

# Chapter 16

## Singular Thoughts, Seeing Doubles and Delusional Misidentification

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**Abstract** In this chapter, I will suggest (i) that Kevin Mulligan has given a powerful analysis which suggests that the descriptive account of perception is incomplete: We perceive not only properties of objects but objects themselves, (ii) that problems for descriptive theories and the solutions identified by philosophers such as Mulligan (following, among others, Husserl; see Mulligan and Smith, *Grazer Philos Stud* 28:133–163, 1986; Mulligan, *West Ont Ser Philos Sci* 62:163–194, 1999) are the basis for contemporary cognitive theories of object tracking, (iii) that theories of object tracking help explain the phenomenology of delusional misidentification syndromes (DMS). DMS are best explained on the assumption that we perceive objects, not just their properties. The objects in question are *selves*. The claim defended here is that when we see a familiar face we see *a particular person*, not merely an assembly of facial features from which we infer the identity of their owner. The way in which we see that person is the same way in which we *see an object in virtue of its perceptual appearance*.

**Keywords** Delusions · Capgras delusion · Singular reference · Identity · Object tracking · Person files

### 16.1 Introduction

In this chapter, I extend some ideas about the relationship between perceptual content and demonstrative reference developed by Kevin Mulligan into an unfamiliar area: the explanation by cognitive scientists of delusional misidentification syndromes (DMS). At face value the link is not obvious. In DMS, a patient might say ‘my father has been replaced by an imposter’ (Capgras delusion); ‘I am constantly being followed by a stranger disguised as my father’ (Fregoli delusion); ‘the person I am looking at is transforming into another person’ (delusion of intermetamorphosis) (de Pauw and Szulecka 1988; Spier 1992; Ellis et al. 1994; Ellis 1998; Breen et al. 2000a, b). How can an account of the relationship between perception and reference be relevant to the explanation of these disorders?

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The answer lies in the fact that all these disorders involve a mismatch between the perceptual representation of a face and *the individual to whom that face belongs*. On most theories that mismatch is produced by malfunction in a cognitive system which maps representations of facial features to a representation of the individual to whom they belong. In the Capgras delusion, a familiar face is not matched to the right individual; in the Fregoli delusions, a series of different faces are intractably matched to the same individual and in intermetamorphosis the same face is mapped to a series of individuals. Importantly, that mapping is a quasi-perceptual, cognitively impenetrable, process (Ellis and Young 1990; Stone and Young 1997). The words of the patients report *experiences* of mismatch between appearance and identity which are produced by a face-recognition system whose functioning cannot be altered from the ‘top-down’ (Bayne and Pacherie 2004). This perceptual aspect of the DMS is the basis for cognitive theorising about their aetiology.

Thus, these disorders raise in acute form a quite general problem faced by theorists of perception. Namely, how we identify *individuals* on the basis of their perceptually presented features (Bedford 2001). The problem is that perceptual experience, on some accounts, presents us not with representations of individual objects but with representations of their properties. For example, seeing a yellow-billiard ball consists in seeing the properties of being spherical, yellow, shaded in a certain pattern. But these are all properties, which are not unique to that particular ball, they are in principle properties which could attach to any object. Thus, it seems that perception presents us not with representations of individual objects (*this* billiard ball) but with representations of the collections of properties (spherical, yellow, partly shaded, etc.). On this *descriptive* account of perception we never directly perceive individual objects, rather we perceive bundles of properties from which we *infer* the existence of an object which instantiates them. This inference may be tacit and cognitively impenetrable, but it is an inference nonetheless.

Using a distinction familiar from metaphysics we can say that if descriptive theories are true perception tracks are *qualitative* not numerical *identity*.

