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''Sleights of mind'': Delusions, defences, and self-deception

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Two different modes of theorising about delusions are explored. On the one hand is the motivational approach, which regards delusions as serving a defensive, palliative, even potentially adaptive function. On the other, is the cognitive deficit approach, which conceptualises delusions as explicitly pathological, involving abnormalities in ordinary cognitive processes. The former approach, prominently exemplified by the psychoanalytic tradition, was predominant historically, but has been challenged in recent years by the latter. Some grievances against psychoanalytic theory are briefly discussed, and it is argued that although the reasons for psychoanalysis falling into scientific disrepute are partly justified, the psychodynamic notion that motivation has access to the mechanisms of belief formation is of potentially crucial theoretical utility. A variety of possible syntheses of the two theoretical modes are therefore explored, in the belief that the most comprehensive account of delusions will involve a theoretical unification of both styles of explanation. Along the way, an attempt is made to locate the notions *delusion*, *defence*, and *self-deception* in a shared theoretical space.

Delusions can vary both thematically and in scope. The delusions of some individuals are tightly circumscribed—for example, a person with ''Capgras'' delusion may believe that a loved one (usually a spouse or close relative) has been replaced by a physically identical impostor, but be mentally lucid in seemingly all other respects. More remarkable still is the phenomenon of ''perceptual delusional bicephaly'', exemplified by the case of a man who believed that he had two heads, the second of which belonged to his late wife's gynaecologist. This patient was unfortunately hospitalised with gunshot wounds after

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attempting to violently remove the second head. He had initially planned to attack it with an axe (Ames, 1984).

Other individuals suffer from widespread polythematic delusions involving a more extensive loss of contact with reality (Langdon & Coltheart, 2000). Consider here the celebrated case of Supreme Court Judge Daniel Schreber. In addition to an alarming array of hypochondriacal symptoms (he believed that his viscera were missing, that his brain was softening, and that he suffered from the Plague), Schreber was convinced that divine forces were preparing him for a sexual union with God by changing him into a woman. He believed that from this union would issue forth a new race of humans who would restore the world to a lost state of blessedness (Bell, 2003).

Psychoanalysis and the motivational approach

Until recently, many delusions were widely regarded as having a *motivational psychogenesis*—that is, delusions were viewed as being *motivated*, their formation and maintenance attributable to the psychological benefits they provided to deluded individuals. Take, for example, the abovementioned Capgras delusion, described in 1923 by Capgras and Reboul-Lachaux (see Ellis, Whitley, & Luaute, 1994). Enoch and Trethowan (1991) provide an intriguing formulation of this condition. According to these authors, the Capgras delusion provides a ''solution to the problem of ambivalence'' (p. 12). The idea is that a Capgras patient is beset by conflicting feelings towards a spouse or close relative—acceptable feelings of love and affection, on the one hand, together with altogether more disturbing feelings of hate and aggression, on the other. The development of the delusional impostor belief is here viewed as resolving the tension between these incongruous feelings. The patient is then able to express their hitherto unacceptable feelings of hatred and aggression towards the impersonator, while avoiding the guilt that would attend expression of such feelings towards a loved and respected family member. The delusion thus serves a psychological function, a *defensive* function (more below)—the deluded individual is motivated to develop it in order to reduce the unpleasant tension that would otherwise maintain.

This explicitly motivational formulation, which explains a delusory belief in terms of the psychological benefits it confers, is consistent with a long tradition in psychology, the *psychodynamic* tradition. It is a long-standing article of psychoanalytic faith that a delusion is not an illness per se, but represents rather the *attempt to recover* from inner catastrophe (Bell, 2003).[1] From a psychody-

[1] The distinction between the two terms *psychodynamic* and *psychoanalytic* is rather unclear. Historically, the former term comprised a broader purview than the latter (Gabbard, 1994), subsuming a variety of approaches that took as axiomatic Freud's notion of unconscious mental processes but rejected his libido theory (Westen, 1998). Nowadays, the prevailing trend is to treat the two terms as synonymous (e.g., McWilliams, 1994), a trend adopted in this paper.

namic perspective, therefore, a delusion constitutes a mentally dexterous ''sleight of mind'', a psychological manoeuvre effected to maintain psychic integrity and reduce anxiety. In the words of Freud, a ''delusion is found applied like a patch over the place where originally a rent had appeared in the ego's relation to the external world'' (1924/1986, p. 565).

Capgras himself evinced an even more thoroughgoing Freudianism than Enoch and Trethowan in his second paper's interpretation of a case (Capgras & Carette, 1924). Here, the impostor delusions of a young woman with schizophrenia were seen as constituting an attempt to veil forbidden incestuous desires for her father (despite the fact that her impostor delusions had extended to her mother, brother, uncle and aunt—see de Pauw, 1994). In this paper the ambivalence is not between socially acceptable feelings of love and taboo feelings of hatred, but between acceptable love and taboo desire.

Bentall and colleagues (e.g., Bentall & Kaney, 1996; Kinderman & Bentall, 1996, 1997) are very influential modern-day proponents of a psychodynamically inflected account of delusions. Their model pertains specifically to persecutory delusions, and holds that such delusions are constructed defensively, in order to maintain self-esteem. Persecutory delusions can be operationalised cognitively as externalising, personalising attributions for negative events. Bentall and colleagues argue that such attributions are evoked for negative events that threaten to highlight discrepancies between latent negative self-perceptions and self-ideals. This approach is grounded in earlier psychodynamic accounts, such as that of Colby, Weber, and Hilf (1971).

