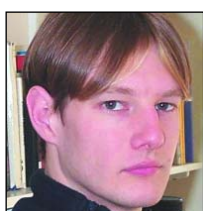


Beliefs about delusions



VAUGHAN BELL, PETER HALLIGAN and HADYN ELLIS on the sometimes fine line between normality and abnormality.

EARLY in his third month of office, President Reagan was on his way to address a conference when John Hinckley fired six gun shots at point blank range, wounding the president and three of his entourage. In the controversial trial that followed, three defence psychiatrists successfully argued that Hinckley was not guilty, on the grounds that he was suffering

from the delusion that the assassination would cause Jodie Foster, the actress from *Taxi Driver* (a film which Hinckley was obsessed with), to fall in love with him. In the same year the award-winning author Philip K. Dick, whose books have been turned into major Hollywood films, such as *Blade Runner*, *Total Recall* and *Minority Report*, published one of his last books.

The sprawling and eccentric *VALIS* is a novel based on delusions resulting from his own psychotic breakdown, which he drew on for much of his prolific career (see box).

From these and many other examples, it would appear that unusual or unlikely beliefs have significant consequences and continue to captivate the interest of many of us. But to examine such claims we need to know what is meant by a delusion. How do delusions differ from other abnormal beliefs? Does the study of delusions provide a productive way of understanding beliefs?

PHILIP K. DICK

Many novels and short stories by Philip K. Dick contain elements from the delusions he suffered regarding identity and the nature of reality. Dick described many bizarre experiences and came to believe that human development was controlled by an entity called VALIS (Vast Active Living Intelligence System) and that his perception of Orange County, California was an illusion disguising the fact that he was really living in first-century Rome. There were multiple reasons for Dick's bizarre beliefs, given his share of trauma, phobias and drug abuse, but it is likely that many of the delusions he wrote about stemmed from psychotic episodes he experienced as a sufferer and as an observer of others. This alone makes his work of great psychological interest. However, Dick also seems to have some knowledge of contemporary psychology himself, incorporating as he did the work of Penfield, Vygotsky and Luria (among others) into his stories.

Defining issues

Delusions are one of the most important constructs used by psychiatrists to diagnose patients who are considered to have lost touch with reality (Maher, 1988). For Jaspers (1963), one of the founders of modern psychiatry, delusions constituted the 'basic characteristic of madness' despite being 'psychologically irreducible'.

foremost, a form of belief: a belief whose acceptance and subsequent behaviour can constitute the grounds for insanity. But no justification is offered and the statement itself amounts to a belief in delusions.

More explicitly, the standard definition characterises delusions as false, based on an incorrect inference about external reality and different from what almost everyone else believes (APA, 1994). Other features such as degree of conviction and imperviousness to persuasion do not set delusions apart from other beliefs (Garety & Hemsley, 1994).

Delusions – An abnormal belief by any other name

Despite differences in emphasis, most definitions consider two criteria to be significant when establishing a delusion: falsifiability and bizarreness. Simply described, ‘bizarre delusions are generally impossible, whereas non-bizarre delusions are generally improbable’ (Sedler, 1995, p.256). The DSM-IV distinguishes these as follows: a non-bizarre delusion may involve situations that in principle could occur in real life but are thought (by the psychiatrist) to be highly improbable and therefore potentially falsifiable; a bizarre or fantastic belief, however, is considered impossible and therefore assumed to be one not normally held by others in the culture or society.

The problem with each of these definitions lies not with the differential distinction, but with the absence of agreed operational definitions as to how these criteria are arrived at clinically. The DSM definition does not specify how one might set about establishing the falseness or bizarreness of the belief; nor how one could know whether the belief was the product of an impaired inference, such as occurs in paranoid patients, who show a tendency to jump to conclusions in situations requiring probabilistic reasoning (Bentall, 1994). Here we turn to some specific problems.

Falsifiability Non-bizarre delusions involve situations and events that could occur in real life, such as believing that one is being followed, infected, poisoned or deceived by another. Therefore the ‘falsifiability’ criterion can mean that psychiatrists are often required to make judgements on claims of marital infidelity, persecution or conspiracy in the workplace (Jones, 1999), where the available relevant evidence is either limited, cannot be ascertained within the confines of the

THE MARTHA MITCHELL EFFECT

Sometimes improbable patient reports are erroneously assumed to be symptoms of mental illness (Maher, 1988). The ‘Martha Mitchell effect’ referred to the tendency of mental health practitioners not to believe the experience of the wife of the American attorney general, whose persistent reports of corruption in the Nixon White House were initially dismissed as evidence of delusional thinking, until later proved correct by the Watergate investigation.

