

Tennant's account, at least in its current form, thus fails to capture the notion of stability.¹²

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Higher-order thought and pathological self: the case of somatoparaphrenia

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1. Introduction

Somatoparaphrenia, a pathology of self, is philosophically perplexing. It poses a significant challenge for theories of consciousness, including David Rosenthal's higher-order thought (HOT) theory, which holds that

1 The order of authorship was determined arbitrarily; this manuscript is completely collaborative.

HOTs are scientific posits in a theory that aims for explanatory adequacy. In a recent series of papers Rosenthal (e.g. 2005: 341) has employed the HOT theory as part of an attempt to explain ‘our sense of having a unified consciousness’, a ‘sense’ which he understands as the ‘compelling intuition’ that we have a single self. He develops his explanation in terms of an immunity-to-error principle (thin immunity), which holds that we are immune to error in certain restricted judgements concerning self. After presenting Rosenthal’s theory in §2, in §3 we argue that it fails to explain somatoparaphrenia, a pathology in which mental states can be conscious even when they are represented as belonging to someone other than self. We discuss some possible responses in §4 and, finally, in §5, we point out a broader implication of this empirical challenge to the HOT theory.

2. *HOT, self and the thin immunity principle*

According to Rosenthal’s HOT hypothesis (e.g. 2002a: 408–11), a mental state is conscious just in case it is accompanied by a suitable, first-person thought to the effect that one is in that state. First-order mental states become conscious only if they are intentionally targeted by thoughts that are occurrent, assertoric, and seemingly non-inferential, thoughts which can represent the state as being present. Importantly, on this view, to represent a state as being present just is to represent it as belonging to somebody (Rosenthal 2005: 342). So a HOT in virtue of which a first-order state becomes conscious must both refer to that state and to the owner of that state (Rosenthal 2004: 160–61). Simply put, HOTs have the content, ‘I am in a certain state.’ This reference to I, understood as the owner of the state, is ‘unavoidable’ (Rosenthal 2005: 342, 347). It follows from this necessity claim that ‘being conscious of a state as belonging to someone other than oneself would plainly not make it a conscious state’ (Rosenthal 2005: 342).

Self, as characterized by the HOT theory, is minimalist (Rosenthal 1997: 86): it is a ‘raw bearer’ in that nothing about the way it is characterized by a HOT distinguishes it from any other self (Rosenthal 2005: 342–45). The raw characterizations of self provided by HOTs do not enable self-identification. Identifying oneself consists of saying who one’s first person thoughts are about, and this identification is accomplished by reference to a diverse ‘battery’ of contingent properties, properties that include matters of personal history, bodily and psychological characteristics, and current circumstance (2004: 212, 2005: 345–48). Appropriately, Rosenthal refers to this as the ‘battery model’ of self-identification. These descriptive identifications of the self can be erroneous: it is empirically possible, for example, that I take myself to have the contingent properties of Barack Obama.

Although we can self-identify ourselves erroneously, Rosenthal (2004: 168–76, 2005: 353–60) believes that we are immune to a certain type of error of misidentification. He (2005: 354–60) refers to this as ‘thin immunity’

to indicate a contrast with Shoemaker's (1968: 557) stronger concept of immunity. As it applies to body sensations, Rosenthal (2005: 357) says of the Thin Immunity Principle (TIP) that, 'when I have a conscious pain, I cannot be wrong about whether it's I who I think is in pain.' And why is this? The reason is to be found in the very idea of HOT. According to Rosenthal (2005: 346), HOTs are first-person thoughts; and, for example, my pain state's being conscious *consists in* my being conscious of *myself* as being in pain. It follows then that 'I cannot represent my conscious pain as belonging to someone distinct from me' (Rosenthal 2005: 357).

This form of immunity is thin in the sense that it is consistent with the battery model, for I can still be wrong about just what contingent properties I possess. I can, for example, believe that I possess the properties possessed by Barack Obama, as opposed to those that are actually mine (Rosenthal 2004: 177–78). In developing this idea, Rosenthal proclaims that when I look at myself in a mirror, I can be wrong in many ways; I can extravagantly misattribute properties to myself, thinking that I am Obama. To do so would not constitute a violation of TIP. But what Rosenthal (2005: 359) insists upon is that, 'if I think I see myself in a mirror, I cannot be wrong about who it is I think the individual in the mirror is.'²

And why might we be immune to error in these ways? Although Rosenthal nowhere states the point explicitly, TIP is a direct consequence of the HOT theory. Recall, according to the theory, a mental state is conscious just in case it is accompanied by a suitable HOT such that one is conscious of oneself as being in that state. Because every HOT is a first-person thought, it has a unique owner and it *necessarily* represents its owner as the unique raw bearer of first-order sensory states. It follows then that we are thinly immune to these errors concerning bodily sensations or visual perceptions.

