

# **Cartesian Sensory Perception, Agreeability, and the Puzzle of Aesthetic Pleasure**

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In this paper, I address Descartes' claims that sensory perceptions function to aid and preserve the subject in interacting with the world, and focus specifically on the 'valence', or agreeable/disagreeable quality, that characterizes many sensations. I show how Descartes considers this aspect of sensation to be a significant factor in the ecological role of sensory perception and then turn to a kind of case that seems to pose a problem for this view: that of aesthetic pleasure. I consider Descartes' remarks on a particular kind of aesthetic pleasure, that found in musical consonance, and argue that his discussion of this phenomenon reveals that he distinguishes between two distinct kinds of valence -- evaluative sensory valence and aesthetic valence -- only one of which functions to report directly on ecological evaluation. Further, I suggest that the best way to understand the distinction between these is by appealing to Descartes' three grades of sensory perception.

Keywords: Descartes; Cartesian perception; sensory valence; consonance

## **1. Introduction**

Amongst the many interpretations of Descartes' views on sensory perception, one of the few things commenters tend to agree upon is that the role of Cartesian sensations is to preserve the subject. The main aim of this paper is to examine one particular aspect of sensory perception in connection to this role: sensory valence, or the agreeable or disagreeable cast that characterizes a number of sensations. After laying out some preliminaries, I will introduce the notion of 'valence' found in Descartes' writing and discuss its connection with the ecological role of sensory perception. Then I will turn to a type of case that seems to pose a problem for the Cartesian view that sensory perception plays this ecological role: aesthetic pleasure, generally, and musical consonance, in particular. The problem that this case makes salient is that there seem to

be certain sensory perceptions that reliably possess a pleasant or agreeable character, but whose objects do not pose any obvious benefit to the subject. In order to dispel this apparent puzzle, I will consider Descartes' remarks on musical consonance and compare them to his discussion of the role of sensory valence. I will then argue that this examination reveals that Descartes distinguishes between two kinds of valence, an evaluative sensory kind and an aesthetic kind, only the former of which plays a role in informing the subject about the direct harms or benefits posed by objects in her vicinity. In unpacking this distinction, I will argue that the best way of understanding the relationship between these two kinds of valence is through the application of his three grades of sensory perception.

## **2. Preliminaries**

In this section, I provide a brief gloss on elements of Descartes' theory of sensory perception that will be relevant for my discussion. However, before getting to these details, some remarks on terminology are in order. I will use the terms 'sensation', 'sensory idea', and 'sensory perception' more-or-less interchangeably to refer to a conscious mental state that is delivered by the sensory process described below. I will use the term 'sensory response' when discussing the broader class of sensation-adjacent physical and mental states (e.g. elements of the physical process leading to the production of a sensory idea, judgments that accompany or affect a sensory idea, etc.)<sup>1</sup>

### ***2.1 The Sensing Machine***

Descartes famously provides a mechanistic picture of body in *The Treatise on Man* and

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<sup>1</sup> Borrowed from the CSM translation of Descartes' discussion of the three grades of the sensory process (AT VII, 436/CSM II 294 ff.)

*The Passions of the Soul*, including a physical account of sensory perception. In this model, the body possesses a system of nerve fibres that contain ‘animal spirits’, which are composed of an especially subtle and fine form of blood.<sup>2</sup> These nerve fibres originate in the brain and terminate in their respective connections to the sensory organs. Whenever some object affects a sense organ, the nerves transmit the motion it causes to the brain via the animal spirits, which affects the position of the the pineal gland, or the Cartesian ‘seat of the soul’.

To take a specific example that will be apt for the case considered below, let us look at auditory perception. Descartes describes the mechanism for audition in Article 194 of Part Four of the *Principles* like this:

“There <is hearing, whose object is simply various vibrations in the ear. For there> are two other nerves, found in the inmost chambers of the ears, which receive tremors and vibrations from the whole body of surrounding air. When the air strikes the tympanic membrane, it produces a disturbance in the little chain of three small bones attached to it; and the sensations of different sounds arise from the various different movements in these bones” (AT VIII A, 319/AT IX 314/CSM I, 282-283).

Let’s begin with the nature of the stimulus. Many theorists, including Descartes, agreed that sound was composed of regular pulsations or vibrations of air. This was supported by empirical evidence indicating that the rate of these vibrations (i.e. frequency) correlated with the qualitative perception of pitch.<sup>3</sup> This meant that Descartes had a fairly detailed picture of the kind of physical stimulus involved in

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<sup>2</sup> “. . . All the most lively and finest parts of the blood, which have been rarefied by the heat in the heart, constantly enter the cavities of the brain in large numbers... These very fine parts of the blood make up the animal spirits...” (AT XI, 334-335/CSM I, 331).

<sup>3</sup> For instance, we can look at Mersenne’s inverse-proportion law of frequency to string length, which shows that changing the length of a string, and thus changing the rate at which it percusses the air has an inverse effect on the pitch of the note. See Mersenne, *HU*, Book III, Proposition I.

auditory perception (at least compared to the other sense modalities like vision, the stimulus for which had to be stipulated). On this picture, these vibrations of air percuss the tympanum of the ear, which transmits each pulse through the ‘three small bones’ (the malleus, incus, and stapes), which in turn transmit the signal through the auditory nerve. The auditory nerve then opens the pores in the brain connected to it in a regular pattern according to the discrete motions of the nerve, which affect the balance of animal spirits flowing from the pineal gland, causing the animal spirits to enter into these pores. This pattern of movement that affects the pineal gland is then transmitted to the soul, which experiences the qualitative sensation of, say, an F#.

## ***2.2 The Sensing Mind***

Once the motion reaches the pineal gland, it gives rise to the sensation in the soul. Both the nature of the process by which this occurs, and the nature of the resulting idea have been the subjects of numerous debates among commentators. The first subject I will leave largely unaddressed in this paper. Regarding the latter topic, commentators have described Cartesian sensory ideas as everything from being entirely non-representational (See Keating, “Mechanism and Representational Nature”; MacKenzie “Reconfiguration of Sensory Experience”; and Brown, “True and False Ideas”), to being systematic misrepresentations (see DeRosa, *Descartes Puzzle*; Hoffman, “Descartes on Misrepresentation”; Wee, *Material Falsity and Error*) to being full-fledged veridical representations (See Simmons, “Cartesian Sensations”). I will assume here that sensory ideas are representational in a broad sense: that they convey information. However, not much will hinge on this assumption or the details of the way in which they do so.