Such examples demonstrate that delusional pathology can often lie in the failure or inability to verify whether the events have actually taken place, no matter how improbable intuitively they might appear to the busy clinician. Clearly, there are instances ‘where people are pursued by the Mafia’ or are ‘kept under surveillance by the police’, and where they rightly suspect ‘that their spouse is unfaithful’ (Sedler, 1995). As Joseph H. Berke (1998) wrote, even paranoids have enemies! For understandable and obvious reasons, however, little effort is invested by clinicians into checking the validity of claims of persecution or harassment, and without such evidence the patient could be labelled delusional.

consulting room, or lies beyond the forensic capabilities of the clinician. As pointed out by Young (2000), ‘many of the beliefs considered to be delusions do not meet these criteria (or are not tested against them) in practice’ (p.47). This can have some curious consequences (see ‘The Martha Mitchell Effect’, above).

Accordingly, this falsity criterion has been rightly questioned (Spitzer, 1990). Moreover, it is unclear what level of evidence would be required to consider a belief ‘incontrovertibly false’ and whether judgements should be based on the ‘balance of probabilities’ or the more stringent test of ‘beyond reasonable doubt’. ‘Delusional’ beliefs, consequently, may not be false (Heise, 1988) or even firmly sustained (Myin-Germeys *et al.*, 2001).

Bizarre beliefs The attribution that a delusion is bizarre is typically defined in terms of beliefs considered not normally held by other members of a person’s culture or society. This, however, often first involves the psychiatrist’s own evaluation as regards the plausibility of the belief; after which the psychiatrist considers whether it is one typically sustained by the others in the person’s culture. Although

More significantly, the detection of delusions has ‘enormous implications for diagnosis and treatment, as well as complex notions concerning responsibility, prediction of behaviour, etc.’ (David, 1999). Yet, as pointed out by many commentators (see Jones, 1999), the clinical usage of the term *delusion* and its distinction from other abnormal beliefs involve a host of semantic and epistemological difficulties. Predominant amongst these is our belief that delusions are (to a large extent) self-evident; that is, that they constitute a type of belief that (almost) everyone else would recognise as pathological. This, however, is more apparent than real, and is not even reflected in the many different opinions that surround the definition of the construct (Berrios, 1991; Garety & Hemsley, 1994; Spitzer, 1990). Indeed, David (1999) has suggested ‘there is no acceptable (rather than accepted) definition of a delusion’ (p.17).

For most of us, however, these thorny issues of definition can be sidestepped by choosing to adopt the descriptive and widespread characterisation offered by the American Psychiatric Association’s *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV). This established psychiatric nosology text considers a delusion to be, first and

THE THREE CHRISTS OF YPSILANTI

In 1959 social psychologist Milton Rokeach brought together three schizophrenic patients in the same psychiatric ward in Ypsilanti, Michigan, all of whom suffered from the Messiah complex – each believed he was Jesus Christ. Rokeach was interested in seeing whether these mutually exclusive delusions would interact and affect the extent of conviction and content of each patient's delusional beliefs. In his book *Rokeach (1964/1981)* records how each patient dealt with this conflict, one by avoidance, one by relinquishing his delusion and the other by attributing the identity claims of his compatriots to mental illness. Whilst this study would be considered ethically dubious today, it was one of the most original forays into the study of psychopathology where the explicit aim was to inform normal belief processes.

both evaluations may be related, they need not be. If, based on his or her own beliefs and experience, the psychiatrist considers the belief sufficiently bizarre, then presumably a diagnosis of delusion can be made independent of ascertaining the actual prevalence of the belief in the patient's culture.

The DSM definition, however, clearly assumes that the criterion of abnormality or bizarreness should be obvious, given that the belief is one not ordinarily accepted by other members of a person's culture or subculture. This is not necessarily a reliable strategy: many studies of psychiatrists show poor inter-rater reliability for ratings of bizarre beliefs (Flaum *et al.*, 1991; Junginger *et al.*, 1992). Moreover, most clinicians are not in a position to know or find out whether such beliefs comprise those normally accepted, except by direct comparison with those of his or her own peer group.

One method of comparison is the use of large-scale surveys, but most clinical judgements on the prevalence of beliefs in society are not typically informed by empirical evidence. In fact, beliefs in unscientific or parapsychological phenomena are not statistically uncommon (see Della Salla, 1999), and were this criterion alone employed as a sufficient condition, then many of us at times might be classified as delusional (Moor & Tucker, 1979). Large-scale marketing research polls carried out in the UK and North America consistently reveal that significant numbers of people within society hold strong beliefs about the paranormal. For example, a 1998 UK survey found that 41 per cent of respondents believed in communication with the dead, and 49 per cent believed in heaven – but only 28 per cent in hell ('Survey of paranormal beliefs', 1998).

