 8 is 16 and twice 9 is 18. Between 16 and 18 there is only the number 17. If we order them thus 16 17 18, 16 and 18 are in sesquiottava proportion, hence it is called a tone, but the proportion involving the number 17, which falls between 16 and 18 cannot be divided equally because the number 17 compared to the number 16 contains within itself the whole of the number 16 and the sixteenth part of it, while the number 18 compared to the number 17 contains the whole number 17 and the seventeenth part of it. Therefore the smaller part is the seventeenth and the larger is the sixteenth, because larger number produce smaller proportions. Both of these parts are called semitone, not because they are really half of a tone, but because semi indicates what does not fulfil the whole. One of these semitones is called major and the other minor.

Serone. I have also heard that it can be divided equally.

Soardo. Wait. Philolaus says that the tone consists of nine commata and he calls one half of the tone diesis and the other half apotome, which differ by one comma. Hence we can easily notice that a tone consists of two minor semitones and a comma, because, if the whole tone consists of the apotome and semitone, and the semitone differs from the apotome by a comma, the apotome is nothing but a minor semitone and one [-f.14v-] comma. Therefore, we conclude that if someone subtracts two minor semitones from the tone, one comma is what is left. Therefore, according to Philolaus, the diesis is the distance by which the sesquitertia proportion exceeds two tones, the comma is the distance by which the sesquiottava proportion exceeds two dieses, or two minor semitones, the schisma is half of one comma and the diaschisma is half of a minor semitone. From all of this one can gather that the tone is divided principally into a minor semitone and an apotome, and it is also divided into two semitones and one comma, which is done in the following way. A tone consists of diaschismata and a comma. A complete half of a tone, therefore, corresponds to two diaschismata, which consist a minor semitone and a schisma, which is half of a comma. Since the whole tone is the addition of two minor semitones and a comma, if someone wants to divide it equally, he must take a minor semitone and half of one comma. The minor semitone is divided into two diaschismata while half of a comma is a schisma. Therefore, it is correct to say that the whole half of one tone can be divided into two diaschismata and into one schisma, hence the entire semitone differs from the minor semitone by a schisma while the apotome differs from the minor semitone by two schismata, which constitute a comma.

Serone. Why did you state the opposite a little earlier?

Soardo: Listen. All the notes that we use nowadays are tones, except for mi fa, which is a minor semitone. The diatessaron, therefore, as a consonance, consists of four notes, as in the following example,

[Dentice, First Dialogue, 14v]

and of three intervals because the first one is re, mi, fa, sol, the second one is mi, fa, sol, la and the third one is ut, re, mi, fa, and it cannot have more than three intervals. It consists of two tones [-f.15r-] and a semitone, as you can see, because re, mi is a tone; mi, fa is a minor semitone and fa, sol is another tone. The same occurs in the other intervals, so that you will always find the minor semitone in the last position, in the middle one or in the first one. Ut, re, mi, fa has it in the last place, re, mi, fa, sol in the middle one and mi, fa, sol, la in the first one. The consonance of the diapente consists of five notes and four intervals and of three tones and a minor semitone. The consonance of the diapason consists of five tones and two minor semitones, which do not complete a tone, since it has been already demonstrated that the diapason consists of the diapente and the diatessaron, the diatessaron of two tones and a minor semitone and the diapente of three tones and a minor semitone. Therefore, all of these add up to five tones and two minor semitones. However, since each one of those two semitones is not entirely one half of the tone, added together they do not reach a full tone. Consequently, the diapason is composed of five tones and two minor semitones, which, as they do not add up to a tone, they also exceed the entire semitone. Therefore, I did not say that the tone cannot be divided, but that it cannot be divided into two equal parts in a way that serves our purpose. In fact, were the tone to be divided in the way described by Philolaus, the human voice would not be able to produce it.

Serone. I am satisfied with this, but I would like to know the notes of the Cithara, their names, how their number was increased and how they acquired their name.