The descriptive view of perception goes naturally with some theories in cognitive science which treat perception as feature detection (Treisman 1998). On these views, perceptual systems keep track of features of the environment, constantly updating a description of the perceptual scene according to the flow of ambient information detected by sensory arrays.<sup>1</sup>

That perceptual systems are feature detectors is not in dispute: A crucial question, however, is whether that is *all* they are. If perception is exhausted by feature detection then we are never in direct perceptual contact with *objects* but only with bundles of co-occurring properties. In the remainder of this chapter, I will suggest (i) that Kevin Mulligan has given a powerful analysis which suggests that the descriptive account of perception is incomplete: We perceive not only properties of

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<sup>1</sup> It is not necessary to this descriptive view that representations produced by feature detecting systems are linguistic. Properties might be represented simply by covariation with internal properties of the feature-detecting system. The important point is that the covariation tracks changes in properties not individuals.

objects but objects themselves, (ii) that both the problem for descriptive theories and the solutions identified by philosophers such as Mulligan (following, among others, Husserl; see Mulligan and Smith 1986; Mulligan 1999) are the basis for contemporary cognitive theories of object tracking, (iii) theories of object tracking help explain the phenomenology of DMS. DMS is best explained on the assumption that we perceive objects not just their properties. The objects in question are *selves*.

The claim defended here is that when we see a familiar face we see *a particular person*, not merely an assembly of facial features from which we infer the identity of their owner. The way in which we see that person is the same way in which we see *an object in virtue of its perceptual appearance*.

Precisely, how we do this is the difficult question faced by theorists of perception. The question becomes very important to cognitive neuropsychiatrists trying to understand DMS because the form the answer takes will dictate the conceptualisation of the disorder. In the remainder of this chapter, I suggest that work such as Mulligan's provides the right conceptual framework.

## 16.2 Preliminary Distinctions

Before we proceed, we need to distinguish three versions of descriptive theories: metaphysical, semantic and perceptual. The metaphysical theory we might call the bundle theory of objects. This is the view that there are no objects which instantiate properties, only collections of properties. On reductive analysis, the yellow-billiard ball turns out to be the co-occurrence of a bundle of microphysical properties and their relations which produce the perceptible properties of yellowness, sphericity, etc. Strictly speaking there is no billiard ball per se just a collection of properties which co-occur more or less reliably (Lowe 1992). The most famous version of this view is of course Hume's theory of personal identity, in which the persisting self is nothing more than a bundle of psychological states. There is no self qua enduring object which exists through time, just a bundle of causally connected psychological states. We never experience *ourselves*, just a flux of psychological properties.

The metaphysical thesis is a view about the ultimate nature of reality and could be true or false independently of the semantic and perceptual versions of descriptive theories of objecthood. It seems to be the case that a fundamental feature of language is *reference* to individual objects. When we talk or write about a billiard ball or a tiger changing colour or shape or a person growing older we refer to an individual object which remains constant while its properties change. Theories of reference cannot analyse this phenomenon away and it persists as an ineliminable feature of language, irrespective of how metaphysical controversies about the nature of objects are resolved.

Similarly, whether perception involves the representation of individual objects is a question which cannot be resolved independently of both the metaphysical and semantic questions. It could be the case that there are no objects, and it might be the case (at least for some objects with a uniquely identifying set of properties

in the actual world) that descriptive theories of reference are sufficient to explain singular reference. But the metaphysical and semantic adequacy of descriptive theories would not automatically resolve the question of whether we *see* objects or properties. Humans might be engineered to get around their world by perceiving it as populated by clusters of nonaccidental regularly co-occurring properties, *or* by perceiving objects which instantiate those properties. Evolution might be blind to metaphysical and semantic distinctions.

Metaphysics and semantics, however, provide hypotheses about the nature of objects and properties which can frame inquiry into the psychology of perception. For example, suppose that we do in fact succeed in parsing the structure of perception sufficiently to determine whether in fact objects or properties are represented in perceptual experience and that we conclude that we perceive objects. What are these objects and how can we see them given that they are always detected in virtue of their perceptible properties? Here, metaphysics offers a menu of possibilities. Objects might be represented in experience as haecceities (the property of being this particular thing), bare particulars, individual substances, substance sortals or as components of irreducible object property complexes.

### 16.3 The Inadequacy of Descriptive Accounts

Mulligan proposes a solution to the problem of perception as part of a solution to the problem of singular reference. In fact, given the dependence of singular reference (that is the process of naming or indicating a unique individual) on perception it is not surprising that the structure of the problem for descriptive theories of reference and descriptive theories of perception appears the same:

It would a priori be very surprising if an account of the way language works were to be independent of an account of perception. Perception and language are two of our most basic capacities. Two features of linguistic behaviour, at least, are common to humans and many other animals: expression or indication and signalling or steering (the dances of bees) and these are inseparable from perception. In very many ways, representation, the coordination of words and objects, grows out of and relies on, indication and steering. (Mulligan 1997)

The point is that the ability to refer to individuals is not something which is created by language. Rather singular reference depends on the prior perceptual ability to pick out individuals. In fact Mulligan argues, *only* those linguistic expressions whose use essentially involves perception can succeed in singular reference: that is to a unique individual.