Such surveys also reveal important cultural differences in held beliefs. In many Western countries opinion polls confirm that large numbers believe in god(s) and hold other paranormal beliefs (Taylor,

2003). Consequently, religious beliefs, including praying to a deity, are not typically considered delusional, while believing and claiming that one is a deity (see 'The Three Christs of Ypsilanti', above) or that one's spouse has been replaced (see 'Capgras delusion', below) typically are.

The existence of high levels of conviction in what might be considered abnormal, unscientific or paranormal beliefs raises important questions for mental health workers when justifying the notion of bizarre beliefs on purely conceptual or statistical grounds. As pointed out by French (1992), most beliefs are based upon 'personal experiences perhaps supported by reports of trusted others, and the general cultural acceptance that such phenomena are indeed genuine'.

Although clinically important, the

conceptual basis for the criteria of falsification or impossibility clearly breaks down under scrutiny. It is also problematic because psychotic symptoms such as delusions and hallucinations are not inevitably associated with the presence of a psychiatric disorder (Johns & van Os, 2001). Consequently, patients with DSM-IV-type delusions do not constitute a homogeneous group.

More often than not the decision about whether or not a belief is delusional is made on pragmatic grounds – namely, the evidential consequences of the beliefs including the extent of personal distress, potential or actual injury or social danger generated by the belief. Sometimes the decision may be simple – Cotard's delusion, a person's belief that they are dead, may be assessed differently from a delusion of grandeur such as believing that you are dating a famous TV star.

Can delusions tell us about 'normal' beliefs?

Notwithstanding difficulties with the standard psychiatric definitions, most people accept that normal beliefs perform an essential and fundamental process in establishing mental reference points from which to help explain and interact with the world. It is impossible to understand racism, prejudice, and political and

DAVE ROBERTS

If you believe Elvis works in a chip shop you have to reject the belief that he is buried at Graceland

religious conflict without considering discrepancy in fundamental belief systems. Fodor (1983) indicated that beliefs comprise a 'central' cognitive process and should be regarded as qualitatively different from the modular processes that have been well exploited by cognitive neuropsychologists (Coltheart, 1999). The proposition, however, is not matched by any clear consensus in neuropsychological accounts of what constitutes the cognitive or neural mechanisms involved, the evolutionary functions, or how such beliefs can be changed and maintained.

Jones (1999) describes beliefs as mental forms that incorporate the capacity to influence behaviour and cognition and

'beliefs in unscientific or parapsychological phenomena are not uncommon'

govern the way people think and what they do. But the debate as to what defines a belief or belief state rumbles on, and some researchers have instead opted to examine the ways in which damage or change to known cognitive processes can affect belief formation, as communicated or acted upon by patients diagnosed as suffering from delusions. Bryant (1997)

observed that over the past 20 years a variety of cognitive models of belief formation have drawn 'empirical support from evidence that delusions can be elicited in normal individuals undergoing anomalous experiences (Zimbardo *et al.*, 1981), the prevalence of delusions in neuropathological disturbances of sensory experience (Ellis & Young, 1990), reasoning deficits in deluded patients (Garety *et al.*, 1991) and the tendency for deluded patients to make external attributions following negative life events (Kaney & Bentall, 1989)' (p.44).

Recent developments from cognitive neuropsychiatry have shown how detailed investigations of monodelusional conditions (e.g. Capgras) can help to generate testable theories of delusion, face recognition and normal belief formation (Ellis & Lewis, 2001). But this potentially rich vein of research for cognitive neuropsychiatry (see Coltheart and Davis, 2000; Halligan & David, 2001) does not necessarily imply that delusions are the primary source of psychopathology in patients diagnosed as psychotic. Since most patients requiring psychiatric help have fully formed delusions by the time they are clinically diagnosed, establishing the causal factors responsible for the delusion is difficult. The neuropsychological or neurophysiological abnormalities observed could just as easily be interpreted as the product rather than the cause of these mental disorders.

However, if the formation of delusions as abnormal beliefs is the product of selective but as yet unspecified cognitive disturbance (e.g. in reasoning, thinking, attribution) then studying delusions may inform our understanding of how this psychopathology impacts on normal belief systems. Either way, they provide a platform for elucidating the cognitive architecture of belief formation itself.

