On the Phenomenal Character of Conscious Experiences

by

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Abstract

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It seems intuitive to hold that when one has a conscious experience of seeing red, one's conscious experience has a qualitative property of "red," which is a mental quality. Qualitative properties can only exist in conscious experience and are only accessible introspectively. Therefore, they are subjective, since no one can access the qualitative properties of other peoples' experiences. This is the view held by qualia realists. However, Standard Representationalists hold that there are no mental qualities, since sensory experiences are transparent, and that when one introspects, one's attention ends up on the properties of the external objects. They conclude that the phenomenal character of experiences is determined by their intentional content.

I argue that Standard Representationalism is wrong, since there are mental qualities and the representation thesis—phenomenal character is one and the same as intentional content—is mistaken. Standard Representationalism cannot explain some common phenomena of color perception. I also argue that the qualia realists' arguments for the distinction between intentional and phenomenal content, i.e., the inverted spectrum and the inverted earth arguments, fail. I argue that there is no inverted spectrum, behaviorally detectable or undetectable, inverted partially or entirely, and there is no intentional content inversion.

I also reject Shoemaker's moderate representational theory that appeals to the notion of "appearance property" to explain the phenomenal character of conscious experiences. I argue that there is no "appearance property" described by Shoemaker. I accept the division of labor theory of phenomenal consciousness, however, I argue that Lycan's version of the labor division theory faces the problem of higher-order misrepresentation, which is also known as the problem of mismatching between higher-order and first-order mental contents. I support the higher-order thought theory of phenomenal character, since it not only avoids the problem of higher order misrepresentation, but can also explain most of the phenomena of visual perception that other competing theories cannot.

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Introduction

When I look out my window into my backyard, I see the impatiens with different colors, red, pink and orange. I am able to discriminate one color from another, because the colors look different to me by causing in me the feeling that looking at one color, say red, differs from the feeling of looking at another, say orange. There is something it's like for me to see these different colors. I'll call the "what it's like" or feeling of having different visual experiences while looking at different colors (and, mutatis mutandis, the sensory experiences of other modalities) the phenomenal character of conscious experiences. This is individuated by the "what it is like", qualia, qualitative properties or phenomenal content of sensory experiences.

Not only veridical experiences cause us to have sensory experiences with certain phenomenal characters: illusions, hallucinations, and afterimages also have the same effects. When one suffers from a phantom limb pain, one experiences a vivid feeling of pain sensation. When one misperceives a cow in the dark as a horse, the phenomenal character of the illusory experience is more similar to the phenomenal character of having a veridical experience of seeing a horse than the phenomenal character of having a veridical experience of seeing a cow. The same in the case of afterimages: when subjects stare at a piece of red paper for a while and then look at a piece of a gray paper, they see a green color spot in front of the paper, the phenomenal character of which is similar to the experience of looking at a green object. From this, it seems reasonable to conclude that phenomenal characters are shared by both veridical and illusory experiences.

Some philosophers, such as qualia realists, claim that the phenomenal character of sensory experience is determined totally by the qualitative properties only accessible from the first-person point of view, (i.e., qualia, in qualia realists' terminology,) not from the third-person point of view, thus phenomenal character is subjective. Phenomenal characters cannot be explained in terms of the relations between qualitative properties and external objects, other mental states and behaviors, but rather, can only be explained by the internal subjective feeling one has when one has some actual experiences. Philosophers sometimes even claim that phenomenal characters are ineffable, if the meanings of language are all about public objects and properties. They also claim that the phenomenal characters of sensory experiences are to be individuated solely by the introspectively accessible qualitative properties (or qualia) of sensory experiences.

Representationalists claim that there are no introspectively accessible qualitative properties (qualia), since sensory experiences are transparent. When one has a certain visual experience of seeing red and introspects, one's attention always passes through the visual experience and reaches out to the perceived properties or objects. Thus, if qualitative properties are introspectively accessible properties of mental states, they don't exist. Moreover, if phenomenal characters are determined by what is introspectively accessible, they are the perceptible physical properties. Thus, the phenomenal characters of sensory experiences are determined by their representational contents.

Qualia realists respond that representationalists confuse the phenomenal (Block calls "qualitative") sense and the intentional sense of content. By the inverted spectrum argument, they argue that there is a distinction between phenomenal content and representational content, since it is possible for two subjects who see the same colored

object to have experiences with different qualitative properties. To illustrate, when Jack (whose visual system is normal) and Jill (with an inverted visual system) look at a red flower, the red flower looks the way a red object normally looks to Jack, but it looks the way a green apple normally looks to Jill. So, qualitative properties cannot be described in terms of the representational relations between experiences and what they represent.

There are alternative interpretations of the alleged phenomenon of the inverted spectrum. Some representationalists interpret it as a case of misrepresentation while Dennett offers the memory failure hypothesis, according to which, when someone reports noticing a difference in color experiences, it could be interpreted as the failure of the memory system rather than a real shift in qualitative properties. Both alternative interpretations can be answered. Neither massive misperception nor memory failure can occur as normal phenomena. Even so, as I'll argue in Chapter 2, the inverted spectrum argument still fails. One of its assumptions contradicts the structure constraint of color space accepted by qualia realists themselves.

Block proposes another argument for the distinction between intentional and phenomenal content, i.e., the Inverted Earth argument. He argues that it is possible for a subject to have experiences with the same qualitative property (phenomenal content) but different representational content. When Jill travels from Earth to Inverted Earth with inverted lenses on, the way the sky on Inverted Earth looks is the same as the way the sky on Earth looked to her, even though the skies have inverted colors. The sky on Earth is blue while the other is yellow.

Representationalists have responded to the Inverted Earth argument in different ways. One response argues that there is no change of the representational content of Jill's

experiences, since it is determined by teleological functions, or it is determined by co-variation relations where the optimal conditions obtained, thus the representational content of experiences won't change when one travels from Earth to Inverted Earth. Another response argues that if the intentional content of experiences changes with the external worlds in which the experiences occur, the phenomenal content changes too. Yet another response argues that if intentional states, such as beliefs, are determined externally and it is the content of these that determine how we are aware of the sensory experiences introspectively, then the phenomenal content is also determined externally.

I will argue (in Chapter 3) that all these responses from representationalists rest on various assumptions, that can either be met or can be proven to be false. Regardless, the Inverted Earth argument still fails. Either the argument appeals to the controversial conception of introspective incorrigibility of long term memory as well as the infallibility of introspection, or it confuses two different senses of representational contents—the phenomenal and non-phenomenal senses of representational content.

I argue that both qualia realists and representationalists fail to offer a persuasive argument for their claims. Moreover, their notions of phenomenal character or theories of phenomenal consciousness cannot explain, or are not even consistent with, some important phenomena of visual perception. For example, the representational theory of phenomenal character cannot explain the variations of normal color vision and the phenomenon of color constancy, which I will argue in Chapter 1. Block's notion of qualitative property (or quale)—phenomenology—cannot explain the common sense notion of phenomenal character, since one can have experiences with the phenomenology

of seeing some particular shapes of objects, such as letters, without having the phenomenal character (or feeling) of seeing the shapes of letters.

Shoemaker believes that some intuitions of both qualia realism and representationalism are right—the principle of transparency and the possibility of the inverted spectrum—so that a proper theory of phenomenal consciousness should try to reconcile these two important intuitions. For this purpose, Shoemaker suggests that sensory experiences represent two different properties of external objects—physical properties and appearance properties. The intentional content of sensory experiences is determined by the perceived physical properties while qualitative properties (qualia) represent appearance properties, which are also physical properties even though they are relational.

Shoemaker consideres four different versions of appearance properties: the occurrent, the dispositional, both the occurrent and higher-order dispositional appearance properties and the qualitative characters, which are different aspects of the perceived physical properties. I will argue that all of them face problems (in Chapter 4). The first proposal implies that appearance properties don't exist when there is nobody actually perceiving them. The second proposal faces the problem that, when one looks at a color chip, there is no fact of matter about which color is being perceived due to the variations of normal color vision. The third one is not compatible with the transparency principle while the last one contradicts the inverted spectrum hypothesis. Moreover, I will argue that his conception of appearance property cannot explain the subjective differences between having different kinds of sensory experiences.

All the theories we have discussed so far assume that consciousness is an intrinsic property of sensory experience, even though qualia realists and representationalists are divided on how to individuate qualitative properties of experiences—the former hold that qualitative properties are intrinsic to sensory states, while the latter claim that qualitative properties are relational properties. The division of labor theory of phenomenal consciousness claims that both consciousness and qualitative properties are relational and that we need different theories for each issue—a theory of qualitative property and another theory of consciousness.

Lycan and Rosenthal defend this type of view. Lycan claims that the qualitative properties of first-order sensory states are determined by their representational content, while whether sensory states are conscious or not depends on whether there is a higher-order perceptual state monitoring the first-order sensory states. When a sensory experience is conscious, its host has the "what it's like" or the phenomenal character of having that sensory experience. Unfortunately, Lycan's theory of phenomenal character faces the problem of higher-order misrepresentation—the content of the first-order and higher-order mental states don't match, for example, if the subject is conscious of a first-order sensory state with red qualitative property as having a green qualitative property—which is proposed by Neander. I will argue that Lycan fails to answer Neander's challenge (in Chapter 5).

Rosenthal holds that the first-order qualitative properties are individuated by their perceptual roles in perceptual systems, while whether a sensory state is conscious or not is determined by whether a higher-order thought (HOT) targets it. Rosenthal claims that

the phenomenal character of a conscious experience is also determined by HOTs, namely, by how the HOTs represent the first-order sensory states.

The HOT theory avoids the problem of higher-order misrepresentation, since it holds that the phenomenal character is determined totally by the accompanying HOT. We have some evidence to support the claim that HOTs really affect the phenomenal character of conscious experiences. The HOT theory can also explain the phenomenon of color constancy and the phenomenon of shifted spectra. It is also compatible with the impossibility of the inverted spectrum. Thus, we should accept the HOT theory of phenomenal character over competing theories.

Chapter 1 The Representational Theory of Phenomenal Consciousness

1.0 Introduction

The representational theory, or the intentional theory, of phenomenal consciousness is the theory that claims that the phenomenal character of a sensory experience is totally determined by its intentional content.[1] It is an approach that tries to reduce phenomenal consciousness to intentionality and possibly can be incorporated into the well-developed theory of "naturalized intentionality." If phenomenal consciousness can be reduced to intentionality and intentionality can be naturalized, then, we will be able to explain phenomenal consciousness in terms of a certain scientific language. Hence, the representational theory of phenomenal consciousness is a reductive theory and is compatible with materialism.

No matter how they are divided into different groups by the sub-issues, Representationalists hold the same basic idea that the phenomenal character of an experience is determined by its representational content. Whenever two sensory experiences have the same phenomenal character, they have the same representational content; whenever they have different phenomenal character, they have different representational content. We can formalize this as follows.

> **The Representational Thesis**: the sensory experiences of two normal subjects share the same phenomenal character, if and only if, they have the same representational content.

[1] According to Standard Representationalists, the content of sensory experiences is nonconceptual, thus they normally use "representational content" to distinguish it from the conceptual sense of intentional content. I will ignore this distinction, since it plays no important role in my discussion.

As Levine points out, the Representational Thesis implies that for representationalists, "all there is to being reddish is to be a representation of objective red. [Representationalists] take what on other views is a contingent relation and turns it into a conceptually necessary one" (2001, p.112).[2] If any of the arguments for the representational/phenomenal content distinction work, such as, the Inverted Spectrum argument or the Inverted Earth argument, the representational theory fails.

In this chapter, I will only discuss the Standard Representational theory of phenomenal consciousness. First, Standard Representationalism claims that phenomenal character is <u>one and the same</u> as representational content and that the representational content is determined totally by what sensory experiences represent, which is normally the perceptible properties of external objects or the body parts of individuals. Hence, according to Standard Representationalism, the phenomenal character of sensory experiences is determined externally, rather than internally; it is wide content rather than narrow content; it is determined by its Russellian content, that is, it is determined totally by its referent, rather than Fregean content that is partly determined by the mode of representation.

Standard Representationalism can be divided into two major branches split over the issue of consciousness. Some Standard representationalists, such as, Byrne and Hilbert, Dretske, Harman and Tye, hold that consciousness is intrinsic to sensory experiences and, therefore, is determined at the same level as representational content. If there exists a distinction between conscious/unconscious qualitative experiences, then this form of Standard Representationalism fails. Others, such as Armstrong and Lycan,

[2] Levine, Joseph. (2001): *Purple Haze: The Puzzle of Consciousness*, New York: Oxford University Press, p.112.

hold that consciousness is not intrinsic to sensory experiences, but instead is a relational property that is determined by the relation between a first-order mental state and a higher-order mental state. I will call the Standard Representationalism of the former group Standard Representationalism and that of the latter group Labor Division Represntationalism, which will be discussed in Chapter 5.

A further distinction among Standard Representationalists is about whether representational content can be reduced to some basic physical properties. Take the case of color perception for example, some Standard Representationalists hold that the content of color experiences, i.e., physical color properties, can be reduced to basic physical properties, such as the wavelength of light or the surface spectral reflection; some hold that colors cannot be reduced to basic physical properties. I will call the first the reductive Standard Representationalists, the latter the non-reductive.

According to Standard Representationalism, the three expressions, "to see the property F of x," "to represent x as having the property F" and "to be conscious of the property F of x", mean the same in the phenomenal sense. When you have an experience of x or F, you are aware of x or F at the same time. We can see that Standard Representationalists deny that there are mental qualities—qualitative properties which are intrinsic properties of experiences. They hold that sensory experiences represent the external objects by having representational content, which is determined by their relations to the external objects or properties, and that consciousness is an intrinsic property of sensory experiences. That is to say, one cannot have any experiences with a certain phenomenal character (or representational content) that is not conscious, even if one is not introspectively aware of the relevant experience.

Some issues need to be considered. First, it is traditionally accepted that sensory states differ from thoughts and beliefs—the former have the qualitative properties which the latter lack. If intentionality, rather than intrinsic qualitative property, is the mark of sensory experiences, both sensing and thinking are intentional. Then, the first two major problems Standard Representationalists face are to explain, first, why sensory experience is representational and, second, how we can make the distinction between sensory states and thoughts or beliefs.

Both Dretske and Tye claim that what distinguishes sensory states from beliefs is that they are different kinds of representations. Beliefs are conceptual representations while sensory representations are nonconceptual, since it is possible for animals and infants without any conceptual system to perceive the same thing as an adult who has the relevant concepts. However, appealing to the merely conceptual and nonconceptual distinction of representations without further qualifications doesn't seem to be helpful at all. At a minimum, we require an explanation of the distinction of conceptual and nonconceptual representations is the main character that marks the difference between sensory and other mental states.

Secondly, Standard Representationalists hold that consciousness is an intrinsic property of sensory experiences. To sense the property F of x is the same as to be conscious of x as having F. But the claim that sensory experiences are the same as consciousness seems to fly in the face of the intuition that there is a distinction between conscious and unconscious sensory states. If one can have a visual experience of a red object without being conscious of experiencing that red object, i.e., unconsciously sensing the red object, then, sensing is not the same as consciousness. Therefore,

Standard Representationalists also have to explain the relation between sensory experiences and consciousness.

Thirdly, Standard Representationalism is an eliminative theory of mental qualities, since it replace the talk of mental qualities by means of representational content. One of the major motivations of Standard Representationalism is the transparency principle, according to which, when one introspects one's experience of seeing a red object, one's attention normally passes one's experiences and ends up on the representational content, rather than the qualitative properties of one's experiences. Standard Representationalists claim that, to introspect qualitative properties of one's experience, one has to look at the external object of one's experience rather than look inside one's experience. But how can one introspect by means of looking at external objects?

In sum, the Standard Representationalism that I am going to discuss in this chapter holds that there are no mental qualities, that consciousness is an intrinsic property of first-level mental states, that the intentional content of sensory experiences is nonconceptual, and that the intentional content of experiences is determined externally and therefore is wide. They also hold that color properties can be reduced to basic physical properties, such as surface spectral reflectance.

In section 1.1, I will discuss the Standard Representationalists' responses to the charge that their theory cannot explain both the distinction between beliefs and experiences (if both are individuated by intentionality), and the distinction between conscious and nonconscious experiences. In section 1.2, I will discuss an argument for representationalism—the argument using the principle of transparency and introspection.

Section 1.3 will discuss the shifted spectra argument against the Representational Thesis. I will argue that Standard Representationalists fail to answer this argument. I will end with section 1.4 which discusses another objection to the Representational Thesis—the argument from color constancy—and some possible responses.

1.1 The Belief/Experience and Conscious/Nonconscious Distinctions

1.1.1 The Distinction between Belief and Experience

What marks the difference between beliefs and experiences as two different kinds of mental states or representations according to the Standard Representationaists? According to Dretske, the difference consists in the sources of their indicator functions. Token mental states have two different sources of their indicator functions, which Dretske explains as follows.

> (1) A state may derive its indicator function—and, hence, its representational status—from the system of which it is a state. Call these *systemic* indicator functions (= $functions_s$) and the representations they give rise to systemic representations (= $representations_s$). … (2) A token state may, on the other hand, acquire its indicator function, not from the system of which it is a state, but from the *type* of state of which it is a token. No matter what ß systemically represents (what it is, by design of the system, supposed to indicate), it might acquire (or be given) a special, or different, indicator function. … Call such function … *acquired* indicator function (= $functions_a$). The indicator $function_a$ (hence, $representations_a$) of token states may be different from their systemic functions (what they $represent_s$). (1995, pp.12-13)[3]

Dretske believes the distinction between systemic and acquired functions to be what marks the difference between experiences and beliefs. He identifies experiences as the mental states with systemic representational properties and thoughts as mental states with acquired representational properties. Then, he explains what qualifies the difference

[3] Dretske, Fred. (1995). *Naturalizing the Mind*. Cambridge, Mass.: The MIT Press.

between experiences and beliefs as two different kinds of mental representations by means of the systemic and acquired functions as follows.

> [E]xperiences have their representational content fixed by the biological functions of the sensory systems of which they are states. … The quality of a sensory state—how things look, sound, and feel at the most basic (phenomenal) level—is determined phylogenetically. Since we inherit our sensory systems, since they are (at a fairly early age, anyway) hard-wired, we cannot change the representational$_s$ character of experience. … The way a belief represents the world, on the other hand, is ontogenetically determined. We can, through learning, change our calibration. We can change what we see things *as*—what we, upon seeing it, take it to be—even if we cannot, not in the same way, change what we see. (1995, p.15)

From this, he concludes that "[t]his is why a representation$_s$ of *k* as red (a sensation of redness) is different from a representation$_a$ of *k* as red (a belief that *k* is red) even though both are representations of k as red" (1995, p.15).

In sum, since Dretske holds all mental facts are representational facts and denies experiences have qualitative properties, to explain the distinction between experiences and beliefs, he appeals to the distinction between conceptual and nonconceptual representations. In turn, he explains the distinction between conceptual and nonconceptual representations by means of the sources of their indicator functions—token experiences get their indicator function from the systems to which they belong, while token beliefs get their indicator function from the type of states they belong to. The distinction between the systemic and acquired function of indicating information explains not only why experiences are non-conceptual and beliefs are conceptual, but also why they are two different kinds of mental representations. It explains why both beliefs and experiences can represent the same information of *k*, but beliefs of *k* are different from sensations of *k*.

Tye seems to agree with Dretske that sensory and propositional representations have different sources of indicator functions, but disagrees with Dretske about how they get their indicator functions. Tye claims that what really matters for the content of sensory representations is the "correlation, or more accurately, causal co-variation, *under optimal condition*"[4] (1995a, p.101) between sensory experience and the objects or properties it represents. Therefore, for Tye, the representational content of a sensory representation S is determined by what is correlated or causally co-varies with S, under optimal conditions. Concerning the indicator function of propositional attitudes, Tye accepts Fodor's language of thought hypotheses and claims that "[t]he content of the belief is a joint product of the relevant state of affairs and its manner of linguistic encoding in the belief"[5] (1995a, p.99).

Tye appeals to some empirical evidence to support his view concerning how the content of a sensory representation is decided, and then derives from it the difference between propositional attitudes and sensory representations. First, the evidence for the claim that the content of a sensory representation is decided by the objects that causally co-vary with it. Our visual illusions, such as the Muller-Lyer illusions and the Hering illusion, don't change even if we have the correct beliefs about what the real properties of the seen objects are. Knowing the two lines in the Muller-Lyer illusion are the same length doesn't make the lines look the same length phenomenally. The reason is because, Tye claims, "vision is modular in the sense that it generates representations of a certain

[4] Tye, Michael. (1995a). *Ten Problems of Consciousness*. Cambridge, Mass.: The MIT Press. Tye changes his opinion about the covariation condition, in his (2000a). He adds that the condition of correlation should be Fodor's "asymmetric dependence condition" rather than pure causal covariation (2000a, p. 140).
[5] By 'states of affairs', Tye means the "complex items into which real objects, properties, and relations enter, but no representational or conceptual items" (1995a, p.99).

class of properties of distal stimuli via sensory processes that operate on the retinal input in a largely fixed, autonomous manner" (1995a, p.102).

From this, Tye derives the difference between sensory representations and propositional attitudes as follows.

> Perceptual sensations, in my view, form the outputs of specialized sensory modules and stand ready to produce conceptual responses via the action of higher-level cognitive processing of one sort or another. So perceptual sensations feed into the conceptual system, without themselves being a part of that system. They are nondoxastic or nonconceptual states. (1995a, p.104)

That is to say, the differences between perceptual sensations and beliefs are, first, their different functional roles, and second, the different ways in which they represent their objects—the former are nonconceptual representations while beliefs are conceptual ones. That is one of the reasons why the expression "S sees an F" cannot be identified with the factual expression of "S sees x as an F" and "S sees that x is an F", which require remembering what Fs look like, and thus, having the conceptual resources of Fs.[6] But this is not to claim that while a spot can look red to S, it (the spot) cannot look disposed to reflect such-and-such percentages of the light, given that red is a disposition to cause the reflection of such-and-such percentages of the light.

As Dretske claims that an animal without a conceptual system can <u>see</u> a poodle without <u>seeing</u> it <u>as</u> a poodle, so Tye claims that when S sees the red spot, S <u>sees</u> the disposition just mentioned too, even though S fails to recognize that it is the relevant disposition, that is, without <u>seeing</u> the red spot <u>as</u> the relevant disposition. The reason is that "<u>see</u> F of x" expresses a nonconceptual, phenomenal sense of perception while "<u>see</u> x

[6] In the case of seeing something as an F, in Tye's own words, "[t]he perceptual information about Fs is stored in a schema (on the standard psychological model of perceptual memory). Seeing-as demands bringing the sensory input under the appropriate schema. So seeing-as is constrained by limitations on memory. Perceptual sensations, however, can, and often do, occur without corresponding schemas. Color sensations … subjectively vary in ways that far outstrip our color schemas" (1995a, p.104).

as F" expresses a conceptual, epistemic sense of perception. Hence, even though both sensory and conceptual representations are intentional, they belong to different representational systems which are independent of each other. Sensory representations are nonconceptual representations which are poised to cause the relevant beliefs, while propositional representations are conceptual representations which are caused by nonconceptual representations or are the causes of other beliefs or behaviors.[7]

1.1.2 The Distinction Between Conscious and Nonconscious Mental States

For Standard Representationalism, "to see the property F of x," "to represent x as having the property F" and "to be conscious of the property F of x" all mean the same in the phenomenal sense. We have seen Dretske's reasons for claiming that seeing F of x is to systemically represent x as having F, but we have not yet seen the reasons for the claim that seeing F of x is to be conscious of F of x.

Like Lycan and Rosenthal, Dretske also makes a distinction between creature (in fact, transitive) and state consciousness.[8,9] But, unlike Lycan, who claims that to sense is

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[7] In his (1995a), Tye holds that one of the main differences between sensory and propositional representations is that propositional attitudes have linguistic modes of representation while sensory representations have a map mode of representation. But this is a difference between different kinds of representational tools rather than different kinds of representational contents. However, in his (2000a), Tye gives up this opinion. (See his (2000a), p.68, Footnote 14). If so, the difference between sensory and propositional representations is characterized by, first, their different functional roles, and, secondly, their different kinds of representational contents—conceptual and nonconceptual.

[8] Dretske's terminology of "creature consciousness" differs from Rosenthal's. In fact, Dretske's expression of "creature consciousness" is the same as Rosenthal's terminology of "transitive consciousness", which is "conscious of", rather than Rosenthal's terminology of "creature consciousness". I will keep Dretske's terminology in the following discussion, since it won't affect our understanding of what he argues for. However, please keep in mind that by "creature consciousness" he means "conscious of."

[9] According to Dretske, we are in creature consciousness when we are conscious of things, including objects, events, properties and facts. We also attribute the expression of consciousness to mental states, processes, events and attitudes that are said to be conscious or unconscious. Dretske claims that the difference between these two kinds of consciousness is that "[s]tates (processes, etc.), unlike the creatures in which they occur, are not conscious of anything or that anything is so although their occurrence in a creature may make that creature conscious of something or that something is so" (1995, p.98).

only to register the perceivable properties rather than to have a conscious experience, Dretske assumes that sensings are specific forms—perceptual forms—of consciousness. Hence, sensing (seeing, smelling… etc.) a red flower is one way of being conscious of that red flower. Since simple seeing doesn't involve any concepts and knowing one's own experiences needs conceptual resources, it is possible for one to be aware of a red flower without being aware that it is a red flower and, therefore, without being aware that one is aware of a red flower. If so, not being aware that you are aware of a red flower doesn't mean that you are not aware of a red flower. Mistaking a red flower as a pink one doesn't imply that one is not aware of it either. Then, Dretske concludes that "[g]iven this usage, it may seem natural to suppose that if one is conscious of some object, then one's experience of it must itself be conscious" (1995, p.99).

But, Dretske emphasizes that, by "conscious experience," he doesn't mean a sensory state that one is being conscious of. That is, he disagrees labor division theories of consciousness, which try to explain state consciousness by means of "conscious of". Dretske explains what he means by "conscious experience" as follows.

> There are, to be sure, states in (or of) us without which we would not be conscious of trees and pianos. We call these states experiences. Since these experiences make us conscious of things (pianos, trees, French horns) the states themselves can be described as conscious. But we must be careful not to conclude from this that because the states are conscious, we must, perforce, be conscious of them. That doesn't follow. … Conscious mental states—experience, in particular—are states that we are conscious *with*, not states we are conscious *of*. They are states that make us conscious, not states that we make conscious by being conscious of them They are states that make us see, hear, and feel, not states that we see hear and feel. (1995, pp.100-101)

That is to say, conscious experiences are the mental states by means of which we are conscious of things rather than the mental states that become conscious due to our

consciousness of them. In other words, according to Dretske, by the term 'conscious experience' we attribute to experiences creature consciousness rather than state consciousness. If Dretske's opinion about experiences is correct, then, Labor division theories make a mistake in treating conscious experiences as state consciousness, and, in turn, it is question begging to define or explain consciousness by means of creature consciousness (or the notion of "conscious of").

Dretske admits that we do become conscious of having experiences that we are not conscious of having when they are occurring, and that some of our experiences even have never become conscious. However, he insists, "this is no reason to suppose that the experiences themselves are different from the experiences we know about" (1995, p.115). The difference is a difference in the experiencer, who knows something he didn't know before, rather than a difference in the experiences which he becomes conscious of.

Having an experience that represents is one thing, having a conscious experience is another, since one can have nonconscious mental states that represent, such as beliefs and thoughts. Some might try to charge that Dretske's idea of conscious experience seems to treat consciousness as an intrinsic property of mental states, since it claims that all experiences are conscious experiences. And, it seems to contradict the widely accepted intuition that there is a distinction between conscious and unconscious mental states. McGinn says,

> Why couldn't an internal state have an indicate function and yet not be a conscious state at all, but rather an unconscious or nonconscious one? Such a representational state would not be a conscious nervous system. How can the mere fact that an internal state has been selected to indicate a property suffice to make it a consciousness state? Nothing here serves to distinguish conscious from unconscious mental representations." (1997, p.529)[10]

[10] McGinn, Colin. (1997). "Missing the Mind: Consciousness in the Swamps." *Nous* 31:4 (1997).

If Dretske's idea of consciousness cannot explain the distinction between conscious and unconscious experience, then he must be wrong. However, Dretske claims that the above charge relies on mistaking creature consciousness for state consciousness, which is due to the confusion between "the consciousness of x" and "the x of which we are conscious". Moreover, the above charge is based on another confusion, confusing creature unconsciousness—the fact that one is not conscious of x—as state unconsciousness—that the x itself is unconscious (1995, p.115). When a creature is conscious, he or she is conscious of something, while when he or she is not conscious of (creature conscious) anything, he is (creature) unconscious. According to Dretske, the distinction between conscious and unconscious is not a distinction of state consciousness at all, but, rather, it is a distinction of creature consciousness.

The problem with Dretske's account of conscious experiences is that it cannot explain the phenomenal character of experiences, even if we accept his account of consciousness. Dretske says, "you may not pay particular attention to what you see, smell, or hear, but if you see, smell or hear it, you are, in the relevant sense, conscious of it" (1995, p.99). There are lots of things we are conscious of, according to Dretske's sense of consciousness, but they make no difference in the "what it is like" or phenomenal character of one's visual experiences of seeing them. Take the case of change blindness for example. Subjects see all the objects in two similar pictures, including the object that makes the difference in the picture, but there is no difference in the phenomenal character of their visual experiences of seeing these two different pictures until they notice or find the difference. There are also cases in which subjects see no difference in the objects but the phenomenal character of seeing them is different. For

example, in the simultaneous color contrast, subjects see the same color in both pictures, thus representing the same color, but they look different to the subjects phenomenally. Thus, having the phenomenal character of seeing F differs from being aware of F.

1.2 Arguments for the Representational Theory

The Standard Representationalists' argument for the representational theory consists of two different sub-arguments. The first one is a negative argument, which argues that experiences have no qualitative properties (qualia), since they are not introspectively accessible and that the only thing consciously accessed in introspection is the representational content of experiences. I will discuss Harman's argument against mental qualities in section 1.2.1. The second sub-argument is the argument for the Representational Thesis: phenomenal character and representational content are one and the same, which I will discuss in section 1.2.2.

1.2.1 Mental Quality and Transparency of Experiences

One of the major motivations for believing in representationalism is the phenomenon of transparency or diaphanousness of experiences in introspection, since it seems to contradict the idea that there are mental qualities and that mental qualities determine what sensory experiences are. Harman illustrates the transparency of experiences by the following example. He says, "[l]ook at a tree and turn your attention to intrinsic features of your visual experiences. I predict you will find that the only features there to turn your attention to will be features of the presented tree, …" (1990,

p.667).[11] The same in the case of color perceptions: when you have a sensory experience of a red tomato and introspect, your attention will pass through your experience and goes straight to its representational content, i.e., the red property of tomato. Harman claims that there are no color sensations, or mental qualities of red, such as Peacock's conception of prime red (red'). He says, "[o]n seeing what appears to be a ripe tomato one does not feel a sensation of red in one's eye, nor is there literally a sensation or feeling at the location at which the tomato looks red" (1996, p.252).[12] His reasoning is as follows.

> You have no conscious access to the qualities of your experience by which it represents the redness of the tomato. You are aware of the redness of the represented tomato. You are not and cannot become consciously aware of the mental "paint" by virtue of which your experience represents the red tomato." (1996, p.253)

From this he concludes:

> It follows that your concept of red object cannot be analyzed into your concept of a red' experience, meaning the specific quality that your perceptual experience has in order to represent objective redness, because you have no such concept of red' experience. You have no idea what specific quality of your perceptual experience is used to represent objective redness. You only have the concept of objective redness! (1996, p.253)

From what Harman says above, we get the following basic claims from Harman's argument that rests on the transparency of experience. (1) You can be aware of the mental quality of your experience only if you are attending to your experiences. (2) Since you cannot attend to the mental quality of your experience, you cannot be consciously aware of the mental quality of your experience, therefore, there is no mental quality of color

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[11] Harman, Gilbert. (1990). "The Intrinsic Quality of Experience." In *The Nature of Consciousness: Philosophical Debates*. (Eds.) Block, Ned, Flanagan, Owen, and Guzeldere, G. Cambridge, Mass.: The MIT Press (1997).

[12] Harman, Gilbert. (1996). "Explaining Objective Color in Terms of Subjective Reactions." *Philosophical Issues*, 7.

experience. (3) In introspection, you are aware of the represented property of your experience, not mental quality. (4) The objective concept of red cannot be analyzed by the concept of red' (i.e., red mental quality), since you only have the objective red concept.

I am going to argue against all four statements. To the first claim, Block argues that "attention and awareness are distinct, and as a point about awareness, the diaphanousness claim is both straightforwardly wrong and misleading. One can be aware of what one is not attending to" (2003, p.540).[13] Block proposes different examples to illustrate the case. When you are talking to your friend, the jackhammer outside causes you to raise your voice without your attending to the noise until your friend comments on it. Then, you realize that you were aware of the jackhammer during the whole time. The other example is that you suddenly notice the noise of the refrigerator compressor has gone off and that you were aware of it during the whole time. Again, this is a case that you were aware of something that you were not attending to (2003, p.540).

Let's make explicit what is going on here before we go further. According to Harman, when you look at the red tomato and introspect, your attention ends up on the red tomato. Since the attention is on the red tomato, it is what you are aware of. You are not aware of any mental quality—the red' qualitative quality—of your experience. The questions are: whether having attention directed at one's experience is the same as (or is a necessary condition of) being consciously aware of one's experience and whether it is the case that, in introspection, one can only be aware of what one's attention ends up on. From what Block's claims, he apparently rejects both the ideas that awareness of one's

[13] Block, Ned. (2003). "Mental Paint." In his *Consciousness, Function, and Representation: Collected Papers, Volume 1*. Cambridge, Mass.: The MIT Press (2007).

experience is the same as attending to it and that one can only be aware of what one's attention is on. But there is something wrong with Block argument.

Block is attacking a straw man, since both cases of jackhammer and refrigerator are about one's sensory experiences of the noise rather then about one's introspective awareness of one's experiences of the noise. Harman doesn't claim that you cannot be aware of the color of tomato even if you are attending to it; what he claims is that you cannot be aware of the red' qualitative property of your experience even if you pay attention to your experience of the red tomato. Given that Block is right about the distinction between attention and awareness in the case of sensory experience, it is still not clear whether or not he is right in the case of introspective awareness of one's experience.

I am sympathetic to Block's claim about the distinction between attention and awareness, even in the case of introspective awareness of one's experiences. It doesn't seem right to claim that when you introspect your experience of a red tomato, your attention always ends up on the red tomato, unless you hold a perceptual model of introspection, such as, the displaced-perception model of introspection. Harman's argument does seem to rest on some sort of perceptual model of introspective awareness, otherwise we cannot even understand the claims that, in introspection, one's attention passes through experience and ends up on the red tomato, which is the intentional object of the experience. The perceptual models of introspective awareness face some problems and are not acceptable, (which I will argue in the next section.) If so, Harman's first claim is false, since it rests on a controversial model of introspection.

Harman also seems to hold that the result of introspection is object-awareness or property-awareness, while many philosophers suggest that the awareness we get from introspection is fact-awareness, with which I agree. When one looks at a red tomato and introspects, one becomes aware of the fact that one is having an experience of looking at a red tomato, i.e., one is aware of one's experience as having a red qualitative property, rather than becoming aware of the intentional object of the experiences, i.e., the red property of the tomato. Thus, when one introspects one's experience of a red tomato, one's introspective awareness won't end up about the red tomato, instead, it ends up about one's experience of the tomato. When one attends to one's experience of a red tomato, one becomes being aware of the fact that one's experiences of the red tomato have a red' qualitative property, which is a mental quality. Since one can attend to, and thus is consciously (fact-)aware of, the mental quality of one's experience, Harman's statement (3) is also unsound.

Even given that Harman is right that there is no conscious access to the mental quality of one's experience, this implies neither that experiences have no qualitative properties, nor that one only has objective color concepts. Whether there are mental qualities and whether they are consciously accessible are two different questions. The qualitative properties of nonconscious experiences are not accessible consciously, but presumably they still have qualitative properties, which the subject is not conscious of. Thus, there are mental qualities, such as a red' qualitative property, even if it is not consciously accessible. Thus, Harman's statement (2) is false.

What about the statement (4) that claims that the objective concept of red cannot be analyzed by the concept of (mental) red' since you only have the objective red

concept? It is also false. If one can be introspectively aware of the red' qualitative property of one's experience, one has the concept of red' qualitative property also. Thus, there is no particular difficulty in analyzing the objective red concept by means of the concept of red'. The question is how to offer the analysis without begging the question. Red objects are those that produce an experience with the red' qualitative property, while for an experience to have red' qualitative property it has to be caused by red objects. If red objects are to be individuated by the red' experience they cause and red' experiences are individuated by the red color that cause them, it seems that we won't be able to avoid the circularity.

However, we have an alternative way of individuating the qualitative properties of color experiences, which is by means of their similarity and difference relations to other color properties. For example, to be an experience with red' qualitative property is to be more similar to the color experiences with orange' than to those with yellow' qualitative properties. We individuate the qualitative properties of color experiences by means of their relations to each other, rather than by what causes them directly. This way we can avoid the circularity. Red objects are those which produce experiences with red' qualitative properties, while experiences with red' qualitative property are those that are more similar to the experiences with orange' qualitative properties than to those with yellow' qualitative properties.

1.2.2 Phenomenal Character and Representational Content

Resting on the principle of transparency and the argument against mental qualities that were discussed in the last section, Standard Representationalists argue that the

phenomenal character of experiences is determined by its representational (or phenomenal) content. Given that (i) mental qualities are not consciously accessible, (thus, phenomenal character cannot be determined by mental qualities), (ii) the phenomenal character of experiences is what is introspectively accessible when one introspects and (iii) we learn, from the principle of transparency, that the representational content of experiences is what is introspectively accessed, Standard Representationalists conclude that representational content determines the phenomenal character of experiences.

The argument for the Representational Thesis can allow the existence of mental qualities that are not consciously accessible, since it seems obvious that nonconscious mental qualities cannot be what determine the 'what it is like', or phenomenal character, of having a certain sensory experience. Tye argues for the representational theory of phenomenal character by appealing to the transparency principle as follows.

> When you introspect, you are certainly aware of the phenomenal character of your visual experience. On the basis of introspection, you know what it is like for you visually on the given occasion… By being aware of the external qualities, you are aware of what it is like for you… Therefore, your awareness of phenomenal character is not the direct awareness of the quality of your experience. Relatedly, the phenomenal character itself is not the quality of your experience to which you have direct access. (2000a, p.47)

Since to be aware of phenomenal character you must be aware of the external qualities, "the phenomenal character involves the surface qualities of which the subject of the visual experience is directly aware—that qualities at least partly *constitute* phenomenal character" (2000a, p.48). Tye then concludes that "the best hypothesis… is that visual phenomenal character is representational content of a certain sort—content into which certain external qualities enter" (2000a, p.48).

The question is, how can one know the phenomenal character of seeing a red object introspectively by looking at external objects or properties? Dretske proposes the displaced perception model of introspection. As Dretske points out, in everyday life, we come to know a lot of facts about objects which we don't perceive by means of our sensory perceptions. For example, I know how much I weigh by looking at the scale and I know the temperature outside by looking at the thermometer or by watching the weather report. In such cases, I come to know the fact of my weight and the fact of the temperature outside by looking at what happens to the scale and the thermometer respectively. The fact that I know about my weight is displaced from the property of the scale, the pointer position I perceived, i.e., the fact-awareness of my weight is displaced from the object and/or property-awareness of the scale.

In the case of sensory experiences, one's sensory system owns the sensory state, say P, and if the sensory system is working right, state P must carry the information about the world. One doesn't have to find out how one's sensory state P indicates, since sensory state P itself carries this piece of information already. For Dretske, sensing an object k is to represent it (systemically) as having a certain property. When one is in a certain sensory state P, one is representing k as so-and-so, and this so-and-so is just the way one's sensory system represents k, if it is working properly. Hence, "although P may not carry information about k, it does carry information about S—about the way [the subject S] is representing k" (1995, p.52).

If so, in order to find out what information the sensory state P indicates, one needs only look at k, which the sensory state P is about. This way of knowing one's own experience makes the introspective knowledge of one's experience become a case of

displaced perception. One becomes fact-aware of one's own experience (or the representational content of one's experience) by being object or property-aware of something else (the object k).

The problem is that the displaced perception model of introspection makes introspective consciousness of false positive cases of sensation—such as phantom pain and hallucination—impossible. According to Dretske, to introspect is a process that proceeds from perceiving the intermediate fact (the physical property of what one perceives) to the introspective knowledge of the target fact (the relevant experience). Since there is no intermediate fact in false positive cases of sensations, it is impossible for one to introspect one's experience of phantom pain, visual hallucination, or after-image.

But it seems obvious that one can be introspectively conscious of one's own sensation even in the cases of false positives, hallucinations and after-images. If one feels a pain sensation in one's phantom limbs and introspects, one can become introspectively aware of one's phantom pain even if there is no limb to be attended. If one has a visual hallucination of seeing a red flower when there is no red object in front of him, one still can introspect and become introspectively aware of one's own experience of the red flower hallucination. The displaced perception model of introspection cannot explain these basic intuitions.

Tye's model of introspection faces the same kind of problem. According to Tye, introspection is the reliable process that proceeds from looking at the physical objects of one's experience to the application of the relevant phenomenal concepts (2000a, p.52). If so, whatever sensory states that are not caused by the relevant physical objects, such as experiences of false positive sensations, after-images and hallucinations, will not be

accessible introspectively. But, intuitively, one can introspect one's experiences even in those cases. The argument for the Representational Thesis rests on some controversial models of introspection. Without the perceptual model of introspection, Tye's argument for the Representational Thesis that rests on introspection is at best unsound.

The second problem is that there is a counter example—the simultaneous contrast of color perception—to the claim that the surfaces qualities of which the subject is directly aware partly *constitute* phenomenal character. When you look at two different squares with the same gray color, the phenomenal character of your experiences of both squares are the same and they have the same representational content. However, when we place them against different backgrounds they look different phenomenally, that is, your experiences of them have different phenomenal characters, but presumably the representational content of your experiences of these two different squares are still the same, since they are the same squares with the same color as before. If so, surface qualities don't constitute phenomenal character. There are other counter examples that I will discuss when we come to the issue of shifted spectra later. Thus, the argument from introspection for the Representational Thesis fails.

1.3 Spectra Shift and The Puzzle of True Color

1.3.1 The Shifted Spectra Argument

The basic ideas of Block's argument of shifted spectra are as follows. First, Block points out the scientific fact that color vision varies from one normal perceiver to another in color matching tests when they differ in sex, race or age, and there is no reason to

regard any gender, race or age as abnormal in color vision.[14] If so, it seems reasonable to conclude that the phenomenal character of experiences of a specific Munsell chip may be different for any two people if they differ in gender, race or age. Hence we get a case against Standard Representationalism. Two people, Jack and Jill, both have experiences that represent red flowers as red, even though the phenomenal character of their experiences are slightly different. If two experiences have the same representational content but different phenomenal characters, then phenomenal character is not one and the same as representational content, and Standard Representationalism fails.

To support his argument, Block points out further evidence, which is the study of the spectra location of the unique green (1999, p.575). As Hardin mentioned, in a 1968 study, the lights which the subjects identify as unique green take up 9 percent of the visible spectrum, from 490 to 520 nm.[15] Hardin also mentioned a study by Schefrin and Werner that shows the lights which the subjects judge as unique green extend to about 13 percent of the visible spectrum, from 486 to 535 nm, while the lights the subjects identify as unique blue extend from 464 to 495 nm. There is 7 nm overlap for the unique green and the unique blue (1988, p.xxiii). That is to say, each light between 486 nm to 495 nm is classified as unique green by one subject but as unique blue by another subject. From this, Block concludes that "if we take a chip that any one subject in this experiment takes as being unique green, most of the others will see it as at least slightly bluish or yellowish" (1999, p.575). Hence, we get the same conclusion, as in the case of color

[14] Block, Ned. (1999). "Sexism, Racism, Ageism and the Nature of Consciousness." In his *Consciousness, Function, and Representation: Collected Papers, Volume 1*. Cambridge, Mass.: The MIT Press (2007), p.574.
[15] Hardin, C.L. (1988). *Color for Philosophers*. Indianapolis: Hackett, p.79.

matching test that it is possible that any given chip will look slightly different to any two normal persons. Again, the Representational Thesis is wrong.

The Standard Representationalists, who are also color physicalists, face a puzzle here, since, first, there is no reason for us to take the color vision of any group that differs in sex, age and gender as abnormal. That is to say, we cannot say either Jack or Jill is wrong. Second, it is impossible to take both colors that Jack and Jill pick as unique green, because one color looks slightly different from the other. Third, it is impossible to say that both Jack and Jill are wrong, because the colors they pick are neither unique green nor bluish (or yellowish) green due to colors not existing in the external world. If so, we are out of alternatives.[16]

1.3.2 Tye's Solution

To answer the objection resting on the shifted spectra argument, Tye claims that visual experiences of normal human beings only represent coarse-grained colors and don't represent fine-grained colors at all under normal viewing condition. This way he can explain that both Jack and Jill, assuming their visual systems are normal, perceive the color right, since they both perceive it as green, which is what their visual perceptions are designed to represent under normal viewing conditions, even if they also perceive it differently at the fine-grained level (2006b, p.177).

From the phenomenal point of view, this answer fails to provide a solution to the puzzle. First, it is inconsistent with the Representational Thesis. Because there is still the phenomenal difference between Jack and Jill's experiences when they both look at the

[16] Cohen, Jonathan. (2007). "Color, Variation, and the Appeal to Essences: Impasse and Resolution." *Philosophical Studies,* 133. p.426. Tye, Michael. (2006b). "The Puzzle of True Blue." *Analysis* 66.3, (July, 2006). pp.173-174.

same green chip; one perceives it as unique green, the other bluish or yellowish green. The Representational Thesis claims that any two different color experiences of different normal perceivers have the same phenomenal character if, and only if, they represent the same color property. However, in Tye's solution, Jack and Jill's color experiences represent the same color but have different phenomenal characters.

Second, given that the phenomenal character of color experiences are totally determined by coarse-grained colors, Tye's answer still faces problems. As Hardin points out, in the Schefrin and Werner study, there are 7 nm overlap spectra in which the lights are judged by some subjects as unique green, but unique blue by others at the same time. That is to say, for any particular chip among the overlap area, some subjects will perceive it as unique green, while others will perceive it as unique blue, rather than bluish green. Therefore, even if we agree with Tye that the phenomenal character of the color experiences are one and the same with the coarse-grained colors they represent the chip as having, when Jack and Jill look at the same color chip, their color experiences still have different phenomenal characters. Thus, Tye's solution still fails.

A further problem, which is similar to the second one, is mentioned by Cohen, Hardin and McLaughlin.[17] They point out that Tye's solution rests on the false assumption that all variation in color experiences among normal perceivers in normal viewing conditions is at the fine-grained level, which assumption contradicts the result of the color-naming study of Malkoc, Kay and Webster.[18] In their experiment, Malkoc et al. found out that there is overlap in the color experiences among normal perceivers in

[17] Cohen, Jonathan, Hardin, C.L. and McLaughlin, Brian. (2006). "True Colours." *Analysis* 66.4 (October, 2006).
[18] Malkoc, G., P. Kay and M.A. Webster. (2005). "Variations in Normal Color Vision. IV. Binary Hues and Hue Scaling". *Journal of the Optical Society of America*, A22, (October, 2005) pp.2154-2168.

normal conditions. The overlap is so pronounced that "some subjects chose as their best example of orange a stimulus that other subjects selected as the best example of red, while others selected for orange a stimulus that some individuals chose for yellow" (2005, p.2156). That is to say, even at the level of coarse-grained colors, there are surfaces which look red to some normal subjects in normal viewing conditions but look orange to other normal subjects in normal viewing conditions. Cohen et al. conclude that to respond to this result, Tye either has to appeal to an even coarser level of grain than that of basic color categories, (such as, blue, purple, yellow and so on,) or he has to give up his solution (2006, p.339).