We can see this when we look at the way descriptive terms refer. It is commonplace that descriptive reference which predicates properties of individuals cannot succeed in picking out unique individuals. ‘The man standing in the corner wearing glasses’ is a description potentially satisfied by more than one individual. Making the description more precise does not solve the problem since it only adds another descriptive component.

Thus, the difficulty for descriptive theories is, in effect, that definite descriptions can only ever provide conditions for establishing qualitative identity. That is to say

that two individuals whose properties are identical can satisfy the description. But when we use the name ‘Castor’ we want that name to refer to Castor not his twin, Bollux. If, however, we substitute a definite description for ‘Castor’ then we also refer to Bollux.

The first step in the solution is to appeal to something like a demonstrative sense: the linguistic equivalent of pointing to *this particular man*. But of course that alone cannot complete the task of securing reference. As Mulligan points out, the only way to provide the link is to complete that demonstrative by linking it to an episode of perception. ‘The one we are looking at now’:

Let us suppose, to begin with, that demonstratives, like proper names, have a sense which is simple and is grasped or instantiated by the speaker. This sense is incomplete. What completes it? *Veridical perceptual content*. (my italics) (Mulligan 1997)

If I point to the corner and verbally direct your attention to a man wearing glasses then I succeed in referring to him, provided you correctly see him and attach my description to the man you see. The description is supplemented by the demonstrative indication *which is in turn completed by the perceptual identification of the man in question*.

But as Mulligan then points out, in order for perception to anchor singular reference in this way the content of the perceptual episode must pick out an individual. Otherwise the explanation is circular: If perceptual content is descriptive then it cannot solve problems for descriptive theories of reference.

Mulligan draws the distinction between descriptive and nondescriptive in terms of a distinction between conceptual and nonconceptual. By conceptual he means able to be the object of a judgement (or a component of a thought which can be the object of judgement). Conceptual content is detected by its intensional logical properties: Sameness of conceptual content of two referring expressions does not guarantee the numerical identity of the objects referred to. Two expressions with the same intension do not necessarily have the same extension. Similarly, two perceptual episodes with the same intension or conceptual content (‘yellow’, ‘spherical’) do not necessarily have the same extension (this particular billiard ball). Thus, conceptual content is descriptive in the sense we are using it.

Consequently, there must be some aspect of perceptual content which is nonconceptual (or as he might put it purely extensional) if an episode of perception is to be genuinely singular. We must be able to see *this thing* not merely those of its properties, which can also be borne by another identical or similar thing. As Mulligan puts it, the content of the perceptual demonstrative must be nonconceptual.

Mulligan quotes Husserl on this point:

I say ‘this’, and now mean the paper lying before me. Perception is responsible for the relation of my word to this object, but my meaning does not lie in perception. An act of this-meaning builds itself on my perception, depends on it. Without the perception—or some correspondingly functioning act—the pointing would be empty, without definite differentiation. For the indeterminate thought of the speaker as pointing to something... is not the thought we enact in the actual pointing. (Husserl LI, VI, § 5) (Mulligan 1997, p. 126)

Thus, if perception is to anchor singular reference the content of perception cannot be descriptive, on pain of circularity.

## 16.4 Seeing Things. Object Tracking

A crucial point made by Mulligan is that when we turn our attention from language to perception we turn from a phenomenon (semantic theory) often conceptualised as static and context independent to one which is dynamic. For semantic theory, the problem is dramatised by indexicals and demonstratives. A context-free rule of reference for such singular expressions is always incomplete. If 'here' refers to a particular place then a rule such as "“here” refers to the place where it is uttered" cannot secure reference. It needs to be supplemented on the occasion of use by some way of tracking the actual location: 'This place'. But the demonstrative is also incomplete unless we can somehow link it to perception of the location.