There are two aspects of sensory ideas that I would like to highlight in this section. First, one thing that is clear, especially in the case of auditory perception, is that Cartesian sensory ideas are mental states that track specific types of physical events or

objects belonging to the causal chain that constitutes that process. In the case of sound there was reliable evidence that our perceptions fix on specific patterns of air movements (*i.e.* the auditory sensation of pitch corresponds to the specific frequency of the sound wave in question).<sup>4</sup> Descartes's comments on ideas in other sensory modalities indicate that he thinks that our sensory perceptions generally track specific physical events or properties of objects in our vicinity. For instance, he writes that "it is our mind which represents to us the idea of light each time our eye is affected by the action which signifies it" (AT XI, 4/CSM I, 81). More generally, in the *Principles*, he states that the properties of "light, colour, smell, taste, sound, and tactile qualities" are "nothing else in the objects but certain dispositions depending on size, shape, and motion" (AT VIII, 323/CSM I, 285). In this passage, Descartes suggests that the types of mental properties in question depend on specific types of physical properties (*i.e.* size, shape, and motion) in the external world.

The second aspect of sensory ideas that will be important is their function. While commentators differ on exactly how Cartesian sensations perform their function and how central it is to any (mis)representational content of the idea, most agree that the role of these mental states is to preserve the subject.<sup>5</sup> This is supported by a number of

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<sup>4</sup> Another element that is especially salient in the auditory case is that, for Descartes, the actual qualitative perception doesn't resemble the stimulus in any of its intrinsic phenomenological characteristics. This is something that Descartes repeatedly emphasizes: "For although everyone is commonly convinced that the ideas we have in our mind are wholly similar to the objects from which they proceed, nevertheless I cannot see any reason which assures us that this is so . . ." (AT XI, 3-5/CSM I, 81). This is another reason that I choose to focus primarily on auditory perception -- unlike visual perception, which always carries with it the question of whether there is some 'image', perhaps distorted, that gets 'projected' on the pineal gland and then transmitted to the soul, sound does not bring up this question.

<sup>5</sup> See Brown, *Passionate Mind*; DeRosa, "Teleological Account"; Greenberg, "Descartes on the Passions"; Rorty, "Thinking with the Body"; Schmitter, "Engineer a Human Being"; Shapiro, "How We Experience"; and Simmons, "Guarding the Body".

comments across Descartes' works. For instance, he titles Article 3, Part II of the *Principles*, "Sensory perception does not show us what really exists in things, but merely shows us what is beneficial or harmful to man's composite nature" (AT VIII, 41-42/CSM I, 224). In Meditation VI, he writes that "the best system that could have been devised is that it should produce the sensation which, of all possible sensations, is most especially and most frequently conducive to the preservation of the healthy man" (AT VII, 87/CSM II, 60). These statements show that Descartes believes sensations help to preserve the subject in her interactions with the world. While there are a number of features that are ecologically salient<sup>6</sup> in this way, like individuation, identification, spatial situation, etc., the most obviously helpful information to have about an object or property is evaluative: is this good or bad for me as a mind/body unit? In what follows, I will argue that this information is carried by a 'valence' that presents the object of sensation as being a certain way, positively or negatively, with regard to the subject.<sup>7</sup> Then I will turn to a case that seems problematic for this view: aesthetic pleasure, generally, and, specifically, musical consonance. I will finish by discussing Descartes' resources for addressing this puzzle and what it can tell us about his views on sensation.

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<sup>6</sup> This term is borrowed from Simmons' account of Cartesian in "Are Cartesian Sensations Representational?".

<sup>7</sup> There are a few options regarding how this evaluative information is encoded in or attached to the sensation for Descartes. For instance, we might think that it is intrinsic to the sensory perception, extrinsic to the sensory perception in the form of a passion, or extrinsic to the sensory perception in the form of a judgment. I will address this point below in Section 5 and argue that the evaluative information that is directly ecologically salient (what I will call 'evaluative sensory valence') is intrinsic to the sensation and present at the second grade of perception, while aesthetic evaluation (what I will call 'aesthetic valence') is strictly speaking separate from the sensation and present at the third grade of perception.

### 3. Valence

I understand the term ‘valence’ to refer to the positive or negative character that is an aspect of many sensations. Descartes references this kind of quality in numerous places. For instance, when discussing the ‘teachings of nature’ in Meditation VI, Descartes writes “the fact that some of the perceptions are *agreeable* [*gratae/agréables*] to me while others are *disagreeable* [*ingratae/désagréables*] makes it quite certain that my body, or rather my whole self... can be affected by the various beneficial or harmful bodies which surround it” (AT VII 81/AT IX 64/CSM II 56, emphasis mine). Later in the same meditation, he writes of the “*pleasant* [*grato/agréable*] taste of some food” that might conceal poison (AT VII 83-84/AT IX 64/CSM II 58, emphasis mine). In Part IV of the *Principles*, he tells the reader, “when the nerves are stimulated with unusual force, but without any damage being occasioned to the body, a pleasurable sensation arises... which is *naturally agreeable* [*naturaliter gratus/naturellement agréable*] to the mind because it is a sign of robust health in the body with which it is closely conjoined...” (AT VIII 318/AT IX 313/CSM I 282, emphasis mine). Finally, in the *Passions of the Soul*, he explains:

“...We are so constituted that most of the things we enjoy are good for us only for a time, and afterwards become disagreeable [*incommodes*]. This is evident especially in the case of drinking and eating, which are beneficial only so long as we have an appetite, and harmful when we no longer have one. Because such things then cease to be agreeable [*agréable*] to our taste, this passion is called ‘disgust’” (AT XI 484/CSM I 402).

While Descartes is translated using different terms, it is notable that Descartes himself is relatively consistent in his choice for the valence of a sensation: he tends to use the contrastive pair *gratus/ingratus* in the Latin and *agréable/désagréable* in the French.