Deficit Accounts and the Two-Factor Model

The key notion in psychoanalytic accounts is that delusions are viewed as having a *palliative* function—they represent an attempt (however misguided) to relieve pain, tension, and distress. Psychodynamic models do not, however, exhaust the range of psychological explanations for delusions. For one thing, despite a prevailing tendency to view as irredeemably Freudian any theory that smacks of motivational mechanisms, a distinction should be drawn between theories that are motivational in general and theories that are specifically psychodynamic. The latter group should be viewed as a subset (albeit a dominant and influential subset) of the former, which also includes theories that eschew the exotic, vicissitudinous excesses of orthodox psychoanalysis, positing instead more straightforward motivational factors (see Butler's ''Reverse Othello Syndrome'' case below).

In the second place, motivational accounts of delusions can be generally distinguished, as a class of theoretical explanation, from another major explanatory class—that involving the notion of *defect* or *deficit* (Bentall, Corcoran, Howard, Blackwood, & Kinderman, 2001; Blaney, 1999; Hingley, 1992; Venneri & Shanks, 2004; Winters & Neale, 1983). Theories in this second class

view delusions as the consequence of fundamental cognitive or perceptual anomalies, ranging from complete breakdowns in certain crucial elements of cognitive-perceptual machinery (e.g., Frith's proposal that persecutory delusions result from a deficit in the cognitive apparatus underpinning the ability to represent the mental states of others—a ''theory of mind'' deficit; Frith, 1992), to milder dysfunctions involving the distorted operation of particular processes (Garety and Hemsley and colleagues, for example, have presented evidence implicating a particular ''probabilistic reasoning bias'' in the formation and maintenance of delusions; see Garety, Hemsley, & Wessely, 1991; Huq, Garety, & Hemsley, 1988). Delusions are thus viewed as involving disorders of belief—disruptions or alterations in the normal functioning of belief mechanisms such that individuals come to hold beliefs that do not concord with reality and that are moreover steadfastly maintained in the face of overwhelming evidence to the contrary (American Psychiatric Association, 1995).

According to prevailing deficit accounts (e.g., Ellis & Young, 1990; Langdon & Coltheart, 2000; Stone & Young, 1997), the Capgras delusion arises when the affective component of face recognition is disrupted. The proposal is that face recognition involves two components, an overt ''pattern-matching'' component and a limbic emotional component, which provides the experience of ''familiarity'' upon encountering a loved one. If connections from face-processing areas to the limbic system are damaged or disrupted, the resulting incongruence between experiences of the way someone ''looks'' and the way they ''feel'' might lead to the adoption of the delusional impersonator belief.

Davies, Coltheart, Langdon, and Breen (2001) flesh out the above account in two different ways, distinguishing between two possible routes from aberrant experience to delusional belief. In the first scenario, the impostor belief is constructed as an *explanation* of the anomalous experience, and functions to resolve the discordance between the different features (visual and affective) of the experience. Under this alternative the representational content of the anomalous experience is less elaborate than the explanatory hypothesis generated to account for it—thus the experience itself is not a direct experience of an impostor, but merely a vague sense that ''something is awry'', that ''something doesn't feel right''. Under the second route, the delusional impersonator hypothesis actually forms part of the representational content of the anomalous experience (i.e. the experience itself is an experience of a person who looks like my loved one but is not in fact my loved one). The route from experience to belief implicated here simply involves the individual taking their experience as veridical.

Whichever of these specific routes is involved, the underlying notion—that of limbic disconnection—is the same, and is consistent with the empirical facts. For example, Ellis, Young, Quayle, and de Pauw (1997) recorded skin-

conductance responses (SCRs—an index of autonomic activity) while showing Capgras patients and normal subjects a series of familiar and unfamiliar faces. They found that whereas normal subjects showed significantly greater SCRs to familiar faces, Capgras patients failed to show a pattern of autonomic discrimination between familiar and unfamiliar faces—both types of face engendered equivalent degrees of affective response. Further empirical support for the deficit account of the Capgras delusion comes from Hirstein and Ramachandran (1997), whose Capgras patient (''D.S.'') also showed SCRs of equivalent magnitude to photographs of familiar and unfamiliar people.

The notion that delusional hypotheses may be generated to explain aberrant perceptual experiences resulting from neuropsychological abnormalities is a key component of a current model of delusion formation and maintenance known as the ''two-deficit'' or ''two-factor'' model (Breen, Caine, & Coltheart, 2001; Coltheart, 2002; Davies & Coltheart, 2000; Davies et al., 2001; Langdon & Coltheart, 2000). This model incorporates a theoretical perspective advocated by Maher and colleagues (e.g., see Maher, 1992, 1999; Maher & Ross, 1984), whereby delusions are seen as rational responses to unusual perceptual experiences. Maher contended that delusions do not in fact arise via defective reasoning, but that they constitute reasonable explanatory hypotheses given the unusual nature of the individual's experiences. Coltheart and colleagues argue that such aberrant experiences may indeed be necessary for the development of bizarre delusions, and they assign such experiences the status of Deficit-1 in their two-deficit theory.

These researchers identify aberrant perceptual experiences that may be associated with a series of other bizarre delusions, including thought insertion, mirrored-self misidentification, and Cotard's delusion (the belief that one's self is dead). Coltheart and colleagues maintain, however, that such first-factor experiences are not sufficient for the development of delusions, as some individuals with aberrant perceptual experiences do *not* develop delusory beliefs about those experiences. For example, Tranel, Damasio, and Damasio (1995) found that, like the Capgras patients in the Ellis et al. (1997) study, nondeluded patients with damage to bilateral ventromedial frontal regions of the brain also fail to discriminate autonomically between familiar and unfamiliar faces. Assuming that the neuropsychological abnormality underlying the performance of Capgras patients and Tranel's frontal patients generates the same aberrant perceptual experience, a problem surfaces for Maher's claim that delusions are a rational response to aberrant experiences. Coltheart and colleagues argue therefore that Maher's account is incomplete, and invoke a second explanatory factor—a deficit in the machinery of belief evaluation. Individuals with this second deficit, it is hypothesised, lack the ability to reject implausible candidates for belief, once they are suggested by first-factor perceptual aberrations.