Tye proposes two different answers. The first one appeals to misrepresentation. Tye say that "many of today's human perceivers are not Normal," because "[t]heir colour detection systems are not operating as Mother Nature originally designed" (2006c, pp.342-343).[19] Just as in the case of the inverted spectrum, according to Tye, the inverts are not Normal, even if their visual system works as well as that of normal perceivers. The inverts misrepresent red as green. The same with the result of Malkoc's experiment, Tye claims: many perceivers misrepresent one coarse-grained color as another, for example red as orange (2006c, p.343). However, he seems reluctant to accept this solution.

The second answer is that there is no misrepresentation, but rather, some perceivers under-represent certain colors. Given that Jack and Jill both are normal perceivers and that when they perceive an object S in normal viewing conditions, S looks

[19] Tye, Michael. (2006c). "The True of True Blue." *Analysis*, 66.4 (October, 2006), p.342-343. It seems that, according to Tye, "Normal" and "normal" refer to different kinds of condition. The color vision perception of a human being is "Normal" if it functions according to Mother Nature designs; while a person's color vision is "normal" if it passes the standard psychophysical tests.

red to Jack but looks orange to Jill, then how could neither misrepresent S's color? To explain this possibility, first, Tye claims the distinction between unitary and binary color is due to the binary chromatic colors having conjunctive properties. For example, orange is a conjunctive property of reddishness and yellowishness. Unitary chromatic colors, such as, blue, yellow, red and green, are not conjunctive properties (2006c, p.341). Then, Tye explains the possibility as follows.

> S, in looking red to [Jill], looks reddish to her. S, in looking orange to [Jack], looks reddish to him and it also looks yellowish. Moreover, if S looks sufficiently orange to [Jack] for him to count S as orange *simpliciter* (going by its looks), S looks sufficiently reddish and sufficiently yellowish for him to make such a classification. So, on the assumption that S is orange, that is, reddish and yellowish, [Jack's] colour experience is veridical. But then so is [Jill's]. [Jill] doesn't *mis*represent the colour of surface S. She *under*-represents it. [Jill's] yellowishness detector, unlike [Jack's], is not sufficiently activated by the colour of S for [Jill] to count S as orange (on the basis of its colour appearance). (2006c, p.343)

I take Tye as claiming that given S is orange, then Jack's color experience is veridical at the coarse-grained level, since S looks orange to him, or S looks sufficiently reddish and sufficiently yellowish to him. However, S looks red to Jill, (maybe slightly yellowish red?) because the yellow detector of her color vision is not sufficiently activated by S. Jill doesn't misrepresent S, but rather, she "under-represents" S. This is not a variation at the level of coarse-grained color perceptions, since it is a difference about the yellowish perception of orange color. S, which is orange color, looks more yellowish to Jack than to Jill, which is why Jill perceives it as red while Jack perceives it as orange. Just as in the case of unique green and yellowish green, the difference is at the fine grained level, the same in the present case. If so, there is only variation at the fine grained level of color perception for normal human perceivers, even in Malkoc's

experiment. Thus, there is no misperceiving at the coarse-grained level of color experiences of normal human perceivers.

The first problem with Tye's answer is that it is ad hoc. Even if Tye's answer works in the particular kind of cases just discussed, i.e., a subject perceives a binary color as a unitary color, the same strategy cannot be applied to answer the reverse cases, that is, where the subject perceives an unitary color as a binary color. Suppose S is red and that Jack perceives it veridically as reddish without tinged yellowish or bluish, while Jill perceives it as orange, i.e., sufficiently reddish and sufficiently yellowish, rather than yellowish red. How could Tye explain this case? It cannot be a case of under-representation, since Jill represents S as sufficiently reddish. It seems that the only answer must appeal to misperception, that is, Jill misrepresents pure red as orange, which is at the coarse-grained level. Therefore, Tye's response still fails to answer the result of Malkoc's experiment.

The second problem is that the under-representation response to the Malkoc et al. result is still not compatible with the Representational Thesis. When Jack represents S as reddish while Jill represents S as both reddish and yellowish, there is a difference between the phenomenal characters of their color experiences of the same chip. Thus, Tye's solution contradicts the Representational Thesis.

Cohen et al. point out a further problem with Tye's answer, that the under-representation treatment is not consistent with Tye's other commitments.[20] They claim that Jill cannot be a reliable detector of yellow color, if she under-represents the yellowishness. Moreover, she cannot be a reliable detector of orange color either, since

[20] Cohen, Jonathan, Hardin, C.L. and McLaughlin, Brian. (2007). "The Truth about 'The Truth about True Blue'." *Analysis* 67.2 (April, 2007). p.164.

she fails to represent one of the conjuncts of orange color. Since both yellow and orange are coarse-grained colors, there is variation in the coarse-grained color perception of Normal human beings. Again, Tye fails to answer the Malkoc et al result.

In sum, Tye's answer to the objections based on the shifted spectra argument or the variation among color perceptions of Normal human beings faces a trilemma. Tye's solution either fails to answer the result of Malkoc's experiment, or, it works but is ad hoc, or it works and isn't ad hoc, but contradicts the Representational Thesis.

1.3.3 Bryne and Hilbert's Solutions

Like Tye, Bryne and Hilbert (hereafter, B&H) try to explain the puzzle without appealing to massive misperception in their (1997) paper. [21] That is, both Jack's and Jill's color perceptions can be veridical, even if they represent the same color chip as having different colors at the fine-grained level. They argue that there is no contradiction involved in different subjects perceiving the same chip differently with respect to color, given that there is something in common in the color they represent. As we have discussed in connection with Tye's argument, unique green is a unitary color that is not tinged with any other color, while yellowish green is a binary color that appears to the subject both greenish and yellowish. When Jill perceives S, she represents it as both greenish and yellowish, hence she correctly represents S as greenish. According to the shifted spectra argument, subjects normally perceive colors under slightly different conditions. Hence, it is reasonable to explain the variation of color perceptions at the fine-grained level as resulting from the different conditions under which subjects

[21] Byrne, Alex and Hilbert, David. (1997). "Colors and Reflectances." In *Readings on Color: Vol.: The Philosophy of Color*. (Eds.) Byrne, Alex and Hilbert, David. Cambridge, Mass.: The MIT Press, (1997).

perceive the color chip. Thus, both Jack and Jill might perceive S veridically, even if they perceive it as having different fine-grained colors.

To support their argument, B&H appeal to the case of spatial perceptions of a particular square as having a rectangular shape and as having a diamond shape under different conditions. A square looks rectangular to a normal person under normal conditions, but it looks to have a diamond shape if it is tilted. Phenomenally, a diamond shape looks different from a rectangular shape and nothing can appear to have both shapes simultaneously, but the property of being a diamond shape and the property of being a rectangular shape are not contraries. Squares are both rectangles and diamonds. Thus, the fact that two figures appear to have different shapes to different subjects doesn't imply that they are figures of different shapes (1997, p.273).

The same arguably holds in the case of fine-grained color perceptions: being unique green and being yellowish green are different properties, and the fact that different chips appear differently to different subjects doesn't imply that they have different fine-grained colors, unless they are perceived under the same conditions. Jack and Jill perceive the same chip under different conditions and perceive it as having different fine-grained colors. Were they to perceive it under the same conditions, they might perceive it as having the same fine-grained color. Thus, if the situation is the same in both the cases of fine-grained color perceptions and the case of spatial perceptions, the shifted spectra argument fails to prove that the phenomenal character and the representational content of subjects' experiences come apart.

Ironically, the case of spatial perception turns out to be a counterexample to the Representational Thesis. When subjects look at the same object, the square, their visual

experiences have the same representational content, but have different kinds of phenomenal character—some perceive it as having a rectangular shape, others perceive it as having a diamond shape. To save the Representational Thesis, its supporters must introduce a difference in the representational content of their spatial experiences. For example, subjects who perceive the square as having a diamond shape also perceive it as being tilted. The problem is that this will destroy the analogy B&H try to build between color perception and spatial perception. In the case of color perception, when Jack and Jill perceive the chip with the same color, their experiences of color have the same representational content.

In sum, the first problem with B&H's argument is that it fails to establish what they argue for—the fact that subjects perceive different chips with the same color as having different fine-grained colors is compatible with the fact that they are of the same color, since subjects perceive them under slightly different conditions. I argue that, in the case of spatial perceptions, if the observational condition is not a factor in the representational content, this contradicts the Representational Thesis; if it is a factor in the representational content, the analogy disappears.

The second problem is that if there is analogy between the variation of color perception and the spatial perceptions as B&H propose, they are forced to accept that there is misperception in the fine-grained color perceptions. When a figure looks to have a rectangular shape under normal conditions and looks to have a diamond shape when it is tilted, the conditions that cause the different perceptions are located outside in the environment, while the conditions that affect the variation of color perception in the shifted spectra argument are located inside the subjects' visual systems. Thus, an

acceptable analogy must appeal to the difference inside the visual systems. For example, due to the difference between their visual systems, Jack and Jill perceive, respectively, the same square as having a rectangular shape and as having a diamond shape under normal observation conditions, that is, without tilting the square. However, we won't say both Jack and Jill perceive the square veridically, instead, we will judge that one of them misperceives the square (due to the malfunction of his/her visual system). The same reasoning applies to the case of shifted spectra, if the variation of color perception is due to the difference in visual systems, B&H must conclude that some subjects in the case of shifted spectra misperceive the chip.

To make it explicit, the second problem with B&H's argument is that either there is no analogy between the cases of spatial perception and shifted spectra; or there is an analogy but it implies that misperceptions occur in the case of shifted spectra.

The third problem with their argument is, as we have discussed in connection with Tye's solution, that the assumption in B&H's answer to the shifted spectra argument still contradicts the result of Malkoc's experiment. They assume that, under normal conditions, normal subjects represent basic colors as what they are, which contradicts the Malkoc et al result. I therefore conclude that B&H's first solution to the shifted spectra argument fails.

In their (2003) paper[22], B&H propose a different explanation for the variation of normal color vision. This time, they try to explain it by appealing to massive misperception, that is, either Jack or Jill misperceives the chip, hence there is no puzzle

[22] Byrne, Alex and Hilbert, David. (2003). "Color Realism and Color science." *Behavioral and Brain Science*s, 26. pp.3-64.

about the variation in normal color vision at all.[23] Applied to the shifted spectra argument, this solution implies that the rejection of the premise that there is no reason to claim either Jack or Jill misrepresents the chip at the fine-grained level and thus implies either a commitment of the sexism, ageism and racism in color perceptions, or the idea that there are massive misperceptions among normal human beings.

B&H argue that the commitment to massive misperception at the fine-grained level is not so counterintuitive, because it doesn't imply massive misperception at the coarse-grained level. When Jack and Jill perceive the same color chip as unique green and yellowish green at the fine-grained level respectively, they both also perceive it as being coarse-grained green. Thus, it is consistent with both intuitions that a color chip always looks different at the fine-grained level to different persons under slightly different conditions; and that people with normal visual systems always perceive green things as green, blue things as blue, and so on, under normal viewing conditions (2003, p.17).

Studies in visual science have shown that the physical structure of a subject's visual system varies with gender, race and age, implying that subjects do not perceive the same chip as having the same color under the same conditions. Given that there is a fact of matter about which color chip S, is, say unique green, and which conditions are normal, it seems reasonable to hold that, under slightly different viewing conditions, some subjects perceive S as unique green veridically, while other misperceive S as yellowish green or bluish green. The question is how to decide which subjects perceive the chip correctly and it seems that in order to do that we have to know which chip is

[23] The direct issue of their discussion in the (2003) paper is about color realism and anti-realism, but the same argument applies to the issue of phenomenal character, even if only indirectly.

unique green. The problem is that there is no independent test for determining which subjects perceive a chip correctly, since we don't have independent tests to determine which chip is unique green beforehand. As B&H themselves point out,

> The best evidence for a Munsell chip's having a certain color is that the majority of those with normal color vision see the object as having that color… Since there is no chip that the majority will pronounce to be unique green, we have no good reason to believe, of any chip, that it is unique green. (2003, p.17)

If there is no independent test of which chip is unique green, one can question: what is the reason to claim that some subjects perceive the chip correctly while the others misperceive it? This problem doesn't bother B&H. They claim that the variation of normal color vision is an epistemic problem without metaphysical implication and that "we are prepared to countenance "unknowable color facts"—that a certain chip is unique green, for instance" (2003, p.21, footnote 50).

B&H argue that the variation of color experiences gives no reason to doubt that some subjects represent the chip correctly and others misperceive it. They offer an analogy, in their (2004) paper,[24] between the variations in color perceptions and those in temperature perception to support their argument.

> Imagine, as an analogy, a population of intelligent, reasonably accurate thermometers. To one of these thermometers, the ambient temperature just "seems" to be such-and-such degrees Fahrenheit, as a chip might seem to [Jack] to be unique green. Like all measuring instruments, the thermometers are calibrated slightly differently. They all agree that the temperature right now is pretty high, around 70°F or so. But some think that the temperature is 69°F, while others think it's 70°F, and yet others think it's 71°F… Since they don't have other ways of measuring temperature, they have no "independent method" of determining whether the temperature right now is exactly 70°F, or even whether it's pretty high. Still some of these thermometers are perceiving the temperature correctly and other are not. (2004, pp.42-43)

[24] Byrne, Alex and Hilbert, David. (2004). "Hardin, Tye , and Color Physicalism." *Journal of Philosophy* 101 (1). pp.37-43.

If we accept there is a fact of the matter about which thermometer perceives the temperature correctly, we should accept the same conclusion in the case of color perceptions. Thus, there is no reason to stop us from accepting that there are massive misperceptions in color perceptions among normal human beings at the fine-grained level.

The first question is: is this analogy a good one? If yes, is the analogy decisive? It seems that they got the analogy right this time, since they put the different conditions, those that cause the variation in the temperature perceptions, in the perceiving systems of the thermometers—the thermometers are calibrated slightly differently—rather than outside in the external world. However, as Cohen argues, this analogy isn't decisive, since there is a similar analogy in the case of humor perceptions that doesn't make the same commitment that some subjects perceive the color right, while other misperceive the color.

Given a group of subjects, a joke may sound humorous to some subjects, but not to others. Because we don't have other ways to decide whether a joke is humorous or not except by appealing to the subjects' perceptions of it, we have no independent test to determine whether the joke is humorous. Cohen claims that there is no reason to insist that some subjects perceive it right while others don't. If so, there is no fact of the matter about which variant is correct in the case of variation of humor perceptions (2007, p.428-429). Thus, even though there is fact of the matter about which variant is correct in some cases of perceptual variation (the temperature case), it is not the case in other cases (in the humor case). We can then ask why appeal to the case of temperature perception rather than the humor perception? Cohen claims that, we have arrived at a serious standoff here.

Because, he says, "[o]ur assessment of the challenge from perceptual variation turns crucially on which of the analogies we think is the right one. Unfortunately, there is no obvious reason for preferring either one of them" (2007, p.429). If so, B&H's appealing to the temperature perception is not decisive and their argument fails to prove that there is a fact of the matter about which variant of color perceptions is correct.[25]

I agree with Cohen's claim that there is no reason to prefer B&H's analogy and that it is not decisive. However, the case of humor perception is not a good analogy for the variation of color perceptions, I should explain why first and, then, repair his argument with another analogy.

There is a disanalogy between the variation of color perceptions and humor perceptions. In the humor case, the subject's perceptions of the joke isn't always the same. It changes randomly even if the subjects perceive it under the same conditions (i.e., he perceives the point of the joke). The same joke may strike you as humorous when you hear it the first time, but if you have heard it 3 or 4 times in the same day, you might not feel it's humorous anymore when someone tells you the same joke at the end of the day. In the case of color perceptions, when a subject perceives a chip as unique green, she will perceive it as unique green under the same conditions, no matter how many times she looks at the chip.

Moreover, usually the variation in perception of humor is related to the subject's social and political backgrounds. For example, a redneck joke may sound humorous to a person who has grown up in a large city, but not humorous to a person who has grown up

[25] Cohen goes on to argue that the variation of color perception should be analogized to the case of humor perceptions rather than temperature perceptions. I won't pursue this line further, since I am going to argue that the case of temperature perception differs from the way human beings perceive the temperature, and therefore, the analogy proposed by B&H is a false one.

in a farm or in a small town. A joke about George W. Bush may sound humorous to a Democrat but not to a Republican. However, according to the assumption of the shifted spectra case, the variation in the fine-grained color perceptions isn't caused by subject's external environments—social or political backgrounds—but rather it is caused by differences in their visual systems. If so, Cohen fails to create a standoff situation by championing the humor perceptions.

I propose using the analogy between human beings' temperature perception and color perception to repair Cohen's argument. We normally perceive the temperature as feeling cold, cool, pleasant, warm, hot etc. rather than as a number of degrees which thermometers represent, such as 32^{o}F, 70^{o}F, or 90^{o}F, etc. There are variations among normal people's perceptions of temperature; different people perceive the same temperature differently as in the case of color perception. Even if the subjects all agree that it is 72^{o}F out there right now by looking at the thermometer, they may still disagree over whether it feels hot, warm, pleasant, cool etc. For example, chubby people may say it feels hot, fit people may say it feels pleasant, and skinny people may say it feels cool. I assume there is no fact of the matter about whether the chubby people, the fit people or the skinny people identify the temperature correctly.

The case just mentioned is an intersubjective case of the variation of temperature perceptions. We can also have an intrasubjective case of the variation of temperature perceptions. For example, a temperature of 70^{o}F in New York in later April feels warm to me when the long cold weather is mostly over. The same 70^{o}F temperature feels cool when I come back from a late June vacation at Orlando, Florida, (where the temperature is normally around 90^{o}F in June).

Since different subjects identify and discriminate the temperature differently and we don't have independent tests to find out which temperature is hot, which is cool and so on …, there is no fact of the matter about which person identifies the temperature correctly. Therefore, even if there is a fact of matter about which thermometer represent the temperature correctly, there is no fact of matter about which person identifies the temperature correctly. So again, why appeal to the thermometer case rather than the human beings case of temperature perceptions? We arrive at a standoff again.

In fact, there is no standoff at all once we look into the analogy between the human being's temperature and color perceptions. The disanalogy between the variations in the thermometer case and in the color perception case emerges. In both the temperature perception and the color perception of human beings, we identify and discriminate the objective properties by means of the subjective feelings, or mental qualities, they cause in our experiences. When a temperature, say, 70^{o}F, causes Jack to have a warm feeling in his body, he identifies it as warm temperature; when the temperature causes in Jill's body a cool feeling, she identifies it as cool. It is the same in the case of color perceptions; when a physical property causes a unique red feeling in Jack, he identifies the physical property as having a unique red color property; when it causes Jill a yellowish red feeling, she identifies it as having a yellowish red property.

Now, we can see the disanalogy between the variation between human beings' color perceptions and the thermometers' temperature perception. Thermometers don't have experiences with subjective feeling, thus they cannot identify and discriminate temperatures by means of how it feels to them, such as hot, warm, pleasant, and cool feelings. Human beings identify and discriminate color properties by means of the

experiences with qualitative properties that are caused by the relevant perceptible color properties. If there is no real analogy between the thermometer case and the case of color perceptions, B&H's argument fails to offer a reason for accepting there is a fact of the matter about which subject identifies the color right, while others misidentify. If so, they fail to answer the shifted spectra argument.

1.4 The Phenomenon of Color Constancy

1.4.1 The Argument from Color Constancy

Simultaneous color constancy is the phenomenon that occurs when an object with a certain color all over its surface is seen under different lighting conditions—for example, partially under shadow and partially under direct light—on different parts of its surface, as having the same color all over the surface. There is also successive color constancy. A red object under direct sunlight at noon looks to have the same color as when it is seen at sunset. Color constancy is the phenomenon that objects don't appear to change their colors under different lighting conditions.

Some Standard Representationalists use the phenomenon of color constancy as evidence to support the argument for the illuminant-independent, objective notion of color as well as the nature of phenomenal character of experiences. Tye says,

> The fact that objects appear to retain the same color through a wide variety of changes in illumination conditions (though certainly not all) strongly suggests that colors are illumination-independent properties of those objects. The simplest, most straightforward explanation of color constancy is that the surfaces of colored objects have features that remain the same as the illumination conditions change—features that are represented in our color experiences and that are responsible for the sameness in their phenomenal character. (2000a, pp.147-148)

That is to say, Tye concludes from the phenomenon of color constancy that, first, colors are illuminant-independent, objective properties of external objects and, second, the phenomenal character of color experiences (in this case) is determined by the colors they represent. If so, the phenomenal character of color experiences must exclude the influence of illumination. However, this explanation of color constancy is prejudiced, since it only tells half of the truth and its conclusion about phenomenal character seems to contradict our everyday color experiences.

It is true that different objects with the same color (or the same colored object) appear(s) to have the same color all over their surfaces (its surface) under different lighting conditions in the simultaneous case of color constancy. Likewise, it is true that subjects don't perceive objects changing their colors under different illuminations in the successive case. But it is also true that different objects with the same color (or the same colored object) look(s) different phenomenally under different lighting conditions. A white object looks slightly red when seen at sunset, but looks white under the direct sunlight of noon; a red object looks slightly darker under shadow than when seen under direct sunlight. Thus, there is a phenomenal difference between the color experiences that represent objects as having the same color under different illuminations. Moreover, two different objects with different colors may look phenomenally the same under different lighting conditions.[26]

It is not only daily color experiences that support the fact that when objects with the same color surface are seen under different illumination conditions, in one sense the surfaces look to have the same color while in another sense they appear different

[26] Both Thompson (2006, pp.79-81) and Cohen (2008, p.65) notice the difference between seeing "surface color" and seeing "appearance color" in the case of color constancy.

phenomenally. Some research on color constancy supports this fact too. In their experiments, Arend and Reeves asked subjects to match Munsell papers from the standard arrays and from the test arrays that are viewed under different illumination conditions than the standard arrays. Subjects were given different instructions about how to match the papers in the test array with the papers in the standard array. Arend and Reeves found that subjects respond differently, i.e., different pairs of papers were selected, depending on how the experiment instructions were given.

When the subjects were given the instruction "to match the hue, saturation, and brightness of the tested patch to those of the standard patch," they would match Munsell papers that appear the same phenomenally but had different surface colors, due to the different lighting conditions. When the subjects were instructed 'to make the test patch "look as if it were cut from the same piece of paper" as the corresponding patch in the standard array,' they selected similar Munsell papers (that would appear the same under the same lighting conditions), which exhibited the phenomenon of color constancy.[27] I will follow Thompson and call the match of the hue, saturation and brightness the match of "sensory colors" and the other the match of "surface colors".

Now, we can see that Tye's explanation of color constancy only tells part of the truth and his claim about phenomenal character seems false, since illuminations do influence the phenomenal characters of color experiences. If there is a phenomenal difference among the experiences that represent the object as having the same color under different lighting conditions, there is a difference in the phenomenal characters of those experiences. From this, Thompson concludes that the Standard Representationalists' view

[27] Arend, L., A. Reeve, J. Schirillo, and R. Goldstein (1991): "Simultaneous Color Constancy: Papers with Diverse Munsell Values." *Journal of the Optical Society of America* (1991). pp.661-672.

"must inevitably either fail to adequately capture the phenomenology of color experiences or fail to get the phenomenal content of color experience right. [Because] Standard [Representationalism] entails that phenomenally identical color experiences represent the very same physical color properties"[28] (2006, p.81).

It seems that Standard Representationalists must admit either that the phenomenal characters of color experiences are affected by lighting conditions and therefore don't go with the colors they represent, or that the phenomenal characters of color experiences are determined by the colors they represent but admit that colors are not illuminant-independent, objective properties.

The problem for Standard Representationalism posted by the phenomenon of color constancy, according to Thompson, is that "due to color constancy, there can be two experiences that share phenomenal character at a particular region of the visual field, which are both veridical, but in which the subject is viewing an object with different physical color properties" (2006, p.81). Or, there can be two experiences with different phenomenal characters, due to different lighting conditions, but which represent the object as having the same surface color.

In the following section, I will discuss some possible responses by Standard Representationalists, some of which are proposed by Thompson himself.

1.4.2 Color Constancy Comes From Inference

For the phenomenon of color constancy to pose the alleged problem proposed by Thompson, both the perception of the sensory color and the perception of the surface

[28] Thompson, Brad. (2006). "Colour Constancy and Russellian Representationalism." *Australasian Journal of Philosophy*, Vol.84 (March, 2006).

color must occur at the perceptual level. That is, the object must look to have different sensory colors and look to have the same surface color perceptually. However, this doesn't seem to be so in the case of color constancy. As Thompson himself points out, in the case of color constancy when surface color matches but sensory color doesn't, subjects only perceive different sensory colors. Phenomenally, they don't perceive any matching surface color across the different illuminant conditions. If so, surface colors are not perceived and the constancy of surface colors may just be inferred by subjects (2006, p.84). Thompson refers to Cohen as suggesting such a view.

Cohen sees the judgment of color constancy as occurring at a different level—the cognitive or intellectual level. Subjects perceive the object as having different occurrent sensory colors under different lighting conditions, but infer that the object would look to have the same "surface color" [29] if they would have been seen under the same lighting conditions. Cohen's counterfactual interpretation of color constancy claims:

> [W]hat is constant in the cases of color constancy—is not their occurrent apparent color but their counterfactual apparent color. The visual system's responsiveness to this counterfactual dimension of comparison drives one of our reactions to cases of color constancy… Putting all this together, counterfactualism understands color constancy as the capacity of the visual system to discern similarity in counterfactual apparent color across differences in occurrent apparent color. (2008, p.80)

That is to say, the properties that subjects perceive as having the same "surface color" are in fact derived from their judgment that were they perceived under the same lighting conditions they would look to have the same apparent color. Hence, the judgment of color constancy is not occurring at the perceptual level but rather it is derived through inference that rests on the occurrent apparent colors.

[29] In fact, it is wrong to describe Cohen's interpretation of color constancy in term of "surface color." For him, there is only "apparent color" involved in the case of color constancy. The term "surface color" here refers to the counterfactual apparent color.

Given that the phenomenon of color constancy is inferred rather than perceived, the problem proposed by Thompson disappears. This is because, in the case of color constancy, subjects' color experiences don't represent the object as having the same surface color in one sense, while representing it as having the sensory color in another sense. The only property that is represented in the case of color constancy is sensory color, (or apparent color, in Cohen's words)—it is the occurrent apparent color at the perceptual level and the counterfactual apparent color at the conceptual level.

To fit Cohen's claim to the picture of Standard Representationalism, we must interpret the Arend and Reeves' experiment differently from the way in which we described it earlier—i.e., an object can look to have sensory color in one sense and look to have surface color in another sense. Thompson says, "[a]t a minimum, the standard [Representationist] must deny that when subjects matched items according to sensory color they were matching according to phenomenally identical color experiences" (2006, p.85). Standard Representationalists might hold the idea that, as Thompson suggests, matches of sensory color are only one aspect of color phenomenology and matches of surface color are another aspect of color phenomenology. He then argues against this possible idea as follows.

> [Arend and Reeves'] experiences do not merely show that subjects can make two interesting sorts of judgments. Nor is the dissociation of the two matching tasks compatible with the view that subjects are distinguishing between two aspects of phenomenal character. Matches of sensory color, being matches of hue, saturation, and brightness, are judgments of identical phenomenal character. (2006, p.85)

I restate Thompson's reasoning as follows. (1) In the traditional way of understanding color constancy, the phenomenal character of a subject's color experience is determined by the matching of sensory color, while the representational content is determined by the

matching of surface color. (2) It doesn't make sense to say that the matching of surface color in the Arend and Reeves' experiment is a matching of judgments. (3) The counterfactual theory of color constancy interprets the matching of surface color as matching sensory color in the counterfactual situation. (4) Standard Representationalists hold that it is the matching of sensory color in the counterfactual situation that determines the phenomenal character of color experiences. Thus, (5) Standard Representationalists must hold that the matches of the occurrent sensory color and the counterfactual sensory colors are different aspects of phenomenal character.

However, Thompson claims (6) the phenomenal character of color experiences is totally determined by occurrent sensory colors. Therefore, (7) the Standard Representationalists holding the counterfactual view of color constancy are wrong.

Thompson holds the same idea as Standard Represnentationalists about how to determine the representational content of experiences in the case of color constancy: it is determined by the surface colors. However, he disagrees about how to individuate the phenomenal character of the relevant experiences. Standard Representationalists identify phenomenal character with the representational content, but Thompson holds that it is determined by sensory colors.

I agree with Thompson that Standard Representationalists cannot appeal to the counterfactual theory of color constancy to save their view of phenomenal character. However, he is attacking a straw man, since Cohen proposes the counterfactual theory of color constancy as a competing theory against the illuminant-independent, physical theory of color, which the Standard Representationalists hold. It is not clear why Thompson proposes it as a possible option for Standard Representationalism, since he

doesn't offer any reason to support this.

1.4.3 Phenomenal Characters are The Same

As mentioned earlier, Thompson takes for granted that, in the case of color constancy, experiences that vary in phenomenal character represent the same surface color, i.e., have the same representational content. However, the fact that two experiences represent the same surface color doesn't imply that they have the same kind of representational content, unless we add that representational content with respect to color is totally determined by the surface colors it represents.

Standard Representationalists don't have to admit that different experiences of seeing a color under different lighting conditions must have the same kind of representational content. There are some possible situations to be considered. First, Standard Representationalists can claim that, in the case of color constancy, visual experiences represent the same surface color and also have the same kind of phenomenal character. They can claim that some of the experiences are misrepresentions and therefore explain away the difference among phenomenal characters in the case of color constancy as illusion. Thus, on this approach, there is no difference in phenomenal character. For example, when a piece of white paper appears gray under shadow but appears white under direct sunlight at noon, at most only one of the visual experiences is correct, since only one of the cases is under optimal or normal conditions.

Thompson argues that the first problem with this line of response is similar to that discussed in the case of the shifted spectra argument. There is no good reason to believe that massive misperceptions occur in the color perceptions of normal human beings. The

second problem is that there is no way to determine which lighting condition is normal and hence which visual experience is correct. To prefer one viewing condition over another one would be in principle arbitrary.

Thompson refers to B&H's massive misperception solution to the shifted spectra argument as a possible response to the argument from color constancy. B&H claims that massive misperception at the fine-grained level is not so counterintuitive, since it doesn't imply massive misperceptions at the coarse-grained level. When Jack and Jill perceive the same color chip as unique green and yellowish green at the fine-grained level respectively, they both also perceive it as having a coarse-grained green color.

Applying B&H's idea to the case of color constancy, at the fine-grained level, subjects perceive the white paper as unique white under the sunlight at noon but perceive it as slightly gray under shadow, but, at most, only one of them is correct. Subjects also correctly represent the paper as white in both lighting conditions at the coarse-grained level. Thompson admits that if massive misperception at the fine-grained level is acceptable, it is consistent with the phenomenon of color constancy, since "the view can accommodate color constancy without holding that phenomenally identical color experiences can attribute distinct color properties" (2006, p.87), or without holding that phenomenally different color experiences can attribute the same color properties. However, because of the problems mentioned earlier, Thompson rejects this response.

I agree with Thompson's reasons for rejecting the response by appealing to massive misperceptions. But I disagree with Thompson's claim that if the view that massive misperceptions only occur at the fine-grained level is acceptable, B&H can answer the argument from color constancy by appealing to the distinction between fine-

grained and coarse-grained color perceptions. Thompson seems to treat the difference in color perception between sensory color and surface color in color constancy the same as the difference between fine-grained and coarse-grained colors. This is confused.

A paper with fine-grained color, say, yellowish red, can look to have different sensory colors under different illuminant conditions but still look to have the same yellowish red color all over its surface. Hence, fine-grained colors are not the same as sensory colors. On the other hand, massive misperceptions also occur at the level of coarse-grained colors, as the results of Malkoc's experiment show. If so, coarse-grained colors cannot be surface colors either, but rather they are also sensory colors. Surface colors must be colors that are even coarser than the coarse-grained colors. That is to say, even if we accept B&H's idea of massive misperceptions occurring only at the fine-grained level, they still fail to answer the argument from color constancy, because the distinction between sensory and surface colors is one thing and the distinction between fine-grained and coarse-grained colors is another.

1.4.4 Representational Contents are Different

Thompson's argument from color constancy rests on the assumption that, (i) in the case of color constancy, subjects represent the same surface color, the color that is invariant across different lighting conditions, and thus that (ii) those experiences all have the same representational content and that (iii) the phenomenal character of the color experiences is individuated by what appears to the subjects, which varies with the lighting conditions.

To respond to the argument from color constancy, Standard Representationalists can argue that the representational content of color experiences is not totally determined by the colors those experiences represent. For example, they can claim that the lighting conditions contribute or partly constitute the representational content, and, thus, that there is a difference in the representational content. If so, there is a difference in their representational contents. Both the phenomenal character and the representational content of color experiences of seeing a red object under shadow and in direct sunlight, respectively, are different. Thus Thompson's assumption is wrong and the argument from color constancy fails.

There are different ways of understanding the relation between colors and the lighting conditions under which they are seen and, hence, different views of how to individuate the representational contents of color experiences.

The first way to understand the relation between perceptions of colors and illuminant conditions is that they are two separate representational components that comprise a representational content. For example, one normally perceives the color and the shape of objects at the same time, but they are different representational contents. The same holds in the case of perceptions of colors and illuminant conditions; whenever visual systems receive information about colors, they also receive information about lighting conditions. In this view, whenever lighting conditions are different, the visual experiences that represent the same surface color have different representational contents. Thus, the visual experiences of those seeing the same colored paper under different lighting conditions perceive the paper as having different sensory colors and different representational contents. Thus, the argument from color constancy is answered.

The problem with this response is that, according to Standard Represenetationalism, representational content and phenomenal character is one and the same, but there exist some color experiences in which the representational content and phenomenal character come apart. For example, the phenomenal character of seeing a gray paper under sunlight is the same as seeing a white paper under shadow, but the representational content of both color experiences are supposed to be different.

Hilbert proposes another view of representational content that might be applied to reconcile color constancy with Standard Representationalism's idea that lighting conditions are part of the representational content. Hilbert accepts that the representational content of color visual experiences includes both surface colors and illumination conditions. However, according to him, there is only one component in the representational content, rather than two, because the illuminant condition is one dimension of color. That is to say, lighting conditions are constituents of colors, rather than components of the representational content of colors. He says,

> The intuitive description of the pattern of stability and change in our perception of color is, according to this proposal, the right description… Rather than discarding the illuminant estimate, however, the current proposal is that it is retained and is part of the visual representation of the scene. (2005, p.150) [30]

He adds that,

> What we see as changing with the illumination is an aspect of the object itself, not the light source or the space surrounding the object. One consequence of this choice is that the color appearance of an object must have more than the traditional three dimensions of variations. (2005, pp.150-151)

Combine Standard Representationalism with Hilbert's view of color and we get what Thompson calls the "illumination-variant" version of Representationalism. This

[30] Hilbert, David. (2005). "Color Constancy and the Complexity of Color." *Philosophical Topics: Perception*, Vol. 33, No. 1, (2005).

view can answer the problem faced by the last proposal: the visual experiences of a gray colored paper under the sunlight is the same, phenomenally, as those of a white paper under shadow, but their representational contents are different. Their representational contents are the same too, since subjects have to take the lighting conditions into account when they are asked to match "surface colors."

Thompson argues that this proposal doesn't explain the phenomenon of color constancy and it is against common sense, because, he says:

> [C]ommon sense holds that colors are properties that objects retain across changes in illumination and other viewing conditions. We simply do not say of objects that they change in color under different lighting conditions. Nor is it proper to say of visual experiences involving color constancy that there is a change in the color an object appears to have." (2006, p.89)

I agree with Thompson in appealing to common sense and that a colored object may look different to us under different lighting conditions, but its color won't change.

Given that the illuminant-variant Representationalism is acceptable and does answers the argument from color constancy, it still hasn't got us out of trouble yet. The problem of variation in normal color vision still remains. Presumably, if subjects see the same color chip under the same lighting conditions, according to the illuminant-variant Representationalism, they should have the same representational content, i.e., representing the color chip as having the same color properties, but the shifted spectra argument tells us otherwise.

I conclude that illuminant-variant Representationalism cannot answer the challenge from the argument of color constancy, and it also faces the problem of variation in normal visual perceptions.

Chapter 2 Qualia Realism and The Inverted Spectrum (IS) Argument

2.0 Introduction

Qualia realists claim that some aspects of experiences cannot be characterized by their intentional (functional or cognitive) roles. They try to show this by arguing that there is a distinction between intentional (or representational) and phenomenal contents of sensory experiences and argue for the intentional/phenomenal contents distinction from two different directions. Qualia realists argue that, on the one hand, it is possible for experiences of two subjects to have the same intentional content but different phenomenal contents; on the other hand, it is possible that when two different subjects look at two different colored objects, their experiences have different intentional contents but the same phenomenal content. They argue for the first case by means of the Inverted Spectrum (IS) argument, and the second case by appealing to the Inverted Earth (IE) argument.

In this chapter and the next chapter, I will discuss different kinds of arguments for the distinction between intentional and phenomenal contents. The point here is that if any of these arguments is correct, Standard Representationalism will be false, since it claims that the representational content of a sensory experience is one and the same as its phenomenal character.

The first kind of argument is the “intra-inner” argument for the IS between two different subjects. It first argues for the conceivability of the intrasubjective case of IS, and then derives the intersubjective case of IS from the intrasubjective case. This argument keeps silent (or takes a neutral position) about whether the color space of

human beings is symmetrical or asymmetrical, and argues that even if the color space of human beings is asymmetrical, it is still conceivable that there exist some imagined creatures with a symmetrical color space, and therefore, it is conceivable that there might exist some IS cases. Assuming conceivability is a good indicator of possibility, we can derive the possibility of the intersubjective IS case.

The second kind of argument is Stephen Palmer's empirical argument—the "argument from the symmetry"—which argues for the symmetry hypothesis of the color space of human beings by appealing to the structure of psychological color space. Palmer contends that none of the previous proposed empirical objections to the IS hypothesis is convincing; that we should distinguish two different aspects of experiences—the intrinsic and the relational structure aspects; and that only the relational structure aspects are accessible by the behavioral sciences, but not the intrinsic aspects of experience. That is the reason why behavioral evidence cannot settle whether two different subjects are having a case of IS or not. Hence, the IS hypothesis is possible.

The third kind of argument is Block's Inverted Earth argument, which argues for the possibility of inverted intentional contents. Block uses different strategies to argue for different cases of inverted intentional content. To argue for the intrasubjective case, he argues that we can conceive of a subject, who looks at differently colored objects at two different times, perceives the same kind of phenomenal content if unable to distinguish one from the other. To argue for the intersubjective case, Block assumes that intentional content is functionally definable; while the phenomenal content of experiences supervenes on the internal physical properties of experiences. Relying on these assumptions, Block argues that it is conceivable that when two twins, who are physically

duplicated, one growing up on Earth, the other growing up on Inverted Earth, look at the inverted color skies, their experiences have the same kind of phenomenal content but different intentional content. (However, I will only discuss Block's argument for the intrasubjective IE case in chapter 3.)

I will discuss the IS arguments in the rest of this chapter and the Inverted Earth argument in the next chapter.

2.1 The Arguments for the Case of Inverted Spectrum (IS)

The intersubjective case of inverted spectrum can be described as follows. When two individuals, Jack and Jill, look at a red colored object, the way the red thing (or, the object we agree is red) will look to Jill the way a green colored object (or, the object we agree are green) looks to Jack and vice versa. That is, we can describe this IS case in terms of the distinction between the intentional and phenomenal senses of "look".

Assume for now the distinction between the intentional and phenomenal senses of "look" implies the different kinds of contents, we can re-describe this IS case as follows. When both Jack and Jill look at a red object, their experiences have the same intentional contents, i.e., both experiences are <u>about</u> the same red physical property. However, the phenomenal content of Jill's visual experience of the red object is the same as the phenomenal content of Jack's visual experience of a green objects and vice versa. If so, there is an aspect of sensory experiences—the phenomenal content—cannot be characterized in terms of their intentional roles.

Both Shoemaker's and Block's IS arguments, which Shoemaker calls the "intra-inner" argument (1996a, p.141),[31] derives the intersubjective IS from the intrasubjective case of entire spectrum inversion.[32] They both hold that if there is an intrasubjective case of entire spectrum inversion, there is an intersubjective case of IS, given that phenomenal contents are comparable across persons. They also believe that even if the behaviorally undetectable IS never occurs among human beings, their IS arguments still work, if it is conceivable that IS might occur among some imagined creatures.

Before we go into the IS arguments, I should point out some of Shoemaker's qualifications to the IS arguments. First, what they argue for is a case of behaviorally undetectable intersubjective inversion. Secondly, the subjects whose spectra are inverted to each other must share the same kind of psychological color spaces (the same relational structure). The visual difference between Jack and Jill's looking at a red object is not sufficient for a behaviorally undetectable intersubjective inversion. If all other colors look the same to them except red and green, then the difference between them would be detectable behaviorally. The same requirement applies to the intrasubjective inversion, when Jill's psychological color space at t1 is inverted with her psychological color space at t2, her psychological color spaces at two different times must share the same kind of relational structure.

Block and Shoemaker propose different arguments for the intrasubjective case of IS, Shoemaker's argument derives the intrasubjective case of the entire spectrum

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[31] Shoemaker, Sydney (1996a). "Intrasubjective/intersubjective." In his *The First-Person Perspective and Other Essays*. Cambridge University Press (1996).

[32] What Shoemaker argues for is the "logical possibility" of intrasubjective and intersubjective cases of IS. However, his argument for both intrasubjective and intersubjective IS cases appeals to the notion of conceivability. Some philosophers argue that there is a gap between conceivability and logical possibility. However, I will not go into this issue here, since I will argue that Shoemaker's IS argument cannot even establish the conceivability of either IS case.

inversion from a series of partial inversion cases, while Block's argument appeals to the entire spectrum inverted at once.

First, I will discuss both Shoemaker's and Block's arguments in section 2.2.1. Secondly, in section 2.2.2, I will discuss Dennett's objection to the IS arguments and I will argue that Block's argument fails Dennett's challenge but Shoemaker's argument can withstand it.

2.2 The Intrasubjective Case of Inverted Spectrum

2.2.1. Arguments for the Intrasubjective IS

Let's look at Shoemaker's argument for the possibility of intrasubjective IS first.[33] His argument rests on a simplified mode of color space—a two-dimensional color space—a color circle with only chromatic colors. He compares the relationships between different colors with particular shades to the points on the circumference of a color circle. The points on the color circle represent the perceived differences between shades of colors, and the points opposite each other represent, respectively, a shade and its complementary. As a convenient way to describe it, let's mark the points on the color circle the same as a clock with the numerals 1 though 12. The following story is what I understand to be Shoemaker's imagined case of intrasubjective spectrum inversion, which started with a case of intrasubjective partial inversion.[34]

At time t1 Jill was totally normal in her use of color terms, her discriminatory

[33] Shoemaker, Sydney. (1982). "The Inverted Spectrum." In *The Nature of Consciousness: Philosophical Debates*. (Eds.) N. Block, O. Flanagan, and G. Guzeldere. Cambridge, Mass.: The MIT Press, (1997). Shoemaker, Sydney. (1993). "Intrasubjective/intersubjective." In his *The First-person Perspective And Other Essays*. Cambridge University Press (1996).

[34] Shoemaker gives two slightly different stories in his (1982) and (1993) papers. The second one is an improved version of the first one. I reconstruct his second story by means of the structure he gives in his first story.

abilities, and other recognitional abilities. Then Jill undergoes brain surgery and at time t2, a certain time after her brain surgery, she reports that although almost everything looks to her the way it used to be, when she looks at a color circle, it looks the way it would have looked at t1 if the shades between 12 and 2 had been interchanged with their complementaries (those between 6 and 8), the rest of the circle remaining the same. According to her statements, we can see that the relational structure of Jill's visual color space at t2 differs from her color space at t1. This is a change in the structure of Jill's color space and is reflected in her nonverbal discriminatory and recognitional behavior. We can also assume that Jill makes a semantic adjustment to the change. That is, given that the interchanged colors are chartreuse and purple, she now applies both terms "chartreuse" and "purple" the same way she applied them at t1, which is also the same way as other persons apply both at t1 and t2, except for her statements of the similarity and difference relations between these two colors and others. If so, it seems right to say that, now, almost all colored things look to Jill the way they did before except that chartreuse things look to Jill the way purple things used to look, and purple things look the way chartreuse things used to look, even though Jill still says that to her the chartreuse things look chartreuse and that purple things look purple.

If such a partial spectrum inversion followed by a semantic adjustment is conceivable, it is also conceivable that there can be a series of such inversions with semantic adjustments. It is conceivable that, at t3, Jill might report that the shades between 2 and 4 have changed places with their complementaries (those between 8 and 10) and she makes a semantic adjustment. Again, at t4, she might report that the shades between 4 and 6 interchange with their complementaries (those between 10 and 12),

which is also followed by a semantic adjustment. But at t4, the final partial inversion in the series would restore the relational structure of Jill's color space what it was at t1, hence at t4 Jill's color space is totally inverted with her color space at t1. We can also assume the semantic adjustment to the final partial inversion restores Jill's reactive dispositions to what they were at t1. That is, her verbal and nonverbal behaviors with respect to colors will be totally the same as they were at t1.

If the story above is persuasive, we have an imagined intrasubjective case of entire spectrum inversion that is derived from a series of partial inversions, which is behaviorally detectable. Jill's claim that her color experiences at t4 are systematically inverted with her color experiences at t1 is supported by her reports of the changes of color from t2 though t4, given that her visual perception is functioning perfectly. If Shoemaker's imagined story is conceivable and that conceivability is a good indicator of possibility, we can derive the intrasubjective case of entire spectrum inversion.

