



# MONASH University

## **Representationalism about qualia**

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## **Abstract**

This thesis aims to challenge a variety of representationalist theory of mind – what may be called reductive wide representationalism or externalist representationalism – which asserts that phenomenal characters (or qualia) of perceptual experiences are completely determined by representational contents assuming that since representational contents, like all other propositional contents, are externally determined, so are phenomenal characters. The principal claim of this paper is that there is a gap between phenomenal characters of an experience and its representational content: even if all representational facts were given, we would not have a complete explanation about relevant phenomenal facts. In my view, no matter how much the theories of representational content can be refined, there is always going to be phenomenal residue. Furthermore, this version of representationalism cannot explain why certain phenomenal characters co-occur with certain representational contents since the link between them seems contingent. That is, representationalism is not immune to the typical explanatory gap problem. While most contemporary discussions about representationalism have focused extensively on vision and visual qualities, I focus particularly on audition and its distinctive features. I think that audition-centred examples can help to build a strong case against reductive wide representationalism by revealing what might have been overlooked in the vision-centred examples.

## Declaration

This thesis contains no material which has been accepted for the award of any other degree or diploma at any university or equivalent institution and that, to the best of my knowledge and belief, this thesis contains no material previously published or written by another person, except where due reference is made in the text of the thesis.



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## INTRODUCTION

In contemporary philosophy, there is a tendency to discuss the problem of consciousness with respect to two aspects of the mind: intentionality and phenomenology. It is commonly held that we are in intentional (or representational) states when the mind instantiates intentional properties and we are in phenomenal states when the mind instantiates phenomenal properties. Typically, intentional states are referred to as propositional attitudes that have content (often described in *that* clause in English) whereas phenomenal states are referred to as subjective and qualitative states which are typically characterized as “what it is like to” be in such states. Accordingly, we can characterize the discussion about the problem of consciousness in two corresponding ways: the problem of intentional states (properties, processes, events) and the problem of phenomenal states (properties, processes, events). This way of distinguishing the problem of consciousness may roughly, although not precisely, correspond to Chalmers’ (1996) characterization of the “easy” and “hard” problems of consciousness. Given that in contemporary philosophy, cognitive science and psychology, there is a tendency to take the problem of intentional states – states such as thoughts, beliefs, desires, etc. – to be functionally analyzable, the problem of intentionality may be referred to as the “easy” problem of consciousness in a sense that it is tractable by the standard scientific methods although Chalmers’ easy problem is not necessarily the problem of intentionality but the problem of functionally analysable mental states. The problem of phenomenology is, however, what makes the problem of consciousness really “hard” since it is (arguably) not tractable in the way the “easy” problem is handled. This way of distinguishing the problem of consciousness corresponds to Block’s (1995) distinction of two concepts of consciousness: access consciousness and phenomenal consciousness. Although these two concepts of consciousness often interact, access consciousness, according to Block, is essentially intentional (representational), cognitive and functional concept whereas phenomenal consciousness is essentially experiential and non-functional concept which is



characterized as what it is likeness. Block also points out that it is phenomenal consciousness that has been thought to be a mysterious and baffling aspect of the problem of consciousness.

Although many philosophers agree with the idea that the approaches to the problem of consciousness can be characterized in two distinctive ways on the assumption that intentional (or representational) states are sharply distinguishable from phenomenal states, there have been recently several attempts to fill out the (alleged) gap between the two kinds of mental states. The crucial question, then, is whether and how intentionality is related to phenomenology and what is the nature of their relationship. Much of the disagreement rests on the question of whether one is reducible to another. It may be that reducing intentionality to phenomenology is one possible solution and reducing phenomenology to intentionality is another. The representationalist theory targeted in this paper is in the line of the latter solution. It tries to bridge the gap between intentionality and phenomenology of the mind by reductively explaining phenomenal facts (properties, events, processes) in terms of intentional or representational facts (properties, events, processes).

The term “representationalism” has two different senses; it is used to refer to a theory of perception and a theory of consciousness. Representationalism as a theory of perception aims to deal with the intentional features of perception and representationalism as a theory of consciousness aims to analyze the phenomenal features (also often called qualia) of experiences in terms of intentional (or representational) contents. It seems obvious that the representationalist account is often taken to be a promising theory of perception which can replace sense-datum theory and make a physicalist account of perception possible. What is less obvious is whether the representationalist account can offer a solution to the problem of phenomenal consciousness. The primary concern of this thesis is whether the representationalist approach to the intentionality of perception can explain the phenomenology of perception – the “hard” problem of consciousness.

Representationalism is primarily motivated as a response to difficulties for the sense-datum theory. Jackson (2004: 108), as a former sense datum theorist and now a representationalist, states

that representationalism is what you get when you want to repair the failing of the sense datum theory and proceed to a transformed theory in a better way. The sense datum theory is indirect realism. Unlike direct realism, it asserts that we do not directly see things in the world, but we see them only through a perceptual intermediary called a sense datum. The sense datum theorist assumes the existence of sense data which are claimed to be some sort of mental objects that possess the properties of the objects of experience and which mediate between a perceiver and the world. On this view, our color experience of seeing a red tomato, for example, is explained in terms of our direct awareness of a sense datum that is red. It seems that the sense datum theory has some theoretical advantages over direct realism. It enables us to make sense of non-veridical perceptual experiences such as illusions and hallucinations. On this view, one may merely say that upon having hallucinatory experience of seeing a red round object when there exists no red round object in the physical environment, what are seen by a subject are not real physical properties, but redness and roundness sense data. The theory, however, faces some serious difficulties with respect to the ontological status of sense data. If sense data exist, where are they? How can sense data – purely immaterial entities - interact with material things in the world? Unless one is a dualist about mind and body, it seems highly implausible to accept that there are such things as sense data which are located somewhere outside neurophysiology of living organisms, but which somehow correspond to physical things in the world. It is mainly for this reason many contemporary philosophers who embrace physicalism about the mind take representationalism as an attractive alternative to the sense datum theory. Representationalism, as another form of indirect realism, promises to offer a theory that is compatible with the physicalist account of mind and body.

Representationalism, like the sense datum theory, provides an account that preserves the nature of experience through the properties of objects of experience. However, representationalism, unlike the sense datum theory, is not committed to the existence of sense data – the intermediary mental objects that are claimed to somehow correspond to real physical objects. Instead, representationalism appeals to the intentionality of mind - the special capacity of our mental states

to represent things in the world. As Brentano (1874) points out, intentionality is a distinctive feature of the mental: our mind has a power to represent things to be a certain way. Most commonly, intentionality is referred to as the mind's aboutness or directedness: when we are certain mental states, our mind is directed to things other than itself. Although all mental states are not intentional, it is no exaggeration to say that the majority of mental states are intentional. What is characteristic of intentional states is that they have intentional (or representational) contents – what is delivered to a subject in those states. Typically, propositional attitudes like beliefs, desires, hopes, etc., require intentional contents. We do not just believe, desire and hope, but we believe, desire and hope something to be the case. Intentional contents are often specified as *that* clause in English language – i.e., “I believe *that* Paris is the capital of France.” By virtue of having intentional contents, our mental states represent things in the world in a certain way. The same propositional attitude can have different intentional contents and different propositional attitudes can have the same contents. For example, we can believe, wonder or hope that it will snow tomorrow, and we can believe that it snows, it rains, or it is sunny now.

The notions of intentionality and mental content are central to a representationalist theory of perception. Representationalism treats perceptual experience like propositional attitude (i.e., beliefs). On this view, experiences also represent things as being a certain way just as propositional attitudes like beliefs and thoughts represent certain aspects of the world. When you see a red tomato on the table, for example, you are not directly aware of something mental that is red (a red sense datum, for example), but what you are aware in the experience is the redness the tomato is represented to have. When we perceive, we perceive things external to ourselves. My seeing that there is a red tomato on the table represents the fact of being a red tomato on the table. In this sense, perception, like belief, has intentional (or representational) content – what is seen, heard, touched, smelt and tasted.

Representationalism is a common factor theory of perception: it allows that veridical and non-veridical perceptions have something in common – both veridical experiences and non-veridical

experiences may have the same intentional contents. The non-veridical cases of perception – the cases of illusion and hallucination, then, can be handled in terms of the nature of intentional states. What is special about intentional features of mind is that intentional states can be in error: in other words, our mind has a capacity to misrepresent. On a standard account, the contents of perception are construed as accuracy or satisfaction conditions under which experience is accurate or satisfied. This way of understanding derives from the parallel between the content of perception and that of belief (or utterance) in the philosophy of language. In both cases, the contents possess semantic properties such as truth values (Siegel 2013). When I believe (or say) that Paris is the capital of France, my belief (or utterance) is true just in case Paris is the capital of France. The truth value of the content is transmitted to the truth value of belief or utterance. If the content of beliefs (or utterance) is true, then my belief (or utterance) is also true (Siegel 2013). Likewise, when I see that there is a red tomato on the table, my visual experience is accurate just in case there is a red tomato on the table. The cases of illusion and hallucination are inaccurate or non-veridical perceptual states just in case the conditions under which the experience does not represent the way the world is. We can have all sorts of different beliefs. For example, we can form beliefs about Santa Claus or witches: we can believe that Santa Claus lives in the North Pole or a witch flying on a broomstick, but Santa Claus or a witch does not need to exist for us to have beliefs about them. In such cases, we just have false beliefs, and yet, our beliefs are still real - Santa Claus or a witch is the intentional object of our belief. On the representationalist account, the same can be held for illusions and hallucinations. For example, one can see that there is a flying pig when there is no pig flying in one's physical environment. In this hallucinatory case, it can be correctly said that one's visual experience is real but false. This is to say that one's experience wrongly represents the way the world is - one is having non-veridical or inaccurate experiences. This is how representationalism handles the problem of non-veridical perceptual experiences without appeal to the ontological commitment to sense data. This is what makes the representationalist theory promising in the contemporary physicalist picture of mental states.

In understanding the representationalist construal of the perceptual content, the analogy of the content of a story may be helpful. Dretske (1995: 35-36) offers one useful division; representational vehicle (say, the brain) and representational content (say, the mind). Representational vehicle is itself representational: it is a thing (or a condition) that represents. Representational content is what is represented: it is a condition (or a situation) the representational vehicle represents as being so. In the case of a story, it is conceded that representational vehicle is analogous to the words that tell the story and representational content is analogous to the information the story conveys. We can have a story about dragons, but it does not matter whether something is actually a dragon since we cannot find one anywhere in the book or (perhaps) anywhere in the world. But we still can have a story about dragon as it is represented by the words written in the book. Likewise, what is represented to a perceiver does not exist in the representation vehicle that is the physical states of the brain. But we can entertain rich contents that the representational vehicle conveys.

Thus far, I have discussed about how representationalism can manage to explain the intentionality of perception. However, it is important to be aware that the intentional features do not exhaust perceptual experiences. It is common ground to take a perceptual state as a hybrid mental state that is constituted of intentionality and phenomenology. When we are in perceptual states, we not only represent the world to be a certain way, but also experience the way the world is represented to us. We see that there is a red tomato in front of us, but at the same time, there is a certain way the tomato looks to us. This qualitative aspect of an experience - what it is like to undergo experience is often called the phenomenal characters or qualia.<sup>1</sup> At the physiological level, the phenomenal characters or qualia of perception seems to correspond to the distinctive way each of five sense modalities functions. What it is like to see is different from what it is like to hear, smell, taste and touch. If we do not handle these phenomenal aspects in the discussion of perception, we would miss the most crucial part that constitutes our rich conscious life.

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<sup>1</sup> The term “a quale” or its plural form, “qualia” are confusing terms used in many different ways in literature. Taking qualia as phenomenal character of perceptual experiences is one of the influential uses of the term (see Tye 2015 for more details).

Typically, perceptual experiences are by and large both phenomenal and intentional (or representational). What it is like for a subject to see a red tomato co-relates to the representational state that there is a red tomato on the table. If our interest is on the issue of how to make sense of phenomenal consciousness – our subjective, qualitative, phenomenal aspects of the mind, then, it is significant to determine the relationship between intentionality and phenomenology of perceptual experience. The question is how the representational (or intentional) content of perceptual experience is associated with its phenomenal character (or qualia). How is it that the content of perceptual experience that represents the things in the world as being a certain way brings about qualia to a perceiver when s/he is entertaining the content? Representationalism about consciousness tries to answer the question by grounding phenomenal characters (or qualia) of perceptual experience in its representational content, and further tries to specify the nature of phenomenal consciousness in representational terms. There have been many disagreements and doubts over the representationalist claim that representational features of experience can ground its phenomenal features. The issue is whether representationalism can provide a complete account of the nature of perceptual consciousness or it should remain a theory of intentionality of perception.

This thesis aims to examine some difficulties that seem to arise when the representationalist theory of the problem of intentionality is extended to the problem of phenomenal consciousness in the case of perceptual experience. I attempt to rebut the two assumptions underlined in representationalism: one is that the representationalist's move from a vision-specific theory to a general theory of perception can be justified given that much discussion in literature has extensively focused on visual experiences, and the second is that the hard problem of consciousness can be resolved by reducing one kind mental facts (phenomenal facts) to another kind of mental facts (representational facts). This thesis aims to indicate that the outcome of the discussion of the first assumption may help to rebut the second assumption. That is, I would like to suggest that if it turns out that representationalism cannot adequately explain the phenomenology of experience in sensory

modalities other than vision (in particular, I will focus on auditory perception), then, we have reason to take it unlikely to be the most plausible theory that can settle the hard problem of consciousness.

In Chapter 1, I will examine a form of representationalism which is mainly proposed and defended by Dretske (1995), Lycan (1996), and Tye (1995, 2000). This form of representationalism I am concerned to challenge is known as the externalist representationalism or reductive wide representationalism since it tries to explain phenomenal characters (or qualia) of experiences in terms of representational contents which are secured not by internal, intrinsic states but by external circumstances of a perceiver. In chapter 2, I will introduce and examine the recent discussions about the nature and metaphysics of sounds. Sounds are traditionally considered to be grouped as qualities along with colors and smells. However, following Casati and Dokic (1996, 2015), Pasnau (2009) and O'Callaghan (2007), I will endorse the view that construes sounds to be event-like particulars rather than properties. On the basis of this, will I argue in Chapter 3 that auditory experience is beyond the scope of the wide Russellian content which the representationalist wants to endorse as the content of perception. In Chapter 4, I will present a putative counterexample in a metaphysical case: the inverted pitch hypothesis – an auditory analogue of the inverted color spectrum. Finally, I will suggest that there are reasons for thinking that the difficulty for the representationalist to explain auditory phenomenology can be viewed as the problem of the explanatory gap between qualia and representational content rather than the problem of specifying a more refined and sophisticated theory of representation.

## CHAPTER ONE

### WHAT IS REPRESENTATIONALISM?

#### 1. Representationalism

##### 1.1. Reductive Wide Representationalism

The purpose of this chapter is to take a close look at the version of the representationalist account targeted in this thesis. Representationalism (or intentionalism)<sup>2</sup> is about phenomenal consciousness which can be characterized as what it is like to undergo certain mental states. The core idea of representationalism is that phenomenal characters (or qualia) of experiences are completely determined by representational contents. The underlying idea is that since intentional properties are prior to, and more fundamental than phenomenal properties, the way the intentionality of perception is treated can be extended to the way the phenomenology of perception is treated.

Representationalism comes in various forms which can be categorized in a few dimensions: weak/strong, reductive/non-reductive, and narrow/wide versions (Lycan 2015). The weak representationalism is a supervenience thesis that phenomenal properties are supervenient on the representational properties.<sup>3</sup> The strong representationalism is an identity thesis that phenomenal character of experience is identical with its representational content. In other words, phenomenal character of experience is wholly constituted by its content. Main defenders of this version include Dretske (1995), Tye (1995, 2000), Lycan (1996). Another useful division is that of reductive and nonreductive versions. The reductive representationalist holds that qualia are exhausted by representational properties whereas the non-reductive representationalist holds that representational properties cannot be characterized without reference to the notion of qualia. We can also distinguish

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<sup>2</sup> Representationalism is also called intentionalism. For the sake of brevity, I will use the term representationalism instead of intentionalism assuming that these two terms are interchangeably used in literature.

<sup>3</sup> Note that the supervenience thesis does specify the nature of qualia. It only asserts that any two representationally identical experiences have the same qualia. Since a mere representational property itself does not suffice for its corresponding phenomenal property, some theorists try to determine the nature of qualia by determining what sorts of representational contents can be taken to be equated with (or a base of supervenience of) qualia. Such theorists and their theories are the main interest of this thesis.



narrow and wide representationalism. Representationalism is narrow if it maintains that qualia are determined by narrow contents which supervene on the internal, intrinsic states of one's head. This version of representationalism is also called the internalist representationalism. Representationalism is wide if it maintains that qualia are determined by wide mental contents which are specified in part by external circumstances outside one's head. This version of representaitonalism is also called the externalist representationalism. The main defenders of the strong representationalism tend to maintain the reductive and wide dimensions as well.<sup>4</sup> However, since Tye (2009) has recently announced that he no longer holds strong representationalism though he still maintains the supervenience thesis, I will concentrate less on strong/weak dimension and more on reductive/non-reductive, and narrow/wide dimensions. Mainly, I will have the supervenience thesis in mind for the discussion in the remaining of this thesis assuming that refuting weak representationalism automatically amounts to refuting strong representationalism. So, the reductive wide representationalism will be the primarily intended target of the discussion. In sum, the reductive wide representational thesis asserts,

Phenomenal characters (or qualia) of (perceptual) experiences are supervenient on representational contents which are characterized without reference to the notion of qualia.

Qualia are wide in a sense that they are determined by one's relation with external physical things in the environment.

From now on, I will use the term representationalism to refer to this version of representationalism throughout the thesis.

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<sup>4</sup> Of course, one may accept non-reductive representationalism while maintaining a strong representationalist position that intentional properties are identical with qualia if s/he contends that representational properties cannot be characterized without reference to qualia.

## 1.2. Representation

Inheriting Brentano's (1874) insight that intentionality is the mark of the mental, Lycan (1996:11) says 'the mind has no special properties that are not exhausted by its representational properties.' Typically, the representationalist takes it as true that all mental facts are representational facts. We humans are in essential representational organisms. To have a mind means to have intentionality – a capacity to represent the world in a certain way. Phenomenal consciousness, on this view, is explained in terms of such intentional features of the mind. It is claimed that the fact that one represents the world to be a certain way, or one's experience has representational content is what makes one phenomenally conscious. Then, it is natural to wonder how we should specify mental representation. How is it that the mind instantiates intentional (or representational) properties?

Dretske (1995) offers a biological functional theory of mental representation: perceptual representations, on this view, are explained in terms of having a biological function to indicate sensory properties. Dretske (1995:2) writes,

The fundamental idea is that a system, S, represents a property, F, if and only if S has the function of indicating (providing information about) the F of a certain domain of objects.

The way S performs its function (when it performs it) is by occupying different states  $s_1, s_2, \dots, s_n$  corresponding to the different determinate values  $f_1, f_2, \dots, f_n$ , of F.

For example, a speedometer represents the speed of a car by occupying different states, '60', '80', etc. which correspond to the different speeds of a car, 60 mph, 80mph, etc. The speedometer's job is to provide information about how fast the car is running. Indicating the different speeds of a car is what a speedometer is designed to do. A thermometer represents the temperature of a room by its mercury's pointing out different numbers, 21°C, 34°C, etc. which correspond to the different room temperatures. Its job is to indicate temperature since it is designed to do so. What is important in this understanding of the notion of representations is that there can be always a possibility of misrepresentations. The representational systems can misrepresent the world if they fail to function.

There can be a mismatch between what is represented and what actually is in the case of malfunction. If a speedometer, for example, is out of order, it can represent the speed of a car by having its needle's point out '60' when the car is actually running 80mph. That is, the speedometer is capable of indicating that something is so-and-so when it is not so-and-so.

Dretske's tries to offer an account of what mental representations are by appeal to the analogy of a speedometer. The idea is that just as artificial representations in a speedometer, perceptual representations in a living organism are explicable in terms of information providing function. Mental representations in humans operate in accordance with the same principle that governs representations in speedometers. So, according to Dretske, it can be said that our perceptual system S represents a sensory property F if S has the function of indicating the F of certain objects. It does perform its job by occupying different representational states corresponding to the different values of the property F. Upon seeing a red tomato, for example, one's experience attributes redness to the tomato. This is to say that the function of one's visual system is to indicate the redness of the tomato. This is how our visual system is designed to do. '[T]he senses yield representations of the world, not just because they deliver information about the world, but because that is their job' (Dretske 1995: 5). Dretske has also stressed the idea that that the perceptual system, just like a speedometer, can sometimes misrepresent. As a result, our visual experience, if it fails to provide correct information successfully, may represent a green tomato when there is a red tomato (in the case of illusion), or even when there is none (in the case of hallucination). If the representational content of visual experience can be evaluated in terms of the visual system functions successfully as it designed to do, it can be said that misrepresentations are inaccurate or false representations.

Similarly, Tye (1995, 2000, 2011) offers a causal covariation theory (or tracking representationalism) according to which "[e]xperiences represent various features by causally correlating with, or tracing, those features under optimal conditions" (Tye 2000:64). On this view, optimal conditions (or normal conditions) are viewed as conditions in which there are no abnormal circumstances. For example, in optimal conditions, the position of the pointer of a speedometer

represents how fast a car is running by tracking, or by causal correlation with the speed of the car. Likewise, the height of the mercury column in a thermometer represents how hot a room is by tracking, or by causal correlation with the temperature of the room under optimal conditions. On this view, there can be also misrepresentations of speed or temperature just in case optimal conditions do not obtain - a speedometer or a thermometer is malfunctioning, for example.

It is worth noting that Lycan's (1987, 1996) view, though he accepts the core idea of reductive wide representationalism, differs from Dretske's and Tye's in that he thinks there is a hierarchy in mental representations. Whereas Dretske and Tye defend the first order representationalism (what Dretske calls a "*horizontal* theory" (1995: 104)) that does not require a higher order thought or experience to make a mental state conscious, Lycan holds a higher order theory of consciousness – what is called HOP (Higher Order Perception) or HOE (Higher Order Experience) theory – which requires a subject to have a higher-order experience to make a lower-order mental state conscious. The higher order perception (or experience) works as an inner scanner that monitors one's own mental states. On this view, my headache is conscious experience just in case there is a higher order perception of it – my awareness of headache. Although the higher order representationalism is an influential theory of consciousness, it is a matter of controversy whether conscious experience requires higher order mental states (Thus, the discussion about this issue is beyond the scope of this thesis). For clarification, I will be concerned with the first order representationalism. I do not think that this will affect my argument in this thesis since it seems clear that Lycan, like Dretske and Tye, holds reductive wide representationalism which is the intended target of this paper.