Soardo. I shall give you some information about them. Nichomachus says that music in the beginning was simple, as it consisted of four strings tuned to four notes. This lasted up to Orpheus. The strings were tuned in such a way that the first one and the last one sounded the diapason, and the middle strings respectively sounded with the ones at the diapente, the diatessaron and the tone, so that there was no dissonance among them, in imitation of the music of the cosmos, which consists of four elements

ad imitatione della musica mundana, la quale consta di quattro elementi, which form a tetrachord said to have been invented by Mercurius. The fifth string was added to the others [-f.15-] by Corebus son of Atys, who was king of the Phrygians, while the Phrygian Hyagnis discovered the sixth one and Terpander of Lesbos added the seventh. The lowest of these strings was called Hypate, as if it were the most important and worthy of greater respect, and this is why Jove is called hypaton and the consuls because of the importance of their status. This string it is also ascribed to Saturn because of its slow motion and depth of sound. The second one was called parhypate because it is placed and located next to the hypate and it is ascribed to Jove. The third was called lichanos and it derives its name from the finger that we call index and that the Greeks call lichanos, and also because it was the index finger that struck and plucked said third string, so it was called lichanos and ascribed to Mars. The fourth one is called mese because it is always placed in the middle of those seven strings and it is ascribed to the sun. The fifth is called paramese, as to mean 'next to the mese' and it is ascribed to Mercury. The sixth is called paranete because it is next to the nete and it is dedicated to Mercury and the seventh is called nete, from the term neato which means inferior, although Cicero lays out a different sequence and says that nature ordered it in such a way that the extremities sound low at one end and high at the other. For this reason, the highest sphere of the stars which proceeds with the greatest speed moves producing a high-pitched and intense sound, while the sphere of the Moon, which is the lowest, produces the lowest sound, since, as the earth is immobile, it occupies always the same position and it assigned to silence, so that the lowest position is given to the moon, which corresponds to the proslambanomenos, while Mercury is related to the hypate hypaton, the Sun to the

lichanos hypaton, Mars to the hypate meson, Jupiter to the parhypate meson, Saturn to the lichanos meson and [-f.16r-] highest sky to the mese. This is the order supplied by Cicero. Now, to return to our subject, since the Paramese is the third note starting from the nete, it is also called trite. Lichaon of Samos added an eighth note these placing it between paramese, or trite, and paranete, so that it would be the third one from the nete. After this note was added, the paramese stopped being called trite, because, since this new string was placed in the third position from the nete, it was called trite with good reason. This is how the octochord was created through Lichaon's addition. Profrastus added a note at the bottom end which would create a complete enneachord, which was called hyperhypate since it was added above the hypate, but, since other strings were added to it, it was called lichanos. Hestiachus of Colophon added the tenth at the bottom and Timotheus of Miletus the eleventh, which, as they are added above the hypate and the parhypate, are called hypate hypaton, or greatest of the great ones or lowest of the low ones or highest of the high. However, the first one of the eleven was called hypate hypaton and the second one parhypate hypaton, because it is next to it. The third one, which was called hyperhypate in the enneachord, was called lichanoshypaton. The fourth one retained the ancient name of hypate, while the fifth one was named parhypate, the sixth lichanos, the seventh mese, the eighth paramese, the ninth trite, the tenth paranete and the eleventh nete. Therefore, the first tetrachord consists of hypatehypaton, parhypatehypaton, lichanoshypaton and hypatemeson. The second tetrachord consists of hypate, parhypate, lichanos and mese, and these two are joined. The third one consists of paramese, trite, paranete and nete. However, since between the highest tetrachord (hypatehypaton, parhypatehypaton, lichanoshypaton, hypatemeson) and the lowest (paramete, trite, paranete, nete) there is another middle tetrachord (hypate, parhypate, lichanos, mese) [-f.16v-] the whole of this tetrachord in the middle is called meson, and every note is distinguished by the added word meson, in this way: hypate meson, parhypate meson, lichanos meson, mese. Because the separation between this meson tetrachord and the lower one of the nete is the mese and the paramese, this tetrachord is called diezeugmenon, namely, trite diezeugmenon, paranete diezeugmenon and nete diezeugmenon. Therefore, the separation is here between the paramese and the mese, and for this reason it is called diezeugmenon tetrachord. Omit the paramese, its mese, the trite, paranete and nete, and then the tree tetrachord will be conjoined or sinemmena, and the last one will be called sinemmenon tetrachord. However, since the Mese, so called because of its central position, in this and the previous lay-out of the enneachord is closer to the nete than to the hypate but it does not reach its own place because of the distance, another tetrachord was added above the nete diezeugmenon, so that, since all those note exceeded the nete in highness of pitch, as they were placed above it, the whole of that tetrachord is called hyperboleon. Here is an illustration:

