

## Delusional belief about location (‘reduplicative paramnesia’)

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### **Abstract**

**Introduction:** People admitted to hospital as inpatients following head injury or stroke sometimes form the delusional belief that they are located somewhere else—often, near or in their home. This delusion was first described by Pick (1903), who named it “reduplicative paramnesia”; we argue instead for the term “location delusion”.

**Methods:** We carried out a literature search and identified 112 cases of location delusion published since Pick’s original 1903 case.

**Results:** We found that, in this cohort of patients, the belief about being located elsewhere than the hospital is elaborated into more specific delusional beliefs about just where the patient is located (e.g., beliefs that involve mislocation of the hospital). We identified eight specific location beliefs and offered a two-factor motivational explanation of these eight forms of location delusion. The patient wishes to be somewhere more congenial, that wish becomes a hypothesis (as occurs in normal belief formation), and then, because these patients have impaired ability to evaluate hypotheses, the hypothesis is accepted and maintained as a (delusional) belief.

**Conclusion:** Our previous papers on the two-factor theory of delusional belief focused on fully neuropsychological delusions. Here we propose that this theory can also explain delusions generated by motivational influences.

## Introduction

On January 4, 1903, a 67-year-old woman was admitted to the neuropsychiatry clinic of the German University of Prague, under the care of the Czech neuropsychiatrist Arnold Pick, the head of that clinic. More than four months after her admission, when she was still an inpatient (she had been diagnosed with dementia), she began to express the belief that the clinic in which she was living was not the Prague clinic, but a duplicate of that clinic located in a different place (near Prague) which Pick referred to as “K” and which was her birthplace. Of the Prague clinic where she was an inpatient, at a time when she believed she was living in K, she said, “this is a clinic, too, exactly like the one in Prague” (Pick, 1903, p. 263).

This delusional belief—that a patient’s hospital exists in duplicate, in two different locations, under the same name—was termed “reduplicative paramnesia” by Pick (1903). This term continues to be widely used, and there is an extensive literature reporting studies of this phenomenon, which we review below. But we need first to make some observations about the term “reduplicative paramnesia”.

### *Some terminological clarifications*

The term “reduplicative paramnesia” is an unfortunate one, for several reasons.

Firstly, “paramnesia” means *illusory or distorted memory* and may refer specifically to phenomena such as *déjà vu* and *jamais vu*. Thus, the terminology seems to prejudge the answer to the question whether the explanation of the phenomenon described by Pick (1903) is invariably that the patient has a disorder of memory.

Secondly, although “reduplicate” allows the meaning *to make double*, the prefix “re-” inevitably suggests *to redouble* or *to duplicate more than once*. In cases such as the one described earlier, however, what the patient believes involves just one occurrence of duplication.

A third reason why the term “reduplicative paramnesia” is unfortunate is that it is frequently used in the literature to refer to delusional cases in which, not only is there no reduplication, there is not even any *duplication*. Here the patients’ delusional belief is not that their hospital has been *duplicated*, but rather that it is *located* somewhere other than its true location. In their paper entitled ‘Reduplicative paramnesia’, Benson et al. (1976) reported two head-injured inpatients at the Boston Veterans Administration (VA) Hospital (their Cases 2 and 3), both of whom delusionally believed that the Boston VA Hospital was located in a city other than Boston—not that it had been *duplicated* anywhere.

Case 2 believed that he was in the Boston VA Hospital *and* that this hospital was located in Great Falls, Montana (where earlier in life he had been stationed on an air force base). Case 3 “consistently placed the Boston VA Hospital in Sault St. Marie, Michigan, where he had been stationed in military service several years earlier” (Benson et al., 1976, p. 149). In neither case was it stated that the patients believed that some kind of duplication had

occurred—that is, that there were two versions of the Boston VA Hospital at different locations.

Thus, what Pick’s patient delusionally believed (that there were two versions of her clinic, one in Prague and the other in the nearby place K) differed from what Cases 2 and 3 of Benson et al. (1976) delusionally believed (that the Boston VA Hospital was at a location far from Boston, in Michigan or Montana; here only one such hospital was believed to exist).

This raises a general issue about the heterogeneity amongst such patients of the specific delusional beliefs they have about their location.

### *Forms of location delusion*

For the reasons we gave earlier, we wish to avoid the term “reduplicative paramnesia” and will instead use the more neutral term “location delusion” to refer to cases such as those reported by Pick (1903), Benson et al. (1976) and numerous other comparable cases we refer to below.

Two proposals have been made about how different forms of location delusion might be classified. We do not consider that either of these proposals adequately captures the heterogeneity of the claims made by patients with location delusion about where they are living.

Politis and Loane (2012, p. 338) proposed a three-category scheme:

**Place reduplication** refers to the claim that two places with identical features exist simultaneously, but are geographically distant, which is the variant identified in Pick’s early case study.

**Extravagant spatial localisation (confabulatory mislocation)** presents as a patient claiming that their current location is actually somewhere else, usually a location familiar to them such as their home.

**Chimeric assimilation** presents as the claim that two places have become combined, for example, a patient in hospital claiming that they are in their home, which has somehow become transformed into the hospital (see, for example, Ovelacq et al., 1988).

Politis and Loane (2012) applied their scheme to the classification of cases from fourteen published studies, though no cases were classified as chimeric assimilation (see p. 340, Table 1). Alves et al. (2021, 2023) adopted the same scheme in their study of patients with location delusion following stroke.

This scheme does not, however, distinguish between the type of claim seen in Pick’s case and that seen in the two cases of Benson et al. (1976)—all classified as place reduplication. As we have described earlier, these two types of claim have quite different content—one asserts that a place has been duplicated and the other one does not—so we consider these claims must be treated as belonging to different categories.

