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IN DEFENSE OF TWO INTENTIONALISM-DEFEATING INVERTED SPECTRUM
THOUGHT EXPERIMENTS

by

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B.A., Psychology and Philosophy, Auburn University, 2008

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ABSTRACT

Inverted spectrum thought experiments have often been used to argue against *Intentionalism*. Eric Marcus, in his article entitled “Intentionalism and the Imaginability of the Inverted Spectrum,” defends two versions of *Intentionalism*, which he calls *Intentionalism* and *Converse Intentionalism*, from four inverted-spectrum based arguments. Marcus labels the four arguments from which he defends *Intentionalism* the implausible error, symmetry, no-inference, and best theory of representation arguments.

In this article, I will bolster the arguments from no-inference and symmetry in order that they avoid Marcus’ defenses. Specifically, I will first show that the argument from no-inference may be modified to comply with Marcus’ additional condition on veridical perception, and thus that the argument refutes both versions of *Intentionalism*. I will, then, show that the argument from symmetry may be modified in such a way that it rests on a successful analogy, and thus that the argument refutes *Converse Intentionalism*.

INTRODUCTION

Intentionalism (a.k.a. representationalism) can be understood as the thesis that there is a symmetric dependence between phenomenal character and representational content (strong *Intentionalism*) or as the thesis that there is an asymmetric dependence between phenomenal character and representational content (weak *Intentionalism*). If weak *Intentionalism* is false, then strong *Intentionalism* is false. This paper will concentrate on two versions of weak *Intentionalism*. Specifically, the versions of *Intentionalism* with which this paper is concerned are those labeled and defined by Eric Marcus as follows:

Intentionalism: Necessarily, if two experiences E1 and E2 differ in their phenomenal character then they differ in their representational content.

Converse Intentionalism: Necessarily, if two experiences E1 and E2 differ in their representational content then they differ in their phenomenal character.

Marcus mentions that the versions of *Intentionalism* formulated above are endangered by thought experiments in which a subject (or pair of subjects) undergoes complete spectrum inversion such that for any two experiences E1 and E2 either:

- a. Possibly, E1 and E2 differ in their phenomenal character but have the same representational content.
- b. Possibly, E1 and E2 differ in their representational content but have the same phenomenal character.

If *a* then *Intentionalism* is false, and if *b* then *Converse Intentionalism* is false.

The possibility that phenomenal character and representational content may come apart as illustrated by *a* and *b* is argued for through the imaginability of certain thought

experiments in which it is purported that *a* or *b*, or *a* and *b* are realized. Eric Marcus offers a defense of both versions of *Intentionalism* from four such thought experiment based arguments. Marcus defends against the four arguments in the order of what he considers their increasing plausibility: the implausible error argument, the symmetry argument, the no-inference argument, and the best theory of representation argument. In this article, I will address the arguments from no-inference and symmetry. Sydney Shoemaker originally proposed both arguments. Yet, the formulations I shall be concerned with here are those offered by Eric Marcus.

The argument from no-inference purports to demonstrate that both versions of *Intentionalism* are false by showing that phenomenal character and representational content may come apart, i.e. the argument realizes *a* and *b*. By realizing *a* and *b* the argument from no-inference refutes both versions of *Intentionalism*, because both versions require a relationship between phenomenal character and representational content. The argument from symmetry purports to demonstrate that *Converse Intentionalism* is false by showing that two experiences can differ in representational content without differing in phenomenal character, i.e. the argument realizes *b*. The reason why the argument from symmetry refutes *Converse Intentionalism* by realizing *b* is that *Converse Intentionalism* requires that necessarily, if two experiences differ in representational content then they differ in phenomenal character.

Marcus argues that the no-inference argument fails to realize *a* and *b*, because the second premise of the argument is false. The second premise is that if perceptions result in non-inferentially formed true beliefs, then the perceptions are veridical. I agree with

Marcus that the second premise of the no-inference argument is false. That is, I believe it is plausible that the argument from no-inference does not realize *a* and *b*. However, in this paper, I will show that the argument from no-inference can be modified so that it plausibly realizes *a* and *b*. I will show that the argument can plausibly realize *a* and *b* by showing that it can be modified to comply with an additional necessary condition on veridical perception proposed by Marcus.

Marcus argues that the argument from symmetry is invalid and, hence, fails to realize *b*. The reason he gives is that the first premise to the effect that a subject is transplanted to twin-earth is not analogous to the second premise to the effect that a subject is transplanted to inverted-spectrum-earth. I agree with Marcus that the argument from symmetry is invalid. That is, I believe that the symmetry argument does not realize *b*. Nevertheless, in this paper, I will show that the argument from symmetry can be modified in such a way that it realizes *b*. I will do this by showing that the second premise of the argument from symmetry can be modified so that it is analogous to the argument's first premise.

The structure of this paper is as follows: The first section of the paper is concerned with the no-inference argument. The first part of the first section is concerned with a presentation of the no-inference argument. The second part is concerned with Marcus' refutation. The third part is concerned with my modification of the argument so that it avoids Marcus' defense. The second section is devoted to the argument from symmetry. The second section is divided into three parts, the purposes of which are analogous to the parts of the first section. In the third and final section of the paper, I

address two possible ways of avoiding my defense of the no-inference and symmetry arguments.

SECTION I: THE ARGUMENT FROM NO-INFERENCE

Section I. 1: The argument from no-inference

No-inference argument (Shoemaker, 1982 & 1991): (1.) It is possible for someone to non-inferentially form true beliefs about his environment from perceptions. (2.) Since the perceptions result in non-inferentially formed true beliefs, the perceptions must be veridical, i.e. they have the correct representational content. -| It is implied that the argument from no-inference realizes *a* and *b* and refutes both versions of *Intentionalism*.