Ned Block proposes his own version of the intrasubjective IS, which is a case of the entire color spectrum inverted at once. His argument of the intrasubjective IS consists of a four-stage process. (1) You have normal color vision. (2) You have color inverting devices inserted in your retinas and you say that red flowers look the way green trees used to look, blue sky looks the way yellow sunflowers used to look, etc. (3) After a period of the confused use of color terms, you finally adapt to the point where you use color language naturally. You call red things "red" and green things "green", etc., but when reminded, you recall the period before the insertion of the color inverting devices as a period in which "green trees looked to me the way red flowers look to me now." (4) You get amnesia about the days before the inverting devices were inserted and are

functionally totally normal—just as in the first period. Stage 1 and stage 4 are intentionally and functionally equivalent in the relevant respects, but they are arguably qualitative properties-inverted. Hence, we have an intrasubjective case of IS, which is a case of IS over time (1990, p.681).[35]

2.2.2 Objections to the Intrasubjective IS

2.2.2.1 Dennett's Objections

Dennett argues that one crucial point is routinely missed by the supporters of the intrasubjective case of IS, which is that the subject's reports or testimony of noticing a difference between the visual experiences of redness before and after time t, can be a consequence of causes other than a case of qualitative properties shift. Dennett argues that when the subject reports noticing that the way a red object looks before t differs from the way it looks after t, it could be due to the failure of the subject's memory system. Hence, when someone reports noticing a difference in color experiences, it could be interpreted as either the failure of the memory system or a real shift in qualitative properties. The problem is that there is no way to tell which situation is really happening according to the subject's reports of what happens in color experiences introspectively. If so, the subject's introspective reports or testimony cannot be taken as evidence for the case of intrasubjective case of IS (1988, p.624).[36]

Dennett's objection appeals to both the possible failure of the entire relevant memory system with respect to color experiences as well as the possibility of the shift of

[35] Block, Ned. (1990). "Inverted Earth." In *The Nature of Consciousness: Philosophical Debates*. (Eds.) N. Block, O. Flanagan, and G. Guzeldere. Cambridge, Mass.: The MIT Press (1997).
[36] Dennett, Daniel. (1988). "Quining Qualia." In *The Nature of Consciousness: Philosophical Debates*. (Eds.) N. Block, O. Flanagan, and G. Guzeldere. Cambridge, Mass.: The MIT Press (1997).

the subject's entire color space. That is, the subject's entire color space before t is inverted with the subject's entire color space after t without any partial shifting in between. Both points are problematic. First, appealing to the entire spectrum inversion at once is not a necessary condition for the argument as in Shoemaker's IS argument, which I will discuss later. Second, the memory failure of one's entire color experiences is not a normal case. When a normal person suffers from a failure of color memory, usually it is limited to some particular case, such as, the person mistaking the bus seen yesterday on the street, which is red, as being yellow; or mistakes the color of the bird seen this morning ... and so on. If so, there is a difference between a case of the normal situation of color memory failure and a case of IS. The former occurs randomly to some particular color experiences while the latter occurs systemically to all the subject's color experiences that occur before and after the inversion. Hence, when the subject reports noticing a difference between experiences of red objects before and after t, we can tell whether she is suffering a partial memory failure or is experiencing a case of IS by asking if her experiences of other colors are also inverted. If the subject's experiences of all colors are changed, then it might be a case of IS, otherwise, a case of partial memory failure.

For argument's sake, let's assume the possible failure of the entire memory system with respect to color experiences is a proper assumption in Dennett's argument. I am going to argue that Shoemaker's argument can still succeed but that Block's argument fails Dennett's challenge. Let's start with Block's argument.

2.2.2.2 Dennett's Objection vs. Block's IS Argument

To avoid Dennett's objection, Block assumes that the subject suffers from amnesia about earlier life, i.e., has no memory of color experiences before experiencing the qualitative properties shift. It is obvious that, by introducing amnesia, Block intends to rule out the possibility of the entire memory failure of the subject's past color experiences.[37] However, I am going to argue that the introduction of amnesia at stage 4 to derive the IS case is to miss the point of Dennett's objection.

In Block's story, the evidence that supports the IS hypothesis is collected from stage 2 and stage 3. At stage 2, the subject reports noticing a change in color experiences at time t1 such that every color looks different from the way it looked before t1. At stage 3, after the semantic adjustment, the subject's verbal and nonverbal behaviors are totally the same as those before t1, except that the subject still has memory of past experiences. For example, when recalling her past experiences before t1, the subject reports "the way grass looks to me now is the same as the way blood used to look to me." Dennett points out that the subject's report of noticing a shift of qualitative properties in color experiences could be caused by false memory of past color experiences. To rule out the memory failure hypothesis, Block attributes amnesia to the subject, at stage 4. If the subject has no memory of color experiences before t1, it seems natural for us to infer that the subject's report of color experiences after suffering amnesia is totally the same as her reports before t1. So it seems that the purpose of introducing the amnesia at stage 4 is to

[37] Block, Ned. (2003). "Mental Paint." In his *Consciousness, Function, and Representation: Collected Papers, Volume 1*. Cambridge, Mass.: The MIT Press (2007). pp.533-570. To deal with Dennett's objection, Block says that "this problem…. is dealt with by changing the thought experiment to involve amnesia for the earlier life" (2003, p.553).

rule out the memory failure hypothesis for the subject's report of color experiences after suffering from amnesia.

Block insists: "if we are prepared to believe him [the subject], then when he gets the amnesia and is functionally normal, why should we think that his qualia have re-inverted" (1990, p.681)? However, the problem here is not whether we are going to believe the subject's testimony or not, but rather, it is that there is an alternative interpretation of the evidence offered, i.e., the memory failure hypothesis. Even if we believe what the subject says, there is a problem of the indeterminacy between the IS hypothesis and the memory failure hypothesis. Hence it is not an issue about whether the subject's qualitative properties (qualia) re-inverted after the subject gets amnesia or not, it is an issue about whether or not there is any case of IS occurring at stage 4. If one cannot be sure whether there is an IS case at stage 2, the recall of past color experiences at stage 3 cannot rule out the memory failure either. In turn, if one cannot settle the question of whether there is an IS case at stage 3, how can one show that there is an IS case at stage 4 by ruling out the memory failure hypothesis?

Let's put the question in another way. If the only evidence we have is the subject's verbal reports from stage 2 and stage 3, when she still has memory of past experiences, there is an indeterminacy between the IS and the memory failure hypotheses. The question of whether the subject really experienced a qualitative properties shift cannot be settled at either stage 2 or stage 3. Then, how can the attribution of the amnesia at stage 4 rule out the memory failure hypothesis and settle the problem that should be answered at either stage 2 or stage 3? How can the subject's losing memory of past experience at a later time, stage 4, be used as evidence that the subject

didn't have memory of experiences at an earlier time, at stage 2 or 3, to rule out the memory failure hypothesis? Perhaps the function of introducing amnesia into the IS argument is not to rule out the memory failure hypothesis.

It seems that we can make sense of the function of the amnesia in Block's argument by extending the evidence of the subject's report to both reports of how things look before and after the time the inverted lenses are placed in the subject's eyes. That is, we not only have the subject's report of noticing the difference between color experiences before and after t1, but also the subject's reports, before t1, that blood looks red and the reports, after t1, that blood looks the way grass used to look. Even after the semantic adjustment, the subject still has memory of past color experiences and can report "the way grass looked to me is the same as the way blood looks to me now." Later on, at time t2, we attribute amnesia to the subject and, after t2, the subject will report that blood looks red to her, grass looks green to her, and so on. That is, behaviors after t2 are totally the same as those before t1. Assuming there is an IS case after t1, we can conclude that there is a behaviorally undetectable IS case after t2.

In this understanding of Block's IS argument, we take him to claim that a behaviorally detectable IS case occurs at stage 2 through stage 3, which is not what is required, since the subject still has memory of past experiences and therefore won't behave totally the same as the subject behaved before t1. Only after the introduction of amnesia at stage 4 to rule out the memory of the subject's past experiences, do we get the IS case as required, the behaviorally undetectable case. So, it seems that the real function of amnesia in Block's argument is to get rid of the kind of information the subject has at stages 2 and 3 but is without at stage 1. Without the memory of past color experiences,

the subject's behavior after suffering amnesia will be totally the same as at stage 1 and therefore the IS case we get at stage 4 is a behaviorally undetectable case. If I am right, the role of amnesia in Block's IS argument is to make a behaviorally detectable case of IS to be a behaviorally undetectable case. But this interpretation of Block's argument implies that there is a behaviorally detectable case of IS established at stages 2 and 3.

Given the above understanding of Block's IS argument, Block missed Dennett's point: we don't know if any IS case occurs at stage 2 through stage 3. Dennett's argument is to reject the subject's reports at stages 2 and 3 as evidence of any kind of IS case, rather than to accept the reports as evidence of a behaviorally detectable case of IS and then complain that the IS case we get at stage 2 through 3 is not a behaviorally undetectable IS case as required. Dennett rejects the idea that evidence at stage 2 and 3 can justify any IS case, whether it is behaviorally detectable or undetectable. Without establishing the behaviorally detectable case of IS at stages 2 and 3, Block's argument cannot go through, and, therefore, fails to answer Dennett's challenge.

Moreover, given that there is a case of IS at stage 3 after the semantic adjustment, it is not obvious that it must be a behaviorally detectable case, rather than an undetectable case. Why must Jill's memory of her past experiences disqualify the IS case at stage 3 as a behaviorally undetectable case of IS? Why should the subject's report of the memory of her past experiences be counted as a piece of evidence against the IS at stage 3 as behaviorally undetectable? We don't have to agree with Block's interpretation of what is going on at stage 3, even if we agree with him that a case of IS occurs at stage 2 through stage 3. According to Block's argument, the subject's entire color space is inverted at once and the subject also made a semantic accommodation. If we ask the subject to pick

up a red ball, the subject will pick up a red ball (which looks green to the subject after t1) both before and after t1. The subject will make the same judgment about the similarity and difference between colors, that red objects look more similar to pink objects than to blue objects both before and after t1.

From the behavioral evidence and the semantic accommodation, we can interpret the subject as having a behaviorally undetectable case of IS by bringing in the memory failure hypothesis, by interpreting the subject's report of the memory of past experiences as false. That is, if all or most of the subject's behaviors before t1 are the same as the subject's behaviors after t1, except those that are related to the memory of past experiences, and the subject is having a case of IS, then interpreting the case as behaviorally undetectable IS plus the memory failure hypothesis is just as good as the behaviorally detectable IS hypothesis. There is no reason to favor Block's interpretation of stage 3 as having a behaviorally detectable case of IS. That is, there is an indeterminacy between a behaviorally detectable IS case and a behaviorally undetectable IS case plus the memory failure hypothesis over the interpretation of the evidence at stage 3. If so, given that there is an IS case at stage 3, one won't be able to decide whether it is a behaviorally detectable case or it is a behaviorally undetectable case plus the subject's suffering from the memory failure of her past experiences.

If the above alternative interpretation of what happens at the stage 3 seems possible, a further interpretation of it might also seem possible. We can interpret that Jill's visual perception of color reverts back to what it was at stage 1 after she finishes the semantic adjustment, adding that her memory of her past experiences are all false. According to Block's story, at stage 3 the evidence we collect from Jill's report of her

visual experiences of color will be exactly the same as what we collected at stage 1 except that, at stage 3, when she recalls her past color experiences at stage 1, she reports that the way grass looks at stage 1 is the same as the way the fire truck looks right now. If the only evidence we have about Jill's past visual experiences is her verbal report about her past experiences, we can explain it away by means of the memory failure hypothesis. What we get here is that Jill's visual experiences at stage 3 revert back to normal as at stage 1 and her memory about her past visual experiences are all false. Therefore, there is no fact of the matter of whether Jill is having a behavioral detectable IS case at stage 3 or not, or if she is having a normal color vision but suffering from memory failure of her past color experiences.

In sum, Block's argument for the behaviorally undetectable case of IS case faces a double challenge: first, his argument fails to establish that there is an IS case at stages 2 and 3 because of the indeterminacy between the IS hypothesis and the memory failure hypothesis; secondly, given his argument succeeds in establishing an behaviorally detectable IS case at stage 2, there is no fact of the matter of whether Jill's color experiences is a case of behavioral detectable IS case at stage 3 or whether her color experiences revert back to normal as at stage 1 after the semantic accommodation. Block's IS argument fails to meet both challenges.

2.2.2.3 Dennett's Objections vs. Shoemaker's IS Argument

The situation is quite different with Shoemaker's argument for the intrasubjective case of IS. Shoemaker's argument derives the entire spectrum inversion from the conceivability of a series of partial inversions. The memory failure hypothesis is not

compatible with the evidence that might be collected from the series of partial inversions. If Shoemaker's IS argument from partial inversions is correct, either the memory failure hypothesis has to go or Dennett has to argue against the conceivability of partial inversion.

The first question: what behavioral evidence would we have in a case of partial inversion? We would have both verbal and nonverbal behavioral evidence. Given that a red-green partial inversion does occur to Jill's color space at t1, Jill's color spaces before and after t1 are partially inverted to each other. A partial inversion is a change in the relational structure of Jill's color space and will be revealed in her discriminatory abilities, thus is behaviorally detectable. For example, when looking at a green object, before t1, Jill will report that the way green objects look is more similar to the way blue objects look than to the way pink objects look, while, after t1, Jill will report that the way green objects look is more similar to the way pink objects look than the way blue objects look. If we asked her to pick up a red ball, before t1, Jill would have picked up a red ball, but after t1 she would have picked up a green ball.

The second question is: considering all the relevant behavioral evidence, verbal and nonverbal, when Jill reports noticing a difference in her experiences of red objects at t1 in the partial inversion case, can we tell whether Jill is suffering from memory failure or is experiencing a qualitative properties shift? If the only evidence we have is Jill's verbal reports of the changing of her color experiences, we won't be able to decide which situation causes her reports. However, in the case of partial inversion, we also have nonverbal behavioral evidence as mentioned. If it is a case of entire memory failure, the subject would have picked the same color balls before and after t1 when we ask her to

pick up a red ball, and her reports of the similarity and difference between colors would have been the same before and after t1. Because the memory failure hypothesis assumes that there is no change in the subject's experiences at t1, the memory failure hypothesis won't be able to explain the behavioral differences with respect to color experiences before and after t1 that might be observed from a case of partial inversion. Hence, the memory failure hypothesis is not compatible with the behavioral evidence we have in the case of partial inversion. The partial inversion hypothesis can explain the subject's behavioral differences before and after t1—the subject is suffering a partial inversion—and it seems to go well with the behavioral evidence. If a series of partial inversions are conceivable, according to Shoemaker, we can derive the conceivability of an entire spectrum inversion.

Dennett disagrees with Shoemaker that a partial inversion cannot be a result of memory failure and claims that "Shoemaker is taken in by the ordinary understanding of memory (a passive storehouse that materials enter after they have passed through the pre-processing stage and entered consciousness). We should remind ourselves that any transient informational effect in the course of perceptual processing is from one perspective a memory-effect" (1993, p.925).[38] But, the question at issue here is not whether the subject's reports of noticing a qualitative properties shift could be due to memory failure or not, but rather, a question of whether or not we can tell if the subject is really experiencing a partial inversion or is suffering memory failure when she reports noticing a difference in her color experiences in the case of partial inversion.

[38] Dennett, Daniel. (1993). "The Message is: There is no *Me*dium." *Philosophy and Phenomenological Research*, Vol. LIII, No. 4 (December 1993).

Unfortunately, Dennett doesn't offer any new argument for the indeterminacy between these two cases in the case of partial inversion.

Besides the argument for the memory failure hypothesis, Dennett does raise other objections that target the case of partial inversion itself. Dennett points out, first, that Shoemaker's argument assumes semantic accommodation is sufficient for restoring the subject's reactive dispositions after inversions back to the initial situation; and, second, that the whole series of partial inversions implies an entire spectrum inversion. He challenges both assumptions. Dennett argues that the requirement of the semantic accommodation to the subject's inverted circumstance is not sufficient for totally restoring the subject's reactive dispositions, since semantic reactions are only part of the subject's total reactive dispositions. A series of partial inversions with semantic accommodation is not strong enough for the possibility of an entire spectrum inversion. Dennett believes that Shoemaker faces serious problems no matter how he answers the question: after the red-green inversion and a merely semantic accommodation, does "green" always remind the subject of the fire truck or not? If no, then after the end of all the partial inversions at t4, the subject's reactive dispositions won't be restored back to the way they were at t1. But if the answer is yes, it destroys the story of partial inversion. Since, according to Dennett, "now the subject will not be able to confirm (to herself—let alone to the rest of us!), as we go along on the series of shifts, that, e.g., the earlier qualia-shifts haven't spontaneously *reverted*" (1993, p.926).

Let me answer the second objection first. I understand Dennett's second objection as claiming that even if it is conceivable that there are a series of partial inversions, this doesn't imply there could be an entire spectrum inversion. This is because it is

conceivable that, after the final partial inversion, all the previous qualitative properties inversions revert spontaneously and there is no evidence which can be used to argue against the reversion assumption. This means it is not the case that a series of partial inversions implies the entire spectrum inversion. It seems to me that, in the partial inversion argument, even if the behavioral evidence we collect from t1 through t4 doesn't imply logically the entire spectrum inversion, still, the inversion hypothesis seems to be a better interpretation than the reversion hypothesis, since the former has supporting evidence, as mentioned earlier, while the latter doesn't have any supporting evidence at all.

My response to Dennett's first objection is to answer the question he raised: "No, after the red-green inversion and the merely semantic accommodation, green doesn't remind the subject of the fire truck at all," and I am going to argue that the subject's reactive dispositions can still be restored back to the way they were at t1. It seems that Dennett assumes that the change of all (or most) of the associated reactive dispositions is a necessary condition for the partial inversion (possibly, for every kind of color inversion). This doesn't seem right to me, but, for the argument's sake, let's accept it. Instead, I am going to tell a story that satisfies Dennett's requirement, but without the consequence he predicts.

It is conceivable that there is a subject who has a very small number of reactive dispositions with respect to color experiences. Let the subject be Jackson's Mary, who has lived in a black and white room all her life. One day we decide to let her understand what colors look like, so we bring into her black and white room a whole set of color charts. Then, let's assume that after seeing and becoming familiar with all the color

charts, Mary goes through the whole series of partial inversions mentioned in Shoemaker's IS argument. Mary's reactive dispositions to color experiences are only related to these color charts, e.g., her judgment about the similarities and differences between these color charts. If we ask her to pick up some particular colored objects, she will do so by picking up the relevant color charts. Basically, all Mary's reactive dispositions with respect to color experiences will be only related to her semantic reactions to the color charts. So, green won't remind Mary of the fire truck, but rather, the red color chart. Since Mary's concepts of color will only remind her of the colors of the relevant color charts, her reactive dispositions to colors will co-vary with her reactive dispositions to color charts. The semantic accommodations with respect to her experiences of color charts will be sufficient to restore Mary's total reactive dispositions with respect to colors at t4 back to what she had at t1. If this story is persuasive, we can rule out both of Dennett's challenges to the relevant issues of semantic assumption.

From what has been discussed in last two sections, I conclude that Block's IS argument fails Dennett's challenges but Shoemaker's argument survives them.

2.3 The Intersubjective Cases of Inverted Spectrum

From the discussion in the last section, we have learned that Block's argument for the intrasubjective case of IS faces some difficulty. But it seems that Shoemaker's argument might be able to survive the objections that have been raised so far. But this is not to say that the IS argument succeeds in establishing the distinction between intentional and phenomenal content, since the objections that are proposed against the intersubjective IS case might affect the intrasubjective case as well. Block doesn't seem

to extend his IS argument to the intersubjective case of IS, so I will focus on Shoemaker's argument for the intersubjective IS in this section. In section 2.3.1, I will discuss Shoemaker's argument, and then the objections that are raised by Hilbert and Kalderon in section 2.3.2. I will argue that their objections fail, because they rest on a controversial Fregean theory of content. In section 2.3.3, I will argue that the case of partial inversion is not conceivable, since it is not compatible with the constraint set by the relational structure of color space. Therefore, Shoemaker's argument fails.

2.3.1 Shoemaker's Argument for the Intersubjective Inverted Spectrum

As mentioned at the beginning of this chapter, Shoemaker argues that, given the intrasubjective case of IS, there is a natural line of argument leading from the possibility of intrasubjective IS to the possibility that there is intersubjective IS.

Shoemaker argues that, intrasubjectively, the relationship of qualitative similarity is functionally definable, since it is "definable in terms of how the holding of the relationship between experiences is causally related to sensory inputs, behavioral outputs, and other mental states"[39] (1982, p.650). If the relationship of qualitative similarity and difference is functionally definable, then, Shoemaker concludes, we should be able to define what it is for a state to have a phenomenal character (or have qualitative properties) in functional terms: a state has a phenomenal character if it is qualitatively similar to or different from some other states or states (1982, p.650). Even if individual

[39] Shoemaker explains the reason the qualitative similarity is functionally definable as follows: "when this relationship [of qualitative similarity] holds between different visual experiences of a person it tends to produce in that person the belief that there are objective similarities in the things he is seeing—to put it roughly, similarity of color qualia tends to produce belief in similarity of seen colors." Through their effects on person's beliefs, the qualitative similarities between their experiences will affect their behavior, in particular their recognitional and discriminatory behavior, as well as their verbal behavior (1982, p.650).

qualitative properties are not functionally definable because of the possibility of the IS, according to Shoemaker, "if the similarity and identity conditions of qualia are functionally definable, it will still be possible to quantify over qualia in such a definition, and that is all that seems to be required. If such an account can be made to work, functionalism has nothing to fear from qualia" (1982, p.651).

To summarize, from the intrasubjective case of IS we conclude that the relations of qualitative similarity and difference are functionally definable, and from this we conclude, in turn, that phenomenal character is also functionally definable. But, of course, both definitions only work intrasubjectively, or, they can only be applied to the sensory states of the same subject.

Shoemaker also believes that visual experiences are comparable across persons, rather than being well defined only for an individual, and reaches the conclusion that the behaviorally undetectable intersubjective IS is possible. Since, as mentioned, if the intrasubjective IS is possible and phenomenal characters of experiences are comparable across persons, then every intrasubjective case of IS is also an intersubjective case of IS (1996a, p.144).

2.3.2 Hilbert and Kalderon's Objections

Hilbert and Kalderon propose some objections that rest on their Fregean version of the representational theory of color experiences.[40] They claim that color experiences represent color properties of the external objects while the relations of similarities and differences between colors are determined by the classificatory function of the visual

[40] Hilbert, David and Kalderon, Mark Eli. (2000). "Color and the Inverted Spectrum." In *Color Perception*. (Ed.) Steven Davis. New York and Oxford: Oxford University Press, 2000.

system. According to them, the content of color experiences are determined by both what they represent and their relationship to other color experiences, which determines their locations in the color space. Relying on this version of color content, they go a step further to argue that the IS arguments face a dilemma: either the contents of the subject's color experiences with IS are different—this contradicts the IS arguments, which assume the contents of color experiences with IS are the same; or the IS case is not genuinely possible. First, I will discuss their theory of color content and the problems it faces in section 2.3.2.1, and then, in section 2.3.2.2, I will discuss their argument for the dilemma which the IS arguments face. In section 2.3.2.3, I will look at Shoemaker's responses to Hilbert and Kalderon's objections.

2.3.2.1 Fregean Theory of Content

Hilbert and Kalderon distinguish the content of color experiences from the represented colors. According to them, the content of color experiences is not determined totally by the represented color, but is determined partly by how the visual system classifies the similarity and difference between colors. This leads to the Fregean view of the content of color experiences, which claims that "the content of color experience is determined by two sorts of factors: (a) positions in the color space; and (b) relations borne to the subject's environment" (2000, p.199).

According to Hilbert and Kalderon, the visual system of human beings selects certain properties of the object as color properties and certain relations among them as the relations of similarity or difference with respect to color; and therefore determines which properties belong to a particular similarity class with respect to colors. If the structure of

color space is determined by the classificatory function of the visual system and the color space determines partly the similarity classes with respect to color, then their Fregean version of color content can be expressed as claiming that the similarity classes are determined partly by the antecedent classificatory function of the visual system. That is, for any two token color experiences to represent the similar color, they must have the same kind of similarity and difference relations to other color experiences, which implies that they must occupy the same location in the color space. In their own words, "[w]hat makes a color experience an experience of a particular color is the similarities and differences, determined by the character of our visual system, that the represented color exhibits in relation to the other colors" (2000, p.198). This is the reason why the content of a color experience is determined partly by its location in the color space.[41]

If the color space of human beings is asymmetrical, one consequence of this view is that whenever a property of an object is selected as, say, redness, it must be located in a particular region of the color space and preserve all the similarity and difference relation to other colors. Consequently, it is impossible for any two different colors to be located in the same region of the color space but still have the same similarity and difference relation to other colors.

The content of color experiences not only differs from their referent but also differs from the phenomenology (or, the phenomenal character). What is the phenomenology, the red-feeling, of a visual experience of red objects? Hilbert and Kalderon believe that "some particular aspect of color content is responsible for color

[41] Hilbert and Kalderon made a qualification and said that "[w]e are not proposing a dual-aspect semantic according to which color experience has a wide and narrow content; rather, our color experience has a unitary content determined by two sorts of factors. Monadic color contents, in effect, supervene on a complicated set of dispositional relations, some of which are borne to the environment, others of which are borne to actual and potential color experiences" (2000, p.199).

phenomenology" (2000, p.201) and what is responsible for the phenomenology of color experiences are just their locations in the color space, which partly determine the content of experiences.

Because the similarity and difference relations between color experiences are determined by the location of the color experiences in color space, they are a structural constraint on the content of color experiences. What determines the similarity and difference between color experiences is the aspect from which we perceive the distinctions between color experiences. Therefore, the phenomenal similarities and difference of experiences are just the perceived similarities among colors, which is the thesis of NECESSITY.[42]

> NECESSITY: Necessarily, the visual experiences of two normal subjects share the same relevant content iff they share the same phenomenology. (2000, p.191)

In sum, Hilbert and Kalderon claim that, first, the content of color experiences is Fregean and, secondly, the phenomenology of color experiences must be determined by the location in color space. From both claims (and the asymmetrical hypothesis of human color space as I will discuss next), they derive the NECESSITY thesis, which is the Fregean version of Representational Thesis.

[42] In their own words: "That the visual experiences of normal subjects share the same color phenomenology is, of course, a matter of their being relevantly similar. The relevant dimension of similarity consists in the fact that the contents of their respective experiences are partly determined by their occupying the same region of the psychological space. NECESSITY, then, is underwritten by a substantive identification—the phenomenal [i.e., qualitative] properties of color experience are identified with the structural constraints governing them (as determined by their position in the color space). The phenomenal similarities among color experiences *just are* perceived similarities among the colors" (2000, p.201).

2.3.2.2 Problems With the Fregean Theory of Visual Content

First, I should point out that the argument for the NECESSITY thesis might be unsound, since it relies on a controversial premise: the color space of human beings is asymmetrical. It is worthwhile to point out that the IS arguments are compatible with both claims above, if we assume that the color space of human beings is symmetrical. The IS arguments for the intrasubjective case of IS target the undetectable case of IS which must satisfy the constraint that the color spaces before and after the inversion must have the same structure. That is, the locations of the inverted colors in the color space, or their relations of similarities and differences to other colors, must be the same before and after the inversion of entire spectrum. If the color space of human beings is symmetrical, then, when Jill looks at a red object, her color experiences before and after the entire spectrum inversion will have the same content, even if her experience has a red-feeling before inversion but has a green-feeling after inversion. This is because both red-feeling experiences before the inversion and green-feeling experiences after the inversion are related to the same colored object and have the same location in the color space. If the intrasubjective IS is compatible with the Fregean version of color content, so is the intersubjective case. This means that for the NECESSITY thesis to be derived, it must presupposed that the color space of human beings is asymmetrical, which is controversial as I will discuss in detail later.

Next, I am going to argue the NECESSITY thesis is false, even if we accept the Fregean view of visual content. It is not compatible with some common phenomena of color vision.

First, in the case of shifted spectra, subjects with the same color space can perceive different colored object as having the same phenomenal character. Two normal subjects may perceive the same object with a certain green color property as having different phenomenal characters. One may perceive it as appearing pure green while the other perceives it as appearing yellowish green. These two different subjects may also perceive different objects with different shades of green as appearing pure green and it seems odd for us to claim that their color experiences share the same visual content, since, according to Hilbert and Kalderon, the content of experience is determined partly by the external objects with the color properties. If so, the NECESSITY thesis is wrong, since sharing the same phenomenal character (appearing pure green) doesn't imply the subjects have color experiences with the same visual content.

Secondly, when a subject looks at two different color spots with the same color, his experiences of these two different color spots have the same visual content. However, when we change the background or the surrounding area of one of the color spots, they will appear differently to the subject phenomenally. That is, in the case of color contrast, the subject's experiences of different spots with the same color have the same kind of visual content but different phenomenal characters. If so, having visual experiences with the same Fregean visual content doesn't imply sharing the same phenomenal character between these two experiences. Again, the NECESSITY thesis is false.

Moreover, even assuming NECESSITY is acceptable, the Fregean theory still faces another problem: it is not compatible with the principle of transparency, which claims that what is accessible in introspection of one's experience is its representational content. Given the Fregean version of visual content, the representational content of one's

vision experience of seeing a red object is determined by both its location in color space and its relation to the property of the external object. However, in normal circumstances, when we introspect our visual experiences of seeing red objects, what is accessed is always the external objects with the relevant property only and the location of the color space is not accessible in our introspection at all. What is worse is that most people have no idea of what a color space is and, therefore, cannot figure out a way to access a particular location in the color space of their visual experiences. If so, most people won't be able to introspect the visual content of their color experiences. The Fregean theory of visual content and the principle of transparency of experience are incompatible.

My conclusions are that, first, Hilbert and Kalderon's Fregean version of visual content fails to save the NECESSITY thesis, since it is independent of the relevant phenomenal characters of color experiences. Secondly, given the NECESSITY thesis, the Fregean theory still faces another problem: it is not compatible with one of the major motivations for the representational theory of phenomenal character—the transparency principle.

2.3.2.3 Objections to the IS Arguments

Based on the claims they made in an earlier section—the content of experiences is Fregean and the phenomenal character of an experience is identical with the location it occupies in color space—Hilbert and Kalderon go on to argue that every IS argument faces a dilemma. First, they claim that to argue against the representational theory of color content, the intersubjective IS argument must establish the following two propositions, (1) and (2).

(1) There could be two subjects, [Jack and Jill], whose color experiences are phenomenologically inverted, and
(2) There would be no relevant difference in content between their sensory experiences. (2000, p.194)

However, the IS arguments that intend to establish (1) and (2) face a dilemma.

> If the structure of a quality space were asymmetrical, then (2) will be false—there would be a relevant difference in content. If, however, it were symmetrical, then (1) will be false—phenomenological inversion would not be genuinely possible. (2000, p.202)

The problem with the paragraph quoted above is that: there is no dilemma in the way they describe above without further qualifications. Assuming that the color space of human beings is symmetrical, it is not the case that (1) must be false, or that there must be no inversion with respect to phenomenology. Human color space will be symmetrical, if it is possible that the color space can be inverted along a particular axis without changing the structure of human color space, that is, without changing the similarity and difference relation in the color space, as I will discuss later. This possible evidence seems to support the possibility of Jack and Jill's having color experiences of the inverted colors, hence different phenomenology, while these two different color experiences are located in the same region of the color space. Hence, the possibility of IS is compatible with the claim of (1), given that human beings' color space is symmetrical.

To pose a dilemma to the IS argument, Hilbert and Kalderon must assume the asymmetry of human color space, which seems to be their official view. By adding this assumption, the alleged dilemma can be fixed as follows: given that the color space of human beings is asymmetrical, then, the first horn is: if the IS argument is about the actual case, (2) is false, since there is a difference in the content of their experiences. The second horn is: if the IS arguments are about the conceivable case, then, (1) is false, since

it is impossible for imagined creatures with a perfect symmetrical color space to have a case of IS.

Hilbert and Kalderon argue that since the structure of human beings' color space is asymmetrical in some aspect—along the blue-yellow axis in the color space—any difference of qualitative properties between Jack and Jill would be, in principle, detectable (2000, pp.202-203). The structures of Jack's and Jill's color spaces, which are inverted to each other, must be different. Therefore, some functional differences will show up in their judgments, or behaviors, of their color experiences. If the structures of their color spaces, which partly determine the content of color experiences, are different, there will be a difference in the content of their color experiences. That is, (2) will be false.

The proponents of the IS arguments, Shoemaker and Block, agree with the first horn of the dilemma; were the psychological color space of human beings asymmetrical, there would be no actual IS among human beings. But they both disagree with Hilbert and Kalderon that human beings color space is actually asymmetrical and treat the question of the IS as an empirical question.[43] I will discuss this issue in detail later when we come to Palmer's argument from symmetry. For now, I just want to point out that if Steven Palmer's empirical argument for the symmetrical structure of color space is persuasive, Hilbert and Kalderon's argument for the asymmetrical structure of color space is not decisive.

[43] Shoemaker writes that "[t]he question of whether our color experience does have a structure that allows such a mapping—whether it is "invertible"—is an empirical question about psychological makeup" (1982, p.648) Block says that "[m]y argument is not based on the idea that spectrum inversion is merely possible (though not actual). I claim that we simply don't know if spectrum inversion obtains or not" (1990, p.679).

Even though they agree that the first horn of the alleged dilemma might be cogent, both Shoemaker and Block believe that it is still conceivable that there are other creatures whose color space is symmetrical and, if so, it is conceivable that the IS case might happen among these creatures. If conceivability is a good indicator of possibility, the IS arguments can still go through in the conceivable case. Hilbert and Kalderon disagree and argue that, if the phenomenal characters (or phenomenology) of color experiences are determined by their locations in the color space and the color space of the imagined creatures is symmetrical, the inversion of phenomenal characters between the imagined creatures will be impossible. They argue both that it is impossible for creatures with symmetrical color space to have phenomenological inversion, and that every possible color space must be asymmetrical (2000, p.204).

2.3.2.4 The Inconceivability of the Intersubjective Inverted Spectrum

To argue against the conceivability of creatures with a symmetrical color space but inverted phenomenal characters, Hilbert and Kalderon point out a distinction between the Lockean conceivability claim and the conceivability of subjects having experiences that are inverted qualitatively and at the same time having perfectly symmetrical color spaces. Arguments for IS normally appeal to the Lockean conceivability strategy, which consists of two steps. First, it relies on one intuitively reflecting on one's own experiences. We know, from our own experiences, what it is like to see a red thing and a green thing, which have a red-feeling and a green-feeling respectively. We then feel it is conceivable that there might be some person, such as Jill, whose phenomenal character of looking at a red thing is the same as the phenomenal characters of Jack's looking at a

green thing. Secondly, we can then imagine a perceiver for whom the phenomenal inversion is systematic (2000, p.205).

But, Hilbert and Kalderon claim that: “we can engage in no similar imaginative exercise with respect to the color experience of subjects with perfectly symmetrical color spaces” (2000, p.205). If the content of color experiences is partly determined by their position in the color space and the color space of the imagined creatures with perfectly symmetrical structure differs from ours, then the Fregean content of the imagined creatures will be different from ours. If so, we cannot imagine how color looks to the imagined creatures. If we cannot imagine how color looks to them, how can we conceive of the phenomenal inversions among them (2000, p.205)? Moreover, according to them, since we cannot imagine what the phenomenal characters of seeing a particular color would look like to the creatures with a perfectly symmetrical color space, we cannot even imagine a symmetrical color space.

Addition to the NECESSITY thesis and the Fregean version of visual content, their argument can be formalized as follows:

1. The human color space is asymmetrical and the imagined creatures’ color space is symmetrical, hence the Fregean contents of their color experiences of seeing a particular color are different. (P)
2. If their Fregean contents of color experiences are different, then the subject doesn’t know the phenomenal character of the imagined creatures’ color experiences. (P)

3. We (human beings with normal vision) don't know how colors appear to the imagined creatures, i.e., we don't know the phenomenal character of their color experiences. (From, 1, 2)
4. If we don't know the phenomenal characters of Jack's (a normal imagined creature) color experiences of seeing red, we cannot imagine the phenomenal character of his experiences of seeing red being like the phenomenal character of seeing green. (P)
5. We cannot imagine the phenomenal character of Jack's seeing red being the same as the phenomenal character of seeing green. (From, 3, 4)
6. If we cannot imagine the phenomenal inversion between Jack's color experiences, we cannot imagine there is an imagined creature, Jill, for whom this inversion is systematic. (P)
7. Therefore, we cannot imagine a creature, Jill, with a symmetrical psychological color space that is inverted to Jack. (From 5, 6)

The first problem with Hilbert and Kalderon's argument against the IS case among the imagined creatures is that it rests on the false NECESSITY thesis and, therefore, is unsound. Without this thesis, they cannot derive the different phenomenal characters of human beings' and the imagined creatures' experiences from the difference between their Fregean contents and, in turn, the claim of proposition (2). Now, if the Fregean content of a color experience and its phenomenal character can come apart and, according to Hilbert and Kalderon, the phenomenal character of an experience is determined by its location in the color space, then, we can exercise the Lockean conceivability strategy to derive the IS case. We can imagine that the phenomenal character of Jill's (the imagined creature with

inverted visual system) looking at a red object is the same as the phenomenal character of Jack's (the imagined creature with normal visual system) seeing a green object and vice versa. And we also can imagine that they have symmetrical color spaces.

The second problem with their argument is that even if the NECESSITY thesis were true, the argument is still unsound, because proposition (2) is false. The color-blind phenomenon seems to be a counter example to proposition (2). The psychological color space of a red-green color blind person, which is two-dimensional, differs from the one of a normal person, which is three-dimensional, hence, according to Hilbert and Kalderon, the Fregean contents between their color experiences must be different. But, it seems that there is no obstacle for us (persons with normal vision) to know what it is like for a red-green color blind person to see the shades of the colors along the yellow and blue axis, that is, the shades of pure yellow and pure blue, and the shades of the colors along the black and white axis, i.e., the shades of pure black and pure white. When both subjects look at the colors along both axis, the Fregean contents of the subject with normal vision differs from the one of the red-green color blind subject, yet we (persons with normal vision) have no problem knowing what it is like for a red-green color blind person to see pure yellow, pure blue, pure black and pure white colors. Therefore, proposition (2) is false.

Shoemaker points out a further problem with Hilbert and Kalderon's argument. He disagrees with their "relational view" of phenomenal character: that the phenomenal characters of color experiences are determined by the similarity relations; and points out that the relational view is ambiguous. On the one hand, if what it means is that the phenomenal character <u>is determined</u> by its similarity or difference relations to the other

color experiences, it won't be able to rule out the conceivability of a symmetrical color space (2003, p.271).[44] The phenomenal character which locates in a symmetrical color space can be determined by its relations to the other phenomenal character too.

On the other hand, if what the relation view claims is that the similarity and difference relations amid a given set of experiences constitute their having the phenomenal characters they have, it will rule out the symmetrical color space only if we also hold that "the phenomenal character of color experiences is determined by its position in a network of similarity and difference relations holding among color experiences" (2003, p.272). Shoemaker dismiss their objection by claiming that there is no reason why we cannot find out that the color space of the imagined creatures is symmetrical by testing their discriminatory and recognitional capacities. That is, the structure of their color space is determined not only by the relations among their color experiences but also their relations to their beliefs as well as verbal and nonverbal behaviors. If so, Hilbert and Kalderon's argument that rests on the relational view fails as an objection to Shoemaker's argument for the conceivability of the symmetrical color space.

Hilbert and Kalderon's argument goes further. They not only argue that we cannot imagine a symmetrical color space but also that it is impossible to give an adequate description of a perfectly symmetrical color space, since the conceivability of a perfectly symmetrical color space implies that there is no distinction in the *pattern* of phenomenal similarity and difference with which to contrast the supposed inversion. But, they claim,

> If an experience's phenomenal character is determined by the pattern of phenomenal similarity and difference in which it participates, then a visual

[44] Shoemaker, Sydney. (2003). "Content, Character and Color." *Philosophic Issues*, 13.

> experience occurring along any point in the symmetrical quality space will have the same phenomenal character as any other visual experience. (2000, p.207)

Shoemaker agrees that the experiences of the imagined creatures, whose color space is symmetrical, would not be the same as any of ours phenomenally and that we are not able to imagine what it is like for them to see colors. Even so, Shoemaker claims, this doesn't imply that we won't be able to refer to those imagined creatures' color experiences in a way that would enable us to describe creatures whose spectra are inverted to each other.

It should be clear that this additional objection also rests on the relational view of phenomenal character. But, as mentioned, according to Shoemaker, by testing the discriminatory and recognitional capacity of the imagined creatures, we would be able to figure out the structure of their color space and find out that it has a symmetrical structure. Moreover, "we could have good behavioral evidence that certain stimuli always produce in them [the imagined creatures], under certain conditions, experiences identical in phenomenal character." And, "[t]his will give us a way of fixing the reference of terms designating their kinds of color experience" (2003, p.271). He then goes ahead to explain how we could conceive an IS case between the imagined creatures as follows.

> [W]e might fix the reference of the term "red*" with the description "the phenomenal character of the color experiences they have when viewing ripe tomatoes in daylight," and the term "green*" with the description "the phenomenal character of the color experiences they have when viewing the unripe tomatoes in daylight." We could then describe the hypothetical case of creatures who also have a symmetrical color experience space but who get green* experiences from ripe tomatoes and red* experiences from unripe tomatoes. (2003, p.271)

Shoemaker's answer to the question of how we could conceive an IS case between imagined creatures appeals directly to their discriminatory and recognitional abilities rather than arguing for the conceivability of the Lockean IS case.

My conclusion of this section is that Hilbert and Kalderon's objection to the conceivability of the IS case fails. The reasons are that, first, it rests on the relational view of phenomenal character that is not the only possible way to individuate the phenomenal character of the imagined creatures; secondly, it rests on the false NECESSITY thesis and, thirdly, the argument is unsound, since proposition (2) in their argument is false.

2.3.3 The Impossibility of Intrasubjective Partial Inversion

For the sake of argument, let's agree with Shoemaker that it is possible for us to find out if the structure of the imagined creatures' color space is symmetrical and we are able to fix the reference of the terms referring to their color experiences. Moreover, let's also agree that we can therefore describe the IS case between the imagined creatures when any IS case occurs between them. However, to describe the IS case between the imagined creatures is one thing, to offer an argument for the conceivability of an IS case occurring between them is another thing. It seems that Shoemaker cannot derive the conceivability of the IS case as required—the undetectable intersubjective IS—from the conceivability of the intrasubjective partial inversions.

According to Shoemaker's official argument, the behaviorally undetectable case of intersubjective IS is derived from the intrasubjective case of entire spectrum inversion, which, in turn, is derived from a series of partial inversions. The problem is that: even if we grant the conceivability of the symmetrical color space of the imagined creatures, the intrasubjective case of partial inversion is still impossible (or, even inconceivable), given that the phenomenal character of the imagined creatures' experiences must be constrained

by the structure of color space, i.e., by the similarity and difference relations among the phenomenal characters of all their color experiences. The case of partial inversion is not compatible with the structural constraint of the color space, since it is impossible to change the position of the phenomenal character of a color experience without changing its relations to the phenomenal characters of other color experiences. The structured constraint applies to both color space with symmetrical or asymmetrical structures.

The principle of the structure constraint of color space differs from the relational view of the phenomenal character. It doesn't claim that the structure is a sufficient condition for color experience to have a particular phenomenal character: i.e., the phenomenal character is constituted by the net relations of similarity and difference among color experiences, but that the structure is a necessary condition for the phenomenal character to be located in the color space. For example, for a color experience to have a red phenomenal character, it must be located between the region of blue and yellow phenomenal characters, and it cannot be located either in the location between green and yellow areas nor in the location between green and blue areas in the color space. For a color experience to have an orange phenomenal character, it must be located in the region between red and yellow areas in the color space.

But, assuming the partial inversion, the phenomenal character of orange will be located in the region between green and blue areas after the partial inversion occurs, which is a change of the structure of the color space and is not compatible with the structure constraint. Intuitively, no color space can have an orange phenomenal character that is located in between the green and blue areas. It seems impossible, or even inconceivable, that an orange phenomenal character can be located between the areas of

green and blue phenomenal character, or roughly, that a perception of orange light can be a perception of the combination of green and blue lights. As Steven Palmer says "[i]t is quite literally unimaginable what color experience would be like without this structure" (1999b, p.932).[45] If the structure constraint of color space is a necessary (or, even a priori) condition for an experience to have a particular phenomenal character, which I believe to be so, then the case partial inversion is impossible (or, even inconceivable).[46]

Now we can see that Hilbert and Kalderon are wrong about what Shoemaker fails to offer. What Shoemaker fails to offer is not how to conceive and describe the conceivable intersubjecitve case of IS between the imagined creatures, but rather, it is about the impossibility of intrasubjective partial inversion of the imagined creature. If Shoemaker cannot offer such a possible (or, just conceivable) case, and I believe that he cannot, he can derive neither the intrasubjective case of entire spectrum inversion nor the intersubjective case of IS. That is to say, his "intra-inner" argument fails. It cannot even launched from the beginning.

As my argument shows, given the structure constraint of phenomenal character in a color space, the partial inversion case of IS will not be conceivable. If the partial inversion case of IS is not conceivable, Shoemaker can derive neither the intrasubjective case of entire spectrum inversion nor the intersubjective case of IS in his "intra-inner" argument. Even if the example of how to conceive an IS case between the imagined creatures by their discriminatory and recognitional capacities is correct, it is hard to see how Shoemaker could insist the conceivability of the intersubjective case of IS without

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[45] Palmer, Stephen. (1999b). "Color, Consciousness, and the Isomorphism Constraint." *Behavioral and Brain Sciences* (1999) 22.

[46] If the case of partial inversion is impossible but still conceivable, then this will be a case that conceivability is different from and doesn't imply possibility. If so, Shoemaker's argument still cannot derive the possibility from the conceivability of the intersubjective entire spectrum inversion.

giving up his “intra-inner” argument. But, if Shoemaker gives up his “intra-inner” argument, the alternative argument that is left is Block’s argument for the entire spectrum inverted at once, which is not a better one as we discussed earlier. If both arguments for the intrasubjective IS case fail, it doesn’t make sense to insist on the conceivability of the intersubjective IS case without offering alternative arguments.

My conclusions are: first, Shoemaker’s “intra-inner” argument for the intersubjective IS case fails once he accepts that the phenomenal character of color experience in a color space must be constrained by its relational structure. Secondly, assuming the human beings’ color space is asymmetrical, then, if the intersubjective IS argument is for the imagined case, it faces a dilemma: if it is an argument for the entire spectrum inverted at once, then it cannot pass the challenge of the memory failure argument; if it is an argument from a serial of partial inversions to the entire spectrum inversion, then it is unsound, because the intrasubjecive case of partially inverted spectrum is not conceivable.

2.4 The Argument from Symmetry

We have discussed the alleged dilemma proposed by Hilbert and Kalderon and concluded that Shoemaker’s argument for the conceivability of the intersubjective inverted IS fails. But it is not because we are not able to conceive a creature with a symmetrical color space as Hilbert and Kalderon argued, but rather it is due to the inconceivability of intrasubjective partial inversion by means of which Shoemaker derives both the intrasubjective and intersubjective cases of entire spectrum inversion.

It is time for us to take a look at the assumption of the alleged dilemma: the structure of human's being's color space is actually asymmetrical. Most philosophers accept this assumption and its consequence that there is no behaviorally undetectable intersubjective case of IS among human beings. However, there are still some different opinions out there.

Steven Palmer argues that, first, the color space of human beings can be symmetrical; secondly, there are two different aspects of experiences: the subjective intrinsic qualities and the objective relational structure; thirdly, that scientific research can only reach the objective relational structure among color experiences but cannot break into their subjective intrinsic qualities. Hence, the possibility of the IS.

2.4.1 Palmer's Argument for Symmetry

Now let's look at the assumption that is accepted by both the opponents and proponents of the IS arguments—that the human color space is asymmetrical. Hilbert and Kalderon argue for the asymmetry of psychological color space by appealing to the fact of the asymmetries along the blue and yellow axis of the color space. First, on the blue side of the axis, all shades of blue, from dark blue to light blue, appear blue, but not so with the yellow side of the axis. Light yellow appears yellow but dark yellow appears brown rather than yellow to us. While on the blues side there is only one color category, i.e., blue, the yellow side of the axis includes two different color categories, yellow and brown, which are two different basic color categories. The second case of the asymmetry along the yellow/blue axis is that the phenomenal characters of the brightest yellow experiences are much brighter than those of the brightest blue experiences (2000, pp.202-

203).[47] So, they conclude that a subject with a color space with yellow and blue phenomenal characters inverted is behaviorally detectable.