Diamantaras et al. (2023) proposed a different three-category scheme in which duplication of the hospital is distinguished from “relocat[ion] without duplication” (p. 13) and a third category similar to chimeric assimilation is retained. This scheme does not, however, include the belief, held by some patients with location delusion, that they are living at home when, in reality, they are hospital inpatients. This particular form of location delusion is far from uncommon amongst patients described as exhibiting reduplicative paramnesia. For example, in the study by Alves et al. (2023), twenty-seven of sixty hospital inpatients with location delusion following stroke claimed that they were living at home. Thus, this claim needs to be included in any classificatory scheme that is intended to be comprehensive.

In short, any comprehensive scheme for classifying forms of location delusion needs more than three categories. Indeed, our scrutiny of the relevant literature suggested to us that as many as *eight* categories are required for a classificatory scheme to be sufficiently comprehensive.

*An elaborated classification of what these patients believe about where they are living or are located.*

Let T be the True location of the hospital (or other medical facility) where the person is an inpatient, N be the correct Name of that hospital, and D be the location where the person Delusionally believes that he or she is living or is located.

What all the patients with whom we are concerned had in common was this: all *did not believe* that they were living in a hospital named N that was located at T.

We include here all patients we could discover who met the following inclusion criteria:

- (a) At the time of testing, the patients were living as inpatients in a hospital named N and located at T.
- (b) At the time of testing, the patients explicitly or implicitly denied that they were living in a hospital named N that was located at T.
- (c) The published documentation of the patients contains sufficient information to tell us what the patients actually did believe about where they were located.

Our survey of the literature resulted in the assembly of a cohort of 112 patients meeting these inclusion criteria. Supplementary Table 1 (ST1) gives the literature reference for each of these 112 cases and a brief description of each case. For each of these patients, we ascertained what belief the patient expressed about where he or she was currently living or located. These ascertained beliefs fell into eight categories, as follows:

1. *The hospital named N at location T has a replica at another location D, and that other hospital is where I am living. There are two hospitals named N. We have already mentioned one example of a patient who asserted this: the case reported by Pick (1903). ST1 lists 11 such cases.*

2. *The hospital named N at location T has a branch or annex at another location D, and that other hospital is where I am living. There are two hospitals named N.* Example: Pignat et al. (2013) reported an inpatient of the University of Geneva Hospital who believed that he was living in a branch of that hospital located in his hometown in Portugal. ST1 lists 17 such cases.

3. *The hospital named N is not located at T but at another location D, and the hospital at that other location is where I am living. There is only one hospital called N.* We have already mentioned two examples of patients who expressed this belief: Cases 2 and 3 of Benson et al. (1976). ST1 lists 14 such cases.

4. *I am living in a different hospital, not the hospital named N.* Example: “Patient 10 was hospitalized in the neurology unit of Geneva University Hospital, but claimed that he was in the Hospital of Sion (about 150 km from Geneva)” (Diamantaras et al., 2023, p. 16). ST1 lists 7 such cases.

5. *My home or a relative’s home has been transformed into a hospital and that is where I am living.* Example: “Where are you? ‘In my house! Last night, you transformed my house and the building into a hospital. The sick and the doctors will come to my house!’” (Ovelacq et al., 1988, patient GD, p. 329; our translation from the original French). ST1 lists 8 such cases.

6. *The hospital named N, or part of it, has been duplicated inside my home, and that is where I am living.* Example: “When asked his location, he stated that he was at home in a branch of the New York Hospital. The patient said that this branch hospital was built in the bedroom of his home, and that he had been transported there by helicopter after surgery” (Ruff & Volpe, 1981, Case 3, p. 384). ST1 lists 8 such cases.

7. *I am living in my home or vacation home, or a relative’s home, not in a hospital.* Example: “This patient ... is convinced of having moved to live in his childhood home in Villefranche de Rouergue (which is several hundred kilometres from Lyon)” (Vighetto et al., 1980, pp. 501–502; our translation from the original French; the patient was an inpatient in Lyon). ST1 lists a total of 41 such cases.

8. *I am not living in a hospital, and not living in my home, I am located at some other kind of place.* Example: Case 1 of Vighetto et al. (1985), who was an inpatient of the Lyon Neurological Hospital, “relocated” himself to a café in the Croix-Rousse area of Lyon, near his home. ST1 lists 6 such cases.

Our eightfold classificatory scheme can be understood as a refinement of Politis and Loane’s (2012) threefold scheme, a scheme also used by Alves et al. (2021, 2023). As we have stated earlier, our view is that the contents of these eight delusional location beliefs are sufficiently distinct that to use only three categories to classify these forms of belief obscures distinctions that need to be made between them.

It might be considered that this eightfold classificatory scheme, while being scientifically justified, is too unwieldy for clinical purposes. For such purposes, the eight beliefs could be grouped into four categories (Table 1), preserving the distinction between mislocation of the hospital with duplication (Beliefs 1 and 2) and mislocation of the hospital without duplication (Belief 3), and the distinction between mislocation of the hospital (Beliefs 1, 2 and 3) and mislocation of the patient without mislocation of the hospital (Beliefs 4, 7 and 8).

**Table 1.** Forms of delusional belief about location. In all cases the patient claims to be living at a location D, different from the true location of the named hospital.

