



One-Factor *versus* Two-Factor Theory of Delusion: Replies to Sullivan-Bissett and Noordhof

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Abstract I would like to thank Sullivan-Bissett and Noordhof for their stimulating comments on my 2023 paper in *Neuroethics*. In this reply, I will (1) articulate some deeper disagreements that may underpin our disagreement on the nature of delusion, (2) clarify their misrepresentation of my previous arguments as a defence of the two-factor theory in particular, and (3) finally conduct a comparison between the Maherian one-factor theory and the two-factor theory, showing that the two-factor theory is better supported by evidence.

Keywords One-factor theory · Two-factor theory · Delusion · Evidence

Delusions and Everyday Irrational Beliefs

Following Jaspers [1], I think that delusions strike us as unintelligible because at first sight there is no immediate “intelligible link” demonstrating what kind of mental events cause delusions ([2], p. 6). I, however, do not take this to mean that it is impossible to understand delusions. On the contrary, I believe that it is the aim of most if not all theories of delusions to build an intelligible link to reveal the real cause of delusions, and this

aim is achievable (for a similar view, see [3]). My 2023 paper acknowledges the contribution by Maher and his followers in helping make delusions more intelligible ([2], pp. 1-6), but argues that the Maherian one-factor theory is inadequate in fully explaining delusions ([2], pp. 6-13). I propose that there could be some missing factor(s) in the aetiology of delusions, and we should keep “searching for the missing factor, ... and at the same time keep an open mind to the possibility that there could be some missing factor not yet captured by existing theories of delusions.” (p. 13)

In their commentary, Sullivan-Bissett and Noordhof [4] deny that delusions are “unintelligible”. Why? According to them, this is because delusions are similar to certain everyday irrational beliefs which they take to be “all too intelligible” (p. 3). One sort of everyday irrational beliefs they propose are beliefs in conspiracy theories (pp. 6-7).

My 2023 paper argues that there are significant differences between delusions and beliefs in conspiracy theories, and therefore even if the latter were immediately intelligible, it would not support that the former is immediately intelligible (pp. 11-13). Here I would like to add that I agree with Sullivan-Bissett and Noordhof [4] that there may be certain everyday irrational beliefs that are, in a certain sense, comparable to delusions. But, unlike Sullivan-Bissett and Noordhof, I think that these comparable everyday irrational beliefs are unintelligible without appealing to some abnormal factor(s).

Recall that in the Capgras delusion, the subject may obstinately hold onto the belief that his wife is

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an imposter, despite the fact that he is aware of the abundant evidence to the contrary ([2], pp. 7-8). A comparable everyday irrational belief may be a mother's obstinate belief that her son is innocent, despite the fact that she is aware of the abundant evidence to the contrary. While Sullivan-Bissett and Noordhof [4] might find this kind of everyday irrational belief "all too intelligible", my view aligns with many philosophers in the literature on epistemic akrasia that it is unintelligible without appealing to some departure from normality (for a critical review, see [5]). Indeed, in other places I have argued that delusions and everyday obstinate beliefs may share a common factor, which could be an epistemically harmful *seeming* that can causally compel belief, even in the face of counterevidence [5, 6].

This may indicate a deeper disagreement between us. For Sullivan-Bissett and Noordhof [4], the irrational beliefs with which we are "familiar" in our everyday lives are "all too intelligible" (p. 3), and they argue that delusions should be treated in a similar manner. By contrast, I contend that, without invoking significant departure(s) from normality, neither delusions nor comparable everyday irrational beliefs are intelligible, even though we are more familiar with the latter in our everyday lives.

A Defence of the Two-Factor Theory?

In their commentary, Sullivan-Bissett and Noordhof [4] criticize my 2023 paper for not discussing the jumping to conclusions bias¹ and, more generally, for not providing a "coherent" two-factor theory (pp. 5, 7). These criticisms suggest that they take my paper to be a defence of the two-factor theory in particular. This is, however, a misunderstanding.

While I argue that "the two-factor theory is on the right track in its search for the missing factor" ([2], p. 1), throughout the paper I have repeatedly emphasised that my arguments are not a defence of the two-factor theory in particular. This is because my arguments explicitly leave it open that there could be "more than

one missing factor" (p. 10, see also pp. 7, 13), and leave it open what the nature of the missing factor(s) is (p. 13).

My own proposal for the missing factor is that, in some cases of delusions, it could be an epistemically harmful *seeming* that causally compels belief [5, 6], and I argue that this new factor can help existing theories to explain delusions, including but not limited to the salience theory [7, 8], the phenomenological theory [9, 10], certain variants of the one-factor theory ([11], cf. [2], pp. 8-9), and the two-factor theory [12].

One-Factor vs Two-Factor Theory of the Capgras Delusion

Although my 2023 paper is not a defence of the two-factor theory in particular, I am intrigued by Sullivan-Bissett and Noordhof's interest in comparing the one-factor theory and the two-factor theory. In this section, I will conduct a comparison between them, with the aim of investigating which is better supported by evidence.

To illustrate the main differences between the one-factor theory and the two-factor theory, let us consider the poster case, i.e., the Capgras delusion, where the subject believes that his wife has been replaced by an imposter. Both the one-factor theory and the two-factor theory agree that the delusional belief is adopted and maintained as some kind of explanation of a peculiar kind of anomalous experience.² However, they disagree on (i) what exactly the anomalous experience is and (ii) what kind of explanation is involved.

For convenience, let us start with the first factor proposed by two-factor theorists. They propose that, at the subpersonal level, the subject's anomalous

¹ The reason why Nie [2] does not discuss the jumping to conclusions bias is that many two-factor theorists had rejected it as a candidate for the second factor more than a decade ago (e.g., [22]). I think an examination of the two-factor theory should focus on more recent versions of it (e.g., [24]).