The argument from no-inference has two main premises summarized above, which I will explicate in numerical order. As Eric Marcus conveys the argument from no-inference, a man named Fred goes through a series of color inversions relative to a color circle such that, after a certain amount of time, it appears to Fred as if each color on the circle has been replaced by its complement on the opposite side of the circle¹. At the end of the series of inversions all that has changed is Fred. However, other than this fact, we should understand Fred's situation as analogous to a situation in which all the colors in his environment had been swapped with their complements. During some period of time after complete spectral inversion has occurred, Fred is tempted, for example, to believe that the sky is yellow (the complement of blue) and lemons are blue (the complement of

¹ In the original formulation of the argument from no-inference, Shoemaker uses this gradual case of inversion in order to defend against opponents who may claim that what has occurred in Fred is an inversion of his memory in respect to the look of colors. Shoemaker believes that his opponent would be hard pressed to defend such a systematic case of memory inversion, for spectrum inversion, accounting for the same symptoms, is more likely to have occurred and a simpler explanation.

yellow). Despite Fred's temptations to believe otherwise, he knows quite well that the sky is blue and lemons are yellow. Fred may express his anxiety, brought on by his spectral inversion, for example, by comments such as "The sky looks phenomenally yellow to me, although I know it's actually blue" (Marcus, 2006, p. 327).

However, as the argument from no-inference goes, it is intuitive that after some time has passed, Fred semantically acclimates to the spectral inversion. Plausibly, the semantic acclimation occurs because of Fred's memories about what objects used to look like or because of the linguistic behavior of others. After the acclimation, Fred uses color terms in the same way he did before the spectral inversion. Thus, instead of saying that "The sky looks phenomenally yellow to me, although I know it's really blue" Fred simply says, "The sky looks blue to me." At this point, the shift that has occurred given the semantic acclimation is purportedly such that Fred no longer infers the true belief that the sky is blue from his perception that the sky looks phenomenally yellow. Rather, Fred non-inferentially comes to have the true belief that the sky is blue based on his perception that the sky is phenomenally yellow (Marcus, 2006, p. 327). Fred is thus capable of non-inferentially forming true beliefs about his environment (beliefs about color in this case), although his perceptual experience is phenomenologically inverted.

The second premise of the argument to the effect that if perceptions result in non-inferentially formed true beliefs, the perceptions must be veridical is based on an assumption motivated by Shoemaker's functionalist account of representational content. The assumption is that a perceptual experience correctly represents some object *o* as possessing some property *p* (i.e. has the correct representational content) if the perceptual

experience causes the belief that o has p without the intervention of any inference². It follows from this assumption that after Fred has undergone the relevant change from inferentially forming beliefs to non-inferentially forming beliefs (premise 1), his perceptual experience represents correctly. Thus, when Fred has, say, a yellow phenomenal experience upon viewing the sky and non-inferentially forms the belief that the sky is blue, his perceptual experience correctly represents the sky as blue (Marcus, 2006, p. 328).

If we assume that the argument from no-inference is sound, it follows from the argument that phenomenal character and representational content are entirely separable. That is, the argument from no-inference realizes a and b and refutes both version of *Intentionalism*. Imagine that Fred directs his perception towards a blue cup. Before his spectral inversion, Fred's experience both veridically represents the blue cup and has the phenomenal character blue. The argument from no-inference holds that (1.) it is possible for Fred to non-inferentially form true-beliefs from his perceptions, and (2.) if he does so, his perceptions are veridical. Hence, after his spectral inversion, if Fred semantically acclimates so that he non-inferentially forms true beliefs from his perceptions, his experience veridically represents the blue cup, despite the fact that its phenomenal character is inverted. The argument from no-inference realizes a .

² Shoemaker believes that in addition to a perceptual experience causing the belief that o has p without the intervention of any inference, the perceiver must also believe that his perceptual experience correctly represents o as having p . Thus, to be completely accurate we must add this additional condition to the right hand side of Shoemaker's conditional for veridical perception. However, as Marcus ignores this further requirement in the formulation of the no-inference argument to which he responds, I will ignore it as well in my defense of that argument.

Imagine that Fred directs his perception towards a blue cup before his spectral inversion and, then, a yellow cup after his inversion. Fred's experience of the blue cup is veridical and has the phenomenal character blue. According to the argument from no-inference, (1.) it is possible for Fred to non-inferentially form true-beliefs from his perceptions, and (2.) if he does so, his perceptions are veridical. So, if Fred semantically acclimates, his experience of the yellow cup is veridical, regardless of the fact that its phenomenal character is blue. Thus, the argument from no-inference realizes *b*. The realization of *a* and *b* demonstrates that representational content and phenomenal character are entirely separable. Both *Intentionalism* and *Converse Intentionalism* require a relationship between representational content and phenomenal character to hold necessary. Therefore, the no-inference argument refutes both versions of *Intentionalism*.

Section I. 2: Marcus' rejection of the argument from no-inference

Marcus believes that the no-inference argument fails to realize *a* and *b*, because he believes the argument's second premise is false. The second premise is that if perceptions result in non-inferentially formed true beliefs then the perceptions must be veridical. The basis of Marcus' rejection of the second premise is his belief that veridical perception requires an additional necessary condition. The additional condition on veridical perception is that a subject must form true beliefs without using his perception as a mediating indicator of the true properties of objects (2006, p. 333). For a subject to use his experience as a mediating indicator is for him to use his experience as evidence of the true properties of objects (2006, p. 332). Marcus believes this additional condition is

required because in normal cases a subject does not use his experience as evidence of the true properties of objects but simply trusts his experience (2006, p. 331). Thus, Marcus requires that for a subject's perception to be veridical, in addition to the subject's ability to non-inferentially form true beliefs from the perception, the perception must also meet the following necessary condition:

Marcus' additional condition: Necessarily, if a subject's perception is veridical, then the subject does not use his experience as a mediating indicator (by which he forms true beliefs non-inferentially).