In all the passages cited above, Descartes explicitly connects the valence of a sensation to its role in conveying information about the benefit or harm that the object poses for the subject. An agreeable sensation tells the subject that its object is good for her; a disagreeable sensation tells her the opposite. Descartes' point is even stronger than this, though. In addition, he suggests that a sensation has an agreeable or disagreeable character *because* the object in question is good or bad for the subject. This is especially clear if we recall that he tells the reader in Meditation VI that God has made us in such a way that the sensation that we experience "is most especially and most frequently conducive to the preservation of the healthy man" (AT VII, 87/CSM II, 60). This passage suggests that there are other possible ways a sensory idea could present, and that the reason these ideas have the character they actually do is because it is most helpful to the subject. When we add this to Descartes' remarks on valence, we can see him asserting that certain perceptions have a positive valence because their objects are, generally speaking, good for the subject, and vice versa. This supplies us with the following conditional: under normal circumstances, if a sensory perception has a positive or negative valence, then its object has a corresponding positive or negative ecological value for the subject. Of course, it is very important to emphasize the 'under normal circumstances' clause – this is what allows Descartes to explain the case of poison and the case of dropsy in the *Meditations* (AT VII 85-89/AT IX 68-71/CSM II 59-61). However, what we see in his explanation of that case, and more generally, is that in cases where the valence of the perception and the ecological value of the object don't correspond, a further explanation is required (and available). In the poison case, the explanation is that there is something beneficial (the cake) whose pleasant flavour masks the poison that, presumably, would not taste pleasant on its own. In the dropsy



case, it is that the body is in an abnormal physical state that makes its normal correspondence of bodily and mental states unreliable.

So, what are we to take away from these observations? For now, it is sufficient to note that Descartes clearly acknowledges what I am calling the ‘valence’ of a perception, that this valence conveys evaluative information about its object in relation to the subject, and that it is present *because* it conveys this information. There are many further questions to ask and answer about this element of sensory ideas. For instance, we might ask about the role of valence in determining the object and representational content of the sensory idea. There has been a considerable amount of discussion of this issue, and I don’t plan to weigh in on it directly here.<sup>8</sup> Other questions that we might ask are first, what kind of mental state the valence of the sensation is and, second, how it relates to the rest of sensory experience. These are questions that I will be concerned to answer, but in order to do so, I must take a small detour. In the next section, I consider a kind of case that seems to pose a puzzle for the view that we have sketched, so far: the case of valenced perceptions whose objects aren’t obviously beneficial or harmful for the subject. In what follows, I will use the term ‘evaluative sensory valence’ to refer to the particular kind of valence I have identified in this section (i.e. a positive or negative character of a sensory perception that reports on the harmful or beneficial nature of its object with regard to the subject).

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<sup>8</sup> I have in mind here the discussion surrounding what has been called ‘the teleological account’ of sensory representation in Descartes, which asserts that Cartesian sensations not only convey evaluative information, but that their representational content is fixed in virtue of the general ecological information they provide. For support of this view, see Simmons “Are Cartesian Sensations Representational?” and, for arguments against, see DeRosa “Teleological Account”.

#### 4. Musical Consonance

Given that Descartes holds that the function of sensory perceptions is to guide the subject through the world, and that a large part of fulfilling this function is through an evaluative sensory valence, we now must reckon with a type of case that seems, at least *prima facie*, to challenge this view. I have in mind the case of aesthetic pleasure. The reason that this kind of case seems problematic is that aesthetic properties or objects aren't obviously good or bad for an agent's survival the way that, say, food or warmth are. This is not to say that someone that holds a view of sensation like Descartes has no resources to deal with these cases. This is just to say that the way that such a view would accommodate them is not obvious.

In order to address this kind of case, I will focus on the example of musical consonance. I choose this example for a number of reasons. First, the mechanism of auditory perception is fairly straightforward, relative to the more often-discussed visual cases. In addition, the case of musical consonance is an especially simple aesthetic case, as we will see below. Unlike other aesthetic objects that involve a collection of stimuli (e.g. a painting with multiple colours and shapes, a piece of music with multiple notes and melodic passages, or a multi-modal aesthetic object like a play), musical consonance only concerns a single musical interval. In addition, as we will see, musical consonance is a particularly good example of a perception with a 'valence' since it is defined, in part, by its agreeable character. There was also widespread agreement across listeners regarding the consonance of a given auditory stimulus. Finally, musical consonance received a considerable amount of attention from the scientific community in this period, and from Descartes himself.<sup>9</sup> I will briefly describe how we should

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<sup>9</sup> This is true broadly speaking, but for examples within Descartes' circle, see Huygens, *Oeuvres Completes* Tome XX, Galileo's *Dialogues Concerning Two New Sciences*, and Mersenne's

understand musical consonance, and then go on to discuss Descartes' remarks on the issue.

Musical consonance is the quality in virtue of which musical intervals (i.e. two pitches sounding simultaneously) are reliably perceived as pleasant.<sup>10</sup> Its contrast, musical dissonance, is the quality in virtue of which musical intervals are reliably perceived as unpleasant. The issue for theorists at the time was that there seemed to be a relatively small collection of consonant musical intervals, and no obvious reason for why those and only those, out of the infinite number of possible musical intervals, were the consonant ones.<sup>11</sup> Part of what made the question so pressing to Descartes and his

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*Harmonie Universelle*. For a thorough discussion of Descartes' aesthetics and his writings on music, see Buzon, "Descartes' Aesthetics" and Jorgensen, "Descartes on Music".

<sup>10</sup> The reader will notice that I phrase this definition so that it denotes a mind-independent natural property. While this might seem strange to us today, this is the way in which theorists in the 17<sup>th</sup> century viewed consonance. It should also be noted that I have indicated that the intervals in question are made up of pitches sounding *simultaneously* (i.e. harmonic intervals), as opposed to in sequence (i.e. melodic intervals). My main reason for doing so is that the theorists in this period were primarily interested in the consonance or dissonance of harmonic intervals, due to the prevalence of polyphonic writing (for discussion of the theoretical shift from consideration of melodic intervals in Antiquity to consideration of harmonic intervals in Medieval, Renaissance, and Early Modern contexts, see Tenney, *A History of Consonance and Dissonance*). Not much hangs on this point, except that this means that discussion of the perception of a consonant interval in this period will deal with a blended perception of two notes being heard at the same time. Since the pitches that make up the interval are not being heard as individual notes on their own, this avoids the question of whether the perception of each individual pitch has its own valence that must be considered before considering them as a pair. To make an analogy with colour, the perception of a musical interval like an octave will be more similar to a blended shade, like the pink that is made by combining white and red, rather than the perception of individual shades. Thanks to an anonymous reviewer for bringing this issue to my attention.