Which means, in fact, that perception must function in a dynamic way: It must be able to track objects independently of any descriptive content in order to serve as an anchor for descriptive content. This must be the case because descriptive content is constantly changing: As we move around the room while fixing our gaze on an object the descriptive content of perception changes.

Perceptual theorists thus note that one problem faced by perceptual processing is to construct what they call a 'structural description' of the object which preserves the context invariant properties. Thus, we continue to see constancies in colour and shape despite fluctuations in the retinal information.

However, as we saw above, identity even of such abstract descriptive content, does not necessarily secure identity of objects perceived. If we switch our gaze among apparently identical objects we need to be able to detect whether we are seeing one or many.

As perceptual theorists put it:

we are constantly confronted by informational samples which originate from different times and places, both within and across modalities. In these cases we need to determine whether these samples comes from the *same object undergoing a change* (e.g. of location, colour or some other perceptible property) *or from different objects*. (Bedford 2001)

Perceptual scientists have investigated this phenomenon in depth, confronting subjects with arrays of moving objects and varying their properties such as colour, size, shape location and trajectory while occluding and unmasking them during a short scenario (Pylyshyn 1984, 2001; Haladjian and Pylyshyn 2006). Subjects are asked to keep track of the objects during the scenario, a task which implies an implicit representation of the distinction between numerical and qualitative identity and other experimenters have reached to two important conclusions. The first is that spatiotemporal continuity is insufficient for the representation of numerical identity. Instead, the perception of a set of properties at a location causes the representation of an object which then is tracked through its changes in location and appearance. As long as the objects stay 'bounded' people tend to judge that they are the same object. The second conclusion is that the *identity of objects is represented in perceptual experience*.

Pylyshyn describes the route to this conclusion, in terms, strikingly reminiscent of Husserl and Mulligan:

If perceptual representations are to be grounded in the physical world then a causal link is essential at some stage in the process. The usual link that has been assumed is a semantic one—the objects that fit a particular description are the ones picked out and referred to. While this may be generally true this cannot be the whole story since it would be circular. The symbolic description must bottom out—must be grounded in objects or properties in the perceptual world. Recent evidence has suggested that the grounding is done in *objects rather than properties*. (Pylyshyn 2007) (My italics)

When we attend to a set of features our perceptual experience includes a representation of the particular object which has those features. Perception, scientists call the representation of the object which remains in existence while properties change an ‘object file’. Metaphysicians call such a representation a ‘substance sortal’ which can be defined as the representation you need in order to count identical objects such as skittles, billiard balls or clones. To do so you must be able to represent the distinction between qualitative and numerical identity (Wiggins 1997; Wiggins 2001).

Normally, perceptual appearances are mapped to object files which anchor further perceptual and higher-level processing. Consequently, when we attend to objects we experience them as *particular things* (objects) which *appear a certain way* (i.e. have properties). There is a debate within vision science about whether object files are created in very early visual processing, in order to coordinate automatic sensorimotor actions such as grasping, or whether they emerge when visual attention is driven from the top down to provide information for higher-level integration. Pylyshyn argues for the former view but for our purpose this debate does not need to be resolved. The important point for this discussion is that on either conception *the identity of objects is experienced*. If this is the correct explanation of the phenomenology then appearance and identity are dissociable elements of perceptual experience.

Note also that if Pylyshyn and others are correct then there is empirical support for the idea that perception can anchor singular reference via nondescriptive (non-conceptual) content which identifies objects.

## 16.5 Seeing People: Delusional Misidentification

I noted at the outset that a consideration in favour of the idea that we represent objects is ecological. We need to represent the world as populated with objects in order to engage successfully with it. Perhaps, the most important objects for humans are other people. It matters crucially that we correctly identify other people and our ability to do is quite amazing. People are easily and effortlessly identified under very adverse conditions, in poor light, at a distance, after years of aging or cosmetic surgery.

Theories of face recognition also face the problem for descriptive theories. The face-recognition system confronts a face whose properties (eye colour, shape of nose, relationship between features, etc.) are the basis of identification. It must map



these properties to a particular person in order to identify the owner of the face (Young and Burton 1999; Schweinberger and Burton 2003). Note that it is not sufficient to map these perceptual properties to a name, since the name in that context becomes merely another property to add to the description ('is called Bollux'). The problem is that no such description is sufficient to identify a unique individual who bears all and only those properties. It is always logically possible at least that some other individual also bears those properties.