### **1.3.Intentionalizing qualia**

Since representationalism holds that all mental states are representational states, phenomenal characters or qualia of perceptual experiences are, on this view, automatically representational insofar as 'what it is likeness' is a characteristic of mental phenomena. So, the idea is that once

representations are understood, phenomenal consciousness is also understood. Lycan (1996) calls this ‘the hegemony of representation.’ He writes (1996:11),

It would follow that once representation itself is understood, then not only consciousness in our present sense but subjectivity, qualia, “what it’s like,” and every other aspect of the mental will be explicable in terms of representation together with the underlying functionally organized neurophysiology, without our positing any other ingredient not already well understood from the naturalistic point of view. I do not think there will be any “problem of consciousness” left.

Lycan here indicates that there is no explanatory gap between representational facts (states, properties, events, processes) and phenomenal facts (states, properties, events, processes). Once we are given the explanation of what mental representations are, then, we are given the explanation of what phenomenal consciousness is. The hard problem of consciousness – the problem of phenomenology of the mind or the problem of phenomenal consciousness – will be resolved once an adequate account of representations is available.

Since, according to the representationalist, not all representational states are phenomenal, but all phenomenal states are representational, it is argued that the phenomenology of perception is entailed by the intentionality of perception, but not vice versa. Then, it would follow that only a certain subclass of representational contents is responsible for phenomenal characters of experiences. Thus, what is a central issue to representationalism is how to specify the relevant representational contents since the nature of qualia will be determined by the nature of a certain kind of mental representations.

Assuming that there is a special kind of representational content (that can be also called ‘phenomenal content’ that determines phenomenal characters of experiences), Tye (1995: 137) attempts to define what such contents consist in. He construes phenomenal characters as a sort of representational contents that meets three qualifications: the relevant content should be Poised, Abstract, Nonconceptual Intentional Content (in short PANIC). Tye equates phenomenal characters

of experiences with PANICs: If any two experiences have the same PANICs, then, they have the same phenomenal characters. Any phenomenal differences in experiences can be explained by the relevant differences in PANICs. First, the content is required to be poised: It plays a distinctive functional role between perceptual modules and cognitive modules by causally influencing certain beliefs or thoughts. How things phenomenally appear, for example, is causally responsible for perceptual beliefs as to how they are. Second, the content is also required to be abstract: It refers to properties but not to particular objects – that is, particular objects do not enter the content. The representations of properties rather than of objects are what matters to phenomenal characters. And the last and perhaps more important qualification is that the relevant content is to be nonconceptual. It does not require a perceiver to possess any concept to specify the content. This would support the idea that perceptual experience is not just a species of perceptual beliefs. Moreover, the representationalist takes this up to explain how our inner world is full of rich mental phenomena while our pool of concepts is so limited. For one to have visual experience of colors, one does not need to have color concepts since our color experiences outrun our judgments about colors. We can experience, for example, all different ranges of red shades without corresponding names or thoughts for it. According to Tye, for a state to be phenomenal, it is important to meet all three conditions. Perceptual states which are nonconceptual but not poised, for example, do not have phenomenal characters.

## **2. Qualia**

### **2.1. Teleology and Evolution**

If representations are understood as information providing function (as Dretske proposes) or causal covariation under optimal conditions (as Tye proposes), it is natural to wonder how perceptual states or perceptual systems acquire such functions. Unlike intelligently designed artifacts such as a speedometer or a thermometer whose job is given by a human agent's intention,

the job of perceptual systems in humans (and non-human biological organisms) should be given in a different way. If humans are a designer of a speedometer, who or what is a designer of a biological representational system? Or, who or what fix the condition of optimality (or normality) in which a representational system correctly causally covaries with the external features in the environment? Contemporary philosophers who endorse the teleological approach try to offer an explanation of how biological systems obtain functions without appeal to the intention of the omnipotent and omniscient beings. Thus, it is quite natural that the representationalist explains the biological function or optimal conditions in terms of biological evolution and natural selection.

The story goes like this. Our perceptual system S has the function of indicating a sensory property F (of a particular object) because S has been selected in the evolutionary processes governed by the principle of natural selection. It can be said that S has been naturally selected and evolved to perform the function for the adaptive and survival values of individuals or species. Just as the heart has evolved to have the function of pumping blood, our perceptual system has evolved to have the function of indicating sensory properties. That is, representational contents of perceptual states are secured by functions which are fixed by evolutionary design. If this is right, it will justify the idea that mental contents are wide since what determine contents in the end is largely dependent on factors in evolutionary processes. In this sense, Dretske (1995: 126) writes,

Not only does the Representational Thesis make what one thinks and feels externally determined, that one thinks and feels is likewise hostage to environmental and historical circumstances.

The consequence of this view is that since phenomenal characters are determined by representational contents, they are also secured in the context of evolution and natural selection. The representationalist thinks that phenomenal characters of experiences are phylogenetically fixed. This view is also consistent with the doctrine that phenomenal characters are construed to be the nonconceptual representational contents as Tye (2000:56) writes,

On this view, through learning we can change our beliefs, our thoughts, our judgments but not (by and large) how things look and feel (in the phenomenal sense of these terms). Having acquired the concept microscope, say, we can come to see something as a microscope but we do not need concepts simply to see. Once the receptor cells are matured, it suffices to open the eyes. No learning or training is involved.

## **2.2. Qualia as represented properties of represented objects**

One important motivation for representationalism is the doctrine of the transparency or diaphanousness of experience. As G. E. Moore (1903: 25) points out, experiences are transparent to us since “[W]hen we try to introspect the sensation of blue, all we can see is the blue: the other element is as if it were diaphanous.” Representationalism holds that the qualities you are aware in introspection of your perceptual experiences are qualities not of experiences themselves but of external objects represented in your experiences. It is central to the representationalist idea that representational facts – the properties of the represented object are distinguished from facts about representation – the properties of a representation of that object. According to Harman (1990), this distinction can be best described as analogous to pictorial representation assuming that there is symmetry between mentally imagining something and a picture of something. Consider a picture of a unicorn. The properties of a pictured unicorn are having four legs and a single horn. The properties of the painting of the unicorn are being flat and being covered with paint, not having four legs and a single horn. Similarly, an imagined unicorn, just like a pictured unicorn, is imagined as having four legs and a single horn, but not as either a mental activity or anything mental whereas the actual imagining of the unicorn is a mental activity (Harman 1990:35). Given that all the confusions about phenomenal characters of perceptual experiences often arise from our tendency to conflate these two kinds of properties – the properties of the represented object and the properties of the representation itself, Harman finds it crucial to acknowledge that these properties are very different. The point is that if you experience redness in your introspection, for example, you do not



experience it as a property of experience itself (your experience itself is not red, and no lesions in your brain is red), but you experience it as a property of a represented object (a redness of a tomato whether the tomato actually exists in front of you or not). In Dretske's (1995) terms, it can be said that what we are aware of in experiences are qualities of representational content, but not qualities of representational vehicle.

The representationalist takes up the doctrine of the transparency of perceptual experiences to make a further physicalist claim that qualia are properties of external objects (if they are properties of anything since qualia might be properties of purely intentional objects in the case of hallucination). If phenomenal characters (or qualia) of an experience are properties that determine what it is like to be in such an experience, if they are properties in virtue of which experiences are individuated, they are, the representationalist argues, best explained in terms of representational contents. For what makes one experience phenomenally red-experience and the other phenomenally blue-experience depends on what properties our experience represents things to have. What it is like for one to see a red tomato is not a matter of one's experience's redness but a matter of the tomato's redness. In this sense, qualia, for the representationalist, are defined as "a subset of ordinary physical properties" (Dretske 2003:72), "qualities of external things" (Tye 2000:51), or "the introspectible qualitative phenomenal features that characteristically inhere in sensory experiences." (Lycan 2001:1). Qualia, for example, include the redness of a tomato or the greenness of a cucumber of which we are directly aware when we attend to how things appear in introspection. If these qualities are changed from red to green, for example, your experience changes phenomenally – from what it is like for you to experience red to what it is like for you to experience green.

Thus, it can be correctly said that for the representationalist, qualia (or phenomenal characters) of perceptual experiences are objective and publicly accessible properties such as colors, shapes, smells, pitches, etc. of objects of experience. By being aware of such properties, by representing them to be a certain way, we are phenomenally conscious. If such properties come into the right sort of representational contents, experiences come to have phenomenal character. That is, "qualia are

really representational contents of experiences \*having\* qualia or \*having\* a phenomenal character” (Tye 2015).

### **2.3. Phenomenal externalism**

If it is right to say that qualia are understood as representational properties of represented objects, then, one will have to deny that qualia are intrinsic properties since representations (or intentionality) are in essential relational. To represent things in a certain way is for a subject to stand a certain relation to a certain property of particular things or events. On this view, by being aware of properties represented in experiences, we are aware of phenomenal characters. It is further claimed that qualia – redness of a tomato, for example, are properties not of anything internal to subject, but of external physical objects. By being aware of such qualia, we have phenomenally conscious experience – a phenomenally red experience. This is to say that qualia are also essentially relational: we undergo experiential and qualitative states by standing a certain relation to certain sensory properties of external objects. The representationalist also takes such a relation to be externally determined. Since all representational contents are externally determined (or they are wide contents) and all phenomenal characters (or qualia) are representational contents (or they are supervenient on representational contents), it follows that all qualia are also externally determined (or they are wide). This view is often called phenomenal externalism and extensively defended by philosophers who endorse reductive wide representaitonalism (see Dretske (1995), Lycan (2001), and Tye (forthcoming)).

The distinction of internalism and externalism has been applied to discussions in contemporary epistemology, philosophy of language and philosophy of mind. Roughly speaking, the basic idea of content internalism is that mental contents are supervenient on what is inside the head: mental contents are narrow. Content externalism denies this. It says that mental contents are dependent on factors external to a subject: mental contents are wide.

From Putnam's (1975) Twin Earth example originally designed to show that meanings of linguistic utterances are not entirely determined by one's psychological states, one can infer that it is possible for molecular-for-molecular identical twins to have different thoughts if they are located in different environments where their contents are fixed differently. The idea is that some thought (or propositional) contents are determined in relations between subjects and the environment. Since the representationalist believes that qualia of an experience are determined by representational content, s/he, not surprisingly, argues that qualia are also determined by relations between a perceiver and the environment.

On the assumption that phenomenal characters or qualia of experience are exhausted by wide representational content, the representationalist inherits this idea and apply to our understanding of phenomenal character or qualia of experience. Phenomenal externalism is the view that qualia or phenomenal characters of an experience should be understood not in terms of what is going on in the head but in terms of a relation between a perceiver and the environment. It says that in order to have certain types of experience (red experience or blue experience, for example), it is necessary for a perceiver to stand a certain relation to the environment. The core premise underlying phenomenal externalism is that if we have no reason to believe that externalism about content is false, then, we have no reason to believe that externalism about qualia is false. This claim is clearly summarized in Dretske (1995: 130)'s quote.

If different sense experiences are not experiences of different internal objects, why should we suppose that persons that do not differ internally could not have different experiences? They can have different parents, wives, and friends – not to mention thoughts and desires – without differing internally. Why not different experiences?'

Phenomenal externalism, thus, allows that any neuro-biological duplicates whose physical states are identical at certain time can have phenomenally different experiences at that time. That is, it is possible that any neuro-biological duplicates can be in phenomenally different states if they are in different surroundings.

### 3. Case against representationalism

Representationalism holds that any phenomenal characters are representations, and thus, any phenomenal differences are representational differences. Thus, roughly speaking, there could be three kinds of cases against the representationalist claim: 1) cases in which there is phenomenal characters but no representational content, 2) cases of the same representational content but different phenomenal characters, and 3) cases of the same phenomenal characters but different representational content. If these counterexamples are successful, it would implicate that representational content is neither a sufficient nor a necessary condition for phenomenal characters of experiences. But, as it turns out, it seems very hard to come up with any plausible examples – either empirical cases or metaphysically cases - which suffice to refute representationalism.

The representationalist response to counterexamples is to deny that qualia and representational content can come apart. To the objections from various counterexamples, the basic strategy the representationalist can take is to refine the way representational contents are specified. The idea, then, is that any phenomenal differences can be understood in terms of representational differences. And, as it will turn out soon, the representationalist always seems to find a way to account for qualia in representational terms. In the following, I will show a few famous counterexamples that have raised puzzling questions about the representationalist's understanding of qualia.

#### 3.1. Afterimages

##### - *Qualia without representations*

There could be a case in which phenomenal characters are present but there are no relevant representational content. Imagine you are visually experiencing a red image just after a camera flashbulb has gone off. The dilemma is this: certainly, you are seeing red spot but you are not seeing something red actually existing in front of you: that is, you are experiencing phenomenal redness without representing it as properties that external objects have. This apparent phenomenal

experience of redness involved in experiences of afterimages can pose a metaphysical difficulty for representationalism since your phenomenal redness experience - what it is for you to see redness seems to be detached from your having an external relation to the redness of an actual object. In this sense, Boghossian and Vellman (1989) think that explaining seeing afterimages is beyond the capacity of representationalism. They (1989: 93) write,

The after-image is thus like a coffee-stain on a picture, a feature that occupies a location on the picture without representing anything as occupying any location. Similarly, an adequate description of the after-image requires reference to two kinds of locations – location as an intrinsic property of features in the visual field, and location as represented by the resulting visual experience.

What is challenging for the representationalist is that s/he has to find a way to make sense of the afterimages experiences based on relations with properties external to a perceiver without appeal to the existence of nonphysical objects such as sense data. Replying to Boghossian and Vellman who take afterimages experiences to be veridical experiences, the representationalist argues that afterimages experiences are a sort of illusory experiences on the grounds that our mind's have capacity of having purely intentional object. Recall that on representationalism, qualia are not of an experience but of a represented object in experience. So, it can be said that the greenness of the after-image can be explicable in terms of the properties of intentional (or representaitonal) objects. The intentional objects of visual experiences may or may not actually exist just as we can have beliefs or desires about nonactual, nonexistent objects (i.e., beliefs about unicorns, witches, etc.). So, Lycan (2001) argues that the greenness of the after-image that is occupying such-and-such a region of your ordinary visual field right now is the represented color of a nonactual, nonexistent thing. Seeing afterimages, on this view, can be accounted in terms of properties instantiated in nonacutal but physical (intentional) objects rather than in actual but nonphysical sense-data. (The same goes for the case of hallucinations: a hallucinated color property is the color exemplified in a nonacutal, nonexistent object represented by experience).

### 3.2. Trees

- *The same representational content but the different qualia*

Peacocke (1983) invites us to imagine a case in which you look at two trees at the roadside – one is one hundred yards from you, and the other two hundred. Your experience represents the trees as being of the same size, yet, there is some sense in which the nearer tree looks to you bigger than the other because the nearer tree is taking up more of your visual field than the other. This feature in visual experience, Peacocke argues, cannot be captured by representational terms since a representational property of being the same size alone cannot explain the whole of your experience. Nonetheless, it is not deniable that one tree looks to you bigger than the other in a qualitative sense. Peacocke (1983:12) says, “The experience can possess this feature without your having any concept of the feature or of the visual field: you simply enjoy an experience which has the feature.”

There is a move the representationalist could make in reply to this challenge. S/he would introduce a more sophisticated way by which representational content can be analyzed. For example, Dretske (2003: 78) appeals to the notion of different point of views in order to show that there are underlying differences of representational contents. Not only does your experience of viewing the two trees represent them as being the same size, but also the nearer tree as being bigger than the other. This is so because there is difference between “an object-centered (allocentric)” description of the trees as being the same size and “a perceiver-centered (egocentric)” description of the nearer tree as bigger than the other. Thus, Dretske argues, there is nothing contradictory about the idea that your experience represents both properties – the property of being the same size and the property of the nearer trees being bigger than the other from the different point of views.

Similarly, Tye (2000: 78-79) also argues that Peacocke’s tree example will not trouble representationalism. There is, according to Tye, a distinction between having certain viewpoint-independent and viewpoint-dependent properties: while your experience represents the two trees as having the same size – say, the viewpoint-independent size, it represents the nearer tree as being bigger (relative to a subject’s eyes) than the other – say, the viewpoint-dependent size. And the

experience represents the difference of the trees' viewpoint-relative size nonconceptually. Thus, according to Tye, the phenomenal differences of this sort can be understood in terms of representational content. The experience of seeing the two trees have the same conceptual representational content (the trees are represented as having the same size), but different nonconceptual representational content (one is represented as being bigger than the other). So, he argues, that the phenomenal differences in this case are the nonconceptual representational differences.

### **3.3. Inverted Earth**

#### **- *The same qualia but different representational contents***

The hypothesis of the Inverted Earth proposed by Block (1990) aims to show that there could be a case in which the representational contents shift depending on what environment one is in, but nonetheless, qualia remain the same. Suppose, Inverted Earth is the same as Earth in all respects except two differences: First, the colors of things are systemically inverted with respect to colors of things on Earth. Second, vocabulary and representational contents in regard to color properties are also inverted with respect to residents on Earth. The sky is yellow, the grass is red, etc. for example but Inverted Earthians say that sky is blue and the grass is green, and they sincerely believe so. Imagine that one day, a mad scientist inserted color inverting lenses to your eyes and transported you to Inverted Earth unbeknownst to you. You, due to the inverting lenses in your eye, do not experience any difference at all on Inverted Earth. What it is like for you to see the sky with respect to color is the same as what it is like for you to see the sky on Earth. That is, the sky still looks blue to you. Block argues that as time goes by, your vocabulary and representational contents will shift to match local residents' contents, and yet, your qualia will remain the same. He concludes that qualia, therefore, are not identical with representational contents.

One possible reply to Inverted Earth might come from a phenomenal externalist position. One can simply deny that qualia are narrow. It can be claimed that given that representational contents of perceptual experience is subject to shift when the environment changes, there is no good reason to suppose that qualia do not shift. Perhaps, qualia do shift. Their shift is so slow and gradual (say, from blue to yellow, from green to red) that a perceiver cannot notice any difference of it.

If it is true that, as Block would want to hold, qualia are narrow, it is plausible that there are shared qualia underlying molecular-for-molecular twins' differing intentional contents. If qualia are narrow, then, as Inverted Earth hypothesis attempts to show, when an Earthian with color inversion was transported to Inverted Earth, representational contents would shift but qualia would not. It seems also plausible that when the Earthian took the place of his molecular twin on Inverted Earth, s/he would notice nothing introspectively. Lycan (2001), however, stresses the point that introspective indistinguishability does not mean narrowness since on the standard Putnamian view about mental content, it can be applied not only to qualia but also to the contents of propositional attitudes. Although the Earthian would not notice anything introspectively about the changes of his thought contents, the contents are still wide in the sense that they are externally referential. The Putnamian model tells us that wideness does not entail introspective change under transportation. Even if we suppose that the molecular duplicates share qualia when they have different representational contents, Lycan goes on to say, neither duplicates nor anyone else could have reason to think so. It is because neither duplicate's introspective access reveals any qualia other than the one that is being represented by one's own experience. Following Moore (1903) and Hartmann (1990), Lycan maintains that what introspection reveals are only the properties imputed by the sense to external objects. When having a visual experience of a lemon, for instance, if we try to attend to the phenomenal quality of yellowness in introspection, all that we are able to find is the very yellowness that the experience represents, nothing more. Perhaps, there might be shared features between the molecular duplicates in their perceptual experiences. Yet, Lycan insists that qualia (in his sense: i.e., phenomenal yellowness) are still wide and what might be narrow is a mode



of presentation on the assumption that every representation is accompanied by a mode of presentation under which the relevant quale are represented. The main idea underlying the scenarios proposed for the internalist view about qualia is the supervenience claim that qualia supervene on one's molecular constitution. It allows two molecular-for-molecular identical individuals to have the same qualia but different representational contents in perceptual experiences. Replying to this assumption, Lycan (1996:116-117) draws attention to the problem of inference from the supervenience claim about bodily qualia to that of perceptual qualia. He admits that since the intentional objects of bodily sensations are parts of one's own body molecular duplicates can have the same bodily sensations. However, he argues that the case for bodily sensations should not be generalized to all qualia. Indeed, the nature of bodily sensations and perceptual experiences are not exactly the same. Bodily sensations are themselves conceived as feelings, but we can have perceptual states without awareness of having them. Thus, Lycan (1996:117) asserts that "it is fallacious to infer that since bodily qualia supervene on molecular constitution, perceptual qualia do so too."

#### **4. What is the problem?**

##### **4.1. Mind-body supervenience**

The first problem I want to point out is that representationalism combined with phenomenal externalism seems to be incompatible with supervenience physicalism which has been commonly thought to be an attractive alternative to type identity theory which asserts that mental properties are identified with, or reducible to physical properties. Instead of identifying mental properties with physical properties, supervenience physicalism asserts that the mental properties (states, events, processes) are supervenient on the physical properties (states, events, processes). It tells us that it is logically impossible for there to be two individuals who are identical in respect of physical constitutions, yet, differ in respect of mental states. Since there can be no difference in the mental

without difference in the physical, what it is like to be in a state, on this view, supervenes on the respective internal physical make-up (in the brain). Phenomenal externalism, however, seems to directly conflict this idea. It tells us that any two neuro-biologically identical individuals can be in phenomenally different mental states in case they are located in different environments. So, the important consequence of this view will be the idea that it is possible that the mental is not supervenient on the brain states.

The representationalist advertises their theory as the most physicalist/ naturalist account of mind on the grounds that the theory enables us to analyze qualia in largely naturalistic terms. Suppose qualia are physical properties of external objects or events. Then, the question of what the nature of qualia will be by and large an empirical question. However, the claim that qualia (phenomenal characters) are determined not by physical constitutions of brain status but by our relations to external environmental facts forces us to deny the claim of supervenience physicalism. It may seem that to take this externalist representationalist's route means to give up relatively well-established supervenience physicalism altogether. But, will it be a plausible solution to the problem of consciousness to take qualia out of one's head and locate it in one's physical environments? I will try to propose an answer to this question in the argument of pitch inversion presented in Chapter 4.