The backlash and the bathwater

It appears that the rise, in recent years, of rigorous cognitive and neurological conceptions of delusions has occasioned something of a reactionary backlash against historically prevalent psychodynamic modes of theorising. Influential cognitive neuropsychiatric accounts such as that of Ellis and Young (1990) and Stone and Young (1997), for example, eschew psychodynamic influences in favour of ''cooler'' cognitive processes (Gilovich, 1991). Such authors view psychodynamic approaches as at best inadequate (Stone & Young, 1997) and at worst ''sterile... tired and outdated'' (Ellis, 2003, pp. 77–78). Similarly, the two-deficit model described above, which explains delusions as the output of a faulty cognitive system, contains little provision at present for motivational factors. As Gabbard (1994) notes, the unparalleled prestige accorded to psychoanalysts and psychodynamically inclined psychiatrists even a generation ago has faded in the face of the impressive neuroscientific and biological advances of the current age. We shall briefly outline some reasons for this backlash below, and will go on to suggest that disposal of this psychodynamic bathwater entails (at the risk of stretching a metaphor) the rejection of a potentially crucial theoretical baby—the notion of motivated belief or self-deception.

The backlash we spoke of above is evident in the literature. Two brief examples from Ramachandran's popular neurology work ''Phantoms in the Brain'' (Ramachandran & Blakeslee, 1998) will suffice here to characterize the prevailing disdain towards psychoanalytic explanations. First, with regard to the Capgras delusion, Ramachandran mentions a case of Capgras where the patient came to believe that his pet poodle had been replaced by an impostor (see Raschka, 1981). For Ramachandran, this case demolished the psychodynamic account of the Capgras delusion. Whatever our latent bestial inclinations, he wryly observed, it does not seem plausible that this case of Capgras was attributable to Freudian dynamics. This example illustrates the current state of theoretical play where such delusions are concerned—the deficit account outlined above emerges as a sophisticated and parsimonious alternative, alongside which a psychoanalytic account appears whimsically anachronistic.

A second example from Ramachandran's book concerns the condition known as anosognosia, which involves unawareness or denial of illness or impairment. Although the clinical phenomenon of loss of awareness of deficits had been previously described, it was Babinski who introduced the term ''anosognosia'' in 1914 to describe an apparent unawareness of left hemiplegia subsequent to brain injury (Prigatano & Schacter, 1991). Ramachandran and Blakeslee (1998) describe the ''Freudian'' view of anosognosia, that such patients simply do not want to confront the unpleasant truth of their paralysis (or other deficit). This kind of view was articulated by Goldstein (1939), and rose to prominence for many years following publication of a monograph by Weinstein and Kahn (1955). Weinstein and Kahn redescribed anosognosia as ''denial of illness'',

implying that the characteristic denial and unawareness are psychodynamic defence mechanisms employed to alleviate distress.

As Ramachandran and Blakeslee (1998; see also Ramachandran, 1995, 1996a, 1996b; Stone & Young, 1997) point out, however, there is a glaring difficulty with this psychoanalytic explanation, at least as regards anosognosia for hemiplegia. The problem is that there is a marked asymmetry in the expression of this syndrome, such that denial of hemiplegia is only rarely seen in cases of right-sided paralysis (involving damage to the left parietal lobe). As there is no reason to suppose that right-sided paralysis should be any less frustrating or traumatic than left-sided paralysis (more, if anything, given that most people are right-handed), any appeal to notions of psychological defence in explaining the cases of left-hemiplegic anosognosia seems misguided.

Some apologists for Freudian theory might respond that psychoanalysis does not properly entail stock explanations for particular symptoms (delusions included). Effective psychodynamic therapy involves rather a detailed exploration of the idiosyncratic meanings that particular symptoms have for the individual in question. The ''Freudian'' explanations of Capgras syndrome and anosognosia (ambivalence and denial respectively) are thus ''straw men''—easily demolishable misrepresentations of subtle and flexible ideas. There is no standard ''Freudian explanation'' for these particular disorders, and any analyst worth their salt would take a detailed psychoaffective history and endeavour to unravel the idiosyncratic dynamics of each case, referring to a neurologist as necessary. Unfortunately, such attempts to construe psychoanalysis as fluid and heterogeneous tend to invite the charge of empirical unfalsifiability. We turn now therefore to a brief consideration of the scientific validity of psychoanalysis.

The scientific status of psychoanalysis

Psychoanalysis has been pilloried as methodologically unsound and intellectually disreputable. Eysenck (1953) branded psychoanalysis as unscientific, while Popper scorned it as a pseudoscience comparable to astrology (Flanagan, 1991). Not surprisingly, doubts about the scientific validity of psychoanalysis have led to deep rifts between psychoanalytic theory and the edifice of experimental psychology. According to Whittle (1999), the size of these splits (within what is regarded by outsiders as a single discipline) is unparalleled in academia: ''It is a gap between different subcultures, encompassing different belief systems, practices and institutions, vocabularies and styles of thought'' (p. 236).