[Dentice, First Dialogue, 16v; text: tetracordo delle congiunte. Synaphe, mese [[mese]], trite sinemmenon, Diezeusis, Paranete sinemmenon, Nete sinemmenon, tetracordo dell'eccellenti, delle disgiunte, tono, medie, principali, A, [sqb], C, D, E, F, G, b, Hypate hypaton 2304, Parhypate hypaton 2048, Lichanos hypaton, 1944, Hipate meson, 1536, Parhypate meson, 1458, Licanos meson, 1296, Mese, 1152, Paramese. 1024, Tritediezeugmenon: 972: Paranete diezeugmenon: 864, Nete diezeugmenon: 768, Tritediezeugmenon: 729, Paranete hyperboleon, 648, Nete hyperboleon.]

[-f.17r-] Now, since the Mese is not in the middle because it was closer to the hypate through the addition of the hyperboleon tetrachord, for this reason a note was added to the hypatehypaton, which is called proslambanomenos. Some call it also prosmelodos and it

is one tone removed from the hypate hypaton. Since the proslambanomenos sounds the consonance of a diapason with the mese it is at the distance of an octave with it. Its distance from the lichanoshypaton is a fourth, and it sounds a diatessaron, while the lichanoshypaton is at the distance of a fifth from the mese and sounds a diapente. The mese is at the distance of a tone from the paramese and of a fifth from the nete diezeugmenon. The netehyperboleon is a fourth and sound the diatessaron, while the proslambanomenos to the netehyperboleon sounds the consonance of the bisdiapason, or fifteenth. You must bear in mind, so that you may have no difficulty starting now from the hypate now from the proslambanomenos, that musicians take different notes as their beginning. In fact, sometimes they start from the lowest hypate and sometimes from the added note (proslambanomenos). If there is the bisdiapason, where one finds fifteen note, the proslambanomenos note is added, but in the others, and especially in the tones or tropes, as we want to call them, the first one is the hypate hypaton, which generates all the species of any consonance. Therefore, it is not without reason that the proslambanomenos sometimes has the lowest places, being the added note, and sometimes the one above it corresponding to hypate hypaton, since it is necessary that the musician should mind the truth of the matter rather than the position of the note, as one can see in the following illustration.

[-f.17v-] [Dentice, First Dialogue, 17v; text: tetracordo hypaton. Meson. diezeugmenon. hyperboleon. tono, semitono, diezeusis, A, G, F, E, D, C, b [sqb], 1276. Nete hyperboleon. 648, Paranete, 229, Trite: 768, Netediezeugmenon, 864, Paranete diezeugmenon, 972, Trite, 1014, Paramese, 1152, Mese, 1296, Lycanos meson, 1458, Parhypate, 1536, Hypate, 1728, Licanos, 1944, 2048, Hypate hypaton, 2304, Proslambanomenos.]

[-f.18r-] Serone. Personally, had I not seen the illustration, I would never have understood this difference, because it is a highly complex matter.

Soardo. It is possible, but let us return to our purpose. Every music writer states that the genera of music are three, namely, the diatonic, the enharmonic and the chromatic. The diatonic is the one that has five tetrachords in total, which are hypaton meson, sinemneon, diezeugmenon and hyperboleon. It rises through minor semitone, tone and tone, and it descends through tone, tone and minor semitone. It is called diatonic because it moves from a tone to another one. This tetrachord is the most settled, stable and natural to the ear. The enharmonic one rises in every tetrachord through diesis, diesis and ditone. It is called enharmonic because it is superior to every other genus, while the chromatic differs from the diatonic because its tetrachord rises through semitone, semitone and three semitones, rather than through tone, tone and minor semitone, and descends through three semitones, semitone and semitone. This tetrachord is very soft and full of emotions, and it derives its name from the surfaces that pass from one colour to another one when they change. Note that all the tetrachords of the diatonic genus are divided into two tones and a minor semitone. This genus is called uncompounded tone, because it is laid out as a whole and nothing is added to it, but every interval is whole. The division of the chromatic is into semitone, semitone and three semitones and it is called uncompounded trihemitonium, because it is placed within one interval. The trihemitonium occurs also in the diatonic, but it cannot be called uncompounded, because it consists of two intervals. The enharmonic consists of diesis, diesis and ditone, which, for the same reason, as it is placed within a single interval, is called uncompounded. All of these three genera are contained within the tetrachord, or [-f.18v-] the consonance of the diatessaron. In fact, the diatonic, which proceeds through minor semitone, tone and tone, completes the

tetrachord; the enharmonic, which proceeds through diesis, diesis and un-compounded ditone, since the diesis is half of the minor semitone, two of them add up to a minor semitone, and thus it completes the tetrachord, or consonance of the diatessaron. The chromatic also completes a tetrachord because it moves through semitone, semitone and three un-compounded semitones, which all together add up to two tones and a semitone. Serone. I understood you very well. Now I would like you to tell me a little about the division of the voices.