## **4.2. From a vision-specific theory to a theory of perception**

In this section, I want to point out the fact that much of the literature on perception, consciousness and representationalism has narrowly focused on visual experience.<sup>5</sup> There is a long tradition of taking philosophy of vision as such to mean overall philosophy of perception. It is not hard to see that the counterexamples that are used to argue against representationalism heavily rely

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<sup>5</sup> Recently, more and more philosophers become to be interested in perception of sense modalities other than vision (See Lycan 1996/2014 and Batty 2010 for smell, Casati and Dockic 1996 and O'Callaghan 2007 for sound, O'Shaughnessy 1989 and Martin 1992 for touch).

on vision and visual properties. In particular, the literature to date on how phenomenal characters of perceptual experience relate to its having contents has mainly focused on color properties: which color properties are represented in experience and how their phenomenology is related to representational content are main questions that have been discussed in the literature on representationalism. When other properties like shape, size, location, etc., are discussed, they appear to be properties concerned in visual experiences.

I think this problem derives from the fact that philosophy of perception traditionally has allowed philosophy of vision to be generalized to the theory of perception. It seems that much of the philosophical and psychological discussions about perception lie in vision and its epistemological role. The assumption here is that the philosophy of vision can represent the whole story of philosophy of perception – if we are given a story of vision, then we're also given a story of perception. This idea is closely related to what Batty (2010) calls “Unification Thesis” which tells us that “certain philosophical issues about perception should be settled in the same way for each of the sensory modalities” (Batty 2010: 513).

It is obvious that we entertain the rich and the most fine-grained experiences through our vision. However, it is also natural to wonder whether what is true for cases of visual experience and color properties is also true for cases of other modalities and their sensory properties. Given that our rich conscious experiences involve not only visual experiences but also auditory, tactile, olfactory, gustatory experiences, experiences in non-vision sense modalities deserve a close attention. It may turn out that the common assumption for the Unification Thesis is wrong. It might be that there can be difference between the way non-vision-specific properties like pitch, smell, flavor, etc., are represented and the way visual properties are represented.

No doubt, vision is the most sophisticated and dominant sensory organ for human, and visual experiences are far more fine-grained than other perceptual-sensory experiences. This does not, however, mean that philosophy of vision can fit in neatly with philosophy of non-vision sense modalities. It is time for us to give some thought to the philosophical trend to treat philosophy of

vision as equivalent to philosophy of perception. In order to establish a more comprehensive theory of perception and consciousness, it is important to re-evaluate the vision-focused philosophical thinking about perception. For this reason, my argument in this thesis will be restricted to sounds and auditions. By doing so, I will endeavor to determine whether the representationalist move from the one-modality specific theory to the generalized theory of perception can be justified.

## CHAPTER TWO

### SOUNDS AS OBJECTS OF AUDITORY PERCEPTION

#### 1. INTRODUCTION

This chapter concerns the question of the nature and metaphysics of sounds. What are sounds? What is their ontological status? There is not much dispute about whether sounds bear audible qualities such as pitch, timbre, and loudness. But there is disagreement about the question of which ontological categories sounds should be located in to complete the whole picture of the metaphysics of sounds: is sound a wave, a property or an event? Accordingly, there are three main ways to determine the nature of sounds in contemporary philosophy: The wave account that construes sounds as waves (Sorenson 2007 and contemporary acoustic physicists/ psychologists), the property account that construes sounds as vibratory or stable dispositional properties (Pasnau 1999, 2000; Kulvicki 2008, 2015), and the event account that construes sounds as located or relational events (Casati & Dokic 1994, 2014; Pasnau 2009; O'Callaghan 2007, 2009).

These three theories offer all physicalist account of sounds that locate sounds in the spatiotemporal domain. And all these theories are reductive theories of sounds in the sense that sounds are identified with physical entities such as pressure waves, or properties of material objects, or events. However, it helps to note that reductive physicalism does not exhaust the explanation of sounds. For example, sounds, in recent acoustic psychology, are often construed as purely psychological entities. Scruton (2009) also offers anti-materialist account about sounds according to which sounds are construed as secondary pure objects which are analogous to something like rainbow or smell. While I am sympathetic to Scruton's new approach to sound, I wonder whether we should introduce a new entity to our ontology if we can do the same job with already available ontological materials. And it seems to me, it is difficult to deny that there are some mind-independent entities that deserve the name of sounds and to which our perceptual experience corresponds. For this reason, I will in this chapter introduce and examine these three main reductive

physicalist accounts of sounds. I think it is significant to decide one's position about the nature of sounds as a starting point of the discussion on representationalism since representational content of auditory experience may be differently specified in accordance to our understanding of what sounds are. If sounds are properties as the property account holds, then, it will be most likely that sounds are represented in a quite similar way colors are represented. If sounds are events as the event account holds, on the other hand, then, there will be a high chance that the way sounds are represented in auditory experience is very different from the way colors and other visual properties are represented in visual experience. In this chapter, I will chiefly argue for the event account of sounds hoping that this will provide a decent basis for further arguments to challenge representationalism of which discussions are mainly centered on visual experiences and visual properties.

## **2. THEORIES OF SOUNDS**

### **2.1. WAVE ACCOUNT**

The wave account identifies sounds with longitudinal pressure waves in a medium such as air, water, helium, etc. in which vibrating objects are present. Sounds are not vibrating objects, but they are pressure waves that are produced by those vibrating objects. Since the wave account holds that sounds are object of hearing, it tells us that we hear neither vibrating objects nor their properties, but we hear waves - the properties of the medium that travel from the vibrating objects. This view is widely received by contemporary acoustic science and has been recently defended by Sorenson (2007). We can find the origin of this view, as Pasnau (1999, 2000) points out, in the ancient and medieval philosophical tradition. For example, Aristotle in *De anima* (II 8, 420b II) claimed that "sound is a certain motion of air" while construing sounds as the objects of hearing like color of

sight and taste of flavour (*De anima* II 6, 418a 13).<sup>6</sup> Inheriting this insight, the wave account claims that sounds are pressure waves that travel through a medium while maintaining that they are objects of auditory perception.

The wave account appears at first sight to make a lot of sense. But, if we take a closer look, it is not hard to see that the theory does not neatly fit in the phenomenology of our ordinary experience of sounds. The wave account of sounds, as seen in Aristotle's view in *De anima*, offers a joint of two claims: 1) sounds are objects of hearing, and 2) sounds are properties, not of the sounding objects, but of the surrounding medium in which sounding objects are present. Pasnau (1999) argues that these two claims are not compatible with each other: one has to be given up in favor of another since if we insist to maintain both 1) and 2), we are led to the unintended consequence that our auditory perception is under constant illusion.

First, if sounds are longitudinal pressure waves, sounds travel through a medium from the point of vibrating objects to the point of a perceiver's auditory system. Second, if sounds are objects of hearing, we should hear them as travelling through a medium from a particular place in which vibrating objects are located. However, do we usually hear sounds travel through a medium? In other words, do we usually hear them move or come from a particular location? As Pasnau (1999) points out, the problem here is that the way we ordinarily experience sounds conflicts the claim that sounds are pressure waves produced or caused by sounding vibrating objects. Certainly, there could be a case of what O'Callaghan (2007: 35) calls an "auditory missile" in which sounds are artificially engineered to be heard to move swiftly from a particular location at a particular distance toward one's ears. This, however, is not the case of the phenomenology of our ordinary hearing. We do not normally hear sounds as travelling through the medium as the proponents for the wave account

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<sup>6</sup> It helps to note that Aristotle's view about sounds can have various interpretations. O'Callaghan (2007), for example, offers a rather different interpretation of Aristotle's conception of sound and hearing appeared in *De anima*. Although Aristotle view is typically ascribed as the wave account, O'Callaghan suggests that Aristotle can be read to think of sounds as 'the movement of an air' in a sense of 'x moves y' instead of 'y is moving.' On this alternative interpretation, sounds are taken to be the movement of an air – a medium's being disturbed by ordinary objects' activities. This for O'Callaghan indicates not the wave account but 'the beginning of the event theory of sounds' (2007: 61). See Johnston (2013) for more discussion regarding reading about Aristotle's conception of sounds.

would want to suggest. Indeed, sounds are usually heard to be located with or nearby vibrating objects.

If the wave account is right to hold that sounds are pressure waves of the surrounding medium, we should hear the location of waves. The phenomenology, however, tells us that sounds are heard to be at some distance, usually near the sounding objects or events. This is to say that the wave account makes our perception of the locatedness of sound systematically illusory. And we are not ready to accept this conclusion since it will alter the whole perceptual ground of our understanding of the world. Thus, according to Pasnau, the wave account is ‘incoherent’ since it fails to cohere with other things that we believe about sound and perception – our belief that auditory perception is generally veridical (1999:315). This difficulty for the wave account encourages theorists to look for an alternative account of sounds.

In a similar vein, O’Callaghan (2007, 2009) also criticize that the wave account cannot be true of the nature of sounds on the grounds that it cannot explain the spatial content of auditory perception. O’Callaghan holds that hearing has spatial content of its own. Hearing grounds our belief about objects located in our surroundings. Sounds seem to be located in a particular direction at a particular distance. We cannot explain this phenomenology of auditory perception in the scheme of the wave theory according to which sounds are proximal rather than distal. Waves travel through medium to the perceiver’s auditory physical system but sounds do not travel as waves do. Although there is a case in which sound is perceived as if it is travelling through the medium, but the sound is perceived so only when the sounding object itself is travelling. However, in normal hearing conditions, sounds are generated at location of their sources and thus, give useful information about the location of those sources. Unlike Pasnau (1999) who discarded the wave account, O’Callaghan, however, inherit its important idea that waves exist in the medium and have durations on the assumption that the wave account can, but the property account cannot capture such spatiotemporal features of sounds. The idea of the sound’s existing in the medium, thus, survives in O’Callaghan’s version of the event account.



## 2.2. PROPERTY ACCOUNT

The property account construes sounds as properties of the sounding objects. This idea appeared in modern philosophers like Galileo and Locke. Locke (1689/ 1975) takes sounds to be secondary properties of ordinary material objects – sounds are dispositions to produce perceptual experiences. He groups sounds with other sensible qualities like colors, smells and tastes under the same ontological category. In alignment with this tradition, the currently available property account in contemporary philosophy of perception may come in two forms: the view that takes sounds to be properties of vibrating objects, and the view that takes sounds to be stable dispositional properties of objects. The former view is defended by Pasnau in his earlier work in 1999 and 2000 and the latter view is defended by Kulvicki (2008, 2015). Note that both views are built up from the tight analogy between colors and sounds. Both views agree that sounds are identified with properties of sounding objects (which are ordinarily taken to be ordinary material objects) just as colors are properties of objects. But they differ in regards to whether sounds are vibratory properties or stable dispositional properties.

Refuting the wave account for the reason discussed in the previous section, Pasnau (1999, 2000) argues for the property theory of sounds.<sup>7</sup> In contrast to the wave account, sounds, on this view, are claimed to be properties not of a surrounding medium but of sounding objects. Pasnau (1999:315) writes,

I propose identifying sound with the vibrations of the object that has the sound. More cautiously, I would say that sounds either are the vibrations of such objects, or supervene on those vibrations.

The motivation for this view is that this understanding of sounds, unlike the wave account, can correctly capture our phenomenology of perceiving the location of sounds. Pasnau draws analogies between colors and sounds based on the fact that we perceive sounds, just like colors, as being

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<sup>7</sup> Pasnau has radically changed his view later in that he does not seem to defend the property account any longer. In his more recent paper “The event of color” (2009), he agrees with Casti and Docki (1994) and argues for the event account of sounds in which sounds are equated with vibratory events of sounding objects.

located at the place where they are generated rather than filling the surrounding medium: seeing and hearing directly, non-inferentially provide information about the locations of colors and sounds at a distance from the body of a perceiver. This is not the case for smell, taste, touch. In this respect, it can be correctly said that seeing and hearing are ‘locational’ modalities while taste, touch, and smell are ‘non-locational’ modalities (1999:313). This is the main premise for Pasnau’s argument that we should take sounds as properties of objects like color.

By inheriting the core idea of Pasnau’s property account that sounds are properties of sounding objects, Kulvicki (2008, 2015) suggests that sounds are stable dispositions of ordinary objects to vibrate in response to being thwacked (or being mechanically stimulated).<sup>8</sup> Kulvicki (2008: 2) writes,

Sounds are stable properties of objects that seem to have them. More specifically, sounds are dispositions of objects to vibrate in response to being stimulated. Sounds are perceived transiently, but they are not perceived as being transient and they are not in fact transient.

Note that Kulvicki holds that sounds are durationless. On this view, sounds are dispositions – stable properties that sounding objects bear. Sounds may perceptually seem to have durations, but in fact, they are not transient. It is typically held that universals such as properties are instantiated in particulars that extend across time and space, yet, they themselves do not essentially have durations. Sounds, as dispositional properties, are revealed by the longitudinal pressure waves in the surrounding medium or vibratory events, but they are neither waves themselves nor any kinds of particular objects or events. Kulvicki calls his view a stable property account or a dispositional account of sounds. Sounds, on this view, are equated to dispositions to vibrate.

The argument by and large depends on a set of analogies Kulvicki draws between colors and sounds. It is important to note that Kulvicki endorses reflectance physicalism about colors mainly defended by Hilbert (1987), Tye (2000), and Byrne and Hilbert (2003), and he attempts to find

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<sup>8</sup> A sound stimulant or thwack plays an extremely crucial role in the framework of the stable property account since Kulvicki believes that thwack should be involved in our perception of sounds. A thwack is to be understood to be a sound stimulant which imparts energy to an object (Kulvicki 2008: 4).

auditory analogues correspond to visual experiences. The dispositional account takes light in color perception to be analogous to thwack in sound perception. Just as colors are stable dispositions of objects that respond to light in a certain manner, Kulvicki argues, sounds are stable dispositions of objects that respond to thwack in a certain manner. Just as light reveals colors of objects, thwack reveals the sounds of objects. Since both colors and sounds are stable dispositions of material objects, it is allowed that sounds do exist in the vacuum just as colors exist in the dark. Light and thwack play a role to reveal colors and sounds, yet, colors and sounds do exist as dispositional properties without light and thwack.

### **2.3. EVENT ACCOUNT**

According to the event account, sounds are concrete temporal particulars. More accurately, sounds, on this view, are equated with event-like particulars rather than object-like particulars. What motivates the event account is the fact that the property account cannot explain the temporal features of sounds. It is an obvious phenomenological fact that sounds exist across time. They begin at a certain time, end at another, and persist over the interval. They happen, occur, and last. It is important to emphasize that such temporal aspects of sounds are what make sounds clearly distinct from visual properties such as colors.

The event account is originally offered by Casati and Dokic (1994, 2014) who identify sounds with the located events - vibration events happening to sounding objects. They call this view a located event theory. Pasnau in his later work (2009) also joined Casati and Dokic in support of the located event theory. On the other hand, O'Callaghan (2007) offers a rather different version of the event account. Sounds, on his view, are identified with events of objects' disturbing a medium. O'Callaghan's theory is sometimes called a relational event theory. According to the relational event theory, sounds are claimed to be 'disturbings' or 'disturbing events' in which a surrounding medium (i.e., air, water, etc.) is disturbed or moved by motion of ordinary sounding objects or

events. This understanding of sounds differs from the located event theory with respect to the fact that sounds are neither a motion of an air nor the properties of vibration or vibrating events of objects, but they are disturbings of a medium – a kind of event that is related to the way a medium is affected by the disturbing activities of ordinary objects and events. It is important to note that sounds, in this picture, are thought to have a distinctive causal role. Sounds are causally intermediate between ordinary objects (or events) and motions in the medium. It is said that the ordinary events such as collisions are not themselves sounds but the cause of the sounds, and the waves in a medium are not sounds but the effects of the sounds.

On the relational event theory, a medium is a necessary condition for the existence of sound (2007:49). Thus, on this view, there can be no sounds in vacuums since there are no medium in vacuums. The medium is claimed to be essential to the existence of sounds. This makes O’Callaghan’s view sharply distinguished from Casati and Dokic’s view. Unlike the relational event theory, the located event theory allows sounds to exist in vacuums insofar as objects are vibrating. According to the located event theory, although a medium is required to transmit information from the vibrating object to the ears, the transmitting medium is itself not essential to the existence of sounds (Casati and Dokic 2014). O’Callaghan, however, thinks that ‘vibrating’ is itself not a ‘disturbing’, but only vibrating in a transmitting medium is disturbing since vibrating could occur in the absence of a medium (2007:66).<sup>9</sup>

### **3. SOUNDS AS PROPERTIES?**

#### **3.1. OBJECTION TO PASNAU’S PROPERTY THEORY.**

In his earlier work (1999, 2000) Pasnau claims that sounds are vibratory properties. If sounds are properties of an object’s vibration, then, it will mean that sounds exist insofar as the object is

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<sup>9</sup> Whether sounds can exist in vacuums (in the absence of a transmitting medium) is an important matter to determine which event theory is more satisfactory account to tell us the nature and the metaphysics of sounds. It is, however, a controversial and unsettling issue in current literature. The discussion for this issue, although it is interesting, is beyond the scope of this paper. So, I will be neutral to the issue of whether sounds exist in vacuums in the discussion in this chapter.

vibrating. This view, however, has to face Berkeley's challenge that objects in vacuums do not make sounds even though they are vibrating (*Dialogue 1*, 171-172). Since there is a case in which there is the instantiation of vibratory properties but no sounds, it can be argued that sounds are not such vibrations, and that the property account, thus, is false. O'Callaghan uses this Berkeley's intuition to argue against the property account. Recall that O'Callaghan thinks that the existence of transmitting medium is a necessary condition for the existence of sounds. The audible qualities such as pitch, timbre, and loudness are dependent upon the transmitting medium such as air, water, helium, etc. Thus, O'Callaghan (2009: 36) argues, it is doubtful whether there is any sound where there is no medium to transmit such audible qualities.

Although I am inclined to think that it is hard for Pasnau's property account to escape Berkeley's and O'Callaghan's objection, it is important to emphasize that their objection does not only target the property account because the same objection can aim to challenge Casati and Dockic's event account in which sounds are equated with event vibrations. Given that the purpose of this chapter is to support the view that takes sounds as event-like particulars, I will not try to settle the issue of whether sounds do exist in vacuums. Instead, I will attend to how Pasnau tries to deal with this difficulty. Pasnau (1999:322) does not think that Berkeley's objection can generate trouble for his view. It is because just as colors exist in the dark where no light is present, sounds exist in vacuums where there is no transmitting medium insofar as there is vibration of objects. As we can see here, what I want to stress is that Pasnau's argument for the property account often simply appeals to the analogous features between colors and sounds. But I wonder whether this argument from analogy really works. What if the nature of colors and visual perception are very different from the nature of sounds and auditory perception?

Obviously, it is not deniable that there are some analogies between colors and sounds. They both objects of perception and they both constitute our experience of the world. Moreover, it seems quite right to say that both colors and sounds convey information about an object's location. Pasnau draws an analogy between colors and sounds based on this fact in order to argue for the property

account over the wave account of sounds. Pasnau, however, on my view, seems to fail to see other non-analogous features between colors and sounds because he focuses too closely on some similarity that both colors and sounds provides locational information. I think, the significantly distinctive features of sounds are their temporal characteristics: sounds are transient. It seems that the temporal aspects of sounds are simply missing in his argument for the property account. No one will explicitly deny that sounds are perceived to have temporal durations/ extents in a different way colors and shapes are perceived. Without explanation of such temporal aspects of sounds, I believe any account for metaphysics of sounds cannot be a complete account of sounds. The fact that vision and audition are sense modalities that involve information about an object's location does not make it plausible that colors and sounds are analogous in all other aspects. While Pasnau is quite right to capture the spatial features of sounds – sounds are perceived to be located near the sounding objects, not in the motion of an air, yet, he seems to fail to see a more salient aspect of sound – its temporal characteristics.

### **3.2. OBJECTION TO KULVICKI'S DISPOSITIONAL THEORY**

The argument for the property account from analogies between colors and sounds (or between visual perception and auditory perception) is more enhanced and more complicated in the dispositional theory. Kulvicki (2008) thinks that colors are a good guide to understanding sounds and that a unified account of vision and audition is not impossible. In particular, he thinks that we can build up a plausible theory of sound as analogous to reflectance physicalism about color defended by Hilbert (1987), Tye (2000), and Byrne and Hilbert (2003).<sup>10</sup> Just as phenomenological and empirical considerations favor reflectance physicalism about color (ex. the phenomenon of color constancy), Kulvicki argues, phenomenological and empirical considerations (ex. the

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<sup>10</sup> One may argue against the dispositional theory on the grounds that whether reflectance physicalism about colors is itself a correct theory of colors is too much controversial. For present purposes, I, however, merely assume that reflectance physicalism is a plausible theory we should take about colors.

phenomenon of sound constancy) favor the dispositional theory about sound. The reflectance physicalism about color tells us that colors are dispositions to respond to light. Likewise, the dispositional theory tells us that sounds are dispositions (or stable dispositional properties) to respond to mechanical stimulation (or thwack).

It is important to note that if we follow this analogy, we are guided to the analogy between the relationship of color to light and the relationship of sound to thwack (or sound stimulant). Thwacks or sound stimulants are central to the architecture of the dispositional theory. For Kulvicki, the version of the property theory advocated by Pasnau has difficulty handling Berkeley's argument from the absence of sounds in vacuums since it fails to see how sounds (as being dispositions) are revealed when mechanically stimulated. It is said that if we involve thwacks or sound stimulants in the picture and take sounds not to be vibratory properties but to be dispositions to vibrate when being thwacked, there will be a case in which sounds are not heard even when they are not in vacuums: sounds are not heard when they are not thwacked. But this is not to say that there is no sound. This is just to say that a perceiver fails to receive pressure waves either due to absence of transmitting medium (vacuums) or due to objects lacking of thwacks. Kulvicki (2008: 3-4) writes,

An object that doesn't vibrate makes no sound, but that is a far cry from saying it has no sounds... an object must be thwacked in order for it to give off compression waves, just as objects must be illuminated if they are to give off light... if sounds are dispositions to vibrate when thwacked, then an object in the dark, sound-wise, is an object un-thwacked or an object in the vacuum...