Future directions from a useful past

Despite the concept of delusion being common parlance in psychiatry and society, it is only in the last 20 years that serious attempts have been made to define and understand the construct in formal cognitive terms (Bentall *et al.*, 2001; Coltheart & Davis, 2000; Garety & Hemsley, 1994). One area that has been either ignored or relegated to a mysterious box in belief formation diagrams is the influence of our current 'web of beliefs' on the adoption or rejection of new beliefs. Stone and Young (1997) strongly argued that belief formation may involve weighing

CAPGRAS DELUSION

Following a car crash in September 1995 Alan Davies became convinced that his wife of 31 years died in the accident and had been replaced by someone with whom he did not want to share his life. Diagnosed as suffering from Capgras syndrome, Mr Davies was awarded £130,000 damages after it was claimed that his rare psychiatric syndrome was caused by the crash that he and his wife, Christine, had survived. Despite suffering only minor physical injury he came to regard his wife, whom he now called Christine II, as an imposter and became stressed by any show of affection (de Bruxelles, 1999).

up explanations that are observationally adequate versus those that fit within a person's current belief set. However, a plausible process by which beliefs may be integrated into such a belief set, or by which such a pre-existing set may influence how we generate beliefs about our perceptual world, has not been widely adopted.

Philosophers and social psychologists have attempted to piece together some of this network – and with some success. Quine and Ullian (1978) set out some philosophical principles by which a web of belief should operate. Of particular interest is their principle that beliefs are more easily shed, adopted or altered when the resulting network disruption is minimal, and that beliefs are validated by their relationships with existing beliefs. Moreover, they claim that any belief 'can be held unrefuted no matter what, by making enough adjustments in other beliefs' (p.79) – though sometimes this results in madness. Based on the idea that not all beliefs (or links) are created equal empirical work has shown that particular beliefs can be differentiated by the amount and strength of other beliefs, which are relied on for justification (Maio, 2002).

One theoretical framework that we are exploring in Cardiff is that provided by coherence theory (Thagard, 2000) when considering dynamic models of belief processes in action. Our working model describes how active beliefs can be evaluated for their acceptability by how well they cohere into existing belief sets. Beliefs and the constraints between them (for example, believing that Elvis is alive would constrain you to reject the belief that he is buried at Graceland) can be given values or weights. These allow an overall

measure of coherence to be calculated and also permit a quantitative measure of disruption when beliefs are added, discarded or revised.

Sensory input may be a constraint in itself with the threshold for believing things obtained from your own senses ('I believe it was raining this morning') considered higher than those taken on authority alone ('I believe it was raining during the Battle of Waterloo'). This hierarchy may partly explain why in some cases delusional beliefs can be adopted over very short periods and with such conviction, and involve the sufferer dramatically revising other beliefs to cohere with their new-found preoccupation. Unusual experiences, which may accompany brain injury or mental illness, may also give direct perceptual experience for unlikely or bizarre beliefs that cause a radical reorganisation of a previously conservative belief network.

However, there must be more to pathological beliefs than simply reacting to unusual experiences, otherwise our belief systems would be in a constant state of flux. Influences on the ways in which individuals establish links between beliefs and their subsequent relevance for the individual also need to be taken into account when trying to explain why delusions are often considered bizarre. A coherence theory account can address some of these problems by allowing reasoning biases to be modelled via damage to the constraints between beliefs. Of particular advantage to this approach is that coherence models can be implemented as artificial neural networks.

This means the model can address predictions from neuropsychiatry. For example, Spitzer (1995) has argued for the role of dopamine modulation in perceiving significance. He likens the role of dopamine to a perceptual 'signal to noise ratio' contrast control, where too little modulation could mean we make no useful

distinction between meaningful and non-meaningful information. Too much, however, could lead us to see significance and meaning in perceptual information that we might otherwise ignore, causing, according to Spitzer, a range of unusual and unlikely beliefs.

Given the heterogeneity and complexity of the factors involved, not least of agreeing a common language to describe and access the construct of abnormal beliefs in question, it would seem sensible to adopt an eclectic approach to delusions – one that links understanding from neuroscience, cognitive and social psychology. This would allow 'abnormal'

and delusional beliefs to be understood as arising not simply from damaged biological mechanisms or information processing modules, but from cognitive beings firmly situated within their social milieu. Such an approach might also better allow us to treat patients with distressing beliefs, as well as provide a clearer insight into how each of us comes to hold our own beliefs, be they viewed by others as mundane, profound or peculiar.

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WEBLINKS

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