Cognitive neuropsychology and the psychological explanation of delusional belief

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Chapter 1

Introduction

Chapter One

Delusions are typically considered to be paradigmatic examples of irrationality. If delusions are in fact irrational beliefs then it may be hard to see how we can even begin to offer a (rational) explanation of them. Folk psychological explanation seems to require that beliefs play a certain functional role where they are formed appropriately; where they engage in appropriate inferential relations with other beliefs; and where they conjoin with desires in order to produce the relevant action. If delusions are irrational in the sense of being abnormal in one or more of these respects then it might be the case that we are unable to offer a folk-psychological explanation of delusional belief.

Recent advances in the neurosciences have provided findings and theorising that are would seem relevant to offering a physical level explanation of delusional belief by recourse to cerebral trauma. Recent advances in the cognitive sciences have provided findings and theorising that would seem relevant to offering a design / cognitive level explanation of delusional belief by recourse to malfunctioning cognitive mechanisms. The relevance of these sub-personal levels of explanation for a psychological, person level explanation of delusion may be far from clear, however. Searle considered that mental states can only be classified as 'mental' because they are capable of being consciously experienced by the subject. Prima facie, neurological abnormality and / or cognitive disruptions that occur on the sub-personal level thus would not seem to be terribly relevant to a person level psychological explanation of delusional belief.

Chapter Two

Ellis and Young (1990), and Stone and Young (1997) consider a cognitive model of face recognition that would seem relevant to explaining delusions of misidentification with regards to all of these levels of explanation, however. They consider that localised cerebral trauma (on the physical level) can result in a cognitive mechanism malfunctioning (on the design / cognitive level). They then consider that the malfunction of the cognitive mechanism results in a person level anomalous experience for the delusional subject. If this is the case then it would seem that there are prospects for a psychological explanation of delusion as one can appeal to the prior person level state of anomalous experience. If we want an explanation of the aetiology of the anomalous experience, however, then we would seem to need to revert to the sub-personal levels of cognitive neuropsychological explanation.

The psychological theorist Brendan Maher (1999, 2003) considers that delusions are 'normal', 'understandable' and indeed 'rational' explanations for anomalous experiences. He considers that anomalous experiences (of a certain intensity and duration) are both necessary and sufficient for the production of delusion and that were any of us to have experiences comparable to the experiences of the delusional subject that we would develop comparable delusions. This line has been countered by two-factor theorists who maintain that delusions would not seem to be 'normal', or 'rational' responses despite the nature of the delusional subjects anomalous experience. Two factor theorists are thus faced with the task of specifying the nature of the delusional subject's irrationality in a way that is deviant enough to result in delusions but not so pervasive as to rule out their exhibiting rationality comparable to normal subjects outside the context of their delusional belief in their daily lives.

Chapter Three

An attribution bias has been appealed to in the attempt to explain how it is that the delusional hypothesis occurs to the subject in the first place. Even if an attribution bias were sufficient to explain how the delusional hypothesis occurs to the subject in the first place (which it does not seem to be) then there would still seem to be a step between there and adoption of the delusional hypothesis as a belief. A tendency to jump to conclusions has been appealed to in the attempt to explain how it is that the delusional subject comes to adopt the hypothesis as a belief. It might be the case that the person simply jumps to the conclusion that the first hypothesis that the attribution bias delivered to them is correct. While there is empirical support

for the 'jumping to conclusions' hypothesis it is problematic that delusional subjects who were found to jump to conclusions were also found to be very willing to change their mind and jump out of the conclusion once more evidence came it. Attributional bias and a tendency to jump to conclusions would thus be insufficient to explain why it is that the delusional belief is retained despite what the APA considers to be 'incontrovertible and obvious proof or evidence to the contrary'.

Stone and Young suggest that perhaps the nature of the delusional error might be better described as a tendency to adopt beliefs that are observationally adequate over beliefs that are appropriately conservative. They consider that if a person is attempting to come to beliefs that are adequate in the face of their anomalous experiences then an attributional bias and a tendency to jump to conclusions might explain how the person arrives at the delusional hypothesis and how they come to adopt the hypothesis as a belief. With respect to retaining their belief, however, they consider that the delusional error is to retain it despite their awareness that it conflicts with almost everything they previously knew to be true. They suggest that in the cases where the person isolates their delusional belief off so that it doesn't form appropriate inferential relations with their other beliefs and does not lead to action we might expect that this happens on the grounds of conservatism. Subjects with circumscribed delusions thus retain conservatism enough to isolate their belief rather than following inferential relations with other beliefs and desires which may lead to the more pervasive madness exhibited by some psychotic subjects. The delusional error, however, is in their not being conservative enough to reject the delusional belief in the face of its inconsistency with everything they previously knew to be true.