However, isn't it more common and natural to think that there are analogies between the relationship of color to light and the relationship of sound to its medium (air, water, helium, etc.)? It is commonly held that both light and air are construed to be medium (for anyone who does not identify color with light, or sound with pressure wave) through which we experience color and sound and through which color and sound reveals itself. Kulvicki, however, denies this common analogy on the grounds that it cannot capture the phenomenon of sounds satisfactorily. Thus, to

make sense of Kulvicki's account, we are forced to take one more step in the analogy between colors and sounds: light is analogous to thwack (or sound stimulants). This new analogy is a key strategy for the dispositional theorist to maintain the idea that sounds are properties of ordinary objects rather than individual particulars.

The empirical case to which Kulvicki's argument largely appeals is the case of the phenomenon of perceptual constancy. For example, regardless of the changes of light illumination, the grass looks green both in the sunset and in the sunrise. Hilbert (1987), thus, concedes that colors are properties of objects rather than properties of light. According to Kulvicki, the same interpretation can be made for the case of auditory constancy. We tend to experience the same object (or the same person in hearing human voice) by virtue of perceiving the constant features of sound regardless of various kinds of sound stimulants (thwackers analogous to light illumination). This, just as in the case of color, will tell us that sounds are (dispositional) properties of ordinary objects rather than particular events or properties of sound waves. Although he acknowledges that the dispositional theory is not solely accountable for this situation (the wave account and the event account can handle the phenomenon of sound constancy as well), he thinks that dispositional theory is the best explanation.

It seems to me that drawing analogies the way Kulvicki does requires too much (unlikely necessary) effort for the theory to the extent that the whole theory appears nearly *ad hoc*. First, it seems quite natural to consider that light is analogous to air (or any other form of transmitting medium). Just as light is required for color perception, air is required for sound perception.<sup>11</sup> More serious trouble for the dispositional theory is generated if we pay attention to the dissimilarities between light and thwack with regard to the role they play in perception of colors and sounds. I want to point out that the boundary between thwack and object is not as clear as the boundary between light and object. Light illuminates objects. Our ordinary visual experience reflects a clear

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<sup>11</sup> I'm, again, neutral to the issue of whether sound does exist without medium just as color does exist in the dark. Here, I am talking about our phenomenological experience of sounds or colors rather than actual existence of sounds or colors. The issue of how our experience corresponds to the real world is important to understanding of perception. But the existence of sound or color without medium will be a discussion for another time.



distinction between light and objects. In normal viewing circumstances, we can tell easily which are objects and light. Regardless of the fact that we are projectivists of color who identify color with light or objectivists of color who identify colors with reflectance properties, we are not normally confused between light and objects under normal viewing circumstances. This is not so clear in the case of sounds. Consider sounds of two hands clapping: which hand (right or left?) is a thwacker and which hand is an object that possesses the sounds (the claps) as dispositional properties? Suppose it rains outside. The rain hit the windows. Are we hearing the rain or the windows? The rain hit the grass. Are we hearing the rain or the grass? The thwacker (sound stimulant) is the rain – the liquid from the sky hitting the glass of window and the grass of the ground. However, our experience of hearing the rain is not exhausted by the stable dispositional properties of the window or the grass since there is a sense in which we perceive the properties of the rain. The boundaries between thwacks and objects seem to be quite blurred. So, unlike visual experiences in which we can perceive without conflating illuminants and objects, we are often confused about sound stimulants and sounding objects if we are in real natural environments (when we are not subjects of psychological experiments in the lab).

Furthermore, the dispositional theory attempts to account for temporal characteristics of sounds by appeal to the characteristics of thwacks (or sound stimulants). Kulvicki (2015) does not deny that sounds are perceived to be transient. But for him, sounds merely appear to be transient, but they are actually not transient since sounds are universals - dispositional properties instantiated by material particulars. Then, how is that sounds are perceived to be transient? Kulvicki finds the answer in the characteristics of thwacks: unlike light which is in general stable and lasting, a thwack is normally brief energy acting upon material objects. Notice that the temporal characteristics we often attribute to sounds are switched to the characteristics of sound stimulants. I, then, wonder why we should not take sounds as a result of an event of a thwack striking an object rather than stable properties of objects since we perceive sounds, not sound stimulants, to have temporal durations.

The dispositional account also encourages us to count loudness not as audible properties of sound, but a condition in which sound is heard. This is, in my view, because if loudness is an audible property of sound along with pitch and timber, the dispositional theory will have difficulty explaining why loudness changes with each thwack. It is a phenomenological fact that the same thwack does not change pitch and timber each time, but it changes loudness to a large degree. With each thwack, loudness seems to increase or decrease, but pitch and timber seem to remain relatively constant. When a church bell is thwacked, the sound of the church bell becomes lower and lower until it is completely unheard. So, it seems necessary for the dispositional theorist to take out loudness from the group of audible qualities and to posit in the external environmental conditions. I believe that this will make the dispositional theory less plausible since it demands a big sacrifice for common acoustic psychology and physics which count loudness as one of important audible qualities of sound.

Kulvicki (2015) advertises his view to be simple and fertile. His proposal is advertised to be theoretically 'simple' since it provides a unified account of perception itself based on the analogy between vision and audition. That is, one common line of reasoning is claimed to support both vision and audition. And his proposal is also advertised to be fertile in the sense that auditory experience is complicated by the way of we hear object by noticing the aspects of the mechanical stimulants that reveal sounds just as we see object by noticing the light that reveals colors. That is, Kulvicki believes that auditory experience can be more fertile and complicated by including sound stimulants (thwacks). I agree. Clearly, his view provides a more unified story about vision and audition based on a (allegedly) tight analogy between them. And it makes sound stimulants (thwack) necessary for understanding the nature of sound by virtue of which it expands the scope of our experience of sound to include our experience of sound stimulant and its relation to sounding object. It is not deniable that sound stimulants are also important part that consists of auditory perception. However, although some theory has many theoretical benefits, it will be hard to be accepted as the most accountable theory if it misses the most crucial aspect of the nature of its subjects. The same

thing can be said for the dispositional theory. It is ‘simple’ and ‘fertile’, yet, it leaves out the most salient part of our experience of sound: it fails to capture the temporal characteristics of sounds.

#### **4. ARGUING FOR THE EVENT ACCOUNT**

O’Callaghan describes his event theory of sounds as below (2007:17):

Sounds, I claim, are particular individuals that possess the audible qualities of pitch, timber, and loudness, possibly along with other inaudible properties. They enjoy lifetimes and bear similarity and difference relations to each other based on the complexes of audible qualities that instantiate. Sound sources, among which we count ordinary objects and events such as bells, whistles, and collisions, stand in causal relations of making or producing sounds, but are not at intervals simply qualified by their sounds

In this section, I wish to try to show why sounds are taken to be events rather than stable or dispositional properties. The event account suggests that sounds are categorized as event-like concrete particulars. Sounds are concrete particulars we identify and individuate. Sounds are particulars of some sort - sounds are events that occur, persist, and evolve across changes to their audible qualities. The idea that sounds are events is also supported by our ordinary language practice and psychological considerations. In what follows, I will suggest that the event account is the best explanation of the nature of sounds mainly based on the chief arguments for the relational event theory defended by O’Callaghan.

##### **4.1. PARTICULARITY OF SOUNDS**

O’Callaghan offers two criteria by virtue of which we can think of sounds not as universals but as individuals: they are the criterion of identification and that of individuation. Sound, like an ordinary particular, is a bearer of properties such as pitch, timbre, and loudness and it is itself not

instantiated by other particulars. We can identify sounds based on patterns of audible properties. We can also individuate sounds: we can count and quantify over them based on the sound source and spatiotemporal discontinuity. “As long as the causal source remains the same and the sound is spatially and temporally continuous, it remains a single sound.” (O’Callaghan 2007: 63).

As Cohen (2010: 4) points out, however, the fact that we can identify and individuate sounds is not sufficient for the claim that they are individuals since we can identify and individuate properties, too. For example, color is also a bearer of properties – it exemplifies hue, saturation, and brightness and it is identified and individuated on the basis of patterns of properties it exemplifies. This objection seems to me quite reasonable. Given that the realist in metaphysics will allow for the hierarchy of properties in which properties exemplify further properties, it seems that the identification and the individuation criteria may not be a strong support for the idea that sounds are not abstract universals but concrete particulars. However, the event account can be further supported by other considerations proposed jointly with the identification and the individuation conditions.

## **4.2. TEMPORAL CHARACTERISTICS OF SOUNDS**

According to O’Callaghan, sounds are event-like particulars on the grounds that sounds, unlike colors, do have durations: sounds are transient. Sound begins at time  $t_1$  and (possibly) ends at  $t_2$ , and persists during the interval between  $t_1$  and  $t_2$ . Sound, like many other individual particulars in the world, comes and goes, and it is not repeatable. Sound has its own lifetime which does not correspond to the lifetime of the ordinary object that emits the sound. In this sense, it can be correctly said that sounds are essentially temporal.

One might object that the fact that sounds are transient cannot justify the claim that sounds are concrete event-like particulars since the same temporal features can be ascribed to properties like colors. Cohen (2010) claims that temporality should not be understood solely belong to sound. He thinks the assumption that universals like properties do not have temporal durations and extents is

wrong. Although it is commonly conceded that universals are not located in space and time, it should be allowed that we ascribe spatial/temporal aspects to some properties like color in some experiential cases. For example, “we complain about the excessive duration of redness when stopped at a traffic light (On my proposal, this is probably best understood as a complaint about the duration of a particular instance of redness)” (Cohen 2010: 5). Thus, on this view, it would be a mistake to think that temporal features are only held by sounds. Similarly, Kulvicki (2008, 2015) also concedes that temporal features can be ascribed to colors. Just as sounds are perceived to have duration when mechanically stimulated, colors are perceived to have duration when illuminated. But (according to Kulvicki) it is important to distinguish between how things are and our perception of it. The obvious fact that sounds are perceived to be transient does not mean that they themselves are transient. Sounds merely appear to us transient when thwacked just as colors do under light illumination.

If Cohen and Kulvicki are right to say that the temporal durations do not make sound distinct from colors, it is natural to wonder why sounds, not colors, are normally perceived to have durations. One idea Cohen suggests is that the difference between sound perception and color perception with respect to temporal duration is actually a semantic one – “we more typically ascribe temporal locations/extents to sounds than colors, and we more typically ascribe spatial locations/extents to sounds than colors” (2010: 6), and that this asymmetry in the way we talk about colors and sounds results from the different sensitivity of our perceptual system – “our perceptual systems are more sensitive to spatial than to temporal inhomogeneities in color, but more sensitive to temporal than to spatial inhomogeneities in sound” (2010: 6). Therefore, Cohen argues that it is a mistake to think that the way we ascribe spatiotemporal features to sounds and colors will reflect the metaphysical difference between those sensory modalities.

I think Cohen’s suggestion will not undermine the claim that the temporal duration makes sound distinct from colors in two respects. First, Cohen tends to treat phenomenal difference between sound experience and color experience as if it is a mere linguistic difference. I, however,

doubt that a phenomenological fact can be reduced to a semantic fact. It is true that language could not reflect metaphysical facts. However, it is important to note that we are talking about perceptual experience which is fundamentally based on phenomenology. I wonder if we can talk about perceptual experience without considering phenomenal facts or by reducing phenomenal facts to some other facts such as semantic facts. Second, Cohen seems to provide a mere description rather than an explanation of why. Obviously, we are more sensitive to spatial than to temporal inhomogeneities in color and vice versa in sound. Perhaps, it is because our visual and auditory systems are designed in that way. However, isn't there any reason to prevent us from thinking that we are sensitive that way because sounds bear temporal features – durations, happenings, etc. whereas colors bear spatial features? To say that there is an asymmetry between our perceptual sensitivity to inhomogeneities in sound and our perceptual sensitivity to inhomogeneities in colors with respect to temporal and spatial locations/ extents is not going to say anything new. It is to merely repeat the story that sounds are perceived to be temporal while colors are not. The question that matters here is that of why we are more sensitive to temporal inhomogeneities in sounds than in colors – the question of why our perceptual system is sensitive in this way. Although it is mainly a matter of empirical facts to determine the answer to such a question, in my view, nothing will rule out the possibility that our perceptual system naturally evolves to track the differences between the way sounds are presented to us and the way colors are presented to us because the colors and sounds do have metaphysically distinct structures with respect to temporality and spatiality.

### **4.3. SURVIVAL OF SOUND**

O'Callaghan (2007) argues that sounds and properties differ in regard to the fact that sounds, not properties, survive changes to their qualities and evolve through time. His preferred example is the wail of an ambulance siren. The sound of siren can have varying degrees of pitch changes, but it is not the same way an object loses one color and gains another. Rather, it is more natural to say that the sound of the siren survives across different pitches.

Cohen (2010) objects that the survival of sound is not in good support of the view that sounds are concrete event-like particulars which endure changes of its properties on the grounds that properties like colors can also survive across their qualitative changes. Consider color constancy which is typically known to be the phenomenon in which the perceived color of object remains constant across its qualitative changes regardless of different light conditions. The grass looks green to us under sunlight and also at sunset. Thus, it can be said that color also survives its qualitative changes across spatial regions and different times. However, according to Cohen, the trouble is that the issue of whether sound actually survives changes across its audible qualities is much more unsettling though it *prima facie* appears to do so. On one hand, it can be said that a sound can survive its qualitative changes over a certain time interval. On this view, the wail of the siren sound is construed to be a single, temporally extended sound. However, on the other hand, it can be equally said that a sound cannot survive its qualitative changes during the time on the grounds that multiple individual sounds constitute a single, temporally extended stream. The wail of the siren sound, on this view, is construed as a stream – a collection of multiple individual sounds.

O’Callaghan suggests that psychological considerations and our ordinary language uses both support the survival of sounds. But, according to Cohen, psychology and language pulls both directions equally: the survival and non-survival of sounds. First, O’Callaghan largely appeals to Bregman’s psychological project of auditory scene analysis. The central problem to auditory perception is how we recognize one individual sound in the mixtures of sounds given that the mixtures of sounds that reach our ears is the summed wave from each individual events. Bregman (1990) proposal is that human auditory systems segregate the sensory components from environment into separate perceptual representations called auditory streams. These streams are characterized by audible and spatial qualities and provide the basis of recognizing the environment. Bregman in this analysis treats such auditory streams as objects of auditory perception. Thus, O’Callaghan argues that such auditory streams are best understood to be particulars (2007: 19) that ground the grouping and binding audible and spatial qualities. The idea of auditory stream, for

O'Callaghan, provides strong empirical support for the claim that sounds are particulars. Cohen (2010), however, wonders whether auditory streams in Bregman's auditory analysis should be considered as particulars as O'Callaghan suggests. If they can be seen as a series of multiple individual sounds, then, the Bregman's psychological studies cannot provide a firm empirical basis for the idea of the survival of sound. Indeed, Cohen argues, without denying the existence of auditory streams which constitute the auditory scene, one can hold the view that individual sounds consisting of these streams cannot survive changes across audible qualities while streams themselves can. Auditory scene analysis, on this view, can be best seen as a process of grouping and binding sounds which do not survive qualitative changes themselves. Bregman's auditory scene analysis, thus, may support both ideas: the survival of sounds and non-survival of sounds.

A further point emphasized by Cohen is that some of our everyday language uses can be understood to favor the idea that sound does not survive its qualitative changes. Footsteps, for instance, are heard as a series of multiple sounds (individual steps) with similar qualities rather than a single temporally extended sound that are consisted of distinct qualities (a step, then a silence, then a step). Thus, we can say that we hear a temporally extended stream that is constituted by individual sounds which may have distinguishable qualities. If this is so, it will follow that the ordinary ways of talking about sound does not favor one (the survival of sound) over another (the non-survival of sound), either.

It seems to turn out that it is not easy to defend the idea that sounds survive qualitative changes. I agree with Cohen that it is not an empirically settled matter whether an auditory stream is taken to be a single, temporally extended sound or a series of multiple individual sounds grouped and bound based on pattern of their qualities. If it is right to say that a sound is not a property but an event-like particular, then, a sound will have to survive regardless of its qualitative changes just as ordinary material objects survive in the process of gaining and losing certain qualities. However, there seems to be no reason to take the survival of auditory streams to be the survival of sounds. Perhaps, this difficulty for the event account can be avoided by proposing more constraints to individuating



sounds. O'Callaghan suggests that a change in causal source, or spatial or temporal discontinuity is essential criterion to help us discriminate individual sounds. 'As long as the causal source remains the same and the sound is spatially and temporally continuous, it remains a single sound' (O'Callaghan 2007: 63). Thus, we may be able to deal with Cohen's footsteps case. The sounds of footsteps, although there is no change in the source, are temporally discontinuous: the footsteps are alternated by silence. I think, in this case, we can say that each footstep, as opposed to Cohen's suggestion, is taken to be each auditory stream. If this is so, it will follow that sound can be construed as a stream. However, things are not so clear if we consider further psychological facts aroused from sound experiences. The research shows that binding audible qualities is significantly affected by rapidity of an individual sound. Bregman and Campbell (1970) have shown that auditory streaming effect occurs when subjects are presented with a sequence of six different tones among which three are high-pitched ones and three are low-pitched ones. When the cycle of tones was presented slowly, they were heard in the order. When the cycle of tones was presented fast, they were heard as two streams of tones: high-pitched one and low-pitched one (Bregman 1990:17). This tells us that sounds and streams can be separated. It seems that more empirical studies are required to determine whether the phenomenon of auditory streams can ground the survival of sounds.

It is true that the event account faces some serious problems which are hard to be resolved at the stage of current discussions. However, I think, as O'Callaghan acknowledges, although the event account is not a decisive theory, it is a more plausible theory of sound compared to the wave account or the property account since the temporal characteristics of sounds are best couched in the event account. It is a phenomenological fact that sounds are essentially temporal entities more than colors or shapes are. I also take it likely that the other premises O'Callaghan suggests – the individuation, the identification and the survival of sounds – can jointly (although not individually) provide the basis for the claim that sounds are particulars rather than properties. For me, this gives us enough reason to count the event account as the best explanation of the nature of sounds.

## 5. CONCLUSION

There are two pathways which can be taken if we insist on taking analogies between sounds and colors seriously in determining the nature of sounds: 1) if colors are (dispositional) properties, then, sounds are (dispositional) properties, too. Or, 2) if sounds are events, then, colors are events, too. The option 1) cannot couch the temporal features of sounds as much as the event account can. In my view, any candidate theories of sounds must be accountable about temporal features of sounds. If any account fails to do so, we can reasonably reject such an account as a plausible theory of sounds. Thus, 1) is not an option for the theory of sound since sounds do, but properties do not, have temporal features essentially. The option 2) is more controversial for most people since it requires us to give up the widely held idea that colors are properties of objects. Perhaps, some of us are ready to give up the property view of colors. If we, however, want to emphasize the temporal features of sound and, at the same time, we are ambitious to propose a unified theory of color and sound, I think, 2) may be an option (the event physicalism recently advocated by Pasnau (2009) takes this route).

The problem arises when we want to commit ourselves to somewhere between 1) and 2) like Cohen's and Kulvicki's approaches. We, then, have to ask a fundamental question about the nature of properties as well: are they essentially temporal? Cohen (2010) thinks the distinction between universal and particulars with respect to temporal features is too exaggerating. The commonly accepted theories about universals, however, do not lead us to think that properties are temporal in the same way individuals are (perhaps, except trope theories). If we nevertheless want to insist that properties are essentially temporal, then, we have to give up the whole metaphysical position in which universals are not spatio-temporally located but the individuals who bear those properties are in the temporal-spatial dimensions. And it will be a very hard job to do since it will shake the whole realist view about universals.<sup>12</sup>

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<sup>12</sup> One may argue that such a hybrid theory between 1) and 2) can couch the phenomenology of sounds. For example, Bennett (1988) offers a proposal that identifies events with tropes – abstract particulars. If this view is right to say that event is trope, there is a possibility that sound is (trope-like) property. Whether such a view is plausible is beyond the

So, this time, one may want to hold that sounds are not essentially temporal. This, however, straight away contradicts our intuitions and experiences about sounds. Virtually everyone will agree that we experience sounds to have temporal extents. Sounds are products of time: they happen at some time, disappear at another, and last during the time. Whether sounds have temporal features essentially is what matters to the discussion of the nature of sounds. Cohen (2010) argues sounds are not distinctively temporal on the grounds that the temporality of sounds can be explained as analogous to the temporality of colors: colors have durations, and they do happen or occur. But, I do not find it likely to think that the temporality of sounds is analogous to the temporality of colors in ordinary hearing circumstances. For the way colors do appear in time dimension is clearly distinct from the way sounds occur and persist. My view is that colors do have temporal aspects, but not essentially. The temporality of colors can be explained in terms of relational features: by virtue of bearing relations to concrete particulars that exist in space and time. It follows that colors, other things being equal, last insofar as objects last. By contrast, the existence of sounds does not seem to correspond to the existence of the objects that emits the sounds. Sounds only seem to happen or occur at a certain time for a certain time interval while sounding objects maintain its existence before and after the existence of sounds.

Perhaps, we had better give up the tight analogies between color and sound since, as I have discussed, it does not seem to work in many aspects. The question we should ask at the rock bottom is: what do we get by reducing the phenomenon of sounds to that of something like colors? What are we aiming for from setting up a unified theory of color and sound by explaining the features of sound in terms of the features that attribute to colors? Why should we consider sounds to be as properties just because colors are considered to be as properties? No doubt, vision is the most salient sense organ and visual experiences have the most fine-grained representational content. But this fact does not automatically make it true that audition and all other sensory perceptions should

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scope of the discussion in this chapter. I just want to point out that Cohen's and Kulvicki's arguments against the event theory of sounds presuppose the typical view about properties in which properties are construed to be abstract universals. .

function like vision. We start with vision, and most philosophical theories of perception are heavily based on vision and visual properties (in particular, colors). This does not mean that we could generalize theory of vision to the theory of other sense modalities. Why we do start with vision and analogize audition to vision? Why not start with audition and draw the whole picture of auditory experience, first? There could be many other ways the different sense modalities other than vision can support our perception of the world. Intuitively, it seems that nature provides many different ways for each sense organ to function responding to its proximal and distal stimuli. For me, the event account in this sense is the most attractive alternative to the wave account and the property account since it is a theory that attempts to capture what is distinctive about sounds without grounding the theory of sounds and audition in the analogies of colors and vision.