Rosenthal believes that the HOT theory and TIP can accommodate both quotidian and pathological states, including more than just misidentifications of the sort already mentioned. Concerning a hypothetical Dissociative Identity Disorder (DID) case wherein a patient appears to have two selves, Rosenthal (2002b: 215–6) says: First, DID cases are patients with partially disjoint sets of first-order mental states. Although the sets partially overlap, coherence tends to be higher within than between them. Second, Rosenthal posits disjoint sets of HOTs, each targeting distinct portions of the partially disjoint first-order states. Third, he proposes that the apparent sense of two distinct selves can be explained by the battery model, because the patient employs partially disjoint sets of contingent properties to identify the

2 Below our argument focuses on the version of TIP which concerns body sensations, but we suspect that the perceptual (the mirror) version might also be susceptible to empirical challenge. Cases of mirrored-self misidentification (e.g. Breen et al. 2000 and Postal 2005) raise the possibility that even if I think I see myself in a mirror, I can be wrong about who it is I think the individual in the mirror is.

individual who the first-person thoughts are about. By appealing to disjoint sets of first-order states, disjoint sets of HOTs, and the battery model, Rosenthal argues that the appearance of distinct selves is explainable by the HOT theory and that TIP is not violated.

3. *Violation of the thin immunity principle by a pathological self*

We have argued that Rosenthal's TIP is implied by the HOT theory. If this is the case, violation of TIP would constitute a serious problem for the theory. Below we argue that there is indeed empirical support for the claim that TIP is sometimes violated.

Somatoparaphrenia (Vallar and Ronchi 2009) is a syndrome that is characterized by the sense of alienation from parts of one's body. It is typically found in patients who have suffered extensive right-hemisphere lesions (usually vascular), but it can also be caused by subcortical lesions (for example, in the basal ganglia). Patients typically feel that a contralesional limb belongs to someone other than self. Baier and Karnath (2008) examined 79 acute stroke patients with right brain damage and found that six were afflicted with somatoparaphrenia. Of the six, two attributed ownership of the limb to their wives, three to their examining physicians, and one to a patient sharing the same room.

This syndrome is frequently accompanied by the loss of conscious tactile perception in the alien body part. Bottini et al. (2002) describe the case of a woman (FB) who reported that her left hand belonged to her niece and that she (FB) felt no tactile sensations there. In a series of controlled tests, FB, while blindfolded, was advised that the examiner would touch *her* left hand; next the examiner would in fact touch the dorsal surface of FB's hand. Whenever this was done, FB said that she could feel no tactile sensations. When advised that the examiner was about to touch her *niece's* hand, however, upon actually being touched, she reported feeling tactile sensation. To monitor attention in and the reliability of these tests, catch trials evenly distributed across three verbal warnings – I'm going to touch your right hand, your left hand, and your niece's hand – were administered in four sessions, two on one day, two on the next.

If we describe this case in the terminology of the HOT theory, what seems to be happening is that these tactile sensations are *represented as belonging to someone other than self*. That these states can be conscious seems to consist in FB being conscious of her niece as being touched. But if this is so, then we have a clear violation of TIP. Recall that according to Rosenthal HOTs are first-person thoughts that both represent mental states and represent self as the owner of those states. According to TIP, which is derived from this core idea, it should be the case that FB represents the sensations as belonging to herself. HOT and TIP do not allow for the possibility that the sensations

could be represented as belonging to FB's niece. But the empirical evidence presented above confounds this theory-based expectation.

Notice that FB is not failing to *identify* herself correctly. Unlike the sort of pathological case that the HOT theory is allegedly able to handle, FB is not misidentifying herself as her niece. FB is not attributing a battery of her niece's contingent properties to herself. Rather she is representing herself as *not being the raw bearer* of the tactile sensations. So Rosenthal's battery model of self-identification cannot be invoked to help preserve TIP.

We contend that this pathological case shows that TIP is sometimes violated and that allowing for the violation of TIP enhances our understanding of the phenomenological aspect of mental states. To insist on TIP would be to risk obscuring a significant empirical phenomenon. Allowing for violations of TIP, given that it derives from the core ideas of the HOT theory, creates doubts about the theory itself.

4. Possible defences of HOT and TIP

First, one might insist on trying to explain the case of somatoparaphrenia along the lines of that which Rosenthal suggested for the hypothetical Dissociative Identity Disorder case. Perhaps, it might be suggested, there are independent sets of HOTs that target only partially overlapping first-order states, HOTs that give rise to independent personalities. But unlike DID, here the analogue of a DID alter, the niece, does not have a distinct personality that is able to take control of the body and make first-person reports. So there are no grounds for arguing that the subject has multiple, independent sets of HOTs that serve as the foundation for distinct persons.³

A second objection might be that subjects' first-person reports are confused and thereby unreliable. After all subjects are reporting experiences. And when viewed through the lens of the HOT theory these experiences simply could not be reported were they not represented as belonging to the subject who reports them. Any descriptions to the contrary, especially those that are produced by victims of pathology, should be dismissed.