Davies and Coltheart (2000) consider that there may be two ways in which we can understand the observational adequacy requirement. They consider that on the first reading of observational adequacy the subject is attempting to explain their anomalous experience by recourse to the way things are in the world. Davies et al. (2001) consider that normally we do accept our visual experiences to be veridical and thus the delusional subject might arrive at their delusional belief by simply accepting their anomalous perceptual experience to be veridical – as normal subjects do. The nature of the delusional error, however, would be that they retain their delusional belief in spite of rational grounds to doubt the veridicality of their percept. On the second reading the data to which the person's beliefs are supposed to be observationally adequate concern their experiences. They then consider that this wouldn't seem to be the nature of the delusional subject's error, however, because they would be correct that their anomalous experience does need to be explained. They consider that in this case the appropriate explanation

would be that something has gone wrong with their brain.

Chapter Four

Davies and Coltheart, and Davies et al. consider that a problem with their account of the nature of the second factor is that if the delusional error is in accepting an anomalous perceptual experience to be veridical despite rational grounds to doubt the veridicality of the experience then we would expect them to do this in the face of all their anomalous perceptual experiences. If the delusional subject were to encounter visual illusion, for example, they would be expected to accept the illusory experience as veridical even after coming to know something of how the illusion is produced, and even after seeing the arrow heads on the Muller-Lyer illusion removed and then reinserted. They then consider that this prediction seems a little implausible.

If there is sub-personal cognitive mechanism which registers familiarity then it might be the case that certain kinds of breakdown in the mechanism could result in affective experiences with a rich content such as 'this person is familiar to me' or 'this person is not familiar to me'. If this is plausible then it would seem that there could indeed be a fairly rich content anomalous experience so that the delusional subject only needs to accept this to be veridical rather than engage in inferences in order to arrive at the content of the delusional belief. If this is plausible then it would also seem that the nature of the delusional anomalous experience might be better characterized as *affective* rather than *perceptual* however. If we consider the nature of the cognitive mechanism whose malfunction is thought to lead to an anomalous experience then there might be prospects for modifying Davies et al's account so that it no longer entails the problem of the unwanted prediction. So long as the relevant anomalous experience for the production of delusion is necessarily an *affective* experience then visual illusion (as an anomalous *perceptual* experience) would simply be the wrong kind of anomalous experience for the production of delusion.

There may still be a problem with respect to why it is that the delusional subject is so very certain of what they are saying. Why is it that they retain their delusional belief in the face of alternative explanations? At this point I think it may be profitable to return to the suggested second reading of Stone and Young's observational adequacy requirement where the data to which one's beliefs are supposed to be observationally adequate concern one's experiences. Davies and Coltheart consider that if this reading of observational adequacy is accepted then we would need to appeal to something along the lines of attributional bias to explain why the delusional hypothesis is prioritized over the non-delusional alternative hypothesis that 'something has gone

wrong with my brain'. If the delusional subject is attempting to come to a psychological explanation for their anomalous experience and the only non-delusional alternatives are neurological then it might be the case that there is no alternative non-delusional psychological explanation for their anomalous experience. While Maher considered delusions to be rational responses to anomalous experiences and he considered delusions could be given a psychological explanation by recourse to the prior psychological state of anomalous experience he did not attempt to offer a psychological explanation of the origins of the anomalous experience in turn, however. Instead, he considered that the anomalous experience was to be explained by appealing to underlying neurophysiological deficit.

Davies and Coltheart consider that an alternative non-delusional hypothesis may be 'it is as if my wife has been replaced by an impostor' or 'it seems to me as though my wife has been replaced by an impostor'. It should be noted that these are not alternative explanations for the delusional anomalous experience, rather they seem to be non-delusional alternatives to delusions only if delusions are considered to be reports of experience. It may be plausible to consider that delusions are reports of experience because we have already considered that delusional anomalous experiences might well have rich content and thus a step of inference between the content of the delusional experience and the content of the delusional belief is not necessary.

While one way in which our attention can become focused on our experiences rather than the external world that our experiences are taken to represent is by the person realizing that there is a mismatch (in the case of visual illusion, for example) Davies and Coltheart consider that there is another way in which experiences can become the object of our attention (and presumably of our beliefs as well). Itches, pains, tickles, and the like are experiences where it does not make sense to say that they are true or false, veridical or not veridical. I would like to consider that the affective anomalous experiences of delusional subjects might well be such experiences. If this is the case and the subject is attempting to report on their experience then it might well be the case that they are entitled to the sense of conviction that they are found to have regarding their delusional belief. It might be the case that when the anomalous experience is relatively mild they preface their utterance with 'it seems to me as though' or 'it is like' but as those experiences become more intense (as in the case of the Cotard delusion) the person is attempting to convey the force or intensity of their anomalous experience and to preface their utterance with that qualification would be inadequate in that respect.

