

The Everyday Irrationality of Monothematic Delusion

Paul Noordhof and Ema Sullivan-Bissett

Irrationality comes in hot and cold varieties. The hot involves the influence of motivation, or emotion more generally, the cold does not. Under which category does delusion lie, or can it come in both varieties? Empiricist accounts of monothematic delusion (those delusions concerning a single theme) claim that anomalous experiences are explanatorily relevant to the formation of the distinctive delusional beliefs. So far, no irrationality has been identified. But many philosophers and psychologists have argued that, in addition, there is a special clinically significant irrationality involved in delusion formation, understood as the manifestation of some cognitive deficit, bias, or performance error. All of these are cold varieties of irrationality with the possible exception of some kinds of performance error. Those who propose such irrationality note that not all people with anomalous experiences develop delusions, and so, the thought goes, we should explain why some subjects develop delusions off the back of anomalous experiences by identifying some clinically significant irrationality at work.

We have argued that it is a mistake to argue from variation in response to experience to the presence of some clinical irrationality in folk who form delusions (Noordhof and Sullivan-Bissett 2021). Individual differences of various kinds explain why some subjects have delusional beliefs and others do not. Actually, we do not think that all cases of delusion involve irrationality but we set aside that possibility here. Where delusions are the result of irrationality, the irrationality involved is quite everyday. In this paper we argue for this claim in two ways. First, an examination of non-clinical paranormal beliefs shows that it is a mistake to think that monothematic delusional belief usually involves a kind of irrationality distinct from everyday kinds. Crucially, in these non-clinical cases, we have beliefs with bizarre contents, often based on strange experiences that are also had by subjects who do not form paranormal beliefs. Nevertheless, researchers interested in their genesis have not sought to identify clinically significant irrationality. By reflecting on the structure of non-clinical cases of paranormal belief, we show that the appeal to clinically significant irrationality to explain delusion formation is unmotivated. These everyday irrationalities may be ‘cold’ – that is, not the result of motivation – but they are still mundane.

Second, there are various kinds of motivated irrationality in everyday life with which we are familiar, for example, wishful thinking and self-deception. It wouldn’t be surprising if some cases of delusion involved these forms of irrationality and, as we shall see, there is evidence that they do. But, here again, the situation is rather different from what might reasonably be called the orthodoxy. Delusions are often seen as the most serious form of irrationality, at the extreme end of self-deception or involving a further, more substantial form of irrationality. This is a mistake. Motivated irrationalities are more substantially irrational than the cold cases of delusion and when delusions run hot, they typically involve fewer motivational features than everyday motivated irrationality. Overall then, we conclude that not only do we need not appeal to any clinical irrationality to explain monothematic delusion formation, but that in addition, the reputation of delusions as the most serious form of irrationality is unmerited. Throughout the paper, we remain neutral on the question of whether monothematic delusions more often come in cold or hot varieties.

1. Monothematic delusion formation

Delusions tend to be characterized in terms of their epistemic failings; with the most recent Diagnostic and Statistical Manual of Mental Disorders calling them ‘fixed beliefs¹ that are not amenable to change in light of conflicting evidence’ (American Psychiatric Association 2013: 87). The characterization is unhelpful because it ignores the controversies concerning the role of anomalous experience in giving rise to a delusional belief, so we offer some examples to get our target phenomenon in sight. Subjects with Capgras delusion believe that someone familiar to them (often a spouse or close family member) has been replaced by an imposter. Subjects with Cotard delusion believe that they are dead or that they do not exist. Subjects with anosognosia believe that they are not disabled in some way, a typical manifestation which we discuss is that they deny a paralysis or weakness in their left side (a left hemiplegia) and believe that they have full use of their limbs (§4.2). Our examples are all *monothematic*, that is, to recall, delusions concerning a single theme and ones which ‘can present in isolation in people whose beliefs are otherwise unremarkable’ (Coltheart, Langdon, and McKay 2007: 642). Subjects with these delusions tend not to display more general delusional belief formation and present a challenge to those convinced that there is a substantial, clinically significant, irrationality at work to explain why its effects are so localized (as we shall go into more detail below).

Subjects with monothematic delusions often undergo some highly anomalous experiences. For example, a subject with perceptual delusional bicephaly (the delusion that one has a second head) may hallucinate a second head on her shoulder (Ames 1984). Not all anomalous experiences associated with kinds of delusion are hallucinatory in this way (i.e., they do not all falsely present objects and properties in the world). In Capgras, the experience has been understood as one of *absence* of something expected, the subject has reduced affective response to familiar faces traceable to ventromedial prefrontal cortex damage (Tranel, Damasio, and Damasio 1995, Coltheart 2007), or right lateral temporal lesions and dorsolateral prefrontal cortex damage (Wilkinson 2015, Corlett 2019). In the case of Cotard, similar damage is present and it has been suggested that these subjects have no emotional feelings regarding their environment (Young et al. 1992: 800). Empiricists about delusion formation claim that such experiences play an explanatory role in the formation of delusions. Within empiricism, the current orthodoxy insists on an additional clinical irrationality at the level of belief formation or evaluation, on the grounds that not every subject who has the relevant anomalous experience has the associated delusional belief. There must, then, be some additional abnormality which explains why some people become delusional based on some anomalous experience and others do not (see e.g. Chapman and Chapman 1988: 174; Garety 1991: 15; Garety et al 1991: 194–195; Davies & Coltheart 2000: 11–12; Davies et al. 2001: 144; Young and De Pauw 2002: 56; Davies et al 2005: 224–225; Coltheart 2015: 23).

We turn briefly to give a handful of examples of the clinical irrationalities proposed to be active in delusion formation. These are irrationalities claimed to be either not present in non-clinical populations, or if they are found here, they are systematically present to a lesser degree. The putative irrationalities, or the degree to which they present, are taken to be unique to folk with delusions, and explanatorily relevant to the project of explaining *delusional* belief in particular.

Bias theorists seek to characterize the kind of irrationality involved. Philippa Garety and Daniel Freeman have argued for a data-gathering bias, specifically, people with delusions *jump to conclusions* (Garety and Freeman 1999; see also Huq et al 1998, Garety et al 1991, cf. Dudley et al 2015, Ross et al 2015). Tony Stone and Andrew W. Young opt for a tendency to privilege observational data over minimizing adjustments to one’s beliefs (1997: 349–50). Martin Davies and colleagues locate the clinical abnormality in the belief maintenance process, understanding it as a failure to inhibit a pre-potent

¹ We assume doxasticism about delusion (and indeed self-deception) in this paper, that is, the view that the delusional attitude is a *belief*. Although far from settled in either case, it is an assumption shared by the various literatures, philosophers, and psychologists we engage with here. For defences of doxasticism see Bortolotti (2009) and Bayne and Pacherie (2005) (delusion), and Van Leeuwen (2007) (self-deception).

doxastic response (Davies et al 2001: 153). Although they give no further characterization of the kind of irrationality involved, they offer a causal explanation of the hypothesized deficit. Thus, Max Coltheart (2005) has developed this view, tracing the putative abnormality to damage to the right lateral prefrontal cortex found in many subjects with monothematic delusions. Others, like Philip Gerrans (2001), have argued for neither a bias or a deficit but instead, more circumspectly, for a *performance failure*, whereby a subject has the competence to properly form or maintain beliefs but fails to put it to practice.

Elsewhere we argue that these cognitive processes thought to be clinical abnormalities are no such things after all, either because the evidence fails to show that they are indeed contributory, or that they are clinically significant, or that they offer appropriate coverage and explanatory adequacy of the posited abnormality (Noordhof and Sullivan-Bissett 2021). Rather, we argue, the default position ought to be that the anomalous experiences subjects with delusions undergo are the only clinically significant contribution to the formation of delusional beliefs with non-clinical individual differences accounting for why some subjects form monothematic delusions and others do not. Here we move away from a critical analysis of the empirical support for clinical irrationality and take a different approach to establishing the status of the cognitive contributions to delusion formation. We argue for the following two claims: (1) such contributions should not be understood as constituting clinically significant irrationality and (2) the irrationality involved in delusion formation is not—as has often been thought—of the most serious kind. To establish (1) we discuss paranormal beliefs and the motivated irrationalities of everyday life, and to establish (2) we discuss some of the specific features involved in a particular form of motivated irrationality: self-deception.