<b>Belief Category</b>	<b>Belief #</b>
<b><i>Mislocation of the hospital with duplication</i></b> I am living at location D in a replica of the named hospital. I am living at location D in a branch or annex of the named hospital.	<b>1</b> <b>2</b>
<b><i>Mislocation of the hospital without duplication</i></b> I am living at location D in the named hospital.	<b>3</b>
<b><i>Mislocation of the patient without mislocation of the hospital</i></b> I am living at location D in a different hospital. I am living at location D in my home. I am living at location D in another place, neither a hospital nor my home.	<b>4</b> <b>7</b> <b>8</b>
<b><i>Chimeric assimilation</i></b> I am living at location D in my home, which has been transformed into a hospital. I am living at location D in a duplicate of the named hospital, inside my home.	<b>5</b> <b>6</b>

### *The two-factor theory of delusion*

Our aim is to apply the two-factor theory of delusion (e.g., Coltheart, 2007, 2010; Coltheart et al., 2011; Coltheart & Davies, 2021b; Davies & Coltheart, 2025) to location delusion and its eight different forms. The application of this theory to the explanation of any delusion always begins with two questions:

What brought the delusional idea or hypothesis to mind in the first place?

Why was the delusional idea or hypothesis adopted and maintained as a belief rather than being rejected—as it should have been—on the basis of available evidence and background knowledge that counted against it?

An answer to the first question indicates a first factor in the explanation of a case of delusion; an answer to the second question indicates a second factor, which results in a failure of hypothesis evaluation.

The two-factor theory has mainly been applied to cases of delusion in which both factors were neuropsychological in nature, but it is not part of the theory that one or both of the two factors must be a neuropsychological impairment (e.g., Coltheart & Langdon, 2019; Coltheart & Davies, 2024).

We turn now to consider the question of how location delusion and its eight forms might be explained.

### **A motivational account of location delusion**

All the patients in our cohort were hospital inpatients. Such patients may well find being in hospital uncongenial: surrounded by strangers, living in an unfamiliar room in an unfamiliar building located in a town to which the patient has, perhaps, never previously been—not to mention the hospital food. It would not be surprising if they wished that they were living somewhere else—somewhere more congenial. So there is a motive for any of these patients to adopt such a belief—“I am living at location D”, where D is a location distinct from the patient’s true location in hospital.

There are several suggestions in the literature (e.g., Prigatano, 1996; Turnbull et al., 2004; Weinstein, 1996; Weinstein et al., 1952; Weinstein & Lysterly, 1968) that motivation is causally implicated in the genesis of the delusion with which our paper is concerned. None of these authors, however, offers any account of just how motivation might be involved in bringing the delusional idea to the patient’s mind, or of just how motivation might be involved in the (incorrect) adoption and maintenance of the delusional idea as a belief once that idea has come to mind. We consider that a motivational account of this delusion is plausible; so we attempt here to flesh out such an account, using our two-factor approach with a motivational first factor. Our first step in doing this is to discuss the role of motivation in everyday (i.e., nonpathological) belief formation.

#### *From wishes to beliefs via hypotheses*

As Coltheart and Davies (2021a, p.1) discuss, in everyday life

People acquire new beliefs in a variety of ways. One of the most important of these is that new beliefs are acquired as a response to experiencing events that were not expected.

Another important source of new beliefs is the testimony of others—either others whom one trusts, or others whom one believes to have relevant expertise.

And a third important source of new beliefs is *motivation*. There is abundant evidence that people sometimes adopt beliefs, not to try to explain what had been unexpected, nor as a response to the testimony of others, but because they *wish* something to be true.

As Gilovich (1991, p. 76) said, people “tend to make optimistic assessments of [their] own abilities, traits, and prospects for future success”. For example, in a questionnaire study of 596 university professors with teaching responsibilities, 94% rated themselves as above average, and 68% rated themselves in the top quarter, on teaching performance (Cross,

1977, pp. 9–10). Thus, a substantial proportion of these professors made overly optimistic assessments of their own teaching performance. These are examples of the *better-than-average effect*: “people express exalted beliefs about themselves that are arguably too positive to be objectively possible” (Krueger et al., 2005, p. 6).

This motivated adoption of belief is a widespread phenomenon, which is so clearly present in healthy individuals that it cannot be regarded as pathological. But we still need an account of the processes that lead from the motivating *state*—a wish—to the motivated *belief*. It is widely agreed that this is not a matter of direct causation of the belief by the wish:

[P]eople don't *simply* believe what they want to believe. The psychological mechanisms that produce motivated beliefs are much more complicated than that. ... People generally *reason* their way to conclusions they favor. (Epley & Gilovich, 2016, p. 133)

It is important, however, that we should not immediately focus on the processes involved in hypothesis evaluation, without considering the prior processes of hypothesis generation. Kruglanski (1989) emphasised this distinction (though he focused on knowledge rather than belief, and used the term “validation” rather than “evaluation”):

[T]he acquisition of knowledge contains two aspects: (1) Propositional contents must be generated somehow. This implies an aspect of *hypothesis generation*. (2) A given degree of confidence must be bestowed on the hypotheses generated. This implies an aspect of *hypothesis validation*. (p. 10)

Many years earlier, the American pragmatist philosopher Charles Sanders Peirce (1839–1914) gave an account of hypothesis generation and evaluation, which we have developed into an eight-step model of the normal pathway from surprising facts to new beliefs (Coltheart & Davies, 2021a, 2021b; Davies & Coltheart, 2020, 2025). Motivated beliefs arise from a motivating wish rather than from observation of a surprising fact, but the central role of a hypothesis, and the distinction between hypothesis generation and hypothesis evaluation, remain crucial. We consider that the motivating state is translated into a hypothesis—a proposal about what is the case, a candidate for belief—which is subsequently adopted as a belief.