Section I. 3: My modified argument from no-inference

If Marcus' additional condition on veridical perception to the effect that veridical perception is not used as a mediating indicator is correct, the second premise of the argument from no-inference is false. The second premise is false, for Marcus' additional condition is a further requirement on veridical perception not met by the second premise. That is, according to Marcus, the antecedent of the second premise to the effect that if a subject non-inferentially forms true beliefs from his perceptions is not sufficient for its consequent, veridical perception. Thus, it does not follow from the fact that Fred forms true beliefs non-inferentially from his perceptions to the fact that his perceptions are veridical.

However, I believe that the argument from no-inference may be modified in such a way as to accommodate Marcus' additional condition. Hence, Marcus' condition, even if true, only disproves a particular version of the no-inference argument, viz. the version

that Marcus defends against. The reason I believe Marcus' additional condition is compatible with a modified version of the argument is that his additional condition for veridical perception just is the requirement that a perceiver *use* his experience in a certain way, i.e. not as a mediating indicator. Thus, I believe it is compatible with Marcus' additional condition on veridical perception that if a subject does not use his experience as a mediating indicator and can form true beliefs non-inferentially from his experience, then the subject's representational content is correct.

However, it is necessary that we better understand what it means for a subject not to use his experience as a mediating indicator if we are to modify the argument from no-inference. Marcus alludes that "mediating indicator" has two senses (or definitions)³, which can be accurately construed as follow:

A subject uses his experience as a mediating indicator =*df* the subject uses it as an indicator from which he infers the true properties of the perceived situation, or the subject uses it as an indicator from which he non-inferentially associates the true properties of the perceived situation (2006, p. 332).

In the first sense of "mediating indicator" a subject comes to have true beliefs about the properties of physical objects via an inference from his experience. In the second sense, a subject comes to have true beliefs about the properties of physical objects by instinctively associating their properties with his experience of them. Marcus agrees that the argument from no-inference shows that Fred (a subject) does not use his experience as an indicator from which he infers the true properties of the perceived situation (2006, p. 331). Thus, it

³ The passage in which he suggests this is as follows: "In normal cases, one's ability to know the colours of objects on the basis of experience does not derive from using one's experience as a mediating indicator at all – neither as an indicator from which one infers the colour of an object, nor as an indicator with which one automatically associates the colour. To represent evidentially an object as being a certain colour is to be fit to serve as a mediating indicator in one of these two senses [of "mediating indicator"]."

must be the case that in Marcus' additional condition on veridical perception, the meaning of "mediating indicator" =*df* the subject uses his experience as an indicator from which he non-inferentially associates the true properties of the perceived situation. If I am correct, it follows that Marcus' additional condition can be correctly interpreted as follows:

Marcus' interpreted additional condition: Necessarily, if a subject's perception is veridical, the subject does not use his experience as an indicator from which he non-inferentially associates the true properties of the perceived situation.

Recall that Marcus believes that the reason the argument from no-inference fails to realize the conditions sufficient to refute both versions of *Intentionalism* (*a* and *b*), is that the antecedent of the second premise of the argument from no-inference is not sufficient for its consequent. That is, Marcus does not believe that if a subject non-inferentially forms true beliefs about his environment from his perceptions that, then, his perceptions are veridical. The reason is that Marcus believes that there is an additional condition on veridical perception not realized by the argument from no-inference. The additional condition is that necessarily, if a subject's perception is veridical, then the subject does not use his experience as a mediating indicator. Based on what Marcus suggests are the senses of "mediating indicator" and on what sense of "mediating indicator" is appropriate to Marcus' additional condition on veridical perception, I have shown that we may interpret his additional condition as Marcus' interpreted additional condition. With Marcus' interpreted additional condition, we can modify the second premise of the argument from no-inference to comply with Marcus' additional condition

on veridical perception. The second premise can be modified to comply with Marcus' additional condition thusly:

Modified premise two: Necessarily, if a subject's perceptions result in non-inferentially formed true beliefs and he does not use his experience as an indicator from which he non-inferentially associates the true properties of the perceived situation, the subject's perceptions are veridical, i.e. they have the correct representational content.

At the present juncture, it is important to show that there is a possible situation in which the adjusted conditions sufficient for veridical perception set forth in modified premise two are met. In order to show that there is such a possible situation, it must be demonstrated that the thought experiment on which the first premise is based is capable of modification in such a way that it realizes the adjusted conditions sufficient for veridical perception. In other words, the thought experiment on which the first premise is based must be capable of modification in such a way that it demonstrates the following possibility: A subject can non-inferentially form true beliefs about his environment from perceptions, the phenomenal character of which he does not use as an indicator from which he non-inferentially associates the true properties of the perceived situation.

In the thought experiment on which the first premise is based, Fred knows that he has undergone complete spectrum inversion. At first Fred struggles with the inversion as evidenced by his comment, "I know the sky is blue, but it looks phenomenally yellow to me." After some time, however, Fred acclimated to the inversion as affirmed by the fact that he no longer spoke of objects as phenomenally appearing to be colors that they do not possess. However, in the thought experiment on which the first premise is based, Fred knows that he has undergone complete spectrum inversion. Thus, it is intuitive that Fred

uses his experience as an indicator from which he non-inferentially associates the true properties of the perceived situation. The reason for this intuition is that Fred knows that the phenomenal character of his experience has been inverted. Hence, he is unlikely (barring philosophical commitments to idealism) to believe that the colors of the external world have been inverted. It follows that the thought experiment on which the first premise is based does not realize the adjusted conditions sufficient for veridical perception.