Soardo. I shall do that. Every voice is either sineches, or continuous, or diastematic, divided by a break. The continuous is the one that, when one speaks or reads, maintains the continuity from one word to the next, and, since it does not imitate high or low sounds to reflect and express the meaning of the words, therefore, it must move quickly through the content of the voice. The diastematic, instead, is the type of voice that we use when we sing and that we arrange not so much with the words but with the elements of the song. This type of voice is slower and, because of the variety of music, it produces certain breaks, not so much as it comes to a halt and turns into silence, but in a way that it becomes suspended because of the slow unravelling of the melody. Albinus adds a third and different kind to these two ones, which is the one used to read and intone the stories of the Heroes, which is not as continuous as prose, nor it has the slow and suspended manner of the singing voice. There are naturally infinite kinds of continuous voice and of the one that we use when we sing, considering that there isn't a single way to utter the words quickly, as when we speak, or when one sings high or low. However, [-f.19r-] human nature has put boundaries around each mode of expression, because it has limited the continuity of the voice with the need to breathe, which cannot be exceeded in any reasonable way. In fact, everybody can speak without break only as long as breathing allows it. Human nature limits the diastematic voice because it determines its high or low pitch. In fact, one can raise or lower the pitch within the limitations dictated by the type of voice.

Serone. How do we hear?

Soardo. When a sound is produced the same thing happens as when one throws a stone in a pond, which at first produces very close waves, and then it expands its motion in ever increasing circles until the movement weakens and stops, so that the last and widest wave expands with the weakest motion. Therefore, if there were something that could hit it, that motion would reverse immediately almost towards the centre where it originated, and it would reach stillness with the same waves in circular motion. Thus, therefore, when the air is hit and produces the sound, it moves the other air next to it and moves it as a circular wave in the water would do, and it diffuses in such a way that it reaches the ears of everybody in the vicinity at the same time. However, the sound reaches who is furthest away least clearly because the weakest wave of the air that has been subject to the percussion is the one that reaches this person.

Serone. The comparison could not be effective nor more attractive. I ask you now how many are the tropes and what are their species.

Soardo. The ancient Greeks, who at the time were considered more learned and greater in the art and in the field of music, named these tropes from the regions where they originated, namely, Dorian, Phrygian and Lydian. They reserved the Dorian for ancient matters, the Phrygian to war topics and reserved the Lydian [-f.19v-] to spur on the spirit. Later on, some learned men called these tropes or tones, as we want to call them, not according to the names of the people who created them, but according to the form of the notes. In fact, they called the one that was first in antiquity not Dorian, but protos, the following one not Phrygian, but deuterios, the other one tritos and the last one tetartos. They then imposed a rule on them, namely, that each of them would produce fifteen