But dismissal of patient reports in these cases would be much too quick. HOTs, by hypothesis, are posits of an empirical theory, and a main reason given for believing they exist is that they are reportable (Rosenthal 2005: 313–14). To be reportable and accurate lends more support to an existence claim than does to be reportable but massively erroneous. So Rosenthal should tread lightly here. To simply dismiss these (and other)

3 Although we do not argue the point here, we suspect that the phenomenon of intrac-consciousness, wherein one alter claims to be aware of the mental states of other alters (e.g. Wilkes 1993: 112–27), suggests that TIP might not even accommodate all of the experiences that occur within DID.

perplexing reports would be to risk ignoring a phenomenon that requires explanation.

Theories that aspire to enhance their empirical credentials do not progress by ignoring anomalous explananda. And the most natural reading of the somatoparphrenia case is that TIP is violated. Were Rosenthal to insist that TIP holds and that subject reports pertaining to the ownership of mental states are completely in error, he would need to assume the burden of at least showing how these anomalous reports can be accommodated by the HOT theory. And to be successful in this endeavour it would not be sufficient to merely posit disjointed mental states and the battery model, for in the previous section that strategy has already been shown to be inadequate.⁴

A third possible line of objection would be to take the reports seriously, but to reinterpret them. One might, for example, resist a literal understanding of them. Perhaps when FB reports on her niece's tactile sensations there is a sense in which FB might still be the *actual* owner, even though the way it *seems* to her causes her to misattribute the ownership of the mental states.

But to reinterpret the case of somatoparphrenia in this way would be inconsistent with Rosenthal's explanatory intentions. Recall that Rosenthal's intent is to explain the 'sense' or 'compelling intuition' that we have a single self. He is not talking about the physical realization of mental states or about an actual self. So any attempt to distinguish between how things are and how things *seem* would be inconsistent with the goals of TIP and the HOT theory. What matters just is the *appearance*, that compelling intuition. Currently though the best evidence we have concerning the proper characterization of appearance in the case of somatoparphrenia – subject reports – suggests the conclusion that TIP can be violated. And the violation of TIP in turn suggests what appears to be a fundamental problem with the HOT theory: it does not allow for a distinction between the representation of a mental state as *present* for someone and the representation of a state as *belonging* to someone. But it is far from obvious that theoretical considerations should be allowed to trump the available empirical evidence, especially given that there is indeed conceptual space between presence and belonging.

5. Conclusion

The focus of our attention here has been Rosenthal's HOT theory and TIP. We argue that certain pathological phenomena are best explained by

4 Rosenthal (2005: 209–13) does allow for the possibility of HOTs that misrepresent, even HOTs that completely misrepresent the content of first-order mental states (Lane and Liang 2008). But TIP strictly prohibits misrepresentations concerning the ownership of mental states by the raw bearer of those states.

allowing that TIP does not always hold. And to allow that TIP does not always hold is to raise serious questions about the presuppositions upon which the HOT theory is grounded. But our conclusions have implications for other theories of consciousness as well. Consider, for example, Kriegel's (2005) claim that phenomenal consciousness necessarily involves both a (i) what-it-is-like aspect and a (ii) for-me aspect. If the conclusions reached here are correct, Kriegel's views and the views of others who posit a necessary connection between (i) and (ii) are wrong. Just as there is significant conceptual space between presence and belonging, so too is there significant conceptual space between what-it-is-like and for-me.⁵

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Dispositional essentialism and the necessity of laws

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1. Dispositional essentialism vs. quidditism?

It used to be assumed, by Humeans and non-Humeans alike, that laws of nature are contingent. Indeed allowing for contingency was widely taken to be a desideratum on the acceptability of any account of natural laws. However, nomic necessitarians argue that even if laws of nature are logically contingent (so that putative law statements cannot be analytic), they are metaphysically necessary. Their arguments are typically, though not always, founded on dispositional essentialism.¹ Dispositional essentialism about a property is the view that its essence is dispositional: the dispositions it confers are what make the property what it is (Bird 2007a: 44).

The argument for nomic necessitarianism is roughly as follows (see for instance Mumford 2004: 103–4). Suppose it is a law that all Fs are Gs (e.g. that all salt dissolves in water), but that the nomic status is contingent. On a non-Humean account of laws like Armstrong's, although *F*-ness necessitates *G*-ness, the relation of nomic necessitation between *F* and *G* does not hold with metaphysical necessity: there are possible worlds (governed by different laws) in which some Fs are not Gs, and others in which no Fs are Gs (see Armstrong 1983: Chapter 11).

But why should we think that what we have called Fs in these worlds are *genuinely* Fs? In order to be Fs they must be instances of the *very same* property that (nominally) necessitates *G*-ness under the laws of nature as

1 See Bird 2001, 2002 and 2007a: Chapter 8 for other arguments, which we will not address here. See also Shoemaker 1984.