² For simplicity, I will focus on the explanationist version of the two-factor theory, and set aside the endorsement version. Sullivan-Bissett and Noordhof ([4], p. 2) suggest that there could be an endorsement version of the Maherian one-factor theory. This appears to be an overstretch. For one reason, they have not provided any textual evidence that this was what Maher had in mind when he talked about the one-factor theory. For another, their definition of "endorsement" (i.e., endorsing a belief that P because P "explains" the experience that P) differs from the standard definition of endorsement (i.e. endorsing a belief that P because of a "prepotent doxastic response" to the experience that P). For a review of various endorsement accounts, see Davies and Egan ([28], p. 711, footnote 20).

experience is underpinned by reduced activities in the autonomic nervous system, which can be measured by skin conductance. This proposal is well-supported by empirical evidence ([13–18], see also [19, 20]). At the personal level, one popular conception of the anomalous experience is that, while the subject recognises his wife’s face, he has a reduced affective response to her.³ Let us call this factor Anomalous Experience.

By contrast, following Maher ([21], p. 566), Sullivan-Bissett and Noordhof’s [4] one-factor theory proposes a different conception of the factor. According to them, the Capgras delusion is a normal explanation of the subject’s “profound” anomalous experience (p. 4). They argue that this what we may call Profound Anomalous Experience is the only factor in the aetiology of the delusion. However, the problem is that Sullivan-Bissett and Noordhof have not provided any neuropsychological evidence underpinning the postulated profoundness of the Profound Anomalous Experience. That is, compared to two-factor theorists’ Anomalous Experience, one-factor theorists’ Profound Anomalous Experience lacks evidential support.⁴

Regarding the question of what kind of explanation is involved, two-factor theorists argue that the Capgras delusion is an abnormal explanation of the subject’s Anomalous Experience. The abnormal explanation occurs because of a second factor, i.e. a second departure from normality. Various candidates for the second factor have been proposed by two-factor theorists, including an impairment of

working memory and/or executive function [22, 23] and a bias against disconfirmatory evidence [24]. Although it is debatable whether we have found the “perfect” second factor that makes the two-factor theory adequate to fully explain delusions, it is important to see that the candidates for the second factor are all empirically proven to be associated with delusions. Of course, association does not entail causation. But it is a fruitful strategy to search for causal factors among the associated factors.

By contrast, one-factor theorists deny that a second factor is involved. Instead, they argue that the Capgras delusion is a normal explanation of the subject’s Profound Anomalous Experience, and the normal explanation is similar to the explanatory process in the aetiology of everyday irrational beliefs such as beliefs in conspiracy theories [25] and paranormal beliefs [26]. However, the problem is that one-factor theorists have not provided any empirical evidence showing that their conception of normal explanation is associated with delusions,⁵ let alone showing that it is the actual cause of delusions. That is, compared to two-factor theorists’ proposal of abnormal explanation, one-factor theorists’ proposal of normal explanation lacks evidential support.

The one-factor theory:

Profound Anomalous Experience + Normal Explanation
No neuropsychological evidence No evidence

The two-factor theory:

Anomalous Experience + Abnormal Explanation
Neuropsychological evidence Evidence of association

Overall, it is clear that, compared to the one-factor theory, the two-factor theory is better supported by evidence.⁶

³ In my 2023 paper, I have discussed different views on the nature of the anomalous experience underpinned by reduced activities in the autonomic nervous system ([2], pp. 4–6). Here I only select what I have called the Affective view. It suffices to illustrate the point.

⁴ Regarding the question of who needs to provide a definition of abnormality, Sullivan-Bissett and Noordhof [4] argue that they do not need to “provide an account of why the [Profound] [A]nomalous [E]xperience is abnormal” because they think “it is accepted by both sides” (p. 6). However, it is unclear to me what “both sides” refer to. One possibility is that they take my 2023 paper to be the other side. But my paper argues that they need to provide a definition. Another possibility is that they take two-factor theorists to be the other side. In this case, their argument will not work either. This is because the notion of abnormality used by two-factor theorists will classify both the subject’s anomalous experience and their explanatory process as abnormal, and hence cannot support one-factor theorists’ view that only the subject’s anomalous experience is abnormal.

⁵ Although Noordhof and Sullivan-Bissett ([23], pp. 94–95) have discussed the association between their conception of normal explanation and some everyday irrational beliefs.

⁶ In their critique of the dissociation argument favouring the two-factor theory, Sullivan-Bissett and Noordhof [4] do not engage with the subpersonal-level neuropsychological deficit underpinning the anomalous experience, and they suggest that doing so “makes no advance” (p. 5, footnote 2). This may indicate another deep disagreement between us. I think that engaging with the relevant evidence—whether personal or subpersonal—is the key.

Conclusion

Looking back, we appreciate that many classic theories of delusions—such as the psychodynamic theory [27] and Maher’s one-factor theory ([2], pp. 1-6)—have, in various ways, enriched our understanding. However, as evidence accumulates, it becomes clear that newer theories—such as the two-factor theory—obtain stronger evidential support. We are, of course, not yet in a position to tell Jaspers that delusions have become fully understandable. Nonetheless, the key to progress, in my view, is to follow the evidence. With respect to classic theories like the one-factor theory, although they are not favoured by the current evidence, it is equally worth noting that the question remains open as to whether there is conclusive evidence ruling them out as logical impossibilities. For this reason, re-evaluation could be warranted should new evidence emerge.

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Declarations

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