notes, because there are fifteen notes from proslambanomenos to nete hyperboleon. The music writers of our time abandoned the geographical and numerical names and divide them into eight parts, adding to each trope its companion thus: the Under-Dorian to the Dorian, the Under-Phrygian to the Phrygian, the Under-Lydian to the Lydian and the Under-Mixolydian to the Mixolydian, so that the first consonances, namely the diapente and the diatessaron, were produced from these eight modes, and from the union of these two the diapason was sounded both ascending and descending. However, since these tropes are located on four notes, namely, on hypate meson, parhypate meson, lichanos meson and mese, in each of them there are two. The Dorian is located in the first position, the Phrygian in the second one, the Lydian in the third one and the Mixolydian in the fourth one and they are called sublime, while the other four that accompany them are called conjoined. However, we call the sublime ones authentic and the conjoined plagal, and, instead of calling them Dorian, Phrygian, Lydian and Mixolydian tone, we call them first, third, fifth and seventh tone, while, correspondently, instead of Under-Dorian, Under-Phrygian, Under-Lydian and Under-Mixolydian we call them second, fourth, sixth and eighth tone. However, before we evade completely the subject of the tropes, since each of them consists of the species of consonances, it will not be inappropriate [-f.20r-] to say which are the species of whichever consonance; the species, I mean, to which said tropes belong, since one has to explain what one is going to do before what one has been done already. Therefore, since the diatessaron contains four notes and three intervals, as we have stated several times, and since two tones and a semitone are located in the spaces, it is necessary, that the species will vary according to the position of the semitone among the intervals. Also, although the species of the diatessaron are contained within the same genus, nevertheless, since there are three intervals in that genus, it is necessary that it should have three species and no more than three, because the semitone, whose position determines the species, cannot be placed in a number of locations which is higher than the intervals, as it can be found in the first one, in the middle one or in the last position. When it is in the middle one, we shall have the first species, when it is in the first position, we shall have the second one, and when it is in the last one, we shall have the third one. Therefore, the species will be three and no more than three, since the semitone can be placed only in the positions that we have listed. However, since these four notes are used in extended and prolonged sequences, and at times the voice rises and sings from the first to the last one without the intervening others, and at other times the other is sung next to them, as long as the sequence of the notes is observed and the semitone is located in its proper position, the species will remain the same in that variety of notes, despite the fact that they are sung differently. The diapente has a note more than the diatessaron, hence the notes are five and the intervals are four. It consists of three tones and a minor semitone and four species are created according to the different position of the semitone in its intervals. Now, when the semitone is in the second position, the first species is created, when it is in the first, the second species, when it is in the third, the fourth species is formed. There are no more than four species in the diapente because the semitone can not be placed elsewhere but in these four intervals. [-f.20v-] Also, although the melody unravels according to the will of the composer without breaks, and sometimes the first note moves to the last one without touching the intervening ones and although sometimes the first one sounds together with the one next to it and with the last one, nevertheless, this variety does not prevent the fact that these sequences of sounds are classed under their own same species, as long as the appropriate movement of the notes is not marred and the minor semitone is placed in its correct position. The consonance of the diapason contains and embraces the diatessaron and the diapente, hence it is necessary for them to encompass eight notes, seven intervals and seven species. These species vary according to

the different positions of the two minor semitones. Moreover, all the authors are in complete agreement that its notes can be varied in any species without spoiling the melody according to the will of the singer, as long as the same progression is followed and the semitones are collocated in the appropriate position. In fact, because different species are established within one genus, although they are different as their high or low pitch, thus it is possible to compose a great variety of melodies which belong to the same species and do not exceed its boundaries.

Serone. The more you talk to me about such matters, the greater is the thirst of knowledge that you engender in me. Please continue.

Soardo. The Dorian tone, which is the first authentic, is formed from the first species of the diapente, which begins from hypate meson and ascends up to paramese, and by the first species of the diatessaron above it, which begins from the same paramese and ascends up to the nete diezeugmenon. Both of these create the fourth species of the diapason and a single tone is added descending from hypate meson to lichanos meson in order to complete said tone, as it is shown in the example below:

[-f.21r-] [Dentice, First Dialogue, 21r, 1; text: quarta specie della diapason. prima, diapente, diatessaron, sopra, tono semitono, D, C, b [sqb], A, G, F, E, 864, Nete diezeugmenon: 972 Paranete diezeugmenon: 1024, Trite diezeugmenon: 1152, Paramese, 1296, Mese, Lichanos meson, 1526, Parhypatemeson, 1728, Hypate meson, 1944, Lichanos hypaton]

The Hypodorian, which is the second plagal tone, is created from the first species of the diatessaron, which spans downwards from the hypatemeson to the hypatehypaton and from the first species of the diapente, which starts from hypatemeson and ascends up to the paramese. Both of these together constitute the first species of the diapason.

[Dentice, First Dialogue, 21r, 2; text: prima specie della diapason. diatessaron, sotto. diapente, tono, semitono, A, G, F, E, D, C, [sqb], 1152, Paramese. 1296, Mese, 1458, Lichanos meson, 1536, Parhypate meson, 1728, Hypatemeson, 1944, Lichanos hypaton, 2048, Parhypate Hypaton, 2304, Hypate Hypaton]

The Phrygian, which is the third authentic tone, is formed from the second species of the diapente, which starts from parhypate meson and ascends up to the trite diezeugmenon, and from the second species of the diatessaron, which begins from the same trite diezeugmenon and ascends up to the trite hyperboleon, and together they constitute the fifth species of the diapason. A simple tone is added to them, which descends from parhypate meson to hypate meson, in order to complete the Phrygian tone.