The most serious and oft-levelled charge against psychoanalysis as a scientific theory is that it is not *falsifiable* (Popper, 1965). There are good reasons why psychoanalysis is often perceived as failing to meet this falsification criterion. Most of these stem from the psychodynamic notion of *defence*

mechanisms (A. Freud, 1936; S. Freud, 1926), which are (typically unconscious) psychological processes initiated to avoid anxiety. Sigmund Freud, for example, made much of the mechanism of *resistance*, whereby patients undergoing psychoanalysis defy and oppose the interpretations of the analyst because of the unpalatable truths those interpretations contain. Many psychoanalysts argued that *any* opposition to psychoanalytic ideas was a form of resistance (Kline, 1981). In this way, intellectual opposition to psychoanalytic theory became a prediction *of* the theory, and was therefore evidence *for* the theory. Such shrewd ironies have not endeared the psychodynamic tradition to dedicated Popperians.

Notwithstanding the validity of such criticisms, it is not clear that they constitute a decisive rebuttal of psychoanalysis. It is worth noting that the validity of falsification itself as a criterion of good science has been hotly debated by philosophers of science (e.g., see Cosin, Freeman, & Freeman, 1982; Lakatos, 1980). Lakatos argued that the problem with falsificationism is that a theory that has many good aspects can be prematurely dismissed after a single failed test. His methodological alternative, termed *sophisticated methodological falsificationism*, maintained that theories should only be discarded if they prove fruitless in the long term. This kind of objection is particularly relevant in the case of psychoanalysis, which is not a single unified theory but rather a heterogeneous collection of more-or-less logically independent theories (Kline, 1981). Any blanket rejection of psychoanalysis is therefore unjustified.

Resisting two-factor analysis

There is little doubt that the edifice of psychodynamic thought is replete with theorising that is at once outrageously presumptive and outlandishly speculative. Nevertheless, for many contemporary theorists, psychoanalysis retains a compelling intuitive core. In Kline's view, the burden of such theorists is that methodological shortcomings and dogmatic pronouncements notwithstanding, ''psychoanalytic theory does contain great insights into human behaviour—insights that have escaped most psychological theories... these must be accommodated into an adequate scientific psychology'' (1984, p. 2).

For the purposes of this paper, the core insight is that motives (conscious or otherwise) are important causal forces doxastically (*doxastic* = of or relating to belief). Psychoanalysis, of course, contains other conceptual elements and theoretical postulates that we might not want to endorse or consider, such as the pervasive influence of early childhood experiences or the existence and power of unconscious forces. In the next section we will therefore attempt to finesse the distinctions between the notions self-deception, defence, and delusion in order to more fully characterise what is paradigmatically motivated. First, however, let us pause to consider a case from the recent delusion literature that appears to resist two-factor analysis, and that seems more readily understandable in motivational terms.

The delusion in question was described by Butler (2000), who termed it ''Reverse Othello Syndrome''. This case is a curious clinical spin on the related erotomanic spectrum disorder of Othello Syndrome, wherein patients develop delusional beliefs about the infidelity of romantic or sexual partners. Butler's patient was a talented musician who had sustained severe head injuries in a car accident. The accident left him a quadriplegic, unable to speak without reliance on an electronic communicator. One year after his injury, the patient developed a delusional system that revolved around the continuing fidelity of his partner (who had in fact severed all contact with him soon after his accident). The patient became convinced that he and his former partner had recently married, and he was eager to persuade others that he now felt sexually fulfilled.

According to Butler, the delusions of this patient were not directly explicable in terms of organic pathology (despite the head injury), but rather resulted from a ''conflux of biopsychosocial factors'' (Butler, 2000, p. 89). The delusions provided a defensive retreat against ''depressive overwhelm'', without which ''there was only the stark reality of annihilating loss'' (ibid.). The fact that Butler's team were instructed not to aggressively challenge this patient's delusional beliefs indicates a respect for the potentially adaptive function of these delusions, for their capacity to provide a merciful deliverance from unbearable reality (Jaspers, 1946/1963). According to Butler, once this patient ultimately reached some kind of acceptance of his catastrophic loss, he himself set in motion the events that led to the dissolution of his delusions.

Like Enoch and Trethowan's (1991) psychodynamic account of the Capgras delusion, Butler's formulation is explicitly motivational, explaining the delusional belief in terms of the emotional comforts accrued by it. Unlike the Capgras cases, however, Butler's Reverse Othello case does not yield readily to two-factor theoretical analysis, as no plausible first-factor perceptual aberration suggests itself here. Moreover, the motivational agenda posited here is plausible and straightforward, lacking the elaborate psychic convolutions of orthodox Freudian explanation.

The problem for the two-factor account as it currently stands is that there are myriad cases of delusions that similarly resist ready identification of potential first deficits, but for which plausible motivational stories can be told. The existence of such cases implies two possibilities. The first possibility is that any attempt to ''explain delusions of *all* types'' (Langdon & Coltheart, 2000, p. 184, italics in original) with a single model may be overly ambitious. It may be that the scope of the two-deficit account is inevitably limited to a certain restricted class of delusions (those with identifiable neuropsychological candidates for Deficit-1), and that other delusions may require explanation in motivational terms. The second possibility is that an all-encompassing theory of delusions may be feasible, but that such a theory will require the integration of deficit and motivational perspectives. It is this second possibility that we address in subsequent sections.

Self-deception, delusion, and defence

One of the aims of this paper is to clarify what is meant by the notions self-deception, delusion, and defence; to locate each of these in a common conceptual space, and to delineate the boundaries and relationships between them. There seems to be considerable confusion over the usage of these terms, confusion that no doubt stems in part from the fact that these terms originate in different intellectual traditions. The notion of psychological defence, for example, is a psychoanalytic notion *par excellence*, whereas self-deception, at least as a focus of academic analysis, has distinct origins in philosophy (McConkey, 1990).