2. Paranormal belief

We take paranormal beliefs to be beliefs in phenomena that meet the following two conditions. First, they are, in principle, not explicable in terms of the natural sciences (either by the entities they currently postulate or by entities that resemble those they currently postulate that might be postulated in the future as the sciences develop). Second, the effects of the phenomena are often of a type explained by the natural sciences but, when the result of these ‘paranormal’ phenomena, the effects conflict with the predictions of the natural sciences concerning them. In brief, the paranormal seems inexplicable in a certain way and miraculous. Without the second condition, any non-physical entity would be categorized as paranormal. Without the first condition, any candidate miracle would have the implication that the preceding cause was paranormal no matter how mundane it is.

To see how these conditions work, consider the case of telekinesis. Suppose, by the power of our minds, we move a chair slightly to the left. Such movements aren’t out of the ordinary in themselves. What is paranormal is that, as far as the forces identified by the natural sciences are concerned, there should be no movement. This is the miraculous element. If our mental power were possible to characterize by the natural sciences, we would be contemplating adjusting our account of the character of the laws that applied to the entities so characterized. Again, there would be nothing paranormal involved. It is the combination of these two features that makes something paranormal.

The characterization avoids some of the difficulties that afflicts characterizations of the paranormal such as the idea that they are physical, biological, or psychological phenomena that feature fundamental or core ontological properties of another ontological category’ (Lindeman and Aarnio 2006: 586–7).² We may believe that psychological

² This definition is wider than that used in earlier work on paranormal belief, the presence of which was assessed by ‘sheep-goat scales’ devised to select participants who believed in ESP in particular (see Irwin 1993 for discussion). The studies we discuss here were generally broader, with measures of paranormal belief being based on the Paranormal Belief Scale (Tobacyk 1988, later revised in 2004) or the Belief in the Paranormal Scale (Jones et al. 1977).

phenomena may have physical or biological properties without being committed to the paranormal. Paranormal beliefs include but are not limited to beliefs in extrasensory perception (ESP) including telepathy and clairvoyance, ghosts, witches, astrology, psychokinesis, and alien abduction.³ The last category – that of alien abduction – need not involve the paranormal in our sense. Aliens may abduct and experiment upon us without this being in any way inexplicable to the natural sciences or, for that matter, involving a misattribution of the property of one ontological category to another. It depends upon the nature of what is envisaged in alien abduction hypotheses (e.g. levitation). Religious beliefs involve another complexity since they may well fall under any characterization of the paranormal. In any event, we think that paranormal beliefs of the standard sort are an instructive case when thinking about delusion formation. That is for two reasons: (1) they share two important features with delusions, namely they have *bizarre contents* and are *supported by strange experiences*, and (2) the research programme of those interested in their genesis does not seek clinically significant irrationality to explain them. Let us take these points in turn.

2.1 Bizarre contents

Paranormal beliefs are, almost by definition, ones with bizarre contents. Fans of the paranormal may believe that they can transmit thoughts to others through the power of the mind alone, or that they can speak to dead people, or move objects with their minds. They may also believe that the movements and positions of celestial objects can give us information about human lives and that witchcraft is not a mistaken relic of yesteryear but alive and well today. We take it that these beliefs are pretty bizarre. Insofar as we could measure it though, it might naturally be thought that paranormal beliefs are less bizarre than some delusions (belief in astrology might be less bizarre than believing that one's partner has been replaced by an almost-identical looking imposter as in Capgras delusion). That said, a case can be made for the converse, perhaps believing that one can move physical objects with one's mind (telekinesis) is more bizarre than believing that one's partner has been replaced by an imposter (which is highly improbable but need not involve inexplicability) and certainly believing that one's ex-partner remains faithful (as in the case of Reverse Othello delusion), which is not bizarre however remote it may be from the character of human relationships. It certainly isn't clear that monothematic delusions are systematically more bizarre than paranormal beliefs and certainly not so much more bizarre that we should expect an entirely different treatment to be necessary for this reason.

2.2 Anomalous experience

Experiences (ostensibly) of the paranormal play a key role in the formation and maintenance of paranormal beliefs (Dagnall et al. 2020). Indeed, such experiences have become an important topic of investigation for a burgeoning field of study, anomalistic psychology, which attempts to explain paranormal beliefs and experiences in terms of psychological and physical factors observed in the more general healthy population. It turns out that these strange experiences occur in the healthy population at rates significantly higher than previously thought (Beyerstein 2007: 317–18). People with paranormal beliefs commonly give as the reason for them some personal paranormal experience (Dagnall et al 2020: 6, see also Blackmore 1984, Clarke 1990, and Rattet and Burski 2001), and it has been found that there is a positive correlation between the number of such experiences and the strength of paranormal belief (Glicksohn 1990; Misch and Ehrenberg 2002).⁴

³ See Sullivan-Bissett (2020) for an argument that those interested in delusion formation have much to learn from the case of alien abduction belief.

⁴ We interpret the empirical work on paranormal experience and belief in empiricist terms, that is, as the cited experiences preceding the belief. However, a non-experiential cognitive single factor may well be more plausible in the paranormal case than the delusion case, given the cultural grounding of paranormal beliefs

To give some examples: those subjects who believe in alternate planes of reality or that they possess psychic powers report vivid mental imagery which seems to come to them unbidden from an external force and is accompanied by a high degree of emotional content (Beyerstein 2007: 314). Such images ‘can have all the vividness and tangibility of percepts generated by any real event that actually transpired in our presence ... [and] ... [t]he emotional significance of such events can seem profound’ (Beyerstein 2007: 316). Subjects who believe that they have been abducted by aliens report nighttime paralysis, seeing aliens, and levitation (see McNally and Clancy for cases studies 2005). Mildly anomalous sensations (e.g., sudden temperature changes or dizziness) might also be interpreted as involving the paranormal (French and Wilson 2007: 13).

All of these experiences are—just as with experiences associated with delusions—amenable to naturalistic explanations. The vivid mental imagery reported by occultists can be explained as a by-product of brain processes involved in conscious awareness and behavior control. One suggestion is that thoughts or emotions may seem unwilled by a subject when inputs from unconscious modules bypass executive functions of self-awareness (Beyerstein 2007: 315–16). Alien abduction experiences have been explained by appeal to the combined effects of Awareness During Sleep Paralysis (ASP) and hypnogic (sleep onset) and hypnopompic (sleep offset) hallucinations (McNally and Clancy 2005). At the same time, the intensity of such experiences may make naturalistic explanations seem less plausible to some subjects. Susan Blackmore had an experience of this kind in the laboratory, undergoing magnetic brain stimulation, where weak magnetic pulses were delivered to her temporal lobe. This intervention resulted in her feeling as though she were being grabbed by the shoulders, yanked around, that her leg was being pulled, and as though she ‘had been stretched half way up to the ceiling’ (Beyerstein 2007: 329). This was followed by intense feelings of anger and then fear. Of this experience she says:

Of course, I knew that it was all caused by the magnetic field changes but what, I wondered, would I feel if such things happened spontaneously. What if I woke in the middle of the night with all those feelings? I knew I would want, above all, to find an explanation, to find out who had been doing it to me. To have such powerful feelings and no reason for them is horrible. You feel as if you are going mad. If someone told me an alien was responsible and invited me to join an abductees’ support group, I might well prefer to believe the idea; rather than accept I was going mad. (Beyerstein 2007: 329)

There is an important point here. Blackmore underwent an anomalous experience in an artificial environment and retained insight into what was happening to her. But she could reflect on how that might have felt in a different context, outside of an artificial environment and without the insight. The explanatory gap left open by these ‘powerful feelings’ is described as ‘horrible’, thus one might think it is hardly surprising that people who have such experiences form beliefs which seem to explain them.

2.3 Explaining paranormal belief

Despite these similarities with clinical delusions, theorists interested in the etiology of paranormal belief have taken a markedly different approach. In particular, the research has proceeded not by seeking to identify kinds of clinical irrationality to explain how such beliefs arise, but rather by seeking to identify which normal range cognitive styles might

and the testimony of others that give these beliefs currency. We don’t want to rule out that in many cases, experiences are interpreted as paranormal in character because of an existing belief in the possibility of such goings on. This is the *cultural source* hypothesis according to which ‘paranormal belief creates or shapes experience and cultural traditions influence interpretation of bizarre experiences’ (Dagnall et al 2020, see Hufford 1982 and McClenon 1994 for representative views). Lindeman and Aarnio found that ‘the general tendency to believe in paranormal phenomena was the strongest predictor of all specific paranormal beliefs’ (2006: 598), and Dagnall and colleagues note that positive societal depictions might make more plausible paranormal explanations of puzzling experiences (pp. 10–11). We note then that the bizarreness and relative rarity of delusions might be in part explained not by a corresponding rarity in particular cognitive contributions but rather by the absence of positive societal depictions of their contents.

play such an explanatory role.⁵ This trend is especially interesting given that these theorists recognize that strange experiences are not sufficient for paranormal belief (recall that it is a parallel fact which has motivated a search for clinical abnormality in the case of delusion). For example, as Lindeman notes, hearing the voice of a deceased person may foster the belief that that person spoke to you, but it may also foster the belief that you had a hallucination (Lindeman 2017: 3). Both cases occur. But researchers of paranormal beliefs are not *thus* moved to search for a clinical abnormality of belief formation or evaluation to explain why some folk believe that dead people are communicating with them.