[Dentice, First Dialogue, 21r, 3; text: Quinta specie della diapason. Seconda, diapente. diatessaron di sopra, tono, semitono, E, D, C, b [sqb], A, G, F, 768, Trite hyperboleon: 874, Nete diezeugmenon: 971, Paranete diezeugmenon, 1024, Trite diezeugmenon: 1125, Paramese. 1296, Mese, 1944, Lichanosmeson, 2048, Par Hypate meson, 2304, Hypate meson]

The Hypophrygian is the fourth plagal tone and is composed of the second species of the diatessaron, which begins from parhypate meson and descends to parhypate hypaton, and from the second species of the diapente, which begins from parhypate meson and ascends up to trite diezeugmenon. Both together they form the second species of the diapason.

[-f.21v-] [Dentice, First Dialogue, 21v, 1; text: Seconda specie della Ddpason. diatessenon di sotto, dapente. semitono, tono, 1024, Trite diezeugmenon, 1152, Paramese, 1296, Mese, 1458, Lichanosmeson, 153, Par Hypate meson, 1728, Hypate meson, 1944, Lichanos Hypaton, 2048, b, [sqb], A, G, F, E, D, C]

The Lydian mode, which is the fifth authentic one, is created from the third species of the diapente, which start from lichanos meson and ascends up to the paranete diezeugmenon, and joined above to the third species of the diatessaron, which starts from the paranete diezeugmenon and ascends up to the paranete hyperboleon and forms the sixth species of the diapason. To complete the tone, since it is one of the sublime ones, a tone is added to them. However, because the semitone occurs before the tone in descending, it is necessary that it should continue down to a tone. Therefore, one adds a tone after reaching the semitone, which joined together constitute a semiditone, which occurs from lichanos meson descending to parhypate meson, forming a semitone, and from parhypate meson to hypate meson, forming a tone.

[Dentice, First Dialogue, 21v, 2; text: sesta specie della diapason. terza, diapente, diatesseron disopra, tono, semitono, 729, Paranete hyperboleon, 768, Trite Hyperboleon, 864, Nete diezeugmenon: 972, Paranete diezeugmenon: 1024, Trite diezeugmenon: 1151, Paramese, 1296, Mese, 1458, Lichanos meson, 1536, Parhypate, 1727, Hypate, F, E, D, C, b, [sqb], A, G]

The Hypolydian, which is the sixth plagal tone, is created from the third species of the diatessaron, which starts from lichanos meson, and descends down to lichanos hypaton, and from the third species of the diapente, which starts from lichanos meson and ascends up to paranete diezeugmenon. Both of these together constitute the third species of the diapason.

[-f.22r-] [Dentice, First Dialogue, 22r, 1; text: La terza specie della diapason. Diatesseron di sotto, Diapente. tono, semitono, C, b [sqb], A, G, F, E, D, 972, Paranete diezeugmenon, 1024, Trite diezeugmenon, 1152, Paramese, 1296, Mese, 1458, Lichanos meson, 1536, Parhypate meson, 1728, Hypatemeson, 1944, Lichanos Hypaton]

The Mixolydian is the seventh authentic tone and it is based on the fourth species of the diapente, which begins from mese and ascends up to nete diezeugmenon, and on the first species of the diatessaron above, which starts from nete diezeugmenon and ascends up to nete hyperboleon. Both of them together constitute the seventh species of the diapason. In order to complete the Mixolydian tone, a simple tone is added which occupies the interval beginning with mese and descending to lichanos meson.

[Dentice, First Dialogue, 22r, 2; text: Settima specie della diapason, quarta, diapente, prima, diatessaron di sopra, tono, semitono, G, F, E, D, b [sqb], A, 648, Nete Hyperboleon, 729, Paranete, 768, Trite, 874, Nete diezeugmenon, 972, Paranete, 1024, Trite, Paramese, 1296, Mese, 1458, Lichanosmeson]

The Hypomixolydian, which is the eighth plagal tone, si formed from the first species of the diatessaron, which starts from mese and descends down to hypate meson, and from the fourth species of the diapente, which begins from mese and ascends to nete diezeugmenon. Both of them together constitute the fourth species of the diapason, albeit some believe differently. However, since the semitone is place in the second and in the

sixth interval, and there is no particular feature at all that is specific of this species, for this reason we have assigned it to the fourth species, as you will be able to gather from what was said above in a preceding page.