Self-deception is a notoriously slippery notion that has eluded definitional consensus. Sackeim and Gur (1978) provided what is arguably the most widely accepted characterisation, claiming that self-deception consists in an individual holding two contradictory beliefs simultaneously; the individual, moreover, is aware of only one of these beliefs, and is *motivated* to remain unaware of the other. The concept of self-deception has long been mired in a series of philosophical controversies, especially concerning what are known as the ''static'' and ''dynamic'' paradoxes of self-deception (Mele, 1997). The static paradox consists in a self-deceived person being simultaneously in two contradictory states—the state of both believing and disbelieving a particular proposition. The dynamic paradox arises out of the fact that in order for a person to engage in self-deception, they must know what they are doing; yet in order for the project to work, they must *not* know what they are doing. The numerous attempts to solve (or dissolve) these difficulties need not concern us here (but see e.g., Mele, 1997; Fingarette, 1998). Regarding self-deception's relationship to the notion of *delusion*, the two terms have been variously used as synonyms (e.g., Kovar, 1974), as qualitatively similar concepts that differ quantitatively (e.g., Ramachandran, 1995; Winters & Neale, 1983; Shean, 1993), and as quite distinct if overlapping concepts (see McConkey, 1990).

We argue that it is indeed useful to view delusion and self-deception as distinct concepts that intersect or overlap. Our treatment of the term *delusion* broadly accords with the definition proposed by the American Psychiatric Association (APA), in its *Diagnostic and statistical manual of mental disorders*, Fourth Edition, International Version (DSM-IV):[2]

> A false belief based on incorrect inference about external reality that is firmly sustained despite what almost everyone else believes and despite what constitutes incontrovertible and obvious proof or evidence to the contrary. The belief is not

[2] Notwithstanding our acknowledgement that many aspects of this definition are contentious: see David (1999), Peters (2001), Davies et al. (2001), Bell et al., (2003) and Bayne and Pacherie (2005).

> one ordinarily accepted by other members of the person's culture or subculture (e.g., it is not an article of religious faith) (1995, p. 783).

Essentially, we view delusion as a dysfunctional belief, a doxastic *state* of a particular pathological severity. A person is deluded when they have come to hold a particular belief with a degree of firmness that is both utterly unwarranted by the evidence at hand, and that jeopardises their day-to-day functioning.[3] Self-deception, on the other hand, we view primarily as a *process* via which beliefs can be formed, a process that is paradigmatically *motivated*.

Theoretically at least, each may occur in isolation. Thus some (perhaps all?) delusional states may arise without self-deception, via processes that are not remotely motivated. Such possibilities are the province of accounts such as the two-factor model, which aim to pinpoint specific cognitive deficits underlying particular delusions. Conversely, self-deception may occur in a benign manner such that the resulting doxastic states do not sufficiently disrupt functioning to warrant the label *delusion*. Think here of such stock examples as a smoker convincing herself that smoking is not *really* bad for her; a father exaggerating, even to himself, his son's talents; or a wife choosing to overlook the obvious evidence of her husband's infidelities (Rey, in press). It is a well-documented social psychological finding that most people tend to see themselves as above average on positive characteristics, such as intelligence, fair-mindedness, and driving ability (when obviously not everyone can be above average), and free of most socially undesirable characteristics (Gilovich, 1991). Such self-serving tendencies do not ordinarily merit usage of the term *delusion*.

The intersection of the concepts self-deception and delusion, of course, occurs in those (putative) cases where delusions constitute ''ordinary'' self-deceptive processes writ large. Shean (1993), for example, suggests that delusions may result from an incremental process of individual self-deceptive acts. In order to safeguard her self-esteem, for example, Sally deceives herself that she is a morally better person than most of her peers. Harmless enough, perhaps. Through a series of such self-deceptive manoeuvres, however, she may come to believe that she is in fact Jesus Christ. Such seems to be the spirit of Shean's suggestion. Ramachandran (1994a, 1994b, 1994c, 1995, 1996a, 1996b, Ramachandran & Blakeslee, 1998) also believes that delusional states are exaggerated forms of ordinary self-deceptive processes, but offers a more elaborate hypothesis regarding the connection between them (see below). The psychodynamic accounts of Capgras delusion with which this paper began are for-

[3] Note that here we go beyond the DSM-IV definition of delusions, which makes no mention of disrupted functioning. We think it reasonable, however, to view delusions as typically involving impaired functioning, although we allow that in certain limited circumstances, delusions may serve a protective function. Such circumstances include the situation of Butler's Reverse Othello patient, and perhaps instances of fervent religious conviction.

mulated at the intersection of self-deception and delusion, as is Butler's interpretation of Reverse Othello syndrome. In each case, patients are purported to have deceived themselves regarding some particular state of affairs (the identity of a loved one; the fidelity of a spouse) in order to gain some psychological benefit. In each case the result is delusion.

Some authors suggest that there are obvious limits to self-deception, that our capacity to believe what we want to believe is constrained by reality (Gilovich, 1991). Rey (in press) suggests, for example, that whereas people pray for many things, no one expects prayer to cure wooden legs. To paraphrase Ainslie (1992), our beliefs can only mirror our fantasies to the extent that the fantasies themselves accord with reality. For those who believe delusions are the result of motivational processes, however, the very existence of delusions gives the lie to this view. Delusions by their very nature are beliefs that reality has failed to constrain.

We turn briefly now to the distinction between the notions self-deception, delusion, and *defence*. One way of distinguishing these is to note that whereas self-deception and delusion are thoroughly *doxastic* terms, referring to states of belief and processes of belief-formation, the notion of defence refers more generally to a style of experiencing the world (McWilliams, 1994). A defence mechanism can be construed as a means of nuancing or processing information such that it is rendered less anxiety-provoking. Defences do not necessarily involve a distortion of reality, because there are healthy defences, such as humour, altruism, and sublimation (Vaillant, 1977; cf. Haan, 1977). Nevertheless, defence mechanisms typically involve self-deception. As Sackeim (1983) argues, however, defensive processes function, by psychoanalytic definition, to avoid pain and anxiety, and in this sense the notion of defence subsumes a more limited purview than the notion of self-deception, which can be exercised not merely defensively but also *offensively* (directed towards pleasure). Sackeim also notes that many of the classic psychoanalytic defence mechanisms involve more assumptions about the nature of mental processes and the topography of the psyche than does the notion of self-deception, which is relatively unencumbered conceptually.