I suggested above that if the object tracking theory of Pylyshyn is correct then appearance and identity can potentially dissociate in perceptual experience.

Delusions of misidentification seem to be instances where this possibility is realised in the experience of recognising faces. In these cases, subjects see a familiar person but say that they see someone else. Or they see an unfamiliar person but say that they are a familiar person. What seems common to these delusions is an experience in which identity and appearance dissociate.

In what follows, I discuss the Capgras delusion but the account I develop is equally applicable to other DMS. In fact, one advantage of this account is that it seems that it is the only one with the potential to unify the different DMS.

Although the literature is vast, I concentrate on a recent exemplary study by Brighetti et al. who studied a patient, YY, with Capgras delusion (Brighetti et al. 2007). The patient was in some ways atypical because she showed no anatomical deficits or lesions. However, her delusion was entirely typical. It followed an incident in the classroom when she was unable to read her own writing (which suggests a lack of recognitional ability for familiar stimuli). This was followed by an episode of catatonia which led to hospitalisation. Following that episode, she showed reduced emotional warmth to her family and then called the police claiming her father had been replaced by an imposter. For the next 2 months while under psychiatric treatment, she failed to acknowledge six family members and her professor although she had no difficulty identifying other familiars. Eventually, the delusion subsided for all except her father, who she continued to try and unmask as an imposter.

Brighetti et al. tested this patient on photographs of family members (including the father), familiar and unfamiliar faces and neural objects.

Her eye movements were monitored for frequency, location and duration of fixations while she looked at the photos. An interesting and possibly distorting aspect of tests like this is that photographs present static faces, which must affect the scanning process since inferring information from facial expression and gaze direction involves circuits such as the superior temporal sulcus which respond to *expressive movements*.

Her skin conductance response (SCR) was also monitored. SCR is an index of amygdala activation which sets up autonomic response senses as affective feelings. This is important because a standard account of this delusion explains it in terms of loss of affective response to familiar faces. The basic idea of standard accounts is that seeing a familiar face produces an affective response which is used to identify the familiar person (Bauer 1984; Ellis 1986; Tzavaras et al. 1986; Tranel and Damasio 1988; Bruyer 1991; Young and de Haan 1992; Ellis et al. 1993; Young and



Burton 1999; Breen et al. 2000a; Breen et al. 2001; Ellis and Lewis 2001; Lewis and Ellis 2001; Schweinberger and Burton 2003). When that affective response is absent due to damage to circuits which link the amygdala to the face-recognition system, centred on the right fusiform gyrus, we see a familiar person but we do not experience the normal affective response. The delusion is an attempt to explain that experience.

One feature of this standard account is that it is *essentially a descriptive account of person identification*. It assumes that people are identified by facial appearance (a set of perceptual properties) together with an affective response. The affective response is in effect the final property which completes the identifying of definite description.

However, this standard account also predicts that conditions in which amygdala functioning or connectivity is impaired should result in misidentification experiences and this prediction does not seem to be born out.

YY, in fact, showed almost no difference in SCR (taken to be an indicator of amygdala activation which produces an affective response) for familiar and unfamiliar faces, unlike controls who showed the normal increase in SCR for familiars. YY was able to identify all familiars including those for whom she had previously had the delusion and the father for whom the delusion was maintained. This is consistent with the idea that differences in amygdala activation are not the essential element in identification.

However, YY's scanning of faces differed markedly from that of controls. Controls fully explored the faces of both familiar and unfamiliar people. YY, however, showed reduced exploration relative to controls for both familiar and unfamiliar faces. Furthermore, YY showed reduced exploration of familiar faces relative to unfamiliar. Not only that but she showed a different pattern of exploration of faces for those faces which had been the subject of the delusion. Specifically, she did not avoid the eyes.

Interestingly, the patient correctly identified all familiar faces from the photographs even though she retained the delusion for her father.

Brighetti et al. drew some conclusions. First, familiarity, accompanied by SCR, normally leads to more elaborate exploration in the eye region. This is consistent with the idea that exploration of the eye region is essential for inferring social information such as emotion and intention.