So what of these normal range cognitive styles then? A tremendous amount of research has sought to identify which styles or biases may play a role in the genesis of beliefs in the paranormal. We give a snapshot of it here to highlight the variety in hypothesized contributions (see French and Wilson 2007 and Irwin et al. 2012 for more thorough overviews).

Some researchers have looked at intuitive and analytical thinking. The former is understood to be ‘implicit, nonverbalizable, associative and automatic and regards personal experience as the main tool by which information is assessed’ whilst the latter is understood as ‘explicit, verbalizable and conscious reasoning that is based on conceptual thinking, logic and evidence’ (Lindeman and Aarnio 2006: 587–8). High intuitive thinking and low analytical thinking have been shown to predict paranormal belief (Lindeman and Aarnio 2006).⁶

There is some evidence, although mixed, that poor syllogistic reasoning is correlated with paranormal belief. One study by Michael Wierzbicki had participants complete W. H. Jones and colleagues’ (1977) Belief in the Paranormal Scale and a reasoning task containing sixteen syllogisms. He found a significant relationship between scores on the paranormal belief scale and errors in the reasoning task (1985: 492). Overall, Chris French and Krissy Wilson describe the evidence for a correlation here as ‘fairly robust’ noting that only two published studies have failed to find this effect (2007: 8).

A third possible contributor to paranormal belief is probability misjudgement. Susan Blackmore and Emily Trościanko had participants in their study answer questions on their experience of precognitive dreams and telepathy, and their belief in ESP. These questions generated a belief score, and they found that those with lower scores were better at tasks involving judgements about probabilities (1985: 461–2). However, this effect was not replicated in a larger scale study of 6238 people (Blackmore 1997), and whilst it replicated in Jochen Musch and Katja Ehrenberg’s study (2002), it did not survive controlling for cognitive ability. Overall, French and Wilson suggest that the role of probability misjudgement in paranormal belief enjoys only modest support (2007: 11).

Finally, there is good evidence for the role of some perceptual biases in the formation of paranormal belief, specifically, for seeing patterns and meaning in noisy or random stimuli (French and Wilson 2007: 12–13). For example, Peter Brugger and colleagues showed participants random dot patterns and told them that the experiment was set up to investigate subliminal perception and that half of the presented stimuli would contain meaningful information. They found a significant difference in the reporting of seeing ‘something meaningful’, with believers in ESP reporting this more often than non-believers (Brugger et al. 1993, see also Blackmore and Moore 1994).

Aside from the above, there is also some evidence for the role of the following on the formation of paranormal beliefs: confirmation bias (Irwin et al. 2012), metacognitive beliefs (Irwin et al. 2012), and fantasy proneness (Irwin 1990, 1991; Wilson and Barber

⁵ There has also been substantial research into other contributory factors such as sex, socioeconomic status, ethnicity, level of education, and IQ (see Irwin 1993 for an overview).

⁶ Pennycook and colleagues (2012) also found this, although they did not control for cognitive ability. Their view is that belief formation is Spinozan and that supernatural thinking is the default state, with analytical reasoning undermining the beliefs arising from the default state.

1983, Beyerstein 2007), and there is mixed evidence for the role of critical thinking (French and Wilson 2007: 5).

3. Lessons learned

We make two main points about the foregoing, and what it can teach us about the research focus of those interested in monothematic delusion formation. First, none of the above cognitive contributions have been characterized as marking clinical deviation from normal range psychology. All have been taken to be representative of different positions along the normal range of belief formation and maintenance. This is despite the fact that it is recognized that the experiences reported by believers are also had by non-believers. That such experiences can prompt different beliefs is of course what one would expect from those experiences interacting with the variety of cognitive styles found among healthy subjects. In the case of delusion, those keen to identify clinical irrationality have appealed to cases of anomalous experience without the corresponding delusion, suggesting that we need a clinical abnormality to distinguish those who become delusional from those who do not. The research orientation of theorists working on the etiology of paranormal beliefs teaches us that that is a mistake. Instead, we say, for those interested in a full causal analysis of delusion formation, normal range cognitive biases and styles ought to be of interest, as Lamont notes, 'such errors are by no means the monopoly of believers in the paranormal' (2007: 29).

The second point relates to what French and Wilson say following their summary of normal range cognitive contributions to paranormal belief:

It is a mistake to conceive of paranormal belief as a unidimensional entity. Different cognitive biases are likely to be correlated with different aspects of paranormal belief and experience. (French and Wilson 2007: 4, see also Irwin 1993: 4)

The same goes for delusions. It is a mistake to search for a particular abnormality which would—whatever the background psychology—result in delusional belief when coupled with an anomalous experience. Not only is the search for clinical irrationality unmotivated, the search for a particular kind of clinical irrationality shared among an otherwise disparate set of beliefs is unwise. The variety in cognitive styles as they contribute to belief formation and maintenance is vast, once placed in the context of anomalous experience we might well expect some of these styles, perhaps interacting, to tip subjects into delusional belief. The search for a single contribution of this kind is one which underestimates the heterogeneity of human cognition and restricts our explanatory power.

The case of paranormal beliefs reveals that bizarre beliefs can result from strange experiences and a range of normal range cognitive styles not constitutive of clinical irrationality. The case shares with delusion the fact that not all instances of experience are given a non-naturalistic interpretation. The research approach employed when investigating the genesis and maintenance of paranormal beliefs ought to be taken seriously in the case of delusional belief.

Let us consider three differences between paranormal belief and delusional belief which might put pressure on our claim that the research methodology when it comes to investigating the genesis and maintenance of the former has much to say for that of the latter: (1) neurological damage, (2) testimonial transmission or background beliefs, and (3) the social currency of paranormal beliefs.

(1) As mentioned earlier (§1), damage to the right lateral prefrontal cortex found in many subjects with monothematic delusion has been identified as responsible for a clinical irrationality in belief maintenance (Coltheart 2005: 154). There is no evidence that such damage is present in paranormal believers, and so it might be thought that lessons learned from this case cannot be generalized to delusion. However, establishing a neurological abnormality in the delusional population is not to establish an abnormality amounting to clinical irrationality. Of course, this damage might make some folk more susceptible to

delusional belief, but that could be by placing them at a different point in the normal range. It is only if the damage introduces clinical irrationality that it is problematic for our argument. To be clear: our view is not that it's clinically normal to have damage to the right lateral prefrontal cortex, but only that that fact does not establish clinical irrationality (for more on this see §6 of Noordhof and Sullivan-Bissett 2021).

(2) There is evidence that paranormal beliefs can be adopted from other people, for example, a subject's friends or family may transmit these beliefs (Lindeman 2017: 3). Putting aside relatively rare cases of folie à deux where a similar mechanism *might* be involved, this isn't usually the case for delusional belief. Another difference is the role of background beliefs in paranormal belief formation and how these might lead to particular interpretations of experience. In general, paranormal belief is associated with a 'subjective world view', understood as for example, the belief that humans are more than mere physical or biological structures (Irwin 1993: 14). In the case of hypnopompic imagery, a subject who has a pre-existing belief in the possibility of ESP may thus be disposed to interpret such imagery in paranormal terms (Glicksohn 1990: 676). In the case of alien abduction, some studies have shown that abductees tend to have New Age beliefs (e.g. astral projection), which might have disposed them to interpret certain experiences in abduction terms (McNally and Clancy 2005: 120), and Irwin and colleagues (2012) suggested that paranormal beliefs may be found within folk with New Age beliefs. Again, there is a difference here – subjects with Capgras delusion might not begin with a high subjective probability in the possibilities of imposters.⁷ Overall, the testimonial transmission of paranormal beliefs and the role of background beliefs in interpreting paranormal experience might make belief formation stories in the two cases look very different. It might be thought that these differences threaten to block any generalization we want to make regarding how research on the genesis and maintenance of delusion should proceed.