[-f.22v-] First Dialogue, 22v; text: Quarta specie della diapason, Prima, diatessaron di sotto, diapente, tono, semitono, D, C, b [sqb], A, G, F, E, 864, Nete diezeugmenon, 972, Paranete, 1024, Trite, 1152, Paramese, 1296, Mese, 1458, Lichanos meson, 1526, Parhypate, 1728, Hypate]

Serone. How will these tones be called if they are in a particular species or if they exceed the consonance of the diapason by one, two or more notes diatonically disposed?

Soardo. If they are sublime or authentic, however we want to call them, they will be called by musicians more than perfect, according to whether their excess will be larger or smaller. The plagal ones will be judged accordingly, if they are longer than they should be towards the low register. If they do not reach the diapason, they shall be all the more imperfect the wider the distance they lack in completing it, both on the side of the diapente or on the side of the diatessaron or of both at the same time. The same will apply in descending, because, if some of the plagal tones are shorter than it is required towards the low register, the larger the interval that they lack, all the more they will be called deficient. Moreover, the tones are called mixed if one of the tetrachords touches on all or some of the parts of its conjoined or plagal, or two notes at least. In fact, if sometimes it descends to the mese and, because of the tone added to it, it will arrive to lichanos meson, and besides this it will reach the hypate meson taking it from its conjoined or plagal, it will be called mixed. For instance, the same will occur in the eighth plagal mode, whose top note is the nete diezeugmenon. If it will touch the trite hyperboleon or more notes above, since this is a note that belongs to its sublime or authentic, it will be called mixed as well. For this reason, therefore, one gathers that both the conjoined (or plagal) tone in ascending as the authentic or sublime in descending, if they borrow some notes from the tone related to them, can be called mixed with good reason. A tone is called commixed when the species of other tones than the main one are mixed with it and contain the forms of the unequal consonance within themselves. A tone is called exorbitant when it finishes beyond its established note. All the tones, in fact, must necessarily end in four places: the first and the second in hypate meson, the third and the fourth one in parhypate meson, the fifth and the sixth in lichanosmeson and the seventh and eighth in mese. Therefore, when they are found to terminate in other notes, they are called esondant or irregular.

Serone. To tell you the truth, I do not understand these tones very well. Please, clarify them further for me and show them to me with the notes that we use nowadays.

Soardo. I shall endeavour to satisfy you. The notes that we have mentioned are fifteen in total. The lowest is called proslambanomenos, and we can call it gammaut. The highest, called nete hyperboleon, shall be called high gesolreut. The hypate hypaton, which is the second starting from the proslambanomenos is called are, the parhypate hypaton is called Bemí, the lichanos hypaton Cefaut, the hypate meson dsolre, the parhypate meson Elami, the lichanos meson Effaut, the mese gsolreut, the paramese alamire, the trite diezeugmenon, befabemi, the paranete diezeugmenon cesolfaut, the nete diezeugmenon delasolre, the trite hyperboleon, elami and the paranete hyperboleon (which is the penultimate before the nete hyperboleon, which we called high gsolreut) Effaut. Now, the Dorian mode, which is the first authentic, is created from the first species of the diapente (starting from hypatemeson or Desolre and ascending up to the paramese, or alamire) and by the first species of the diatessaron above it (starting from the same alamire up to the nete diezeugmenon or delasolre). Both of these together constitute the fourth species of