## CHAPTER THREE

### THE CONTENT OF AUDIORY EXPERIENCE

The notion of content differs along two dimensions: namely, Russellian/ Fregean and conceptual/ nonconceptual content. The representationalist claims that the content of experience is fundamentally (a weak form of) Russellian and that phenomenal character of experience is exhausted by nonconceptual Russellian content. Both claims are central to representationalism.<sup>13</sup> So, in this chapter, I will be concerned with two forms of contents: (wide) Russellian content, and nonconceptual content. In what follows, I aim to show that representationalism has difficulty coping with auditory perception since the (wide) Russellian/ nonconceptual representational content fails to capture common phenomenology of auditory experience in both everyday hearing and musical hearing.

Certainly, the first question to be asked in the case of audition is whether auditory experience is representational though we take it for granted that visual experiences are representational. So, one may want to start from a premise that auditory experiences are not representational. This principal strategy is in fact commonly held by philosophers who challenge the representationalist thesis from arguments based on non-visual sense modalities. For example, olfactory experiences for Batty (2010) are not representational and tactile experiences for O'Shaughnessy (1989) and Martin (1992) are not representational although they all agree that visual experiences can be taken to be representational. I think taking this line to challenge representationalism is quite plausible, yet, for present purposes, I merely assume that auditory experiences are representational. From this as a

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<sup>13</sup> I am concerned with a specific variety of representationalism which may be called reductive/wide representationalism or the externalist representationalism mainly defended by Dretske, Tye and Lycan. I want to clarify that other variety of representationalism, which may be called non-reductive/narrow representationalism or the internalist representationalism, is not my concern for the discussion in this thesis. Again, when I mention the term "representationalism" throughout the thesis I mean by it only reductive/wide representationalism.

starting point, I want to show that the way the representationalist wants to specify representational content will not suffice to explain the phenomenology of our ordinary auditory experience.

## **1. Content of Perception**

### **1.1. Russellian Content**

The content of a perceptual experience, at a minimum level, is understood as its accuracy condition (or correctness condition) under which the experience represents the world accurately (Crane 1992, Siegel 2013). The accuracy condition of experience is often held to be analogous to the truth condition of propositions. It is a commonplace to consider beliefs and other propositions to have contents as truth conditions. Just as a belief inherits the truth value of its content, an experience inherits truth value of its content. For example, your belief that Paris is the capital of France is true only if Paris is the capital of France. Likewise, your visual experience that a ripe tomato is on the table is veridical only if a ripe tomato is on the table. If no tomato is on the table or the color of the tomato is green, your experience is non-veridical: you are hallucinating or having illusions. This idea that contents are accuracy conditions is basic to the understanding of the contents of perceptual experience from which various kinds of contents became available. One of the most influential theories of content says that the content of experience is Russellian following Russell who believed that the contents of mental states consist of the extensions of singular terms and properties expressed by predicates. For example, the belief that Aristotle is bold is composed of the referent of a proper name 'Aristotle' – Aristotle himself and the property of being bold. The belief that Aristotle is bold then can be said to have content [Aristotle (object), boldness (property)]. Likewise, experiences attribute properties to objects: when we visually experience a red cube, my experience represents the cube as being red [Cube (object), redness (property)]. This

characterization of contents is Russellian and representationalism that endorses Russellian content as content of experience is called Russellian representationalism<sup>14</sup> (Chalmers 2004).

The Russellian content view can come in a strong version and a weak version. The strong theory of Russellian content involves both objects and properties: the strong Russellian content involves the very object perceived in experience and the property that the object appears to have. The weak theory of Russellian content involves only properties an object appears to have, but does not involve the object perceived in experience (Siegel 2013). The weak theory of Russellian content has some theoretical benefits over the strong version. It enables us to account for phenomenology that is dissociated from the strong Russellian content. On viewing identical twins Jenny and Jane, for example, one's experience of seeing Jenny and that of seeing Jane have indistinguishable representational content although one is seeing numerically different individuals. Furthermore, there is a case in which any two experiences represent a state of affairs in the same way even when one is hallucinating (when there is no object in one's environment). The weak theory of Russellian content makes such cases plausible since it allows that veridical experiences and hallucinations can have something perceptually common without commitment to the existence of the object one perceives in experience: both experiences attribute the same properties to the object that appear to have such properties. For this reason, most Russellian content theorists defend the weak theory. Tye (1995, 2000) and Dretske (1995) are defenders for the weak theory of Russellian content in clarifying that no particular concrete objects need to enter the content of experience. They think that what it is crucial to phenomenology of perceptual experience is the representation not of objects but of properties that objects appear to have.

The representationalist who endorses the view that the contents of experiences are Russellian can also hold the view that the contents of experiences are wide just as the

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<sup>14</sup> More specifically, Chalmers (2004) calls representationalism of this sort wide/reductive/ Russellian representationalism. Note that not all the theories of Russellian representationalism take this form. There could be narrow/non-reductive/ Russellian representationalism available. The examples given by Chalmers include projectivist Russellian representationalism, primitivist Russellian representationalism and dispositionalist Russellian representationalism which respectively correspond to the theories of colors although one can hold such a version of representationalism without holding the corresponding color theory.

contents of beliefs (and other propositional attitudes) are wide. Content externalism holds that what determine the content of mental states is not in the head, but in the relation a subject bears to the environment. On this view, phenomenal characters or qualia of experiences are equated with the properties of representing contents in a certain way, and general features or qualities attributed in experience are equated with physical features and properties in one's surroundings. Chalmers (2004) calls this sort of wide representationalism "physicalist Russellian representationalism."<sup>15</sup> A phenomenally red experience, on this view, is the representation of a certain wide Russellian content: the representation of physical redness – a type of surface reflectance property. Tye (2000), for instance, is a well-known defender of reflectance physicalism about colors according to which colors are objective and physical properties of external objects (see Chapter 7 of Tye's book for more detail). Representationalism of this sort holds that phenomenal characters of experience are constituted by features or qualities of external things that enter into a certain Russellian content.

It is also worth noting that the typical idea for the representationalist is that experience represents only low-level properties. The low-level properties are thought to be colors, shapes, depth, illuminations, etc. in the case of visual experience. Whereas Tye and Dretske think that such low-level properties are attributed to objects in the perceptual experiences, some philosophers like Peacocke (1992), Siewart (1998) and Siegel (2006) think that experiences not only low-level properties but also represent high-level properties (Siegel 2013). Siegel (2006) proposes what she calls K-properties (or kind properties) as an example of high-level properties represented in visual experience in addition to low-level properties such as colors, shapes, illumination and depth. The instances of K-properties include kind properties – i.e., the properties of being a tree, being a house, or being a bicycle.

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<sup>15</sup> The internalist representationalist can argue for the view that the content of experience is Fregean in the sense that experience represents modes of representation in addition to properties objects appear to have (Chalmers 2004). Although it is an interesting debate whether the content of experience is Russellian or Fregean, for the purpose of discussion, I will remain neutral to the issue of whether one should take Fregean content as content of perception over Russellian content.



## 1.2. Nonconceptual Content

Another important idea of content theory, for the sake of argument, is the idea that two sorts of contents consist in experience: conceptual representational content and nonconceptual representational content. The former is construed as the content of perceptual belief and the latter is construed as the content perceptual experience. The representationalist holds that phenomenal characters of experience are identified with, or supervenient on its nonconceptual content.

Dretske (1995), Tye (2000), Cussins (1990), Peacocke <sup>16</sup>(1989, 1992, 2001a/b) and many others hold the view that perceptual experiences have nonconceptual contents. One may deny this view on the grounds that the content of all mental states are exclusively conceptual. This conceptualist view seems to be capable of characterizing the content of propositional attitudes like beliefs. Believing that a tomato is red, for instance, requires the concept 'tomato' and the concept of 'red'. One cannot form such a belief without possessing the relevant concept. This is to say that the content of a belief is constituted by the relevant concepts: the concept 'tomato' and the concept of 'red'. However, the question is whether the same thing can be said for the case of perceptual experience. Would it be that one cannot see, hear, touch, smell and taste without possessing relevant concepts? It seems that seeing that a tomato is red does not necessarily entail the concept 'tomato' and the concept of 'red'.

The theory of nonconceptual content does not deny that experience has conceptual representational content, but it does object that the contents of our experience are exhausted by conceptual content. On this view, conceptual content can be understood as the content of perceptual judgments and beliefs. What the representatioanlist wants to stress is the idea that there is another kind of content – the nonconeptual content which is shared by subjects with or without concepts. Nonconceptual content, like conceptual content, is considered of as an accuracy or correctness

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<sup>16</sup> Initially, Peacocke argued for the conceptualist theory by claiming that “Only those with the concept of a sphere can have an experience as of a sphere in front of them, and only those with spatial concepts can have experiences with represent things as distributed in depth in space (1983: 7). Since then, Peacocke has withdrawn his conceptualist view and argue for nonconceptualist view about perceptual contents.

condition in the sense that it concerns objective world. But nonconceptual content, unlike conceptual content, does not require concepts or perceiver's possession of concepts. Crane (1992: 141) draws the line between conceptual and nonconceptual contents more formally as below.

[f]or something, X, to believe that a is F, X must possess the concepts a and F. But for X to merely represent that a is F, X does not have to possess these concepts. It is in the latter case that X is in a state with nonconceptual content.

The motivation for the nonconceptual content view includes the possibility that non-human animal (or human infants) can also have phenomenologically significant perceptual experiences. Suppose you and your cat both are seeing a ripe tomato on the table. The conceptualist will say that since all representational contents of experiences are conceptual, your experience has representational content that there is a ripe tomato on the table (it visually appeared to you that there is a ripe tomato on the table), but your cat's experience does not have such a representational content because the cat does not have the concepts of 'ripe, 'tomato' or 'table.' However, isn't it also an intuitive idea that you and your cat have something in common in the experience? It is hard to deny the fact that some objects in the world appear to non-human animals or human infants in a certain way. The puzzle here can be resolved by altering our way to understand the content of experience. If there is such a thing as a nonconceptual content, we can say that it is nonconceptual content which is common to visual experiences held by both you and your cat.

Another motivation is the richness of perceptual experience as opposed to the limited pool of concepts humans can access. Experiences are not to be taken as just a kind of beliefs. For instance, our visual experience of colors outruns our concepts of colors. There exist far more colors than concepts or names by which we can denote such colors. Thus, Tye (2000: 74) says,

...the representational content of visual experience is extremely rich. It operates on a number of different levels and it goes far beyond any concepts the creature may have. Consider, for example, the representation of hue at the level of grouped array. The fact that a patch of surface is represented in my experience as having the concept red<sub>19</sub>. For I certainly cannot

recognize that hue as such when it comes again. I cannot later reliably pick it out from other closely related hues. My ordinary color judgments, of necessity, abstract away from the myriad of details in my experiences of color.

The representationalists' argument against various counterexamples is largely based on the idea that phenomenal characters of experience are its nonconceptual representational content. So, it will be mistake to take conceptual content as responsible for phenomenal characters of experience. For it is possible that any two experiences that are alike with respect to conceptual content can be unlike with respect to nonconceptual content. Consider the case of the inverted color spectrum in which any two individuals have phenomenally inverted experiences with respect to color: on viewing a red object, for instance, what it is like for one to experience red is the same as what it is like for the other to experience green while their verbal/non-verbal behaviours are indistinguishable. According to the representationalist, the inverted color spectrum can be an anti-functionalist argument, but cannot be an anti-representationalist argument since it is possible that the two individuals – Invert and Nonvert - could have the same conceptual content but different nonconceptual content. That is, it is possible for one to be mistaken about their experience: the Invert believes that the object is green (= his experience has conceptual content that the object is green), yet, he experiences that the object is red (= his experience has nonconceptual content that the object is red) (Dretske 1995, Tye 2000). What matters to phenomenology is not conceptual representational content but nonconceptual representational content. The problem arises, the representationalist argues, when we fail to see the gap between conceptual and nonconceptual content.

As opposed to what the representationalist would want to believe, I will argue in what follows that there could be cases in which phenomenology of perceptual experience can go beyond properties of external objects experience represents both conceptually and nonconceptually.

## **2. Two Ways of Hearing**

It is commonly held that there are two different ways of hearing: everyday hearing and musical hearing. In everyday hearing, we tend to experience sounds in terms of ordinary objects or events that emit the sounds. In this case, we are most likely to describe sounds in terms of sound sources. In musical hearing, we tend to experience sounds themselves. In this case, we are most likely to describe sounds in terms of more acoustic and technical terms (Gaver 1993). Suppose that a subject hears a series of sounds. Everyday hearing is when s/he experiences and describes them as a violin playing whereas musical hearing is when s/he experiences and describes them as an array of sounds lasting a few minutes with varying degrees in frequencies and loudness (see Gaver 1993 for a discussion of everyday hearing and see Scruton 2009 for a discussion of musical hearing). In this section, I want to show that phenomenology related with both ways of hearing cannot be traced to the representational content as specified by the representationalist. In each case of everyday hearing and musical hearing, there seems to be additional facts which make any two auditory experiences distinguishable but which easily escape the notion of wide Russellian/ nonconceptual content. So, I want to suggest that the experiential differences in the case auditory experiences may be an indicator for phenomenological differences rather than representational differences.

### **2.1. Everyday hearing**

In this section, I want to show that the wide Russellian content has difficulty specifying the phenomenology of experiencing a sound source. The problem concerning everyday hearing is that of explaining hearing sound sources - ordinary objects or events in terms of representational contents. As I have discussed in Chapter 2, I endorse the event theory of sounds according to which sounds are construed as event-like particulars, not as properties of ordinary objects or events. This creates a further puzzling problem about auditory experience. If sounds are particulars that are immediate objects of audition, how can we explain that we also hear sound sources in everyday

hearing? Unless you are specifically asked to focus on sounds and their audible qualities, you are most likely to hear sounds in terms of sound sources. This is a salient phenomenological feature of audition without which auditory experience cannot be sufficiently discussed.

So, the important question concerns what kind of a metaphysical relationship holds between sound (one particular) and sound source (another particular). Broadly construed, there can be two plausible views available: Let us call them causation view and mereological view.<sup>17</sup> Most commonly, sound sources are thought to be causally related to sounds. That is, sound events are caused or produced by ordinary objects or events. For example, playing of a violin (= an ordinary event) and the sound of it (= a sound event) are causally related. The sound the violin is heard as caused or produced by playing of a violin. This characterization of the relationship between sound and sound source seems to be compatible with our phenomenological considerations as well as everyday language usages. Based on this causation view, Nudds (2001) proposes that perceiving sound sources means experiencing causation between things perceived with different sense. This is to say that our experience of the production of sounds is not purely audible, but, essentially bi-modal. On this view, we “hear” sounds, but we bi-modally “perceive” sounds as produced by sound sources that we can “see” (or “feel”).<sup>18</sup>

The mereological view is defended by O’Callaghan (2011) as an alternative account of how sound sources are connected with sounds. On this view, the relationship between sound and source can be understood as a part-whole relationship. That is, it is conceded that sounds construed as a part are constituents of sound sources construed as a whole. The whole is experienced in virtue of the perception of its parts. In contrast to Nudd’s causation view, the mereological view allows for the purely audible experience of the relationship between sounds and sound sources. On the

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<sup>17</sup> It is also possible to hold the property view according to which sounds are (secondary) properties of ordinary physical objects. Although this view will provide the simplest explanation of how we perceive sound sources in audition, I will not discuss this view as an option in this chapter for the same reason that I have discussed in Chapter 2 where I discarded property theory as an appropriate account of the nature of sounds.

<sup>18</sup> This idea is based on the assumption that sounds and auditory perception are not intrinsically spatial whereas visual properties and visual perception are intrinsically spatial. According to Nudds (2001) who inherits Strawson (1959)’s aspatial account of sounds, sounds are only contingently spatial.

assumption that there exist auditorily perceivable two different events – sounds (=sound events) and sound sources (=ordinary events), O’Callaghan argues that we hear sound sources by hearing sounds. For instance, playing a violin is an ordinary physical event construed as a larger event of which the sound of it is part. You experience the sound as being part of the playing a violin. These two perceptible events are not wholly distinct since they are connected by a relation of parthood.<sup>19</sup>

The problem for representationalism is that the phenomenon of our everyday hearing – our auditory experience of sound sources – is not sufficiently captured by wide Russellian content. Suppose (as the representationalist suggests) that only (external physical) properties enter the content of perceptual experience. Then, the content of auditory perception – the represented properties of represented objects would be properties of sounds themselves if we take it for granted that immediate objects of auditory perception are sounds. So, it would be right to say that our auditory experience attributes audible properties and (arguably) some kinds of spatial properties to sounds. This theory of content, however, seems hard to reflect the phenomenology of our everyday hearing. Hearing experiences usually do not end with sounds and their properties since we seem to hear ordinary objects or events that are somehow related to the sounds. When a train approaches the train station, we hear not only the sound of it but also sound source - the train (= an ordinary physical object) or the train approaching (= an ordinary physical event). The notion of Russellian content as specified by the representationalist seems to cut off the experiential part of sound sources from auditory experience.

One may want to argue that this problem troubles representationalism only when we limit ourselves to the idea that only low-level properties enter the content of perceptual experience. What we need here, one may say, is to allow for more properties other than audible qualities of sounds to enter the content. I, however, doubt that this is a good strategy to deal with the difficulty. Let us consider Siegel’s thesis for high-level properties as an example for the extension of the scope of the

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<sup>19</sup> Casati et. al. (2013) proposes a metaphysical ockhamization of the mereological position. On their view, distinguishing sounds and sound sources are redundant. Since identity relation is stronger than parthood relation, they argue, it is a simpler and thus more economical view that sounds (=sound events) are identified with sound sources (=ordinary physical events).

Russellian content. Unlike Tye (1995) and Dretske (1995) who allow visual experience to represent only low-level properties, Siegel (2006) allows the content of visual experiences to involve higher level of properties other than colors, shapes, illumination and depth. She calls such properties ‘K-properties.’ K-properties are referred as to be the rest of the properties that are standardly taken to be represented in visual experience.

Siegel’s argument appeals to phenomenal contrast between two experiences: Imagine you are presented with pine trees before and after you learned how to recognize pine trees. Let E1 be the experience before you become disposed to recognize pine trees and let E2 be the experience after you become disposed to recognize pine trees. It seems intuitive to hold that there is a phenomenal contrast between E1 and E2 although the trees look to have the same color and shape properties. This phenomenological difference – namely, the feeling of familiarity to pine trees – can account for the claim that your visual experience represents K-property (in this case, a natural kind property - the property of being a pine tree) in addition to the lower-level properties such as colors and shapes.

However, even if we apply this view to auditory perception, I believe, there could be still the gap between representing sounds and representing sound sources. Let us just assume for now that auditory experience represents higher-level properties such as some kind properties. Then, our auditory experience may represent a certain sounds as being a certain kind of sounds – being a complex harmonic with a certain fundamental frequency, for example. However, what we will get as a result is still not about sound sources but about kinds of sounds at best. As long as Russellian content concerns only properties (or physical properties of external objects), it may always exclude the representation of sounds sources or that of the relation between sounds and sound sources.

The discussion thus far is about the fact that the Russellian representational content of perceptual experience may not be suitable for fixing the representational content of auditory perception. However, what if is it that we cannot explain our experience of sound sources in representational terms because phenomenal features of everyday hearing outrun its representational

content? The more serious problem for representationalism is that, I propose, there is some reason for thinking that representing sound source is not possible without appeal to purely audible phenomenology. Suppose you have a new neighbor whom you have never met and heard of. You and your sister are hearing a series of sounds from the neighbor only dimly in the middle of the night. You experience that sounds as of the neighbor's baby's crying and your sister experiences them as of their cat's miaowing. This is a case in which you experience sound and sound source without having any accompanying visual or tactile experience of sound source. In this case, I argue that it is possible that your (verbal or non-verbal) description about everyday hearing can be interpreted as describing what it is like for you to hear a sound.

What it is like for you to hear the sounds is a baby's crying and what it is like for your sister to hear the sounds is a cat's miaowing. I think so for the following reasons: First, it is hard to detect any possible representational differences between the two experiences. The represented qualities of sounds are the same pitch, timbre, and loudness that correspond to the same external physical properties – the same fundamental frequencies, spectrum and amplitudes of pressure waves. And it is also assumed that the sound is coming from the same distance and the same direction. This means that you and your sister are exposed to exactly the same physical structures of sounds. As I have discussed previously, it is hard to think of what further properties of represented sounds have to come into the content in order to experience sound source. Second, it seems that we become to have experience of sound source as a result of some kinds of cognitive processes - our judgments about the sound based on the phenomenology of it. If Nudds (2001) is right to suggest that we may experience some causal relation between sound and sound source, and that such an experience is essentially multi-modal in the sense that we *hear* sounds but *see* or *touch* physical objects that produce the sounds, our experience of the causal connection between what we hear and what we see or touch is incomplete in the given scenario in which seeing or touching sound source is not available. What we are given in the scenario is our memories, background knowledge and phenomenological considerations of the sound itself. It follows that we are most likely to be



involved in reasoning processes to determine sound sources. Third, even when we endorse the parthood relationship between sound and sound source as O'Callaghan (2011) proposes, our experience of the whole is solely based on our experience of the part. That is, experiencing ordinary event such as a baby's crying or a cat's miaowing without seeing the baby or cat cannot be explained without reference to what it is like to hear the sound of it.

All the three considerations will tell us that what it is like to hear a sound comes first, then, experiencing sound source comes next. This will not rule out the possibility that we describe what it is likeness of the given sound in terms of ordinary objects or events when we are not sure of what emits the sound. Indeed, this is our language practice on a daily basis: we are inclined to describe sounds in terms of ordinary objects. And a difference in verbal/ nonverbal descriptions may indicate a difference in phenomenal characters of the heard sound. When asked what it is like to hear the sound, you might say that it is as if a baby's crying and your sister might say that it is as if a cat's miaowing. If I am right to think this is so, the phenomenology of everyday hearing will trouble representationalism with a more serious problem. If it is true that hearing sound sources are grounded on phenomenal characters of sounds rather than any other properties of external objects or events that emit the sounds, Representationalism will have trouble dealing with the phenomenology in everyday hearing in wide Russellian content. This difficulty may indicate in part that the content of visual experience cannot be generalized to the content of experiences in other modalities, and in part that the phenomenal characters of our everyday hearing are not traceable to the representational content.

## **2.2.Musical Hearing**

Everyday hearing does not exhaust all kinds hearing we experience. There is a kind hearing in which we inclined to ignore ecology of sounds but to hear sounds themselves. This kind of hearing is called musical hearing or acousmatic hearing. Upon listening to music, for example, we tend to

completely detach sounds from sound sources (i.e., musical instruments). Musical hearing is an exceptional case of auditory experience in the sense that we hear sounds as dissociated with sound sources. So, in the discussion in this section, we can exclude the complexity of how our auditory experience includes sound source, and instead, we can focus on sound itself.