To this concern we say the following: we do not deny that these differences may exist,⁸ but that they do does not undermine our key point. We are not claiming that paranormal beliefs and delusional beliefs are formed and maintained *in the same way*, and so it is fine by us if the cases involve different cognitive contributions. Rather our claim is that the normal range cognitive contributions present in paranormal beliefs are enough to tip a subject into a belief of that kind (often, though not always, following an anomalous experience). We say that this structure may well be present in the case of delusion. There are all sorts of ways that a subject can find herself in the normal range of cognitive contributions to belief formation and maintenance, with her position along that range helping to explain the move from strange experience to bizarre belief. It is this similarity to which we draw attention, and which we argue undermines the search for clinically significant irrationality in the case of delusions. We are not in the business of claiming that there are *particular* normal range cognitive contributions shared between the cases. Rather, our point is that the case of paranormal belief formation teaches us that whichever cognitive contributions are present in the formation of bizarre belief formation, we need not suppose that they are constitutive of clinical irrationality.

⁷ This may seem too modest; it might seem as though Capgras subjects straightforwardly *do not* start from a place of high subjective probability in the possibility of imposters, and furthermore, that the Capgras belief *contradicts* the background beliefs such a subject began with (McLaughlin 2009: 143). We have argued elsewhere that this is overstated (see §5.1 of Noordhof and Sullivan-Bissett 2021).

⁸ Although they are likely not as clear-cut as we present them here, and so an objection of this kind may well be relying on exaggerated differences. As noted, testimonial transmission may occur in cases of folie à deux. With respect to relevant background beliefs, we see some potential in the idea that these can be explanatory in cases of delusion. However, this idea has been relatively underexplored since the research focus in investigations of delusion formation is not one of identifying how everyday irrationalities (including relevant background beliefs) might go into the explanatory mix, but has rather been one of seeking clinical abnormality. Irwin and colleagues (2012) have argued that paranormal beliefs and delusions share a common etiology, but our claim is significantly more modest.

(3) Paranormal beliefs have a certain social currency. Many people have such beliefs. By contrast, the beliefs of subjects with delusions are generally thought to be bizarre. So it might thus be thought legitimate to appeal to a particular kind of clinical irrationality to explain the delusional beliefs.⁹ We note two things in response. First, subjects with delusions have striking and repeated anomalous experiences to compensate for the absence of the social support for their beliefs. In particular, these anomalous experiences make up for the absence of testimonial support in favour of paranormal beliefs from all those who take the content of such beliefs seriously. But, by the same token, the fact that anomalous experiences are more persistent in the case of monothematic delusion shows that postulating a clinical irrationality is unnecessary. Second, while paranormal beliefs may have a certain social currency, they are genuinely bizarre beliefs. We suspect that when psychologists studying subjects with delusions become convinced that there needs to be a second factor involving clinical irrationality, they don't keep in firm view just how bizarre the beliefs of subjects in the normal range are, which are formed on the basis of less profound anomalous experiences with socially supported paranormal interpretation. If clinical irrationality is not required here, then it is not required for delusional beliefs.

4. Motivated Irrationality

As we noted at the beginning, delusions are usually seen as a more extreme form of irrationality than the typical motivated irrationalities of everyday life. The definition of delusion expressed in DSM-IV may well reflect this:

A false belief based on incorrect inference about external reality that is firmly sustained despite what almost everybody else believes and despite what constitutes *incontrovertible and obvious proof or evidence to the contrary*. (American Psychiatric Association 2000: 821)

Motivated irrationalities are usually seen as susceptible to incontrovertible and obvious proof or evidence to the contrary. Alfred Mele expresses the standard view as follows.

If what produces the Capgras delusion is a weird experience together with the removal or disabling of a cognitive mechanism that, in special cases inhibits the kind of default transition from experience to the corresponding belief, *the delusion seems to lie well beyond the sphere of self-deception*. (Mele 2009: 64)

Similarly, William Hirstein claims (using the term 'clinical confabulator' for those with monothematic delusions):

Confabulation patients, especially those exhibiting denial of illness, seem to be engaged in a form of dense and completely successful self-deception...All of this suggests a continuum on which these syndromes and their degrees of tension can be placed:

Clinical confabulator

Sociopath

Self-deceived normal person without tension

Normal confabulator

Neutral normal person

Self-deceived normal person with tension

Lying normal person

Obsessive-compulsive normal person

Clinical OCD sufferer

At the top end of the continuum, confabulators experience no tension at all when they make their ill-grounded claims (Hirstein (2006), pp. 214, 215).

⁹ We are grateful to Fiona Macpherson for raising this concern.

Hirstein's continuum is in terms of the kind of tension the subject is under rather than an explicit concern about the significance of the irrationality involved. However, the degrees of absence of tension at the top of the continuum are taken to correspond to the extent to which the irrationality the subject displays is substantial as indicated by the talk of 'completely successful self-deception'. Similarly, Ken C. Winters and John M. Neale take delusions to differ from self-deception in degree of conviction. Bearing in mind that the degree of conviction is supposed to be inappropriate given the evidence, it follows that they take delusion to involve greater irrationality than self-deception (Winters and Neale 1983: 229). There may well be a theoretical notion of delusion that occupies the extreme position and, in earlier work, one of us sought to characterise what this might be like involving the adoption of different principles of evidential reasoning or failing to accept the application of standard evidential principles without the kind of explanation in terms of anomalous experience described below (Noordhof 2009: 69). The interesting thing about the monothematic delusions we come across in clinical settings is that they do not have this character, contrary to the claims that are made.

The impression that delusions are the results of particularly serious lapses of rationality probably has three sources. First, their contents often have an exotic character, which, for a subject not prey to them, suggests that the subject with delusions is in some way divorced from reality. Thus, delusions, as opposed to more mundane cases of motivated irrationality, 'disrupt functioning' (cf. McKay, Langdon and Coltheart 2009: 173), Second, delusions tend to be rather resistant to the standard ways in which we alter somebody's beliefs: persuasion and presenting counter-evidence (see Noordhof and Sullivan-Bissett 2021 and cited literature for discussion on this point). Third, for this reason, the psychology of the subject with a delusion seems inaccessible to us. By contrast, the standard cases of motivated irrationality – wishful thinking and self-deception – are recognizable everyday phenomena, and subjects who suffer from either seem susceptible to the standard ways in which we seek to alter people's beliefs or their resistance seems psychologically comprehensible given the motivation we take to be at work.

Things look rather different when we remind ourselves of the features of everyday irrationality that we discussed earlier, and their potential overlap with monothematic delusions. What the various everyday cases of irrationality discussed share with monothematic delusion is a root in anomalous experience. We saw that some of the background beliefs that helped to support paranormal beliefs are derived from the testimony of other people and these background beliefs have wide currency, especially in certain communities. But many of the cases of monothematic delusion have a subject matter which also has currency. For example, in general terms, the idea of somebody being replaced by an imposter (Capgras), being followed by people you know in disguised form (Fregoli) and, for that matter, somebody being in love with you from a fleeting meeting and yet denying it (Erotomania), are all ideas that have some currency in the stories we tell. We also noted the prevalence of certain thinking styles such as the contrast between intuitive and analytical thinking and looking for meaning in what we perceive. It is plausible that different thinking styles will have an influence upon how people respond to the distinctive anomalous experiences of monothematic delusions. These features may well account for the exotic character and general resistance to evidence that are observed. Subjects with monothematic delusions have, in their anomalous experiences, a particular form of evidence whose weight is hard to quantify for those who do not have the experiences. All of this shows why the cold cases of monothematic delusion do not differ extensively from everyday irrationalities in either kind or degree. Subjects with monothematic delusions have dispositions to respond to experience taken individually or together which do not differ from those of some subjects who do not show up in clinical settings at all and yet because of the anomalous character of the experiences they undergo, they end up with delusional beliefs. And, as we said, there is no reason to suppose that there may not be hot cases as well, and it is our contention that these hot cases do not

support the view that monothematic delusions involve a particularly substantial form of clinical irrationality.