<sup>11</sup> This is speaking from the 17<sup>th</sup> century European perspective in which nearly all available listeners agreed on which intervals belonged to the consonant class. However, it is worth noting that the consonance/dissonance distinction persists today and that there is evidence of significant cross-cultural agreement on which intervals fall into which class, especially when heard in isolation – see Bidelman & Krishnan, "Neural Correlates of Consonance"; Bowling et al. "Nature and Nurture"; Deutsch, "Grouping Mechanisms in Music"; Kameoka & Kuriyagawa, "Consonance Theory Part

contemporaries was, first, the overwhelming level of agreement across available listeners at the time and, second, the fact that the consonant intervals were quantifiable in mathematical terms and reliably reproducible according to these terms. This means that any musical interval can be assigned a frequency ratio, which can then be used to reproduce the interval by applying the ratio to string length. Almost everyone agreed that the nature of consonance must be connected to these frequency ratios, but the explanation of the privileged status of some of them was contested.<sup>12</sup> Amongst Descartes's correspondents, the preferred explanation was what has come to be referred to as the 'Coincidence Theory of Consonance' (CT),<sup>13</sup> formulated here by Mersenne:

Sound is no other thing than the percussion of air, which the ear apprehends when it is affected (*touchée*)... All the simple consonances are understood and explained by the first six numbers (1, 2, 3, 4, 5, and 6)... They represent the number and comparison of their percussions... The octave is the sweetest of all, after the unison, because its percussions are unified together more frequently..." (Mersenne, *Harmonie Universelle*, Part I, 'Abstract of Music Theory', translation mine).<sup>14</sup>

This theory states that a musical interval's consonance depends on the regularity of 'unification' of the frequencies of the pitches that comprise it, which is in turn expressed by the musical interval's frequency ratio. Those that 'unify' more regularly

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I"; Krumhansl, *Cognitive Foundations*; Trainor & Heinmiller, "Development of Evaluative Responses"; and Zentner & Kagan, "Infants' Perception of Consonance".

<sup>12</sup> The consonant musical intervals (and their respective frequency ratios) were: the perfect octave (2:1), the perfect fifth (3:2), the perfect fourth (4:3), the major and minor thirds (5:4, 6:5), and the major and minor sixths (5:3, 8:5).

<sup>13</sup> For a more detailed discussion of Coincidence Theory, see Cohen, *Quantifying Music*, Ch. 4.

<sup>14</sup> Hobbes offers a nearly identical formulation of Coincidence Theory in Part IV of *De Corpore*: "Now the concert [consonance] of two sounds consists in this, that the tympanum receives its sounding stroke from both the sounding bodies in equal and equally frequent spaces of time; so that when two strings make their vibrations in the same times, the concert they produce is the most exquisite of all other" (EW 499-500).

and often are more consonant, while those that ‘unify’ less regularly and often are more dissonant. Like Descartes, Mersenne understood each pitch as made up of a series of pulses or motions of air. The higher the pitch, the more pulses that occur in a given time frame. Whenever two pitches are sounded simultaneously in a musical interval, their respective pulses will, at times, occur simultaneously in a given time period. Those intervals whose respective pulses correspond more often are the intervals we consider more consonant. For example, the octave has a frequency ratio of 2:1. This means that the higher pitch will pulse twice for every single pulse of the lower pitch. Each pulse of the lower pitch will occur at the same time as one of the higher pulses and every other pulse of the higher pitch will occur at the same time as one of the lower. This interval, according to CT, is more consonant than, say, the perfect fifth, whose frequency ratio is 3:2.

Let us turn to what Descartes has to say about consonance. The first time we see him addressing the issue, it is in the early *Compendium Musicae*. In this work, Descartes’ account of musical consonance focuses primarily on the simplicity of the traditional ratios and their application to string length. However, the following passage addresses the physical interaction of pitches and their perception in a way that is reminiscent of CT as expressed by Mersenne above:

It may be conceived in the same way if one says that sound strikes the ears with many percussions and is quicker where the sound is higher. For then, so that the sound AB may arrive uniformly with the sound CD, it ought to strike the ears with five percussions, while CD strikes once. But the sound CF will not return as quickly to the unison; for that cannot be done until after the second stroke of sound CD... (AT X 110, translation mine).<sup>15</sup>

It will be no surprise, then, that Descartes later seems to endorse a version of this view. In the *Treatise on Man* he writes, “...These small vibrations compose the sound,

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<sup>15</sup> The letters refer to line segments in a diagram in the original text that are meant to represent higher and lower pitches in proportion to one another.

which the soul will judge to be sweeter or harsher according to whether they are more equal or unequal between them... Several sounds combined together will be consonant or dissonant depending on whether... the intervals between the small vibrations that compose them more equal or unequal” (AT XI: 150, translation mine). He goes on to provide a diagram representing the ‘small vibrations’ that compose the sounds, as well as how they can combine to compose intervals that will be either consonant or dissonant, depending on how often these vibrations coincide. In this passage, Descartes tells us that sound is made up of small vibrations that can line up more or less regularly. When the vibrations correspond more regularly, they produce a sound that is perceived as pleasant and vice versa.

Now, if we agree that Descartes holds that a sensation carries a positive or negative valence because it indicates that the object of that sensation is good or bad for the subject, then this case should seem puzzling. There is nothing clearly beneficial or harmful about vibrations in the air, or the instrument causing them. Indeed, the puzzle is even more pronounced in the consonance case because the difference between a consonant or dissonant interval is merely a matter of how regularly the vibrations of their compositional pitches line up, according to Descartes. There seems to be nothing obviously more beneficial for us about a lute playing an octave (frequency ratio of 2:1) than a lute playing a whole tone (frequency ratio of 9:8).<sup>16</sup> Recall, though, that we must qualify our stance on the connection between the valence of a sensation and the harm or benefit of its object. We said that, *in normal cases*, a sensation’s valence will track the ecological value of its object. However, there might be cases in which this is not the

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<sup>16</sup> This is part of what makes consonance more puzzling than other kinds of sensory pleasure (e.g. gustatory pleasure or olfactory pleasure) that might be more conspicuously connected to the benefit or harm afforded to the subject.

case. In the cases that violate this rule, there must be some kind of explanation. Let's look to see if Descartes provides us with an alternative explanation in the consonance case.