Despite this fact, the thought experiment on which the first premise is based can be modified so that it does realize the adjusted conditions sufficient for veridical perception. In order to modify the thought experiment, let us suppose that aliens abduct Fred. During the aliens' questionable activities, all of Fred's memories are accidentally erased. Fred, then, once dumped back on earth, has absolutely no memories (not even instinctual memory). In light of Fred's memory loss, it is plausible that he not only forms true beliefs non-inferentially but also that he does not use his experience as an indicator from which he non-inferentially associates the true properties of the perceived situation. For in light of Fred's memory loss it is implausible that Fred would have any reason⁴ to use his experience as an indicator from which he non-inferentially associates the true properties of the perceived situation⁵. Therefore, the thought experiment on which the first premise is based can be modified so that it does realize the adjusted conditions sufficient for veridical perception as follows:

⁴ Remember that since Fred has undergone complete spectrum inversion, he can have no evidence, in this case, that the qualitative aspect of his experience is different from that of the normal perceiver.

⁵ Rather, we would expect Fred to use his experience as would a normal perceiver. That is, as Marcus characterizes the normal perceiver, we would expect Fred to form true beliefs non-inferentially based on his perceptions by tacitly endorsing them (2006, p. 331).

Modified premise one: It is possible for a subject to non-inferentially form true beliefs about his environment from perceptions, the phenomenal character of which he does not use as an indicator from which he non-inferentially associates the true properties of the perceived situation.

My modified version of the argument from no inference, then, by combining modified premise one and two, can be articulated thusly:

My modified no-inference argument: (1.) It is possible for a subject to non-inferentially form true beliefs about his environment by not using his perceptions as an indicator by which he non-inferentially associates the true properties of objects. (2.) Since the subject's perceptions result in non-inferentially formed true beliefs and are not used as an indicator by which he non-inferentially associates the true properties of objects, the perceptions must be veridical, i.e. they have the correct representational content. -| It is implied that the argument from no-inference realizes both *a* and *b* and refutes both versions of *Intentionalism*.

It is implied by my modified argument from no-inference that phenomenal character and representational content may entirely separate. That is, the argument from no inference realizes *a* and *b*. This is because, just as with the original, the argument shows that a subject's experience can represent correctly no matter its phenomenal character. Fred can veridically represent a blue cup before and after his spectral inversion. Fred can also veridically represent a blue cup before his inversion and a yellow cup afterwards, despite the fact that both cups appear phenomenal blue. It follows, then, that my modified argument from no inference refutes both versions of *Intentionalism*. Therefore, given Marcus' additional condition on veridical perception, only the specific version of the argument from no-inference that Marcus conveys and defends against is blocked. My modified version of the argument from no-inference persists in full force.

A possible response to my argument is as follows⁶: It is true that once Fred's memories are erased he no longer uses his experience as a mediating indicator of the true properties of objects, neither as an indicator from which he infers the true properties nor as an indicator from which he non-inferentially associates the true properties. However, it is intuitive to hold that Fred had true beliefs before his memory erasure, because he had come to automatically mistrust his experience. After his memory is erased Fred has no reason to mistrust his experience. Thus, it should not be intuitive that after Fred's memory wipe he continues to have true beliefs. We, then, have no reason to believe that Fred's perceptions on which his beliefs are non-inferentially based are veridical.

I believe this response is slightly mistaken. The reason it is intuitive to hold that Fred had true beliefs before his memory wipe is not that he had come to automatically mistrust his senses but that he had semantically acclimated to his spectral inversion. In Fred's case, semantic acclimation plausibly occurs either because Fred has come to automatically mistrust his experience or because of the linguistic behavior of others. When Fred's memory is erased he has no reason to mistrust his experience. Semantic acclimation, then, cannot occur because Fred automatically mistrusts his experience. However, semantic acclimation can occur after Fred learns the correct usage of color terms by way of the linguistic behavior of others⁷. We, then, contrary to the response, have reason to believe that Fred's perceptions on which his beliefs are non-inferentially based are veridical.

⁶ I would like to thank Eric Marcus for this response, which he presented to me by way of personal correspondence.

⁷ The fact that semantic acclimation can occur in this way is consistent with any causal theory of reference. Causal theories of reference hold that in order for a term to refer to an object (or property), certain causal connections must obtain between the speakers' use of that term and the object (Boyd, 1988).

In sum: Marcus rejects the second premise of the no-inference argument. The second premise is that perceptions are veridical if they result in non-inferentially formed true beliefs. Marcus rejects this assumption, for he believes that an additional condition on veridical perception is required. Marcus' additional condition =*df* Necessarily, if a subject's perception is veridical, the subject does not use his experience as a mediating indicator. However, I demonstrated that Marcus means by "does not use his experience as a mediating indicator," "does not use his experience as an indicator by which he non-inferentially associates the true properties of objects." Thus, I modified the second premise to include my interpretation of Marcus' additional condition on veridical perception. Next, I revised the thought experiment on which the first premise is based so that it realizes the adjusted conditions sufficient for veridical perception set forth by the modified premise two. I have, therefore, shown that the argument from no-inference can be modified to comply with Marcus' additional condition. It follows that my modified argument from no-inference remains as virulent as ever, despite Marcus' defense.

SECTION II: THE ARGUMENT FROM SYMMETRY

Section II. 1: The argument from symmetry

Symmetry argument (Shoemaker, 1991): (1.) If a subject is transplanted to twin-water earth it is intuitive to assume that, although at first his thoughts that twin-water (XYZ) is water (H₂O) are false, after some amount of time, the subject's natural kind term "water" comes to refer to twin-water (XYZ). After this change has occurred, it is intuitive that the subject's beliefs that twin-water is "water" are true and that his perceptual system represents correctly. (2.) Analogously, if a subject is transplanted to inverted-spectrum-earth and fitted with a device that inverts the inverted-spectrum so that he is unaware of the change, it is intuitive to assume that, although at first he represents, for example, twin-blue, incorrectly, as yellow, after some amount of time, he represents twin-blue, correctly, as blue. However, there is no reason that does not assume *Converse Intentionalism* to assume that the qualitative character of the subject's experience has changed. -| It is implied that the argument from symmetry realizes *b* and refutes *Converse Intentionalism*.