Consider the first transition—from motivating state to hypothesis. We assume that the faculty members in the Cross (1977) study wanted it to be true that they were above average, or even in the top quarter, on teaching performance. They found thinking about the possibility that they were below average to be aversive and thinking about the possibility that they were above average to be more pleasant (Pyszczynski & Greenberg, 1987; Trope & Liberman, 1996). Consequently, they were led to entertain the hypothesis that they were above average: “people tend to generate and choose desirable, rather than undesirable, possibilities as their focal hypotheses” (Trope & Liberman, 1996, p. 258; see also Trope et al., 1997, p. 113).<sup>1</sup>

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<sup>1</sup> Mele (1998, p. 358) provided an example of the first transition: “Ken wants it to be true that he is the best player on his baseball team and this desire suggests to him the hypothesis that he is the best player”.

Now consider the second transition—from hypothesis to belief—which depends upon the process of hypothesis evaluation. It might, in principle, be that motivation influences hypothesis generation but not hypothesis evaluation. Indeed, Kunda (1990) said:

One intriguing possibility is that the motive, or goal, merely leads people to ask themselves whether the conclusion that they desire is true ... Standard hypothesis-testing processes, which have little to do with motivation, then take over and lead to the accessing of hypothesis-confirming information and thereby to the arrival at conclusions that are biased toward hypothesis confirmation. (p. 494)

But Kunda also allowed the possibility that “motivation leads to more intense searches for hypothesis-confirming evidence” (p. 495)—that is, motivation influences hypothesis evaluation. Gilovich (1991) provided an example of such motivationally biased gathering of evidence: “By judiciously choosing the right people to consult, we can increase our chances of hearing what we want to hear” (pp. 81–82).

In summary, healthy individuals’ motivated beliefs can be understood as resulting from two transitions. The first transition is from a motivating state to a hypothesis (hypothesis generation), and the second is from the hypothesis to adoption of that hypothesis as a belief (a transition which depends upon hypothesis evaluation).

#### *Stages in the development of the delusion*

Here we describe a sequence of stages, beginning with a patient who finds being in hospital uncongenial and culminating in that patient adopting one or another of the eight forms of location delusion defined earlier (see also ST1).

#### *Hypothesis generation*

The first five of these stages closely follow the account that we have given of the formation of motivated beliefs in healthy individuals.

*Stage 1:* Patients find their current circumstances uncongenial. They do not feel ‘at home’ living in the hospital.

*Stage 2:* Patients *wish* that they were living somewhere else, somewhere more congenial.

*Stage 3:* Patients interrogate their memory to produce an example of a location, D, which is a place (or near a place) where they have previously lived and which they found congenial. They instantiate the generic wish from Stage 2, “I wish I were living *somewhere more congenial*”, as the more specific: “I wish I were living *at location D*”.<sup>2</sup>

*Stage 4:* Patients find thinking about living in their current circumstances to be aversive and thinking about living at location D to be more pleasant.

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<sup>2</sup> As per our previous discussion, D stands for Delusional; but in the present context it also stands for Desired.

*Stage 5:* Consequently, patients propose, as a hypothesis, that they are living at location D. As we have noted earlier, this transition from motivating state to hypothesis is characteristic of normal motivated belief formation.

These first five stages provide an answer to the question:

What brought the delusional idea or hypothesis, “I am living at location D”, to mind in the first place?

This answer indicates the first factor in location delusion. The patient does not feel ‘at home’ living in the hospital and has a strong wish to be living somewhere more congenial.

Alternative potential answers to this question, indicating other candidate first factors such as hyperfamiliarity, or failure to use spatial memories and personally relevant emotional information to update location, or disconnection of premorbid memories from new memories, might be drawn from the literature (e.g., Alves et al., 2021, 2022; Diamantaras et al., 2023; Staton et al., 1982; see Green et al., 2024, pp. 49–50 for discussion). It might be argued that these candidate first factors would or could prompt the location delusional hypothesis, “I am living at location D”. But these candidate first factors suffer from the fact that, while they apply to some patients with location delusion, they do not apply to others. We would face the theoretical complication that there would have to be a multiplicity of first factors, with no requirement that any two patients would have the same first factor. The aim of the present paper is to investigate the prospects for an account of location delusion on which the first factor is the same in all these patients.

#### *Hypothesis evaluation*

It is at the next stage that the patients first depart from normality and head towards delusionality.

*Stage 6:* Patients apply processes of hypothesis evaluation to the hypothesis “I am living at location D”.

Hypothesis evaluation should result in rejection of this hypothesis, since much evidence and background knowledge is available to the patient that contradicts the hypothesis that they are living at location D. But the hypothesis is not rejected at this stage, as it ought to be.

*Stage 7:* Patients adopt and maintain the belief “I am living at location D”. Since this belief is adopted and maintained in the face of much evidence and background knowledge that contradict it, it counts as a delusional belief.

Stages 6 and 7 provide the outline of an answer to the question:

Why was the delusional idea or hypothesis adopted and maintained as a belief rather than being rejected—as it should have been?

This answer indicates the *result* of the second factor in location delusion. In contrast to healthy individuals, these patients have an impairment of the hypothesis evaluation procedures that are part of the system for belief formation.

#### *The nature of the second factor in location delusion*

To say that patients fail to reject the delusional hypothesis because of impaired hypothesis evaluation is not to say very much. It immediately invites the question of what causes this impairment in these patients. What is the nature of the second factor?

A prior question is: What is the nature of the hypothesis evaluation task? It involves inhibiting any prepotent bias toward simply accepting the hypothesis as true; considering a body of evidence and background knowledge that does not all point in the same direction; recognising that some of this evidence and background knowledge counts against the hypothesis; and then weighing up and working out whether the hypothesis should be adopted as a belief or rejected. In short, hypothesis evaluation involves (at least) maintenance and manipulation of information—that is, working memory—and executive functions of inhibition and error detection (mismatch detection).