However, the fact that the color space of human beings is asymmetrical along the blue/yellow axis doesn't rule out the symmetrical hypothesis of color space. To do so, one has to prove that the color space of human beings is asymmetrical in all respects. For example, first, if we invert the three-dimensional color space along the yellow/blue axis, i.e., only invert the red/green dimension, the structure of the inverted color space will still be symmetrical compared to the normal one, since the yellow/blue dimension is not inverted and therefore, the inverted color space won't be detectable unless there is also asymmetry along the red/green dimension. Therefore, the asymmetry along the yellow/blue axis cannot rule out the symmetry hypothesis of color space.

Second, if we inverted yellow/blue dimension of the color space as well as the black/white dimension, we get another case of inverted color space without being detectable behaviorally. The second case of asymmetry along the blue/yellow axis will destroy the symmetrical structure of the inverted color space only when we invert the blue/yellow dimension without inverting the black/while dimension at the same time. The first case of asymmetry along the blue/yellow axis concerns the issue of whether brown color is perceived as a basic color category and, unfortunately, it seems that no concrete conclusion has been reached yet.

Hardin argues that basic color categories are not due to the cultural or environmental factors, since chimps and infants perform the same kinds of categorization

[47] Hardin, C.L. makes the similar points as Hilbert and Kalderon. See Hardin, C.L. (1997). "Reinverting the Spectrum." pp. 296-297. In Byrne, Alex and Hilbert, David, (Eds.) *Readings on Color, Volume 1: The Philosophy of Color.* Cambridge, Mass.: The MIT Press (1997).

as human beings (1997, pp.293-295)[48]; and that brown (which is a derived basic color category) and yellow (which is a primary basic color category) are different color categories, since "[i]f you are like most people, you find brown and yellow to be far more different from each other then light blue is from navy blue" (1997, p.296). If so, any inversion along the blue/yellow axis must be detectable. Steven Palmer disagrees with Hardin and claims, "the categorical effects that have been reported are typically restricted to the primary [basic color terms] of red, green, blue, and yellow, leaving us, once again, with an open question about the status of derived [basic color terms]" (1999b, p.929). Since no decisive conclusion has been reached on the issue of whether brown and other derived basic terms are due to color experiences or cultural/environmental factors, the inversion along the blue/yellow axis that is companied by the inversion of black/white axis could be still symmetrical compared to the normal color space; and the inversion, if any, would, of course, be behaviorally undetectable.

If the color space of human beings is symmetrical, at least in some respects, one can even agree with both Hilbert and Kalderon's relational view and Fregean theory of content without agreeing that the behaviorally undetectable IS case will thus be impossible. Since the Fregean content of seeing a pure red object of both Jack and Jill will be the same—both the reference and the location of the phenomenal character of seeing pure red in the color space are the same—the red object appears differently to them.

Palmer argues that, in a three-dimensional spatial model of color space, there are "three candidate [color] transformations [i.e., color inversion] that survive the most basic

[48] Hardin, C.L. (1997). "Reinverting the Spectrum." p. 296-297. In *Readings on Color, Volume 1: The Philosophy of Color.* (Eds.) Byrne, Alex and Hilbert, David. Cambrige, Mass.: The MIT Press (1997).

behavioral constraints concerning color experience as reflected in the global structure of color space: red-green reversal, blue-yellow and black-white reversal, and reversal of all three axes (red-green, blue-yellow, and black-white)" (1999b, p.931).

If we add the data of basic color categories and basic color terms, Palmer admits that even if all three symmetries can survive the constraint set by the primary basic color categories, all of them will be broken if we also introduce the behavioral constraints set by composite and derived basic color categories. He adds a qualification though, "only if they [the composite and derived basic color categories] are the result of the intrinsic properties of the color system (i.e., based on experiential factors) rather than to extrinsic ecological factors (i.e., based on the physical environment or sociolinguistic community)" (1999b, p.928, p.931). But, he claims that "I am not aware of… any behavioral data that directly support these asymmetries for derived and composited color categories in color experience" (1999b, p.928). If Palmer is right, then it is still possible that human color space is symmetrical and there are three possible versions of symmetry.[49]

[49] Palmer points out later that there are two new kinds of evidence that seem to break all three kinds of symmetries of the color space he mentioned. The first evidence is that the metrical structure of color space breaks the symmetries of color space, which is psychophysical evidence rather than behaviorally detectable evidence. The second evidence, which is offered by Lewis D. Griffin, is the similarity judgments that rule out all symmetries of color space. However, the first evidence is psychophysical evidence rather than behaviorally detectable evidence, so it seems that we can rule it out as irrelevant. The problem with the second evidence is that it is not clear whether these kinds of similarity judgments are held universally and the answer is likely no. If so, we can also rule out this objection. (So I maintain the opinion that Palmer's argument for the symmetry hypothesis is acceptable.) The other problem, which is pointed out by Palmer himself, is that only if one also assumes automorphism can one derive the asymmetry of the color space from either kind of evidence. But Palmer believes that automorphism is not a necessary condition for the question at issue. See Stephen E. Palmer. (1999c). "On Qualia, Relations, and Structure in Color Experiences." *Behavioral and Brain Sciences* (1999) 22:6. p.984.

2.4.2 The Isomorphism Constraint and the IS Argument

After defending the symmetrical hypothesis of color space, Palmer goes on to argue for the isomorphism constraint on our knowledge of other person's color experiences that rely on behaviorally detectable evidence. First, he claims that there are two different aspects of color experiences. The first aspect is the intrinsic qualities of experiences themselves, which is subjective, and the other aspect is the relational structure, which holds among color experiences and is objective. Palmer characterizes both aspects of experiences respectively as follows.

> The most obvious aspect of visual awareness is certainly the [intrinsic] nature of the experiences themselves, such as the sensory quality of redness and circularity… It seems that the quality of these experiences is flat-out impossible to define behaviorally, given that we have access to no one's experiences but our own… The quality of individual experiences lies beyond the behavioral subjectivity barrier. (1999b, p.931)

And,

> The second aspect of experience is one to which behavioral science does have access: namely, structure among experiences carried by their relations to each other… Indeed, the entire structure of color space is determined by relations among colors, particularly relations of composition and similarity. (1999b, pp.931-932)

According to Palmer, the relational structure among color experiences tells us nothing about the intrinsic qualities of color experiences, because it is possible that "[m]y experiences of color similarity relations might be as wildly different from yours as my individual color experiences are from yours, but the *structure* of our experiences and relations can nevertheless be identical" (1999b, p.932). Because the relations of similarity and differences between color experiences are behaviorally detectable evidence, preserving the relational structure of color experiences is a necessary condition for the spatial mode of color space to represent color experiences. Palmer concludes that "the

[intrinsic] nature of color experiences cannot be uniquely fixed by objective behavioral means, but their structural interrelations can be" (1999b, p.932).

One of the properties of symmetry is the "isomorphism" function and it "maps color experiences onto points in a dimensional color space such that relations among color experiences (lighter than, more similar than, etc.) are preserved by corresponding points in space (higher than, closer to, etc)" (1999b, p.933).[50] According to Palmer, isomorphism is a key point of the IS argument, since the only similarities or differences that can be detected behaviorally are similarities or differences in the relational structure of color spaces, and the relational structure of color space is exactly what is preserved by isomorphism. If relational structure is the only part of one's color experiences that is behaviorally detectable, isomorphism will also be a key point in evaluating behavioral detectability, since it is "the strongest form of equality that can be claimed for color experiences across observers based on behavior" (1999b, p.933). If Jack's and Jill's color spaces are isomorphic, then even if the intrinsic properties of their experiences are totally different, this won't be detectable from their behavior, because the relational structure of their color spaces is the same.

Assuming that the isomorphism between the color experiences of different persons can only let us derive the equality of their relational structure rather than their intrinsic nature, which is called the isomorphism constraint, Palmer suggests that "it

[50] An isomorphism is "a mathematical function in which one set of entities is mapped onto another set of entities such that the structure of relations among the first set is preserved by the structure of corresponding relations among the second set" (1999b, p.933). The other property of symmetry is the automorphism function, which requires that, in the issue of color experiences, there are the same number of entities in both domains of the color space and the color experiences. This implies that whoever shares the same kind of color space has the same set of color experiences, given that automorphism is a necessary condition of a symmetrical color space. However, Palmer believes that automorphism is not a requirement of his argument for the IS.

constitutes a fundamental limitation on what can be discovered about experiences by behavioral methods" (1999b, p.933). Relying on what has been mentioned so far, Palmer concludes that:

> If the shared aspects of experience do indeed coincide exactly with structural relations—that is, what is preserved by an isomorphism—the argument thus far can be summarized as follows: *Objective behavioral methods can determine the nature of experiences up to, but not beyond, the criterion of isomorphism.* The subjectivity barrier would then coincide precisely with the isomorphism constraint. (1999b, p.934)

Given that the color space of human beings is symmetrical (at least in some respects) and the behavioral evidence of the perceivers can offer only the relational structure rather than the intrinsic nature of their color experiences, there is no way to rule out the possibility of the IS hypothesis between them by appealing to behavioral evidence. Therefore, the IS case is possible.

Palmer's argument for the IS hypothesis has many advantages over both Shoemaker's and Block's IS arguments. First, it avoids the controversial cases of thought experiments and the problem concerning the relation between conceivability and possibility by appealing to the structure of the color space directly. Secondly, by arguing for the intersubjective case of IS hypothesis directly, it avoids the objections that are faced by both Block's and Shoemaker's IS arguments—the indeterminacy between the memory failure hypothesis and the IS hypothesis, and the inconceivability of partial inversion. Thirdly, by arguing for the symmetry hypothesis of color space, it avoids the objections to the conceivability of the intersubjective IS case raised by Hilbert and Kalderon based on the asymmetry hypothesis. Finally, it is an empirical argument for the

IS hypothesis and thereby puts the burden of proof back on the opponents of the IS hypothesis.

2.4.3 Objections to the Argument from Symmetry

Palmer's argument rests on the premise that there are two different aspects of experiences—the aspect of intrinsic quality and the aspect of relational structure—which simply assumes that the qualitative properties of color experiences are intrinsic and cannot be determined by their behaviorally detectable aspect, i.e., the relational structure of color experiences. The conception of intrinsic property implies, first, that the qualitative properties are only accessible introspectively, which, in turn, implies that the qualitative properties of experience is determined internally. Secondly, it also implies that consciousness is intrinsic to color experiences. That is, whenever the subject has a color experience with a certain qualitative property, he must be conscious of the qualitative property. It turns out that, like most qualia realists, Palmer's conception of the intrinsic qualitative properties of experiences has the following characteristics: they are subjective, conscious and determined internally.

Without these assumptions Palmer's argument can hardly go through, even if we agree with him both that the color space of human beings is symmetrical and that the relational structure of color space is the only behaviorally detectable part of color experiences. In the following sections, I will first challenge Palmer's assumptions just mentioned and, then, argue that assuming both qualitative properties and consciousness are intrinsic to color experiences cannot explain the phenomenal character of the experience.

2.4.3.1 The Subjectivity Barrier

Some (Alex Byrne and Peter Ross)[51] argue that if the qualitative properties of experience are determined externally, then we will be able break the subjectivity barrier. Because we can tell the qualitative property of someone's color experience by what physical color property causes (or is represented by) it, Byrne claims, "there is no special problem about knowing the natures of others' visual experiences, and thus there is no 'subjectivity barrier'" (1999, p.949). I basically agree that there is no subjectivity barrier, but not on the same ground as theirs.

I won't pursue their objection any further, since I have rejected the Standard Representationalists' view of phenomenal character in chapter one. Any argument which rests on this view is basically unsound at best.

2.4.3.2 Consciousness as an Intrinsic Property of Sensory Experiences

Even though Palmer holds experiences have two different aspects, he holds that the phenomenal characters of color experiences are totally determined by the aspect of intrinsic property. The relational structure plays no role with respect to the "what it is like" of having a particular color experience. That is why behavioral science cannot break through the subjectivity barrier. Palmer holds a similar view to qualia realists.

The major purpose of qualia realists' introducing the notion of "quale" (or conscious qualitative property) is to explain the difference between what-it-is-likeness, or

[51] Byrne, Alex (1999). "Subjectivity is no barrier." *Behavioral and Brian Sciences*, (1999) 22:6, pp.949-950; Ross, Peter. (1999). "An externalist approach to understanding color experience." *Behavioral and Brian Sciences*, (1999) 22:6, pp.968-969.

the subjective feeling, and having sensory experiences with different phenomenal characters. Assume the IS case, the visual experiences of Jack and Jill's seeing a red colored object will have different phenomenal characters but the same relational structure or representational content. That is why qualia realists have to explain the different aspects of experiences by, either different notions of content—the intentional/phenomenal content—or different aspects of experiences—the intrinsic quality/the relational structure.

2.4.4 Rosenthal's Objection

Rosenthal claims that the intuition behind the IS arguments—that qualitative properties outrun the functional (and intentional) characters of sensory states—resides in the conception of the first-person access we have to our own sensory states. This, in turn, assumes that consciousness is an intrinsic property of sensory states, that one can be aware of the qualitative properties of one's own sensory states by an inner sense, and that the qualitative properties of sensory states are classified introspectively. He believes that this view of the first-person access to one's mental states is wrong and argues (1) that consciousness is not an intrinsic property of sensory states, (2) therefore we will be able to give a functional interpretation of sensory states, and (3) that if we can give an alternative conception of the individuation of qualitative properties, then an inverted spectrum will be impossible. That is, according to Rosenthal, the conceivability of the IS rests on both the false intuition that qualitative properties are accessible only from the first person point of view, implying that consciousness is an intrinsic property, and a

particular conception of how to individuate qualitative properties that might not be proper.

To evaluate Rosenthal's objections, we have to make explicit the relation between the IS arguments and the intuition that phenomenal character outruns the functional character of mental states. The idea that seems to directly support the intuition at issue is the distinction between intentional and phenomenal content (i.e., phenomenal character). If experiences always include both intentional and phenomenal contents and that intentional content is functionally definable but phenomenal content is not, then it is possible for them to come apart. That is, experiences of colored objects might have the same intentional content while having different phenomenal content; or experiences of different colored objects might have different intentional content but the same phenomenal content.

To derive the intentional/phenomenal content distinction, the case of inverted spectrum must satisfy some particular conditions and one of them is that the subject's reactive dispositions to colored objects must be behaviorally undetectable before and after the inversion. The question is: how can one tell whether a subject is experiencing a qualitative properties shift or not? If there is no behavioral difference before and after the inversion, the only evidence that supports the inversion is the subject's reports of his own experiences that are only accessible by the subject's introspection. Hence, the intrasubjective IS argument relies on the first-person access to one's own sensory states, and, in turn, the intentional/phenomenal content distinction derived from it assumes first-person accessibility to the phenomenal characters of one's own sensory states.

If the reasoning above is correct, then, it seems that Rosenthal's connecting the intuition that qualitative properties outrun the functional characters of mental states and the issue of one's first-person accessibility to one's sensory state assumes the IS case in which the entire spectrum inverted totally at once. In the case of the entire spectrum inverted at once, there is no behavioral evidence, except the subject's reports, to support the subject's noticing the difference before and after as a case of IS. From what is discussed in the last section, it is clear that Block's version of the IS argument commits to the doctrine of first-person accessibility. Block appeals to both the subject's report of noticing a shift of qualitative properties and the subject's recall of past color experiences as crucial evidence of it being a case of IS, rather than a case of memory failure.

Rosenthal's objection also works as an argument against Palmer's argument from symmetry that assumes the subjective barrier of the qualitative properties of experiences, i.e., qualitative properties are only introspectively accessible.

The situation is different in Shoemaker's IS argument. Shoemaker's partial inversion argument, which derives the entire spectrum inversion from a series of partial inversions, not only relies on the subject's verbal reports of sensory experiences but also on the subject's nonverbal behavior. Since Shoemaker's argument appeals to both introspective reports and nonverbal behavioral evidence and the distinction between intentional and phenomenal content can be derived from it, the issue of first-person accessibility to one's own sensory states is irrelevant here.[52]

[52] The subject's reports of internal sensory experiences are neither a sufficient nor a necessary condition for partial inversion. We can tell that it is not a sufficient condition from the memory failure argument against Block's IS argument; it is not a necessary condition because we can still derive the partial inversion hypothesis using only behavioral evidence. For example, we might derive the partial inversion hypothesis from the subject's responses to the request to pick up a red object, if the subject picks up a red object before t1 but picks up a green object after t1.

However, Rosenthal's purpose in challenging the appeal of first-person accessibility to one's own sensory states is to reveal and challenge some of the assumptions behind the IS argument.[53] For example, consciousness is an intrinsic property of sensory states and the distinction between intentional and phenomenal content of experiences implies different ways to individuate content. Even if all the IS arguments are valid and imply the intentional/phenomenal content distinction, they still don't imply the intuition that phenomenal content outruns the functional characters of mental states, unless we add that the intentional content must be individuated functionally while the phenomenal content is individuated by the introspectively accessible qualitative properties. If the proponents of the IS arguments really hold that there are the different ways of individuating the intentional and phenomenal content, there is a connection between the intuition at issue and first-person accessibility, since the claim that phenomenal content must be individuated introspectively assumes first-person accessibility to one's own sensory states.

This second way of understanding Rosenthal's challenge to appealing to first-person accessibility is to understand him as disagreeing with the proponents of the IS arguments, first, that consciousness is an intrinsic property of sensory states and, secondly, that phenomenal content (or qualitative property) is individuated by means of the conscious qualitative properties that are only accessible from the first-person point of view.

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[53] In Rosenthal's own words: "the present concern is not about whether absent or inverted qualities are real possibilities, or if so whether functionalism can preclude them. It is simply to find out the source of the stubborn intuitive insistence that absence or inversion of qualities are possible, and not ruled out by functionalism. …" (Rosenthal, David. (1999). "Sensory Qualities and the Relocation Story." In his *Consciousness and Mind*. Oxford: Clarendon Press (2006b). p.158.

Given the distinction between conscious and non-conscious sensory states, which have qualitative properties, whether they are conscious or not, then, even if we agree that the IS argument is correct, it is still not clear what are inverted—the qualitative properties of (nonconscious) sensory states or their conscious qualitative properties. On the one hand, it cannot be the nonconscious qualitative properties, since, by definition, the subject is not conscious of them but, according to the IS argument, the qualitative properties that are inverted to each other must be individuated by what the subject is aware of introspectively. On the other hand, if what are inverted are the conscious qualitative properties, (which are the ways we are conscious of the relevant sensory states and are individuated by how the subject is conscious of them,) then, it seems, they are just totally ignoring the issue of the qualitative properties of nonconscious qualitative states. Intuitively, nonconscious qualitative states also have qualitative properties. Neither answer seems acceptable.

Rosenthal maintains that the intentional/phenomenal content distinction itself doesn't imply that all the qualitative properties of sensory states must be classified in the same way as the proponents of the IS argument seem to take for granted. There is no reason why we have to individuate the qualitative properties of both conscious and non-conscious sensory states unitarily, given the distinction between conscious and nonconscious sensory states. The claim that the qualitative properties must be individuated by what one is conscious of introspectively ignores the distinction between conscious and nonconscious sensory states. Also, since one might be aware of the qualitative properties of one's non-conscious sensory states as different from what they are, there is a distinction between the qualitative properties of nonconscious sensory

states and the way we are aware of them. If so, there is even stronger reason to believe that the qualitative properties of non-conscious sensory states should not be classified by the way one is consciously aware of them, held by proponents of the IS arguments.

Given the conscious/nonconscious distinction between sensory states, according to Rosenthal, we are able to offer a functional definition of the qualitative similarity and difference between nonconscious sensory states. Adding the higher-order thought (HOT) theory of the nature of consciousness and the quality space theory of individuation of qualitative properties, his theory implies the impossibility of IS. (I will discuss Rosenthal's HOT theory of phenomenal consciousness in the Chapter 5.)

The second way of understanding Rosenthal's objection is to understand it not as a direct objection to the IS argument itself, but rather, as an objection that rests on the issue of which theory can offer a better theoretical explanation. He argues that if we count in the conscious/nonconscious distinction of sensory states and offer an alternative theory of content individuation—his quality space theory of the nature of qualitative properties—we can derive the impossibility of the IS.

The problem with the second way of understanding Rosenthal's objection is that it is not clear whether the proponents of the IS arguments commit themselves to what Rosenthal charges—the IS arguments rest on the intuition that the qualitative properties of sensory states are conscious introspectively and must be individuated by what is only accessible from the first-person point of view. It seems that Rosenthal's charge is attacking a straw man.

Shoemaker and Block each proposes their own views of phenomenal character of experiences without appealing to qualitative properties that are only accessible from the

first-person point of view. Shoemaker individuates the phenomenal character of sensory experiences by the appearance properties they represent. Appearance properties, according to Shoemaker, are objective properties of physical objects and, therefore, are accessible even from the third-person point of view. Block argues that there are different kinds of consciousness and it is possible for one to be phenomenally conscious of the qualitative properties of one's experience (P-consciousness) without being accessibly or reflexively conscious of the relevant qualitative properties (A-consciousness and reflexivity). Since phenomenal consciousness is conceptually independent of accessible and reflexive consciousness, it is possible for one to be phenomenally conscious of one's sensory states without being accessibly or reflexively conscious of it. That is to say, phenomenal character can be conscious but not accessible to the subject.

Neither view of phenomenal character rests on the intuition Rosenthal contests, that qualitative properties are conscious and are accessible only from the first-person point of view. I conclude that, if Rosenthal's objection targets the IS argument directly, it cannot overrule Shoemaker's argument; if it is about the intuition behind the IS argument, it is attacking a straw man. However, it does work as an argument against the IS argument from symmetry, since Palmer's argument seems to just be assuming that the consciousness is an intrinsic property of sensory states.

Chapter 3 The Inverted Earth (IE) Argument and Phenomenology

3.0 Introduction

One of the major problems of the IS arguments is that the only evidence of the change of qualitative properties or phenomenal content, which occurs with respect to the subject's mind or brain, are the subjects' verbal reports. As a result of this, opponents can always propose alternative interpretations of what is going on inside the subject's mental states, such as the memory failure hypothesis. To avoid this kind of problem, Block proposes the Inverted Earth (IE) argument that puts the difference on the representational aspect of the subject's experiences rather than on the phenomenal aspect and hence locates the difference outside the subjects' mental states and makes it observable objectively. Using IE, which also targets the distinction between intentional and phenomenal content, Block argues that it is possible for a person to have experiences with identical phenomenal characters but different intentional contents.

In some of his recent papers (1995, 2001), Block offers a new argument for the existence of qualitative properties (qualia). He argues for the independence of phenomenal consciousness, which he calls phenomenality or phenomenology, from access consciousness. If there is phenomenology that is not accessible to the subject, then it cannot be explained by its relations to his cognitive system.

In section 3.1, I will describe briefly two different versions of the intrasubjective case of the IE argument. Then, I will discuss some objections to (both conceptual and nonconceptual versions of) the IE argument in section 3.2. I will overrule all the objections, but I also argue against Block's IE argument in sections 3.2 and 3.3. My final

conclusion is that Block's IE arguments fail to establish the distinction between intentional and phenomenal content in both conceptual and non-conceptual versions. In the last section, 3.4, I will discuss Block's argument for the independence of phenomenology from access consciousness. My conclusion is that given that his argument is correct, his conception of phenomenology still cannot explain the common sense notion of phenomenal character—the "what it is like" of having certain sensory experience.

3.1 The Intrasubjective Case of Intentional Content Inversion

The story of Inverted Earth is as follows: Inverted Earth differs from Earth in two relevant ways. First, every object has the complementary color of the color of the corresponding object on Earth. The sky is yellow, grass-like stuff is red, and so forth. Second, people on Inverted Earth speak an inverted language. Their term "red" means green, "blue" means yellow, etc. If you want to order yellow paint from Inverted Earth, you have to fax an order for "blue paint." The result of both inversions is that if wires are crossed in your visual system, or some color-inverting lenses are inserted in your eyes, and your body pigments are changed, you will not notice any difference if you travel to Inverted Earth. Block claims that what it is like for you to interact with the world and with other people will not change at all… As far as the phenomenal aspect of your mental life is concerned, everything is the same as the way it would have been if you had stayed at home" (1990, p.683). The phenomenal content of your experience of looking at the sky would be just the same as the day before.

What about the representational content of your experience of looking at the sky? According to Block, the representational content of your color words will remain the same during the first few days, and the same with the intentional content of your thought. You will still use "blue" to mean blue, to express your thoughts of blue things, since the causal rooting of your term "blue" is grounded in references to blue things. However, appealing to the dominant causal theory of reference, Block claims:

> After you have decided to adopt the concepts and language of the Inverted Earth language community and you have been there for fifty years, your word 'red' and the representational content of your experience as of red things (things that are *really* red) will shift so that you represent them correctly. Then, your words will mean the same as those of the members of your adopted language community and your visual experience will represent colors veridically. (2003, p.552)

Block explains this as follows:

> Your color words and color concepts shift in meaning and content, and your color experiences shift in representational content, but the explanations are not exactly the same. Concepts shift for reasons familiar from the work of Burge and Putnam. But the representational contents of color experience may be non-conceptual and therefore not linked to the use of concepts in the language community. Still non-conceptual contents arguably get their content causally. My dog recognizes me and has experiences that represent me even if my dog has no concept of me. If my dog goes to Twin Earth, she will react to Twin Block in just the way she reacts to me. She will mistakenly represent Twin Block as Block. But a Block recognitional capacity is not a Twin-Block recognitional capacity, and that has to be because the Block-recognitional capacity involves causal contact with Block rather than Twin Block. Further, any recognitional capacity can be "swamped" by a new causal source… the dominant causal source account of reference… covers some aspects of visual representation as well as linguistic representation. (2003, p.552)

I understand Block as claiming two different points here. The first point of Block's argument is that, given that the representational content of experiences is conceptual, their contents are determined by the relevant concepts and that the contents of these concepts are determined by their causal relations to the external objects or the language of social communities. Then, after you travel to Inverted Earth and stay there long

enough, the conceptual intentional contents of your experiences will change along with the change of the contents of your concepts.

The second point is that, given that the representational contents of experiences are nonconceptual and that the experiences of a dog have both phenomenal and representational contents, the latter being nonconceptual, the phenomenal content of the dog's experiences of Block and Twin Block is the same, while the nonconceptual representational contents of the dog's experiences are different, since one is about Block and the other is about Twin Block. If so, you and your earlier stage at home will exemplify a case of conceptual representational (and functional) inversion with the same phenomenal contents, and Block's dog and its earlier stage on Earth (let's assume that Block's dog has been on Twin Earth for 10 years but was on Earth for only 1 year) will exemplify a case of nonconceptual representational content inversion with the same phenomenal content. These two cases establish the distinction between representational (conceptual and non-conceptual) and phenomenal contents.

Block has two different versions of the IE story. The subject in the original version is transported to Inverted Earth without her knowing it; while, in the revised version, the subject is aware of the move and consciously decides to adopt the inverted concepts and language. The version I mentioned above is the revised one. This distinction is crucial when it comes to the objection resting on memory externalism, as we will see in section 3.2.2.

3.2 Objections to The Intrasubjective Case of Intentional Content Inversion

There are many kinds of objection against the IE argument that rest on different considerations. The objections rest on the following different kinds of arguments. (a) The intentional content of experiences won't change when one travels from Earth to Inverted Earth. (b) If the intentional content of experiences changes with the external world, the phenomenal content changes too. (c) If intentional states, such as beliefs, are determined externally and it is the content of which that determines how we are aware of the phenomenal experiences introspectively, then why not say that the phenomenal content is also determined externally? I will discuss Lycan's objections, which appeal to the first two arguments just mentioned, to the conceptual case of representational content inversion in sections 3.2.1 and 3.2.2 respectively. In section 3.2.3, I will discuss Tye's version of argument (a); and, in section 3.2.4, I will discuss Drestke's objection, which appeals to argument (c). I argue that all four objections fail. I also argue against Block's conceptual version of IE argument in section 3.2.2; and, in section 3.3, I will argue that Block's argument for the nonconceptual case of intentional content inversion is unsound.

3.2.1 Intentional Content of Neither Intentional States or Experiences Will Change

3.2.1.1 Functional Theory of Intentional Content

Like many philosophers, Lycan disagrees with Block's appealing to the dominant causal theory to explain the content of intentional states. He insists that the intentional contents are determined by their teleological normal causes and that Jill's intentional states won't change their intentional contents even if she traveled to Inverted Earth and

stayed there for a long time.[54] If Jill's intentional states won't change their intentional content, there is no representational difference between her experiences of the skies on Earth and Inverted Earth.

The skies on both Earth and Twin Earth look blue to Jill and her intentional states represent the skies as having the blue property in both places, since the intentional content of both her color word "blue" and concept BLUE are still the blue property even after traveling to Inverted Earth, rather than, as Block claims, the yellow property, the content of "blue" in the Inverted language used by the residents on Inverted Earth. Therefore, there is no difference between the representational contents of Jill's experiences of the different skies. The sky on Inverted Earth is yellow but both Jill's experiences and intentional states represent it as having the blue property no matter how long Jill has been there. That is to say, what we get here is not a case of inverted intentional content, but rather, it is a case of intentional misrepresentation—Jill's sensory states misrepresent the yellow sky on Inverted Earth as blue. Therefore, there is no intentional/phenomenal contents distinction in Jill's experiences of the sky on Inverted Earth after she travels and stays there for many years. The sky looks blue to her, which is the phenomenal character of her experience, and her experiences represent the sky as having blue property.

The first problem with this objection is, as many philosophers have pointed out,[55] that the teleological theory of the content of experience faces a serious problem—the

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[54] Lycan, William. (1996a). *Consciousness and Experience*. Cambridge, Mass.: The MIT Press. p.114. Tye, Michael, proposes the same kind of objection to the IE argument in his (1995): *Ten Problems of Consciousness*. Cambridge, Mass.: The MIT Press. p.207.

[55] McGinn, Colin. (1997). "Missing the Mind: Consciousness in the Swamps." In *NOUS* 31:4 (1997). P.531. Levine, Joseph. (2003). "Experience and Representation." In *Consciousness: New Philosophical Perspectives*. (Eds.) Quentin Smith and Aleksandar Jokic. Oxford: Clarendon Press, 2003. P.62. Tye, Michael. (2000). *Consciousness, Color and Content*. p.118-120. All of them argue against Dretske's view,

Swampman problem. Lycan's teleological conception of content would force him to hold that Swampman has no experiences. Since Swampman has not gone through the evolutionary process, his sensory states don't have any teleological function. No function, no representation. Even if Swampman has the same visual system as ours, none of his visual experiences that are caused by a red object can be counted as an experience of red, because a visual experience that is caused by a red object doesn't have the function of representing red property. Many philosophers feel this consequence of the teleological theory of intentional content is counterintuitive.

The second problem is that if we understand Lycan's objection as building the functional semantics into his conception of sensory experiences, it has an unwelcome consequence. This is, from our having sensory experience and beliefs, we can know a priori that we are not Swampmen, but, of course, it is conceivable that we could be Swampmen. Even worse, it will have the following consequence that McGinn claims to be epistemically impossible.

> [I]f it were to turn out that we are a swamp species, then it would have turned out that we have no thoughts and experiences. So each of us can now say quite correctly: 'It might turn out that I have no thoughts and experiences now, since it might turn out that I didn't get here by natural selection." (1997, p.532)

Moreover, as an argument against the IE argument, it is question begging to build functional semantics into the conception of sensory experiences.

Third, as I argued earlier, the intuition that sensory experiences outrun intentional states relies on both the distinction between intentional and phenomenal contents and the idea that they are not individuated in the same ways. Given that sensory states have

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but I believe their arguments can be applied against Lycan's view also. An important difference between Dretske's and Lycan's views is that, for Dretske, all experience is conscious; while, for Lycan, not all experience are conscious and the notion of "qualia" or "what it is like" of having a particular experience is only applied to conscious sensory states.

phenomenal content while intentional states don't and that phenomenal content is not determined externally but intentional content is, then the psychosemantics that Block uses is not essential to his Inverted Earth argument.

Lycan foresees this point and claims that what is essential to Block's argument is not the semantics, but rather, the different ways of individuating content. Block seems to hold the distinction between wide and narrow contents: that intentional content is wide while phenomenal content is narrow, because the phenomenal character of sensory states supervenes on their physical properties while intentional content doesn't. It is the fact that the physical properties of Jill's sensory states would stay the same when she travels to Inverted Earth that allows Block to claim that the phenomenal content of Jill's experiences remains the same. But, according to Lycan, the notion of "narrow content" is notorious in the discussion of propositional attitudes and, therefore, it is suspicious to use it to explain the notion of phenomenal contents. Moreover, appealing to the supervenience thesis to argue against the representational theory of qualitative property is question begging, since the supervenience thesis is made possible by assuming qualitative properties (qualia) are non-intentional intrinsic properties of sensory states, a view representationalists reject (1996a, p.116).

3.2.1.2 Introspective Indistinguishability of Phenomenal Content

To answer Lycan's worry about the appeal to the notion of "narrow" content and the supervenience thesis, Stalnaker points out that the supervenience thesis doesn't play any important role in Block's argument at all. The supervenience thesis can be replaced by the notion of introspective indistinguishability, which claims that for a property F to

be the phenomenal content of an experience, it must satisfy the following necessary condition: "if two experiences are introspectively indistinguishable, then either both or neither have property F" (1996, p.103).[56] If Jill reports that she doesn't notice any phenomenal differences introspectively after traveling to Inverted Earth and she is trustworthy, then there is no reason to suspect what she reports, so we have a case in which Jill has experiences with the same phenomenal content but different intentional contents without appealing to either the notion of narrow content or the supervenience thesis. Hence, it avoids Lycan's charge of question begging.

By introducing the notion of introspective indistinguishability, we can rewrite the relevant part of the Inverted Earth argument very briefly as follows: the phenomenal content of Jill's color experiences after traveling to Inverted Earth is introspectively indistinguishable from those that she would have continued to have on Earth. During the first period of time, T, the intentional content of Jill's color experiences will still have the same intentional content as her relevant color experiences when she was on Earth, but once she decides to accept the language on Inverted Earth, the intentional contents of her color experiences will change.

To Stalnaker's answer, Lycan questions whether the time interval, T, will be large enough to allow an experience to change its intentional content but still be introspectively indistinguishable. Lycan argues that the intentional contents of experiences are determined by their teleological function and the function of an experience may change, but it takes ages or generations. Practically, it seems impossible for a person to live long enough to experience the change of intentional contents, thus, no one can go through the

[56] Stalnaker, Robert. (1996). "On a Defense of the Hegemony of Representation." *Philosophical Issues 7: Perception*. p.103.

time interval, T, and have an experience that changes its intentional content but still be introspectively indistinguishable (1996a, p.125-129).

Lycan's reasons above don't seem persuasive. First, it is conceivable that some imagined creatures might live long enough to have an experience that changes its intentional content but be introspectively indistinguishable for the subject at the beginning and end of the process. Secondly, there is a case, mentioned by Block in his argument about shifted spectra, that seems to be an actual example of one's experiences going through the intentional change while being introspectively indistinguishable. The color vision of human beings varies with the amount of light absorption by pre-retinal structures, which varies with age. If so, a person's two visual token experiences of two different shades of the same color might appear the same to him, hence these two token experiences are introspectively indistinguishable but intentionally different. This case seems to meet Lycan's demands.

To sum up, Lycan's objections to the change of intentional content fails. The reasons are that, first, his alternative view of intentional content faces the Swampman problem, second, his charge of question begging can be answered and, last, we do have actual cases of intentional content shift.

3.2.2 Phenomenal Character Changes With the Change of Intentional Content

3.2.2.1 The Hypothesis of Gradual Change

Lycan's second objection to the IE argument is that: even if we agree that the intentional contents of Jill do change gradually, there is no reason to claim that the phenomenal character of the relevant experiences doesn't change with the intentional

contents. If the phenomenal character of an experience gradually shifts with the relevant intentional content, it can avoid the gap between them (1996a, p.128). However, Block points out that Lycan's claim ignores the long-term memory of the phenomenal character of one's experiences (2003, p.554). If the phenomenal character of one's phenomenal memory is the same as the phenomenal character of one's current experiences, there is no gradual change going on with one's phenomenal experiences. Block says,

> The idea is that you remember the color of the sky on your birthday last year, the year before that, ten years before that, and so on, and your long-term memory give you good reason to think that the phenomenal character of experience has not changed gradually. You don't notice any difference between your experience now and your experience five years ago or ten years ago or sixty years ago. Has the American flag changed gradually over the years? The stars used to be yellow and now they are white? No, I remember the stars from my childhood! They were always white. Of course, memory can go wrong, but why should we suppose that it must go wrong here? (2003, pp.554-555)

Lycan responds that memory content is intentional and, therefore, will change after one moves from Earth to Inverted Earth. He also points out that, according to Block's theory of intentional content, Jill's memory is false (1996a, pp.129-130). After Jill stays on Inverted Earth for a long time and thinks, "The sky is as blue as it was thirty years ago," the memory content expressed by her sentence and thought is different from the memory content when she just arrived on Inverted Earth, since the intentional content of both the term "blue" and the concept BLUE changed from blue to yellow. If so, the memory content she had when she just arrived on Inverted Earth is that the sky is blue on Earth but the memory content she has now is that the sky is yellow on Earth. That is why her memory of the sky on Earth is false.

I take Lycan's point as explaining away the phenomenon of the introspective indistinguishability of phenomenal character by pointing out that memory content is

intentional and is determined externally, according to Block's assumption in his IE argument. If so, memory content will change with the world in which the subject is located and, therefore, it is possible that the phenomenon of introspective indistinguishability is an illusion, a result of false memory. In fact, the phenomenal character changes gradually with the changes of intentional content but the subject fails to notice.

The point at issue here is whether the introspective indistinguishability of phenomenal character involves comparison between the memory content of one's past experiences and the memory content of one's current experiences. Block assumes the memory content of one's past experiences is reliable, but Lycan disagrees and argues that memory content is intentional and might change without the subject's notice, just like one's mental content of WATER concept may change from H_2O to XYZ without one's notice in the Twin Earth case. However, Lycan doesn't offer any argument for his claim of memory externalism; i.e., memory content is determined externally, but rather, he assumes it.

3.2.2.2 Argument for Memory Externalism

Tye tries to fill the gap in Lycan's argument by appealing to the Twin Earth argument. First, he proposes a case of the memory of one's mental states that occurred in the same world. Both Oscar (who lives on Earth) and Twin-Oscar (who lives on Twin Earth) recall what happened yesterday and say, "I cooked pasta with water yesterday." The content of Oscar's and Twin Oscar's memory is determined by the environments where they are located respectively, since Oscar's memory is correct only if it is about

H_2O and Twin Oscar's memory is correct only if it is about XYZ. Thus memory content is determined externally.

In the case of having a memory about one's past experiences that occurred in a different world, Tye argues that the memory content of one's past experiences is determined by the current world where he is located. Tye illustrates by the following case, in which I have changed the subject from 'I' to Oscar. Assuming that Oscar was sent to Twin Earth without his knowing it and has stayed there for a long time, the intentional content of his mental states has all changed to be the same as that of the Twin Earth residents. One day he recalls what happened before and says,

> Water is the only thing I now drink before 5 PM. Many years ago, however, I drank water fortified by gin in the afternoons. I enjoyed those afternoons; water is improved by mixing it with gin. (2000a, p.124-125)

Tye claims that "water" in the second sentence means XYZ, because Oscar is using the same concept as in the first sentence to make a comparison between the present and the past. Oscar is saying that XYZ is the only thing he drinks before 5 PM, even though many years ago, he drank XYZ fortified by gin in the afternoon. Tye also claims that "water" in the third sentence also means XYZ, since it is based on an inaccurate memory that is expressed by the second sentence (2000a, p.125). Therefore, the belief expressed by the first sentence is correct, but the memory content expressed in the second and third sentences are false. Oscar takes the memory content about his past experiences as about XYZ, when, in fact, it is about H_2O. That is why Oscar has false memories about his past experiences. From this case, Tye concludes that "where past and present environments come apart, natural kind concepts entering into the content of propositional memories get their extensions determined by the present environment" (2000a, p.125).

Because Oscar has false memories about his past experiences, when someone informs him that he has been living on Twin Earth for some time, his beliefs about his past experiences will change. Oscar would no longer believe what he did just a few minutes ago and he would not say now what he just said a few minutes ago (2000a, p.126). Before he receives the information about his location now, Oscar believes that his memory content that is expressed by the second sentence is about XYZ, but after he is informed, he takes his memory content expressed by the same sentence as about H_2O.

Tye's above argument for memory externalism seems quite persuasive except that it is too limited. It works only when the subject has no knowledge of her present location, since when the case changes to be a revised version, in which the subject knows her location, she won't make the same mistake as in the original version.

3.2.2.3 Memory Externalism and The Gradual Change Hypothesis

Back to the case of Inverted Earth, the question is: can the same kind of reasoning that derives memory externalism in the Twin Earth case be applied to derive the corresponding conclusion in the Inverted Earth case and support the gradual change hypothesis of phenomenal character? Tye believes it can and argues for change of phenomenal character in both interpretations of memory content: memory content as propositional content and as phenomenal image.

First, in the case of propositional memory, Tye claims that,

> [T]he strong representationalist can say that [Jill's] report of no change in phenomenal character is like the case above in which [Oscar] makes a report of a distant past episode on Earth after having spent many years on Twin Earth; it is necessarily in error. By hypothesis, on the representationalist view, color experiences change their phenomenal character with a change in represented color. When [Jill] now say[s], after a long time on Inverted Earth, "Grass looks

> green to me now, just as it did five, ten, and twenty years ago," [Jill is] wrong. 'Green' (in Inverted English) means red; and grass did not look red to [Jill] twenty years ago. [Jill's] memory has led [her] astray. (2000a, p.127)

The first problem with Tye's argument is that, if his claims quoted above are right, then Jill is not only wrong about her past experiences, but also wrong about her present experiences. Since "green" in Inverted English means red and the grass on Inverted Earth is red, when she says "Grass looks green to me now, just as it did five, ten, and twenty years ago", she is also wrong about her present experiences. Grass on Inverted Earth should look green to her, since she has color-inverting lenses on. But, as Tye agrees, one cannot be wrong about one's present experiences, hence his argument for the gradual change is unsound.

Moreover, after we correct this mistake in Tye's argument, we find out that Jill's memory about her past experiences is correct after all. Since what Jill should have said is: "Grass looks red to me now, just as it did five, ten and twenty years ago", "red" means green in Inverted English and grass on Earth did look green to her. The phenomenal character of Jill's visual experiences of the grass hasn't changed. That is to say, memory externalism is compatible with the assumption in the original version of the IE case: that phenomenal character didn't change after Jill is transported from Earth to Inverted Earth.

The second problem with Tye's argument is that the argument for memory externalism can only apply to the original case of the IE argument, in which the subject is transported to the Inverted Earth without her knowing it. However, in Block's revised Inverted Earth argument, the traveler, Jill, knows that she is now located on Inverted Earth. If so, Tye's argument resting on memory externalism cannot be used to argue against the revised IE argument.

The third problem is that when the case changed to be the revised version of the IE argument, that is, that after the subject is informed where she is located, her beliefs about her past experiences will change, we arrive at the conclusion that what is changed is her beliefs about the intentional content but her beliefs about the phenomenal character haven't changed at all.

Twenty years after Jill was transported to Inverted Earth without knowing it, she reports noticing no change in phenomenal character in her present and past experiences and say "Grass looks green to me now, just as it did five, ten, and twenty years ago." Given the representational principle: the phenomenal character is determined by what experiences represent, Jill is wrong, since "green" means red in Inverted English but the phenomenal character of her past experiences is green. Therefore, Jill has a false memory about her past experiences when she was on Earth. But, of course, given the distinction between phenomenal character and intentional content, what Tye has proved is only that Jill has a false memory about the intentional content of her past experiences, not about the phenomenal character.

When someone informs Jill that she is on Inverted Earth right now, according to Tye's explanation in the Twin Earth case, Jill's beliefs about her past experiences are supposed to change: Jill will say now the grass looks different to her, since she knows now that the grass she saw a few years ago on Earth is green, but the grass she is looking at now on Inverted Earth is red. Hence, according to Tye, we conclude that the grass on Earth looks green to her, but the grass on Inverted Earth looks red to her. But surely this is wrong. Since Jill still has the inverted lenses on, the red grass on Inverted Earth must look green to her, which is the same as when she looked at the grass on Earth with her

bare eyes a few years ago. If so, phenomenal character won't change with the change of intentional content. Both grass on Earth and Inverted Earth looks green to Jill, even though one is red and the other is green. Again, the phenomenal character didn't change with the change of intentional content.

I conclude that Tye's argument for the change of phenomenal character, which rests on memory externalism, in the original version of the IE case fails, because it is unsound. Given it is sound, it still cannot be used to argue for the change of the phenomenal character, since the assumption in the revised IE argument is different. After we apply the memory externalism argument to the revised IE case, we find out that it is compatible with, or even supports, the revised IE argument.

The case we have been discussing in this section so far is about propositional memory content. However, Tye also uses the same kind of reasoning to argue for the change of phenomenal character, even when the memory content is understood as phenomenal memory images (2000a, p.129). In comparing the phenomenal character between her present and past experiences, if what Jill recalls is the phenomenal memory image of blue sky by means of which she represents the sky as being blue, then it seems that it couldn't be a case of false memory. The reason is that phenomenally the phenomenal image seems to Jill the same as what it represents and the subject, Jill, also remembers the phenomenal memory image is of the blue sky on Earth.

Tye argues that even if the phenomenal memory image is of the blue sky on Earth, it doesn't imply that Jill's phenomenal memory image is correct, since "the fact that the image of the blue sky is compatible with supposing that the color it represents the sky as having is yellow… [T]he case may be taken to be one of misrepresentation"

(2000a, p.131). Resting on the same reasoning as discussed in the grass case above, Tye explains the reason why it might be a case of misrepresentation as follows.

> I have already argued that [Jill] believe[s] that the clear sky looked yellow in the past just as [she] believe[s] that the clear sky looks yellow now. The former belief, I am now granting, is based upon a phenomenal memory image; the latter upon [Jill's] visual experience as [she] view[s] the sky. But if [Jill's] phenomenal memory image represents the clear Earth sky as blue while [her] present visual experience represents the sky as yellow, then how can [Jill] believe both that the sky looked yellow in the past and that it looks yellow now? ... The answer is surely that [she] cannot. On any reasonable account of privileged access, [Jill] must be having an inaccurate memory image. Both [Jill's] phenomenal memory image and [her] present visual experience must represent the clear sky as yellow. (2000a, p.131)

I understand Tye as claiming that even though Jill's phenomenal memory image of her past experience is of the blue sky on Earth, she believes that it represents the sky as yellow, hence it is a case of misrepresentation. Jill used a blue memory image to represent the color of the sky on Earth as yellow, that is, her memory image is inaccurate.

The first problem with Tye's argument in this case is that: it is not consistent with the assumption that Jill hasn't noticed any different between her past and present experiences. Given that Tye is right in claiming that Jill believes both her past and present experiences of the clear sky represent the sky as yellow, there will be a difference between her experiences. Her phenomenal memory image seems blue to her but the present experiences seems yellow to her, even if we agree that her phenomenal memory image is inaccurate and the present intentional content overrides the past intentional content. A blue phenomenal image must seem blue to Jill, no matter what it represents.