The specific problem I am concerned with here is that of attention in musical hearing. I will try to show that the Russellian content, even in a case in which perceiving the relation between sound and sound source can be omitted (or ignored), still cannot capture a specific phenomenological effect resulted from one's paying attention to some related features in musical hearing. As I have discussed previously, the representationalist identifies phenomenal characters of experience with nonconceptual representational content. I do not deny that perceptual experiences have nonconceptual content, or that phenomenal characters of experience are somehow closely associated with nonconceptual content. I, however, want to draw attention to the fact that there exist some auditory case in which phenomenology is not completely determined by nonconceptual content. It seems to me that listening to sounds in musical performance involves more than represented audible properties those sounds appear to have at a nonconceptual level: there is a sort of phenomenology that is under influence of attention.

Although there are various definitions of attention in psychology and philosophy, the standard understanding of attention is that it is the process involved in the selective directedness of mind and its instance is a perceptible phenomenon. Attention happens because our perceptual system wants to select some stimuli for further processing and put aside some other stimuli. Suppose that you are at a large party and your friend calls your name. Despite the very loud background noise, you hear somehow your friend calling your name above all the noise. This is a well-known phenomenon called cocktail party effect (Cherry 1953). The problem of the effect of attention is closely associated to the problem of consciousness. One influential debate concerns the question of whether attention is a necessary or a sufficient condition for consciousness. Prinz (2011), for example, thinks attention is necessary and sufficient for consciousness. On this view, attention is claimed to

be responsible for our conscious perceptual experience. Another way to discuss attention in relation with consciousness concerns the question of whether experiential differences as a result of attention effect can be explained in terms of differences in representational content. As Chalmers (2004) and Block (2010) point out, changing phenomenology as a result of shifting one's attention can challenge the representationalist project that aims to reductively analyze phenomenal characters of experience in terms of representational content. Although whether attention is responsible for perceptual consciousness is an important and interesting matter, what is relevant to this paper is the issue of whether change in phenomenology affected by attention is determined solely in terms of representational properties.

Block (2010) in his anti-representationalist position argues that representationalism has difficulty in handling the phenomenal differences resulted from attention shift in the case of visual perception. It is reported that when you fixate at the fixation point and move your attention around, you experience the effects of attention as alterations of perceived contrast, gap size, speed, flicker rate, color saturation, spatial frequency, etc. One example is the Garbo patch attention in the case of perceived contrast (Carrasco 2009; 2004) in which the way the 22% patch looks depends on where the subject is attending. In this experiment, the subject's eyeballs are pointed at the fixation point in the center and s/he attends either to the fixation point or to the figure on the left. The attention effect is that when the subject attends to the fixation point, s/he experiences the relative contrasts: the figure on the right has a higher contrast. The attended items are reported to look bigger, faster, more saturated and higher in contrast. For Block, such phenomenal differences produced by attention shift cannot be accounted for in terms of representational contents. If Block is right, the fact that attention can affect the phenomenology of perception can pose a serious difficulty for representationalism.

There could be a similar case in auditory perception. I will illustrate an episode of musical hearing which is not hard to come by in everyday experience. Imagine that there are two listeners who were equally trained to listen to music (Let us call them L1 and L2): they both have the same

level of knowledge about a score interpretation and musical instrumental technique. Suppose that they go to concert in which a string quartet (consisted of 1<sup>st</sup> violin, 2<sup>nd</sup> violin, viola, and cello) plays some quartet (written by a unknown composer) for the first time in public, and that all other environmental factors are equally structured – i.e., they occupy the exactly same seat so that they hear the playing from the same direction at the same distance. The properties represented in this experience vary across time. So, it seems natural to think that phenomenal characters of the experience are also variable during the time. Its increased loudness when it is being played in crescendo, and its high pitches when 1<sup>st</sup> and 2<sup>nd</sup> violins are emphasized are represented in the content of auditory experience with the corresponding phenomenology. Certainly, there is a time when the two listeners have some phenomenology in common during the play. However, it is not hard to imagine that there is also a time when two listeners' experiences diverge with respect to phenomenology regardless of no changes in representational properties of the series of sounds. It could be that L1 somehow begins to follow the cello when 1<sup>st</sup> and 2<sup>nd</sup> violins are main players for the part, while L2 is enjoying violins playing the impressive theme. It also could be that L2 somehow finds out some supporting line played by viola that is often hidden among other instruments and enjoys its attractive timber for a while and comes back to the cello that has been playing a main theme while L1 is mainly attending to the main theme played by Cello throughout the period. It seems that according to changes in one's attention during the course of musical performance, any two individuals could have different phenomenal character despite the same representational content.

What seems to be obvious in this case is that represented properties of sounds are the same throughout the performance: the represented audible qualities and spatial properties of sounds for the two experience held by L1 and L2 are exactly the same at each time slice  $t_1, t_2, \dots, t_n$ . More specifically, given that the contents of musical hearing are consisted of conceptual content and nonconceptual content, we have reason to hold that the two auditory experiences share the same conceptual and nonconceptual content.

One may argue that the two experiences differ with respect to nonconceptual content but they are alike with respect to conceptual content. What is responsible for the phenomenal differences here is not differences in conceptual content but differences in nonconceptual content. Based on the notion of nonconceptual content, Dretske (1995) makes a further controversial point. He suggests that although we cannot access our phenomenal characters of experience without possessing the relevant concept, this does not mean that our experience cannot have such phenomenal characters. Suppose for example that you are presented with a change of key while listening to a certain musical work. If you do not have a concept of 'a change of key' you are blind to the fact that you are phenomenally and nonconceptually aware of the change of key during the music play. In other words, you auditorily experience the change of key at a nonconceptual level, but you are not aware of the relevant phenomenology at a conceptual level since the concept of a change of key is not available to you. In Dretske's term, there is a distinction between  $seem_p$ ,  $appear_p$ ,  $look_p$ ,  $sound_p$ , etc. in a phenomenal sense and  $seem_d$ ,  $appear_d$ ,  $look_d$ ,  $sound_d$ , etc. in a doxastic sense.

Thus Dretske (1995: 141),

If experiences are distinguished from thoughts, so that  $k$  can  $look_p$   $F$  to you without your believing, or being disposed to believe, that anything is  $F$  (i.e., without anything  $looking_d$   $F$  to you), then it turns out that one may be completely unaware of one's qualia (in the way I was completely unaware of the fact that the music  $sounds_p$  like it is changing key).

This argument from nonconceptual content enables us to understand the case in which phenomenology of perception is under influence of one's background knowledge – perhaps, knowledge about music (and musical theories) in the given scenario. It is not hard to find a case in which any two individuals – one is musically trained, and the other is not - seem to have different phenomenology on listening a piece of musical work. One might argue from here that phenomenal characters of experience are influenced by one's possession of concepts on the assumption that the content of beliefs is constituted by concepts. Dretske's argument then can show that there is a

distinction between perceptual belief and perceptual experience. It can challenge such a conceptualist view according to which perceptual experience is construed as a sort of perceptual belief.

However, it seems to me that such a dispute about conceptual and nonconceptual content is irrelevant to the discussion about the given case. First, all the external properties and environments are the same – this will fix the same relation between a subject and the environment, and thus the same nonconceptual level of representation. Second, the two individuals have the same background musical knowledge – this will fix the same conceptual level of representation. That is, the scenario is designed to show a case in which the experiences held by two individuals have exactly the same conceptual and nonconceptual contents.

The distinction between C-level (Chromatic-diatonic level) and N-level (Nuance level) Raffman (1988, 1993) draws in the case of music representation may help us understand the distinction between conceptual and nonconceptual content in musical hearing. According to Raffman, the C-level of representation is a structural representation of music: at this level, musical knowledge is effable since there can be a verbal report which conveys sensory-perceptual knowledge to another trained listener. The structural features of the music signal are effable insofar as the trained listener can come to sensorily and perceptually know them just by understanding what it is said about them (Raffman 1988:697). The N-level of representation, by contrast, is a non-structural representation of music: at this level, musical knowledge is ineffable since the trained listener cannot have sensory-perceptual knowledge solely in virtue of understanding verbal report about the music. However, we have conscious access to this level of representation, and the knowledge of the contents at this level can be conveyed and communicable only by ostension: one must hear it since nuances are fine-grained details of a performance – features that cannot be captured in the score but can be manipulated in a performance (performance nuances).

First, I can safely assume that L1 and L2 both share the same conceptual content. All facts that may have an impact on a subject's concept to specify contents are designed to be equal by the facts

that both have the same level of musical listening training, and no background knowledge about the musical work and its composer are held by both listeners. In other words, it can be correctly said that L1 and L2 share the same C-level of representation of the music. For instance, if L1 says to L2, “the tone I am hearing is a middle C”, L2 becomes to acquire the sensory-perceptual knowledge of the relevant musical structure. This is to say that they both have the same capacity to make a verbal report about music and to acquire musical knowledge in virtue of understanding what it is said about it. Thus, a difference in experience cannot be a difference in conceptual content. Second, I also hold that L1 and L2 have exactly the same nonconceptual content. If the representationalist is right to say that nonconceptual content completely determines phenomenal characters of experience, s/he must show that the difference in experience of L1 and L2 is difference in nonconceptual content. However, recall that L1 and L2 both are in the same performance. This implicates that they also share the same ineffable musical knowledge, or, N-level of representation in Raffman’s term. Since all the nuances of pitch, timber, and loudness of sounds can be heard in the performance, L1 and L2 share the exactly the same knowledge – a kind of knowledge which is not verbally (conceptually) conveyable. Given that the two listeners have the same level of musical background knowledge (therefore, the same level of musical concepts), I think the fact that they are in the same performance will make their experiences alike with respect to nonconceptual content.

Although there can be a big gap between C-level representation and N-level representation in listening to music, the situation illustrated in the scenario is designed to fill out the gap. The two experiences do not demonstrate the difference between seeming in the phenomenal sense (at a nonconceptual level) and seeming in the doxastic sense (at a conceptual level). This sort of examples, thus, can be immune to the argument that appeals to the distinction between conceptual and nonconceptual content. This means that the apparent phenomenal differences in the scenario will not be located in the gap between conceptual and nonconceptual content. The best explanation for why those two experiences differ, in my view, is that the phenomenal differences are influenced by attention differences. Although we seem to lack empirical studies like the ones performed in

visual perception, we can stipulate how attention influence common phenomenology in musical hearing. The point is that attention is not a property of external objects but an internal process of mind. If it is right to say that attention somehow contributes to the phenomenal characters of auditory experience - what it is like to hear, the phenomenology of musical hearing cannot be explained in terms of the representational content as characterized in the way the representationalist proposes. I do not know of what further features of representationalism and its theory content of perceptual experience can adequately explain the experiential differences influenced by attention.

### **3. Conclusion**

I have raised some doubt as to whether the wide Russellian/nonconceptual content can account for the auditory phenomenology. It is not an exaggeration to say that our auditory experience is exhausted by the two kinds of hearing: everyday hearing and musical hearing. Then, it would follow that representationalism may lose its explanatory force for auditory experience in general. As we have seen above, the phenomenology associated with hearing sound source is hard to be accounted for in terms of the Russellian content, and the phenomenology related to attention is hard to be accounted for in terms of the gap between conceptual and nonconceptual content.

The difficulty for representationalism may be characterized in two ways: First, the representationalist's theory of content may not be suitable for explaining the representational content of auditory experience. This point is grounded on the fact that their theories of contents are developed extensively based on visual perception. Then, it follows that what we need is a more theoretically refined notion of representational content that can specify the phenomenology of audition which is distinct from the phenomenology of vision in many significant aspects. Where it went wrong is the widely held assumption that one can generalize theories of vision to theories of other sensory modalities. That is, the problem is an ambition to generalize a modality-specific theory to a general theory of perception. This way of characterize the difficulty, then, leaves open



the possibility that representationalism requires some degree of calibration and troubleshooting in order to adequately specify auditory content.

Second, it can be thought that representationalism is false on the grounds that the argument from auditory experience may reveal some important fact that seems hard to be detected in visual experience: the fact that the phenomenology in perceptual experience may not be reducible to the representational content. This way of characterizing the difficulty closes the possibility that one can save representationalism by altering the way representational content is specified. Then, it would indicate that we eventually need to give up on representationalism .

## CHAPTER FOUR

### INVERTED PITCH AS A COUNTEREXAMPLE TO REPRESENTATIONALISM

#### 1. Introduction

Representationalism asserts that necessarily, if any two experiences are the same with respect to representational contents, they are also the same with respect to phenomenal characters. If representationalism is true, then, all phenomenal differences of experiences should be explicable in representational terms. So, for representationalism to be refuted, it has to be shown that there could be a phenomenal difference which is not wholly analysed in terms of a difference in representational content. The strategy of my argument in this chapter is not going to be a new one. I am going to present a case of pitch inversion - an auditory version of qualia inversions – in which any two experiences have the same representational content but the different phenomenal characters with respect to pitch.

The most famous case of qualia inversions is the color spectrum inversion according to which your visual experiences are imagined to be systemically inverted with respect to those of mine: when viewing the ripe tomato, for example, you and I both have a visual experience that represents it as red, yet, what it is like for me to look at a red object is the same as what it is like for you when you look at a green object, and vice versa. The color spectrum inversion is originally proposed against functionalism and later against representationalism. If qualia inversion turns out to be a genuine metaphysical possibility, representationalism will be refuted.

Replying to the challenge of the color spectrum inversion, there have been many responses proposed by the representationalist. The primary idea is that experiential difference resulted from color spectrum inversion can be explained in terms of differences in representational contents held by Invert and Nonvert. The particular representationalist's response I am concerned with for the discussion in this chapter is the one suggested by Tye (1992, 1998, 2000). Tye's proposal is that the phenomenal difference with respect to color arises from the fact that Invert and Nonvert perceive a

color differently, and thus, their experiences represent it differently. On this view, Invert, not Nonvert, is thought to be the one who misperceives and misrepresents the color. Invert in introspection is mistaken about his color content since his visual system, unbeknownst to him, is malfunctioning. Furthermore, Tye argues that if it is not the case that Invert's experience is not misrepresentation, the color spectrum inversion is not a metaphysical possibility but a mere conceivability. I will examine these two main objections to the color spectrum inversion in the context of the pitch inversion in which any two individuals share the same representational content, and yet, their phenomenal experience of a given pitch is systemically inverted with respect to another. I aim to show that some sort of pitch inversion cannot be dealt with Tye's way of dealing with the color spectrum inversion.

## **2. Inverted Pitch**

Imagine a pair of neurologically identical twins, Jones and Twin Jones who are musically trained at the same level. Both twins are normal perceivers under normal hearing conditions (None of them is hallucinating). The only difference is that their auditory receptors which are sensitive to certain frequencies in sound pressure waves are cross-wired. So, when one physically identifiable sound note is played by a musical instrument, there is difference between Jones's experience and Twin Jones's experience with respect to pitch. Both Jones and Twin Jones have an auditory experience that represents the sound as G4, and both think and say that it is G4. However, since twin-Jones's pitch is inverted with respect to Jones's the qualities of their experience are different. G4 sounds qualitatively the same to Twin Jones as A4 sounds to Jones. Accordingly, a chord C-Major triad (comprised of CEG) for Jones's experience is qualitatively the same as a chord A-minor triad (comprised of ACE) for Twin Jones's experience. Since what it is like to hear a chord C-Major triad is radically different from what it is like to hear a chord A- minor triad, by just one pitch inversion, Jones and Twin Jones will have clearly distinct experience in a qualitative sense. Let us

suppose this time that all Gs playable on piano keyboard sound the same to twin-Jones in a qualitative sense as all As sound to Jones. Then, it is not difficult to imagine that when listening to Schumann's Fantasy in C major, the auditory experience of Jones and that of Twin Jones even more radically differ in their phenomenal characters – Twin Jones' experience from Jones' point of view will be more like Schumann's Fantasy composed in A- minor in a very uncoordinated form (Of course, there are more kinds of pitch inversion required to transform music completely from C-Major to A-minor. However, for the sake of the argument, the inversion of all Gs and all As will suffice to generate a phenomenological difference in experience of listening to a series of harmony during certain time).

Broadly speaking, the representationalist could respond to the inverted pitch hypothesis in two ways. First, s/he could object that Twin Jones's experience has inverted representational content with respect to Jones. On this view, Twin Jones has malfunctioning auditory system and as a result, he misperceives the pitch. Second, s/he could object that there is no obvious reason to suppose the hypothesis is metaphysically possible though it may be conceivable. Since a mere conceivability does not mean a metaphysical possibility, the hypothesis of the pitch inversion fails to refute representationalism. These two potential replies reflect the whole point of Tye's argument to the case of color spectrum inversion.

Tye (1992, 1998, 2000) argues that the color spectrum inversion is possible for the behaviorally/ functionally identical individuals but it is not possible for the representationally identical individuals. It appears to be possible only because we fail to distinguish a behavioral/ functional difference and a representational difference. But, in fact, the phenomenological difference of experiences held by Invert and Nonvert upon seeing a red tomato, for example, can be explained in terms of the underlying representational difference: my experience represents it as red but your experience represents it as green.<sup>20</sup> Your experience is mistaken because your visual system is

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<sup>20</sup> The presupposition here is that though qualia inversion hypothesis can challenge functionalism which equates qualia with functional properties, it cannot challenge representationalism since it is allowed that any two representational systems can have indistinguishable behavior and capacity, but can have distinguished representational states.

faulty. Likewise, in the case of the pitch inversion, Tye will say that Jones' and Twin Jones' experiential difference is in fact a difference of representational content – Jones' experience represents the given pitch as G4 but Twin Jones' experience represents the given pitch as A4. By virtue of having two different representational contents, on this view, what it is like for Jones to hear and what it is like for Twin Jones to hear are phenomenally different. Thus, if anyone is mistaken about his own experience, it is Twin Jones whose auditory system is not working properly.

In what follows, I wish to show that there is no decisive reason for thinking that the phenomenal difference in Jones's and Twin Jones's pitch experiences is a representational difference. In particular, I want to emphasize that there are limitations on what Tye can say about the inverted pitch hypothesis. The first part of my argument corresponds to the first objection that Twin Jones misperceives the given pitch. The second part corresponds to the second objection that the inverted pitch hypothesis is not a genuine metaphysical possibility.

### **3. Optimality and Teleological Account**

Tye offers a causal covariation representational theory. On this account, a sensory state causally covaries with a perceptual quality under optimal (or normal) conditions. Experiences represent perceptual qualities by tracking them under optimal conditions. Tye says more formally, (Let S be a sensory state of a creature C) "S represents that P = df If optimal conditions were to obtain, S would be tokened in C if and only if P were the case; moreover, in these circumstances, S would be tokened in C because P is the case" (2000:136). He also wants to emphasize the counterfactual aspect in the thesis as described above: what matters is not the tracking or causal connection that actually obtains but the tracking or causal connection that would obtain if optimal conditions were

operative. This version of representationalism is sometimes called tracking representationalism (or tracking intentionalism).<sup>21</sup>

The notion of optimal or normal conditions in the case of perceptual experience is to be understood as conditions in which one's perceptual system is designed to operate or conditions in which a representational state has a function to indicate a perceptual property. Then, the question is of how mental states of living organism can acquire such a function. The most naturalistic approach to the notion of optimal conditions is to provide a teleological understanding by appeal to evolution and biology. On this view, it can be said that we are in conditions in which our perceptual system was designed to operate by natural selection, or that our representational state has been naturally selected in the course of the evolutionary processes for the function of indicating a sensory property for biological advantages.

It seems undeniable that the teleology based on natural selection and biological evolution can cast light on some aspects of perceptual experience. I, however, doubt that this teleological approach can help the representationalist provide an adequate account of the phenomenological difference experienced by Jones and Twin Jones. I think the claim that Twin Jones misperceives and misrepresents the world does not fit neatly in the teleological explanation. Since Tye's objection to the inverted qualia hypothesis heavily relies on the biological evolution and natural selection, if this ground is threatened, so is his claim that the phenomenal difference in the inverted qualia is a representational difference.

Tye's tracking representationalism will hold that Twin Jones's experience misrepresents the pitch of the tone on the grounds that some component of his auditory system does not track a pitch property under optimal conditions – conditions in which his auditory system is naturally designed to operate. Twin Jones' auditory system is not discharging biological functions to correctly track the given pitch, and to associate with appropriate beliefs and desires. This is to say that Twin Jones is

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<sup>21</sup> Cutter and Tye (2011: 91) describe the thesis of tracking representationalism as representationalism combined with "Tracking Theory of Intentionality (TTI): Tokens of a state S in an individual x represent that p in virtue of the fact that: under optimal conditions, x tokens S iff p, and because p."

an abnormal perceiver since the optimal conditions do not obtain for Twin Jones whose auditory system is genetically faulty. He is exceptional in this sense relative to the population of his own community – a mere mutant in human genetics.

However, this line of reasoning seems to me quite dubious since I am not sure whether we should think of our experience about pitch associated with listening to music in the context of the natural teleology. What is central to the notion of natural selection is the idea that different species, groups, individuals or genes pursue different survival goals. Since Darwin's *The Origin of the Species* (1859), biology tells us that living organisms on this planet have evolved by the principle of natural selection which biases their complex adaptations to the environment. The teleological account of the adaptive features of animals and plants, their organs and behaviors can now have a purely natural causal explanation which does not presuppose the existence of a supernatural omniscient being. For example, the lungs are made for exchanging gases and the heart is made for pumping blood because the lungs and the heart naturally selected to perform such functions for survival-enhancing values of species (for Darwin 1859), groups, individuals, or genes (for Dawkins 1989) in their struggle for existence. If this is how natural selection works, it seems unclear how Tye's appeal to the teleology and the natural selection principle can provide a firm basis for his claim that Invert's experience is misrepresentation of the world. If Invert's experience wrongly represent the world because his perceptual system is not functioning in accordance to its design which was naturally selected in the course of evolutionary processes, there should be some way in which we can account for the representational difference in terms of the difference in Invert's survival values and fitness in the natural environment with respect to his own population whose auditory system correctly functions. However, can there be such an explanation available for all qualia inversion cases? I think there could be some pitch experiences which are not completely subject to this teleological representationalist approach.