I said above that, more-or-less, Descartes seems to accept a version of Mersenne's CT. However, if we look more closely, we will see that this isn't quite right. A bit later in the *Treatise on Man*, Descartes writes, "This seems to me sufficient to demonstrate how the soul... can take pleasure in music that follows the same rules as ours; and even how it can render it much more perfect, at least if we consider that it is not absolutely the sweetest things that are the most agreeable to the senses, but those which tickle [*chatoüillent*] them in a more tempered way... And this is what makes music contain thirds and sixths, and even sometimes dissonances, as well as unisons, octaves, and fifths" (AT XI: 151, translation mine). Here, he seems to be making a distinction between the 'sweetness' of an interval and what the soul finds agreeable. In another passage from his correspondence with Mersenne, he is even more explicit:

. . . If you take care to calculate as I have of the recurrence of the sounds of the consonances, you'll find that the sounds that make the fourth, recommence together not at the twelfth stroke... but at the fourth stroke of the higher sound, and the third stroke of the lower. The same goes for the fifth when they come together, the third stroke of the higher and the second of the lower; whereas for the twelfth, they recombine also at the third stroke of the higher, but the first stroke of the lower, which makes the twelfth simpler than the fifth. *I say 'simpler', not more agreeable; because it should be noted that all these calculations serve only to demonstrate which consonances are more simple, or if you like, more perfect, but not for which of these are the most agreeable;* and if you read well my letter, you will not find that I said what makes a consonance more agreeable than the other... *But to determine which is the most agreeable, one must assume the capacity of the listener, which changes like taste, according to different people;* thus one loves better to hear one single voice, the other a concert, etc.; the same as one loves more that which is sweet, and the other that which is a bit sour or bitter (Descartes to Mersenne, January 1630 -- AT I, 108, translation and emphasis mine).

In this passage, Descartes distinguishes between what he calls ‘simplicity’ or ‘perfection’, on the one hand, and ‘agreeability’ on the other. We may investigate the physics of the phenomenon and determine objectively how often the ‘strokes of sound’ unify in a given musical interval, but this is going to be quite different from the question of whether that musical interval is perceived as pleasant. The former, ‘simplicity,’ is a matter of how often the frequencies of the two pitches of an interval coincide -- this is what he calls the ‘sweetness’ of the interval in the *Treatise on Man*, which is captured by CT above. ‘Agreeability,’ on the other hand, is not necessarily determined by simplicity. In order to assess the agreeability of an interval, we must look not only to the physical stimulus for the sensation, but also to the listener. Another way to put it is to understand ‘simplicity’ or ‘sweetness’ as something about the physical characteristics of certain combinations of sounds, which will be perceived more-or-less the same way across listeners. ‘Agreeability’ seems to be something that is more a matter of the listener’s tastes or personal history, and which can differ from person to person (more on this below).

We might think that this distinction is what we need to solve the puzzle that musical consonance poses for the claim that sensory valences track harm or benefit. It seems like the agreeability of consonance is different than, say, the agreeability of warmth or satiation. If this is the case, then Descartes can retain the claim that the latter kind of agreeability, which we have been calling the ‘evaluative sensory valence’ of a perception, tracks ecological value. In contrast, the agreeability present in the perception of consonance, call it ‘aesthetic valence’, is another matter. This certainly would go a long way towards getting Descartes off the hook. However, I think that ending here would be premature. This is because there is still the question of how Descartes explains this ‘aesthetic valence’, and how it relates to evaluative sensory



valence. In order to address this, I will return to my examination of evaluative sensory valence in light of Descartes' remarks on consonance. Doing so will enable us to tie up the loose ends of the pleasure we take in the consonance case, as well as illuminate some more general features of Descartes' understanding of sensory ideas and the information they deliver to us.

## 5. Valence and Grades of Perception

To begin, let us compare the language that Descartes uses when discussing evaluative sensory valence with that which he employs when discussing aesthetic valence. In the passages dealing with evaluative sensory valence cited above, Descartes describes the sensations as being agreeable or disagreeable simpliciter [*mihi gratae sint/me sont agréables*]. In these passages the sensation of the object just *is or is not* agreeable.

While Descartes uses this kind of phrasing at times when discussing consonance (e.g. in the letter to Mersenne above), more often he talks about how the soul reacts to a particular sensation. For instance, when he discusses the case of consonance in the *Treatise on Man*, he talks about the soul 'judging' an interval to be consonant [*l'ame iugera plus doux*] or 'taking pleasure' in it [*l'ame pourra... se plaire*] (AT XI 150-151). This supports the suggestion, raised above, that the pleasant character of musical consonance might be something different from the evaluative valence that characterizes the sensations of beneficial or harmful objects.

This distinction is further supported by Descartes' remarks in a later letter to Mersenne, where he writes:

...It is one thing to say whether one consonance is sweeter than another, and another thing to say that it is more agreeable... Honey is sweeter than olives, and yet people often love to eat olives more than honey. Similarly... the fifth is sweeter than the fourth, likewise than the major third, and the major third [sweeter than] the

minor; yet there are places where the minor third pleases more than the fifth, or similarly where a dissonance is found more agreeable than a consonance (AT I, 126 translation mine).