Discussion of the above issue is hampered a little because the characterisation of the various motivated irrationalities is contested. One natural division is between non-agential and agential motivated irrationalities. On the non-agential side, we have wishful thinking and weak self-deception. The main difference between these two is that wishful thinking involves the production of a belief that p by a desire that p is true, weak self-deception adds the requirement that p is false (see e.g., Barnes 1997: 118, Mele 2001). Some of its proponents also require that the support for the self-deceptively favoured belief is anxiety rather than desire but this doesn't cover all cases and we can set it aside here (e.g., Johnston 1988, Barnes 1997, see Noordhof 2003: 86 for discussion). Strong self-deception involves an agent having, as a part, a sub-agent that produces the self-deceptive belief as a result of its agency, or something analogous to this. The existence of strong self-deception is controversial and leads many to take weak self-deception to be the only kind there is (e.g., Barnes 1997: 117; Mele 2001). We shall discuss them in turn.

4.1 Wishful thinking and weak self-deception

Wishful thinking and weak self-deception both give a central role to the desire that p . The prima facie problem is that it is hard to see how the desire that p can be a reason to believe that p . Having the attitude of desire to the proposition that p does not make p the case, or more likely to be true. Equally, desiring that p , rather than desiring that *one believe that p*, does not constitute a reason to have that belief. We don't rule out the possibility that there may be a pragmatic reason for believing that p – if doing so would serve interests other than the desire to believe the truth, then there may be pragmatic reasons to have the belief. We just deny that the desire that p constitutes one.

Often if you desire that p , it is also plausible to attribute to you a desire that you believe that p . In that case, there may be a basis for an explanation of why the subject forms the belief that p that sees it as a result of rational agency. We have allowed that the desire to believe that p may constitute a pragmatic reason to believe that p although we are sceptical. Appeal to the desire to believe that p is not needed, though, to provide an account of how the desire that p may influence the formation of our belief that p . There are other, indirect, ways in which the desire that p may have an influence over the process of belief formation. We can divide these into two. First, there is how the desire that p may highlight or help to find epistemic reasons to believe that p . Second, there is the way in which the desire that p may influence the impact of these epistemic reasons by adjusting the threshold for believing that p or believing that not- p .

Mele gives a detailed characterisation of both of these indirect ways in his account of weak self-deception which we reproduce below with some supplementation (Mele 2001: Ch. 2, Mele 2009: 56-9, Noordhof 2009: 50). Examples of highlighting or finding epistemic reasons for p include the following: first, selective focussing on, or attending to, likely sources of positive evidence for p while ignoring evidence for not- p ; second, interpreting things in a way favourable to p ; third, selective evidence gathering by making more effort to find evidence for p ; fourth, evidence for p being more vivid; fifth, the evidence for p being more readily available, where ready availability is often taken as a proxy for the likelihood of p being true; and finally, confirmation bias where we search for evidence in favour of our hypothesis that p from a desire to be right about our hypothesis.

The role of desire is clear in the last case but it is plausible that our desire that p would make us selectively attend to evidence in its favour, interpret things in a favourable way, make more effort to find evidence for p , find the information that supports p more vivid and more readily available. In all of these ways, the desire that p highlights or assists in the finding of epistemic reasons.

The second way in which the desire that p plays a role is with regard to the impact of the evidence. If a subject desires that p , the desire has an influence upon the confidence level that is required before you believe that p , by pushing them down, or upon the

confidence level that is required before you believe that not- p , by pushing them up. It is not the case that new epistemic reasons are found but rather that the weight of the ones you have, as far as their capacity to produce belief is concerned, are adjusted.

Mele suggests that we have motivated irrationality, and in the case of false belief, self-deception, if the following condition is met:

S's believe that p is motivatedly irrational if, if D (the evidence readily available to S during the process of acquiring the believe that p) were made readily available to S's impartial cognitive peers who engaged in at least as much reflection on p as S does (and this is at least a moderate amount of reflection), then those who would conclude that p is false would significantly out number those would conclude that p is true.

'Impartial' in the characterisation of the condition just given means without the desires that the subject who is motivatedly irrational has related to whether p or not- p (Mele 2009: 60-1). Noordhof has argued that self-deception does not require failure of the impartiality condition if the conditions for strong self-deception are met but we can set this aside for now (Noordhof 2009: 63-4).

The first point to observe about Mele's account is that, although the ways in which a desire that p may have an effect on us are familiar, there is nothing rational about the connection between the desire and our tendency to highlight or find epistemic reasons for p . Indeed, bearing in mind that it is the truth of p that we want, and not merely to believe it, the irrationality into which we have fallen is quite profound. This is also the case with regard to the way in which desire has an effect on the impact of the evidence by adjusting the threshold. It is familiar that when the truth of p is high stakes, then the threshold may be raised. But here the aim is to make additionally sure that we get the answer right. In the present case, it is not getting the answer right that matters but rather a particular answer one favours.

The second point is easiest to make by considering a particular case of monothematic delusion: Capgras. If what we have argued is correct, then the cognitive peers (rather than betters) of Capgras subjects will be those that make the normal range of responses to their experiences. Amongst the data that cognitive peers must receive will be the anomalous experiences themselves. No amount of information can reproduce what a subject gets from actually experiencing something. In such circumstances, we would expect that the majority of those cognitive peers responding to such anomalous experiences would believe that their loved one has been replaced by an imposter. Notice that this point is neutral between those who posit an irrationality distinct to the deluded and those who do not. For those who do, the cognitive peers of those with Capgras will be those who have the same deficit, bias, or performance failure. In which case, we would expect the majority would have the Capgras defining belief. For those who do not, a range of responses to the anomalous experience is allowed for, but it is plausible that they will hold that most of those subjects who are cognitive peers of a Capgras subject will believe that their partner has been replaced by an imposter. Our observation that the normal range may include some who don't draw that conclusion is not committed to the majority not drawing that conclusion on the basis of their anomalous experience.

It is no surprise that putatively cold cases of monothematic delusion will fail to satisfy the condition for motivated irrationality and, given what we have argued about both normal range responses and the substantial irrationality involved in motivational irrationality, that means that such delusions do not involve a substantial irrationality in their formation. However, as we have already remarked, it is plausible that they may sometimes involve motivated irrationality. In particular, having concluded, for example, that one's partner has been replaced by an imposter, Maher notes that subjects with Capgras delusion may be committed to their hypothesis as a theoretical achievement, and he draws the comparison with scientists developing a theory (Maher 1988: 20-2). As a result, subjects with delusions may display confirmation bias. When they do, there will be an aspect of motivated irrationality in their persisting belief. But note, even here, they will

display much less of the influence of the desire that p than subjects who display all the hallmarks of weak self-deception identified by Mele.

There are, of course, circumstances in which more of the features may be present. Psychodynamic theories of Capgras have talked about the subject feeling ambivalent or suspicious of the person they conclude is replaced by an imposter prior to the onset of the delusion (e.g. Todd 1957: 254, 259, 264; Vogel 1974: 323-4; Enoch and Trethowan 1991: 11-17), and even those not tempted by the psychodynamic note that Capgras patients tend to be more suspicious (e.g. Ellis and Young 1990: 241; Ellis et al 1994: 1086). This was not always found to be the case and that was part of the reason for moving to an approach that centred on the brain damage giving rise to anomalous experiences and potential cognitive deficits (e.g. Alexander et al 1979: 334, 336-8; Fleminger and Burns 1993 note that there is an inverse relationship between cases with an organic source and the presence of persecutory delusions, pp. 26-8). Nevertheless, if a subject were ambivalent towards or suspicious of their loved one, then other features of weak self-deception may be in play in arriving at the target delusional belief.

So our first conclusion of this section is this. Some monothematic delusions involve less of the features of motivated irrationality than standard cases of wishful thinking or weak self-deception and don't need to, although they may, involve more. They constitute a form of irrationality not at the extreme end of the continuum but rather closer to everyday irrationality with some cases that might be more severe. Those that do involve more of the features of motivational irrationality characteristic of weak self-deception are only more severe due to the extra motivational elements present in more extreme cases of motivational irrationality *in general* rather than delusion in particular.

4.2. Strong self-deception

Strong self-deception involves two elements that have been thought potentially to lead to paradox. The first of these is that the self-deceived both have the target belief which is the product of the self-deception and a belief in the opposite (call this the *origin belief*). So, for example, a self-deceived person believes that their partner is faithful to them and, at the same time, believes that they are unfaithful. The second is that the self-deceptively favoured belief is the result of an intention to have the belief as a result of finding the origin belief unacceptable. The problem with the first element is understanding how a subject can have contradictory beliefs. The problem with the second element is how the subject can intend to have the target belief, as a result of finding the origin belief unacceptable, without knowing what they are up to.