The argument from symmetry involves two main premises that are summarized above. I will explicate the first premise and then the second. The first premise is based on Putnam's twin-earth thought experiment. Hence, in order to understand the first premise it will be instructive to present the thought experiment on which it is based. Putnam's twin-earth thought experiment is as follows:

Consider another planet just like ours in every way possible given the fact that "water" refers to a different chemico-physical natural kind than H₂O. Putnam refers to this different natural kind as XYZ. The liquid on twin-earth that is "composed" of XYZ is to the extent possible the same as the liquid on earth in respect to all outward observable properties. In fact, the twin-earth liquid is just like water in respect to all the properties

possible given that its underlying chemico-physical structure is XYZ rather than H₂O (Putnam, 1975).

The first premise gets off the ground by considering what would happen if a subject from twin-earth and a subject from earth were to be asked whether a glass of XYZ is water. The argument from symmetry holds that it is intuitive that if the earthling were to answer in the affirmative he would be wrong, but if the twin-earthling were to answer in the affirmative he would be right (and vice versa). Thus, the argument holds that it is intuitive that our earthling term “water” picks out H₂O in all possible worlds (i.e. our term rigidly designates H₂O (Kripke, 1972)). The meaning, then, of our earth term “water” is necessarily different than the meaning of the twin-earth term.

Hence, it follows from this disparity in meaning that if a subject from earth is transplanted to twin-earth, the subject’s claims that the twin-earth liquid is water will be false. Since the subject’s claims about what is water are false, so are his beliefs, which are expressed by his claims. However, after some amount of time on twin-earth, it is no longer intuitive to hold that the subject means H₂O by “water,” or that his use of “water” expresses H₂O beliefs (Marcus, 2006, p. 327). The reason is that it is unintuitive to believe that through many years on twin-earth, the subject continually makes false claims and has false beliefs about the nature of water.

On the other hand, it is intuitively plausible that after some amount of time the subject learns the language of twin-earth. That is, after some amount of time, the subject’s term “water” becomes a numerically distinct term from the term “water” he used before the amount of time had passed. This numerically distinct term rigidly

designates XYZ. Since the subject's term rigidly designates XYZ, the subject's claims that inverted-spectrum-earth water is "water" are true. Thus, intuitively, the representational content of the subject's beliefs by which he expresses his "water" claims have also changed in such a way that his beliefs about water are true.

If you accept the intuitions in the above paragraphs, you should also accept that the representational content of the subject's perceptual experience changes (Marcus, 2006, p. 327). That is, if you find it unintuitive that after many years the subject still continually makes false claims about what water is, you ought, analogously, to find it unintuitive that after many years on twin-earth the subject's perceptual system still continually misrepresents twin-water as H₂O. Thus, conversely, you ought to find it intuitive that the subject's representational content has changed in the following way: Before some period of time had lapsed, the representational content of the subject's experience represented H₂O, but after the period of time had lapsed the subject's representational content represented XYZ. This change in representational content is properly understood as the subject's perceptual system adapting to its new environment. The change in representational content is, then, analogous to the change in the meaning of the subject's term "water." Hence, the change in representational content should not strike you as mysterious.

The second premise of the argument from symmetry to the effect that a subject is transplanted to twin-spectrum earth is purportedly analogous to the first. Thus, the force of the argument from symmetry is that if you find the first premise intuitive, as many Philosophers do, you should also find the second premise intuitive. The first premise is

clearly based on Putnam's twin-earth thought experiment. The thought experiment on which the second premise is based, however, is mysterious, for Marcus does not mention what is the thought experiment (or, to my knowledge, does Shoemaker). Nevertheless, I will not attempt to decipher the thought experiment behind the second premise, because the premise is clear enough for my present purpose, regardless of what is the thought experiment on which it rests.

The second premise starts by imagining that a subject is transplanted to a planet exactly like earth to the extent possible given that the colors of all objects are inverted in respect to earth colors. However, the subject during transport is, unknown to him, fitted with a device⁸ that inverts the colors of inverted-spectrum-earth so that he notices no difference. At first, then, the content of the subject's experience misrepresents, for example, twin-blue as yellow (and vice versa). Despite this fact, it is intuitive that after some period of time the content of the subject's experience changes in such a way that it correctly represents twin-blue as blue and twin-yellow as yellow. Nevertheless, there is no reason that does not assume *Converse Intentionalism* for you to believe that the qualitative character of the subject's experiences changes after the period of time (Marcus, 2006, p. 328). It follows that it is possible for two experiences with the same phenomenal character to have differing representational contents.

Therefore, if the argument from symmetry is sound, it demonstrates that two experiences may differ in representational content but not in phenomenal character, i.e.

the argument realizes *b*. The argument shows that a subject's perceptual system may

⁸ In Shoemaker's presentation of the argument the "device" is spectrum-inverting lenses. I believe "device" captures the intuition behind the thought experiment better, as obviously someone would know if he were wearing glasses.

represent the colors on inverted-spectrum-earth correctly, despite the fact that the phenomenal character of the subject's experience is the same as that on earth. *Converse Intentionalism* requires that necessarily, if two experiences differ in their representational content then they differ in their phenomenal character. Thus, by realizing *b* the argument from symmetry refutes *Converse Intentionalism*.

Section II. 2: Marcus' rejection of the symmetry argument

Marcus' contention with the argument from symmetry is that it is invalid, because it is based on what he believes to be a fallacious analogy between its two premises. The first premise involves a victim transplanted to twin-earth and the second to inverted-spectrum-earth. Marcus admits that the argument's two premises are similar in that both involve victims that are transplanted to new worlds that differ in one respect, undetectable by the transplanted. Despite this similarity, Marcus believes there is a significant disanalogy between the premises. The disanalogy is that in the first premise the subject need not be altered to ensure his illusion. However, in the second premise, to ensure the subject's illusion a device must alter him so that the colors of inverted-spectrum-earth appear non-inverted. It follows that Marcus rejects the argument from symmetry as invalid, because he believes that the second premise of the argument is not appropriately analogous to the first (2006, p. 328).