A theoretical synthesis

We have seen that there are two very different modes of theorising about delusions. On the one hand, the motivational approach (here exemplified jointly by the psychodynamic tradition with its concept of defence, and by the philosophical notion of self-deception) views delusions as serving a defensive, palliative, even potentially adaptive function. On the other hand, the cognitive deficit approach conceptualises delusions as involving dysfunction or disruption in ordinary cognitive processes. This latter approach views delusions as unambiguously pathological. Some researchers might take the view that these

approaches are diametrically opposed and mutually exclusive, in which case one approach is correct and the other incorrect. Alternatively, one approach may explain certain types of delusions, whereas the other approach may explain qualitatively different types of delusions. Our concern here, however, is not to establish the scientific validity of either of these approaches (for that is an empirical matter), but to assume that they are indeed both valid and to consider therefore two potential theoretical syntheses of these approaches which might provide an overarching theoretical framework for explaining *all* types of delusions. First, we shall consider a motivationally modified version of the two-deficit model of Coltheart and colleagues, as this model has been a main focus of this paper.

Second, we shall consider a broader theoretical integration involving the ideas of Ramachandran (e.g., 1995, 1996a, 1996b). Current ''multifactorial'' models, such as that of Garety, Kuipers, Fowler, Freeman, & Bebbington (2001) and Freeman, Garety, Kuipers, Fowler, and Bebbington (2002) incorporate aspects from both sides of the motivational/deficit divide in theorising about delusions. Such models, however, rarely specify precise relationships or mechanisms of interaction between these factors, which potentially exist at different levels of theoretical explanation. Could it be that at one level delusions constitute lesions in a complex computational system, while at the same time (but on a different theoretical plane) offering ''psychotic dead ends out of the existential dilemma''? (Becker, 1973, p. 81). To speak to this issue we consider Ramachandran's theory of hemispheric specialization.

A modified two-factor account

In the published writings of Coltheart and colleagues, an initial emphasis on cognitive *deficits* (Davies & Coltheart, 2000; Langdon & Coltheart, 2000) yields gradually to a broader framework of two general *factors* that are implicated in delusion formation and maintenance (Davies et al., 2001). Generally speaking, the first factor accounts for the *content* of a delusion, and includes consideration of various perceptual aberrations that might lead to a certain delusory hypothesis being generated. The second factor, on the other hand, accounts for why a certain delusory hypothesis, once generated, is then *adopted* and *maintained* in the absence of appropriate evidence for that hypothesis.

The earlier ''second deficit'' notion conceptualised belief evaluation as an *all-or-none* ability, intact in healthy people but deficient in people with a particular pattern of brain damage. The current ''second factor'', by contrast, seems rather to consist in being at the extreme end of a belief evaluation *continuum*, either as the result of ordinary variation (the continuum being normally distributed for people with intact brains), or as a result of brain damage (resulting in a person's position on the continuum being radically shifted).

The precise nature of the dimension implicated here is still debatable. One possibility is that the dimension represents *gullibility* or *credulity*. Individuals at the high end would then tend to be excessively misled by untrustworthy sources of information when forming beliefs. They would be vulnerable to accepting (or failing to reject) unsound belief candidates. An alternative formulation is that the dimension constitutes the ability to evaluate the likelihood that a potential belief is true, in the light of all relevant doxastic input.

We suggest that this model be modified by introducing motivational factors as an additional source of first-factor doxastic input. A two-factor account of delusion would then identify the first factor with whatever sources of information suggest a particular delusory belief. Such sources may include a spectrum of postulated perceptual aberrations underpinned by neuropsychological abnormalities, but may also include a range of defensive suggestions and desires. Individuals with the ''second factor'' would tend to be misled by such untrustworthy sources of information. They would thus be prone to giving undue weight to veridically dubious sensory information, as well as liable to having their belief-formation systems derailed and overridden by their motives.

Presumably in certain cases delusions would arise in situations where there are multiple relevant first-factor sources. To illustrate with a hypothetical example, a patient who develops the Capgras delusion might have anomalous perceptual experiences in conjunction with particularly salient emotional needs. A woman who defines herself in terms of her love for her husband, for example, might find it particularly distressing to experience a lack of affect on viewing his face. Her belief evaluation system would therefore need to contend with two incongruent sources of input—a fervent need for faith in the stability of her feelings for her husband, alongside worryingly contrary perceptual evidence. Given an additional context of inadequate second-factor belief evaluation abilities (brain damage may have compromised these capacities or she may simply be congenitally low on this continuum), an impostor hypothesis might not be rejected as it should.

A paper written two decades ago by Raschka (1981) intimated at just this kind of theoretical integration. In interpreting two cases of Capgras delusion, Raschka foreshadowed the currently prevailing deficit account by suggesting that the delusion originates in an anomalous emotional response to a familiar figure. Instead of viewing the ensuing impostor delusion as resulting from a *deficit* in belief evaluation, however, Raschka proposed that the delusion is a *defence* against the upsetting emotional response (or lack thereof). The delusion of doubles, in Raschka's formulation, thus represents more than a misguided effort to merely make sense of an unpleasant experience—it is a motivated attempt to avoid the upsetting implications of the experience. Raschka's account thus integrates factors from either side of the deficit/motivational divide.