In this passage, Descartes again distinguishes between what makes a sound (or flavour) ‘sweet,’ as opposed to ‘pleasing’ or ‘agreeable’. The first way we might construe this distinction is to think that the valence in the case of consonance is an emotion (or a ‘proper passion’ in Cartesian terminology). While he does talk about ‘loving’ a particular sensation more than another in the quote above, there are a few reasons why I think that we can rule out this possibility. The first is that Descartes states in the same letter that he does ‘not know of any quality to the consonances that corresponds to the passions’ (AT I 126, translation mine). In addition, in the *Passions of the Soul*, he is clear to point out that pleasure or ‘titillation’ [*chatoüillement*] is to be distinguished from the emotional reaction it prompts (AT XI 399/CSM I 361). The term ‘*chatoüillement*’ is the same one that he uses when discussing the pleasure that we take in consonance in the *Treatise on Man* (see above). Finally, we can appeal to our own experience. In the case of consonance, and in the gustatory cases that Descartes seems to think are analogous, the enjoyment we take seems to be sensory. Major thirds, in addition to having a kind of major-third character, *sound* good. Similarly, olives, in addition to having a kind of briny flavour, *taste* good.<sup>17</sup>

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<sup>17</sup> It should also be noted that Descartes sometimes discusses certain emotions that are aroused in the soul that, while resembling passions, are not passions strictly speaking because of their lack of a proximate bodily cause. He sometimes references these ‘intellectual passions’ to characterize certain kinds of aesthetic enjoyment. For instance, he writes in *The Passions of the Soul*, “when we read of strange adventures in a book, or see them acted out on the stage, this sometimes arouses sadness in us, sometimes joy, or love, or hatred, and generally any of the passions... but we also have pleasure in feeling them aroused in us, and this pleasure is an intellectual joy which may as readily originate in sadness as in any of the other passions” (AT XI, 441/CSM I, 381). I am bracketing these cases as they don’t deal directly with sensation, but rather concern non-sensory intellectual pleasure.

The next way we might understand Descartes' distinction between aesthetic valence and evaluative sensory valence is that the former is really a kind of judgment. I think that this is on the right track, but we must be careful when characterizing it this way. One of the main reasons for this is because of the phenomenology I highlight above – olives *taste* good and major thirds *sound* good. When eating or listening, we don't experience the sensation and decide or judge that it is good. At this point, it also seems unclear what the evaluation would be based on – good in regard to health, morality, or some other metric?

In order to capture the distinction between aesthetic valence and evaluative sensory valence, I think we should look to a particular kind of judgment that Descartes discusses in another context: the 'third grade of perception' that is discussed most notably in the *Sixth Replies*. There he tells us that the first grade of perception refers to the purely physiological elements involved in the sensory process (*e.g.* stimulation of the sensory organs, motion of the nerves, changes in the brain, etc.). The second grade refers to the immediate mental effects of this process, which "arise from the fact that the mind is so conjoined with the body that it is affected by the movements which occur in it". This second grade is what Descartes says is proper to the sensory faculty, strictly speaking. Finally, the third grade consists of judgments that contribute in some way to our sensory experience. In the passage, Descartes considers the perception of a stick and writes of this third grade:

...As a result of being affected by this [second grade] sensation of colour, I judge that a stick, located outside me, is coloured; and suppose that on the basis of the extension of the colour and its boundaries together with its position in relation to the parts of the brain, I make a rational calculation about the size, shape, and distance of the stick: although such reasoning is commonly assigned to the senses (which is why I have here referred it to the third grade of sensory response), it is clear that it depends solely on the intellect (AT VII 437-438/CSM II 295).

I will argue that what I have dubbed ‘aesthetic valence’ should be understood as the kind of judgment that is involved in this third grade of perception, while ‘sensory evaluative valence’ is present at the second grade. I will begin by discussing aesthetic valence in the case of consonance, and then discuss how evaluative sensory valence operates at the second grade of perception. In order to unpack how aesthetic valence attaches to a sensory perception, it will help for us to see how the perception of a consonant musical interval, say an octave, would map onto Descartes’ three-step perceptual process. At the first grade, there is the purely physiological process: a stimulus vibrating in a 2:1 pattern affects the ear, this pattern of vibration is transmitted via the auditory nerve to the brain, where it affects the balance of animal spirits and changes the situation of the pineal gland. In the second grade, the primary qualitative content of the sensation is produced: the ‘sweetness’ or ‘simplicity’ that Descartes’ describes as our perception of the octave. Finally, in the third grade, there is the intellectual contribution from the soul: it ‘judges’ the octave to be agreeable.

A couple of reasons supporting this reading can be noticed directly from this reconstruction. The first is that it accommodates the distinction between the ‘sweetness’, ‘simplicity’, or ‘perfection’ of an interval and its ‘agreeability’ that we see Descartes make repeatedly in the passages above. As seen in the passage from the *Sixth Replies*, the second grade of perception only deals with the direct effects of the motions in the body on the soul. In this case it would just be the way that the 2:1 motion in the auditory system produces the particular ‘octave-sounding’ perception in the mind, which Descartes sometimes calls the ‘sweetness’ that corresponds to the simplicity of the stimulus. This is separated from what the soul finds ‘agreeable’ or ‘pleasing’ in a musical interval. If we understand this agreeability to be part of a different grade of the sensory response, this would account for this distinction that Descartes makes here.

However, as noted above, aesthetic valence doesn't feel like a free-standing independent judgment about the sensation -- the perception of consonance feels like part of the sensory response. Understanding aesthetic valence as present at the third grade of sensory response as I have suggested would explain this kind of phenomenology as well. Descartes notes that the judgments that are involved in the third grade of perception are performed 'habitually', 'at great speed', and 'unreflectively', which is why they "are commonly assigned to the senses" and why "we do not distinguish these operations from simple sense perception" (AT VII, 438-439/CSM II, 295). Perception of aesthetic valence, then, is similar to perception of spatial situation, shape, distance, and other third-grade elements of perception in that they are judgments, but they are experienced as *sensory*. In the same way that the coffee cup in front of me *looks* round, despite my seeing it at an angle, the major third *sounds* pleasant, and the olives *taste* good, despite their having a less-than-sweet presentation to the senses.<sup>18</sup>

In contrast, evaluative sensory valence would be present at the second grade of perception. In addition to allowing Descartes to maintain his distinction between evaluative sensory valence and aesthetic valence that I noted above, there are further reasons to think of evaluative sensory valences as present at the second grade of perception. Let us take a paradigmatic case of evaluative sensory valence: that of pain and pleasure. Descartes' discussion of these states in the *Principles* is particularly enlightening. He writes:

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<sup>18</sup> There is some debate regarding what perceptions are to be included in each grade and how much of a strict separation we should understand there to be between the second and third grades of perception (cf. Arbini, "Theory of Sense Perception" & Simmons, "Cognitive Structure"). My view does not hinge on any particular outcome – it is enough for my account that there be a habitual or pre-reflective blending of these grades in our experience regardless of how technically separate they are.