We propose that, at least in some patients, failure to reject the delusional hypothesis is due to damage to right dorsolateral prefrontal cortex (rDLPFC), a form of damage which is known to be associated with impaired hypothesis evaluation (Coltheart 2007, 2010; Coltheart et al., 2018). For example, Diamantaras et al. (2023) compared patients with reduplicative paramnesia (RP) with a control group of patients with severe spatial disorientation but without signs of RP. Their findings were consistent with the proposal that the second factor in location delusion is damage to rDLPFC leading to impaired executive functions (see p. 21, Figure 7).

VLSM [voxel-based lesion symptom mapping], statistically contrasting the lesions of the RP patients with those from the control group, showed a specific involvement of the right dorsolateral prefrontal cortex in patients with RP.

Executive functions including impulse control, mental flexibility, error detection and correction as well as planning were moderately to severely impaired in ten patients reporting RP (100%), while only five patients of the control group showed moderate to severe executive deficits (45%;  $p = .01$ ). (p. 17)

In patients with more general frontal damage, impaired executive functioning might be accompanied by other frontal symptoms such as indifference, lethargy, inappropriate contentment with current status, euphoria, impulsivity, or aggression (Benson & Stuss, 1990; Stuss, 2011). For example, Benson et al. (1976) said: “Frontal lobe pathology ... was marked in our patients” and they offered the “blandness and unconcern” of their patients as further evidence of frontal disturbance. They then connected the frontal damage with the patients’ “prolonged inability to correct the reduplicative phenomenon” (p. 150).

The Wisconsin Card Sorting Test (WCST) is a demanding test of executive function, involving set-shifting, complex working memory operations, error detection and feedback utilisation (Lie et al., 2006). Ruff and Volpe (1981) reported impaired performance on the Wisconsin Card Sorting Test when their patients (with right frontal lobe injury) were delusional, but

normal performance as the patients recovered.<sup>3</sup> Further support for the claim that hypothesis evaluation involves working memory and executive functions is provided by a study of seven patients at least three months post-stroke, with varying degrees of anosognosia for their motor impairments (Aimola Davies et al., 2009). Only three of fifteen test scores from the neuropsychological assessment were significantly predicted by the severity of the patients' anosognosia. Two were scores on the WCST; the other was a working memory test with an inhibitory component.<sup>4</sup>

It is also of interest that, in a study of 328 patients with focal lesions who performed the WCST, Perseverative Errors scores were associated with right prefrontal cortex (PFC) lesions “from dorsolateral PFC to the frontal pole and mostly focused in the underlying white matter” (Gläscher et al., 2019, p. 5).

We have previously made a specific proposal (Coltheart & Davies, 2021b) as to the cause of impaired hypothesis evaluation in at least some delusional patients; namely, that they have an excessive bias against disconfirmatory evidence (consistent with impairment of error detection or feedback utilisation). Two paradigms have been used to investigate such a bias. In the BADE task (e.g., Sanford et al., 2014), subjects rate the plausibility of hypotheses as successive pieces of evidence are presented. In the riddle task (Vocat et al., 2013), subjects guess a target word as successive clues are presented. (For details of these paradigms and evidence indicating that the bias is associated with delusion, see Davies & Coltheart, 2025, Sections 5 and 6).<sup>5</sup> Investigation of a possible bias against disconfirmatory evidence in patients with location delusion might therefore be informative about the nature of the second factor in this delusion, but there have not been any such studies to date. Nor have there been any other studies directly aimed at assessing hypothesis evaluation in patients with location delusion.

#### *Motivational and cognitive components*<sup>6</sup>

According to our two-factor account of the simple delusional belief, “I am living at location D”, is there any interplay between motivational and cognitive components?

To see how there might be such interplay, consider Turnbull et al.'s (2014) psychological defence account of anosognosia for motor impairments. First, damage to the right hemisphere of the brain results in a cognitive deficit—an impairment of the cognitive processes of emotion regulation—which, in turn, results in emotionally motivated (wishful) denial of left-side paralysis:

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<sup>3</sup> Ruff and Volpe (1981, p. 383, Table) reported WCST scores for Categories Achieved during RP/during recovery (maximum possible score = 6): Case 1: 1/4; Case 3: 2/6; Case 4: 0/5.

<sup>4</sup> The WCST scores were Categories Achieved and Perseverative Errors. The other score was for the Elevator Counting with Distraction subtest of the Test of Everyday Attention (Robertson et al., 1994).

<sup>5</sup> There is an extensive literature about the BADE task, but the task has not been used with delusional patients who do not have a diagnosis of schizophrenia. The riddle task has been used with patients with anosognosia for hemiplegia (Vocat et al., 2013) and patients with anosognosia for hemianopia (Klingbeil et al., 2024). Green et al. (2024) suggested: “More widespread use of simple inference tasks (e.g., the riddle task ...) would allow for further exploration of variability between populations who do and do not exhibit neurological delusions” (p. 53). Vocat et al.'s riddle task is similar to the Word Context Test in the Delis-Kaplan Executive Function System (D-KEFS; Delis et al., 2001).

<sup>6</sup> Comments and questions from a reviewer prompted this brief section.

We argue that damage to the right-lateralised system of emotion-regulation is a key deficit in these patients, causing them to default to such ... responses as [wishful] denial. (p. 23).

Thus, Turnbull et al. offer a neuropsychological account of what brings the delusional idea or hypothesis—denial of paralysis—to the anosognosia patient’s mind; and, in this account, there is interplay between cognitive and motivational components.