In order to determine the link between the auditory phenomenology in pitch experiences and the principle of natural selection, we need to look at how our experiences of pitches have influenced

our ancestor's adaptation and survivals in the natural environment. Certainly, there seems to be cases in which the capacity of our auditory system to discriminate some pitches is related to increasing or decreasing our survival value. For example, according to Walker et al. (2011: 15), pitch perception can enhance survival value for the animals when they use their pitch perceiving ability to determine whether a coconut is full or empty by tapping it.

However, particularly for humans, we also use our pitch perceiving ability for the purely aesthetic purposes when we create, play and enjoy musical works. It is a matter of controversy whether music has survival-enhancing value. In contemporary aesthetics, cognitive science and evolutionary psychology, it has been commonly supposed that music is not an evolutionary adaptation. For example, Pinker (1997: 534) characterizes music as "auditory cheesecake." Human preference for fat and sugar has been originally adaptive since fat and sugar means a high density energy which can contribute to increasing one's fitness and survival value. Cheesecake, however, was not adaptive: it has no survival-enhancing value. Likewise, language, according to Pinker, is likely to be an evolutionary adaptation, but music is a mere by-product of language and thus, it does not have any role to play in the process of natural selection. As opposed to this common conception of the biological origin of music, there have been increasing numbers of evolutionary psychologists who argues for biological values of music.

Although the dispute of whether music can be linked to the evolutionary processes by natural selection is largely unsettling, I maintain that some sort of pitch perception which is closely related to music does not exhibit any adaptive values. Is there any reason to think that one's capability to discriminate whether a heard tone is A4 or G4 plays some role in selection processes? More specifically, is it that an individual whose auditory experience represents a pitch of a sound as A4, not G4 is less advantageous than an individual whose auditory experience represents it as G4, not as A4 in terms of sustaining life and reproducing offspring? In my view, even when we allow representational distinctions to be responsible for phenomenal distinctions, it seems that phenomenally experiencing some sound as being G4 and as being A4, or C5# and B3b has nothing



to do with individuals' or species' adaptation to the natural environment. However, it is obvious that Jones and Twin Jones can have substantial differences in their phenomenology as it progresses from one pitch experience to a triad harmony, and eventually to a whole piece of musical work.

Thus, I suspect that we can draw a teleological distinction between Jones who is a normal perceiver and Twin Jones who is an abnormal perceiver in terms of biological advantages/disadvantages for their adaptation to the environment. Ford (2011:270-271) makes this point clear in the following quote:

Unfortunately for Tye, natural selection can only operate on features that make a difference to survival and reproductive success. Since normal and inverted color visions provide *exactly* the same advantages to the creatures that have them, natural selection cannot be used to draw any distinction between two.

I agree. I doubt that Jones whose auditory system 'correctly' tracks a pitch under optimal conditions enjoys privileges with respect to survival and reproduction over Twin Jones whose auditory system 'incorrectly' tracks the pitch given that the difference between G4 and A4, in fact, is an extremely minor one to which most of us with non-inverted pitch receptors are not much sensitive. In addition, the representation of G4 and that of A4 are hardly distinguishable in their functional role to be interacting with cognitive system and dispositional behavior. It seems quite plausible to say that Tye's optimal conditions equally obtain for Twin Jones and his auditory system functions well as much as Jones' auditory system does. Perhaps, it is right to say that Twin Jones is a genetic minority with respect to his own community, yet, in my view, it is hard to say that optimal conditions do not obtain for Twin Jones since we are not sure how to determine Twin Jones's auditory system is not in optimal conditions in the context of biological evolutionary processes. Indeed, it turns out that Jones and Twin Jones are equally biologically fit from the point of view of selection processes.

No doubt, the teleological account has some explanatory power to help us understand what it is to have a mind. There are some cases of qualia inversion in which Tye's argument may neatly fit.

For example, if someone touches something and feels cool when it is actually critically hot, he will risk losing some portion of body tissues. In such a case, it seems obvious that representational facts are fixed in terms of facts about survival-enhancing value. Invert's fitness is severely threatened by inverted qualia and hence, natural selection is not in favor of Invert's phenomenology of perceptual experiences.<sup>22</sup> In this case, it can be correctly said that optimal conditions do not obtain for Invert. However, the pitch inversion of the present sort is not included in this category even when we allow that there is a behavioral distinction between Jones and Twin Jones. For there is hardly any difference between behaving in accordance with what it is like to hear G4 and behaving in accordance with what it is like to hear A4, and if there is, I believe, the behavioral difference will be most likely to be irrelevant to survival value of Twin Jones' or his ancestors'.

One might object that the inverted pitch experience should not be extended to the experience of harmonies or the whole piece of music since hearing a triad harmony represents not only one pitch but also two other pitches and the experience of a whole music represents multiple pitches in highly complex relations to each other in combination with varying degrees of loudness. Surely, it is not deniable that there is a huge difference between listening to one pitch and listening to multiple pitches that are structured in a specific way. I, however, wanted to show that the phenomenal difference of a triad harmony and that of the whole musical work between Jones' experience and Twin Jones' experience occurs as a result of the inversion of the neighboring pitches G and A on an octave scale comprised of C, D, E, F, G, A and B. It seems obvious to me that this particular kind of pitch inversions is hardly traced to the representationalist's teleological approach. Unlike the inverted color hypothesis which supposes the complementary color inversions, in the inverted pitch hypothesis, I imagine only one (kind of) pitch inversion –a middle G (G4) and a middle A (A4), or, all Gs and all As of on a scale. However, there is a possibility that the

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<sup>22</sup> I agree with Ford (2011) that the phenomenal distinction between color Invert and Nonvert does not contribute to any significant differentiation in survival value if their behavioral manifestations are alike. However, I think, there can be also a case in which the inverted color spectrum is related with facts about biological evolution and natural selection. For example, it could be that color Invert may be less advantageous in terms of maintaining fitness and increasing survival value than Nonvert. For his different experience about color may lead to consuming an unripe green tomato rather than a fully ripe tomato with full nutrition that a tomato is expected to contain.

phenomenal qualities of the pitch experiences held by Jones and Twin Jones differ radically. What I want to stress is the fact that a minimal phenomenal difference between pitch experiences can lead to a substantial phenomenal difference.

It seems that providing a plausible account of the given sort of auditory phenomenology requires something more than the history of biological evolution – there is something more going on in addition to the biological story of organism’s survival, reproduction, learning, adaptation, and etc. I suggest that the given phenomenology about pitch is resulted from our cultural transmission and development which evolve by non-biological means. Had there been no music and musical theories in human culture (in particular, in western tonal music) this sort of auditory phenomenology would not have existed. And most importantly, I think it likely that music is not a purely biological product, but a human invention that has its own history and governing rule.<sup>23</sup> I suggest that there could be equally important non-biological evolutionary processes which we can involve in the analysis of the inverted pitch hypothesis – I will simply call them the evolution of culture. I think music can be fixed in the context of this cultural evolution. This kind of evolution is what Dawkins (1989) names the evolution of ‘memes’ - analogously, meme is a unit of cultural heredity and gene is a unit of genetic heredity. In regard to his analogy between genes and memes, Dawkins (1989: 192) writes,

Examples of memes are tunes, ideas, catch-phrases, clothes, fashions, ways of making pots or of building arches. Just as gene propagate themselves in the gene pool by leaping from body to body via sperms or eggs, so memes propagates themselves in the meme pool by leaping from brain to brain via a process which, in the broad sense, can be called imitation.

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<sup>23</sup> In my view, this aspect of culture can be more clearly shown in the case of inverted pitch than in the case of inverted color. Usually, we do not involve culture (painting or visual art) to make sense of the spectrum inversion scenario in which all the colors of natural things are complementarily inverted: a ripe tomato is green, the sky is yellow, the ocean is red, etc. Of course, we can imagine what it is like to see Gogh’s series of Sunflowers is radically different for someone whose color experience is inverted with respect to us. However, imagining such a situation is not necessary. By contrast, it is necessary to involve some musical structure to make sense of the effect of the inverted pitch hypothesis. The phenomenology in musical harmonies is not usually found in the sounds of nature since it is a cultural product.

He also emphasizes that genetic evolution is only one of many possible kinds of evolution (1989: 193). I think, Dawkins makes a significant point which can be employed in the talk of the inverted pitch hypothesis.<sup>24</sup> We should be cautious about our tendency to presume that the biological function of representational states naturally designed in the course of biological evolution is all there is for the phenomenology of perceptual states.

This is why I suspect that the representationalist's appeal to natural selection is in support of their claim that optimal conditions do not obtain for Invert, and thus, the case is the inverted qualia is actually the case of the inverted representational contents. Although I have a lot of sympathy with the representationalist's project of providing a naturalistic explanation of consciousness, I doubt that their teleological understanding of perceptual states does firmly support what they try to argue. For the biological evolution governed by natural selection is only a half aspect of evolution in which humans are involved. Our cultural evolution is left out in the representationalist teleological approach. And I believe that the evolution of culture is responsible for some auditory phenomenology (and perhaps, some phenomenology of other sensory modalities).

## **4. Possibility of the Inverted Pitch**

### **4.1. Metaphysical Possibility**

Suppose this time that while Jones is a resident of Earth, Twin Jones is a resident of Twin Earth – a planet which is like Earth in physical and historical environment except in one respect – Twin Earthians's pitch experience is inverted with respect to Earthians. In this case, it can be correctly said that Twin Jones is not a genetic minority but a normal perceiver with respect to his

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<sup>24</sup> I also think that there is in Dawkins' (1989) theory another important point which can be seriously taken in the discussion of not only evolutionary ethics but also of the teleological account of mind. If Dawkins is right to think that natural selection occurs at the level of genes, the whole picture of the representationalist's teleological account may need to be revised. For it seems that the teleological approach in the philosophy of mind implicitly takes it granted that biological evolution governed by natural selection occurs at the level of species (or group) and the discussions thus far have largely focused on the welfare of individual organisms or species. If a human being is, however, a carrier of genes and selection processes occur at the level of genes, the principle of natural selection might not care much about survival and proliferation of humans.

own population. This possibility of the whole inverted pitch world presses the question of who is a normal or abnormal perceiver since it seems that optimal conditions obtains for Jones and Earthians as well as for Twin Jones and Twin Earthians. So, Tye (2000) will admit that the notion of optimality is not applicable in such a case. But he will insist in this case that the inverted pitch hypothesis is only a mere conceptual possibility but not a metaphysical possibility.

On tracking representationalism, any two experiences have the same representational content in virtue of having the same causal relation with the properties of external objects or events. Jones and Twin Jones, on this view, are representationally identical individuals when their neural states track the same pitch by tracking the same physical property of sound waves (say, a fundamental frequency). Since phenomenal characters of experience, on this view, are claimed to be representational content, it is not possible that Jones and Twin Jones whose neural states track the same physical property of a tone have phenomenally distinguished pitch experiences. When Jones hears a tone, he is in a neural state  $S_1$  when it tracks a frequency 392 Hz – the intentional convention of G4 in Earth (and in Twin Earth), and he is in a neural state  $S_2$  when it tracks a frequency 440 Hz – the intentional convention of A4 in Earth (and in Twin Earth). Due to his cross-wired pitch receptors with respect to Jones, Twin Jones, upon hearing a tone, is in neural state  $S_2$  when it tracks a frequency 392 Hz and he is in a neural state  $S_1$  when it tracks a frequency 440 Hz. Jones and Twin Jones are not in identical neural states – one's brain instantiates  $S_1$  while the other instantiates  $S_2$  when they hear the given tone, but they have identical representational states by virtue of which their respective neural states track the same physical property of the sound. Since the neural states,  $S_1$  for Jones and  $S_2$  for Twin Jones both track the same physical property - a frequency 392 Hz in the respective environments, both Jones and Twin Jones, regardless of having different brain states, represent the tone as having the same pitch, namely G4 and have phenomenally G4 experience. That is, Jones and Twin Jones's experiences have the same representational content by virtue of tracking the same frequency, and their experiences have the same phenomenal character by virtue

of having the same representational content. Thus, for Tye, it is not possible (though it is conceivable) that Jones and Twin Jones have phenomenally different pitch experiences.

No doubt, a mere conceivability does not entail a possibility. The inference from conceivability to possibility can be questioned by counterexamples in which something is conceivable but not possible. For example, it is, since Kripke (1980), often thought that ‘water is H<sub>2</sub>O’ is true in all possible worlds and hence, its negation ‘water is not H<sub>2</sub>O’ is not metaphysically possible. But, in what follows, I wish to show that there are some reasons for thinking that the inverted pitch hypothesis is not only conceivable but also metaphysically possible. One way to support the possibility of the inverted pitch hypothesis is to endorse weak modal rationalism defended by Chalmers (2002) according to which primary ideal positive conceivability entails primary possibility. Accordingly, it may be suggested that if the inverted pitch hypothesis has the right sort of conceivability, then there is some reason to hold that it is also metaphysically possible.

Note that Tye’s resistance to the possibility of the inverted qualia is grounded in his physicalism about color which equates colors to reflectance properties. So, on his view, it is likely that pitches are identified with periodic frequencies, or fundamental frequencies of sound waves (G4 = 392 Hz and A4 = 440 Hz for example).<sup>25</sup> So, for the purpose of discussion, I will take the statement ‘G4 experience is not a frequency 392 Hz of a sound’ as a candidate for such a counterexample to conceivability/ possibility claim that conceivability entails possibility. For the two representationally identical individuals to have inverted pitch experiences, it needs to show that the negation of ‘G4=a frequency 392 Hz of a sound’ is conceivable and also possible. More specifically, it has to be shown that ‘G4 experience is not a frequency 392 Hz of a sound’ is primarily, ideally, positively conceivable and primarily possible.

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<sup>25</sup> Indeed, it may turn out that pitches are determined by much more complex structures of physical properties rather than mere fundamental frequencies. But for the sake of simplicity, I simply take it for granted that the only physical properties which are directly associated with pitches are frequencies of sound waves. And only for the purpose of discussion, I simply take the statement, ‘G4 is a frequency 392 Hz of a sound’ to be a posteriori necessity akin to statements such as ‘water is H<sub>2</sub>O’ or ‘Hesperus is Phosphorus.’

The notion of primary conceivability/possibility is based on Chalmers's two dimensional semantics. Chalmers tries to argue that an ordinary Kripkean a posteriori necessity such as 'water is H<sub>2</sub>O' may not be a clear-cut counterexample to challenge the inference from conceivability to possibility for it seems, intuitively, that water could have turned out not to be H<sub>2</sub>O. On this view, there is a sense that 'water is not H<sub>2</sub>O' is true in a world W<sub>1</sub> (if it is considered actual) and there is also a sense that 'water is not H<sub>2</sub>O' is false in a world W<sub>2</sub> (if it is considered counterfactual). The theory tells us that there are two kinds of intensions: primary and secondary intensions. The primary intension is a function from a scenario (or a centered world) to extension, which returns truth value of 'true' when a statement is true in some world considered as actual. If the primary intension of a statement S is true, then, S is primarily possible. The secondary intension is a function from a possible world to extension, which returns truth value of 'true' when a statement is true in some possible world considered as counterfactual. If the secondary intension of a statement of S is true, then, S is secondarily possible.

In the terms of two-dimensional semantics, it can be said that the secondary intension of 'water is not H<sub>2</sub>O' is false in all possible worlds since it is an empirical discovery that water is H<sub>2</sub>O. The term 'water' is a rigid designator that refers to H<sub>2</sub>O in all the worlds, even in a world where there is no H<sub>2</sub>O. In this sense, it is not even conceivable that water is not H<sub>2</sub>O. Whenever the term 'water' is used, it picks out H<sub>2</sub>O. In Chalmers's technical terms, 'water is not H<sub>2</sub>O' is not secondarily conceivable and hence, not secondarily possible, either. However, this is not all the story to be told. It can also be said that the primary intension of 'water is not H<sub>2</sub>O' is evaluated at Twin Earth in which a subject is surrounded by watery stuff which is empirically discovered to be XYZ, not H<sub>2</sub>O. In this case, it is plausible to think that if Twin Earth could have turned out to be actual, the term 'water' could have picked out XYZ, not H<sub>2</sub>O. That is, in such a hypothetical situation, we might have used the term 'water' to refer to XYZ, not H<sub>2</sub>O. And our conceiving such situations opens a priori access to a metaphysically possible world - a world which is qualitatively like our world but which has watery stuff whose chemical composition is XYZ (not H<sub>2</sub>O). In this sense, we can

correctly say that ‘water is not H<sub>2</sub>O’ is primarily conceivable and primarily possible. When we say that ‘water is not H<sub>2</sub>O’ can be an example of something that is conceivable but not possible, we make a mistake to confuse primary/ secondary dimensions between conceivability and possibility. The correct way to describe is that ‘water is not H<sub>2</sub>O’ is primarily conceivable but not secondarily possible. Although primary conceivability is not a good guide to secondary possibility, there still remains, Chalmers argues, a strong a priori link between primary conceivability and primary possibility.

Similarly, it can be said that ‘A phenomenally G4 experience is not a frequency 392 Hz of a sound’ is also primarily conceivable (though it is not secondarily conceivable) and hence primarily possible. In one sense, it can be said that ‘G4 experience is not a frequency 392 Hz of a sound’ in a world which is considered as counterfactual is not even conceivable. Imagine a world W<sub>1</sub> in which a frequency 392 Hz of a sound causes phenomenally G4 experience which corresponds to a neural state S<sub>1</sub> under biologically optimal (or normal) conditions, and a frequency 440 Hz of a sound causes a phenomenally A4 experience which corresponds to a neural state S<sub>2</sub> under biologically optimal (or normal) conditions. In this world, the proposition ‘G4 experience is a frequency 392 Hz of a sound’ is true and one’s pitch experience of G4 is veridical just in case our auditory systems tracks (hence represents) a frequency 392 Hz of a sound. If we take G4 experience to pick out 392 Hz frequency in all possible worlds, we cannot even imagine a situation such that G4 experience could have turned out to be other than 392 Hz frequency of a sound since G4 picks out a 392 Hz frequency not others. If some other frequency, say, a frequency 440 Hz phenomenally causes G4 experience, it is not G4, but something else. So, it can be said that ‘G4 experience is not a frequency 392 Hz of a sound’ is not secondarily conceivable. But there is another sense in which ‘G4 is not a frequency 392 Hz of a sound’ is conceivable. Imagine a world W<sub>2</sub> where a frequency 392 Hz of a sound causes phenomenally A4 experience which corresponds to a brain state S<sub>2</sub> under optimal conditions, and a frequency 440 Hz of a sound causes phenomenally G4 experience which corresponds to a brain state S<sub>1</sub> under optimal conditions. If our world could have turned out to be a



world  $W_2$  then, our auditory systems might have tracked a frequency 392 Hz of a sound (which is international convention of G4) and hence represented G4, and yet, as a result, we might have had phenomenally A4 experience. In this world, ‘G4 experience is not a frequency 392 Hz of a sound’ is true and one’s pitch experience of A4 is veridical just in case our auditory system tracks (hence represents) a frequency 392 Hz of a sound (not a frequency 440 Hz). If  $W_2$  obtains, it can be said that ‘G4 experience is not a frequency 392 Hz of a sound’ is primarily conceivable.

We can also say that ‘G4 experience is not a frequency 392 Hz of a sound’ is ideally conceivable. Chalmers (2002) defines ideal conceivability as conceivability which is not undermined by ideal rational reflection. Prima facie, it is conceivable that G4 experience is not a frequency 392 Hz of a sound. And this prima facie conceivability is not defeatable by further reasoning processes: we can imagine an epistemically possible scenario – a situation in which 392 Hz frequency does not causally correspond to phenomenally G4 experience. Beginning with prima facie conceivability of the negation of the given statement ‘G4 experience = 392 Hz’, and proceeding to a further reasoning, we can rationally conclude that ‘G4 experience is not a frequency 392 Hz of a sound’ is conceivable. According to Chalmers (2002), a statement is positively conceivable when a subject can coherently and modally imagine a situation that verifies the statement. We can say that ‘G4 experience is not a frequency 392 Hz of a sound’ is also positively conceivable since we not only assume the scenario in which it is not ruled out a priori but coherently imagine highly hypothetical scenario that verifies it. For example, ‘G4 experience is not a frequency 392 Hz of a sound’ is verified by a world  $W_2$  where A4, not G4, experience is a frequency 392 Hz of a sound.

If it is plausible to say that ‘G4 experience is not a frequency 392 Hz of a sound’ is primarily, ideally, positively conceivable, it is also plausible to say that ‘G4 experience is not a frequency 392 Hz of a sound’ is possible given that primary, ideal, positive conceivability is a good guide to primary possibility. For a world  $W_2$  (Twin Earth) turns out to be actual, ‘G4 experience is not a frequency 392 Hz of the sound’ is true: that is, the primary intension of ‘G4 experience is not a

frequency 392 Hz of the sound' returns the truth-value of 'true.' Chalmers defines the notion of a scenario as a maximal a priori coherent hypothesis which is taken to be a highly specific epistemic possibility that does not represent context of utterance. And he holds that for every scenario, there is a corresponding centered metaphysically possible world (2010: 170). A centered world is understood to be a world which is marked with a specified individual and time. It is said that for a world  $W$  to be actual, it must be a centered world. If we imagine a world  $W_2$  as a subject's environment (if, for instance, we imagine Twin Earth as Twin Jones's environment), it is (primarily) conceivable for the subject that G4 experience is not a frequency of 392 Hz of a sound (instead, A4 experience is a frequency of 392 Hz of a sound for the subject in that world). Here, we conceive of a world in which 392 Hz of a sound does not cause G4 experience within Twin Jones in Twin Earth. In this sense, our act of conceiving this situation opens a priori access to a centered metaphysically possible world - a world  $W_2$  (Twin Earth) in which 392 Hz frequency does not cause G4 experience under optimal conditions but cause A4 experience in virtue of instantiating a brain state  $S_2$  (not  $S_1$ ). Since in a world  $W_1$  the same frequency causes a phenomenally G4 experience under optimal conditions in virtue of instantiating a brain state  $S_1$  and some other frequency causes a phenomenally A4 experience under optimal conditions in virtue of instantiating a brain state  $S_2$ , it can be correctly said that it is metaphysically possible that the two representationally identical individuals – Jones and Twin Jones can have inverted pitch experiences.