Marcus postulates that the reason why the premises are not appropriately analogous is that, unlike veridical perceptions of water and twin-water (natural kinds), veridical perceptions of colors are phenomenologically distinguishable in standard

conditions⁹ by standard observers. Thus, Marcus believes that the subject transplanted to inverted-spectrum-earth in the second premise will not mistake one color for another unless viewing conditions have been made abnormal or the subject has been made an abnormal viewer (2006, p. 329).

Section II. 3: My modified argument from symmetry

Marcus is correct in finding fault with the argument from no-inference, for the two premises are not suitably analogous. In the first premise a device does not alter the subject, but in the second premise a device does alter the subject. Hence, you should not derive the same conclusion from the second premise as should from the first.

Nevertheless, unlike Marcus, I do not believe that the reason for the disanalogy is that, unlike veridical perceptions of natural kinds, veridical perceptions of colors are phenomenologically distinguishable in standard conditions by standard observers.

I believe that the two premises are disanalogous, because they are given unnecessarily distinct metaphysical treatments. In the second premise, the colors are not given a reductionist treatment. More specifically, the colors are not reduced to physical properties in the second premise. However, in the first premise, the properties of being water and being twin-water (natural kind properties) are reduced to the physical properties of being H₂O and being XYZ, respectively. If I am correct, the two premises in

⁹ Given the context, I believe Marcus means by “standard conditions” those by which we perceive without aid of instruments etc. Thus, in the first premise, a standard observer cannot tell a difference phenomenologically between XYZ and H₂O, although a scientist with a microscope could tell a difference phenomenologically.

the argument from symmetry can be made analogous by modifying the second premise in such a way that the colors are given the same metaphysical treatment as natural kinds.

In order to modify the second premise so that in it the colors are given the same reductionist treatment as natural kinds, let us employ the identity claims that the color-physicalist may make about the colors. The color-physicalist may claim that blue = the physical property (the disposition of the object) for reflecting incident light at a wavelength between 450-495nm, that the color yellow = the physical property for reflecting incident light at a wavelength between 570-590nm, and so on (Byrne and Hilbert, 2003). These identity claims give the colors the same reductionist treatment as natural kinds are given in the first premise, because, just as with natural kinds, they are reduced to physical properties.

With these identity claims in mind, which are analogous to the reductionist claims made about natural kinds in the first premise, consider my following thought experiment: Imagine another planet the same as ours in every way possible given the fact that color terms refer to properties that reflect inverted wavelengths of incident light. Some examples of this difference are as follows: "Blue", which refers to the property for reflecting incident light at a wavelength between 450-495nm on earth (earth blue), refers to the property for reflecting incident light at a wavelength between 570-590nm on inverted-spectrum-earth (inverted-spectrum-earth blue). "Yellow," which refers to the property for reflecting incident light at a wavelength between 570-590nm on earth (earth yellow), refers to the property for reflecting incident light at a wavelength between 450-495nm on inverted-spectrum-earth. The color on inverted-spectrum-earth is to the extent

possible the same as the color on earth in respect to all its outward observable properties, including its phenomenal feel. In fact, the color on inverted-spectrum-earth is exactly similar to the color on earth in respect to *all* properties possible given that its determinables are equal to properties that reflect inverted wavelengths of incident light.

In my thought experiment, the colors on inverted-spectrum-earth are the same as the colors on earth but for the fact that they are identical with properties that reflect inverted wavelengths of incident light. In Putnam's twin earth thought experiment, natural kinds on twin-earth are the same as the natural kinds on earth but for the fact that they are identical with dissimilar chemico-physical properties. There is, then, a strong analogy between my thought experiment and Putnam's thought experiment. The first premise in which a device need not modify a subject to ensure his illusion is based on Putnam's thought experiment. Hence, my thought experiment ought to support a version of the second premise in which if a subject is transplanted to inverted-spectrum-earth, a device need not modify him in order to ensure his illusion. Therefore, I believe that the second premise may be modified so that the symmetry argument is valid. Modified premise 2 is as follows:

Modified premise two: Analogously, if a subject is transplanted to my inverted-spectrum-earth, it is intuitive to assume that, although at first he represents, for example, twin-blue, incorrectly, as yellow, after some amount of time, he represents twin-blue, correctly, as blue. However, there is no reason, which does not assume *Converse Intentionalism*, to hold that the qualitative character of the subject's experience has changed

Given the modified version of premise 2, I believe that the argument from symmetry is now valid. My modified argument from symmetry is as follows:

My modified argument from Symmetry: (1.) If a subject is transplanted to twin-water earth it is intuitive to assume that, although at first his thoughts that twin-water (XYZ) is water (H₂O) are false, after an some amount of time, the subject's natural kind term "water" comes to refer to twin-water (XYZ). Thus, after this change has occurred, it is also intuitive that the subject's beliefs that twin-water is "water" are true and his perceptual system represents correctly. (2.) Analogously, if a subject is transplanted to my inverted-spectrum-earth, it is intuitive to assume that, although at first he represents, for example, twin-blue, incorrectly, as yellow, after some amount of time, he represents twin-blue, correctly, as blue. However, there is no reason that does not assume *Converse Intentionalism* to hold that the qualitative character of the subject's experience has changed. -| It is implied that the argument from symmetry realizes *b* and refutes *Converse Intentionalism*.

If my modified argument from symmetry is valid, it shows that, by parity of reasoning, our intuitions about color in the second premise should be the same as our intuitions about natural kinds in the first premise. Hence, if your intuitions lead you to accept the first premise, as many Philosophers' intuitions do, then, by parity of reasoning, your intuitions should lead you to accept the second premise. Nevertheless, to show that the two premises are, indeed, analogous and hence that our intuitions should be the same in both, I will outline in detail my modified second premise of the argument from symmetry, while referring to the analogous relationship it has with the first premise.