...When the nerves are stimulated with unusual force, but without any damage being occasioned to the body, a pleasurable sensation arises... which is naturally agreeable to the mind because it is a sign of robust health in the body with which it is closely conjoined... But if there is some bodily damage, there is a sensation of pain... This explains why bodily pleasure and pain arise from such very similar objects, although the sensations are completely opposite (AT VIII 318/AT IX 313/CSM I 282, emphasis mine).

First, we should note that Descartes uses the phrase ‘naturally agreeable’, which is reminiscent of the ‘institution of nature’ whereby the motions of the body correspond to sensory perceptions in the soul.<sup>19</sup> This language suggests that he is talking about the second grade of perception, since that grade is the one that “comprises all the immediate effects produced in the mind as a result of its being united with a bodily organ...” (AT VII, 436-437/CSM II 294). In addition, this passage clearly indicates that Descartes is talking about evaluative sensory valence, since it references the valence’s signification of harm or benefit, while tying it directly to the motions in the body that produce it. Finally, and most notably, in the passage from the *Sixth Replies*, Descartes includes pain and pleasure as paradigmatic examples of the second grade of perception, along with other sensory qualities like colour, taste, and smell (Ibid).<sup>20</sup>

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<sup>19</sup> I am not committing myself to what has been called the ‘natural institution’ view on the mind-body union, most notably defended by Margaret Wilson (Wilson, *Descartes*), nor am I committed to any particular account of this fraught issue in Descartes scholarship. I reference the phrase only to call attention to Descartes’ remarks that are often taken to support this view. For instance, he states in the *Optics*, “... it is the movements composing this picture which, acting directly upon our soul in so far as it is united to our body, are ordained by nature to make it have such sensations” (AT VI, 130/CSM I, 167).

<sup>20</sup> There are places where Descartes seems to make a distinction between the perception of basic evaluative sensations (i.e. perceptions with what I am calling an ‘evaluative sensory valence’) and the perception of sensory qualities. One such passage can be found in Part I, Art. 71 of the *Principles*, where he tells the reader that in early infancy, children primarily perceive pain upon some harm to the body and pleasure upon some benefit to it. Following this, they are able to perceive sensory qualities like color, taste and smell. This should not pose a difficulty for my reading for two main reasons.

If I am correct, this would mean that evaluative sensory valence is *intrinsic to* the sensory perception in question. For instance, in the case of pain, the evaluative sensory valence is properly a part of the sensory content of the perception. In contrast, aesthetic valence would be *extrinsic to* the sensory content of the perception, strictly speaking. This might seem to contradict some of the comments I make above regarding how consonance, along with other kinds of aesthetic valence that Descartes mentions like gustatory pleasure, seems to have a kind of sensory phenomenology. However, it is important to remember that judgments made at the third grade of sensory response are often experienced as if they are part of the sensation, due to their habitual and hasty nature. Thus, while aesthetic valence is strictly extrinsic to the sensory perception, it will be experienced as part of it, or at least very tightly connected to it. As stressed above, I find this accommodation of our experience of aesthetic valence to be an advantage of my interpretation.

One might object that the third grade of perception is restricted to the perception of primary qualities, or at least to perceiving qualities that exist in objects mind-independently. This is often the way that it appears -- the passage from the *Sixth Replies* deals with how we can explain the perception of a stick submerged in water. The explanation is that the intellect makes quick, habitual calculations about the primary qualities of the object based on the sensory information it has and comes up with the erroneous perception that the stick is bent. However, Descartes does not restrict the

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First, it isn't clear that Descartes is making a strict distinction -- he merely writes that young children are most aware of perceptions of pain and pleasure, but that when the body is not being harmed or benefitted in any way the mind perceives other sensory qualities. However, even if there is a distinction being made here, Descartes' point is an ontogenetic one, which is consistent with the evaluative sensory valences of pleasure and pain being present at the same grade of sensory response as the perception of other sensory qualities. Thanks to an anonymous reviewer for calling this point to my attention.

third grade of perception to these qualities. He explicitly states that another element that often accompanies sensory experience, the experience of secondary qualities resembling their causes or belonging to external objects, is the result of this grade.<sup>21</sup> In addition, there are arguably other kinds of judgments that fall into the third grade of perception as well (*e.g.* identity, persistence, etc.).<sup>22</sup>

A further question that we must answer deals with how the third-grade judgment of aesthetic valence is formed, and in particular, on what basis it is formed. With other judgments of this kind, we are provided with a sketch of how it happens. For instance, in the case of at least some instances of spatial perception, Descartes thinks that the intellect makes a series of calculations.<sup>23</sup> What is going on in the case of consonance? As we have already seen, it “is not absolutely the sweetest things that are the most agreeable to the senses, but those which tickle them in a more tempered [*temperée*] way...” (AT XI: 151, translation mine). In another passage from his correspondence with Mersenne, Descartes writes:

...You ask whether one can discover the essence of beauty. This is the same as your earlier question, why one sound is more pleasant than another... In general, ‘beautiful’ and ‘pleasant’ signify simply a relation between our judgement and an object... I cannot give any better explanation than the one I gave long ago in my treatise on music... “Among the objects of the senses, those most pleasing to the mind are neither those which are easiest to perceive nor those which are hardest,

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<sup>21</sup> “Suppose that, as a result of being affected by this sensation of colour, I judge that a stick, located outside me, is coloured...” (AT XI, 437/CSM II, 295). For an explicit defense of the view that third-grade judgments are not restricted to primary qualities, see Simmons, “Cognitive Structure”.

<sup>22</sup> For a more detailed discussion of how Descartes thinks that sensory experience can be embellished by other mental states, see Lähteenmäki, “Orders of Consciousness”.

<sup>23</sup> What these calculations are based on and how they are performed is the matter of some debate (see Arbini, “Theory of Sense Perception”; Hatfield, “Natural Geometry”; Maull, “Cartesian Optics”; Simmons, “Cognitive Structure”; Wilson, “Perception of Primary Qualities”; & Wolf-Devine, “Visual Spatial Perception”), but a full discussion of this issue is outside the scope of this paper.



but those which are not so easy to perceive that they fail to satisfy fully the natural inclination of the senses toward their objects nor yet so hard to perceive that they tire the senses” (AT I, 132-133/CSMK 19-20).