It is conceivable that motivational factors may function not only as first-factor sources of doxastic input, but that they may also play a role in the second-

factor evaluation of such input. It may be that incoming doxastic information is processed so as to yield beliefs that allow the individual to function adequately in the world by virtue of: (a) closely approximating reality; and (b) allowing the individual a measure of security and satisfaction. Westen (1998) discusses the connectionist notion of *constraint satisfaction*, and notes that: ''Psychodynamic theory can augment a connectionist model in proposing that affects and affectively charged motives provide a second set of constraints, distinct from strictly cognitive or informational ones, that influence the outcomes of parallel constraint-satisfaction processes'' (p. 359). Motives may thus constitute constraints on the processing of belief-related information. Perhaps a feature of the second factor is that the belief-formation system becomes unduly biased toward the satisfaction of such motivational constraints.

Ramachandran and the integration of psychology and neurology

In a series of published papers and chapters, Ramachandran (1994b, 1994c, 1995, 1996a, 1996b; Ramachandran & Blakeslee, 1998) has outlined a speculative theory of hemispheric specialisation that provides a further potential means of integrating the two broad theoretical perspectives under consideration. Despite a mocking antipathy for ''traditional'' psychodynamic explanation, Ramachandran takes an explicitly motivational stance with respect to delusions, such as anosognosia and somatoparaphrenia (this latter delusion involves the denial of ownership of parts of one's body, and is occasionally seen in conjunction with anosognosia; Ramachandran & Blakeslee, 1998).

Ramachandran views these delusions as grossly exaggerated instances of ordinary self-deception (Ramachandran equates self-deception with the notion of psychological defence; We will henceforth use these terms interchangeably): ''I suggest that what one is really seeing in these patients is an amplified version of Freudian defence mechanisms caught *in flagrante delicto*; mechanisms of precisely the same sort that we all use in our daily lives'' (Ramachandran, 1995, p. 26). For Ramachandran, therefore, delusions (at least anosognosic and somatoparaphrenic delusions) are indeed motivated. However, Ramachandran's claim that such conditions constitute *exaggerated* versions of ordinary motivational mechanisms is not to suggest that they lie merely on the extreme end of an even distribution of normal functioning. Ramachandran's theory is compatible with a deficit approach to delusions in that it suggests that the human capacity to implement defensive processes may be localised neurally.

Given the hegemony of materialism, the notion that self-deceptive processes are implemented by brain structures is hardly radical—after all, according to materialism all psychological processes are at some level instantiated in or realised by brain processes. What is unusual about this sugges-

tion of Ramachandran's is that it involves neural *localisation*—the idea that there may be *specific regions* of the brain responsible for implementing defences.

Ramachandran's theory begins as an evolutionary account of ordinary self-deception. He suggests that the various defence mechanisms arise because the brain attempts to arrive at the most globally consistent synthesis of evidence from multiple sources. Ramachandran proposes that processes in the brain's left hemisphere function to forge this synthesis. In keeping with Freud's own predilection for martial metaphors (McWilliams, 1994), Ramachandran likens the left hemisphere to a decisive military general. The role of this ''general'' is essentially that of Piagetian assimilation—to fold new information as seamlessly as possible into our pre-existing schemas for making sense of the world. Anomalous information, incongruent with this prior framework, is ignored, denied or in some way distorted such that it is made to fit the framework: ''The left hemisphere... relies on Freudian defence mechanisms to deny, repress or confabulate...'' (Ramachandran & Blakeslee, 1998, p. 136).

There must ordinarily be limits to these processes, however, for otherwise the individual's worldview would very soon depart radically from reality. Ramachandran asserts, therefore, that the right hemisphere contains a ''discrepancy detector'' mechanism to complement and counterbalance the subversive activities of the left hemisphere. Based on research by Fink et al. (1999), Ramachandran locates this mechanism in a region of the right hemisphere innervated by the right parietal lobe. According to Ramachandran, this specialised mechanism plays devil's advocate, searching for information that is inconsistent with the status quo and initiating a revision of prevailing schemata in response (Piagetian accommodation). Operating normally, therefore, this mechanism keeps self-deception from straying too far into delusion.

The suggestion that one's ability to detect and process inconsistent, anomalous information places constraints on the level of self-deception that one can engage in is consistent with the view of Peterson, Driver-Linn, and DeYoung (2002), who argue that self-deception is associated with a decreased propensity to adjust categorisation to accommodate anomalous information. These researchers found that, relative to low self-deceivers, individuals high in self-deception showed an impaired ability to categorise anomalous playing cards, indicating a reduced capacity to adjust prevailing schemata even in the face of such minimally disruptive anomalies.

Ramachandran's proposal is that healthy belief formation requires a careful balance between two sets of processes—the conservative, assimilative processes of the left hemisphere, and the revolutionary, accommodatory processes of the right. This idea brooks comparison with Stone and Young's (1997) suggestion (see also Davies & Coltheart, 2000) that healthy belief formation involves a balance between two principles, one a principle of doxastic conservatism (whereby the individual's existing web of beliefs is maintained), the other a

principle of observational adequacy (whereby the evidence of the senses is accommodated).[4]

Ramachandran suggests that anosognosia results when damage to the right parietal lobe effectively disables his hypothesised discrepancy detector mechanism. Such damage upsets the delicate balance between assimilation and accommodation, in effect giving the left hemisphere *carte blanche*. The patient is thus blissfully incapable of revising their previous model of reality (that they are a healthy person with fully functioning limbs) and is able to assimilate even the most flagrantly contradictory evidence, such as visual and proprioceptive evidence of their paralysis, into this agreeable schema.