Second:

The defence account explains why patients [with anosognosia] continue to hold their false beliefs in the face of all logical argument and empirical evidence to the contrary. (p. 22)

Thus, Turnbull et al., offer an account of the patient’s cognitive failure to reject the delusional hypothesis in terms of psychological defence—emotionally motivated denial. So, once again, there is interplay between motivational and cognitive components.

Our two-factor account of location delusion is quite different. The first factor is purely motivational—there is nothing neuropsychological about it. The stages up to the proposal of the delusional hypothesis are characteristic of normal motivated belief formation. The second factor is not motivational at all; it is purely neuropsychological. Damage to rDLPFC results in impaired executive functions and, consequently, impaired hypothesis evaluation.

Turnbull et al. said:

We envision that there is a kind of trade-off between [cognition and emotion], so that the greater the damage to cognitive regulation of emotion, the greater the influence of emotion on cognition. (p. 21; see also Turnbull & Salas, 2017)

The greater the interplay between cognition and emotion/motivation in hypothesis generation, the greater the interplay between emotion/motivation and cognition in hypothesis evaluation.

In our two-factor account of location delusion, there is no interplay between two kinds of component in hypothesis generation, nor in hypothesis evaluation. But there may be a kind of interplay between emotion/motivation in hypothesis generation and cognition in hypothesis evaluation. It is important here that, in cases of delusion, hypothesis evaluation is impaired but not abolished. This allows the two-factor theory to explain the specificity of delusions.<sup>7</sup> A hypothesis that is only fleetingly suggested by something a person has observed once might be successfully rejected in response to disconfirmatory evidence, even though a hypothesis that is continuously and strongly supported by its first factor is adopted and maintained as a belief in the face of equivalent disconfirmatory evidence. We suggest that this account would extend to a hypothesis that was continuously and strongly supported by a motivational first factor. Cognitive impairment of hypothesis evaluation,

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<sup>7</sup> See Coltheart, 2007, pp. 1056–1057, ‘Why is only one belief wrongly evaluated?’; Coltheart et al., 2011, pp. 288–289, ‘The specificity of delusions’.

resulting from a neuropsychological second factor, would allow a hypothesis strongly wished to be true to avoid rejection.

### **An inferential account of eight forms of location delusion**

We have applied the two-factor theory of delusion to the simple delusional belief “I am living at location D” (where D is a location distinct from the patient’s true location in hospital). We have proposed that the first factor is motivational, while the second factor is neuropsychological.

The question that arises now is how this simple delusional belief about living at location D is elaborated into, for example, beliefs about duplication of the hospital or about a patient’s home being transformed into a hospital. That is, how does the belief “I am living at location D” become one of the eight delusional beliefs about location that are present in our cohort and listed in Supplementary Table 1?

*Stage 8:* There are two questions here. What prompts the process of elaboration? And what is the nature of the elaboration process? In response to the first question, our proposal is that the process of elaboration is triggered by information that might seem to be in tension with, or even incompatible with, the patient’s simple belief, “I am living at location D”. Such information might arise from routine questioning by medical staff or from the patient’s own observations, or it might be existing background knowledge.

In response to the second question, our proposal is that the elaboration process is inferential—whether deductive, inductive, or abductive. In this inferential process, the simple belief, “I am living at location D”, is maintained incorrigibly and with subjective certainty, consistent with its status as a delusion. Other premises for the inference are provided by true information that the patient accepts (knows or believes). A similar idea has been proposed by Vighetto et al. (1985, p. 479):

[The patient] offered a speech which ... testified to an amalgamation between a conviction of ‘relocation’ in her home and certain elements of reality.

#### *The inferential process of elaboration*

We consider six types of patient (A–F) to illustrate our proposal.

*Beliefs 1 and 2 (duplication of the hospital):* Patient A believes, “I am living at location D”, accepts that he is in a hospital that is named N, and knows that there is a hospital named N at location T (distinct from location D). Patient A infers and believes that he is living in a *second hospital named N*, located at D.

Patient A might believe that this second hospital named N is a replica of the hospital named N located at T (Belief 1), a belief expressed by a patient described by Hinkebein et al. (2001); or might believe that it is a branch or annex of the hospital named N located at T (Belief 2), a belief held by Case 2 of Diamantaras et al. (2023).

*Belief 3 (mislocation of the hospital without duplication):* Patient B believes, “I am living at location D”, and accepts that he is in a hospital that is named N. Patient B infers and believes that he is living in a hospital named N at location D. Case 1 of Paterson and Zangwill (1944) is an example.

*Belief 4 (mislocation of the patient without mislocation or duplication of the hospital):* Patient C believes, “I am living at location D”, and accepts that he is in a hospital. Patient C believes that there is a hospital at location D, and that the hospital is not named N. Patient C infers and believes that he is living in a hospital at location D, that is not named N. The patient reported by Nighoghossian et al. (1992) is an example.

*Beliefs 5 and 6 (chimeric assimilation)*<sup>8</sup>: Patient D believes, “I am living at location D”, where location D is the patient’s home. Patient D also accepts that he is in a hospital. Patient D does not treat his being in a hospital as evidence against the simple delusional belief that he is living in his home. He does not evaluate that belief—still less does he reject the belief.

Rather, Patient D amalgamates being in his home with being in a hospital. He accommodates the evidence for his being in a hospital in a way that appears (at least superficially) to be consistent with his belief that he is in his home—which is maintained incorrigibly and with subjective certainty. This ‘accommodation’ is achieved by adopting the belief that part or all of his home is now a hospital.

Patient D might believe that his home has been transformed into a hospital (Belief 5), a belief expressed by Case 2 of Vighetto et al. (1985); or might believe that a hospital has been constructed within his home (Belief 6)—for example, in a bedroom<sup>9</sup>—a belief held by the four cases described by Ruff and Volpe, 1981).