#### **4.2. Empirical Possibility**

Another way to support the possibility of the inverted pitch hypothesis is to show that the pitch inversion is also empirically possible. As shown above, Tye holds the externalist view about qualia that qualia are physical properties of external objects. He also holds color objectivism that colors are identical with mind-independent physical properties of external objects and surfaces. Likewise, anyone who holds the externalist view about qualia will find the periodicity theory of pitch the most

plausible view to account for pitch perception. Just as color objectivism identifies colors with physical properties, the periodicity theory of pitch is a form of reductive physicalism in which individual pitches are identified with fundamental frequencies. Note that, however, just as color objectivism is not a common view in the mainstream visual psychology, the periodicity theory of pitch is not commonly held view by most acoustic psychologists. The problem is whether our pitch experience can be completely accountable in terms of fundamental frequencies.

Surely, the periodicity theory explains some important features of pitch perception. For example, it accounts for musical intervals which correspond to fundamental frequency ratios (octave 1:2, fifth 2:3, fourth 3:4, etc.) However, it seems that the periodicity theory does not reflect a subject-dependent aspect of pitch perception. For example, if it is true that equal ratios of frequency produce equal intervals of pitch, then, two semitones in different parts of the audible range mean an equal interval in pitch. Yet, as Stevens and Volkman's experiments (1937, 1940) reveal, equal ratio of frequency does not correspond to equal intervals of pitch - two semitones may perceptually represent unequal pitch-intervals. For this reason, it is commonly held among contemporary acoustic psychologists that pitch is a subjective, psychological attribute of sound's fundamental frequency since it is determined by a response of human perceiver on a scale from low to high.

It seems that this subjective aspect of pitch is largely based on the way the neural system processes sound waveforms. When a sound occurs, receptor neurons in the ear respond to the pressure waves in the air and translate into auditory-specific nerve energy that can be accepted and processed at the higher level of neurons in auditory cortex. At the peripheral level, the potential mechanisms of pitch representation of a pure tone in the auditory nerve can be described in three main strands depending on what aspects of the peripheral auditory code – place, time, or place-time code - the brain extracts pitch cues. These theories suggest that either pitch is determined in terms of which nerve fibers stimulated the most, or it is computed by the time interval between action potentials in the auditory nerve. And more recently, it is suggested that the timing information in the

auditory nerve is used to derive the pitch only when it is presented to the appropriate place (Oxenham 2008).

Not only auditory periphery, but also central auditory processing in the auditory cortex is necessary for pitch perception. Bendor and Wang (2005) suggest that there exist pitch – selective neurons that are tuned to characteristic fundamental frequencies in the auditory cortex of marmoset monkeys. The location of the pitch-selective area in their study is argued to be identified with the location of recent fMRI imaging studies in the case of humans whose Heschl’s gyrus area is known to be the primary/secondary auditory cortical field (Griffith and Hall 2012). Hall and Plack (2008) also suggest that not only Heschl’s gyrus but also several other parts of cortex including planum temporal, the temporo-parieto-occipital or prefrontal cortex also play as a pitch center. This will tell us that pitch perceptual experience in theory can be generated by direct stimulation of the appropriate area in the auditory cortex that responds to certain frequency stimuli.

If it is possible to manipulate pitch experience by manipulating the spatio-temporal features of auditory neurons either at the level of auditory periphery or at the level of auditory cortex, it may also be possible to manipulate pitch experience by altering or switching the auditory pathway between auditory periphery and auditory cortex. If it were possible to hook up the receptor neurons that normally respond to proximal stimuli – a frequency 392 Hz in your basilar membrane to the pitch-selective area in the brain that normally responds to the neural signals stimulated by a frequency 440 Hz, and vice versa, you would (arguably) phenomenally hear a tone which has a 392 Hz fundamental frequency as a tone which has a 440 Hz fundamental frequency in normal hearing circumstances. In other words, upon hearing a tone, your experience represents it as G4 since the neuron receptor would track a 392 Hz frequency in the air stimulated by a sound event considered as G4, but what it is like for you to experience is A4 since the higher level neuron receptor in the brain that is hooked up from the given peripheral receptor is normally served by the neural energy that is transmitted and translated by virtue of a way a peripheral receptor processes a 440 Hz frequency of a tone which is considered as A4 in normal circumstances. Such a mismatch between

peripheral receptor and central receptor can support the core idea of the inverted pitch hypothesis that Twin Jones shares the same representational content with Jones by virtue of which his periphery receptor track the same fundamental frequency a sound, but he has a distinct phenomenal experience by virtue of which his central receptor (pitch-center in the auditory cortex) tunes to a distinct neural signals.

There might be many empirically possible bypasses to intermediate between the proximal stimuli accepted by peripheral neural receptors and the neural signals accepted by cortical neural receptors. One such an empirical possibility for pitch inversion may be realized by a cochlear implant. A cochlear implant is a surgically implanted electronic device that bypasses the dysfunctional cochlear and electrically stimulates the auditory nerve. The sound processing mechanisms (i.e., sound processor) used in multi-electrode cochlear implants convert complex acoustic signals into pattern of electric stimulation. By doing so, a cochlear implant transmits sound signals to the brain. Although the cochlear implantation is considered to be a medical treatment for hearing impairment due to the damaged inner ear, as O'Callaghan (2014) points out, it can be used to support the possibility of pitch inversion since it could be used to switch the place of electrodes sensitive to 100 hertz and 1000 hertz, respectively and further, to reverse the entire electronic ordering.<sup>26</sup>

## 5. Conclusion

By arguing from a counterexample against representationalism, I have tried to show that Tye's way of handling qualia inversion faces two main difficulties. First, Tye's teleological account that appeals to the history of biological processes by natural selection does not work for the sort of pitch inversion that is illustrated in the hypothesis. For the fact that Twin Jones experiences G4 that

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<sup>26</sup> In fact, what is needed for the given counterexample is the inversion of pitch between G4 and A4 only. This requires a cochlear implant to switch an electrode sensitive to 392 hertz to 440 hertz. That is, only 48 hertz difference will suffice to explain the dramatic effect of inverted pitch experience.

is experienced by Jones as A4 in a phenomenal sense has no influence to a matter of increasing or decreasing the survival-enhancing value of Twin Jones or his ancestors. That is, there is no reason to think that Twin Jones, due to his phenomenologically inverted experience with respect to pitch, is biologically more disadvantageous than Jones in terms of adaptation, survival and reproduction. However, Twin Jones' overall experiences of musical chords and the whole musical work can radically differ from Jones's in a phenomenal sense. This kind of auditory experience – a kind pitch experience arises from music, I have argued, needs a further explanation other than biological evolution generated and regulated by the principle of natural selection. My suggestion was that cultural evolution as analogous to biological evolution should be considered to understand the rich phenomenal difference between Jones and Twin Jones' experiences. Second, according to Tye, it is not possible for any two experiences to have different phenomenal characters without having different representational contents. My supporting argument for the possibility of the inverted pitch is that it is metaphysically as well as empirically possible for any two experiences to have the same representational content but inverted phenomenal character.

Overall, I wish to have shown that Tye's tracking representationalism and his radical physicalism about a perceptual property (i.e., color objectivism) are in trouble. If Tye were right to say that all mental facts are wide representational facts external to one's internal physical constitution and qualia are one of them, phenomenal character or qualia of experience would not be fixed by what is going on in the brain. This view has an important consequence that it is metaphysically possible for any neuro-biological duplicates to have a phenomenally different experience by virtue of bearing a relation to a different physical environment. Just as neuro-biological duplicates could have different beliefs and desires, they could have different qualia depending on what external properties they are aware of. However, I think this cannot be held for qualia though it can be held for some propositional attitudes such as beliefs and desires. For, in the first place, it could be difficult to provide a non-arbitrary teleological account of representational content of perceptual experience. As seen in the inverted pitch hypothesis, if a difference of

representational content between Invert and Nonvert's experiences cannot be explained in the teleological account, then, a difference of phenomenal characters of their experiences, of course, cannot be supported by the alleged difference of representational content. This gives us reason to suspect the idea that qualia or phenomenal characters of experience are exhausted by representational content.

We can conceive that there could be an experiential difference even when all other external facts are fixed as the same for Jones and Twin Jones. I think the difference is not representational but phenomenal one. The most promising candidate responsible for this difference, in my view, is a difference in their physical constitutions – their cross-wired pitch receptor: only one difference in otherwise, exactly the symmetrical situations. For this reason, I think it likely that supervenience physicalism about mind and body is to be preferred to wide representationalism. Contrary to what the representationalist wants to insist, there is a gap between phenomenal characters and representational content. In my view, what's given in representational content of a perceptual experience does not suffice to secure its phenomenal characters – what it is like to be in that state. Perhaps, taking qualia out of one's head and positing them among physical things in the world may not be an appropriate solution to the problem of our phenomenally rich conscious experience.

## CONCLUSION

Chapter 1 discussed various features of reductive wide representationalism which asserts that phenomenal characters (or qualia) of experiences are exhausted by representational contents that are secured by external circumstances of a perceiver. I diagnosed two major problems centered on current discussions about representationalism. First, representationalism in general is a theory that is built based on visual experience. Second, representationalism in its reductive wide form conflicts supervenience physicalism. Chapter 2 examined three main physicalist theories of sounds – wave account, property account, and event account. I offered criticisms of the wave account and the property account, and the argument for the event account that construes sounds as event-like particulars. I made a proposal that the arguments about the nature of sound from analogies between sound/auditory perception and color/visual perception could mask out what sound really is. Chapter 3 and Chapter 4 consist of the main argument of this thesis. Chapter 3 argued that 1) the notion of Russellian content that is wide and nonconceptual cannot appropriately account for what is represented in auditory experience, and that 2) the difficulty in analysing auditory experience in representational content alone may indicate that phenomenology of auditory experience overflows its representational content. I offered two scenarios which I think are in support of my second claim: the case of hearing ambiguous sound, and the case of hearing musical performance. The former is associated with everyday hearing – our ordinary hearing experience that involves sound sources, while the latter with musical hearing – hearing sounds to be detached from their sources. What I aimed to show is that there is something more going on apart from physical qualities sounds are represented as having. If I am right, it will follow that wide Russellian nonconceptual content fails to trace some auditory phenomenology. Chapter 4 argued that representationalism can be defeatable by a metaphysically possible case in which there can be phenomenal difference without representational difference. I presented the scenario of pitch inversion which hypothesizes that any two representationally identical individuals can have phenomenally inverted experiences with



respect to pitch. The argument from the inverted pitch hypothesis is consisted of two parts. The first part of the argument concerns Tye's optimal conditions. I argued that Tye's attempt to fix the notion of optimality in the context of evolutionary processes governed by natural selection fails to explain the phenomenal difference experienced by the two individuals in the hypothesis. I suggested that auditory experiences are not always analysable in teleological terms such as learning, adaptations, fitness, survival value, etc. since there are some kinds of pitch experience that are supervenient on particular structures of music which is often thought to be dissociated with biological evolution. The second part of the argument concerns the possibility of the hypothesis of pitch inversion. I argued that the hypothesis is a certain sort of conceivability that leads to a certain sort of metaphysical possibility. I also argued that the hypothesis can be empirically realized by surgically manipulating cochlear implant. Throughout all the discussions above, I have concentrated on distinctive features of sound and auditory perception in order to shed light on the particular difficulty that arises in the representationalist's move from a theory specific to vision to a general theory of perception and consciousness.

The primary purpose of this thesis is to challenge representationalism in which phenomenology of perception is treated in the same way intentionality of perception is treated. I believe that the problem with representationalism can be characterized in two ways: it can be the problem of representational content and the problem of qualia. If the difficulty representationalism is fraught with is a matter of specifying representational content, it will follow that all we need is a more complicated theory of representational content that can specify not only visual content but also all other sensory contents. However, is it really the problem of how to specify representational content? If my argument is successful in Chapter 3, wide Russellian/ nonconceptual content cannot even properly specify the representational content of auditory experience let alone its phenomenal characters. Furthermore, it seems that the scope of phenomenal characters of some auditory experiences is much wider than that of representational content. 8) If it is a matter of phenomenology of perception which often overflows representational content as I am inclined to

think, then, it will follow that representationalism, as a theory of consciousness, is an only half-successful theory at best since it only handles intentionality of perception and remains silent on qualia which are responsible for our phenomenally conscious experience. I think it is far more likely that the theory of wide Russellian/ nonconceptual content appears to have trouble with auditory content not because the theory of content needs more work to be done but because representational facts do not entirely determine phenomenal facts.

One may say that the difficulty for representationalism is closely related to the fact that representaitonalism is largely based on visual experience and visual properties. So, it may be said that if we are given the right sort of representational contents in virtue of which phenomenology of audition can be properly dealt with, then, the difficulty will evaporate.

At first sight, it appears that the notion of representational content can be radically revised to completely capture auditory phenomenology. First, one may want to extend the scope of Russellian content to the extent that it involves higher-order properties such as Siegel's (2006) K-property - a property of being pine tree, for example. However, it will be hard for the representationalist to allow higher-level properties to enter the content since doing so will threaten the nonconceptualist position about content. For the claim that experiences represent kind property- i.e. a property of being pine tree - is based on the assumption that some phenomenal differences are directly affected by some cognitive factors like learning and recognition. It means that learning or gaining dispositions to recognize something as being a kind requires relevant concepts which are the factors the representationalist wants to exclude when s/he talks about a particular subclass of contents – nonconceptual content - that is associated with phenomenal characters of experiences. The idea that phenomenal characters of experience are identical to or, entirely determined by nonconceptual content is central to the thesis of representationalism. Allowing for higher-level properties, therefore, will force the representationalist to give up this core idea of the theory. Moreover, as I have discussed in Chapter 3, even if K-properties are constituent of representational content, it is still far

from clear that the phenomenology of everyday hearing – the phenomenology of hearing sound source – can be completely captured in representational content.

Another suggestion may be that we should endorse a strong form of Russellian content - object involving content - instead of a weak form of Russellian content - only property involving content. Nonetheless, it is not hard to see that taking this route will also trouble representationalism. Suppose objects enter the content of experience. Then, we can no longer explain illusions and hallucinations by appeal to the idea that our experience sometime attributes the properties not of a really existing object but of a purely intentional object or an inexistent intentional object. Then, representationalism will lose its significant theoretical ground for the idea that visually experiencing of afterimages is illusory – that is, our visual experience attributes color properties to an inexistent intentional object. Moreover, again, it is far from clear that even if contents involving objects are allowed, there can be a plausible explanation of hearing sound sources or experiencing the relation (either causal or parthood) between sounds and sound sources only in representational terms because represented objects may only refer to sounds themselves, not sound sources.

Alternatively, it may be proposed that the representationalist should discard Russellian content altogether and employ other forms of contents, Fregean content, for example. This, however, will also shake the representationalist position since endorsing Fregean content would allow that experiences not only represent properties and objects but also the modes of presentation. This option will easily direct the given version of representationalism toward non-reductive internalist position which holds that phenomenal characters (or qualia) are supervenient on internal states of a subject. And this version of representationalism of course is not a target of this thesis.

It seems that any attempt to explain the residual phenomenology in some auditory experience by enhancing and widening the notion of the representational content will turn out to be a very difficult matter. Although it may not be impossible, in doing so, representationalism will take a huge risk of shaking its nonconceptualist, reductivist and externalist position. Certainly, the fact that representationalism has difficulty explaining some auditory phenomenology will not suffice to

support the strong claim that representationalism is false. But what follows is that, in my view, the difficulty for representationalism cannot be resolved just by seeking a more elaborated account of representational content.

All of these discussions about the content of auditory experiences, thus, raise the question of whether phenomenal characters (or qualia) are completely determined by representational contents. If the representationalist is right to say that we are aware of phenomenal characters of experiences by being aware of qualia – publicly accessible, objective properties of external physical objects, then, changes in such properties will mean changes in phenomenal characters. Of course, I do not deny that when there are changes in what are represented, there are usually changes in what it is like. When a red tomato we are viewing is swapped with a green cucumber, there will be corresponding change in our phenomenal experience - from what it is like for us to see a red thing to what it is like for us to see a green thing. However, will it be necessarily so as the representationalist wants to claim? If my argument from the inverted pitch hypothesis in Chapter 4 is successful, it is not a necessary truth that there can be no phenomenal difference without representational difference. Furthermore, we still do not know why a certain phenomenal character is necessitated by a certain representational content. Why does a phenomenal character of a middle G correspond to a representational content of a middle G not of a middle A? As I have tried to show, there is no necessity in the claim that the phenomenal-G experience is exhausted by the representational content of G since it is metaphysically possible that the phenomenal-G experience could be determined otherwise (that is, it could be determined by the representational content of A). This is a typical aspect of the explanatory gap problem - the problem of the gap between the phenomenal and the representational.

The whole point of the argument from the inverted pitch hypothesis was that the gap between the phenomenal experience of a certain pitch and the representation of it cannot be closed in a way that the representationalist would want to specify. Moreover, the important implication is that differences in the internal physical make-up, not the representational differences tracking physical

properties in one's environment, are more likely to be a contributor to the phenomenal differences of G experience and A experience. If this is right, it will follow that we have no firm reason to choose representationalism over supervenience physicalism.

So, it seems to me obvious that some kind of auditory phenomenology troubles representationalism because the phenomenal characters (or qualia) of experiences are not reducible to the representational contents without phenomenal residue. This conclusion will ultimately support the claim that there is an (explanatory) gap between intentional states and phenomenal states: the hard problem of consciousness, therefore, still remain unresolved. Representationalism may be the best available theory in explaining the intentionality of perception. It has an explanatory power that other theories may not be viewed to have: for example, unlike sense datum theory, it can account for the transparency of experience, and unlike direct realism, it provides a plausible explanation of illusory and hallucinatory experiences. However, the theory cannot adequately explain the phenomenal characters (qualia) of experiences. If representationalism is ultimately unsuccessful as a theory of consciousness, so is the project of the naturalizing the mind which attempts to locate qualia among physical things and properties in the outer world and explain phenomenally conscious experiences in terms of one's having relations to such external physical properties.

## The Summary of Correction

- Reply to the examiner's comments

A/ The examiner points out that my thesis causes confusion because I give wrong impression that the aim of my thesis is to criticize “representationalism” when in fact it is actually about only a specific variety of representationalism. The examiner suggests regarding the sentence “Both claims are central to representationalism” in p. 61 that “[t]his is a good place to remind readers that you are only concerned with wide representationalism.” So, I have added a footnote to the sentence:

I am concerned with a specific variety of representationalism which may be called reductive/wide representationalism or the externalist representationalism mainly defended by Dretske, Tye and Lycan. I want to clarify that other variety of representationalism, which may be called non-reductive/narrow representationalism or the internalist representationalism, is not my concern for the discussion in this thesis. Again, when I mention the term “representationalism” throughout the thesis I mean by it only reductive/wide representationalism.

B/ The examiner said, “Many of the arguments are specific to wide or externalist representationalism, a very specific type of representationalism, but conclusions often seem to be about representationalism”...“The problem in the final chapter is specifically the wideness of wide representationalism. The conclusion ought to be that either narrow representationalism or non-representationalism are more plausible, but the general conclusions are more radical...”

What seems to underlie the examiner's comment here is the idea that the discussion about reductive/wide representationalism cannot be complete without considering other variety of representationalism - non-reductive/narrow representationalism or the non-representationalism. In my view, however, this qualification demands too much of anyone who aims to assess the plausibility of a specific philosophical theory. For arguing against a certain theory and defending

(or offering) an alternative theory can be done in two separate places. It seems to me that one can argue against a certain theory without offering any alternatives. Certainly, one can argue against reductive/wide representationalism from a certain theoretical point of view: for example, from the internalist representationalist position (see Pautz 2006) or from the non-representationalist position (see Block 1990 and various other places). But this will not prevent one from criticizing reductive/wide representationalism without positing oneself in a certain alternative theoretical basis. Although I did not take the internalist representationalism and non-representationalism into account as an alternative to reductive/wide representationalism in conclusion, I did not rule out the possibility that other theories are more adequate and plausible than reductive/wide representationalism. Moreover, I did not suggest that we should give up theorizing conscious perceptual experiences. All I claimed in conclusion is that wide/reductive representationalism cannot adequately account for phenomenal characters or qualia of perceptual experiences. Thus, I believe, it may be well said that considering other theories as alternatives is beyond the scope of my thesis.

Once this is understood to be clear, a few other comments closely related to this point will be no longer applicable.

C/ The examiner suggests "... takes it as true..." instead of "... takes for granted..." regarding the sentence "Typically, the representationalist takes it for granted that all mental facts are representational facts." in p.18. So, the correction has been made.

D/ I write in Chapter 4, "Although I have a lot of sympathy with the representationalist's project of providing a naturalistic explanation of consciousness, I doubt that their teleological understanding of perceptual states does firmly support what they try to argue" (p.92). The examiner said, "This seems to be roping together two quite independent claims: that phenomenology can be accounted for in terms of representation, and that representation can be accounted for in teleological terms."

Why could representationalists not give up on the teleological explanation, but keep the representationalism?”

Surely, one can hold representationalism without holding teleological approach. The targeted representational theory, however, is the one which heavily relies on the teleological explanation within the frame of biological evolution and natural selection. In particular, Chapter 4 concerns Tye’s representationalist account of qualia inversion, and Tye’s account appeals to the teleology and biological evolution. The teleological approach is a crucial part to Tye’s representationalism (as well as Dretske’s). All I wanted to argue is that Tye’s appeal to biological environments and history is not in support of his representationalist theory - in particular, his argument against the hypothesis of qualia inversions. I did not mean to deny that representationalism without teleological explanation is possible. But this possibility is simply not my concern in the discussion in Chapter 4 and it is not Tye’s choice, either. The examiner in this comment seems be confused about what is targeted in the relevant discussion.

e/ The examiner said, “Chalmers’ easy problems of consciousness are functionally definable problems, not necessarily the problem of intentionality.” Taking this point into account, my correction in p. 8 is as the following:

Accordingly, we can characterize the discussion about the problem of consciousness in two corresponding ways: the problem of intentional states (properties, processes, events) and the problem of phenomenal states (properties, processes, events). This way of distinguishing the problem of consciousness may roughly, although not precisely, correspond to Chalmers’ (1996) characterization of the “easy” and “hard” problems of consciousness. Given that in contemporary philosophy, cognitive science and psychology, there is a tendency to take the problem of intentional states – states such as thoughts, beliefs, desires, etc. – to be functionally analyzable, the problem of intentionality may be referred to as the “easy” problem of consciousness in a sense that it is tractable by the standard scientific methods



although Chalmers' easy problem is not necessarily the problem of intentionality but the problem of functionally analyzable mental states.

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