In this passage, Descartes indicates that there are some objects, or properties of them, that are more or less taxing on the senses.<sup>24</sup> However, while that ease or difficulty gets encoded in the sensory idea, it isn’t what determines how pleasing we ultimately find the sensation overall. That final determination is based on a comparative analysis that amounts to a kind of aesthetic principle. We might call it the ‘Goldilocks Rule’: generally, humans have an aesthetic preference for stimuli that are neither too ‘easy’, nor too ‘hard’, but somewhere in the middle.

The ease or difficulty will depend on a number of factors, of course. The first will be the stimulus itself – in the consonance case we might think that simpler correspondences of tones will be easier to perceive. If so, then octaves (2:1) will be easier to perceive than fifths (3:2), which will in turn be easier to perceive than major thirds (5:4), etc. In addition, there might be certain physiological idiosyncrasies about the perceiver that might affect the initial ease or difficulty of the perception.<sup>25</sup> In the three-stage model we have been discussing, this would all show up in the second stage of perception (i.e. whether the interval in question is perceived as sweet or harsh, regardless of whether it is subsequently perceived as pleasant). It should be noted that, while there might be some difference between individuals regarding the perception of

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<sup>24</sup> The passage in the *Compendium* that Descartes references here comes from Chapter II, Praenotatum 7.

<sup>25</sup> Descartes writes of how a person’s mood can affect the character of a perception: “... It is easy to see that the sole inequalities that are between the [spirits] must suffice to determine between one [sensation] and the other, just as oftentimes the same action which is agreeable to us when we are in a good mood can displease us when we are sad and sorrowful... We can draw from this the reason for all that I have said above concerning the humours or inclinations that are natural or acquired, which depend on the difference between the spirits” (AT XI, 196, translation mine).

the stimulus at this stage, these will all deal with the perception of how the stimulus interacts the individual's physiology, as is characteristic of the second stage.

However, this initial ease or difficulty will then be complicated by further idiosyncrasies about the perceiver, which will differ more markedly between individuals. For instance, these might include personal history and experience. Take the example of an experienced musician as compared with a novice or child. The experienced musician might prefer music with a high concentration of dissonant intervals, like Richard Strauss or Schoenberg, while the novice listener might prefer music with a high concentration of consonant intervals, like we find in simple songs or lullabies. According to Descartes, this would be a result of the experienced musician having more facility in their listening comprehension – they will find the more consonant music too easy, failing to hit the sweet spot prescribed by the 'Goldilocks Rule'. In contrast, the less experienced listener might find the dissonant music too challenging given their level of listening comprehension and will thus prefer something that is 'easier' to perceive. In the end, though, it will be a matter of judgment that determines how agreeable a particular case is, based on the foregoing factors.

## **6. Conclusion – Resolving the Puzzle**

So, how does all of this relate back to our initial puzzle? Recall that the original puzzle was that Descartes clearly indicates that sensations are meant to guide the subject. One of the main ways they do so is through what I called 'evaluative sensory valence': an agreeable or disagreeable character that informs the subject of the benefit or harm offered by sensory objects. However, the object of a perception of musical consonance or dissonance poses no obvious benefit or harm to the subject, despite being partially defined in terms of its agreeability. How does the picture we've sketched fix this problem?

First, Descartes draws a principled distinction between evaluative sensory valence and aesthetic valence. This distinction allows evaluative sensory valences to play the functional role that Descartes seems to assign to them without aesthetic valence serving as a strict counterexample. I have suggested that aesthetic valences are best understood as judgments at Descartes' third grade of perception, while evaluative sensory valences are present at the second grade. Understanding aesthetic valences in this way makes sense of both their sensory phenomenology and Descartes' repeated insistence that they are separate from the 'sweetness' of the sensation (i.e. the sensory material of the second grade of perception). It also provides a way for us to understand his remarks that we judge their agreeability based on the 'Goldilocks Rule'.

I will briefly discuss some of the upshots of this analysis before concluding. The first deals with how we should understand the relationship between these two kinds of valence. Just as the second-grade perception of colour plays a role in the third-grade assessment of size and shape (AT VII, 436-437/CSM II 294), the evaluative sensory valence of a perception plays a role in the assignment of aesthetic valence. It is rare that rotted food is found pleasurable to eat, or that a broken bone is judged to be a pleasing sensation. And even in the situations where this is conceivably the case,<sup>26</sup> the character of the sensation in the second grade is part of what determines the assessment in the third grade. In addition, it might be that Descartes' 'Goldilocks Rule' of aesthetic enjoyment itself serves a kind of ecological function, albeit a more removed and fungible one. It does not seem to far-fetched to think that seeking out aesthetic experiences that challenge us enough, without being too challenging, is something that

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<sup>26</sup> One could argue that certain culinary delicacies that involve mold introduction and fermentation are an example of the former. Similarly, one might cite the case of masochistic pleasure as an example of the latter.

is beneficial for us to do. However, even if this were to be the case, it would be a different function than the one served by evaluative sensory valence, whose role is to report directly on the ecological value of its object.

The second upshot of this account is that we have a better understanding of the evaluative element involved in sensation, and the ecological role that Descartes says that it plays. Sensations convey information about the benefit and harm of their objects partially through what I have called ‘evaluative sensory valence’ – an agreeable or disagreeable feeling that occurs as part of the second grade of perception. Sensory responses can also carry aesthetic judgments in the form of what I have called ‘aesthetic valence’ – an agreeable or disagreeable character that is assigned as part of the third grade of perception. This in turn shows that Descartes’ understanding of sensory perceptions is highly nuanced and that he understands it to be capable of even more than one might have initially thought. It also expands on our existing understanding of the third grade of perception. Not only do we see how it can have a specifically aesthetic contribution to sensory experience, but more generally we see that it is capable of characterizing and shaping sensory experience in more ways than interpreters have conceived. Finally, it shows that Descartes had a more considered theory of aesthetic pleasure than many have thought. Rather than being an area in which he dabbled in his youth in the early *Compendium Musicae*, we see it as a thoroughly incorporated part of his broader philosophical views.

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