The second problem is that if Tye's interpretation of the original IE case is correct, we must understand Jill as having a memory system that is systematically wrong about what her phenomenal memory images represent, i.e., all the phenomenal images of

her past color experiences misrepresent, not only her blue phenomenal memory images. This doesn't seem to be a reasonable way of understanding someone's psychological states, unless we also understand her as having a systematic memory malfunction. Moreover, Jill used to believe that phenomenal memory images that seem blue to her represent blue objects, those that seems green represent green objects and so on, but suddenly, at some point of her life, she starts to believe that all her phenomenal memory images misrepresent their opponent colors. This is a dramatic change and requires an explanation—but Tye doesn't offer any.

The third problem is that, in fact, there is no misrepresentation in the case at issue. As in the grass case discussed earlier, in Standard Representationalist terms, the red grass on Inverted Earth should look to have the inverted color, i.e., green, to Jill when she has inverting lenses on, similarly in the present case, the yellow sky on Earth should look to have the inverted color, i.e., blue, to Jill. What Jill believes should be that both the skies on Earth and on Inverted Earth look blue to her, rather than, as Tye claims, look yellow to her. Jill's phenomenal memory image of blue correctly represents the sky on Earth as being blue. There is no misrepresentation as Tye claims at all. Again, Tye's argument fails to make a case for the memory failure of one's past experiences in the original IE version. The other two problems with Tye's argument against the case of phenomenal memory image are the same as the last two problems in the grass case discussed before, I won't repeat them here.

I conclude that Tye's argument for the memory failure of one's past experiences fails, hence there is no argument to support the gradual change hypothesis. The major problem in Tye's arguments is that he keeps ignoring the assumption in the IE argument

that the subject has inverting-lenses on when she was transported or traveled to Inverted Earth.

However, Tye himself doesn't support the gradual change hypothesis. His view is that phenomenal character won't change with the change of intentional content, which I will discuss in section 3.2.3.

3.2.2.4 Block's Responses

Block himself proposes some answers to Lycan's and Tye's arguments. The first is that it is question-begging to argue against the principle of introspective indistinguishability by appealing to memory externalism. Secondly, memory externalism contradicts the first person authority of one's own experiences.

Let's discuss Block's charge of question-begging first. From the discussion of both Lycan's and Tye's arguments for the gradual change hypothesis, we can see that they normally describe the phenomenal character of one's experience in terms of what they represent. They also describe the memory content of one's past experiences as the memory of the object or property which the subject's experience represented, for example, the memory of the color of the sky and the memory of the color of the grass. This implies that the memory content is determined by what the relevant experience represents, and this, as I shall now show, renders the argument question begging.

As mentioned in the revised case of the IE argument, the subject knows that the intentional content of his experiences of the sky (or grass) on Earth differs from those of the sky (or grass) on Inverted Earth, but Block insists that if the subject cannot distinguish these two experiences, then "[s]he is justified in saying that there is no

difference in *something*, something we would call the phenomenal character of the experience of seeing the sky" (1996, p.45)[57].

A proper way of describing the cases in Lycan's and Tye's arguments should be neutral, without assuming what is the phenomenal character, for example, "The way, (rather than the color,) the sky looks is the same as the way it looked thirty years ago" or "The phenomenal character of my experience of the sky is the same as the phenomenal character of my experience of it thirty years ago." In these neutral expressions, the "way" or phenomenal character is open to different interpretations. If it is interpreted as the phenomenal images (or the mental properties), the result might go Block's way. If it is interpreted externally, the result will be the same as what Lycan and Tye argue for. It is begging the question to interpret the phenomenal character in either way without offering any argument. Because that is exactly what is at issue: whether there is a gap between phenomenal character and representational content.

My point above is that Block is right in claiming that Lycan and Tye's argument is question begging, and this is because the way they describe the cases implies the external view of phenomenal character and therefore is question begging.

Next, let's look into Block's second response to the argument for the gradual change of phenomenal character. The problem, as he sees it, is that if memory externalism is correct, not only can the gradual changes of phenomenal character not be noticed, fast changes of phenomenal character cannot be noticed either, since whenever the intentional content of experiences changes, its phenomenal character changes too. The subject would never notice the changes of phenomenal character whenever he travels from Earth to Inverted Earth. Therefore, Block replies that "the problem for Lycan and

[57] Block, Ned. (1996). "Mental Paint and Mental Latex." *Philosophical Issues*, 7. p.45.

Tye is that they are committed not only to an ad hoc externalist theory of memory, but also to an ad hoc restriction on noticing phenomenal change" (2004, p.608)[58].

Even if Lycan and Tye's objection based on their appeals to memory externalism fails, the IE argument is compatible with memory externalism and there is first person authority over one's own experiences, the IE argument is not out of trouble yet. In his argument, Block apparently assumes introspective indistinguishability is a reliable way of verifying the sameness of phenomenal character. He also appeals to the first person authority of one's experiences to secure the introspective indistinguishability between the present and the past experiences. Block says, "[t]he defender of the view that memory is defective must blunt or evade the intuitive appeal of the first person point of view to be successful" (2003, p.555).

Unfortunately, even after ruling out both Lycan's and Tye's objections that rests on memory externalism, there are still good reasons to reject the principle of introspective indistinguishability as a reliable way of justifying the sameness of phenomenal character without blunting the first person authority. The reason is that Block's argument assumes both the infallibility of one's (long-term) memory of past experiences and the infallibility of one's introspective awareness of one's (long-term) memory of past experiences, which is implausible. I am partly in agreement with Tye when he says, "we normally have a kind of privileged access with respect to the phenomenal character of our experiences. But privileged access pertains to our present mental states. It is not a thesis that pertains to past mental states" (2000a, p.128). In fact, the long-term memory of one's past experiences goes wrong all the time, particularly, memory of experiences that occurred

[58] Block, Ned. (2004). "Is Experiencing is Just Representing." In his *Consciousness, Function, and Representation: Collected Papers, Volume 1*. Cambridge, Mass.: The MIT Press (2007).

many years ago. (However, I believe that one can also be wrong about one's present mental states.)

Even if we agree with Block that he can remember the color of his visual experiences of the sky being blue, one can still raise the question whether he can remember which shade of blue he saw a few years ago. There are so many different shades of blue that, even under normal conditions, we may have trouble identifying which shade of blue we saw a few minutes ago. It seems almost impossible to remember and identify which shade of blue was seen a few years ago. We also often introspectively mistake memory of the content of one's particular experience as the memory content of a different experience. For example, one may introspectively mistake the memory of seeing a red fire truck in NYC last summer as the memory of seeing a red fire truck in Chicago last summer when a trip was made to both cities.

The fact that our memory capacity of recognizing or identifying is not as good as we think (as Raffman points out, which I will discuss in chapter 5), even if it is not mechanically defective, seems enough to block Block from deriving the sameness of phenomenal character by the principle of introspective indistingishsbility. If so, he cannot justify his claim that the phenomenal character of Jill's experiences of seeing the sky on Earth is the same as the phenomenal character as she sees the sky on Inverted Earth, when Jill report she notices no difference. I conclude that Block's argument for the intentional content inversion without the inversion of phenomenal character is not convincing.

3.2.3 Representational Content of Sensory Experience Won't Change

The problem with the gradual change hypothesis, according to Tye, is that it cannot explain the intentional content of mental states in the transition period. If the phenomenal character of experiencing the sky changes gradually from looking blue to looking yellow with the change of intentional content, then what does the sky look to Jill in between? Tye argues that it cannot look blue and yellow, since they are opponent colors. It cannot look something other than blue or yellow, since we cannot decide whether the change goes through the green side or the red side of the color circle. Moreover, to say that the sky looks different from blue or yellow seems counterintuitive. Therefore, if the phenomenal character changes it must be a sudden and sharp change from looking blue to looking yellow. But, Tye claims, this contradicts the intuition that "there surely is no determinate time at which the traveler's sensory state goes from normally tracking blue to normally tracking yellow" (2000a, p.135). From this, Tye concludes that the intentional content of sensory states won't change when the subject travels from Earth to Inverted Earth.

Tye proposed a causal covariation account of the intentional content of experience. Let S be some sensory state of a creature *x*, Tye defines what S represents as follows:

> S represents that P $=_{df}$ If optimal conditions obtain, S is tokened in *x* if and only if P and because P.[59]

Tye claims that this definition should be understood as a counterfactual definition, which means that sensory states represent what they *would* track, if the optimal conditions were obtained, rather than what they actually track.

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[59] Tye, Michael, (1995a), p.101; (2000a), p.136.

In the Inverted Earth case, when Jill travels to Inverted Earth, her eyes are fitted with inverting lenses that distort her normal visual system and hence the optimal conditions do not obtain. Were there no inverting lenses, her sensory state with the phenomenal character of seeming blue would have tracked blue, rather than yellow on Inverted Earth. After arriving on Inverted Earth and has having stayed there for twenty years, Jill's experiences with the phenomenal character of seeming blue still track the blue color. Jill's experience of looking at the sky on Inverted Earth has the phenomenal character of seeming blue (blue-feeling) and representing the sky as blue (blue-representing), that means it misrepresents the yellow sky as blue. Hence the intentional content of her sensory states didn't change after been transported from Earth to Inverted Earth no matter how long she stayed there and this explains the assumption of the IE argument that the subject hasn't noticed any change in her experiences.

Tye claims further that the subject's beliefs make an adjustment to the new environment after she has stayed on Inverted Earth for a while as the IE argument assumes and comes to believe that the sky is yellow when she says "the sky is blue" (2000a, p.136). When Jill first arrives on Inverted Earth and looks at the sky, she will say "the sky looks blue" when we ask her what her experience of looking at the sky is like. She also believes and says that the sky is blue. After Jill has been on Inverted Earth for twenty years and looks at the sky, Fiona McPherson claims, she will say the same word "the sky is blue and looks blue." That is because Jill is now speaking Inverted English and she means yellow by "blue," that is, she now believes that the sky is yellow and looks yellow (2005, p.138). [60] But, as Fiona McPherson points out, according to Tye's

[60] McPherson, Fiona. (2005). "Colour Inversion Problems for Representationalism." *Philosophy and Phenomenological Research*, Vol. LXX, No. 1, (January, 2005).

counterfactual view of sensory representation, we have to interpret Jill as wrong. Jill's sensory experience with blue phenomenal character (blue-feeling) represents the sky on Inverted Earth as blue (blue-representing), but she believes the sky looks yellow, hence Jill has false beliefs about her current experiences. McPherson explains further as follows:

> By hypothesis, [Jill's] experience is blue-feeling because, according to the view under consideration, it still represents blue. Thus, it appears that the traveler is mistaken about [her] current experience. According to this representationalist reply the traveler's experience is blue-representing and blue-feeling, but the traveler seems to have the false belief that it is yellow-feeling and yellow-representing. The traveler seems to be radically in error about the nature of [her] current experience. (2005, p.138)

McPherson's diagnosis seems wrong. First of all, the intentional content of the term "blue" and the concept BLUE changes from blue to yellow, but the phenomenal character of her experiences of the sky stays the same. After she starts to use the Inverted English, Jill would say and believe that the sky is yellow but she would believe and say that the sky looks blue to her and expresses this by the sentence in Inverted English "the sky is blue but looks yellow" rather than as McPherson claims "the sky is blue and looks blue." Moreover, Jill will also believe her current experience with blue-feeling tracks or represents the blue sky on Earth.

Let me explain. Given that one learns what it is like to see the sky on Inverted Earth through introspecting one's current experience rather than from perceiving the perceivable properties of the sky, the issue is about one's introspective knowledge of one's sensory experiences and the question is: what will Jill answer when we ask her what the sky looks like to her? Since Tye agrees with the IE argument that the subject's phenomenal character won't change after traveling to the Inverted Earth and is still "blue-

feeling," then, when introspecting her experiences of the sky, Jill would say "the sky looks yellow to me," since the term "yellow" in Inverted English means blue. Therefore, it is not as McPherson claims that Jill would say "the sky is blue and looks blue," but rather she will say "The sky is blue but it looks yellow." The sensory states with the phenomenal character of appearing blue would track blue color when optimal conditions obtain, and therefore, when Jill introspects, she will also have introspective knowledge that her experience of seeing the sky represents (or misrepresents) the sky as blue. That is, Jill will believe that her experience of the sky on Inverted Earth is blue-feeling and blue-representing, rather than yellow-feeling and yellow-representing as McPherson claims.

Why does McPherson interpret Jill as believing that the sky is yellow and looks yellow? I see two possibilities. First, she may think that since Jill's experience is now representing the yellow sky on Inverted Earth, it must be representing the sky as being yellow and, thus, Jill believes that the sky looks yellow to her. But this is to overlook the possibility that one's experience may misrepresent the yellow sky as having some other color and therefore fail to look yellow to one. Jill's case is one example. Her current experience of the sky on Inverted Earth misrepresents the sky as being blue and so it looks blue to her. From the fact of looking at the yellow sky one cannot conclude that the sky looks yellow, unless optimal conditions obtain. Since the conditions in the case at issue are not optimal, the sky won't look yellow. However, when she introspects, she knows correctly that her current experience has the phenomenal character of seeming blue and thus represents the blue sky under optimal conditions, even if it misrepresents the sky as blue.

My second guess is that McPherson may hold that beliefs and language are the tools by means of which one expresses one's sensory states and the qualitative properties of sensory states, if any, are not introspectively accessible, hence the concepts or sentences one uses in expressing one's sensory states will restrict how one can express the nature of one's experiences, as Dretske claims. For example, in the case of Twin Earth, when Oscar just arrives on Twin Earth and looks at a cup of Twater and says "it is water and looks like water," he means that it is water and it looks water since he is still using his old language and old concepts. During the period of time when Oscar first arrives on Twin Earth, Twater cannot look Twater to him since he doesn't have the concept TWATER and the term "water" in his language still means water. However, after staying there for while, the intentional content of both Oscar's concept WATER and the term "water" in his language change to being about Twater. When Oscar now looks at a cup of Twater and says "it is water and looks water," it seems reasonable to say that Oscar now believes that it is Twater and it looks Twater. Applying this line of reasoning to the IE case we derive what McPherson claims: after Jill has stayed on Inverted Earth for twenty years, she now believes that the sky is yellow and looks yellow.

I won't pursue whether this line of reasoning in the Twin Earth case is valid or not right now,[61] but I should raise some questions about whether it can be applied directly to the IE case. First, there are some major differences between the two cases. First, in the Twin Earth case, it seems that the phenomenal character of "looks water" changes from "looks water (or H_2O)" to "looks Twater (or XYZ)," while, the IE case assumes that the phenomenal character of looking blue doesn't change. The second difference is that in the Twin Earth case, Oscar only has one concept, TWATER, after he has been on Twin Earth

[61] I will discuss the Twin Earth case proposed by Dretske in the next section.

for a while, but in the IE case, Jill has both the concepts of BLUE and YELLOW. Those considerations should be enough to raise doubt about whether the argument in the Twin Earth case can be applied directly to the IE case at issue. Moreover, given that the argument in the Twin Earth case can be applied to the IE case, we still have good reason to reject Dretske's line of argument, as I will discuss in the next section.

Assuming that I am right for now, without offering arguments against Dretske's line of reasoning, that Jill will say "the sky is blue but it looks yellow," after staying on Inverted Earth for a while, the problem with Tye's counterfactual view of representation is not as McPherson claims that the traveler will be always wrong about the nature of her current experiences, since Jill's introspective knowledge of her current experience is correct. But even so, we still have the feeling that there must be something wrong with Tye's interpretation of what is going on after Jill moves to the Inverted Earth. It seems counterintuitive that Jill believes that the sky is yellow when it looks blue to her. Intuitively, a veridical experience of the blue sky would normally cause in someone a belief that the sky is blue, just as with Jill when she was on Earth. Moreover, it seems to contradict the Representational thesis: phenomenal character is one and the same as representational content.

I think this worry about Tye's objection to the IE argument points to the real problem and it is a problem about the relation between the subject's belief and perceptual systems. Tye individuates the contents of these two systems in two different ways and the result is that there is no connection between the belief system and the perceptual system. Perceiving the object as red won't cause in one the belief, (or offer one reason to believe) that the object is red. The reasons are as follows.

Tye claims that neither the phenomenal character nor the representational content of Jill's color experiences will change after Jill travels to Inverted Earth, no matter how long Jill stays there, but her propositional states will change. Given Tye's counterfactual view, it should be clear that when Jill is transported to Inverted Earth with the inverting-lenses on, the conditions are not optimal and the case is hence a case of misrepresentation—Jill's visual experience misrepresents the yellow sky as blue. In a case of misrepresentation, the phenomenal character goes with what the experience represents the object as having, rather than going with the objects or properties represented. For example, if Jill's visual experience represents a cow in the dark as a horse, then, visually, her phenomenal experience of seeing the cow in the dark will be more similar to the veridical phenomenal experience of seeing a horse than to the veridical experience of seeing a cow, so we should seen that, phenomenally, her experiences is like that of seeing a horse. Therefore, the counterfactual view implies that Jill's color experiences on Inverted Earth misrepresent systematically and Jill's visual experience of the yellow sky on Inverted Earth is both blue-representing and blue-feeling.

But this is not the case with her propositional states. Once Jill stays on Inverted Earth long enough, the intentional content of her beliefs will change automatically without her knowledge. The content of her beliefs is determined by what her beliefs actually represent, which is totally independent from her perception, both phenomenally and intentionally. The reason for this result—that the belief system is independent from the sensory system—is that Jill's color experiences systematically misrepresent the color on Inverted Earth. Given that a normal person's belief system and sensory system should cohere, something in Tye's objection has to go. The IE argument assumes that the

intentional content of propositional states is individuated externally and the phenomenal character doesn't change, so it seems that the counterfactual view of representation, which implies systematic misrepresentation, has to go.

3.2.4 If Intentional Content is Determined Externally, Phenomenal Character Should Be Too

3.2.4.1 Dretske's Objection

Dretske argues as follows: given that there is a distinction between the intentional content and the phenomenal character of experiences and that the intentional content of experiences is determined causally (as Block claims), we still have good reason to believe in externalism about phenomenal character. The reason is that phenomenal character is only introspectively accessible to those with the relevant concept and the result of it is the awareness of the fact of the phenomenal character of one's experience, rather than the awareness of the property of one's experience (1999, p.160).[62] Without the concept RED, Jill's experience of a red flower won't seem red to her introspectively, even if Jill can perceive the flower as having a red color.

If the qualitative properties of experiences are only introspectively accessible and the phenomenal characters of different experiences are determined by the concept one applies in one's introspection, then there is no reason to attribute qualitative properties to experiences. Since the intentional content of concepts is determined externally and the phenomenal character is determined by the relevant concepts, that seems to be a good reason to accept externalism about phenomenal character. If Dretske's argument is

[62] Dretske, Fred. (1999). "The Mind's Awareness of Itself." In his *Perception, Knowledge And Belief.* Cambridge University Press. (2000). p.160.

convincing, then even if there is a distinction between intentional and phenomenal content, as Block argues, the difference in the phenomenal character of having different kinds of experiences still goes with the relevant intentional contents.

Let me recapture Dretske's argument briefly. First, Dretske argues that there are two different senses of 'look' ('seem' or 'appear')—the doxastic and the phenomenal senses. In the phenomenal sense of 'look', whoever has a normal visual system can see a puddle, no matter if she has a conceptual system or not and her visual experiences won't cause her to have a belief about how the object looks to her. But, in the doxastic sense of 'look', the perceiver's experience will only cause her to have the relevant belief provided she has the relevant concept. Without the relevant concept she won't be able to have the experience (1995, p.68).[63] For example, puddle can 'look' to animals and infants in the phenomenal sense but not the in the doxastic sense, because they can see puddle but their experiences won't cause in them a belief about what they see.

Relying on these premises—the distinction between phenomenal/doxastic senses of 'look' (for short, the $look_p$/$look_d$ distinction) and one's awareness of one's own experiences is fact-awareness—Dretske argues that, in the case of Twin Earth, we get the conclusion that whatever is the case with their phenomenal experiences of the puddle, Oscar and Twin Oscar will have different beliefs about their phenomenal experience. Oscar will think that his experience of the puddle k (or the way the puddle $looks_p$ to him) is the same as his experience of water (is the same as the way water normally $looks_p$ to him). So Oscar will think that k $looks_p$ like water to him. Twin Oscar, on the other hand, will think that k $looks_p$ like Twater to him. He will think that k $looks_p$ the way Twater always looked to him in normal conditions. So, the twins' phenomenal experiences of k

[63] Dretske, Fred. (1995). *Naturalizing the Mind*. Cambridge, Mass.: The MIT Press. p.68.

will cause in them not only different beliefs about k, but different beliefs about their phenomenal experiences of it. If so, their phenomenal experiences of k—the way k looks$_p$ to them—would seem$_d$ different to them. Even if they have the same phenomenal experience of k, it will not seem$_d$ that way to them. Put in another way, they won't believe the same phenomenal experience of k in the same way. One believes it is about water, the other Twater.

Dretske's argument above is about the intersubjective case of the IE argument, but it also can be applied to the intrasubjective case of the IE argument. When Oscar sees a puddle on Earth and introspects his experience of the puddle, it will seem$_d$ water to him, because he uses the WATER concept in his introspection. After traveling to Twin Earth, the content of Oscar's beliefs and language will become the same as the residents on Twin Earth. When he sees a puddle of Twater and introspects his experience, it will seem$_d$ Twater to him on Twin Earth, because he uses the concept TWATER in his introspection of the experience of the puddle. Thus, Oscar's experiences of a puddle of water and a puddle of Twater will seem$_d$ different to him even if they look$_p$ the same to him.

The same line of reasoning can be extended to the case of color perception. After traveling to Inverted Earth and staying for many years, the intentional content of Jill's beliefs and language has changed to be the same as the residents on Inverted Earth. Thus, even if the sky looks$_p$ the same to her, the phenomenal character of her experiences will seem$_d$ different to her, since the BLUE concepts she applies in her introspections have different meanings: one means blue, the other means yellow. Her experiences of the sky on Earth seem$_d$ blue to her, while those of the sky on Inverted Earth seem$_d$ yellow to her.

Therefore, even if the skies on Earth and Inverted Earth look$_p$ the same to her, there is a subjective (or phenomenal) difference between having these two experiences.

From this, according to Dretske's reasoning, we can conclude that if the object doesn't look$_d$ red to Jill, then even if it looks$_p$ red to Jill, she will not be able to be aware of this fact, since, without applying the concept RED, Jill will lack the right discriminatory ability. Therefore, even if experiencing a red object is independent from believing that I have an experience of a red object, knowing the phenomenal character of my visual experience of red requires the belief that I have an experience of red objects.

Connecting this to the issue of phenomenal character, the point is that unless the external objects look$_d$ the same to Jill, the phenomenal character of her experiences won't seem$_d$ the same to her. That is to say, to explain the subjective difference in having different kinds of phenomenal character, the phenomenal character should be individuated the same way as the intentional content of the subject's beliefs. Hence the conclusion: if intentional content changes, phenomenal character should too.

3.2.4.2 Problems with Dretske's Objection

I will argue that Dretske's argument is unsound and it is not the case that the objects must look$_d$ the same to Jill for them to seem$_d$ the same to Jill when she introspects her experiences, even if introspective awareness is a fact-awareness. First, let's formalize Dretske's argument (1995, p.133) as follows:

1. Water looks$_p$ the same as Twater. (P)
2. The looks$_p$-like-water-belief differs from the looks$_p$-like-Twater-belief. (P)

3. Introspective awareness of one's own experience is fact-awareness. That is, one's phenomenal experiences can only $seem_d$ a certain way to the subject. (P)
4. Oscar and Twin Oscar's beliefs about their own experiences of *k*, about the way *k* $looks_p$ to them, must be different. (2, 3)
5. Hence, the phenomenal experience of *k* $seems_d$ like water to Oscar but $seems_d$ like Twater to Twin Oscar. (3, 4)
6. Even if water $looks_p$ the same as Twater, their phenomenal experiences of *k* $seem_d$ different to them. (1 and 5)

I challenge proposition (4). According to externalism, the contents of the term 'water' and the concept WATER on Earth and Twin Earth are different, because on Earth, they mean H_2O while they mean XYZ on Twin Earth. That is why, according to Dretske, Oscar and T-Oscar's phenomenal experiences of water $seem_d$ different to them, because Oscar and T-Oscar have different beliefs about the way water looks to them respectively. One is the $looks_p$-like-H_2O-belief, the other is the $looks_p$-like-XYZ-belief.

The problem with proposition (4) is that awareness of water (H_2O or XYZ) is an awareness of objects rather than about the phenomenal properties of the experiences and therefore is irrelevant to the issue of phenomenal character. The beliefs about experiences of H_2O and XYZ are irrelevant to the issue of phenomenal consciousness. For example, if we dye a cup of water and a cup of Twater red, both cups of H_2O and XYZ will $look_p$ reddish to Oscar and T-Oscar. According to Dretske's reasoning, since the twins have different beliefs about their experiences of red water and Twater—one is the $looks_p$-like-red-H_2O-belief and the other is the $looks_p$-like-red-XYZ-belief—their experiences $seem_d$ different to them. But this is odd, since the issue is not about the objects—H_2O or XYZ—

but rather it is about how their color properties appear to the subjects. The relevant belief that applied in both Oscar's and Twin Oscar's introspections should be the same and it is the looks$_p$-like-red-stuff-belief. If so, proposition (4) is false and both Oscar and Twin Oscar's phenomenal experiences will seem$_d$ the same to them.

The same argument can be applied to the water case. Assume the observed appearance shared by both water and Twater is the "Watery" look: the appearance of transparent, colorless… and so on. H_2O and XYZ are different objects but they look$_p$ Watery to both Oscar and T-Oscar. I agree that Oscar and T-Oscar's beliefs about water are different, because Oscar's belief about water is about H_2O but T-Oscar's belief about water is about XYZ. But they are not the same as the belief about the way (i.e., the Watery look) H_2O and XYZ appear to Oscar and T-Oscar. When Oscar and T-Oscar look at H_2O and XYZ respectively and introspect, the beliefs they apply in categorizing the phenomenal character of experience are not the beliefs involving the substances—the looks$_p$-like-H_2O (or XYZ)-beliefs—as Dretske claims, it is the belief about the way the object looks—the looks$_p$-like-Watery-stuff-belief or the (x)-looks$_p$-Watery-belief, which is an existence proposition—that is shared by both the appearance of H_2O and XYZ. If so, Oscar and Twin Oscar's experiences of water will seem$_d$ the same to them. Hence, proposition (4) in Dretske's argument is false.

One might still argue that even if both water and Twater look$_p$ Watery to Oscar and Twin Oscar, it doesn't imply they both will use the same concept to capture their experiences of the Watery appearance, since they might not have the concept WATERY. If so, H_2O and XYZ still won't seem$_d$ Watery to them. Fair enough. But this challenge overlooks the possibility that one may gain a new kind of concept—the phenomenal

concept (or category) of how the observable property looks$_p$ to one—after seeing the relevant properties and learning the relevant phenomenal concepts, and use this new kind of concept in introspection. If the perceiver can learn a new phenomenal concept after seeing a novel property of which she had no relevant concept beforehand, she will still have the relevant concept to introspect her experiences. After Oscar and Twin Oscar see the ways water and Twater appear to them—the Watery look—they learn the phenomenal concept "WATERY" from the relevant experiences. If so, they will never run short of the relevant phenomenal concepts in their introspection.[64] However, this line of solution faces the problem posed by the memory constraint, i.e., we do not have any recognitional phenomenal concept at all.[65]

An alternative solution is appealing to comparative concepts. When Jill travels from Earth to Twin Earth, she will use the phrase "the way water looks" to express the observable property of both water and Twater and say "the way water looks on Earth is similar to (or is the same as) the way water looks on Twin Earth". Intuitively, Jill is not talking about water and Twater, but rather the ways water and Twater look to her. Jill is not talking about the intrinsic property of experiences, but rather the similarity and difference relations between the ways water and Twater look to her. By appealing to comparative concepts that expressed by the sentence, such as "x looks similar to y", we don't need the phenomenal concept WATERY to express one's experiences of the way water and Twater look and, thus, avoid the problem posed by the memory constraint.

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[64] Of course, one will face the problem of how to define or qualify the appearance of watery, since it is ambiguous. Some might even argue that there is no appearance of watery. I accept the case used by Dretske just for argument's sake. I assume that if we switch to the case of color, this problem will go away.

[65] Raffman, Diana. (1995). "On the Persistence of Phenomenology." In *Conscious Experience*. (Ed.) T. Metzinger. Schoningh: Imprint Academic (1995).

There is a further problem with Dretske's objection. According to the Inverted Earth argument, Jill doesn't notice any phenomenal change after traveling to Inverted Earth. When Jill looks at both skies and introspects respectively, she doesn't notice any difference between her phenomenal experiences. When we connect this to Drestske's argument, Dretske's argument has an unwelcome result. According to Dretske's objection, Jill's beliefs about water and Twater are different and hence there must be a difference in her introspective awareness of her phenomenal experiences of them. But Jill hasn't noticed any difference between her introspective awareness of her phenomenal experiences of water and Twater. That is to say, Jill doesn't have self-knowledge of her own experiences and this seems absurd.[66]

To make it more explicit, let me run Dretske's argument and check it against the Inverted Earth argument. When Jill looks at the blue sky on Earth and the yellow sky on Inverted Earth and introspects her experiences of both skies respectively, she notices no difference between her experiences of looking at the skies on Earth and Inverted Earth. Both skies look blue to her. Let's also assume that her memory is perfect: the way the sky on Earth looked to her is exactly the same as she remembers. However, according to Dretske's objection, Jill's introspective awareness of her experiences of seeing both skies are different, one seems_d blue to her and the other seems_d yellow to her, since Jill uses beliefs with different intentional content in her introspections, (one is the looks_p-like-Earth-sky belief and the other is the looks_p-like-Twin-Earth-sky belief). Thus, Jill has both visual experiences of both skies, as well as introspective awareness of both visual experiences; but while there is a difference between the phenomenal characters of her

[66] Levine points out this line of objection to Standard Representationalsim in his (2003): "Experience and Representation." p.62. In *Consciousness: New Philosophical Perspectives*. (Eds.) Quentin Smith and Aleksandar Jokic. Oxford: Clarendon Press, 2003.

introspective awareness of them, she doesn't notice the difference between the phenomenal character of her experiencing the blue sky and the yellow sky. Therefore, Jill has no introspective knowledge of her own phenomenal experiences.

It is even worse, if we introduce the case of Swampman traveling to the Inverted Earth. Suppose a Swampman, who with the same visual system, belief system and so on…, as a human being and also with a perfect memory, comes alive on Earth for one minute and we beam him to Inverted Earth right after he looks at the sky on Earth and introspects his experiences. After the Swampman arrives there for more than one minute and looks at the sky on Inverted Earth and introspects his experiences, he doesn't notice any difference between his experiences of both skies. But according to Dretskes's argument, the Swampman's experiences of both skies will still $seem_d$ different to him due to the different beliefs he applies in his introspections. This consequence seems counterintuitive and, to many philosophers, is not acceptable. How can one person with a normal visual system and a perfect memory of her experiences of the sky on Earth experience radical changes from her visual experiences of blue to those of yellow and not be aware of the changes between these two different visual experiences?

The case of Swampman traveling may be too fanciful to be accepted by most philosophers, but the intuition at play here is not—it seems impossible that someone could experience radical changes in her visual experiences and fail to notice the changes, although there is nothing wrong with her visual, recognitional and memory systems.

3.3 Nonconceptual Representational Content and Phenomenal Character

The problem with Block's argument for the nonconceptual case of intentional content inversion is that, once his argument is made explicit, it is shown to be unsound. It is unsound, because it conflates two different types of representations—the nonphenomenal type and the phenomenal type of representations. If we replace the nonphenomenal case by a phenomenal case of nonconceptual representation, then Block's argument faces other problems.

First, Block interprets representationalism and the distinction between phenomenal and nonphenomenal types of representation as follows:

> Here is the representation[al]ist picture: Experiences have representational properties of two types, and the phenomenal character of an experience can be identified with one of these two types. The nonphenomenal type includes the representation of water as water, the phenomenal type includes representations of such "appearance properties" as color. The visual representation of these appearance properties includes nonconceptual representations according to many representation[al]ists, and these are the ones whose representational content is identified with phenomenal character. (2003, pp.551-552)

Let's recall Block's dog Fido and formalize Block's argument for the distinction between nonconceptual representational content and phenomenal content as follows:

1. Fido's experiences have both (nonconceptual) representational and phenomenal content.
2. The phenomenal content of Fido's experiences of Block and Twin-Block are the same.
3. The (nonconceptual) representational content of Fido's experience of Block and Twin-Block are different.
4. Therefore, it is possible for Fido to have experiences which have the same phenomenal content but have different (nonconceptual) representational content.

I understand proposition (3) as saying that the nonconceptual representational content of Fido's experiences of Block is individuated by its cause or by the functional role of the relevant sensory state that causes Fido's reactions to Block, hence the representational aspect of Fido's experiences of Block represent Block as being Block and it is different from the phenomenal aspect of Fido's experience of Block, which is the "what it is like" for Fido to see Block. As I have argued in the last section on Dretske's objection, representing water as being water is not a phenomenal type of representation, nor is representing Block as being Block. The representational contents of both sensory states are individuated by their causes. If so, the representational content of Fido's experience in proposition (3) is a nonphenomenal type of representation and is a representation with content that is determined by the relevant cause or functional role. It is obvious that the phenomenal content of Fido's experience in proposition (2) is the phenomenal type of content, since it is the "what it is like" for the dog to see Block.

Proposition (3) in Block's argument is false because representations of objects are phenomenally irrelevant, while nonconceptual representational content is a "phenomenal" type of representation. Given that the nonconceptual representational content of Fido's experiences must be about the "what it is like" of experiencing certain properties, the nonconceptual representational content cannot represent Block as being Block, since being Block is not an appearance property; but if the nonconceptual representation of Block as being Block is a phenomenal type of representation, then it seems that the nonconceptual representational content of Fido's visual experiences of seeing Block and Twin Block should be the same, since the appearance properties of, or the phenomenal content of seeing Block and Twin Block are supposed to be the same.

Briefly, either nonconceptual representational content is phenomenal and cannot represent Block as being Block, or the representing of Block as being Block is phenomenal and there is no difference between the nonconceptual representational content of Block and Twin-Block. Either way, proposition (3) is false. In other words, if proposition (3) is true, then we reach a contradiction: the nonconceptual representational content of Block is both phenomenal and nonphenomenal, since all nonconceptual representational contents are phenomenal and the representational content of representing Block as being Block is nonphenomenal.

Block may have just chosen a bad example for his argument; perhaps if it is replaced by a genuine phenomenal case of representation, his argument might succeed. If Block takes the phenomenal case of color representations, for example, he can avoid the above objection. Let's use Fido to replace the subject in the Inverted Earth story. With some minor changes, then, Block can argue that after traveling to Inverted Earth, the way a yellow sky looks to Fido now is the same as the way blue sky used to look on Earth, and vice versa. Fido has two experiences of two different colors, blue sky and yellow sky, and these experiences have different nonconceptual representational content but the same phenomenal content, since the skies look the same to Fido phenomenally.[67] If so, Block's argument seems to establish the distinction between the phenomenal case of nonconceptual representational content and phenomenal content.

The problem with this response is that there is no way to tell whether the representational content of Fido's visual experiences of the skies changes while the phenomenal content stays the same (after traveling to Inverted Earth) without appealing

[67] Mark McEvoy pointed out to me that dogs are color-blind. However, you can replace Fido with your favorite pet that is not color-blind in this argument.

directly to the narrow/wide content distinction. Assuming that the representational content of experiences is determined causally and that the representational content of Fido's experiences are of blue and of yellow skies respectively, we still cannot tell whether both skies look the same way to Fido. First, because Fido doesn't speak any language, we cannot appeal to verbal evidence; second, we cannot tell from Fido's behavior either, since there is no way to tell if the phenomenal content of Fido's experience stays the same after traveling to Inverted Earth or if Fido has a false memory of the way blue sky looked while on Earth. One cannot appeal to the notion of introspective indistinguishability to settle the problem either, since Fido doesn't have any concept of color, the higher-order thought model of introspection is ruled out (since we assume Fido doesn't have the concept of the relevant colors). Moreover, the alternative models of introspection—the inner-sense model and the perceptual model (Dretske's displaced perceptual model or Tye's model)—are dubious.

Thus, according to Block's line of argument, in order to establish the nonconceptual case of representational content inversion one must appeal to the different ways of individuating the content directly in order to derive the distinction between narrow and wide content. Nonconceptual representational content of color experiences is determined functionally or by the causally relevant external objects or properties, while phenomenal content is determined by, or supervenes locally upon, internal physical properties. Putting aside the controversial notion of the supervenience principle, Block's argument still seems question begging. The distinction of narrow and wide content itself presupposes the distinction between representational and phenomenal content. Thus I

conclude that Block's argument fails to establish the distinction between the phenomenal case of nonconceptual representational content and phenomenal content.

To sum up, given the distinction between phenomenal and nonphenomenal type of representations and given that the representational content of experiences is a phenomenal type of representation, then, if representations of objects are nonphenomenal but nonconceptual representations are phenomenal, proposition (3) in Block's argument is false and his argument is unsound. Moreover, even if we replace the bad example by a proper one in Block's argument, it still faces the problem of begging the question.

3.4 Phenomenology and Phenomenal Character

3.4.1 Qualitative Property and Phenomenal Consciousness

So far, we have discussed both qualia realists' IS and IE arguments for the intentional/phenomenal content distinction. The arguments either fail to support the distinction, or rest on intuition that is controversial. However, we haven't yet discussed any of their views of phenomenal character that might support their arguments, that is, Block's view of phenomenal consciousness or qualitative property (i.e., qualia) and Shoemaker's theories of appearance property. I will discuss Block's view in the rest of this chapter and discuss Shoemaker's theories in the next chapter.

Block uses different terms to describe the phenomenal character of experiences—phenomenal content, qualia (qualitative properties) and phenomenal consciousness, (hereafter, phenomenology)—and these seem to refer to different kinds of mental states or properties. Block uses the notion of phenomenal content in both the IS and IE arguments, referring to some sort of content that is normally determined by other

properties than the properties of sensory experiences themselves. This seems to contradict the notion of qualitative properties (qualia), which is the intrinsic property of experiences whereby we discriminate the similarities and differences of one's sensory experiences. And, as Rosenthal points out, a sensory state's having content is distinct from being P-conscious of that state (1997b, p.156)[68]. However, Block seems to treat all three terms as referring to the same kind of mental status—the phenomenal character (or the "what it is like") of having a certain sensory experience.

What is the relation between these three different concepts? It seems that, according to Block, they are just different descriptions of the same mental status from different perspectives. The phenomenal content of mental states is determined by the intrinsic qualitative properties of these states, which is one and the same as the phenomenology of having some mental states. In other words, the phenomenal character of a mental state is its phenomenal content as determined by the phenomenally conscious qualitative property.

As I mentioned in the end of the last chapter, Block holds that a mental state can be phenomenally conscious without being accessibly or reflexively conscious. What it is for a mental state or property to be phenomenally conscious (P-conscious)? Block says, "P-conscious properties are experiential properties. P-conscious states are experiential states, that is, a state is P-conscious if it has experiential properties. The totality of the experiential properties of a state are "what it is like" to have it" (1995, p.380).[69] In other places, Block also says, "[q]ualia are experiential properties of sensations, feelings,

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[68] Rosenthal, David. (1997b). "Phenomenal Consciousness and What It's Like." *Behavioral and Brain Science*s, 20:1.

[69] Block, Ned. (1995). "On a Confusion about a Function of Consciousness." In *The Nature of Consciousness: Philosophical Debates*. (Eds.) N. Block, O. Flanagan, and G. Guzeldere. Cambridge, Mass.: The MIT Press (1997).

perceptions and, in my view, thoughts and desires as well" (1994, p.501).[70] From the remarks just quoted, we can conclude, first, that having a mental state with a certain qualitative property, say R', is one and the same as having a mental state with the P-conscious property R'. More explicitly, having the qualitative property R' is one and the same as being P-conscious of R', hence, Jill has a sensory state with the qualitative property R', if and only if Jill is P-conscious of R'. We can also conclude, secondly, that the qualitative property of a mental state determines "what it is like", i.e., the phenomenal character, of having a sensory state with the relevant qualitative property. That is to say, conscious qualitative properties or the P-conscious properties of a mental state determine the phenomenal character or "what it is like" of having that state.

Block also claims that phenomenology is conceptually independent from two other notions of consciousness—access and reflexive consciousness (or the A-consciousness and reflexivity). Block describes them respectively as follows,

> A state is A-conscious if it is poised for direct control of thought and action. … A representation is A-conscious if it is poised for free use in reasoning and for direct "rational" control of action and speech. (1995, p.382)

And,

> An experience is conscious in [a reflexive] sense just in case it is the object of another of the subject's states… Reflexivity is [phenomenology] plus something else (reflection)… one that is about the phenomenal state. (2001, p.320)[71]

Block appeals to the following phenomenon to support the case of phenomenology without A-consciousness. You sometimes suddenly notice the noise of a jackhammer on the street after intense conversation with someone and realize that the noise has been

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[70] Block, Ned, (1994). "Qualia." In his *Consciousness, function, and Representation: Collected Papers, Volume 1*. Cambridge, Mass.: The MIT Press (2007).

[71] Block, Ned. (2001). "Paradox and Cross Purposes in Recent Work on Consciousness." In his *Consciousness, function, and Representation: Collected Papers, Volume 1*. Cambridge, Mass.: The MIT Press (2007).

going on for a while even though you didn't notice it earlier during the conversation. Block claims that you were aware of the noise during the whole time (hence, you were P-conscious of it) but you are consciously aware of it (or are accessibly conscious of it) only when you notice it (1995, p.386; 2001, p.317). If so, the phenomenon of hearing the noise of the jackhammer without noticing it can be considered as a case of phenomenology without A-consciousness. Block also takes this as a case of phenomenology without reflexivity, since what you notice later on may be not only the noise of the jackhammer but also a higher-order thought that you are hearing the noise of the jackhammer. That is, when you notice the noise, you are having a state of reflexivity—phenomenology plus reflection.

Block also appeals to some empirical evidence to back up his claim of the independence of phenomenology and access consciousness. Since the phenomenal character that is reportable is accessibly or reflexively conscious, in order to support the claim that there is phenomenology without access consciousness, Block has to argue that there are unreported cases of phenomenology. For this purpose, Block appeals to the partial report result of Sperling's experiment on iconic memory.[72]

In the Sperling's experiment on iconic memory, subjects are shown 3x3 arrays of letters for a brief time. Subjects normally can only report a few of them even though they claim to see all the letters. To test whether subjects are right at claiming to see all the letters, Sperling signals different tones to direct subjects to report on different rows. A high tone indicates the subject should report the top row, a middle tone the middle row, and a low tone the low row. The result of this was that subjects could report all the letters

[72]Sperling, George (1960): "The Information Available in Brief Visual Presentations." *Psychological Monographs* 74 (11).

in the row that is indicated by the relative tone but could not report any letters on the other rows. If so, there are unreported cases of phenomenology. Block takes the result of Sperling's experiment as showing that the subjects had phenomenology of all of the letters but has neither access consciousness nor reflexive consciousness of them. Because subjects said they saw all the letters, this indicated that they were phenomenally conscious of all of them (2001, p.323).

According to Block, in the Sperling experiment, subjects seemed to see all of the letterlike objects even though they could not report some of the letters they saw. He argues that subjects also have phenomenology of the shapes themselves, i.e., subjects were phenomenally aware of the letters as having different shapes even though they could not report which letters they saw. Subjects reported that they saw some letterlike objects with different shapes, hence they were introspectively aware of their experiences as of letterlike objects with different shapes.

In his (2007b) paper, [73] Block uses the Sperling's experiment to argue for a weaker claim that phenomenology overflows access consciousness and, therefore, the machinery of phenomenology is different from the machinery of cognitive accessibility. Block interprets the result of Sperling's experiment as follows.

> [T]he subject has experiences as of specific alphanumeric shapes, but cannot bring very many of them under specific shape or alphanumeric concepts (representations) of the sort required to report or make comparisons. The subject can bring them under a general concept—"alphanumeric character"—which is why the subjects can report that they have seen an array of alphanumeric characters but not under the more specific concepts required to identify which alphanumeric character. (2007b, p.487)

[73] Block, Ned. (2007b). "Consciousness, Accessibility, and the Mesh Between Psychology and Neuroscience." *Behavioral and Brain Sciences*, 30 (2007).

Again, the point here is: subjects see all the letters as having “alphanumeric character”, or see the letterlike character, of the letters but cannot bring them under specific concepts, and therefore cannot report all of the letters. Some psychologists and philosophers disagree with Block about whether subjects really see the shapes of the letters or not, but I won’t pursue this issue here. Instead, I am going to argue that even given that Block’s argument is right, his notion of phenomenology cannot explain the phenomenal character or the “what it is like” of having a sensory experience.

In the next section, I will discuss Thau’s objection that the notion of qualitative property (quale or phenomenology) cannot explain what he calls the “subjective difference” of having different sensory experiences. Then, in the last section, I am going to discuss Rosenthal’s objection that Block’s notion of phenomenology cannot explain the phenomenal character of sensory experiences.

3.4.2 Qualitative Property and the Subjective Difference

As pointed out in the brief discussion above, Block holds that qualitative property (qualia, in Block’s own term) or phenomenology is independent, at least conceptually, of access and reflexive consciousness. Qualitative properties are intrinsic qualities of mental states by means of which qualia realists, Block included, answer the question of whether the subjects have experiences of the same kind or not. That is to say, qualitative properties determine the phenomenal character of sensory experiences, which, in turn, determines the nature of sensory experiences. Whether two different tokens of visual experiences are of the same kind or not is determined by whether they share the same kind of qualitative properties or phenomenology. However, Michael Thau argues that the

notion of qualitative property cannot explain the subjective difference between different color experiences.[74]

According to Thau, given that Jack and Jill's color perceptions are inverse to each other, in order to account for the subjective difference between Jack's and Jill's visual experiences of seeing a red object, it is not sufficient to ascribe to their respective visual experiences different qualitative properties. Jack and Jill must be aware of the qualitative properties of their visual experiences, respectively, and be aware of them as such. Thau says:

> The subjective difference between [Jack's and Jill's] visual experiences is a difference in the way things seem [or, appear] to them; hence, besides the fact that their visual experiences have different properties, the qualia freak will also have to maintain that [Jack and Jill] are in some sense *aware* of their respective visual experiences. (2002, p.30)[75]

But the subjects' being aware of the qualitative properties of their respective visual experiences is still not sufficient to account for the subjective difference between their different visual experiences. If both Jack and Jill are aware of the qualitative properties of their respective experiences but they are both aware of them as being red qualitative properties, then there won't be a subjective difference between them. They must also be aware of the qualitative properties of their experiences as such. Jack must be aware of the qualitative property of his visual experience as being a red qualitative property; and Jill must be aware of the qualitative property of her visual experiences as being a green qualitative property.

[74] I take Thau's notion of the subjective difference of having different experiences to be the same as having different phenomenal characters. I will keep his original terminology "subjective difference" in this section.
[75] Thau, Michael. (2002). *Consciousness and Cognition*. New York: Oxford University Press .