It may be that people often question the delusional subject attempting to get them to explain why they believe what they believe, or telling them that

their belief is false and implausible. This may create an unhelpful dialectic where the delusional subject comes to elaborate on their delusion and perhaps even act on them in an effort to demonstrate their certainty in the face of their experience. Such a move does seem to require their having come to accept their anomalous experience as veridical, however. When people do act on their delusions then it would seem that a report / explanation of experience model would be inadequate. In those cases we would seem to need something along the lines of Davies et al's account. In the cases where people do not act on their delusion then the report / explanation of experience model may be better able to handle those cases, however.

This report / explanation of experience model may have implications for therapy for delusions. Instead of requesting the subject to explain the rationale for their belief (which may serve to encourage their elaboration) in the attempt to draw out contradictions and ultimately confront their sense of certainty head on, more progress might be made with empathetic validation of the subjects anomalous experience *as an anomalous experience* and this process may make it more likely that the delusional subject will be able to be shown the distinction between their anomalous experience (as it occurs in a fairly limited context) and states of affairs in the world which may well be otherwise.

Chapter 2

Folk psychological, cognitive, and neurological explanation of delusion

2.1 Types of delusions and delusional utterances.

People with the **Capgras**[1] delusion maintain that someone who is close to them has been replaced by an impostor. Subjects with the **Frégoli** delusion maintain that people they know are disguising themselves as strangers, and are following them around. People with the neurological condition of unilateral **neglect** may disown part of their body, typically their left arm or leg. Subjects with reduplicative **paramnesia** may maintain that places or people have been duplicated. One woman maintained both that her husband died long ago, and that he was a current patient on the ward. Another woman spoke of a duplicate hospital in a duplicate location. People with mirrored self **misidentification** maintain that their mirrored image is another person who follows them around by appearing in every mirror they look in to. These are all thought to be different types of delusions of misidentification.

Some subjects have delusions of thought **insertion** when they maintain that someone else's thoughts are being inserted into their mind. People with delusions of alien **control** maintain that someone else is initiating or controlling their actions. People with the **Cotard** delusion maintain that they are dead. People who have delusions of thought **broadcast** say that their thoughts are being broadcast so that other people can hear them, and

[1]Refer to the table 1 for a summary of the delusions referred to in bold in text.

people with thought **withdrawal** maintain that thoughts are being taken from their mind. Some people with delusions of **grandeur** maintain that they are God, or some other important figure. Subjects with delusions of persecution / **paranoia** maintain that they are being targeted by another person or group of people like the FBI. People with delusions of **jealousy** may maintain that their partner is cheating on them, and subjects with delusions of **erotomania** maintain that some important figure is in love with them. People with somatic15 delusions have delusions about their own body, such as saying that they don't have any internal organs. Delusions of **reference** occur when the subject says that some event or thing took on special significance or meaning to them. One person saw some marble tables and said he came to believe that the world was coming to an end. These kinds of delusions and some typical examples of the utterances that characterize them are summarized in *Table 1.*

Types of delusions and examples of typical utterances

Name of delusion Capgras 'People I know are disguising themselves and are following me around'	Characteristic delusion 'My wife has been rep
Unilateral neglect	'It's not my arm – it's
Reduplicative paramnesia	'My husband died lon
Mirrored self misidentification	'There is a person in t
Thought insertion	'Someone else's thoug
Alien control	'Someone else is initia
Cotard 'Other people can hear my thoughts'	'I am dead' heightTho
Thought withdrawal	'Someone is taking tho
Grandeur	'I am God'
Persecution / paranoia	'The FBI are out to g
Jealousy	'My husband is cheati
Erotomania	'Winston Peters is in
Somatic	'I don't have any inter
Reference	'The tables signified t

2.2 Issues of definition and diagnosis

Delusions are to be found across at least 75 different endocrine, neurological, and psychiatric conditions (Garety and Hemsley, 1994 p.10). The clinicians handbook the *Diagnostic and Statistical Manual of Mental Disorders* defines delusion as

[A] False1 belief2 based on incorrect3 inference4 about external reality5 that is firmly sustained6 despite what almost everyone else believes7 and despite what constitutes incontrovertible and obvious proof or evidence to the contrary8. The belief is not one ordinarily accepted by other members of the person's culture or subculture9... (American Psychiatric Association, (2000) pp. 821-822).

Chapter 3

Cognitive neuropsychology and the role of anomalous experience

Chapter 4

The role of irrationality in the production of delusion

Chapter 5

Delusional content: anomalous experience reconsidered

Chapter 6

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