In previous work, Noordhof has argued that an essential feature of strong self-deception is an instability that both grounds and extends the idea of strong self-deception (2003: 83-8, 2009: 59-68). It captures when a certain combination of states involves genuine self-deception and extends it by allowing for various types of psychological history giving rise to the production of the self-deceptive belief and for an attribution of something short of the origin belief to initiate the process. So long as the distinctive instability is in place, self-deception is present. However, as we shall shortly see, it also may ground the attribution of the intention or other motivational or emotional state playing a quasi-agentive role, giving rise to the production of the belief (for more on the way emotional states may play this role, see Noordhof 2008: 337-45).

Let us first state the instability and then explain how this has the effects mentioned. The instability involves a certain kind of counterfactual:

- (a) The subject, S , fails to attend consciously in a certain way, W , to either the evidence that rationally clashes with p (the content of the self-deceptive belief), which they believe, or some element of the psychological history characteristic of the self-deception behind the belief that p .

- (b) If the subject were to attend consciously in way *W* to both *p* (the content of their belief) and either the evidence that rationally clashes with it which they believe or the psychological history (whichever applies in (a)), then *p* would no longer be believed.

The talk of ‘attend consciously in way *W*’ needs a bit of unpacking. We may be conscious of something without being attentive to it. If we aren’t attentive to what we are conscious of, then it is unlikely that it would be enough to make us see the clash between a belief we have and what we are non-attentively conscious of. So the instability needs to be formulated in terms of attentive consciousness. However, even attentive consciousness is not enough. We can attend to something consciously without recognising it appropriately. That’s where ‘way *W*’ comes in. The subject needs to recognise that not-*p*, or that the evidence favours not-*p*, and recognise it as a content of their belief, or they need to recognise the psychological history that is supporting their belief that *p* for what it is. For example, they must be aware that the belief that *p* is supported by an intention rather than consciously attending to intention but somehow taking it to be evidence.

The instability allows for extension of strong self-deception to, for example, not believing that not-*p* but believing other propositions that one takes as evidence that not-*p*, because the belief that *p* is extinguished if these propositions believed are attended to. There is no need to suppose that a subject must explicitly believe that not-*p* if other propositions believed generated the self-deceptive strategy, these are threatening to the favoured belief, and so on. The subject need not have inferred that not-*p*. Similarly, the psychological history supporting the belief that *p* may not be an intention but if a subject’s conscious recognition of it is similarly undermining of the belief, then this history is playing a structurally similar role. For example, you recognise that you believe that you had the novel coronavirus that causes covid-19 previously because the symptoms were mild and that would mean your immune system is able to handle it, which you’d love to believe, but once you bring this into view you appreciate you probably have only had a cold and abandon the belief you previously had coronavirus.

We’ve described how the instability extends the states that might be involved in strong self-deception. We turn to the question of how it grounds an attribution of strong self-deception. The key idea is that it may be legitimate to attribute an intention to produce or sustain the belief that *p* in virtue of whether a subject’s cognitive or other behaviour shows a recognition of the instability. The most obvious kind of behaviour would be avoiding situations in which they are reminded of the evidence against *p* but equally all of the various ways in which they may direct their attention, avoid certain discussions and reflections, and so on, would be the basis for the attribution of the intention. The more the behaviour seems systematic or planned, the more the attribution of an intention to believe that *p*, or persist in believing that *p*, is plausible. Often the attribution of an intention to do *A* is taken to involve non-observational knowledge of what one is doing. However, it is a mistake to suppose that whenever it is legitimate to attribute the intention, there will be non-observational knowledge about what one is intending. We can know what we are up to, focusing on such and such evidence, not feeling happy about considering the following issues, without recognising that taking all of this intentional activity together we are intending to believe that *p*. We are responding systematically to the apprehension of an instability – an appreciation of a particular dispositional structure – that concerns a particular proposition that we believe *p*, without knowing that what we are up to is preserving that belief (Noordhof 2009: 58–9).

The irrationality involved in strong self-deception is substantial. First, our agency is involved in the support of a particular belief independent of an appeal to evidence and the threshold that is set for forming belief in the light of the evidence. Second, the instability suggests that we are holding the belief against principles of belief formation to which we ourselves are committed and which threaten to undermine the belief. This is not present in many cases of delusion.

It might be thought that there is a sense in which the irrationality involved in delusion may be worse. The instability of self-deceptive belief displays a way in which the self-deceived may be more familiar than those subject to delusions. The self-deceived seem, at least to some degree, affected by the same requirements on belief formation that we are in our rational moments. Those suffering from delusions, if these show no instability but are held resiliently, either seem not to recognise the same principles of belief formation or take them not to be applicable (Noordhof 2009: 69–71). If it is the first, then the irrationality involved is in one way significantly different from everyday irrationality although there is a way in which it is also less substantial, namely by the subject's own lights. However, if what we have argued is correct, cases of monothematic delusion either involve everyday irrationalities that are not unstable because quite minor, or failures to recognise that certain principles of belief formation apply because the anomalous experiences are so compelling, other evidence is set aside. In the latter case, the stability that those who suffer from delusions display is not a sign of a more entrenched form of irrationality but rather because the delusional beliefs are supported by the evidence of experience in the way that standard cases of self-deception are not.

Certain cases of monothematic delusion display the unstable character of self-deception we have identified. A very typical form of anosognosia involves denial of hemiplegia (paralysis or weakness) in the left side. There are various possibilities for how we might describe the anomaly in experience that gives rise to the denial. It may be that the denial is partly based upon the *lack* of the unusual experience of a failure of motor movement or a loss of sensation in the limbs on the left side. Perhaps this is coupled with an experience of intending to move the left arm or leg that makes a subject think that they are moving it. Maybe an hallucination of the left arm moving. We won't try to resolve the matter here although we suspect that the denial that one is paralysed is partly because of experiences or lack of experiences of this kind. The important point concerns another aspect of these cases: the extent to which they display the distinctive instability identified earlier.

In his discussion of a patient with anosognosia, V. S. Ramachandran writes the following:

At this point, I wondered what would happen if I kept pushing the patient further. I did so with some hesitation, for fear of precipitating what Kurt Goldstein has called a 'catastrophic reaction' which is simply medical jargon for 'The patient becomes depressed and starts crying because her defences crumble'. (Ramachandran 1996: 348)

The pushing described is trying to get the patient to acknowledge their left hemiplegia by providing further evidence of it. Patients with this kind of anosognosia can be brought to acknowledge their left hemiplegia and some display the reaction that Ramachandran fears.

This is *prima facie* evidence that there is the kind of instability that we argued is distinctive of self-deception. There is an alternative explanation though. The patients don't believe that they have left hemiplegia, or that the evidence indicates that they have, but when they are pressed they form this belief and it is the belief that causes the catastrophic reaction. For this reason, it is helpful to consider another observation concerning such patients, the strange phenomenon of ice-cold water irrigation of the left ear canal. On doing this, a patient who had denied left hemiplegia acknowledged it. Ramachandran reproduces this sample of the conversation:

VSR: Do you feel okay?

BM: My ear is very cold but other than that I am fine.

VSR: Can you use your hands?

BM: I can use my right arm but not my left arm. I want to move it but it doesn't move.

VSR: Mrs M, how long has your arm been paralyzed? Did it start now or earlier?

BM: It has been paralyzed continuously for several days now... (Ramachandran 1996: 355).

The working hypothesis is that ice cold water irrigation in the left ear canal stimulates the right hemisphere which is responsible for detection of anomalies between what you consciously believe, or claim to be the case, and what you otherwise believe is the case. If stimulation of the right hemisphere had led to an acknowledgement of left hemiplegia but no acknowledgement that the arm had been paralysed for several days, it is conceivable that the acknowledgement could result from evidence that the patient just obtained (e.g. trying to move their arm). However, since they also acknowledged that the arm had been paralyzed for several days, this suggests that they had a belief about the paralysis of their arm earlier but the belief that their arm was not paralyzed hadn't been checked against this other belief earlier. Put these two pieces of evidence together and it seems the patient had a prior belief that they were paralyzed that is a basis for the instability of the belief that they are not paralyzed distinctive of self-deception.