If Thau's above argument is correct, Block's notion of phenomenology (and his notion of quale) cannot explain the subjective difference of seeing different colors, since qualitative properties are independent from the subject's being introspectively aware of them. Some may notice that, according to Block, when one is having a sensory experience one is also aware of its qualitative property phenomenally and, hence, the subject is in some sense aware of his visual experience. But, still, this does not satisfy the further requirement that the subject must be aware of the qualitative property of his experience as such.

I understand Thau as talking about introspective awareness and I am going to argue both that Thau's claim is false and that his objection fails. The first question is: is this further requirement—being aware of one's qualitative property as such—a necessary condition of explaining the subjective differences in having different kinds of color experiences? As Block points out, in the Sperling experiment on iconic memory, subjects not only see all the letterlike objects but also experience the phenomenology of the shapes of the letters. That is, the subjects are aware of the letters as having different shapes even though they cannot report which letters they see. Presumably, when the subjects see the different letters very briefly, they do have the subjective difference of seeing the different letters even though they cannot report all letters (or the shapes of all letterlike objects) they see. If so, this seems to be a case of there being a subjective difference in seeing letters with different shapes without being introspectively aware of these differences as such.

Some might disagree with Block's claim that the subject sees the shapes of all of the letters. But there are plenty of counter examples to Thau's claim in daily life. Another

counter example is that we can easily tell whether one's experiences of two different shades of red, say, red_{18} and red_{27}, are different if we see them next to each other, i.e., in the situation of simultaneous presentation, even if we don't know exactly which colors they are and cannot re-identify them later on. In this kind of situation, the perceivers obviously have the subjective difference in seeing different shades of a red color in simultaneous presenting but aren't aware of their experiences as seeing red_{18} and red_{27} respectively. The subject may be aware of her experiences of these two different colors as experiences of seeing different shades of red rather than as seeing red_{18} and red_{27} respectively.

Having overruling the claim that in order to explain the subjective difference one must be aware of each qualitative properties as such, we can reexamine whether Thau's objection is right or not. Qualitative property supporters differ over whether the notion of qualitative property can explain the phenomenal character of having a sensory experience. Some claim that it can, others claim that qualitative property itself cannot. No matter which view one holds, Thau's objection fails.

Thau's argument that qualitative properties cannot explain the subjective difference in having different color experiences fails, no matter whether we understand the notion of qualitative property as conscious or not. What Thau's argument shows is not the failure of the qualia realists' argument, but that qualitative property per se (i.e., as qualitative property without consciousness) cannot be the qualia realists' explanation of the subjective difference. What explains the subjective difference is consciousness, or the what-it-is-likeness of having different kinds of conscious sensory experiences. Qualia realists normally claim that one becomes aware of external objects and properties in a

certain sense by having conscious sensory states with certain qualitative properties. Some claim all sensory states must be conscious, others claim that a sensory state's being conscious differs from having qualitative properties. It is the issue of consciousness that Thau's objection ignores.

First, assume that the sensory states by means of which one perceives the external world are conscious sensory states and that consciousness is intrinsic to all sensory states. If the qualitative properties of conscious mental states are, as some qualia realists assert, the reason for the subjective difference in having different color experiences, then, what explains the subjective difference are not qualitative properties per se, but the qualitative properties of conscious mental states. The qualitative properties of conscious mental states are just conscious qualitative properties by means of which we perceive the perceivable property of an external object or one's own body. If so, we can explain the subjective difference between Jack's and Jill's color experiences by means of their conscious mental states. states that have the conscious qualitative properties of red' and green'.

Given that the qualitative properties of conscious sensory states determine phenomenal character and that having different phenomenal character is just the same as the subjective difference in having different sensory experiences, there is no need to appeal to the introspective awareness of the conscious qualitative properties to explain the subjective difference in having different color experiences. Having different conscious qualitative properties itself explains the phenomenal character of having those different experiences. For example, when Jill is having a conscious pain in her neck and an conscious itch sensations on her back, presumably, she must be experiencing the

phenomenal characters of the pain and itch feelings (i.e., having phenomenal consciousness) and, therefore, no introspective awareness is needed in order to explain the subjective difference between pain and itch.

Second, if a state's having a qualitative property and being conscious are different, and qualitative properties are used to explain the difference between different kinds of sensory states, conscious or not, then, qualitative properties are not what qualitative properties supporters use to explain subjective differences as Thau claims. According to some philosophers, such as Rosenthal, qualitative properties are what by means of which we tell the similarity and difference among different kinds of sensory states, but the subjective difference or phenomenal character of having conscious sensory states is determined by one's being conscious of those sensory states. If so, qualitative properties are not what explain the subjective difference between having different kinds of conscious experiences. The subjective difference is explained by consciousness that may not be introspectively conscious.

In sum, Thau's objection fails, because, first, explaining the subjective difference in having different sensory experiences doesn't require the assumption of the subject's being introspectively aware of the qualitative property as such. Secondly, his objection that qualitative properties cannot explain the subjective difference fails, no matter whether we understand the notion of qualitative properties as being conscious intrinsically or not. If consciousness is intrinsic to sensory states, then having a sensory state with a certain qualitative property is the same as having a conscious qualitative property, and this identity can be used to explain the subjective difference. If consciousness is a relational property and the subjective difference is determined by

consciousness, then qualitative properties are not what qualitative supporters use to explain the subjective difference, but rather it is consciousness that one may not be introspectively conscious of. In both cases, introspective awareness is not required in order to explain the subjective difference in having different kind of experiences.

3.4.3 Phenomenology and What It Is Like

Block claims that phenomenology is independent from reflexivity, which is a particular case of A-consciousness, and that to have a P-conscious sensory state is to have the "what it is like" or the phenomenal character of having that experience. However, as Rosenthal has pointed out, Block describes phenomenology in many different ways that seem to refer to different kinds of mental states (2002b, p.655).[76]

In one place, Block says that phenomenology is "what it is like to have an experience," and "[w]hen you enjoy the taste of wine, you are enjoying gustatory [phenomenology]" (2001, p.316). In another place, he allows that phenomenology occurs without one's knowing it. Block says, "the claims of the extinction patients not to see extinguished stimuli are in a sense wrong—they really do have phenomenal experience of these stimuli without knowing it" (2001, p.317). The same claim applies to the case of neglect, in which the patients claim they didn't see the stimulation. However, Rosenthal points out that these claims don't fit comfortably with each other for the following reason.

> [W]hat it's like to have an experience is what it's like *for* the individual that has the experience. When a person enjoys the taste of wine, thereby enjoying gustatory [phenomenology], there is something it is like *for that person* to experience the taste of that wine. Not so in cases of visual extinction; there is

[76] Rosenthal, David. (2002b). "How many kinds of Consciousness." *Consciousness and Cognition* 11.

> nothing it's like *for* an extinction subject to have a qualitative experience of the extinguished stimuli. (2002b, p.656)

That is to say, there are two different notions of phenomenology in the discussion, which Rosenthal calls "thick" and "thin" phenomenology. Rosenthal says, "[The first] kind consists in the subjective occurrence of mental qualities, while the other kind consists just in the occurrence of a qualitative property without there also being anything it's like for one to have that qualitative character" (2002b, p.657). Hence, the thick phenomenology is the thin phenomenology plus what it is like for one to have that thin phenomenology. This distinction doesn't conflict with what Block says. We can take the wine taste case as a case of phenomenology with accessibility or reflexivity, hence a thick phenomenology; while taking the case of neglect as a case of phenomenology without either accessibility or reflexivity, i.e., a case of thin phenomenology. That is to say, Block's notion of phenomenology without accessibility and reflexivity is the thin one.

However, Rosenthal argues that thin phenomenology cannot explain the common sense conception of phenomenal consciousness at all. According to Rosenthal, the common sense of phenomenal consciousness is the thick phenomenology, which includes the requirement that there is something it's like for a subject to have a particular sensory experience. Since the thin phenomenology doesn't require there is something it is like for one to have an experience, or phenomenal character, it is not a real kind of consciousness; only the thick phenomenology can be counted as a real kind of consciousness. If so, even if Block's argument achieves something important it still fails to explain the phenomenal character or the "what it is like" of having sensory experiences.

Chapter 4 Shoemaker's Theories of Phenomenal Character

4.0 Introduction

Shoemaker not only accepts the intentional/phenomenal content distinction for color perception, he also accepts the transparency principle—the only thing accessible when you introspect is the representational content of color perceptions. The notable point is that the transparency principle is normally proposed to support the representational theory. The major purpose of his theory of phenomenal content is to reconcile the inverted spectrum hypothesis and the transparency principle.

Shoemaker differs from the Standard Representationalists. According to him, the representational content of the visual experience of redness that is introspectively accessible is not what is determined by the physical property of redness, as the Standard Representationalists hold; but rather, it is a different kind of property, which he calls a "phenomenal property" or "appearance property". Appearance properties are represented by the relevant qualitative properties they cause in the experiences of the perceivers. According to Shoemaker, color perceptions represent both the physical property of redness, which is the regular intentional content, and the appearance property, which is the phenomenal content.

Shoemaker has proposed four different theories over the years to reconcile the qualia realists' distinction between intentional/phenomenal content with the standard representational theory that denies it. In each section of this chapter, I will discuss one proposal and the objections to it. In section 4.1, I will discuss Shoemaker's first theory of phenomenal content, which holds that phenomenal contents represent occurrent

appearance properties, which exist only when they are actually perceived. In section 4.2, I will discuss a revised version of his first theory, which claims that phenomenal contents are determined by dispositional appearance properties. In section 4.3, I will discuss the view that the phenomenal contents of color experiences represent both occurrent and higher-order dispositional appearance properties. In section 4.4, I discuss his newest proposal about phenomenal content, which claims that what determines the phenomenal content are qualitative characters, which are not different kinds of properties from physical color properties, but rather are different aspects of physical color properties.

I will argue that all of Shoemaker's proposals about phenomenal content face insurmountable difficulties. Lastly, in section 4.5, I will discuss an objection proposed by Michael Thau, who argues that Shoemaker's conception of appearance property cannot explain the subjective difference in having different color experiences. I will argue that Shoemaker fails to answer this objection.

4.1 Occurrent Appearance Properties as Phenomenal Content

4.1.1 Shoemaker's Argument for Occurrent Appearance Properties

The puzzle of the inverted spectrum case is that both Jack and Jill's experiences may represent the red tomato as having different appearance properties while neither of them misrepresents it. How can this be, on a representational theory? The solution, Shoemaker suggests, is to treat the different properties Jack and Jill's experiences attribute to the tomato as relational properties. His reasons are as follows. Let Qr be the qualitative property of Jack's experience when he sees a red tomato, and Qg the qualitative property of Jill's experience when she sees the same tomato. The red tomato

has the relational property, Pr, that is constituted by the relation to Qr, and another relational property, Pg, that is constituted by the relation to Qg. Jack's experience represents the tomato as having the relational property Pr that is constituted by Qr, while Jill's represents the tomato as having the relational property Pg that is constituted by Qg. These relational properties cannot be the physical property of being red, since Jack and Jill's experiences represent the tomato as having different relational properties, Pr and Pg, and neither of them misrepresents. Both their experiences veridically represent the tomato as having the property of being red and as having the relevant relational properties. Shoemaker calls these relational properties "phenomenal properties" or "appearance properties".

In sum, according to Shoemaker, the sensory experiences of a red object represents two different kinds of properties at once, the physical property of being red and the phenomenal property of appearing red. The former is an intrinsic property of the physical object while the latter is a relational property of the physical objects that is constituted by the relevant qualitative property, which he sometimes calls "the intrinsic property" of sensory experiences. In other words, a sensory experience has two different kinds of content, the intentional content that is determined by the physical property and the phenomenal content that is constitutively determined by the relevant intrinsic properties, qualitative properties, of sensory experiences. Therefore, when Jack and Jill's experiences are phenomenally the same (or have the same kind of qualitative properties), they represent the same kind of appearance (or phenomenal) properties; when their experiences are phenomenally different (or have different kinds of qualitative properties), they represent different kinds of appearance properties. It is the appearance property that

is relevant to the phenomenal character or the subjective difference (or the "what-it-is-likeness") of experiencing different colors.

In his (1994b) paper[77], Shoemaker claims that the only kind of properties that satisfies the requirement of being an appearance property is that of occurrent appearance properties, which are "the relational properties things have in virtue of actually causing experiences of certain sorts" (1994b, p.254). He explains further as follows.

> [I]f *R* is the quale that characterizes my experiences of red things, the [appearance] properties would include the property something has just in case it is currently producing an *R*-experience in someone related to it in a certain way, namely someone viewing it under normal lighting conditions. This, unfortunately, is a property nothing has when it is not being perceived. (1994b, p.254)

So, according to Shoemaker, the appearance property is the relational property of <u>actually causing</u> an experience with a certain qualitative property in someone under normal lighting conditions. Hence an object has the appearance property if it is actually causing a person to have an experience with a certain qualitative property under normal lighting conditions.[78] Let's call this the principle of appearance property.

> **(AP1) <u>The principle of appearance property</u>:**
>
> An object has the appearance property P, iff this object is actually causing an experience with a certain qualitative property Q, in someone under normal lighting conditions and the perceiver is not misperceiving.

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[77] Shoemaker, Sydney. (1994b). "Self-knowledge and "inner-sense (Lecture III: The phenomenal character of experience)." In his *The First-person Perspective and Other Essays*. Cambridge University Press (1996).

[78] Michael Levin suggested that there are no normal lighting conditions, as Larry Hardin argues in his (1988): *Color for Philosophers*, (pp.67-76). Harding points out that dispositionalists normally take one of the light sources that scientists take as "standard" or "normal" lighting conditions—incandescent lamp, near sunlight and near daylight (North Daylight)—as "the" standard or normal lighting condition, i.e., the lighting condition that is near North Daylight; and that there are metamers for a particular color that look the same under "the" standard lighting condition. However, dispositionalists can keep the North Daylight as "the" normal lighting condition and treat the surfaces of objects that cause in the subjects the same qualitative property as having the same color and that our experiences with the same qualitative properties represent disjunctive properties of the metamers which cause the same color experiences. In sum, we can take North Daylight as the standard or normal lighting conditions by accepting color properties as disjunctive properties that consist of metamers.

Taking the case mentioned earlier for example, if a colored object causes Jack an experience with qualitative property Qr while it causes Jill an experience with qualitative property Qg, under the normal lighting conditions, this colored object has both the Pr and Pg appearance properties.

The common part of Standard and Shoemaker's representationalism is that, according to both, the phenomenal character of sensory experiences is determined by their representational content. The difference is that Standard Representationlists hold that phenomenal character is determined by representation of the physical property of redness, while for Shoemaker, it is the appearance property of redness.

Now we have seen what kind of representationalism Shoemaker is committed to. Given that Standard Representationalism is committed to the Representational Thesis: the phenomenal character and the representational content of sensory experiences are one and the same, (or a weaker claim, that phenomenal character supervenes on the representational content of sensory experiences), we can describe Shoemaker's representational theory as committed to the appearance property version of the Representational Thesis.

(RT2) Representational Thesis for Appearance Properties:

The phenomenal character (or content) of color experiences is one and the same as the representational content of the appearance properties, rather than of the physical properties of colors.

4.1.2 Objections to Occurrent Appearance Properties

We have seen that Shoemaker's theory of phenomenal character consists of the principle of appearance property and the appearance property version of the Representational Thesis. In this section I am going to discuss three different objections to the Principle of Appearance Property (AP1), all proposed by Tye.

4.1.2.1 Tye's First Objection: Colors Are Not Seen

As we just saw in the last section, according to Shoemaker, when a normal person is looking at a red object under normal conditions, his visual experiences of colors represent two different properties at the same time. One is the property of being red and the other is the property of appearing red (or the property of being actually causing a visual experience with the red qualitative property.) This raises a question: what do we see when we are looking at a red object? Do we see the color property of being red, the property of appearing red or both?

Since, according to Shoemaker, the phenomenal character is just the phenomenal content and the phenomenal content is determined by the representational content of appearance properties, he must say that one is seeing the appearance property when one is looking at a red object. But does one also see the red physical property at the same time? If seeing something, *x*, as F is just visually representing *x* as having property F, it is natural to answer yes, since both properties are represented by the relevant visual experience.

Tye points out that when one looks at a tomato one doesn't see two different properties on the surface of the tomato. If so, Shoemaker must claim that what one

directly sees is the appearance property of appearing red and one sees the physical property of redness by seeing the red appearance property. If so, Shoemaker's theory implies that colors are not basically seen, since to make the distinction between colors and appearance properties, we must draw a veil over the colors. Tye claims "draw[ing] this veil is tantamount to erecting an appearance/reality distinction for the colors themselves. … And once the distinction is made, … Our direct assess is just to the qualities on our side of the veil. The rest lies beyond our direct consciousness" (2000a, p.103). Tye claims that this is counterintuitive and gives the following reason.

> In general, we see things by seeing their facing surfaces, and we see facing surfaces by seeing their color. Intuitively, there is no more basic level of seeing than the seeing of colors… Shoemaker is committed to deny this. In his view, since Jack sees the redness of the surface of the tomato by seeing another property not itself a color at all… colors are not basically seen. (2000a, p.101)

Shoemaker denies this charge and says,

> [A]n object's having a phenomenal color property just is its looking a certain way to certain perceivers in virtue of having a certain color, and this normally amounts to the color of the object presenting itself in one of the ways it can present itself. … So, it is quite wrong to say, as Tye does, that on this view the colors are not basically seen. (2000, p.466)[79]

Shoemaker's above claim can be cashed out by the case of shifted spectra. The pure green color appears different ways, or presents itself in different ways, to different perceivers. Some see it as slightly on the blue side while others see it slightly on the yellow side. Obviously, subjects with normal vision see the color, pure green, but they see it differently, which is why some say it looks bluish, some say it looks yellowish. Assuming the subjects are not misperceiving, an explanation of the differences among

[79] Shoemaker, Sydney. (2000). "Phenomenal Character Revisited." *Philosophy and Phenomenological Research*, Vol. LX, No.2.

their visual experiences seems to be: the pure green color presents itself differently to the perceivers or the perceivers see the pure green color in different ways.

Once we accept the phenomenon of shifted spectra as empirical evidence for the distinction between intentional and phenomenal content, we can rule out Tye's epistemological objection as irrelevant. We derive the existence of appearance color properties from the empirical evidence, rather than from epistemological reasons.

The other problem with Tye's objection is that his claim that the seeing of colors is the most basic level of seeing is not coherent with the phenomenon of color constancy. When one sees a homogenously red table, part of it may be in the shade and part of it fully illuminated, and one's visual experiences of these two parts will be phenomenally different, but the table will still look to be the same color across its entire surface. It seems natural for us to interpret this phenomenon as: one sees the red color by seeing the different appearance properties of it. This implies that seeing of colors is not the most basic level of seeing, since seeing of the appearance properties of color may be more basic than it, or at least at the same level as seeing color. If so, Tye's claim that there is no more basic level of seeing than the seeing of color contradicts the phenomenon of color constancy.

If the seeing of color is not the most basic level of seeing, there is no reason to accept Tye's interpretation of Shoemaker's theory as implying that colors are only seen by means of seeing the appearance property. In the case of color constancy, subjects claim to see both sensed color (i.e., appearance color) and surface color (i.e., physical color), as discussed in Chapter one. We can therefore dismiss his conclusion that Shoemaker's theory implies colors are not basically seen.

Even though Tye's above objection to Shoemaker's theory of phenomenal content fails, he points out an important point: phenomenally, we don't see two different kinds of properties out there when we see color. Given this, one might wonder if one really sees colors at all, given that phenomenal content is determined by appearance properties and that when one introspects the only thing which one is aware of is the phenomenal content. We have good reason to suspect that we do see the color, since in both phenomenal and introspective aspects, colors don't seem to play any role in our awareness of colored objects. It might turn out that the only kind of property we are aware of in a color experience is the appearance property. My concern is not so much about the epistemological issue that Shoemaker's theory of phenomenal content implies that we cannot see color directly. I am more worried about the phenomenological and introspective issues: it implies that we can only see phenomenally and have access introspectively to appearance properties, when we look at colored objects. Shoemaker doesn't seem to offer any reason to smooth this concern.

It might seem that Shoemaker tries to answer this line of objection when he explains the reason he avoids the subjectivist's view about phenomenal content.[80] However, the objection I raise is not that Shoemaker is committed to the subjective view of phenomenal content. The objection is only that, in Shoemaker's view, it might turn out that the only property we see when we look at a red object is the property of appearing red, which can be an objective property.

[80] Shoemaker, Sydney. (2001). "Introspection and Phenomenal Character." In *Philosophy of Mind.* (Ed.) David Chalmers. New York and Oxford: Oxford University Press (2002).

4.1.2.2 Tye's Second Objection: A Counter Example

Now, let's take a look at the objections to (AP1). Shoemaker's argument for appearance properties assumes both perceivers, Jack and Jill, are not misperceiving, when they are looking at the same colored object that is causing different experiences in them under normal lighting conditions. If a red object is causing Jack an experience with a red qualitative property and Jill an experience with a green qualitative property, Jack's experience must, under normal lighting conditions, represent the red appearance property and Jill's experience must be caused by a green appearance property. This implies that whenever a person has an experience e with a qualitative property Q that is caused by a colored object a, then, e must represent a as having the appearance property P. That is, whenever e has Qa, it represents a as having Pa, whenever e has Qb, it represents a as having Pb, … and so on. Since Pi is constitutively determined by Qi, it is impossible for an object to cause in a person an experience with Qi without the appearance property Pi. Hence one's visual experience would never misrepresent the relevant appearance property of the colored object, except in the case of hallucination, in which one has an experience with Qi that is not caused by any object.

This consequence of Shoemaker's theory—under normal lighting conditions, whenever an object is occurrently causing a normal perceiver an experience of color with Qi, it represents the object as having Pi—leads Brad Thompson to claim that this is the biggest problem with this proposal, since "[i]t follows that color experience cannot misrepresent with regard to their phenomenal content, at least with respect to color content" (2007, p.314).[81]

[81] Thompson, Brad. (2007). "Shoemaker on Phenomenal Content." *Philosophical Studies, Vol. 135.*

It is not clear what kind of misrepresentation Thompson has in mind, since he doesn't propose any. But this doesn't matter, since Shoemaker's principle of appearance property does leave room for misperception, as will become clear in the course of the answer to the next objection.

Tye proposes a counter example in which an object is causing a perceiver to have an experience with a particular qualitative property Qi, but where we wouldn't say that the object has the relevant appearance property Pi. Tye's example follows.

> Suppose that the lighting conditions are very strange and the ripe tomato looks bright purple to me. Suppose also that there are no cases of spectrum inversion. Then intuitively the tomato does not have the quality it is directly experienced as having. But it does have the quality of currently causing Q', which Q' is an intrinsic quality of my present visual experience. (2000a, p.102)

The first problem with Tye's example is that the lighting conditions in his story are not normal lighting conditions. The second problem is that (AP1) is not derived from the inverted spectrum case. If so, Tye has failed to propose a counter example to (AP1).

In fact, Tye's story is a case of misrepresentation or misperceiving, rather than a counter example. Since under normal lighting conditions, a perceiver with normal vision would have seen the ripe tomato as appearing red, but due to the strange lighting condition, the ripe tomato was in fact causing him to have an visual experience with a bright purple qualitative property that represents the ripe tomato as having the bright purple appearance property, it is a case of misrepresentation.[82] If so, we can also rule out Thompson's claim that Shoemaker's theory implies that color experiences cannot misrepresent.

[82] Shoemaker explains misrepresentation as follows. "If in normal circumstances the person perceives the members of a certain class of reflectances as a unique blue, and owing to unusual illumination she perceives a member of this class as (say) green, then her sensory experience represents it as having both a phenomenal property and a color that it does not have." (See Shoemaker, Sydney. (2000), p.466.).

4.1.2.3 Tye's Third Objection: the Concept of Appearance Property is Counter Intuitive

Tye has another objection, that to accept (AP1) is to accept that "those qualities cannot be instantiated by objects at times at which the objects are not seen" (2000b, p.101) and that is not acceptable. Shoemaker agrees with Tye and, in his (2000) paper,[83] he modifies his theory as claiming that appearance properties are dispositional properties, a position I will discuss in the following section.

4.2 Dispositional Appearance Properties as Phenomenal Content

4.2.1 Shoemaker's Proposal

In response to Tye's objection to his first theory of phenomenal content (AP1), which claims that phenomenal content is an occurrent appearance property, Shoemaker proposes that appearance properties are dispositional properties. He says;

> Each phenomenal property could be defined, not as a disposition to produce a certain sort of experience in all visual perceivers, and not as a disposition to produce such experiences in visual perceivers having a visual system with a certain makeup, but as a disposition to produce such experiences in creatures with visual systems of one or more sorts. This permits creatures with different visual systems to perceive the same phenomenal properties. And it permits objects to have phenomenal properties at times when they are not observed. (2000, p.467)

As we see, the only variable which Shoemaker considers in this case is the visual system. Hence, the issue of how to individuate appearance properties is about how to group the visual systems so that the relevant appearance property can cause the same kind of

[83] Shoemaker, Sydney. (2000). "Phenomenal Character Revisited." *Philosophy and Phenomenological Research*, Vol. LX, No. 2.

qualitative properties only in the subjects with the visual systems in each group. Let's formalize this claim as follows.

> **(AP2) <u>The principle of appearance property</u>:**
>
> An object x has the appearance property P, iff, x has the disposition to cause an experience with a certain qualitative property, Q, in creatures with visual systems of one or more sorts in normal lighting conditions and the perceiver is not misperceiving.

4.2.2 Objections to (AP2)

Tye understands Shoemaker as claiming that "phenomenal character is the disposition to produce an experience with a certain intrinsic quality in normal lighting conditions in any creature having a visual system capable of producing experiences with that intrinsic quality" (2000a, p.102). Then, he argues that, according to this proposal, both Jack and Jill's experiences of looking at a red tomato cannot be veridical at the same time. Tye says,

> On the new proposal, the phenomenal character of Jack's visual experience is the disposition to produce Q1 [appearance property of redness] in any creature having a visual system capable of producing Q1. Unfortunately, that makes Jack's experience inaccurate. Since the tomato is not disposed to produce Q1 in Jill in good light even though Jill's visual system is capable of producing Q1…. (2000a, p.102)

For Tye's objection to work, either he understands Shoemaker's phrase "creatures with visual system of one or more sort" as a conjunction of all creatures with a visual system that can produce a particular qualitative property, or he assumes that every object has only one appearance property. If the former, then the appearance property is the disposition to cause the same qualitative property in both Jack and Jill when they see the

red tomato, and since Jill's experience doesn't have the same qualitative property as Jack, the appearance property falsifies Jack's experience. If the latter, the appearance property of the object cannot cause in Jack and Jill different qualitative properties, hence they cannot be both seeing veridically when they look at the red tomato but have different qualitative properties.

Given the inverted spectrum and the claim that neither Jack nor Jill are misperceiving the appearance properties when they see the red tomato, it is more reasonable for us to interpret Shoemaker's phrase in a disjunctive sense and to take Shoemaker to hold the view that an colored object has multi-dispositional appearance properties of color. To illustrate, for any color, c, and for any creature, xi, with different visual systems, c has the disjunctive dispositional appearance property of "appearing c1 or c2, …, or cn" iff c can cause c1 in creature x1, c2 in x2, …cn in xn, under normal viewing conditions and without misperception. For example, a red object has the disjunctive appearance property of "appearing red or green", since a red object causes in Jack a visual experience with a red qualitative property but with a green qualitative property in Jill, under normal viewing conditions and without misrepresentation.

The disjunctive interpretation implies that the appearance property of redness is the disposition to produce a red qualitative property in the experiences of whatever creature with a visual system that is capable of producing a red qualitative property. If so, both Jack and Jill's visual experience of seeing the red tomato can still be veridical, even if Jill does not have an experience with a red qualitative property when she sees the red tomato in normal lighting condition. For consider, if the red tomato has the disposition to cause an experience with a red qualitative property in Jack but also a disposition to cause

an experience with a green qualitative property in Jill under the same viewing condition, this means that the red tomato has more than one dispositional appearance property. Therefore, Tye's objection fails.

To sum up, according to Shoemaker, the appearance property of redness is the disposition to cause an experience with a red qualitative property in any creature with a visual system capable of producing a red qualitative property in normal lighting conditions, and an object with a particular color can have multi-dispositional appearance properties. For example, given the inverted spectrum, both a red tomato and a green leaf have appearance properties of appearing red and appearing green. The red tomato has the disposition to cause an experience with red qualitative property in Jack but has a different disposition to cause in Jill an experience with green qualitative property, while the green leaf has the opposite dispositions. Of course both red tomato and green leaf have other dispositions to cause in other perceivers experiences with different qualitative properties.

There are still some problems faced by this way of typing the dispositional appearance properties by means of the visual systems in (AP2). It seems that there is no principled way of characterizing the dispositional appearance property (Chalmers, 2004, p.170[84] and Thompson, 2007). Thompson argues that, on the one hand, if we take the disjunction to cover all possible visual systems, it makes misperception impossible; on the other hand, if we take the disjunction to be limited, it will make it difficult for different visual systems to share content (2007, p.321). I am going to argue that both Thompson's arguments fail.

[84] Chalmers, David. (2004). "The Representational Character of Experience." In *The Future for Philosophy.* (Ed.) Brain Leiter. Oxford: Oxford University Press, (2004).

Thompson's first argument—the proposal that the appearance property P is determined by the disjunction of all possible visual systems of one or more sort (i.e., the visual systems that are capable of producing a red qualitative property) makes misperception impossible—is as follows. Assuming that Jack and Jill's color experiences are inverted relative to each other and that Jill sees a lime on a particular occasion and has an experience with a green qualitative property as Jack does. Thompson claims that, on this proposal, Jill's experience is veridical, i.e., Jill will be representing the lime as having a property that it actually has, because the lime does have the disposition of causing the experience with a green qualitative property in a subject with a visual system of one or more sorts. Among those sorts is the sort of Jill's visual system. But the lime doesn't appear to Jill the same way green things normally appear to her, so it should be counted as a misperception (2007, p.320).

It is not clear why Jill's experience in Thompson's story should be taken as a veridical experience. According to Shoemaker's analysis, Jill's veridical experience of a green lime should cause in her experience a qualitative property of redness in normal lighting conditions (assuming Jack and Jill's color experiences are inverted), hence, if a lime appears green to her it should be counted as misperception. Since Jill's experience of green limes in normal lighting conditions doesn't track the disposition of causing a green qualitative property in her, but rather the disposition of causing a red qualitative property, it is wrong to count Jill's experience at issue as veridical.

Let's go to Thompson's second argument now. Thompson argues that,

> Inverted spectrum cases make it clear that the disjunction must be restrictive enough to exclude inverts. That is, Jill's color experiences cannot be made veridical by the fact that Jack would have an experience of the same phenomenal character under the same perceptual circumstances. But in excluding inverts, we

> have already abandoned the idea that Jack and Jill can share phenomenal content. (2007, p.321)

First, it should be obvious that the premise is wrong. We have seen, from my earlier answer to Tye's objection, that the case of inverted spectrum is compatible with the disjunction that covers both Jack and Jill, whose color experiences are inverted to each other. Second, Jill's color experience can be made veridical by Jack's experience with the same qualitative property under the same sensory circumstances; however, not by the same colored object, but rather by objects with complementary appearance properties. Therefore, there is no obstacle to Jack and Jill sharing the same phenomenal content at all. The second argument fails.

What (AP2) does imply is that the phenomenal content of color experiences is determined (at least, partly) internally rather than externally. Jack and Jill can have experiences that represent the object as having the same dispositional appearance property of causing in them the qualitative property of redness respectively, when they look at the objects with complementary colors, red and green, respectively in normal lighting conditions. The phenomenal contents of experiences are determined internally and therefore, they are narrow content. That is why experiences with the same phenomenal content can be caused by different external colored objects and the same colored object can cause the experiences with different phenomenal content in subjects with different visual systems.

It seems that both Tye and Thompson hold (or understand Shoemaker as claiming) that the phenomenal contents of experiences must be determined externally, i.e., by what they represent—appearance properties, hence, the phenomenal contents must be wide rather than narrow. That is why they claim that when both Jack and Jill

perceive the limes as appearing green, both their experiences must be counted as veridical. However, according to Shoemaker, in both the intrasubjective and intersubjective cases of individuating phenomenal content, the phenomenal contents are determined internally and, therefore, are narrow. If so, both Tye and Thompson's objections are question-begging (or unsound).

In the intersubjective case, (that is, comparing the phenomenal content across persons) according to Shoemaker, whether the experiences of different subjects are the same or not is determined by whether or not they have the same kind of physical realizers, i.e., whether the content locally supervenes on their physical realizers. Only when the subjects have the same kind of physical realizers, can we compare the phenomenal contents (or qualitative properties) of their experiences to each other. Adding this constraint on physical bases to creatures with different visual systems, we can unpack the phrase "creatures with visual systems of one or more sorts" in Shoemaker's proposal (AP2) as "creatures with visual systems that are capable of producing the same qualitative property with the same kind of physical realizers." Since both Jack and Jill are normal human beings with the same kind of physical systems or neural structures, we can compare their experiences as having the same or different qualitative properties intersubjectively (i.e., across persons). There is no problem about sharing phenomenal content between them in the proposal (AP2).

All the objections against (AP2) that have been discussed so far are about the intersubjective case. Thompson also proposes an objection based on an intrasubjective case. The basic motivation behind Shoemaker's proposing the principles of appearance property is to explain the phenomenon of the inverted spectrum (IS). The IS story

assumes, in the intrasubjective case, that the same colored object appears to Jill differently before and after going through the inversion under normal lighting conditions and without misperceiving. Adding the Representational Thesis for appearance property (RT2), it follows that: if a red colored ball looks red (or green) phenomenally to Jill under normal lighting condition and without misperception, this ball has the red (or green) appearance property.

In the case of color constancy, the phenomenon is that a colored object looks (phenomenally) different to the subject under different lighting conditions but the subject will still judge that the object has the same color all over. Or again, two differently colored objects could look (phenomenally) the same under different lighting conditions. It is the second situation, according to Thompson, that causes a problem for Shoemaker's proposal. Assume there are two differently colored objects in Jill's visual field appearing the same to her under different lighting conditions: say, a grey paper under a bright light and a white paper in the shade. In this kind of situation, it seems, there is no reason to say that Jill is misperceiving the appearance property of either paper and no reason to deny that the phenomenal character of seeing the gray paper in bright light is the same as actually seeing the white paper in the shade. But, in his intrasubjective case, Thompson claims that, according to Shoemaker's proposal, they cannot have the same kind of appearance properties.

Thompson's argument is as follows:

> Shoemaker's dispositional appearance properties are individuated in part in terms of perceptual conditions, such as lighting and the position of the subject relative to the object. But the lighting conditions are different in these two experiences, and so it is not possible for them to both be veridical representations of the same dispositional appearance property. (2007, p.316)

Is it true that Shoemaker builds the lighting conditions into the definition of appearance properties? It is not true. According to Shoemaker, the phenomenal content of experiences may vary with the viewing conditions—the lighting conditions and the subject's relation to the object, but that doesn't imply the viewing conditions are built into the individuation of phenomenal content. Only when we also assume that phenomenal content must be individuated externally does Thompson's argument succeed. If phenomenal content is determined externally and the viewing conditions are built in, whenever the external conditions change, then the relevant phenomenal contents change. But, according to Shoemaker, the phenomenal content of experiences is not individuated externally, it is determined internally (functionally) in the intrasubjective case (2001, p.467-469). Hence, Thompson's objection about the intrasubjective case fails too.

4.2.3 Phenomenal Character and Dispositional Appearance Property

According to Shoemaker, every colored object has multi-dispositional appearance properties that can cause different kinds of qualitative properties in the experiences of different subjects and many differently colored objects have the same kind of disposition to cause the same kind of qualitative properties in different subjects. For example, in the shifted spectra case, a pure green object has dispositions to cause experiences with different qualitative properties in different subjects. Green colored objects with bluish or yellowish shade may be judged to have the pure green appearance property by different subjects.

Now, assuming that a subject is looking at a green object and having an experience with a pure green qualitative property, (or he judges the object is appearing

pure green to him,) how could he know which dispositional appearance property his current experience is representing—the pure green, the bluish green or the yellowish green appearance property? If the subject cannot tell which dispositional appearance property his experience is representing, there is no fact of the matter in saying that the subject's experience represents a particular dispositional appearance property.[85] It is this reason that forces Shoemaker to give up the proposal (AP2) and move to the next proposal.

4.3 Higher-order Dispositional Appearance Properties as Phenomenal Content

4.3.1 Shoemaker's Argument

To avoid the problem that the occurrent appearance properties won't exist when there is nobody looking at them and the problem that our experiences cannot tell us which dispositional appearance properties they represent on a particular occasion, Shoemaker proposes a new version of phenomenal content. At the first attempt, he claims that since the occurrent appearance properties are the manifestations of some relevant dispositional appearance properties of color experiences, the phenomenal content of a color experience also represents the relevant dispositional appearance property, which is "the property of being apt to produce experiences of a certain sort in some kinds of observers when those observers are related to it in a certain way" (2001, p.460).

Shoemaker's reason for claiming this lies in his notion of the veridicality of sensory experience. He says,

[85] My argument here relies on Shoemaker's own objection to the dispositional appearance property (See, Shoemaker (2001), p.462), as will be discussed in the next section.

> [F]or an experience of a thing to be veridical, the way the thing appears must be such that a thing's appearing that way to an observer of that sort in those circumstances would not count as misperception. (2001, p.462)

Shoemaker adds, "this amounts to saying that the thing must have a dispositional appearance property of a certain sort" (2001, p.462). I guess the reason is: for an experience to represent an object as having an occurrent appearance property veridically, the object must have the disposition to cause the perceivers to have an experience with the relevant qualitative property, i.e., the relevant dispositional appearance property. If the subject's experience represents an occurrent appearance property that causes in the subject an experience with a certain qualitative property, which the object doesn't have the disposition to cause, it would be a case of misperceiving. Therefore, for an experience to represent veridically an object as having an occurrent appearance property, the object must also have the relevant dispositional appearance property. Shoemaker concludes that a veridical experience must represent the instantiation of both kinds of properties.

Shoemaker points out a problem with the attempt to identify the phenomenal character with both the occurrent and dispositional appearance properties.

> When something has the occurrent appearance property of appearing F, there will be any number of different dispositional appearance properties of which this could be the manifestation, and the nature of the experience will not in general indicate of which of these it is in fact the manifestation…. So the experience will not put the observer in a position to judge that the observed thing has any specific dispositional appearance property—and it seems a reason for saying that it does not represent any such property. (2001, p.462)

He then proposes to identify the phenomenal character as representing both occurrent and higher-order dispositional appearance properties.

> [F]or any way a thing can appear, there will be the higher order property shared by all things that are disposed, under some circumstances or other, to appear that way to normal observers of one or more sorts situated in one or another way with respect to them. This will be the higher order property of having one or another of

> the dispositional appearance properties which can manifest themselves in an instantiation of a given occurrent appearance property, and will be a property that a perceived thing will have just in case it has that occurrent appearance property. Call this a higher-order dispositional appearance property… There seems a good case for saying that such properties are represented by experiences. (2001, p.462-463)

We can say the revised view of appearance properties that includes both occurrent and higher-order dispositional properties is committed to (AP3).

> **(AP3) <u>The principle of appearance property</u>:**
>
> An object x has the appearance property P, if x is actually causing, and has one of the many dispositions of being apt to cause, (i.e., has the higher order disposition to cause) an experience with a certain qualitative property, Q, in normal observers of one or more sorts under normal lighting conditions, and the perceiver is not misperceiving.

This version of appearance properties avoids the problem faced by (AP1), that is: the object won't have the relevant appearance property when there is no observer currently looking at it. In this new version, when there is no one currently looking at the object, the object still has the higher-order dispositional property. If there were normal observers of one or more sorts looking at it, the object would cause the relevant experiences in these observers. It also avoids the difficulty which (AP2) faces, since any object with the occurrent property of actually appearing red to a normal subject must also have the higher-order disposition to cause an experience with a red qualitative property in the subject.

4.3.2 Objections to Higher-order Dispositional Appearance Properties

Both Chalmers (2004, p.170) and Thompson claim that the identification of phenomenal content with the higher-order dispositional properties makes illusory representation impossible. Thompson says, "[t]he content on this view is so "loose" that it makes illusory perception virtually impossible," because, he continues, "[i]f something appears some way or other, it is bound to be true that the object which is causing that appearance is disposed to appear that way to *someone* under *some conditions*" (2007, p.323).

I understand Thompson as saying that whenever an object is currently causing an observer an experience that represents a certain occurrent appearance property, the object must have the higher-order disposition to cause that kind of experience in someone under some conditions. For example, whenever an object is appearing red to an observer, it must have the higher-order disposition of appearing red to someone under some conditions. If so, it is impossible for one to perceive the occurrent appearance property without perceiving the relevant dispositional appearance property. Does this imply the impossibility of misrepresentation with respect to appearance properties?

The first problem with Thompson's objection is that he understands Shoemaker as claiming that experiences only represent the higher-order dispositional appearance properties, which seems wrong. Appearance properties can be either occurrent or higher-order dispositional properties, since an object can have the disposition to cause in some individuals a certain experience with a certain qualitative property even if there is no one looking at it right now. But it seems impossible for an experience to represent only the higher-order dispositional appearance property without representing the occurrent

appearance property, because whenever the subject has an experience of something appearing red in normal lighting conditions he must have an experience with a red qualitative property that represents the occurrent appearance property. If his experience is veridical, the object must also have the relevant higher-order dispositional appearance property. That is, whenever we are experiencing something, our experiences must represent some occurrent appearance property. I believe (AP3) is more likely what Shoemaker claims when he appeals to the higher-order dispositional appearance properties.

According to (AP3), for a normal observer of one sort or another to veridically represent the object as having certain appearance properties under normal conditions, his experience must represent both the occurrent appearance properties and the relevant higher-order dispositional appearance properties of causing someone to have an experience with the occurrent appearance properties. If so, there is room for misrepresentation. For example, an observer might perceive a white object as appearing red under abnormal conditions, say, under red lighting conditions. The observer represents the object as having both the occurrent appearance property of appearing red and the higher order dispositional property of appearing red to someone under some conditions. The observer's experiences might represent correctly the object as having the higher-order dispositional property of appearing red under some conditions, but he misrepresents the object as having the occurrent appearance property of appearing red. The lighting condition is not normal. Hence, there is room for misrepresentation in Shoemaker's new version of appearance property.

Thompson proposes an example to support his objection. He says,

> [S]uppose that due to temporary disruption of the normal functioning of my visual system, I have a green experience when looking at a red fire hydrant. This is an experience that ought to be considered a case of misrepresentation. But if the content of this experience is that the object that is causing the experience is disposed to appear that way to someone under some conditions, the experience is veridical. The fire hydrant is disposed to cause a greenish experience in my spectrum inverted twin under a wide variety of conditions. (2007, p.323)

Thompson is right in claiming that this is a case of misrepresentation but is wrong in claiming that, according to Shoemaker's proposal (AP3), it is a veridical case. As I have mentioned, according to (AP3), experiences represent both occurrent and higher-order dispositional appearance properties. Even if Thompson's experience correctly represents the object as having the higher-order dispositional appearance property of causing a green experience in someone under some conditions, he misrepresents the object as having the occurrent appearance properties of causing in him an experience with green qualitative property. The fire hydrant will appear red to him if his visual system functions normally. Therefore, according to Shoemaker's revised version of appearance property, Thompson's case is a case of misrepresentation.

4.3.3 Dispositional Appearance Property and the Transparency Principle

My first objection to (AP3) is that it is not phenomenally proper. Shoemaker's proposal can explain the phenomenon of color constancy and overrule Tye's objection that, on Shoemaker's analysis, color are basically not seen, since we can see both the occurrent appearance property and the color of the object in the case of a table under different lighting conditions. However, after adding the higher-order dispositional appearance properties to the phenomenal content, the story is totally different. It is not

phenomenally proper to claim that experiences represent two different kinds of appearance property.

When we look at a red object, it seems that, phenomenally, the red object only presents one appearance property to us—that is, the occurrent appearance property. There is only one appearance property out there when we are looking at the colored object, even though we sometimes do perceive the same colored object in different illuminations in different ways. Shoemaker might answer that phenomenal intuition is not always a proper guide to what is represented in experiences; for example, the appearance properties are relational but our experiences doesn't represent them as relational. However, this kind of answer will get him into trouble, which will be discussed in connection with Thau's objection later.

The real difficulty with the higher-order dispositional appearance property is that it is not compatible with the transparency principle, which is one of the major motivations of Shoemaker's representational theory of phenomenal content. The transparency principle says that when the subject is looking at a red object and introspects his color experience, what is accessed is the phenomenal content of color experience. That is, we access both the occurrent and higher-order dispositional appearance properties according to the proposal (AP3). However, intuitively, when we direct our introspection to our current color experiences, nothing is accessed other than the occurrent appearance properties of the perceived color properties, since it is what is actually causing in us the visual experience when we look at a colored object. We never have access, introspectively, to higher-order dispositional appearance properties. For example, when one introspects, what one is aware of is that the red object is appearing

red to one, or that the red object is appearing green to one, but never that the object has the higher-order disposition of being apt to cause in one an experience with a red qualitative property in normal viewing conditions, or that the object has the higher-order disposition of being apt to cause in one an experience with a green qualitative property.

If the phenomenal character is one and the same as the phenomenal content, i.e., the appearance properties, and the phenomenal content is what is accessible when one introspects, the higher-order dispositional property cannot be one component of phenomenal content. Therefore, (AP3) fails to characterize the phenomenal character.

4.4 Qualitative Character as Phenomenal Content

4.4.1 Shoemaker's Argument For the Qualitative Character

Shoemaker is aware that his theories of appearance property seem odd to some philosophers. This is because, according to his theories, when one looks at a red colored object, one sees two or more different properties, the physical and the appearance properties—which, in turn, include the occurrent and dispositional appearance properties. Phenomenally, when we look at a red colored object, we see only one property, even if we perceive it as appearing different ways to us under different lighting conditions. Moreover, we normally perceive the property and the different ways it appears to us as being "out there", i.e., as belonging to the physical object. In order to meet these two intuitions, Shoemaker proposes a new version of phenomenal content.

In his newest theory of phenomenal content, Shoemaker suggests that the phenomenal contents of color experiences are the "qualitative characters" of colors, which are "aspects of color properties," rather than some sorts of properties that are

independent of color properties. Qualitative characters are the ways the colors appear to perceivers and, since they are "aspects of color properties", they are what, rather than how, color experiences represent (2006, p.474).[86] Every color has a variety of qualitative characters, which vary with different kinds of visual systems and with different viewing conditions. When a normal human being sees the color red, he represents that same red color property as having different qualitative characters under different lighting conditions. He may also see different colors under different lighting conditions as having the same qualitative character. When different perceivers, say, Jack and Jill, with different visual systems, look at the same redness under the same lighting condition, they may represent it as having different qualitative characters. When looking at different color properties under the same viewing condition, they may represent it as having the same qualitative characters, i.e., different color may share the same qualitative characters.

We can therefore see that, according to Shoemaker's newest theory of phenomenal content, when a perceiver sees a red colored object, his experience represents it as having certain aspects (or qualitative characters) of the red color property, which is the phenomenal content of his experience. If the perceiver perceives the red color properties veridically, the red color of the object has the aspect or qualitative character the perceiver represents it as having. Let's call the principle this theory is committed to "the principle of qualitative character" and formulate it as follows.

[86] Shoemaker, Sydney. (2006). "On the Way Things Appear." In *Perceptual Experience.* (Eds.) Tamar Szabo Gendler and John Hawthorne. Oxford: Clarendon Press (2006).