This theory solves at a stroke the problem of asymmetrical expression of hemiplegic anosognosia. Recall that hemiplegic denial typically occurs only in the context of left-sided paralysis, a fact that seemed to demolish any motivational explanation of anosognosia (there being no reason to suppose that right-sided paralysis should be any less distressing than left-sided paralysis). If anosognosia represents a failure of the brain's capacity to detect discrepancies, however, a capacity subserved primarily by right-hemispheric mechanisms, then damage to the left hemisphere should not lead to anosognosia. Moreover, in some cases of right-sided paralysis, the damage to the left hemisphere may extend to the neural structures of assimilation and defence. Such patients would therefore lack ''the minimal 'defence mechanisms' that you and I would use for coping with the minor discrepancies of day-to-day life...'' (Ramachandran & Blakeslee, 1998, p. 280–281; see also Sackeim, 1986). The absence of anosognosia in such cases would not then be because the loss involved is not traumatic, but because the individual would lack the intact neural machinery necessary to implement the defence. This is both a neurological *and* a psychodynamic (or at least motivational) explanation, worthy of Sackeim's (1986) unwieldy term ''neuropsychodynamic''.

In an initial paper on the two-deficit model, Langdon and Coltheart (2000) suggested that the second deficit in their theory may involve a loss of the ability to suspend certain automatic biases during belief formation. For example, although natural selection has furnished us with a tendency to prioritise the evidence of our senses when forming beliefs, Langdon and Coltheart contended that normal belief evaluation involves an ability to override this tendency such that other sources of information (the testimony of others, for example) can be considered. They hypothesised that the second deficit may comprise damage to this ''override safety mechanism'' (Langdon & Coltheart, 2000, p. 202). Might Ramachandran's ''discrepancy detector'' mechanism correspond to the ''over-

[4] Note, however, that whereas Stone and Young explain delusions in terms of a bias towards observational adequacy, Ramachandran explains delusions in terms of a deficit in the accommodatory processes that promote observational adequacy.

ride safety mechanism'' of Langdon and Coltheart? Perhaps the override safety mechanism is one component of a discrepancy detection system, more critical when aberrant perceptual experience contributes to delusion formation. It is not yet clear what the precise correspondences are between these two models, but it does seem that both approaches can provide for a spectrum of ordinary doxastic functioning, as well as addressing the consequences of damage to the processes underpinning such normal functioning. There may be scope for further integration here.

Summary and conclusion

Whereas psychoanalytic modes of theorising held sway almost exclusively during the middle decades of the last century, the growth of the neurosciences in recent decades has effected something of a paradigm shift in the prevailing understanding of mental disorders (Gabbard, 1994). In the field of delusions, this shift has seen psychodynamic formulations challenged by theoretically rigorous and empirically grounded cognitive accounts such as the two-deficit model of Coltheart, Davies, Langdon, and Breen. The two-deficit account has thus far eschewed psychodynamic influences, making little provision for motivational factors and instead explaining delusions in terms of the conjunction of two cognitive deficits—the first a neuropsychological deficit giving rise to an anomalous perceptual experience, the second a dysfunction in belief evaluation machinery.

This paper has argued that there are good reasons to be sceptical of psychoanalytic theories, and has noted some of the dissatisfactions with this approach that have occasioned the pendulum swing away from psychodynamic ideas. The pendulum, however, may have swung too far. Theoretical excesses and scientific failings notwithstanding, psychoanalytic ideas contain a key notion that models of belief formation may ignore at their peril—this is the insight that motives are important doxastic forces. It was suggested that the notion of motivation should form part of the explanatory armoury of the two-factor theory, and an attempt was made to tease apart the distinctions between the concepts of defence mechanisms and self-deception in order to more fully characterise this ''baby in the bathwater''.

It was suggested that not all delusions are readily amenable to two-factor explanations as they currently stand, a conclusion which we believe highlights the need for a synthesis of this approach and a motivational perspective. Two potential means of integrating these approaches were therefore considered. In the first place, it was noted that recent writings by Coltheart and colleagues suggest a shift in emphasis from an explicitly *deficit* account to a more expansive scheme implicating two general *factors* involved in the formation and maintenance of delusions. It was suggested that motives be incorporated into this model as a first-factor source of untrustworthy doxastic input—a means by

which individuals prone to the *second* factor are misled when forming beliefs, such that beliefs formed are increasingly congruent with wishes and increasingly incongruent with reality.

A speculative hypothesis proposed by Ramachandran was subsequently considered, which purports to explain both ordinary self-deception and anosognosic delusions in terms of the specific cognitive styles of each hemisphere. Ramachandran contends that the locus of psychological defence is in the left hemisphere, and suggests that the left-hemispheric mechanisms subserving defence are opposed by a complementary ''discrepancy detector'' mechanism in the right hemisphere. Operating normally, this mechanism ensures that self-deception does not escalate into delusion. Damage to this mechanism, however (which may occur in conjunction with damage causing left-hemiplegia), leaves the patient with no constraints on their ability to psychologically defend. This kind of hypothesis sits astride the boundary between psychology and neurology, potentially enabling ''us to anchor the airy abstractions of Freudian psychology in the physical flesh of the brain'' (Ramachandran, 1996a, p. 348).

According to Mele (1993), ''motivation does have access to the mechanisms of belief-formation'' (p. 23). This paper has considered a variety of potential syntheses of two modes of theorising about delusions—the motivational approach and the deficit approach—in the belief that the most comprehensive account of delusions will involve a theoretical unification of both styles of explanation. Of course, it is possible that future research will show that the attempt to have a single overarching theory, desirable though this may be, may turn out not to be successful, in which case we will have to make do with separate theories for different categories of delusions. We hope we have shown, however, that a single overarching theory is not only scientifically desirable, but theoretically viable.

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