In order to show that the premises are analogous, first consider what would happen, for example, if a subject from inverted-spectrum-earth and a subject from earth were to be asked whether the property for reflecting incident light at a wavelength between 570-590nm is blue. I hold that in the second premise, just as with the first, it is intuitive that if the earthling were to answer in the affirmative, he would be wrong. However, if the twin-earthling were to answer in the affirmative, he would be right (and vice versa). Thus, analogously to the first premise, the earth term "blue" rigidly

designates a different property than the inverted-spectrum-earth term “blue.” That is, earth blue rigidly designates the property for reflecting incident light at a wavelength between 450-495nm, but inverted-spectrum-earth blue rigidly designates the property for reflecting incident light at a wavelength between 570-590nm. Since the inverted-spectrum-earth term “blue” rigidly designates a dissimilar property, we should conclude that we mean something different by “blue” than the people on inverted-spectrum-earth.

Thus, analogously with the first premise, we should conclude that if a subject from earth is transplanted to inverted-spectrum-earth his claims that inverted-spectrum-earth blue is “blue” are false. Since the subject’s claims about what is blue are false, it is intuitive that his beliefs, which are expressed by his claims, are also false. However, by parity of reasoning with the first premise, after some period of time on inverted-spectrum-earth it is unintuitive to hold that the subject means earth blue by “blue,” or that his use of “blue” expresses earth blue beliefs. The reason is that it is unintuitive to believe that after many years on inverted-spectrum-earth that the subject not only continuously makes false claims about what is twin-blue but also continuously has false beliefs about what is twin-blue.

On the contrary, after many years on inverted-spectrum-earth it is intuitive to believe that the subject learns the language of inverted-spectrum-earth. That is, for example, after some period of time on inverted-spectrum-earth it is intuitive that the subject’s term “blue” becomes a numerically distinct term from the term he used before the period of time had lapsed. The numerically distinct term rigidly designates inverted-spectrum-earth blue instead of earth blue. Since the subject’s term rigidly designates

inverted-spectrum-earth blue, the subject's claims that inverted-spectrum-earth blue is "blue" are true. Thus, intuitively, the representational content of the subject's beliefs by which he expresses his color claims have also changed in such a way that his beliefs about twin-blue are true.

If your intuitions have lead you to accept the second premise thus far, they should, analogously with the first premise, lead you to accept that the representational content of the subject's experience has changed. The reason is that, just as with the first premise, it is unintuitive to hold that the subject's perceptual system never adapts to its new environment. The representational content has changed in that before some period of time had lapsed, the content misrepresented inverted-spectrum-earth blue as the property for reflecting incident light at a wavelength between 450-495nm. After the period of time had lapsed, however, the content correctly represents inverted-spectrum-earth blue as the property for reflecting incident light at a wavelength between 570-590nm.

If you have accepted the argument from symmetry thus far, there is no reason that does not assume *Converse Intentionalism* to hold that the qualitative character of the subject's experience has changed. The reason is because of my inverted-spectrum-earth thought experiment made possible by my reductionist treatment of the colors. In my inverted-spectrum-earth thought experiment, earth colors are exactly similar to inverted-spectrum-earth colors to the extent possible given that they are equal to properties that reflect inverted wavelengths of incident light. Therefore, to the extent possible, the phenomenal feel of earth colors is exactly similar to the phenomenal feel of inverted-spectrum-earth colors. That is, for example, earth blue and inverted-spectrum-earth blue

both have the phenomenal character of blue. No device, then, is needed in the second premise to modify the subject in order to ensure his illusion. It follows that if you have accepted the symmetry argument thus far, despite the fact that the content of the subject's perceptions has changed, there is no reason to assume that the qualitative character of his experience has changed.

I believe that I have now successfully shown that my modified second premise is analogous to the argument from symmetry's first premise, and, hence, that my modified argument from symmetry is valid. Thus, if you accept the intuitions that motivate the first premise, as many Philosophers do, you should accept the intuitions that motivate the second. If the intuitions of many Philosophers are correct, the argument from symmetry demonstrates that two experiences may differ in representational content yet not in phenomenal character, i.e. the argument realizes *b*. The argument from symmetry realizes *b*, because it shows that a subject's perceptual system may represent the colors on inverted-spectrum-earth correctly, despite the fact that the phenomenal character of the subject's experience is the same as that on earth. *Converse Intentionalism* requires that necessarily, if two experiences differ in their representational content, then they differ in their phenomenal character. Thus, by realizing *b* the argument from symmetry refutes *Converse Intentionalism*.

A possible response to my symmetry argument is as follows¹⁰: The original argument from symmetry gains its power from the fact that it makes assumptions that are independent of any view of phenomenal character hostile to *Converse Intentionalism*.

¹⁰ Again, I would like to thank Eric Marcus, because he brought this response to my attention by way of personal communication.

However, the revised argument advanced in this paper makes an assumption that is hostile to *Converse Intentionalism*. That is, the revised argument assumes that there is a metaphysically possible world in which, for example, the color “blue” has the phenomenal character yellowness to its veridical perceivers. If you accept the hostile assumption in the revised argument, then the argument defeats *Converse Intentionalism*. Nevertheless, if you accept the hostile assumption in the revised argument, the argument is not needed to defeat *Converse Intentionalism*. So, the argument from symmetry is useless.

I believe that this response is misguided. It is true that if you accept that there is a metaphysically possible world in which the color “blue” has the phenomenal character yellowness to its veridical perceivers, then the argument is not needed to convince you that *Converse Intentionalism* is false. The revised argument, however, is not useless for this reason. The revised symmetry argument, just as with the original, is that if your intuitions lead you to accept the twin-earth case, i.e. the first premise involving natural kinds, then your intuitions should lead you to accept the inverted-spectrum-earth case, i.e. that second premise involving colors. You ought to accept the second premise if you accept the first, because the two premises are analogous. The metaphysical possibility of a world in which the color “blue” has the phenomenal character yellowness to its veridical perceivers is a constituent of the second premise. The revised symmetry argument, then, does not merely assume this metaphysical possibility but gives you reason to accept it. The argument is obviously not useless.