The principle of qualitative character:

> The color property of an object x has the qualitative character Q, if and only if, some perceiver with a certain visual system veridically perceives this color property as presenting Q to him, (or, represents veridically this color property as having Q), under certain viewing conditions.

This view of phenomenal content seems to accommodate both the IS case and the phenomenon of color constancy, and also meets the intuitions mentioned earlier—when one sees a red object, one sees only one property "out there" with respect to color. A colored object presents its color property to perceivers with different visual systems, or to the same perceivers under different viewing conditions, by means of different aspects of its color properties. Color properties are the only kind of properties seen in color perceptions, even though perceivers, whether with different visual systems or not, perceive these colors through different aspects of these colors.

4.4.2 Arguments Against Qualitative Characters as Phenomenal Content

4.4.2.1 Thompson's Objections

Thompson proposes two objections to Shoemaker's newest theory of phenomenal content, which are similar to his objections to the principle of appearance property. His first objection to the principle of qualitative character is a counter example.

> Suppose that Jack looks at Jill's lime but, due to a malfunctioning of his visual system, he has an experience with the same phenomenal character that Jill normally has. This experience ought to count as a misperception. But in Shoemaker's new version, the experience's phenomenal content is veridical. For in order to accommodate spectrum inversion without illusion, Shoemaker holds that the greenness of the lime actually has the qualitative character Jack is

> experiencing it as having. That is what makes Jill's experience veridical. (2007, p.326)

I disagree with Thompson's claim that Jack's case is counted as veridical according to Shoemaker's new theory. After the malfunction of Jack's original visual system, there are two different situations to be considered. First, Jack's visual system becomes the same as Jill's; secondly, Jack's visual system still differs from Jill's. Assume that they see the lime in the same viewing conditions. If the case is of the first type, then Jack's experience represents the qualitative character of the lime's color veridically, since his visual system is the same as Jill's and therefore should represent the lime's color as having the same qualitative character as Jill's visual system. If so, there is no inverted spectrum happening here and we can rule out the case as irrelevant. If the case is the second kind, in which Jack's visual system differs from Jill's, then Jack misrepresents the qualitative character of the lime's color. But, according to Shoemaker's theory, Jack's experience misrepresents the qualitative character of the lime's color too, since the qualitative characters the perceivers represent the lime's color as having in fact vary from one visual system to another. If Jack and Jill have different kinds of visual systems, they are supposed to represent the lime's color as having different qualitative characters. Hence both situations count against Thompson's counter example.

I think the basic mistake in Thompson's argument is that he falsely derives the conclusion that Jack's experience is veridical from the premises that Jack's experience represents the lime's color as having the same qualitative character that Jill's experience represents and that Jill's experience represents the qualitative character of the lime's color veridically. However, a qualitative character of a color that when represented counts as a given visual system representing veridically may not be sufficient to make a

different visual system represent it veridically. The principle behind Thompson's mistake is that if a qualitative character, Q, of a color makes a visual system veridical, it makes all visual systems that perceive the color as having Q veridical. This principle plays a core part in Thompson's second objection.

Thompson's second objection is that Shoemaker's new theory makes it difficult to misperceive at the level of phenomenal content. His reason is as follows.

> Given the indefinitely large number of possible visual systems different from our own, for any ostensibly mistaken color experience one might have, there may be a creature who ordinarily has an experience like that in response to the relevant external properties. It follows that the experience, despite being atypical for the perceiver, will count as a veridical perception. (2007, p.326)

The reason why it is difficult to misrepresent at the level of phenomenal content is that for any color there are as many types of visual systems or viewing conditions as there are qualitative characters, so, no matter which qualitative character one perceives a color as having, the color would seem to have a qualitative character that would be present to a certain visual system or would be perceived in a certain viewing condition. If a qualitative character Q of a color that makes a visual system veridical makes all visual systems that perceive the color as having Q veridical, it seems impossible for one to misrepresent the qualitative characters of a color. As Thompson worried in the quoted paragraph even when one is actually misperceiving a color as having a certain qualitative character, there may be a visual system representing the color as having that qualitative character.

However, allow me to repeat, Thompson's worry builds on the false idea that a qualitative character, Q, of a color that makes a visual system veridical makes all visual systems that perceive the color as having Q veridical.

The color red has multiple qualitative characters, R1, R2, …. Rn, but it is not the case that whenever one's experience represents red as having one of the qualitative characters, Ri, one's experience is veridical. For example, assume that one's visual system is malfunctioning, or doesn't have the function of representing red as having Ri; then, when one represents red as having Ri, one's visual system is misrepresenting, even though red does present Ri to other visual systems. Therefore, it is wrong to say that Shoemaker's new theory doesn't allow for (or makes it extremely difficult to have) misperception at the level of phenomenal content.

4.4.2.2 Qualitative Character and Inverted Spectrum

One of the motivations behind Shoemaker's positing the notion of appearance property or qualitative character is to explain the case of the inverted spectrum. This is the case in which, when Jack and Jill look at the same red object, Jack might perceive it as appearing red while Jill might perceive it as appearing green. However, as Shoemaker points out, when we look at a red object there is only one property we perceive as out there, hence, it seems counter intuitive to say that color experiences represent the perceived object as having two different color related properties, the appearance property and the physical property. This is also a major reason why he proposes the notion of qualitative character, which is an aspect of color properties rather than a different property from color property.

According to the principle of qualitative character, when we look at a red colored object under certain viewing conditions what we perceive is a certain aspect of the red property. We don't perceive the red object as having two different properties, but rather

we perceive the redness by means of perceiving one aspect of it under certain viewing conditions. For example, when Jack looks at a red object, he might perceive it as bluish, or as purple, under certain viewing conditions but perceive it as a yellowish, or orange, under different viewing conditions.

However, the notion of qualitative character faces a problem that is not faced by the notion of appearance property. Given both that the inverted spectrum case is possible and the existence of appearance properties, there is no problem saying that Jack and Jill perceive inverted appearance properties when they look at the same color property, or that Jill perceives inverted appearance properties before and after the inversion. Shoemaker believes we can say the same thing about the qualitative characters. He says,

> A color will have different qualitative characters corresponding to the different ways it can look (without being misperceived) in different viewing conditions, and also different qualitative characters corresponding to the different ways it can look to different observers owing to differences in their perceptual systems. The set of qualitative characters possessed by different colors will overlap; this is what makes possible spectrum inversion…. (2006, p.474)

But Shoemaker is wrong; we cannot say the same thing about the qualitative character, because the notion of qualitative character is not compatible with the possibility of inverted spectrum.

In the normal case, when one looks at a red object under different viewing conditions, one sees it either as on the blue side or on the yellow side, on the dark side or on the bright side. That is what happens in the case of color constancy; we perceive the same colored object under different lighting conditions as having the same color, even though it looks different phenomenally under different lighting conditions.

Given the inverted spectrum case and that what one perceives as inverted in such cases are the qualitative characters, it will follow that either we can perceive impossible colors or that the inverted spectrum is impossible. On the one hand, it implies that Jill can perceive a red color as having a green qualitative character, i.e., Jill can perceive red as appearing greenish to her. That means there exists greenish red color or reddish green color, which is impossible, since opposite colors cannot be seen as existing in the same color property at the same time. On the other hand, if we agree that opposing colors will cancel each other, that is, Jill can only see the achromatic colors when she looks at a red object, then, there is no inverted spectrum happening at all. Therefore, it is wrong for Shoemaker to say that the qualitative character is what makes the inverted spectrum possible. My conclusion is that, giving the inverted spectrum, qualitative character cannot be phenomenal content, since the notion of qualitative character is not compatible with the inverted spectrum hypothesis.

4.4.2.3 Phenomenal character, Color Space and Chimerical Color

Even though Shoemaker denies that the phenomenal content of color experiences is determined by the physical color properties, he holds the same thesis as Standard Representationalists, i.e., that the phenomenal characters of color experiences must be determined by certain objective properties or certain aspects of objective properties. This implies that, whenever the subject is having a color experience with a certain phenomenal character, this phenomenal character must be caused, or be able to be caused, by certain physical color properties under certain viewing conditions. Since the perceived color must have a location in the color space, Shoemaker's theory implies that the locations of

psychological color space exhaust the phenomenal character of color experiences one can perceive. That is, one can find a location in the color space for every phenomenal character of color experiences. But this is wrong. Not all perceivable phenomenal characters of color experiences are located within color space.

As mentioned, in his paper (2005)[87], Paul Churchland proves that you can have some "chimerical-color sensations [that] correspond to no reflective color that you will ever see objectively displayed on a physical object" (2005, p.527) and that they are located outside the color space. A chimerical color is "a color that you will absolutely never encounter as an objective feature of a real physical object, but whose qualitative character you nonetheless savor in an unusually produced illusory experience" (2005, p.545). If Churchland's idea is right—and it seems right—not all phenomenal characters of color experiences can be placed in a location within psychological color space. Then, even if we agree that the phenomenal characters of those color experiences that constitute the color space are exhausted by physical properties, there are still phenomenal characters of some color experiences which cannot be individuated by any color-relevant physical properties, since they are located outside the color space. Therefore, I conclude that all Shoemaker's theories of phenomenal content fail.

4.5 Phenomenal Content and the Subjective Difference

So far, we have seen that all Shoemaker's proposals regarding appearance properties fail to account for the phenomenal character of color experiences. We have also seen that the objections focus on the problem of the individuation of appearance

[87] Churchland, Paul. (2005). "Chimerical Colors: Some Phenomenological Predictions from Cognitive Neuroscience." *Philosophical Psychology*, Vol. 18, No.5.

properties and on the following: the possibility of misrepresentation, their compatibility with the transparency principle, the inverted spectrum, the structure of psychological color space, and the issue of whether the proposals can explain the phenomenon of color constancy.

In this section I am going to discuss another objection proposed by Michael Thau. I will focus on his objection about the subjective difference between different experiences. Intuitively, when one looks at the green grass and the red tomato, there is a vivid subjective difference between one's visual experiences of the different colored objects. Shoemaker introduces the appearance property as the phenomenal content of experiences in order to explain the patent subjective difference when experiencing different colored objects. However, Michael Thau argues that the notion of appearance property cannot explain the subjective difference between seeing different appearance properties of redness and greenness, if the subject isn't aware of the appearance property as "relational", that is, as the property that is causing, or apt to cause, an experience with a certain qualitative property in himself. Since Shoemaker claims that appearance properties are relational but the subjects aren't aware of them as relational, it would follow that Shoemaker's conceptions of appearance property cannot explain the subjective difference between seeing different appearance properties.

Thau concludes that either Shoemaker's conception of appearance property cannot explain the subjective difference, or Shoemaker has to introduce the conception "mode of presentation" to explain the difference (i.e., appearance property is the "mode of presentation" of the color property), and that this will force him to give up the idea that the appearance property is what phenomenal content represents. That is, Shoemaker faces

a dilemma: either the appearance property doesn't do the trick, or it is not the phenomenal content of experiences.

4.5.1 Two Different Descriptions of Appearance Property

Shoemaker describes appearance properties in two different ways. From what we have discussed, we learn that Shoemaker normally describes an appearance property as the relational property of causing, or having the disposition to cause, an experience with a certain qualitative property in those subjects who are related to it in a certain way. For example, when both Jack and Jill, whose visual systems are inverted to each other, see a red tomato, Jack perceives the tomato as having the appearance property that is actually causing, or has the disposition to cause, an experience with a red qualitative property, while Jill perceives it as having the appearance property of actually causing, or being apt to cause, an experience with a green qualitative property. This way of describing appearance properties explains the subjective difference (or the what-it-is-likeness) between their experiences as the different appearance properties of the tomato that cause different experiences in the subjects.

However, since the subject doesn't represent the appearance property as relational, we need another way of describing the appearance property without describing the relation of causing an experience with a certain qualitative property in the subjects. Shoemaker appeals to the notion of "ways" of appearing to describe the appearance properties of the objects. He describes the case of shifted spectra as involving the color of pure green appearing different "ways" to different perceivers; and describes the phenomenon of color constancy as being caused by the same colored table (for example),

which is partly in the shade and partly in full illumination, appearing different "ways" to the same perceiver in different illumination. Shoemaker holds that "something's appearing a certain way is always a matter of its appearing to have some property" (2006, p.464)[88], which he calls the "Ways = Properties principle".

In sum, the phrases "the ways things appear" and "the relational property of causing, or have the dispositional property to cause in one an experience with a certain qualitative property in one" are just two different descriptions of the same property—the appearance property.

4.5.2 Thau's Objections to The Conception of Appearance Property

Thau argues that Shoemaker's view of appearance properties as relational properties faces Frege's puzzle and this will force him to give up the notion of appearance property. First, Thau points out that, according to Shoemaker, appearance properties are the properties of causing an experience with a certain qualitative property, but Shoemaker claims that experiences don't represent appearance properties as relational, that is, as causing an experience with a certain qualitative property in one. For example, Jack's experience of a red tomato represents the tomato as appearing red but doesn't represent the tomato as causing an experience with red qualitative property in him. The reason why Jack's experience doesn't represent the tomato as having the latter property is: either Jack doesn't have any idea that the tomato has this kind of property (unless he has read Shoemaker's papers) or, even if he knows the tomato has this kind of property, he won't know which relational property the tomato has (2002, p.42).

[88] Shoemaker expresses the same idea in his (2001), where he says: "The guiding idea here is that if something looks a certain way to a person, there is, corresponding to that "certain way," a certain property that thing looks to the person to have" (2001, p.460).

Jack's experience represents the tomato as having an appearance property of appearing red, which is just the property of causing an experience with a red qualitative property in him. But Jack's experience doesn't represent the tomato *as* having the property of causing in him an experience with a red qualitative property. If the appearance property of appearing red is just the property of causing an experience with a certain qualitative property in him, how could Jack's experience represent the tomato as appearing red without representing it as causing an experience with a certain qualitative property in him? Thau claims that this is an instance of Frege's puzzle and the answer to the puzzle is that "properties are not merely ascribed to objects by perception; rather, perception ascribes properties to objects via modes of presentation" (2002, p.43). Jack's experience of the tomato represents the property of causing an experience with a red qualitative property in him, but it doesn't represent it as such. Jack's experience represents the tomato as appearing red.

Thau argues that once Shoemaker commits himself to the notion of modes of presentation, he must dismiss the notion of appearance properties. As we have seen, the purpose of appealing to appearance properties is to explain the phenomenal character of experiences, or the what-it-is-likeness of having an experience, by means of their representational content—the appearance property, the phenomenal character of experience represents. But since Shoemaker claims that Jack's experiences don't represent appearance properties as causing experiences with a certain qualitative property in him, it won't seem to him that the tomato has the property of causing an experience with red qualitative property in him. Neither will it seem to Jill that the tomato has the property of causing an experience with a green qualitative property in her. If so, the

subjective difference between their color experiences cannot be explained by what they represent; but rather they must be explained by how these properties are represented (2002, p.44). That is to say, instead of saying that there are appearance properties of appearing red to Jack but appearing green to Jill, and that when they look at a red tomato Jack and Jill's respective experiences represent these appearance properties, we should say that they see the red tomato by means of different modes of presentation. Jack perceives redness by means of the red mode of presentation, while Jill perceives it by means of the green mode of presentation.

If the notion of mode of presentation is what is needed for explaining the subjective difference between Jack and Jill's experiences of seeing the red tomato, Shoemaker should give up the notion of appearance properties. That is to say, Shoemaker should give up the "ways = properties" principle, since the difference and similarity of ways of appearing is not to be found in what is represented. Rather it is the difference and similarity of modes of presentation.

Before discussing Shoemaker's response to Thau's challenge about subjective difference, I should make more explicit what, precisely, Thau's argument targets.

Even if Jack and Jill don't represent the tomato as causing an experience with red or green qualitative properties in them, one might wonder why it is necessary that they do so to explain the subjective difference involved in representing difference appearance properties. Don't Jack and Jill perceive the tomato as having the appearance properties of appearing red and appearing green respectively? Why is this not enough to explain the subjective difference? Things will become clear here if we compare this point to Thau's objection to the attempt to explain the subjective difference by means of qualitative

properties. (The terms “red’” (prime red) and “green’” (prime green) refer to qualitative properties that “resemble” the physical properties of red and green.)

> The subjective difference between [Jack’s and Jill’s] visual experiences is a difference in the way things *seem* to them; hence, besides the fact that their visual experiences have different properties, the qualia freak will also have to maintain that [Jack and Jill] are in some sense *aware* of their respective visual experiences… [However], it is insufficient to note that the experiences have different qualities and that each is aware of his experience; each of them will also have to be aware of his experiences *as having* the relevant quality. [Jill’s] experience of the tomato must seem green’ to her, and [Jack’s] must seem red’ to him. (2002, pp.30-31)

That is to say, the qualitative properties of experiences don’t play any role in the explanation of subjective difference of experiences just by existing, since Jack might be aware of the red qualitative property of his experience in a way that presents it as different from what it is. If so, it won’t <u>seem</u> to Jack that he is having an experience with a red qualitative property. What really accounts for the subjective difference of looking at a tomato is what kind of qualitative property one is aware of this experience as having.

Thau claims that Shoemaker’s notion of appearance property raises a problem similar to that raised by the notion of qualitative property. Shoemaker’s reason for introducing the appearance property is that he believes that the color of the tomato cannot explain the subjective difference between Jack and Jill’s experiences of seeing the tomato. To explain the subjective difference, we need relational properties, the properties of causing an experience with a red qualitative property in Jack and causing the green qualitative property in Jill. But, according to Thau, positing the relational appearance properties is not enough. Just as Jack might have an experience with a red qualitative property without being aware of his experience <u>as</u> having a red qualitative property, Jack might not represent appearance properties as causing an experience with red qualitative

property in him. If he does not, then it won't seem to him that he is looking at an appearance property that is causing an experience with a red qualitative property in him. Appearance properties will seem to Jack as being located in the perceived object, rather than as a relational property that is related to his experiences.

Briefly, according to Thau, the problem with Shoemaker's theory is that he appeals to relational properties to explain the subjective difference between perceivers, but perceivers are not aware of these relational properties as relational. Appearance properties won't seem to them to be related to their experiences, but rather, will seem to them to be located in the perceived objects. If different physical color properties cannot explain the subjective difference in having different color experiences, because physical color properties are not relational, appearance properties cannot either, because they don't seem to be related to the perceivers at all.

4.5.3 Questions About Thau's Argument

Now the question is: in order to explain the subjective differences between experiences that represent different appearance properties, must the perceivers represent the relational appearance properties as relational, that is, as causing an experience with a certain qualitative property in them? It depends. As mentioned earlier, Thau's reason for claiming that we don't represent the tomato as having the relational property of causing experiences with a certain qualitative property in us is that we either don't have any idea that the tomato has this kind of property, or, even if we know the tomato has this kind of property, we won't know which relational property the tomato has.

Thau's reasons don't seem to support what he claims. One may claim that the phenomenal content of experiences is nonconceptual. One doesn't have to have the concepts of red_{17} and red_{23} for one's visual experiences to represent the colors as red_{17} and red_{23}. Assuming that the subjects don't know which shade of red is red_{17} or red_{23} and have no concept of red_{17} and red_{23}, when they look at both shades of red, they won't know red_{17} and red_{23} have the appearance properties of red_{17} and red_{23} respectively. Still it seems intuitive to say that their visual experiences represent both shades of red as having the phenomenal character of appearing red_{17} and red_{23} respectively. If so, you don't have to know either tomato has relational properties or which relational property the tomato has in order to represent that relational property.

Must the subjects represent the relational property as relational in order to be aware of the subjective difference? It doesn't seem so in the current case. Given that all sensory experiences are conscious, (which seems to be taken for granted by both Shoemaker and Thau,) when one is aware of the different ways red_{17} and red_{23} appear to one, one is aware of one's sensations as having different qualitative properties of red_{17} and red_{23} accordingly. There is no reason why one must be introspectively aware of one's experiences representing these two different shades of red as relational to be aware of the different subjective character of looking red_{17} and looking red_{23} to one.

Shoemaker's response takes a different route. He claims that we don't have to represent the relational appearance properties as relational to explain the subjective difference made by representing different appearance properties.

4.5.4 Shoemaker's Responses

Shoemaker rejects Thau's assumption that in order to explain the subjective difference one must represent the appearance property as relational. He proposes an explanation of subjective difference which does not require perceiving such properties as relational. His answer is very brief.

> I have maintained that the relations of qualitative similarity and difference amongst experiences are functional relations, and that it is central to the functional role of qualitative difference that when experiences are qualitatively different this results in a corresponding difference in how the environment is represented and an awareness that there is such a difference. Given that different appearance properties constitutively involve qualitatively different experiences, this seems to me to explain the subjective difference between such properties in a way that does not depend on the subject perceiving the appearance properties as relational properties involving experiences. (2006, pp.467-468)

According to Shoemaker, different kinds of appearance properties cause in different perceivers different kinds of experiences, which are typed by the similarity and difference of qualitative properties of sensory states, and qualitative properties are the properties of sensory states by means of which they stand in the relations of qualitative similarity and difference. Qualitative properties are also the properties of sensory states in virtue of which sensory states represent the properties of perceived objects, i.e., they are the vehicles of representations (2001, p.468). Experiences represent both physical and appearance properties. Even though qualitative properties represent objective properties contingently, because the representation of objective properties is determined externally, they represent the appearance properties necessarily, since the representation of appearance properties is determined internally.

Shoemaker maintains that qualitative similarity and difference among experiences are functionally definable. Since qualitative properties are the properties that instantiate

the qualitative similarity and difference among sensory states, the qualitative similarity and difference of those states are determined by the roles qualitative properties play when they are held intrasubjectively. The similarities and differences among sensory experiences have close relations with, and will affect, the discriminatory and recognitional behaviors of subjects (2001, p.467). When the subject has qualitatively similar experiences, he will be able to recognize them as the same; when he has qualitatively different experiences, he will be able to discriminate them as different.

Shoemaker also holds that qualitative properties constitutively and necessarily determine which appearance properties are represented. This implies that whenever the subjects have experiences that are qualitatively different there will be corresponding differences in the represented appearance properties; and that when the subject introspects or reflects he also will be aware of the differences among his experiences. This, according to Shoemaker, explains the subjective difference between different experiences, which difference represents different appearance properties without perceiving the appearance properties as relational properties that cause one's experiences (2006, p.467).

According to Shoemaker's account, the subjective difference in having different experiences rests on one's introspection about, or reflection on, one's own sensory experiences. What is accessed when one introspects is the representational content of experiences, that is, the appearance properties. Since different appearance properties constitutively determine the qualitative properties of the experiences, if one is aware of the differences among appearance properties, one will therefore be aware of the

differences among one's experiences. Hence, the subject will be aware of the subjective difference between experiences with different qualitative properties.

In sum, given that having experiences with different qualitative properties implies having experiences that represent different appearance properties, and that the content of introspection is the representational content of experiences, introspective awareness of different representational contents implies introspective awareness of different qualitative properties, which constitutes the subjective difference in having different experiences. According to Shoemaker, having different experiences will eventually result in having different beliefs about one's experiences and, if one reflects or introspects, one will be aware of the difference among different experiences. If so, one can explain the subjective difference of having different experiences without representing the appearance properties as relational.

4.5.5 Problems with Shoemaker's Response

Shoemaker's response assumes that if one's experiences are qualitatively different, one will be introspectively or reflectively aware of them as representing different appearance properties. Their representing different appearance properties is one of the functional roles of having different experiences. Moreover, Shoemaker's account assumes that, when subjects introspect, their introspective awareness must represent the relevant appearance property as such. In other words, it is impossible for one to misrepresent appearance properties introspectively. If introspective misrepresentation is possible, functional role cannot explain the subjective difference. Unless the subject introspectively represents each qualitative property as such, he won't know which

appearance properties they are representing, and, in turn, the subject won't be aware of the subjective differences in his different experiences.

Unfortunately, introspective misrepresenting of our past experiences is a normal phenomenon in daily life. For example, when one tries to recall the color of the bus one saw or the color of the cap one's friend wore when one met him last week in London, one might introspectively mistake the color of the bus as pink rather than red, or one might mistake one's friend's cap as grey when it was really black.

The possibility of introspective misrepresentation reveals a further question raised by Shoemaker's account of the subjective difference: what determines the subjective difference between having different experiences, the introspective thought or the relevant appearance property? There is no neat answer to this question.

It should be obvious that Shoemaker's answer to the problem of subjective difference assumes that subjective difference rests on appearance properties, since such properties are proposed to explain the phenomenon of color constancy and the case of inverted spectrum. Now, if the subject introspectively misrepresents the appearance properties of a color and the appearance properties explains the subjective difference, then, the subject will still be aware of the same kind of subjective difference. But this would rule out introspective awareness as irrelevant with respect to the subjective difference. If subjective difference is determined by the introspective thought, (that is, when the subject has an introspective thought the content of which is different from the appearance property it represents, what it is like to have seen that appearance property is determined by the thought), then the appearance property will not play any role in the

explanation of the subjective difference. Either way, Shoemaker's answer faces difficulty. Therefore, I conclude that Shoemaker fails to answer Thau's challenge.

The observation is that once one agrees that subjective difference must be explained in terms of the introspective awareness of phenomenal content (or character) and that introspective misrepresentation is possible, either the appearance property or the introspective awareness of it will become irrelevant to the issue of subjective difference. It seems impossible to deny the possibility of introspective misrepresentation. The only choice left is to give up the idea that the phenomenal character is determined by what conscious experiences represent—i.e., appearance properties.

Shoemaker claims that even if his theory must appeal to "mode of presentation" to explain the phenomenal content of color experiences, that won't force him to give up the objective view of phenomenal content. He proposes qualitative character as the "mode of presentation" that determines which color property one's experience represents. Since qualitative characters are aspects of physical color properties, they are objective. If so, the objective view of phenomenal content—that the phenomenal content is determined by what conscious experiences represent—is compatible with the notion of "mode of presentation". However, as I have argued, this conception of qualitative character is not compatible with the case of inverted spectrum. This way out has been closed.

Chapter 5 Division of Labor Theory of Phenomenal Consciousness

5.0 Introduction

Both Standard Representationalism and qualia realism hold that consciousness is an intrinsic property of sensory states, even if they are divided on whether qualitative properties are intrinsic properties of sensory states (that is, on whether phenomenal content is determined internally)—qualia realists take qualitative properties as intrinsic to sensory experiences while Standard Representationalists take them as relational, and determined by their relation to external objects or properties.

The labor division theory of consciousness holds that the problem of qualitative property and the nature of consciousness are two independent issues. Not all sensory experiences are conscious, (or: consciousness is not intrinsic to sensory experiences,) but rather, consciousness is a relational property, a property of mental states that occurs when a higher-order mental state targets its first-order mental state. A proper explanation of sensory experiences should not presuppose that they are conscious. There are, according to views of this sort, also unconscious sensory states.

Intuitively, only when you feel a pain qualitative property you can claim that you have a pain sensation, only when you are conscious of your visual experience with a red qualitative property are you entitled to say that you have a visual sensation of redness. It seems wrong to say that a sensory state has a qualitative property without one's being conscious of it. If you don't feel (or are not conscious of) a pain qualitative property, how can you tell if you have a pain sensory state? If you don't have the vivid feeling of seeing a red flower, how can you say that you are having a visual experience of the red

property? Can you have a pain sensory state without the feel of pain qualitative property? If yes, what is the difference between the qualitative property of a nonconsious pain state and a nonconscious itch state? If you don't feel anything in either case, how can you say one of them has a qualitative property of pain, while the other one has a qualitative property of itch?

Rosenthal argues that intuition does allow room for mental states that are not conscious. For example, the sensory state of pain can occur sometimes without you being aware of it due to distractions, but you can then become aware of it later on when you are not distracted. It is natural for us to say that this pain sensory state is there during the whole time even when you were not aware of it. It would be odd to say that there are two different sensory states of pain occurring at two different times. When a sensory state is not conscious, its qualitative property should not be conscious either. Therefore, it is possible for sensory states to have qualitative properties without their being conscious of (1991, p.136).[89]

However, it seems that we normally appeal to the "feeling" or the "what it's like" of having a particular experience to classify what kind of sensory state it is. Nonconscious qualitative properties don't have the "what it's like" of having certain qualitative properties, so how can there be such qualitative properties? Rosenthal agrees that we do classify and discriminate sensory states by virtue of conscious cases, but this doesn't imply that the qualitative properties we applied in classifying the conscious states cannot exist unconsciously. In the case of perception, we classify and discriminate colored flowers by means of how they look or appear to us and those colored flowers

[89] Rosenthal, David. (1991). "The Independence of Consciousness and Sensory Quality." In his *Consciousness and Mind*, Oxford: Clarendon Press (2006b).

have a color property even when there is nobody to look at them. It is the same in the case of the qualitative property of pain: we classify and discriminate sensory states by means of the way we are conscious of them. Sensory states supposedly still have qualitative properties even when their hosts are not aware of them (1991, p.138).

Only sensory states have qualitative properties and they are individuated in respect of their qualitative properties, therefore, "if sensory states occur that are not conscious, being conscious cannot be intrinsic to having qualitative property" (1991, p.138). Since qualitative properties are fixed rather than identified by means of what we are consciously aware of, they must not be equal to the qualitative properties of which we are conscious.

The labor division theory of phenomenal consciousness claims that both consciousness and qualitative properties are relational: neither of them is an intrinsic property of sensory states. A conscious mental state consists of a first-order nonconscious mental state and a higher-order mental state that targets or monitors the first-order mental state. A sensory state is a first-order mental state with a qualitative property that is either individuated by its representational content or by its functional role in perceptual experiences. Whether a sensory state is accompanied by a higher-order mental state explains whether it is conscious or not. Thus, both qualitative properties and consciousness are relational properties, not intrinsic properties.

If qualitative properties are not what we consciously perceive, then what are qualitative properties? How can they be identified independently of consciousness? Even though both proponents of the labor division theory, Lyacn and Rosenthal, hold that a conscious sensory experience is due to there being a higher-order mental state which

accompanies the first-order sensory state, they have different views of how to individuate qualitative properties and how to explain the phenomenal character of conscious sensory experiences. Like Standard Representationalists, Lycan holds that the qualitative properties (or phenomenal content) of first-order sensory experiences are determined by what they represent. Phenomenal content is determined by the qualitative properties of first-order sensory states and higher-order attention just makes a mental state become a conscious mental state without changing anything in it (1996a, p.77).[90]

Rosenthal claims that qualitative properties of first-order sensory states are determined by their similarity and difference relationships to those of other sensory experiences, while the phenomenal character of (or the "what it is like" of having) a conscious sensory experience is totally determined by the content of higher-order thoughts, i.e., what the higher-order thoughts represent the first-order sensory states as having. That is to say, the intentional content of the relevant higher-order thought determines the phenomenal character of having a particular conscious sensory experience.

In this chapter, I will discuss Lycan's version of the labor division theory in section 5.1, and in section 5.2 will discuss Rosenthal's higher-order thought theory of phenomenal consciousness, which I support.

5.1 Lycan's Theory of Phenomenal Consciousness

Lycan's theory of phenomenal consciousness consists of three different sub-level theories—a representational theory of first order qualitative properties, a higher-order perception theory of consciousness and a theory of "what it is like" for a subject to be in

[90] Lycan, William. (1996a). *Consciousness and Experience*. Cambridge, Mass.: The MIT Press.

particular sensory state. Lycan use the term "what it's like" ambiguously. He distinguishes the notion of "what it is like" to be in a sensory state with a qualitative property from the "what it's like" to experience the qualitative property. He says, "there is a distinction between (a) "what it's like" in the bare sense of the quale, the phenomenal color that can be described using ordinary color words, and (b) "what it's like" to experience that phenomenal color, which cannot easily be described in public natural language" (2006)[91] I will keep the term "what it's like" just for the second sense and call it the "phenomenal character" of having a certain sensory experience.[92] The first sense of "what it's like" concerns the qualitative property of sensory states, which I will just call "qualitative property."

Lycan claims (i) that the sensory system itself is a representational system, thus the qualitative properties are determined by their representational content, (ii) that the inner-sense mechanism of introspection explains what it is to be a conscious mental state, and (iii) that the phenomenal character of conscious qualitative properties are determined by both their qualitative properties and their functional roles.

My outline of this section is as follows. I will discuss Lycan's representational theory of qualitative properties in section 5.1.1. In section 5.1.2, I will discuss his higher-order perception theory of consciousness and his view of phenomenal character. I am going to discuss Neander's objections to his theory of phenomenal character in section 5.1.3.

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[91] Lycan, William. (2006). "Representational Theories of Consciousness." Section 5. In Stanford Encyclopedia of Philosophy (Online edition). Retrieved from http://plato.stanford.edu/entries/consciousness-representational/

[92] Lycan normally uses the term "phenomenal character" or "phenomenal property" to refer the un- or nonconscious qualitative properties.

5.1.1 Lycan's Representational Theory of Qualitative property

As asked earlier, if not all sensory states are conscious and qualitative properties are fixed rather than identified by means of what we consciously perceive, what are qualitative properties? How can they be identified independently of consciousness?

Like Standard Representationalists, Lycan claims that "the mental and the functional/intentional are one and the same and that the mind has no distinctive properties that outrun its functional and intentional properties" (1996a, p.69). However, unlike Standard Representationalists, Lycan holds that there are apparent phenomenal individuals and that qualitative properties (qualia) are the properties of those phenomenal individuals. He says, "a quale is the introspectable monadic qualitative property of what seems to be a phenomenal individual, such as the color of what Russell called a visual sense datum" (1996a, p.69).[93]

Lycan isn't committed to the existence of sense data, even though he is committed to the existence of phenomenal individuals. He suggests that we can treat phenomenal individuals as intentional objects. That is, under both situations—seeing red objects and having an illusion of seeing red objects—we perceive the qualitative properties of phenomenal individuals. The difference between these two situations is this: in the former situation, our perception is correct, in the later situation, our perception is wrong, hence, the intentional object is an intentional inexistent.

Appealing to possible worlds semantics, we can explain the difference as follows: when our perception is correct, the intentional object we perceived exists in the actual

[93] Lycan explains as follows, "if S is visually healthy and looking at a ripe tomato in good light, the tomato will look red to S, and if S focuses her introspective attention on the corresponding subregion of her visual field, S will see that subregion as an individual red patch having a roundish shape. The redness of that phenomenal patch is the quale of the containing visual sensation. One registers such a quale whenever one perceives a colored object as such" (1996a, P.69-70).

world; when it is wrong, the intentional object we perceived doesn't exist in this actual world but, rather, it exists in some other possible world. Since, the concept of non-actual objects (objects that don't exist in this actual world) doesn't entail logically that they are not physical, such objects can be physical objects in those possible worlds in which they exist. Therefore, accepting phenomenal individuals doesn't imply committing oneself to the existence of nonphysical objects, such as sense data. Relying on this, Lycan proposes his intentionalized notion of qualitative property. He says, "a quale is, not the introspectable monadic qualitative property of an actual phenomenal individual (there is no such thing), but that of *what seems to be* a phenomenal individual and is referred to, individuated and counted as such"[94] (1996b, p.83).

This way, we can explain the cases of after-images and illusions of colored objects that are perceived when the relevant actual physical objects don't exist by explaining the physical nature of the qualitative properties of phenomenal individuals in their own containing worlds. Hence, phenomenal colors (which are qualitative properties) belong to the seeming phenomenal individuals in our visual field, intentional objects of sensory experiences. For example, when you have an after-image, you are not experiencing a red physical color visually, but rather you are experiencing what seems to be a red physical color, namely, a red phenomenal color.

The relation between phenomenal color and physical color is a representational relation, "for a visual state to have or contain or feature a green quale in my strict sense is for it to represent greenness—real physical greenness—at some location in the visual field" (1996b, p.74). That is to say, our visual sensation, which is caused by green physical objects, represents the physical objects as having a green physical property by

[94] Lycan, William. (1996b). "Layered Perceptual Representation." *Philosophical Issues*, 7.

the green qualitative property, the phenomenal green. When the perception is veridical, the green qualitative property is just the property of the physical object that is represented. When the perception is not veridical, the green qualitative property belongs to a phenomenal individual that is an intentional nonexistent. By intentionalizing the notion of phenomenal individual, Lycan transforms a sense-datum into a representation and, therefore, avoids the conclusion of the sense-data theory.

Lycan also maintains that some of our perceivings are un- or subconscious in the sense that we are unaware of achieving them, but he claims that a sensory state 'registers' a qualitative property whenever one perceives a colored object as such. Take the long distance truck driver in Armstrong's story for example. He is absent-mindedly driving the truck while thinking about something else, and then comes to realize that he has driven for miles without any awareness of what he was doing. Yet we have to say that he must have perceived the road signs, the stoplights, and so on, since the fact that the light looked red rather green to him is the only reason he would have stopped. So, in the strict sense of the term, he was presented with a red qualitative property; but the driver was not aware of any such thing; it was a un- or subconscious perceiving, entirely unintrospected. For the truck driver to be conscious of the red qualitative property, he must be conscious of the red qualitative property introspectively.

Lycan's representational theory of qualitative property is similar to what Standard Representationalists hold except that, for Lycan, the qualitative property can occur without consciousness. For this reason, his representational theory faces most of the problems that Standard Representationalism does. If the qualitative properties of sensory experiences are determined by their representational content, how can we distinguish

sensory experiences from propositional states, such as, beliefs or thoughts? Put another way, since both propositional states and sensory experiences can occur unconsciously and both are representational, why do propositional states not have qualitative properties while sensory experiences do? Apparently, mere representation does not suffice for mental states to have qualitative properties, with which Lycan agrees. Like Tye and Dretske, Lycan also appeals to functional role to make the distinction between sensory states and propositional states.

Lycan says, "[t]he mere representation of redness does not suffice for phenomenal red, for something's looking red to a subject. … The representation must be specifically a visual representation, produced by either a normal human visual system or by something functionally like one" (2006, section 2). In another place, Lycan makes the same remark in a more explicit way by appealing to the case of pain. He says, "the (first-order) pain itself is constituted in part by its quale, which is its representational content, and in part by its functional role. … I think that most of the pains' standard effects are produced by the pains themselves rather than by the victims' awareness of them" (1998, p.484).[95] The functional effects of a sensory state of pain include giving rise to the introspective awareness of the pain, the belief that one is having the pain, the behavior of groaning, withdrawing, favoring, rubbing, and the desire that it stop, …, and so on.

Applying the ideas to the truck driver's case, we can explain the truck driver's visual perceptions of colors in virtue of what they represent and their different functional roles. Even if the truck driver wasn't introspectively aware of his visual experiences of seeing red or green traffic lights, we must say he perceived (was aware of) what was

[95] Lycan, William. (1998). "In Defense of The Representational Theory of Qualia (Replies to Neader, Rey, and Tye)." *Philosophical Perspectives, 12, Language, Mind, and Ontology*, (1998).

going on when he was driving on the highway, otherwise it is hard to explain how he could get home safely. We must explain the truck driver's sensory experiences both by his visual experiences' representing the traffic light as red and as green on each occasion and by the functional roles of each visual experience. He stopped the truck because he saw the red traffic light and saw it as red; he kept driving because he saw the green light and saw it as such, … and so on. Therefore, the qualitative properties of the truck driver's visual experiences are explained by the different colors they represent and their different functional roles.

Lycan's representational theory of qualitative property doesn't seem to have any problem answering the distinction between sensory experience and propositional states, but it still faces the shifted spectra argument as well as the color constancy argument against representationalism, which I discussed in Chapter 1. Lycan holds the Representational Thesis that is not compatible with both visual phenomena of shifted spectra and color constancy. I will not repeat the arguments here. Moreover, Lycan seem to accept the detectable case of partial inversion, and if so, he won't be able to answer Shoemaker's inverted spectrum argument that is based on a series of partial inversions.

5.1.2 Consciousness and Phenomenal Character

To explain why a mental state is conscious, Lycan proposes a thesis, which Rosenthal calls the Transitivity Principle: a mental state is a conscious state, "[if and only if], it is *a mental state whose subject is (directly or at least nonevidentially) aware of being in it*" (2004, p.93).[96]

[96] Lycan, William. (2004). "The Superiority of HOP to HOT." In *Higher-Order Theories of Consciousness: An Anthology*. (Ed.) Gennaro, Rocco. Amsterdam and Philadelphia: John Benjamins Publishing Company

According to Lycan, the second-order representing mechanism is a higher-order perceptual mechanism. A mental state is conscious when there is a higher-order perception that represents or targets a first-order mental state. Since he also holds a higher-order perception model of introspection, we can put his definition in a different way: a mental state is conscious if, and only if, it is a mental state whose subject is conscious of it introspectively. If so, state consciousness is a subset of introspective consciousness. He summarizes his inner sense theory as follows:

> [C]onsciousness is the functioning of internal *attention mechanisms* directed at lower-order psychological states and events. … [A]ttention mechanisms are devices that have the *job* of relaying and/or coordinating information about ongoing psychological events and processes. (1996a, p.14)

By locating the qualitative properties at the first-order sensory states and claiming that for a mental state to be conscious it must have an accompanying higher-order attention mechanism, Lycan separates the issue of the nature of consciousness from the issue of qualitative property.

Combining the strategy of intentionalizing qualitative properties and his inner-sense theory of consciousness—that is, first-order sensory states register qualitative properties and higher-order sensory mechanisms and explain whether a sensory state is conscious or not—Lycan derives his theory of the phenomenal character of having a sensory experience, i.e., the "what it's like" to have a particular experience. When a subject has a conscious sensory state of experiencing a red object, his experience has the "what it's like" of seeing a red object and the phenomenal character seems to be subjective, that is, it can only be understood or represented from the first-person point of view.

(2004).

Lycan believes that the phenomenon of subjectivity is due to different ways of representing rather than different facts. The distinction between objective and subjective character is epistemic rather than ontological. That is to say, “subjective” mental states can only be known or presented to their owners in a particular way such that they cannot be known in that way to any second parties. If so, the existence of such states is not denied by the materialists. According to the inner sense theory, to know one’s own mental states is to introspect (or scan) them. Each person can know his own mental states by means of introspection while no person can introspect another person’s mental states. This fact doesn’t defeat materialism, since no materialism claims that individual organisms can directly scan the internal operations of other organisms.

Lycan’s view of phenomenal character focuses more on the issue of subjectivity than the issue of phenomenal character. I should still try to make it clear what Lycan’s interpretation of subjectivity is even though it is not my major concern.

Lycan claims that the reason why one’s self-ascriptive mental representation causes the phenomenon of subjectivity —i.e., the fact that “no one else … could know the same facts *by being in the same functional state*” (1996a, p.67), is that each person can only introspect his own first-order mental states and has his own representations that represent the first-order mental states as output. If so, when Oscar has such a representation, “no one else can use a syntactically similar representation to represent the very first-order state token (of [Oscar’s] own) that is the object of [Oscar’s] own representation” (1996a, p.60). Therefore, in the case of self-ascription, the syntactic type and the referent are always unique.

Assuming the language of thought hypothesis, Lycan claims Oscar will have a

mental word for the type of introspected first-order mental states in question here. This mental word will refer to one type of Oscar's mental states and it will be primitive both lexically and semantically. Given that Oscar is having a belief that *I believe that it is raining*, which is expressed by the mental term M_1, then the output of his introspecting this first-order mental state will be the second-order thought that *I am thinking the belief, M_1*. Since M_1 only refers to the type of Oscar's belief that *I believe that it is raining*, no one else can use any mental terms that are syntactically similar to M_1 to refer to Oscar's belief. Instead those who use the term M_1 will refer to their own beliefs. Since, whoever uses the mental term M_1 will refer to his own mental states, in this sense, Lycan says, "it would be a private name as well as semantically primitive, a name that only its actual user could use to name its actual referent" (1996a, p.60).

Since the self-ascriptive representations we use to represent our own first-order mental states are unique and private in the sense just mentioned, the information we get from introspection and the functional roles of those representations are as well. This explains why the representations of self-ascriptive expressions normally cause the phenomenon of subjectivity.

In the case of sensory experiences, as was mentioned above, Lycan treats qualitative properties as representations that represent particular information that is taken from the objects of our sensory states. Since different persons normally receive or register different information from the same object, one's sensory experience is subjective in the sense that "no two subjects perceive the same physical object in the same way; no two subjects obtain and record just the same information about the object" (1996a, p.55). That is to say, the experiences of any two persons will represent the same object in ways that

differ from each other. Different representations will cause different behavior, hence, each person's experience of the same object will be different functionally.

Lycan goes on to explain the subjectivity of phenomenal consciousness. He claims that "[t]o 'know what it is like' to have such and such a sensation is likewise a functional rather than a referential matter" (1996a, p.66), given that the sense-datum theory is wrong, since "[t]o sense or to feel is to sense something under a representation" (1996a, p.66; 1987, p.80). When I feel a pain, I am aware of my pain in a phenomenal way introspectively, while a scientist may observe my brain states and say it is a firing of c-fibers. Even though we use different representations with different functional roles, we still refer to the same mental fact. The reason why my representation has a unique functional role is because "I know my pain by introspection, and my representation of disorder is directly formed by introspection and has obvious immediate inferential and other functional properties" (1996a, p.67). That is, the subjectivity of phenomenal consciousness is due to one's higher-order representations (which are self-ascriptive expressions normally,) which we use to represent the first-order qualitative properties and therefore to make the first-order qualitative properties become conscious.

Since different representations with different functional roles can still refer to the same fact, and the phenomenon of subjectivity of one's awareness of one's own mental states is due to the unique coincidence of the semantic role and functional role of one's mental representation, Lycan concludes that "[t]here are no intrinsically subjective or perspectival facts that are either the special objects of self-regarding attitudes or facts of 'what it is like'" (1987, p.81; 1996a, p.68).

Since the phenomenal character of having a certain conscious experience is due to

there being higher-order mental state which targets the first-order mental state, it is possible that the higher-order mental state might misrepresent the first-order sensory state. When someone's higher-order mental state misrepresents a first-order mental state with a green qualitative property as having a red qualitative property, there comes the question of what is the phenomenal character or the "what it's like" of having that conscious experience. This is the question I will discuss in the coming section.

5.1.3 Objections to Lycan's Labor Division Theory

Assuming that first-order sensory states are intentional and so are a sort of representation, and that whether they are conscious or not is determined by whether or not there are relevant higher-order representations accompanying the first order sensory state, then, there is the question of the possibility of misrepresentation with respect to higher-order representations.

Armstrong argues that introspective knowledge is not incorrigible (1993, pp.100-107),[97] a thesis which is also accepted by Lycan. Since the inner sense mechanism is physical or physiological, it is possible for it to malfunction—introspection or higher-order representation will misrepresent occasionally. The fallibility of introspection effectively refutes the Cartesian's theses of introspective incorrigibility and of consciousness as an intrinsic property of mental states. But it also creates problems for the labor division theory of phenomenal consciousness.

There are two situations related to higher-order misrepresentation. First, it is possible that the content of higher-order representations doesn't match the qualitative

[97] Armstrong, David. (1968). *A Materialist Theory of The Mind*. (Revised Edition). London and New York: Routledge.

properties of the first-order sensory states. For example, Oscar sees a red object, but his higher-order representation represents his sensory state as seeing something green. On the other hand, it is possible that the higher-order mechanism operates without any first-order sensory state accompanying it at all, which Lycan calls the problem of false positive. In this kind of situation, "[y]ou might introspect a sharp, severe pain when there is in fact no pain at all" (1996a, p.19). If these kinds of situations do exist, can higher-order representations render us conscious of any qualitative property or state at all? If yes, what will it feel like when I have these conscious sensory states, and, furthermore, which content will decide this feeling—the higher-order representations or the first-order ones? It seems that there is no proper answer to these questions.