This conclusion doesn't depend upon endorsing all of Ramachandran's proposal concerning self-deception in this case. His idea is that the left hemisphere seeks to maintain a consistent model of the self that is the basis of stable behaviour. We might take this to be supported by the motivational or agential structure of self-deception already identified. When the right hemisphere is damaged – as it tends to be in cases of anosognosia relating to left hemiplegia – the standard checking of this motivational structure to ensure that the model reflects the way things are with oneself no longer takes place so effectively. Self-deception, in other words, comes about because of the inhibition of an inhibitor.

Standard cases of self-deception, without damage we may presume, wouldn't involve Ramachandran's idea of the inhibition of an inhibitor. We might take this as evidence that standard cases of self-deception involve an even stronger motivational element which overwhelms the inhibition of motivationally supported but evidentially unsupported beliefs. Just in case you think that this is implausible because becoming paralyzed might be very bad, and thus this would surely be a candidate for particularly strong self-deception, it is worth noting that cases of anosognosia due to right hemiplegia are rare which rather suggests that subjects generally don't deceive themselves about whether or not they are paralyzed. So even when there are cases of monothematic delusion that involve strong self-deception, the kind of self-deception involved doesn't involve non-rational motivational elements to the same degree. While there might be a type of brain damage that introduces with it a particular form of self-deception (inhibition of the inhibitor), the kind of irrationality that holds as a consequence is still, in an important sense, milder than the everyday irrationality that results in self-deception.

5. Concluding Remarks

Everyday irrationality is instructive for research into monothematic delusion in two respects. As we saw in the first three sections of the paper, paranormal and other irrational beliefs result from strange experiences plus a normal range of cognitive styles not constitutive of clinical irrationality. No appeal is made to a clinically significant factor like a deficit resulting from brain damage or a distinctive form of bias. This throws into question the claim that delusion involves some more substantial form of irrationality than everyday irrationality. Second, monothematic delusions can display components of everyday motivated irrationalities like wishful thinking/weak self-deception and strong self-deception. However, these components constitute the ways in which more profound irrationality is involved and, often, the irrationality that occurs is less severe than everyday cases of motivated irrationality. In general, there is no need to take delusion to involve a distinctive further irrationality that goes beyond the everyday and, indeed, many monothematic delusions involve less substantial irrationalities than many every day ones in either cold or hot forms.

Forthcoming in Henne, Paul and Murray, Sam (eds.) *Advances in Experimental Philosophy of Action*. Bloomsbury. [Please cite final version.]

Acknowledgements

With thanks to the Arts and Humanities Research Council for funding the research of which this paper is a part (*Deluded by Experience*, grant no. AH/T013486/1). We are grateful for comments on an earlier version of the paper received from the audience at the Delusion Formation Workshop.

References

Alexander, M. P., M.D., Dt Struss, PhD., and D.F. Benson, M.D. (1979): 'Capgras syndrome: A reduplicative phenomenon', *Neurobiology*, 29, pp. 334-339.

American Psychiatric Association (2013). *Diagnostic statistical manual of mental disorders* (Fourth edition, Text Revision (DSM-V-TR)).

Ames, David 1984: 'Self-shooting of a Phantom Head'. *The British Journal of Psychiatry*. Vol. 145, no. 2, pp. 193-4.

Barnes, Annette 1997, *Seeing Through Self-Deception* (Cambridge, Cambridge University Press).

Bayne, Tim and Pacherie, Elisabeth 2005: 'In Defence of the Doxastic Conception of Delusions'. *Mind & Language*. Vol. 20, no. 2, pp. 164-88.

Beyerstein, Barry L. 2007: 'The Neurology of the Weird: Brain States and Anomalous Experience'. In Della Sala, Sergio (ed.) *Tall Tales about the Mind and Brain: Separating Fact from Fiction*. Oxford University Press.

Blackmore, Susan 1984: 'A Postal Survey of OBEs and Other Experience'. *Journal of the Society for Psychological Research*. Vol. 52, pp. 225-44.

Blackmore, Susan 1997: 'Probability Misjudgement and Belief in the Paranormal'. *British Journal of Psychology*. Vol. 88, pp. 683-9.

Blackmore, Susan and Moore, Rachel 1994: 'Seeing Things: Visual Recognition and Belief in the Paranormal'. *European Journal of Parapsychology*. Vol. 10, pp. 91-103.

Blackmore, Susan and Trościanko, Tom 1985: 'Belief in the Paranormal: Probability Judgements, Illusory Control, and the "Chance Baselines Shift"'. *British Journal of Psychology*. Vol. 76, pp. 459-68.

Bortolotti, Lisa 2009: *Delusions and Other Irrational Beliefs*. Oxford: Oxford University Press.

Brugger, P.; Regard, M.; Landis, T.; Cook, N.; Krebs, D.; and Niderberger, J. 1993: "'Meaningful" Patterns in Visual Noise: Effects of Lateral Stimulation and the Observer's Belief in ESP'. *Psychopathology*. Vol. 26, pp. 261-5.

Campbell, John 2001: 'Rationality, Meaning, and the Analysis of Delusion'. *Philosophy, psychiatry & Psychology*. Vol. 8, pp. 89-100.

Clarke, D. 1990: 'Experience and Other Reasons Given for Belief and Disbelief in Paranormal and Religious Phenomena'. *Journal of the Society for Psychological Research*. Vol. 60, pp. 371-84.

Forthcoming in Henne, Paul and Murray, Sam (eds.) *Advances in Experimental Philosophy of Action*. Bloomsbury. [Please cite final version.]

Coltheart, Max 2005: 'Conscious Experience and Delusional Belief'. *Philosophy, Psychiatry & Psychology*. Vol. 12, pp. 153–7.

Coltheart, Max; Langdon, Robyn; and McKay, Ryan 2007: 'Schizophrenia and Monothematic Delusions'. *Schizophrenia Bulletin*. Vol. 33, no. 3, pp. 642–47.

Corlett, Philip R. 2019: 'Factor one, familiarity and frontal cortex, a challenge to the two factor theory of delusions'. *Cognitive Neuropsychiatry*. Vol. 24, no. 3, pp. 165–77.

Davies, Martin; Coltheart, Max; Langdon, Robyn; and Breen, Nora 2001: 'Monothematic Delusions: Towards a Two-factor Account'. *Philosophy, Psychiatry, & Psychology*. Vol. 8, pp. 133–58.

Dagnall, Neil; Drinkwater, Kevin; Parker, Andrew; and Cloug, Peter 2020: 'Paranormal Experience, Belief in the Paranormal and Anomalous Beliefs'. *Parantropology*. Vol. 7, no. 1, pp. 4–14.

Dudley, Robert; Taylor, Peter; Wickham, Sophie; and Hutton, Paul 2015: 'Psychosis, Delusions and the "Jumping to Conclusions" Reasoning Bias: A Systematic Review and Meta-analysis.' *Schizophrenia Bulletin*. Vol. 42, no. 3, pp. 652–65.

Ellis, Haydn D. and Young, Andrew W. 1990: 'Accounting for Delusional Misidentification', *British Journal of Psychiatry*, 157, pp. 239-248.

Ellis, Haydn D. Andrew W. Young, Angela H. Quayle and Karel W. De Pauw 1997: 'Reduced autonomic responses to faces in Capgras delusion', *Proceedings of the Royal Society of London, B*, pp. 1085-1092.

Enoch, David and Threthowan, William 1991: *Uncommon Psychiatric Syndromes* (Oxford, Butterworth-Heinemann)

Fleminger, Simon and Burns, Alistair 1993: 'The Delusional Misidentification Syndromes in Patients with and without Evidence of Organic Cerebral Disorder: A Structured Review of Case Reports', *Biological Psychiatry*, 33, pp. 22-32.

French, Christopher C. and Wilson, Krissy 2007: 'Cognitive Factors Underlying Paranormal Beliefs and Experiences'. In Della Sala, Sergio (ed.) *Tall Tales about the Mind and Brain: Separating Fact from Fiction*. Oxford University Press.

Garety, Philippa A. and Freeman, Daniel: 1999: 'Cognitive Approaches to Delusions: A Critical Review of Theories and Evidence'. *British Journal of Clinical Psychology*. Vol. 38, pp. 113–154.

Garety, Phillipa A.; Hemsley, D. R., & Wessely, S. 1991: 'Reasoning in Deluded Schizophrenic and Paranoid Patients Biases in Performance on a Probabilistic Inference Task'. *The Journal of Nervous and Mental Disease*. Vol. 179, pp. 194–201.

Gerrans, Philip 2001: 'Delusions as Performance Failures'. *Cognitive Neuropsychiatry*. Vol. 6, no. 3, pp. 161–73.