However, some patients who have reduced amygdala activation avoid exploration of the eye region. These patients produce the Capgras delusion. As they put it: 'identity recognition of familiar faces associated with a lack of SCR results in gaze avoidance of the eye region.' (196). Brighetti et al. are suggesting that the delusions result from conflicting information. 'This face belongs to X' and 'this face is unfamiliar'. In effect, the subject identifies the seen face but does not recognise her as familiar.

This suggests that amygdala activation is not required to establish the exact identity of the face. Otherwise, the *inconsistency* between identity and unfamiliarity would not be invoked to explain avoidance. Furthermore, if amygdala activation is necessary to establish the exact identity of the face YY and the many other patients who lack SCR would misidentify faces.

Initial versions of the delusion suggested that identity was computed on the basis of familiarity (indexed by amygdala activation which produces affective response to familiars) and appearance. When familiarity is absent, identity cannot be computed and the Capgras delusion results. It is, however, difficult to extend this account to the other delusions of misidentification. For example, if the Fregoli delusion is a consequence of the sense of presence being mismatched to the appearance of a stranger the Fregoli delusion should take the form of a belief that the subject is being followed by a stranger in disguise, not a specific person. Similarly, in delusions of intermetamorphosis if the cause is the waxing and waning of a nonspecific sense of presence while the appearance of the target remains constant the delusion should not report the experience of seeing the target transform into a series of different selves.

Early versions of the standard account recognised this problem and tried to solve it by suggesting that the affective response was specific to particular identities.

Brighetti's account, together with the other evidence we have considered, suggests that identity is matched to appearance *independently of amygdala activity and prior to any abductive process*. This matching process produces experience of identification or misidentification. But how?

There must be such a mechanism because in normal cognition all the properties represented by different elements of the system: appearance, familiarity, semantic information, name are attributed to *the same person*. This representation of identity *anchors* the attribution of different properties.

The solution is to import the concept of an object file into the architecture of face recognition. And in fact, as we noted above, the same considerations which argue in favour of object files also apply to persons. They are things which persist through time despite changes in their properties and can be identified, reidentified and counted. The concept of a person as an enduring entity which undergoes physical and mental changes is essential to human cognition precisely because so much of it revolves around the tracking of identity. Consequently, we need a way to represent a person as an entity independently of her appearance. As Erana et al. put it: 'keeping track of agents seems to require some sort of mechanism for the selection of individuals, the creation of a referential link and its maintenance over time' <http://www.interdisciplines.org/objects/papers/3>.

The question then arises whether the ability to represent persons as numerically distinct individuals which bear properties is a high-level conceptual ability or something much closer to a perceptual ability. If it is the latter, then as with ordinary objects we should be able to represent the identity of distinct persons in experience. In effect, when we see a person we would map appearance to a 'person file' which stands in the same relationship to appearances as object files to appearances of everyday objects.

Erana et al. have proposed that such 'person files' are represented by automatic processes rather than high-level controlled processes. They call them 'agent files'. Representations, which help keep track of perceptible features of conspecifics such as animacy, expressive bodily movement manifesting intentions and emotional expression. These features of the world are processed by specialized systems which

develop early in life. Erana et al. suggest that the integration of outputs of these systems depends on agent files. The infant does not see the expression of concern, a reaching motion, a body. She sees her mother, *this person*, reaching towards her. This hypothesis is ‘an extension of the studies on object individuation and tracking to the domain of perceptual individuation and tracking of entities endowed with agency’.

Erana et al. argued that the concept of an agent file or person file provides a parsimonious explanation of many aspects of infant social cognition, in just the same way as the concept of an object file integrates findings about infant perception and numerical cognition with studies of adult object tracking.

The concept of a person file also economically explains DMS and a range of other conditions which involve misidentification. In particular, the concept of person files explains a subtle distinction between two ways of misidentifying objects and persons which is important to delusions of misidentification.

The distinction is between qualitatively identical duplicates or replicants and distinct individuals who appear the same. Clones or identical twins are *duplicates*. They have identical intrinsic or essential properties and are qualitatively identical. If the Regius Professor of Gender Studies has gender reassignment surgery and extensive plastic surgery in order to make himself indistinguishable from Hilary Clinton he is not a duplicate of the Secretary of State. The Regius Professor does not share the same intrinsic properties although she is now qualitatively identical to Hilary Clinton. If Hilary Clinton had an identical twin she would be a duplicate or clone.