5.1.3.1 Neander's Objection

About the false positive phenomenon, for example, the introspection of a pain when in fact there is no pain at all, Lycan says:

> My description misleadingly suggests that you might feel as if in severe pain, with everything that is involved in feeling a severe pain, which would include all the first-order functional effects of the pain—withdrawal, wincing, involuntary crying out, favoring, and the like—while having no actual pain whatever. That suggestion is, I agree, truly weird. But it is not in fact a consequence of the inner-sense theory. If (as the present hypothesis has it) there is no first-order pain sensation at all but merely a mendacious representation of one, there is no reason to think that all or any of these usual functional effects would indeed ensue. You would be introspecting something that has some of the qualitative aspects of pain, but important elements would be missing; you might be in the position of the morphine patients, who manifest "reactive dissociation", saying that they still feel the pain as intensely as ever but no longer mind it. (1996a, pp.19-20)

Karen Neander understands Lycan as claiming of a false positive sensation of pain, where there is a higher-order representation of pain without first-order states of pain, that "one might not merely describe it as feeling of [something] intensely painful, [but that] it

might also *feel* intensely painful. … except for some possible difference in motivational affect". According to Neander, however, this is inconsistent with his theory of qualia (1998, p.420).[98]

To explicate the inconsistency between what Lycan says about the phenomenon of the false positive and his theory of qualitative property, let us take color sensation as an example. Neander identifies three possible types of relation between higher-order representations and first-order mental states as follows.

> (a) I have a sensory representation of something (existent or inexistent) as *green*. And I represent myself as representing something as *green*.
> (b) I have a sensory representation of something (existent or inexistent) as *red*. But I represent myself as representing something as *green.*
> (c) I have no sensory representation at all. But I represent myself as representing something as *green*. (1998, p.420)

Neander claims that what the passage just cited says is that "what it's like to experience these three situations is the same," because "they are experienced as being the same with respect to their color qualia" (1998, p.240). According to Neander, Lycan seems to be telling us that "[t]here is, …, no subjective difference between them" (1998, p.420).

But, as Neander sharply points out, this is to confuse two different claims that contradict each other, L1 and L2. As mentioned above, according to Lycan's theory of phenomenal character, the first-order representation determines the qualitative property of a sensory state, while the second-order representation determines whether a mental state is conscious or not, (L1). But what he says in the paragraph just quoted is different (see L2). Neander's formulation is as follows.

> L1. Sensory representations determine the quality of a sensation, self-monitoring representations determine if the sensation is conscious.

[98] Neander, Karen. (1998). "The Division of Phenomenal Labor: A Problem For Representational Theories of Consciousness." *Philosophical Perspectives, 12*.

> L2. The conscious experience of a sensation is (is determined by) the secondary representing of the first-order sensory representation. (1998, p.421-422)

While L2 says that the higher-order representation decides the phenomenal character of the conscious sensory state, there are at least three different ways to understand how the phenomenal character of the conscious sensory state is determined in cases (b) and (c) that are compatible with L1, but not with L2. Neander's explanations can be captured as follows.

> (i) When the higher-order representation misrepresents, there is no conscious experience. Therefore, neither (b) nor (c) is a conscious experience.
>
> (ii) When the higher-order representation misrepresents, there is a conscious experience, but there is no phenomenal character at all. That is, self-monitoring is sufficient for consciousness but is not sufficient for phenomenal character. Hence, both (b) and (c) are conscious experiences, but neither of them is a qualitative conscious experience.
>
> (iii) When the higher-order representation misrepresents, there is a conscious experience, but only in (b), and not in (c), is there a phenomenal character, which is phenomenal red. Self-monitoring is sufficient for consciousness, and it is also sufficient for an actual qualitative property to be conscious, whether or not the self-monitoring of it is correct. (1998, p.422)

But Neander claims that none of these interpretations seems to be a proper explication of how the phenomenal character occurs in cases of misrepresentation. Case (iii) is the closest reading of L1 to L2 among these three alternatives, since, from the paragraph quoted, Lycan seems to claim that, in cases of false positives, you still can feel a pain

even though its motivational affects might differ from a real pain. The problem with reading (iii) is that it seems to claim that "in (b), *I have a conscious experience of a red sensation because I am conscious of having a green sensation*" (1998, p.422), which is bizarre.

Here is the reason why Neander thinks the above claim is bizarre. According to reading (iii), the role of the higher-order representation seems to be that of a light which is lighting up what is in the dark, that is, making the qualitative property which already exist there become conscious. If so, introspection cannot change the color qualitative property which exist in the first place. However, Neander claims, "this representational way of making color visible brings with it the power to alter the way the color is experienced by us" (1998, p.424). For example, when Oscar misperceives a red rose petal to be a green leaf, he might be said to be seeing a red rose petal, but we wouldn't say that he is experiencing the red quality in the relevant sense. Oscar should be understood as experiencing the red rose petal as the greenness of the green leaf. From this, Neander derives that "if self-monitoring is a matter of 'seeing' qualia…, it is hard to see how it can fail to have the power to affect the quality of our experience of them" (1998, p.424). That is to say, if Oscar misperceives a red rose petal as a green leaf, he would not be able to experience the red quality of the rose petal. If so, we seem to be forced to accept L2, which is inconsistent with Lycan's official theory, as expressed by L1.

5.1.3.2 Lycan's Response to Neander's Objection

As mentioned, Neander's objection relies on her understanding Lycan as claiming that in all three cases (a), (b) and (c), Oscar experiences the same phenomenal character

of the color qualitative property. Having the phenomenal character of a red color qualitative property is the same as to know what it is like to have an experience with the red qualitative property, and, therefore, the same as to have the subjective character of the red qualitative property. But is this really what Lycan claims? According to Lycan, no two persons perceive the same physical object in the same way, hence, the experiences of any two persons will represent the same object in different ways. Different representations will cause different behaviors, hence, each person's experience of the same object will be functionally different. Since the subjective character of an unconscious sensory experience of pain is just the quality of the first-order sensory state of pain, the first-order sensory state of pain is determined by both its qualitative property and its functional role.

However, the notion of "qualitative property" at issue here is that of the "what it's like" of having a conscious sensory state rather than that of the qualitative property of a first-order sensory state. And, the different behavioral effects that are caused by the first-order qualitative properties are not the same as the different phenomenal characters of different conscious sensory states, given that the latter are determined by the second-order representation. Hence, the question at issue here is whether, in the phenomenal character of a conscious sensory state, the qualitative property can be separated from its functional role. Neander claims that "[q]ualia are supposed to be the simplest properties that we can introspect upon, so if the motivational affect is detachable, it seems that we have a number of qualia involved in an ordinary experience of pain [or colored object]" (1998, p.420). If it is true that qualitative property and their motivational affect can fall apart, then Neander's argument mentioned in the last section follows naturally and it will

pose an unsolvable challenge to Lycan's theory of phenomenal character.

However, Lycan denies the premise and answers that "I do not separate the affective components of a pain [or color] experience from its overall feel. … the quale is only one component of the feel" (1998, p.484).[99] That is, Lycan doesn't say in the quoted paragraph what Neander attributes to him—i.e., that Lycan interprets what it is like to have a conscious experience of feeling pain (and the subjective character of experience) as experiencing the pain qualitative property consciously. Rather, what Lycan claims there is that even though you have a conscious sensation of the pain qualitative property in the false positive cases, the feel you have in the false positive case will be different from the feel you have in a normal case of experiencing a pain qualitative property. That is to say, for Lycan, L2 should be reformulated as (L2*) rather than, following Neander, as (L2**).

> L2*. The overall feel of a conscious experience is (determined by) the secondary representing of the first-order sensory representation.
>
> L2**. The (feel of the) qualitative property of a conscious experience is (determined by) the secondary representing of the first-order sensory representation.

Thesis (L2*) is compatible with Lycan's theory of qualitative property, L1, since even though the qualitative part of the sensory state is determined by the first-order sensory state, the overall feels of different conscious experiences that have that same qualitative component can be different from each other as long as the components by means of which our higher-order representation represents the first-order sensation include both its

[99] Lycan, William. (1998). "In Defense of The Representational Theory of Qualia." *Philosophical Perspectives, 12*.

qualitative properties and its motivational effects. The same holds in visual sensation. When Oscar introspects a first-order visual sensation that is caused by a green object, or has a higher-order representation of a sensory state of green, it doesn't imply that Oscar will have a phenomenal character of a pure green qualitative property. According to Lycan's theory, "the false-positive 'pain' experience would feel different, …, though its strict-sense quale would be the same as that of a real pain" (1998, p.484), since the over-all feels in both cases are different. It is the same in the case of visual sensation.

5.1.3.3 A Rejoinder to Lycan's Answer

Even though Lycan makes it sound as if he is answering the problems of misrepresentation in both situations (b) and (c), by appealing to (L2*), he seems to answer only the problem in (b) but not the problem in (c). (I will discuss Lycan's answer to the case (b) in section 5.2.3.3 and focus on the case (c) in this section.) Given (L2*), when a higher-order representation misrepresents the qualitative property of the first-order sensory state, it is acceptable to say that the overall feel of the conscious sensory states in (b) will be different from the overall feel in (a). But can (L2*) be applied to explain case (c)? Is it reasonable to say that there is a conscious mental state in case (c) in which there is no first-order sensory state, not to mention the question of whether there is a phenomenal character to it?

Assume that (L2*) is correct and Oscar can have a higher-order representation of green color sensation when, in fact, he has no first-order green color sensory state at all. According to Lycan's answer, in this kind of situation, Oscar would still have the overall feel (i.e., phenomenal character) even though there is no first-order sensory state. The

only way to explain how this overall feel comes about seems to be that it comes from (is determined by) the higher-order representations. Since only conscious mental states cause (or enable) the subject to have the overall feel of a conscious sensory state, that will mean that a higher-order representation without a target first-order sensory state can make a sensory state that does not exist become a conscious mental state, or it (the higher-order representation which fails to target a first-order sensory state) can cause (or enable) the subject to have the overall feel, which includes the qualitative property, without creating any sensory state.

To say that there is a conscious sensory state in case (c) is almost the same as to claim that a higher-order representation can create a sensory state, which seems bizarre. The remaining possibility is that the higher-order representations can make the subject have the same overall feel as he would if he were having the relevant conscious sensory state, but without actually creating any sensory state.

In the false positive case, there are two possible ways to understand how a higher-order representation can cause a subject to have the overall feel of a conscious sensory experience without creating any first-order sensory state. Either the phenomenal character is caused by the operation of the higher-order perceptual scanning, i.e., the inner sense's perceiving the first-order sensory states, or it is caused by the output of the higher-order perception, which is a higher-order self-ascriptive mental expression. If we take the first case, the qualitative property (which is one of the components of the overall feel) of a false positive might come from the qualitative property of the higher-order perception itself.

Occasionally, external perception misrepresents physical objects. For example,

when Oscar has a red after-image, he (mis)perceives a red spot when there is no red object in his visual field. The same might hold for our inner perception. When Oscar's inner sense (mis)perceives a first-order sensory state as having a red mental qualitative property while no first-order sensory state exists, his inner sense might still perceive the red qualitative property. Then, if the qualitative property of our higher-order perceptions is the same as those of our first-order sensory states, the false positive case (c) will have the same qualitative property as in case (a).

Rosenthal denies that the qualitative property of the higher-order perceptions can be the same as those of first-order mental states. He claims, "when we see a tomato, the redness of our sensation is not literally the same property as the redness of the tomato" (1997, p.740).[100] (One is a mental quality, the other is a physical property.) This can be applied to the situation between higher-order perception and first-order sensory states. If Rosenthal is right, the overall feel of the false positive in case (c) is not the same as the overall feel in case (a), since case (a) includes the first-order qualitative property which case (c) lacks.

Lycan might agree that the qualitative properties of higher-order perceptions are not the same as the qualitative properties of first-order sensory states, but still they are similar. That is to say, a higher-order perception might make a subject have the qualitative feel of a false positive as if he is having (or experiencing) the relevant first-order sensory state. If so, having the qualitative property of a higher-order perception that is similar to, rather than the same as, the qualitative property of a relevant first-order sensory state can still explain the overall feel of a false positive case. If so, Lycan's

[100] Rosenthal, David. (1997a): "A Theory of Consciousness." In *The Nature of Consciousness: Philosophical Debates*. (Eds.) N. Block, O. Flanagan, and G. Guzeldere. Cambridge, Mass.: The MIT Press (1997).

argument will still go through.

However, Rosenthal's argument against the higher-order perception theory of consciousness claims that there are no higher-order qualities and this can be used to block this way out. He claims that "it's a mystery what those higher-order qualities could be. What mental qualities are there in our mental lives other than those which characterize our first-order sensory states"[101] (2002a, p.409)? Since the qualitative properties of the higher-order perceptions don't seem to be the same as the qualitative properties of the first-order sensory states, nor do they differ from them, Rosenthal goes a step further and concludes that "the higher-order states cannot have qualities at all" (2002a, p.409). If Rosenthal's argument against the existence of higher-order qualities is correct, appealing to the qualitative properties of a higher-order perception to explain how the overall feel of a false positive comes about fails.

If we take the alternative case, i.e., the overall feel (in which a qualitative feel is included) of a false positive might come from the relevant higher-order self-ascriptive mental expressions, which are conceptual representations. A higher-order conceptual representation without any target seems to be just a regular first-order conceptual mental state, such as a thought. Then, my question is: if we accept that there is a conscious overall feel (qualitative feel included) in case (c), in which there is a higher-order representation that fails to target any sensory state, then why can't holding a thought that doesn't target any sensory state create a conscious overall feel that has a qualitative feel as one of its components? The only choice seems to claim that higher-order thoughts differ from first-order thoughts, the former being about one's own mental state, while the

[101] Rosenthal, David. (2002a). "Explaining Consciousness." In *Philosophy of Mind.* (Ed.) David Chalmers. New York and Oxford: Oxford University Press (2002).

latter is about the objects or properties of one's perceptual experiences. Moreover, higher-order thoughts normally affect the ways we are conscious of our conscious sensory states. That is to say, Lycan would have to accept the higher-order thought theory of phenomenal character, which I will discuss in the next section.

My conclusion is that by replacing L2 with (L2*), Lycan can answer Neander's objection only if he accepts the claim that a HOT can cause in its host an overall feel, which has a qualitative feel as one of its components. But this would force him to accept the HOT theory of phenomenal character, which contradicts his own view of phenomenal character. (Lycan holds that qualitative property is determined by first-order sensory states, while consciousness only reveals what is already there from the beginning.)

5.2 The Higher-order Thought Theory of Phenomenal Consciousness

Lycan's labor division theory of phenomenal consciousness faces some insurmountable difficulties. The representational theory of first-order sensory state faces most of the problems we have discussed in chapter one; the higher-order perception hypothesis of consciousness cannot explain the phenomenal character of a false positive, case (c), in which the higher-order representations misrepresent one as in a sensory state even though there is no first-order mental state. As I will argue in this section, it cannot explain case (b) either. In this section, I will discuss the HOT theory of phenomenal character and argue that it can explain some phenomena of color perceptions which other theories cannot and it is also compatible with the conclusions I derived in previous chapters.

Rosenthal's labor division theory holds, first, the quality space theory of qualitative properties which, in order to define qualitative properties without appealing to consciousness, appeals to the functional roles played by qualitative properties in perception. The qualitative properties of a particular sensory modality are individuated by means of the similarity and difference relationships among the relevant perceptible properties of physical objects. Secondly, when a sensory state is conscious, it has the "what it is like" or the phenomenal character of having a particular sensory experience. According to the HOT theory, phenomenal character is totally determined by how the higher-order thoughts represent the first-order sensory states. Thus, it avoids most of the problems that are faced by Standard Representationalism and Lycan's theory.

In section 5.2.1, I will discuss the quality space theory of qualitative property, and the topic in section 5.2.2 will be the HOT theory of phenomenal character and the motivations for it. In section 5.2.3, I am going to discuss some advantages of the HOT theory of phenomenal character over its competitors.

5.2.1 The Quality Space Theory of Qualitative property

To answer the questions what are qualitative properties and how can they be identified independently of consciousness, Rosenthal says "the mental quality of visual sensations are whatever properties the sensations have which enable us to discriminate visually among physical objects in respect of their colors" (1999, p.165).[102] But this doesn't mean that mental qualities are the same as perceptible properties of physical objects or that there is a resemblance between individual properties of sensations and

[102] Rosenthal, David. (1999). "Sensory Qualities and the Relocation Story." In his *Consciousness and Mind*. Oxford: Clarendon Press (2006b).

their individual physical counterparts. Mental qualities are different from physical properties. Rather, there is a connection between mental qualities and physical properties which holds between entire families of properties. There is a homomorphic relation between the ways the various mental qualities resemble and differ from one another and the ways the perceptible properties of the relevant stimulus conditions resemble and differ from each other. For example, a perceptible property of red is closer to pink than to yellow; a perceptible property of yellow is closer to orange than to green. The same similarity and difference relationships hold among mental qualities of the same sensory modality (Rosenthal, 1999, p.168; 2006a, p.198).[103]

What is the homomorphic relation between the families of qualitative and perceptible properties? It is a one-to-many correspondence between qualitative properties and perceptible properties—one qualitative property corresponds to many different perceptible properties. The abilities to discriminate and identify differ from individual to individual. Some can discriminate colors with slightly different shades better than others. Some subjects might be able to discriminate among different shades of red, say, red_{17}, red_{18} and red_{19}, but most would not be able to see any difference among these shades of red. For those who cannot discriminate among these shades of red, they see these physical properties as having the same perceptible properties, that is, these different colors will cause only one qualitative property in the sensory state of the subject. Thus, one qualitative property will correspond to many different perceptible properties which cause in the subject's sensory experiences the same qualitative property. That is why the

[103] Rosenthal, David. (2006a). "Sensory Qualities, Consciousness, and Perception," In his *Consciousness and Mind*. Oxford University Press (2006b).

relation between the family of qualitative properties and the family of perceptible properties is homomorphic, rather than isomorphic.

How is it possible to identify mental qualities by means of the homomorphic relation between the families of qualitative and physical properties? According to Rosenthal, we identify the mental qualities by means of the perceptible properties of physical objects; and whether a subject perceives a physical property as red depends on whether that perception causes in her a perceptual thought that a red object is presented to her (Rosenthal, 1999, p.169). Thus we can tell if the subject's sensory experiences is of a red qualitative property by whether that sensory experience causes in her a perceptual thought that a red object is presented to her.

The ways we characterize the qualitative properties of sensations rely on the commonsense taxonomies of the perceptible properties of physical objects. And, in turn, these commonsense taxonomies depend on the discriminative abilities of the relevant perceptual systems. Therefore, the similarities and differences among the various qualitative properties are determined by the organism's ability to discriminate the perceptible properties of physical objects.

To illustrate, we appeal to the perceptible colors of physical objects to identify the qualitative color properties of sensory experiences. A subject normally will have a visual experience with a red qualitative property if she sees a red object under normal viewing conditions and this will cause her to have a perceptual thought that a red object is present to her. Thus, a subject's sensory experience of red object normally is accompanied by a perceptual thought that a red object is present to that subject. If so, we can individuate the

qualitative properties of sensory experiences by means of their functional roles in the perception of physical properties.

Generalize the case just mentioned and we get the conclusion that a particular type of sensory experiences, S, is normally accompanied by a perceptual thought T, since S typically causes a relevant type of perceptual thought T. If whenever there is T, there is S, we can use T to determine what a sensory experience S is. For that reason, we also can use the similarity and difference relationships among perceptual properties as perceptual thoughts represent them to determine the similarity and difference between qualitative properties. That is to say, "we identify sensory experiences as being qualitatively similar and different by references to the perceptual thought they cause" (Rosenthal, 1999, p.169). This explains the homomorphic relation between the qualitative properties of sensory experiences and the perceptible properties of physical objects.

The subject's abilities to discriminate and identify among the perceptible properties define for each sensory modality a quality space. Thus, we can also describe a homomorphic connection as between the quality spaces of mental qualities and physical properties. Since both mental and perceptible qualities are defined by the similarity and difference relationships among the members of their family and form a quality space respectively, "the individual mental qualities of each modality are defined by their positions in a quality space that's homomorphic to the quality space of the perceptible properties accessible to that modality" (Rosenthal, 2006a, p.202).

Even though the quality space theory of qualitative property appeals to discriminative abilities, the states by means of which the subjects discriminate perceptible properties don't have to be conscious states. Physical objects have qualitative properties

whether there is someone to perceive them or not; the same in the case of mental states: a subject discriminates qualitative properties of sensory experiences when he is introspectively conscious of them, but the similarity and difference relationships among qualitative properties hold even when the subject is not introspectively aware of them (Rosenthal, 2006a, p.202). Thus, the quality space theory of qualitative properties defines qualitative properties without appealing to consciousness.

When qualitative properties are not conscious, they are just properties that resemble and differ in ways homomorphic to the similarities and differences among the corresponding perceptible properties. When qualitative properties are conscious, they also have the "what it is like" or phenomenal character of having a particular sensory experience that results from how our HOTs represent us as being in a state that has that relevant qualitative property. I will discuss the relation between HOT and qualitative property in the next section.

5.2.2 The HOT Theory of Phenomenal Character

The higher-order thought (HOT) hypothesis of consciousness holds that a mental state is conscious when there is a noninferential HOT which targets that very mental state. In the case of sensory states, the HOT hypothesis not only explains whether or not a sensory state is conscious, it also explains the phenomenal character (or the "what it is like") of having different kinds of sensory experiences. A sensory experience is conscious when a relevant HOT targets it, and only when a sensory experience is conscious do we know "what it is like" to have that sensory experience.

According to the HOT theory of consciousness, what it is like for one to have a conscious sensation depends on how the relevant HOT represents it, i.e., on the content of

the relevant HOT. If the subject's HOT represents her as having a sensory experience with a red qualitative property, that is what it is like for her to have that conscious sensory experience. Since the qualitative property of a sensory experience is normally individuated by the accompanying perceptual thought of the relevant physical property, this suggests that when a sensory experience in a particular modality is conscious, the relevant HOT will represent it as having a qualitative property which is homomorphic to the perceptible physical property (Rosenthal, 1999, p.173). For example, When one is in a conscious sensory state of seeing red, one has a HOT that represents one as in a sensory state with the relevant qualitative property that is homomorphic to physical red that is located in a particular position (or area) in the quality space of color.

Thus, both the concepts we use to characterize the qualitative properties and the concepts that are used in the relevant HOTs, when the sensations are conscious, are borrowed from the concepts for perceptible properties that cause those sensations. Since the concepts of the mental qualities of sensations are borrowed from perceptible properties, there is a homomorphic relation between the two families of similarities and differences. Therefore, when a sensation is conscious as a sensation with a "red" mental quality, the relevant HOT describes that sensation by means of that homomorphic relation. Since our HOT describes the sensation by means of the homomorphic relation between the concepts of qualitative properties and the concepts of perceptible properties, there is a homomorphic relation between these two sets of concepts.

However, if the qualitative properties of sensory experiences differ from the perceptible properties of physical objects, we cannot apply the concept of "red" to refer both the mental qualities and the perceptible properties. We need a different notion of

"red" in our HOTs that can refer to the qualitative properties of sensory states. Rosenthal says that, "once a creature has in place a family of concepts for the properties perceptible by some modality, it can extrapolate to new concepts that apply to the states in virtue of which it perceives those properties" (2005, p.204). I will follow Rosenthal by using the terms 'red', 'green' and so on to refer to only physical colors and use 'red*', 'green*', etc only to refer to the qualitative properties of color sensations.

The higher-order thought theory also can explain why a conscious sensory state has the phenomenal character it does. Each qualitative property of a visual sensation is fixed by its location in the quality space, according to the quality space theory. When a sensory state is presented in consciousness as having the red* qualitative property, the phenomenal character of this conscious sensory state is fixed by how one is conscious of oneself as having a sensory state with a particular qualitative property, i.e., the red* qualitative property. Therefore, a conscious sensory state has the phenomenal character it does, say red*, when the subject is conscious of herself as having the red* qualitative property which is located in a position (or an area) in mental quality space that is homomorphic to the position that is occupied by the red perceptible property in the perceptible quality space (Rosenthal, 2006a, p.203).

Even those who are willing to accept the HOT theory of consciousness may wonder how simply having a thought could cause one's sensory experiences to have the phenomenal character of being in a particular sensory state. However, some phenomena in our daily sensory experiences seem to suggest that HOTs affect one's being conscious of sensory experiences. In perceptual experience, one normally perceives lots of information from the external world but is only aware of some of it. Similarly, in the case

of being introspectively conscious of one's own sensory states, the subjects are conscious of the qualitative properties of sensory states in more or less refined ways. A subject may be conscious of the red* property of her visual experience as having a particular shade of red*, such as, yellowish red* on one occasion but as unique red* on another occasion, since we are not always aware of qualitative properties as they actually are. Such a subject would experience different phenomenal characters—one yellowish red* and the other unique red*—of being in that red* sensory state in these two different situations. HOTs characterize how one is conscious of the sensation with the red* qualitative property and how one's consciousness of the sensory state determines what it is like to have that conscious sensory experience. Thus, HOTs do affect the phenomenal character of being conscious of sensory experiences.

It also happens that learning new words for the qualitative properties of our sensory experiences actually affects the phenomenal character of being conscious of sensory experiences. Take the learning of wine taste for example, learning the words that describe a certain gustatory quality when one is tasting the wine sometimes leads one to come to be conscious of those qualitative properties. One comes to be aware of the sensory states of a particular wine taste as having gustatory qualities, such as, sharp*, tannic* and robust*. According to Rosenthal, in this kind of situation, it is likely because learning new ways to characterize the qualitative properties of gustatory sensations leads us to come to be conscious of the original qualitative properies in new ways. Since the words we use to describe gustatory sensations reflect the thoughts of gustatory qualities we have, the phenomenal characters of having those conscious gustatory sensations are exactly the qualitative properties our HOTs represent those states as having. Thus, again,

the phenomenal character of having a particular gustatory state is determined by the ways one's HOTs represent that state (Rosenthal, 2006a, p.187).

Sometimes, one can be in a conscious state that doesn't even exist. For example, in the case of dental fear, dental patients sometimes report feeling pain* when their physiological conditions show that no pain* could be occurring at all and that the usual explanation is that fear and the sensation of vibration* cause the patient to confabulate feeling pain*. After learning this explanation, the patients don't feel pain* anymore during the dental work but the patients' memory of what it is like of the previous experiences remains the same (Rosenthal, 1999, p.172; 2006a, p.209). It seems that the HOT hypothesis offers the best explanation of this phenomenon. The dental patients' consciousness of the same sensory experience is different before and after learning the explanation and that results in having a different phenomenal character while having the same sensory experience. Their consciousness represents the sensory experience as having a pain* property before learning the explanation, but as a vibration* property later on. Again, this case seems to support the claim that HOTs affect the phenomenal character of having a conscious sensation.

If the phenomenal character of having a conscious sensation is determined by the ways HOTs represent it, we face some problems. The first one is that we don't have all the conceptual resources we need to represent sensory experiences. There are so many shades of colors such that we don't even know what they are or what they are called and therefore we don't have the conceptual resources for most of the different shades of perceptible colors we can discern. In turn, we don't have the relevant concepts of qualitative properties for the HOTs to represent our sensory states as having qualitative

properties we can discriminate. However, when we see those different shades of colors, we do experience different phenomenal characters for these different visual sensations. This seems to contradict the HOT hypothesis of consciousness, since we don't have the relevant concepts that would allow HOTs to represent sensory states as having those qualitative properties, but we can still have different phenomenal characters of seeing different fine-grained shades of colors.

The second problem is that, as mentioned before, Diana Raffman points out subjects normally can discriminate and identify more accurately two different token shades of color as the same or different when they are seen simultaneously than when they are seen one by one. If the phenomenal character of seeing different perceptible properties consciously is determined by HOTs, why do they represent sensory states as having more fine-grained qualitative color properties when they are presented together than when they are seen one by one?

Rosenthal admits that we don't have all the words or concepts for every single mental quality we can discriminate, whether they are seen simultaneously or one by one. However, we have plenty of comparative concepts that offer enough conceptual resources for us to discriminate any quality we can discern consciously. By applying the comparative concepts, we can consciously discriminate any two different shades of colors, say red, by representing one shade of red color as slightly darker or brighter than the other, slightly more yellow or bluer than the other. This way, we can use comparative concepts to represent different fine-grained shades of colors. Thus, the first problem is solved.

The second problem arises when our sensory experiences have different fine-grained color* properties and we don't have noncomparative concepts to represent those qualitative properties. In this kind of situation, we can be conscious of the qualitative differences only when we are able to compare them at the same time. This is because, Rosenthal explains, "when qualitative differences are so slight that we capture them only using comparative concepts as well, then we are conscious of those slight differences only when the qualities occur together. This strongly suggests that what matters to the way we're conscious of these qualities is the kind of concept we have available to individuate the qualities" (2006a, p.189).

That is to say, HOTs normally represent the slight difference between fine-grained color* properties by means of comparative concepts. Thus, when the fine-grained color* properties occur together, we are able to be conscious of the qualitative difference between them and are aware that they have different phenomenal characters. When the fine-grained color* properties aren't present together, we rarely use comparative concepts to represent them and the result is that we cannot discriminate between them. This answers the second problem. In fact, that fact that different conceptual resources affect the phenomenal character of our conscious sensory experience is a confirmation of the HOT hypothesis.

That we can only discriminate fine-grained color* properties by appealing to comparative concepts strongly suggests that we're conscious of them only comparatively. That is, we are always conscious of them as slightly darker* or brighter*, slightly bluer* or more yellow*, and so on. In fact, according to the quality space theory, the concepts by means of which we are conscious of qualitative properties are basically comparative

concepts. Noncomparative concepts of coarse-grained colors* are just a short hand to refer to a particular area in the relevant quality space (Rosenthal, 2006a, pp.205-206).

This explanation fits well with the quality space theory of qualitative properties, which defines qualitative properties by means of their similarity and difference relationships to other qualitative properties in their family, that family homomorphic to the family of perceptual properties. We fixed the similarity and difference relationships between qualitative properties in virtue of the conscious cases, the phenomenal character of which is determined by the accompanying HOTs. Our HOTs normally represent the conscious sensory states comparatively, i.e., by comparative concepts that explain the similarity and difference relationships between qualitative properties. This is exactly what the quality space theory implies.

5.2.3 The Advantages of the HOT Theory of Phenomenal Character

In chapter one, I argued against Standard Representational theory, since it is not consistent with the phenomenon of variation of normal color vision and color constancy. I also rejected both the Inverted Spectrum and the Inverted Earth arguments that are supposed to support qualia realism in chapters 2 and 3. In chapter 4, I have pointed out some problems with Shoemaker's account of appearance properties, by means of which he tries to explain phenomenal character. I also argued that Lycan's theory faces the problem of higher-order misrepresentation in the previous section of this chapter. In this section, I want to show that the quality space theory plus HOT hypothesis can handle all the problems other competing theories face and is consistent with the conclusions reached in my arguments.

5.2.3.1 HOT Theory of Phenomenal Character and The Inverted Spectrum

The issue of the inverted spectrum divides into two different issues in the labor division theory: one is about the inverted qualitative property; the other one is about the inverted phenomenal characters. The quality space theory of qualitative properties rules out both possibilities: a sensory state that has the same intentional content but has inverted qualitative properties, or inverted phenomenal characters.

According to the quality space theory of qualitative property, the color* qualities of sensory experiences are determined in virtue of the similarity and difference relationships among the color* qualities in its family, while the intentional content of a sensory experience is determined by the content of a perceptual thought that is caused by this very sensory experience. Given that the quality space of perceptible color is asymmetric, any inversion between two colors* would change the structure of the quality space, that is, the similarity and difference relationship among color* properties would change. The homomorphic relation between the quality spaces of sensory color* and perceptible color would be destroyed and the inversion would be behaviorally detectable, since the perceptual function of inverted colors* could change too. What about in the possible case of a symmetric color space? Rosenthal argues:

> Undetectable inversion of mental qualities would have to take place around an axis of symmetry in respect of similarities and differences. But no such symmetry can exist in the space of mental qualities without also existing in the space of perceptible properties, and that symmetry would mean that the qualities on the two sides of the axis would be indistinguishable. So, undetectable inversion of mental qualities cannot occur. (2006a, p.224)

The same conclusion holds for the possibility of inverted phenomenal characters of sensory experiences. As mentioned earlier, the similarity and difference relations among qualitative properties in a given family are fixed by the conscious case, the phenomenal character of which is determined by the accompanying HOTs. HOTs represent the qualitative properties of color* quality space as having relations of similarity and difference relations that are homomophic to those of the quality space of perceptible properties. Given that the quality space is asymmetric, if there is inversion in the way the HOTs represent the qualitative properties, there is no homomorphic relation holding between the quality space the HOTs represent the color* qualitative property as having and that of the perceptible properties. Thus, the inversion will be behaviorally detectable. If the quality space is symmetric, the quality on two sides of the axis would be indistinguishable.

As I argued in chapter 2, this argument works against the intrasubjective case of the IS argument which rests on the claim that the entire spectrum is inverted at once; but fails to address Shoemaker's argument which derives the entire spectrum inversion from a series of partial inversions.

The case of partial inversion is behaviorally detectable and is compatible with Rosenthal's idea that there is no behaviorally detectable case of IS. However, once one admits the possibility of intrasubjective partial inversion, it is hard to stop Shoemaker from deriving the intrasubjective case of entire spectrum inversion from a series of partial inversions. In turn, we have the intersubjective case of IS. We must stop Shoemaker's argument from the beginning, that is, reject the possibility of partial inversion. I have argued that the partial inversion case of IS contradicts the structure constraint of the

quality space of colors* and, thus, is impossible. That is to say, given that there is no malfunction in the subject's perceptual and cognitive systems, there is no partial IS even if it would be behaviorally detectable. In the discussion of Block's IS argument in section 2.2.2.2, I also rejected the argument that there is full spectrum inversion that is behaviorally detectable.

Rosenthal claims that "[t]he HOT hypothesis, taken together with [the quality space] theory, precludes inversion of conscious qualities undetectable from a third-person point of view" (2006a, p.224). I have argued that it also rules out the intrasubjective partial inversion of conscious qualitative properties that would be behaviorally detectable. Adding that there is no full spectrum inversion that is behaviorally detectable in the intrasubjective case, it seems safe to make a stronger claim that the quality space theory plus HOT hypothesis rules out inversion of conscious qualitative properties, whether it is a partial or entire spectrum inversion, behaviorally detectable or undetectable.

The quality space theory of qualitative properties plus HOT hypothesis is consistent with the claim that there is no inverted spectrum at all. HOTs are borrowed from perceptual thoughts. The phenomenal character of sensory experiences are individuated by what perceptual thoughts they cause, hence there is a necessary connection between the way a HOT represents a set of sensory experiences and the relevant perceptual thought. When a subject has a conscious experience and the accompanying HOT represents the sensory state as having a red* property, this conscious experience normally will cause the subject to have a perceptual thought that a red object is presented to her, unless a malfunction or a misrepresentation occurs. If the conscious

red* qualitative property and intentional content of a conscious red experience always occur together, there is no phenomenal character inversion without malfunction or misrepresentation, at least in the intrasubjective case.

5.2.3.2 HOT Theory of Phenomenal Character and The Shifted Spectra

The phenomenon of shifted spectra is that when subjects look at the same green color chip, some perceive it as unique green, others yellowish green and yet others bluish green under the same viewing conditions. Normally the variation only occurs at the fine-grained level of color perception but it does occur at the coarse-grained level sometimes as we have seen in chapter one.

The quality space theory is not only compatible with the phenomenon of shifted spectra, because the variations in the normal persons' visual perceptions are detectable;[104] but it also can explain the phenomenon of the shifted spectra. Subjects with a shifted spectrum will reveal it by their verbal and nonverbal behavior. When subjects look at the same pure green color chip, some will claim that it is yellowish green, others bluish green, yet others pure green. When they are asked to pick up a pure green color chip, some will pick a slightly yellowish green color chip, others a slightly bluish green color chip, yet others a pure green chip. This is compatible with the quality space theory of qualitative properties, because subjects perceive the pure green color chip differently and the qualitative properties of their experiences cause different verbal and nonverbal behavior. That is, the qualitative properties of the subjects' experiences play different functional roles. The quality space theory claims that the qualitative properties of color

[104] See Block, Ned. (1999). "Sexism, Racism, Ageism and the Nature of Consciousness." In his *Consciousness, Function, and Representation: Collected Papers, Volume 1*. Cambridge, Mass.: The MIT Press (2007). p.578.

experiences are not determined by the physical color property they perceive, but rather are determined by their functional roles in color perception.

How can the quality space theory explain the phenomenon of shifted spectra (or shifted color* qualitative properties)? The quality space theory claims that the relation between the family of qualitative and perceptible properties is homomorphic and the qualitative property of a color experience is determined by its location in the quality space of color*. Each subject has different discriminating and identifying abilities, thus, when they are shown the same green color chip, some of them will categorize it as pure green, others slightly yellowish green and yet others slightly bluish green, according to their abilities of discrimination and identification. The subjects' sensory experiences will locate the qualitative properties in different locations in the quality space of their qualitative properties according to what kind of qualitative property this green color chip causes in their sensory experiences. That is to say, the phenomenon of shifted spectra is due to the differences among the subjects' abilities of discrimination and identification.

When the sensory experience is conscious, the phenomenon of shifted spectra (or the shifted "what it is likeness" of having a conscious experience of seeing colors) is due to the different ways subjects are aware of their sensory experiences. According to the quality space theory, the subjects' sensory experience of pure green color will cause these subjects to have a perceptual thought of either pure green, slightly yellowish green or bluish green and, in turn, subjects will apply the relevant HOT to represent it as having a qualitative property of pure green*, slightly yellowish green or slightly bluish green that is homomorphic to the relevant perceptible property of green. Since the same green color chip causes the subjects' experience to have different qualitative properties and the

accompanied HOTs represent the qualitative properties of their experiences as having different qualitative properties, there are shifted phenomenal characters or "what it is likeness" of seeing the same green color chip among the subjects' sensory experiences. The same with the phenomenal character of conscious experiences of other colors.

In sum, the phenomenon of shifted spectra is due to the difference among subjects' abilities of discrimination and identification, and is revealed in their behavior. The subjects respond differently to the physical stimuli and their sensory experiences play different functional roles in their sensory systems, which, in turn, result in the different accompanying HOTs in their conscious experiences of the same color chip. This explains the phenomenon of shifted spectra among conscious experiences.

5.2.3.3 HOT Theory and Higher-order Misrepresentation

Levine raises an objection to the labor division theory that rests on the case (b) in Neander's argument.

> (b) I have a sensory representation of something as *red*. But I represent myself as representing something as *green.*

First, Levine points out that the purpose of the labor division theory is to separate the issue of qualitative property from the issue of subjectivity (or phenomenal character), but he then argues that whether we answer the higher-order misrepresentation of case (b) by (L1) or (L2), (rewritten below), we face a problem—which collapses these two different issues back together.

> L1. The first order qualitative properties determine the qualities of (unconscious) sensory experiences, while the higher-order representations determine the subjectivity (or phenomenal character) of conscious sensation.
> L2. The phenomenal character of conscious experience is determined by the higher-order representing of the first-order sensory representation.

Levine argues that if we take the Lycan's line, i.e., the (L1) line, and hold that the phenomenal character of sensory experience is still reddish, even if the higher-order state is misrepresenting the first-order qualitative property, it seems that we collapse the two different issues back together to the first-order state. If we take the HOT line, i.e., the (L2) line, and say the subject's experience has greenish phenomenal character, because this is what the higher-order state represents the first-order sensory state as having, then it seems that the first-order state does not play any role in determining the phenomenal character of experience at all. Again, the higher-order theory collapses the issues of qualitative properties and subjectivity (or phenomenal character) back together again (2001, p.108).[105]

Before we go further and discuss Levine's objection, I would like to check whether Lycan's appeal to the distinction between qualitative feel and overall feel can answer Neander's challenge to case (b). Lycan claims that in case (b), the first-order states have qualitative feel while the conscious sensations have overall feel. However, appealing to the notion of overall feel faces some problems.

The first problem is that it is not clear what "overall feel" means and how to tell whether two different tokens of overall feels are the same or different. The second problem is that if overall feels include everything, such as, desires, beliefs and behaviors, involved in having a conscious experience, it is very likely that two persons might have different overall feels even when they are in the same sensory states without higher-order misrepresentation as in case (a) of Neander's argument. A veridical conscious experience without higher-order misrepresentation might causes Jill to have a belief about red apples

[105] Levine, Joseph. (2001). *Purple Haze: The Puzzle of Consciousness*. Oxford and New York: Oxford University Press.

while causes in Jack a belief about Christmas day, … and so on, if so, the overall feels of their conscious experiences will be different. Thus, the notion of overall feel differs from the notion of phenomenal character and cannot be appealed to in order to answer the question about phenomenal character.

I conclude that Lycan's theory fails to answer both Neander's challenges of how to explain the higher-order misrepresentation in both cases (b) and (c).

Let's go back to Levine's challenge. Can Lycan's theory handle Levine's challenge? Without the conception of "overall feel" to distinguish the phenomenal character of conscious sensory states from the first-order qualitative character, Lycan must say that the higher-order states merely reveal the qualitative character of first-order sensory states which exist independently, without adding anything else to the qualitative property. That is, phenomenal character is only a conscious case of qualitative property. Thus, it collapses the qualitative character and phenomenal character back to the first-order qualitative character as Levine charges.

The situation in the HOT theory is different. The HOT theory can handle both of Neander's cases of higher-order misrepresentation, (b) and (c). According to HOT theory, the phenomenal character of conscious sensory experience is determined by how the HOTs represent the first-order sensory states, and we have seen some evidence that HOTs do affect one's awareness of conscious sensory experiences. Hence, both cases (b) and (c) in Neander's argument cause no problem for the HOT theory.

To Levine's argument that the HOT theory collapses qualitative character and subjectivity (or phenomenal character) back together, since HOTs totally determine the phenomenal character, Rosenthal answers, "this conclusion trades on a tendentious

understanding of qualitative character" (2006a, p.217). For Levine's objection to work, one must understand qualitative character as identical to phenomenal character, which implies that qualitative properties must be conscious. The HOT theory distinguishes these two different conceptions. Qualitative character, in a given modality, is determined by the relations among sensory states, which is fixed by the relevant perceptual properties, independent of consciousness. Phenomenal character is just the way HOTs represent the first-order states. Thus, there is a difference between them (qualitative character and phenomenal character) and the charge of collapsing both together in case (b) is groundless.

5.2.3.4 HOT Theory and The Phenomenon of Color Constancy

Color constancy is the phenomenon that the surface of an object doesn't appear to change its colors under different lighting conditions, but yet, due to those different lighting conditions, the surface of the object looks different phenomenally. Thompson claims there are two different color properties involved in this phenomenon—surface color, which is the objective color(s) of the object, and sensory color, which is the way the surface colors appear to one. We see both kinds of colors. Cohen denies there is surface color, but rather only the sensory color (or apparent color) involved in color constancy. Hilbert suggests that we see different physical "colors" in this alleged phenomenon, thus there is no sensory color involved.

Rosenthal claims that there is color constancy. When we look at the surface of a wall with an even color all over, there is a difference in the sensed colors of different areas of the wall due to different lighting conditions, but we normally judge that the wall

has the same color all over. So, it seems that Rosenthal understands the phenomenon of color constancy the same way as Thompson, i.e., the wall has different sensed colors, but the same perceivable (surface) color. If this is the way we are conscious of the wall, then how could we be aware of the colored wall in this way? How can we see the wall as having different sensed color but also having the same surface color at the same time?

HOT theory explains this phenomenon as being due to the difference between sensing and perceiving the relevant color. Rosenthal writes, "[s]ensations and perceptions both have mental qualities, but perceptions, unlike sensations, also exhibit intentional content. Perceptions are qualitative states with conceptual content, specifically content that conceptualizes whatever it is that the state's qualitative character enables one to sense" (2006a, p.215). Sensations have qualitative properties by means of which one can discriminate and identify perceptible properties but sensations also interact with other mental states, for example, causing the subjects to have some propositional states, if they have the conceptual ability. When sensations do cause the propositional states, the subjects have perceptual states, which have both qualitative properties and the intentional content that conceptualizes what it is the subjects sensed. Thus, perceptual states are states with qualitative properties and conceptual intentional content, while sensory states only have qualitative properties.

It is easy to confuse a perceptual state with a conscious sensory state. According to the HOT theory, a conscious sensation is a sensory state with a certain qualitative property and a HOT that has an intentional content about the sensory state itself. A perception is a sensory state with a certain qualitative property and a conceptual intentional content about (or conceptualizing) the relevant perceptual properties. When

one has a conscious perception, one is in a state that has a qualitative property, an intentional content of the perceptible property and a HOT that is about one's own sensory state. To illustrate, when a subject consciously perceives a red flower, her perception has a red* qualitative property, a conceptual intentional content about the red flower and a HOT about the red* qualitative property of her sensory state. Hence there is a close connection between the intentional content and the HOT in a conscious perceptual state: whenever the intentional content conceptualizes the perceptible property as red, the HOT characterizes the qualitative property as red*. As we have seen, the concepts used to characterize the qualitative property in HOTs are borrowed from the concepts of perceptible properties. Thus HOTs represent perceptions in virtue of the qualitative properties that correspond to the perceptible properties of the object one perceives (2006a, pp.215-216).

With the distinction between sensation and perception in hand, let's go back to the phenomenon of color constancy. We can describe color constancy in terms of the distinction between sensation and perception as follows: the subjects see the same colored wall as having different sensed color but the same perceptible color. The constancy occurs because we conceptualize the perceptible property of the wall in perceptions, while the difference under different viewing condition is due to the fact that the way in which HOTs represent the sensory states and the sensed color rarely interferes with our perceptual judgment about the wall. Rosenthal says:

> "[The] variations in sensed color seldom interfere with our perceptual judgment that the wall has a uniform color, since that judgment is a matter of how we conceptualize the wall that we sense, rather than solely a matter of the sensing itself." (2006a, p.216)

Thus, the HOT theory explains the phenomenon of color constancy.

This explanation contradicts what Hilbert claims. Hilbert says, "it is [the wall] that appears both similar and different. There is nothing in the phenomenology of these cases that points to the change being internal and constancy external" (2005, p.145)[106], since "the sameness and difference we are concerned with are all perceived as external. It's the properties of [the wall] that are seen as changing in some ways and not in the others and properties of sensations are nowhere involved" (2005, p.148).

Hilbert's claim assumes that both sensed color and perceptible color are determined by the external conditions. Perceptible colors are decided by the physical property of colors, while sensed colors are also determined by different lighting conditions. Both are located at the perceptual level, since both are about intentional properties. The only difference is that sensed color has an additional condition—the lighting condition. This contradicts the commonsense view that the sensed colors are not perceived as the perceptible color properties, but rather are the ways in which we consciously sense the perceptible properties. According to HOT theory, only a conscious sensory state has the "what it's like" of seeing the difference in the sensed color and the phenomenal character of a conscious sensation. The phenomenal character is decided by the accompanying HOT. Thus the variation of sensed colors is determined internally and the phenomenal character of conscious sensation is involved in the phenomenon of color constancy, pace Hilbert.

[106] Hilbert, David. (2005). "Color Constancy and the Complexity of Color." *Philosophical Topics: Perception*, Vol.33, No.1.

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