the diapason, and to complete this tone, as I said earlier, a simple tone is added, which begins from hypate meson or Delasolre and descends to lichanosmeson or Cefaut. [-f.23v-] The Hypodorian, which is the second plagal tone, is created from the first species of the diatessaron, which spans from hypate meson or desolre downwards to hypate hypaton or a re, and from the first species of the diapente, which begins from the same desolre and ascends up to the paramese or alamire. All of these constitute the first species of the diapason. The Phrygian mode, which is the third authentic, is created from the second species of the diapente (which begins from parhypate meson or elami and ascends up to trite diezeugmenon, or up to befabemi) and by the second species of the diatessaron (which starts from the same befabemi and ascends up to the trite hyperboleon or Elami). These constitute the fifth species of the diapason, and, in order for the Phrygian mode to be complete, a simple tone is added which starts from Elami and descends to Dsolre. The Hypophrygian is the fourth plagal tone and is formed from the second species of the diatessaron which starts from Elami and descends to Bemmi and from the second species of the diapente, which begins from the same Elami and ascends up to befabemi. Both together they create the second species of the diapason. The Lydian is the fifth authentic tone and is created from the third species of the diapente (which starts from lichanos meson or effaut and ascends up to paranete diezeugmenon or Cesolfaut) and by the third species of the diatessaron above it (which begins from the same cesolfaut and reaches the paranete hyperboleon, or effaut). Both of them together create the sixth species of the diapason, with the addition of a tone in order to render the tone complete. However, since [-f.24r-] it ends in the lower register with bemmi, which is a semitone, it is allowed to reach are and complete the tone. These two intervals constitute a semitone, which spans from Cefaut to Bemmi descending by one semitone and from Bemmi itself to are by one tone. The Hypolydian is the sixth plagal tone which is created from the third species of the diatessaron (which starts from effaut and descends to Cefaut) and from the third species of the diapente (which starts from the same effaut and ascends up to cesolfaut). Both of them together create the third species of the diapason. The Mixolydian is the seventh authentic tone and it is formed from the fourth species of the diapente (which begins from [[gesolfaut]] gesolreut and ascends up to Delasolre) and by the first species of the diatessaron above it (which starts from delasolre and ascends up to high gesolreut). Both of them united constitute the seventh species of the Diapason, but, so that the Mixolydian tone may be complete, a simple tone is added which spans from gesolreut and descends to effaut. The Hypermixoludian is the eighth plagal tone and it is created of the first species of the diatessaron (which starts from gesolreut and descends to desolre) and by the fourth species of the diapente (which starts from the same fesolreut and ascends up to Delasolre). Both of them together constitute the fourth species of the diapason. Their cadences are four. The first and the second tone have to terminate in desolre, the third and the fourth one in Elami, the fifth and the sixth one in effaut and the seventh and eighth one on gesolreut.

Serone. I am satisfied with what you taught me. Now I would like to know who can be called musician with good reason.

Soardo. Listen. Every art and every discipline based on reason is more worthy [-f.24v-] than the work realised by the hands and the manual application of the creator, and it is greater and provides greater merit for a man to understand and be knowledgeable about what he does than to simply create and realise in practice what he knows. In fact, the physical work acts like the servant to the reason that commands like the mistress, because a hand unsupported by reason cannot create anything good. Therefore, the discipline of Music founded in knowledge and reason is so much more noble and illustrious than the simple act of writing and making music, as the body is surpassed in importance by the

soul. Hence it follows that intellectual speculation has no need of act of physical realisation, but the work of the hands, if it is not lead by reason, will be worthless. We can gauge from this fact how great is the glory and merit of reason, namely, that many practical musicians were called after the instruments themselves rather than the discipline of music, as the citharede was called after the cithara, the flutist from the flute and many others from their own instruments. Therefore, the true musician is who possesses the science of singing not through the practical playing of an instrument, but only through intellectual speculation through the aid of measured reason. The same can be observed in architecture and military strategy, as in both fields only the names of the architects and of the triumphant generals under whose command and project such matters were realised and ordered are celebrated, and not those who accomplished the work with their work and practical service. The branches of musical discipline are three. One is concerned with the instruments, the second one with poetry and the third one is involved with appraising and judging both. The citharedes, the keyboard players and all those who only play an instrument, because they are fare removed [-f.25r-] from being fully conscious and familiar with the rational principles of music, for this reason, as I said earlier, they are like menial workers or and they do not know anything about the speculative discipline of music. The branch of music is connected with those who write verses, and, since everything that is connected with poetry is done more under the inspiration of a natural instinct than through study or reason, for this reason the poets are not really worth to be called true musicians. The third branch of music is the only one that has the knowledge to judge and appraise, and, since it relies entirely on reason and speculation, it is ascribed appropriately to the discipline of music. Therefore, a musician is who has the ability, through speculation and reason applied to music, to judge the modes, rhythms and genera of compositions, the combinations of these and the verses of the poets.

Serone. It seems to me that we shall find this musician when we see Plato's prince, or Cicero's orator or the Cortegiano of Messer Baldassar Castigline.

Soardo. You decide, and, since it is now night, goodbye. Take care and wait for me early tomorrow morning.

Soardo. I will.