However, another possible response to my modified symmetry argument is that there is a disanalogy between the twin-earth case and the inverted-spectrum-earth case¹¹. The disanalogy is that if you move H₂O to twin-earth it will still look phenomenally like water, but if you move earth-blue to inverted-spectrum-earth, it will not look phenomenally blue. Rather, earth-blue will look phenomenally yellow on inverted-spectrum-earth. This is because on inverted-spectrum-earth the property for reflecting incident light at a wavelength between 450-495nm (earth blue) appears phenomenally yellow. If this disanalogy between twin-earth and inverted-spectrum-earth is significant, my modified argument from symmetry is invalid. Thus, you ought not to accept the second premise just because you accept the first.

I agree that there is a disanalogy between the twin-earth case and the inverted-spectrum-earth case. Nevertheless, I do not believe that the disanalogy is significant. The metaphysical possibility that, for example, XYZ can look phenomenally like water is based on the fact that it is conceptually possible for how water looks phenomenally to separate from its underlying chemico-physical structure. So, if you accept this conceptual possibility, then you should, analogously, accept that how blue phenomenally looks can metaphysically separate from its underlying physical structure. This metaphysical possibility is all that my modified argument from symmetry requires. Therefore, the disanalogy between the twin-earth case and inverted-spectrum earth case is insignificant to its conclusion. The validity of my symmetry argument is unthreatened by the disanalogy.

¹¹ I would like to thank Waldemar Rohloff for this response.

In sum: Marcus rejects the argument from symmetry as invalid, because he believes the premises are not analogous. The disanalogy is that in the second premise a device is required to alter the subject in order to ensure his illusion, but to ensure the subject's illusion no such device is needed in the first premise. Marcus postulates that the disanalogy is a result of the fact that, although veridical perceptions of natural kinds are phenomenologically indistinguishable in standard conditions by standard observers, veridical perceptions of colors are not. However, I argued that the disanalogy is the result of the fact that in the first premise natural kinds are given a reductionist treatment, yet in the second premise colors are not given a reductionist treatment. I, then, proposed a thought experiment that gives colors the same reductionist treatment and reformulated the second premise so that a device is not needed to ensure the subject's illusion. Finally, I recapitulated the second premise of the symmetry argument while demonstrating that it is analogous to the first. Thus, I concluded that if you find the first premise intuitive, as many Philosophers do, you ought also to find the second intuitive. Therefore, if the intuitions of many Philosophers are correct, the argument from symmetry realizes *b* and refutes *Converse Intentionalism*.

SECTION III: TWO POSSIBLE WAYS TO AVOID MY ARGUMENTS

In this final section of the paper I wish to address two possible ways of avoiding my modified no-inference and symmetry arguments. First one may avoid my reformulated arguments from no-inference and symmetry by endorsing, as David Chalmers does (2004), a dual content view of representational content, i.e. that representational content

includes both Fregean and Russellian content. Fregean content is constituted by modes of presentation of objects and properties. For example, if a particular red apple appears lighter in one lighting condition and darker in another, a Fregean about contents would hold that the property red has a mode of presentation in which it appears lighter and one in which it appears darker. Russellian content is constituted both by actual objects and the physical properties that the objects appear to possess. For example, if a subject had a visual experience that represented a red apple, the content of his experience, according to the Russellian view, would be the structured proposition that contains the physical object that the subject sees, which looks like a red apple, and the physical property of being a red apple. Thus, according to a dual content view, if the content of some perception represents, for example, the property blue correctly, then the content not only contains the property blue but also the content contains the mode of presentation in which the property appears blue.

If a dual content view, i.e. that perceptual content contains both Fregean and Russellian content, is correct, both my arguments from no-inference and symmetry may be avoided. My no-inference argument may be avoided at the first premise, because under a dual content view it is unlikely that phenomenal character and representational content may separate. For, as to represent correctly, for example, the property blue, the representational content must contain not only the property blue but also the mode of presentation in which the property appears blue. If a dual content view is correct, it is also possible to avoid my symmetry argument at the first premise, because the premise assumes that the content of beliefs is of the same kind as the content of perceptions, i.e.

Russellian. However, according to a dual content view, perceptual content has both Fregean and Russellian content.

One may also avoid both my arguments from no-inference and symmetry by rejecting an assumption implicit in both arguments that the contents of perception are exhausted by the physical. For one could hold, as Sydney Shoemaker does in his later work (1994), that there are both physical properties and appearance properties. According to this Shoemakean view, experience represents physical color properties partly in virtue of representing appearance properties, which are dispositions of objects to cause certain appearances (i.e. a specific phenomenal character). According to this view, for example, an object possess the physical property redness and the appearance property to cause the phenomenal experience of redness, and it is partly in virtue of our perceptual system representing the appearance property that causes phenomenal redness that it represents the physical property redness.

If this Shoemakean view is correct, i.e. that there are both physical properties and appearance properties, both of my arguments from no-inference and symmetry may be avoided. My no-inference argument would may be avoided at the second premise, because, although Fred forms true beliefs non-inferentially and does not use his experience as a mediating indicator by which he non-inferentially associates the true properties of objects, his experience, as he is an invert, does not correctly represent the appearance properties of objects. For Fred represents objects that have phenomenal blue causing appearance properties as having phenomenal yellow causing appearance properties (and vice versa). My symmetry argument may be avoided at its second

premise, because the modified second premise implicitly assumes that, for example, what causes phenomenal blue is reducible to a physical property, i.e. a property to reflect incident light at a certain wavelength. However, if appearance properties exist, what causes phenomenal blue is the phenomenal blue causing appearance property not the physical property blue.

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