In reality, of course, this chimeric assimilation does not accommodate all the available evidence of the patient’s being in a hospital; it accommodates only a small subset of the evidence and at the cost of massive implausibility.

*Belief 7 (at home):* Patient E believes, “I am living at location D”, where location D is the patient’s home, and accepts that his home is not a hospital. Patient E infers and believes that he is living in his home, not in a hospital, a belief expressed by Case BN of Levine and Grek (1984).

*Belief 8 (neither hospital nor home):* Patient F believes “I am at location D”, where location D is *not* the patient’s home. The patient does *not* accept that he is in a hospital. He knows that there is a familiar and congenial place at location D. He infers and believes that he is in this congenial place at location D. Earlier, we offered Case 1 of Vighetto et al. (1985) as an example. However, it is not clear just how well some others of the six cases of this particular

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<sup>8</sup> Chimeric assimilation is defined as “two places becoming combined, for example, a patient in hospital believes that they are in their own home which has somehow transformed into the hospital” (Politis & Loane, 2012, p. 338); “the belief that two different places were merged into one, combining the features of both” (Borghesani et al., 2019, p. 17).

<sup>9</sup> In most cases of Belief 6, patients claim that the hospital constructed within their home is a replica or branch/annex of the hospital named N.

belief listed in ST1 fit a motivational account; for some of them, too little detail is provided about their Location Ds to assess whether these locations really were plausibly congenial to the patients.

### *Elaboration along a continuum*

We have provided an account of the inferential process by which a simple mislocation belief, “I am living at location D”, is elaborated into one or other of the elaborated Beliefs 1 to 8. The inference draws on and incorporates the information that triggered the elaboration process, while maintaining the simple mislocation belief.

The eight examples that we have described differ along a continuum—they differ in the degree to which patients’ inferences draw on available information about, specifically, their true location. At one extreme are Beliefs 1 and 2, where the patients’ inferences draw on the information that

- (i) they are living in a hospital,
- (ii) the name of the hospital is N (the true name), and
- (iii) there is a hospital named N at location T (the true location, distinct from D).

The inferences leading to Belief 3 do not draw on (iii), and the inferences leading to Belief 4 do not draw on (ii) or (iii).

At the other extreme are Beliefs 7 and 8, where patients’ inferences do not draw on any information at all about their true location. The inferences leading to Beliefs 5 and 6 draw on (i) but patients do not accept that living in a hospital is incompatible with living at home.

### **Conclusion**

We have applied the two-factor theory of delusion to location delusion (‘reduplicative paramnesia’). We began by proposing an eightfold classification of hospital inpatients’ delusional beliefs about location, based on a cohort of 112 cases from the literature (see ST1). We then proposed a detailed motivational account of what brought the simple delusional hypothesis, “I am living at location D”, to mind in the first place. This account drew on published accounts of motivated belief in healthy individuals. We also proposed a neuropsychological account of why this hypothesis was adopted and maintained as a belief despite the evidence and background knowledge that counted against it.

Finally, we proposed a detailed inferential account of the eight elaborated forms of location delusion found in our cohort.<sup>10</sup> In a two-factor account of the eight forms of location delusion, both motivation and inferential elaboration would figure in the first factor, explaining what brought the delusional hypothesis to mind in the first place. The second factor, explaining why the elaborated delusional hypothesis was adopted and maintained as

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<sup>10</sup> Several nonmotivational accounts of the simple location delusion have been proposed in the literature. Those accounts are beyond the scope of our paper, but our inferential account of the elaboration process could still be applied if a nonmotivational account of the simple location delusion were to be adopted.

a belief rather than being rejected, would be damage to rDLPFC or other frontal areas that resulted in impaired executive functioning.

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## References

- Aimola Davies, A. M., Davies, M., Ogden, J. A., Smithson, M., & White, R. C. (2009). Cognitive and motivational factors in anosognosia. In T. Bayne and J. Fernández (Eds.), *Delusion and Self-Deception: Affective and Motivational Influences on Belief Formation* (pp. 187–225). Hove, UK: Psychology Press.
- Alves, P. N., Fonseca, A. C., Silva, D. P., Andrade, M. R., Pinho-e-Melo, T., Thiebaut de Schotten, M., & Martins, I. P. (2021). Unravelling the neural basis of spatial delusions after stroke. *Annals of Neurology*, *89*, 1181–1194.  
<https://doi.org/10.1002/ana.26079>
- Alves, P. N., Silva, D. P., Fonseca, A. C., & Martins, I. P. (2022). Mapping delusions of space onto a structural disconnectome that decouples familiarity and place networks. *Cortex*, *146*, 250–260.  
<https://doi.org/10.1016/j.cortex.2021.11.008>
- Alves, P. N., Fonseca, A. C., Pinho-e-Melo, T., & Martins, I. P. (2023). Clinical presentation and neural correlates of stroke-associated spatial delusions. *European Journal of Neurology*, *30*, 125–133.  
<https://doi.org/10.1111/ene.15557>
- Benson, D. F., Gardner, H. & Meadows, J. C. (1978). Reduplicative paramnesia. *Neurology*, *26*, 147–151.  
<https://doi.org/10.1212/wnl.26.2.147>
- Benson, D. F., & Stuss, D. T. (1990). Frontal lobe influences on delusions: A clinical perspective. *Schizophrenia Bulletin*, *16*, 403–411.  
<https://doi.org/10.1093/schbul/16.3.403>
- Borghesani, V., Monti, A., Fortis, P., & Miceli, G. (2019). Reduplicative paramnesia for places: A comprehensive review of the literature and a new case report. *Clinical Neurology and Neurosurgery*, *181*, 7–20.  
<https://doi.org/10.1016/j.clineuro.2019.03.022>
- Coltheart, M. (2007). The 33rd Bartlett Lecture: Cognitive neuropsychiatry and delusional belief. *Quarterly Journal of Experimental Psychology*, *60*, 1041–1062.  
<https://doi.org/10.1080/17470210701338071>
- Coltheart, M. (2010). The neuropsychology of delusions. *Annals of the New York Academy of Sciences*, *1191*, 16–26.  
<https://doi.org/10.1111/j.1749-6632.2010.05496.x>
- Coltheart, M., Cox, R., Sowman, P., Morgan, H., Barnier, A., Langdon, R., Connaughton, E., Teichmann, L., Williams, N., & Polito, V. (2018). Belief, delusion, hypnosis, and the right dorsolateral prefrontal cortex: A transcranial magnetic stimulation study. *Cortex*, *101*, 234–248.