Glicksohn, J. 1990: 'Belief in the Paranormal and Subjective Paranormal Experience'. *Personality and Individual Differences*. Vol. 11, pp. 675–83.

Hirstein, William 2006: *Brain Fiction* (Cambridge, Massachusetts, The MIT Press).

Forthcoming in Henne, Paul and Murray, Sam (eds.) *Advances in Experimental Philosophy of Action*. Bloomsbury. [Please cite final version.]

Hufford, D. J. 1982: *The Terror That Comes in the Night: An Experience-centered Study of Supernatural Assault Traditions*. Philadelphia, PA: University of Pennsylvania Press.

Huq, S. F., Garety, P. A., and Hemsley, D. R. 1988: 'Probabilistic Judgments in Deluded and Nondeluded Subjects'. *The Quarterly Journal of Experimental Psychology Section A*. Vol. 40A, pp. 801–12.

Irwin, Harvey J. 1990: 'Fantasy Proneness and Paranormal Beliefs'. *Psychological Reports*. Vol. 6,, pp. 655–8.

Irwin, Harvey J. 1991: 'A Study of Paranormal Belief, Psychological Adjustment, and Fantasy Proneness'. *Journal of the American Society for Psychical Research*. Vol. 85, pp. 317–31.

Irwin, Harvey J. 1993: 'Belief in the Paranormal: A Review of the Empirical Literature'. *The Journal of the American Society for Psychical Research*. Vol. 87, no. 1, pp. 1–39.

Irwin, Harvey J.; Dagnall, Neil; and Drinkwater, Kenneth 2012: 'Paranormal Beliefs and Cognitive Processes Underlying the Formation of Delusions'. *Australian Journal of Parapsychology*. Vol. 12, no. 2, pp. 107–26.

Johnston, Mark 1988: 'Self-Deception and the Nature of the Mind', B. McLaughlin and Amelie Oksenberg Rorty (eds.), *Perspectives on Self-Deception* (Berkeley, University of California Press), pp. 63-91.

Jones, W. H.; Russel, D. W.; and Nickel, T. W. 1977: 'Belief in the Paranormal Scale: An Objective Instrument to Measure Belief in Magical Phenomena and Causes'. *JSAS Catalog of Selected Documents in Psychology*. Vol. 7, no. 100. (Ms. No. 1577).

Lamont, Peter 2007: 'Critically Thinking About Paranormal Belief'. In Della Sala, Sergio (ed.) *Tall Tales about the Mind and Brain: Separating Fact from Fiction*. Oxford University Press.

Lindeman, Marjaana 2017: 'Paranormal Beliefs'. In Shackelford, T. K. (ed.) *Encyclopedia of Personality and Individual Differences*.

Lindeman, Marjaana and Aarnio, Kia 2006: 'Paranormal Beliefs: Their Dimensionality and Correlates'. *European Journal of Personality*. Vol. 20, pp. 585–602.

Maher, Brendan 1988: 'Anomalous Experience and Delusional Thinking: The Logic of Explanations'. In Oltmanns, Thomas and Maher, Brendan (eds.) *Delusional Beliefs*. USA: John Wiley and Sons.

Todd, J. 1975: 'The Syndrome of Capgras', *Psychiatric Quarterly*, 31, pp. 250-265.

McClenon, J. 1994: *Wondrous Events: Foundations of Religious Beliefs*. Philadelphia: University of Pennsylvania Press.

McNally, Robert and Clancy, Susan A. 2005: 'Sleep Paralysis, Sexual Abuse, and Space Alien Abduction'. *Transcultural Psychiatry*. Vol. 42, no. 1, pp. 113–22.

Mele, Alfred 2001: *Self-Deception Unmasked* (Princeton, Princeton University Press).

Forthcoming in Henne, Paul and Murray, Sam (eds.) *Advances in Experimental Philosophy of Action*. Bloomsbury. [Please cite final version.]

Mele, Alfred 2009: 'Self-Deception and Delusions'. In Bayne, Tim and Fernandez, Jordi (eds.), *Delusion and Self-Deception*. New York and London, Taylor and Francis, pp. 55-69.

Musch, J. and Ehrenberg, K 2002: 'Probability Misjudgment, Cognitive Ability, and Belief in the Paranormal'. *British Journal of Psychology*. Vol. 93, pp. 169–78.

Noordhof, Paul (2003), 'Self-Deception, Interpretation and Consciousness', *Philosophy and Phenomenological Research*, 67, no. 1, pp. 75-100.

Noordhof, Paul 2009: 'Expressive Perception as Projective Imagining', *Mind and Language*, 23, no. 3, pp. 329-358.

Noordhof, Paul 2009: 'The Essential Instability of Self-Deception', *Social Theory and Practice*, 35, no. 1, pp. 45-71.

Noordhof, Paul and Sullivan-Bissett, Ema 2021: 'The Clinical Significance of Anomalous Experience in the Explanation of Delusion Formation'. *Synthese*. doi: 10.1007/s11229-021-03245-x

Pennycook, Gordon; Cheyne, James Allan; Seli, Paul; Koehler, Derek J., and Fugelsang, Jonathan A. 2012: 'Analytic Cognitive Style Predicts Religious and Paranormal Belief'. *Cognition*. Vol. 123, pp. 335–46.

Ramachandran, V. S. 1996: 'The Evolutionary Biology of Self-Deception, Laughter, Dreaming and Depression: Some Clues from Anosognosia', *Medical Hypotheses*, 47, pp. 347-62.

Ratter, S. L. and Burski, K. 2001: 'Investigating the Personality Correlates of Paranormal Belief and Precognitive Experience'. *Personality and Individual Differences*. Vol. 31, no. 433–44.

Ross, Robert; McKay, Ryan; Coltheart, Max and Langdon, Robyn 2015: 'Jumping to Conclusions About The Beads Task? A Meta-analysis of Delusional Ideation and Data-gathering'. *Schizophrenia Bulletin*. Vol. 41, no. 5, pp. 1183–91.

Stone, Tony and Young, Andrew 1997: 'Delusions and Brain Injury: The Philosophy and Psychology of Belief'. *Mind and Language*. Vol. 12, pp. 327–64.

Sullivan-Bissett, Ema 2020: 'Unimpaired Abduction to Alien Abduction: Lessons on Delusion Formation'. *Philosophical Psychology*. Vol. 33, no. 5, pp. 679–704.

Tobacyk, Jerome J. 1988: *A Revised Paranormal Belief Scale*. Ruston, LA: Louisiana Tech University.

Tobacyk, Jerome J. 2004: 'A Revised Paranormal Belief Scale'. *International Journal of Transpersonal Studies*. Vol. 23, no. 1, pp. 94–8.

Tranel, Daniel, Damasio, Hanna and Damasio, Antonio R. 1995: 'Double Dissociation between Overt and Covert Face Recognition', *Journal of Cognitive Neuroscience*. Vol. 7, no. 4, pp. 425–32.

Van Leeuwen, Neil 2007: 'The Product of Self-Deception'. *Erkenntnis*. Vol. 67, pp. 419–37.

Forthcoming in Henne, Paul and Murray, Sam (eds.) *Advances in Experimental Philosophy of Action*. Bloomsbury. [Please cite final version.]

Vogel, Frank 1974: 'The Capgras Syndrome and Its Psychopathology', *American Journal of Psychiatry*, 131, pp. 922-4

Wierzbicki, Michael 1985: 'Reasoning Errors and Belief in the Paranormal'. *Journal of Social Psychology*. Vol. 125, no. 4, pp. 489–94.

Wilkinson, Sam 2015: 'Delusions, dreams and the nature of identification'. *Philosophical Psychology*. Vol. 28, no. 2, pp. 203–26.

Wilson, S. and Barber, T. X. 1983: 'The Fantasy-prone Personality: Implications for Understanding Imagery, Hypnosis, and Parapsychological Phenomena'. In Sheikh, A. (ed.) *Imagery: Current Theory, Research, and Application*. Wiley: New York, pp. 340–87.

Winters, Ken C. and Neale, John M. 1983: 'Delusions and Delusional Thinking in Psychotics: A Review of the Literature'. *Clinical Psychology Review*, 3, pp. 227-353.

Young A. W., Robertson I. H., Hellawell D. J., de Pauw K. W. and Pentland B. 1992: Cotard delusion after brain injury. *Psychological Medicine*. Vol. 22, pp. 799–804.