The distinction is important in the case of ordinary physical objects and places since it explains reduplicative paramnesia, in which people say that objects have been duplicated or multiplied rather than replaced or substituted.

Interestingly, some early neuropsychological explanations of the Capgras delusion assimilated it to reduplicative paramnesia treating the misidentification experience as an experience of reduplication. For example, Alexander et al. suggested that ‘the Capgras syndrome may be a form of reduplicative paramnesia with the same pathologic substrate’. Their suggestion was based on a case of a man who on returning home 10 months after being hospitalised after a severe head injury claimed that his family had been replaced by a new family virtually identical to his own. The only difference was that the children looked a year older (Alexander et al. 1979).

There are in fact some reports of the experience of reduplication for persons. Indeed, some theorist have proposed a separate category of ‘Clonal pluralisation of the self’ to explain a patient who claims to have four psychologically and physically identical doubles (Vörös et al. 2000). This patient was, however, schizophrenic so the aetiology of the delusion might be very different from the delusions under discussion caused by lesions to the face-recognition system.

However, close attention to the phenomenology of Capgras delusion suggests that it is not a reduplicative phenomenon. Rather, the experience seems to be of replacement by a different person, an imposter or double rather than a duplicate. If Capgras was a version of paramnesia for people we should expect reports of clones or twins.

While the phenomenology is not transparent from the clinical reports it does seem that the distinction between paramnesia/duplication and substitution/replacement is both conceptually coherent and reflected in phenomenology.

The idea that appearances are mapped to person files gives an elegant explanation of the distinction between replication and substitution which can explain the three classic delusions of misidentification. It also provides an explanation of subtle distinctions in the phenomenology of different cases. Rather than three factors: appearance, familiarity, semantic information being the basis for identification there are now four. Numerical identity is provided by the person file which organizes the integration of the other three types of information.

If this is correct then there may be cases in which representation and integration of any of these elements due to malfunction in the relevant circuitry. These malfunctions can be transient as in fleeting *deja* or *jamais vu* experiences but in the DMS they are produced by more persistent failures of the system.

On this account, we would predict the fractionation of the phenomenology of identification along different dimensions according to the way different elements are combined. We could expect cases of hyperfamiliarity or hypofamiliarity for both identified and misidentified faces. And identification could take the form of establishing qualitative identity (all information intact but the person file absent) or numerical identity.

This account integrates the explanation of the classic DMS in terms of a mismatch between appearance and person file associated with absence or presence of familiarity. The Fregoli delusion is a case of the wrong person file or no person file being mapped to a strange face. In intermetamorphosis a series of different person files are activated by the same face.

Reduplicative phenomena can be explained in terms of inappropriate creation of a new person file for a familiar face.

Similarly, the eerie loss of sense of presence or its inverse ‘hyperfamiliarity’ can be explained by the hypo or hyperactivation of the amygdala by a seen face. Given that the amygdala is activated by early recognitional processes this type of malfunction could arise with or without the activation of the person file depending on the circuitry involved.

Turning to the Capgras delusion, whose explanation is a focus of cognitive neuropsychiatry, there is more than one way it might arise. It seems unlikely that it is a reduplicative phenomenon but it clearly involves a mismatch between appearance and familiarity. On the account above, this could be associated with or without mapping to the correct person file.

Brighetti et al.’s account suggests that the delusion arises as a result of the inconsistency between identification and absence of familiarity which suggests that the correct person file is intact. A case of numerical identity minus familiarity.

Another possibility is that it is a case of the loss of the correct person file, leading to experience of qualitative identity minus familiarity. The consistent reports of imposterhood, violence and suspicion towards the imposter seem to me to support this interpretation. The Capgras subject actually *sees the wrong person*, not a duplicate or the right person minus familiarity.

Given the clinical rarity of DMS and the fact that they often occur in situations which make cognitive theorizing a low priority (Alexander's patient was severely disabled and right hemisphere lesions are often associated with other serious damage) verifying any hypothesis is difficult.

However, there does seem to be one conclusion that we can draw when we combine case studies of DMS with the philosopher's arguments against descriptive theories of perceptual content.

We see people.

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