<https://doi.org/10.1016/j.cortex.2018.01.001>

Coltheart, M., & Davies, M. (2021a). How unexpected observations lead to new beliefs: A Peircean pathway. *Consciousness and Cognition*, 87:103037, 1–13.

<https://doi.org/10.1016/j.concog.2020.103037>

Coltheart, M., & Davies, M. (2021b). Failure of hypothesis evaluation as a factor in delusional belief. *Cognitive Neuropsychiatry*, 26, 213–230.

<https://doi.org/10.1080/13546805.2021.1914016>

Coltheart, M., & Davies, M. (2024). Koro: A socially-transmitted delusional belief. *Cognitive Neuropsychiatry*, 29, 10–28.

<https://doi.org/10.1080/13546805.2024.2313474>

Coltheart, M., & Langdon, R. (2019). Somatic delusions as motivated beliefs? *Australian & New Zealand Journal of Psychiatry*, 53, 83–84.

<https://doi.org/10.1177/0004867418815981>

Coltheart, M., Langdon, R., & McKay, R. (2011). Delusional belief. *Annual Review of Psychology*, 62, 271–298.

<https://doi.org/10.1146/annurev.psych.121208.131622>

Cross, K. P. (1977). Not *can* but *will* college teaching be improved? *New Directions for Higher Education*, 17, 1–15.

<https://doi.org/10.1002/he.36919771703>

Davies, M., & Coltheart, M. (2020). A Peircean pathway from surprising facts to new beliefs. *Transactions of the Charles S. Peirce Society*, 56, 400–426.

<https://doi.org/10.2979/trancharpeirsoc.56.3.05>

Davies, M., & Coltheart, M. (2025). The two-factor theory of delusion. In E. Sullivan-Bissett (Ed.), *Routledge Handbook of the Philosophy of Delusion* (pp. 430–449). London: Routledge.

Delis, D. C., Kaplan, E., & Kramer, J. H. (2001). *Delis-Kaplan Executive Function System (D-KEFS)*. San Antonio, TX: The Psychological Corporation.

Diamantaras, A. A., Blondiaux, E., Schumacher, R., Müri, R. M., Blanke, O., & Heydrich, L. (2023). The neuropsychology and neuroanatomy of reduplicative paramnesia. *Cortex*, 167, 12–24.

<https://doi.org/10.1016/j.cortex.2023.06.006>

Epley, N., & Gilovich, T. (2016). The mechanics of motivated reasoning. *Journal of Economic Perspectives*, 30, 133–140.

<https://doi.org/10.1257/jep.30.3.133>

- Gilovich, T. (1991). *How We Know What Isn't So: The Fallibility of Human Reason in Everyday Life*. New York: Free Press.
- Gläscher, J., Adolphs, R., & Tranel, D. (2019). Model-based lesion mapping of cognitive control using the Wisconsin card sorting test. *Nature Communications*, *10*:20, 1–12. <https://doi.org/10.1038/s41467-018-07912-5>
- Green, H., Seiler, L., & Anwar, F. (2024). Everything in its right place: A case report of reduplicative paramnesia with therapeutic and theoretical considerations. *Cognitive Neuropsychiatry*, *29*, 41–54. <https://doi.org/10.1080/13546805.2024.2313463>
- Hinkebein, J. H., Callahan, C. D., & Gelber, D. (2001). Reduplicative paramnesia: Rehabilitation of content-specific delusion after brain injury. *Rehabilitation Psychology*, *46*, 75–81. <https://doi.org/10.1037//0090-5550.46.1.75>
- Klingbeil, J., Mühlrig, M., Bahr, E., Welle, F., Ritter, T., Stockert, A., Wawrzyniak, M., & Saur, D. (2014). Undoubtedly unaware of homonymous hemianopia: The contribution of overconfidence to anosognosia of hemianopia. *Cortex*, *177*, 224–234. <https://doi.org/10.1016/j.cortex.2024.03.016>
- Krueger, J. I., Alicke, M. D., & Dunning, D. A. (2005). Self as source and constraint of social knowledge. In M. D. Alicke, D. A. Dunning, & Krueger, J. I. (Eds.), *The Self in Social Judgment* (pp. 3–13). Hove, UK: Psychology Press.
- Kruglanski, A. (1989). *Lay Epistemics and Human Knowledge*. New York: Plenum Press.
- Kunda, Z. (1990). The case for motivated reasoning. *Psychological Bulletin*, *108*, 480–498. <https://doi.org/10.1037/0033-2909.108.3.480>
- Levine, D. N., & Grek, A. (1984). The anatomic basis of delusions after right cerebral infarction. *Neurology*, *34*, 577–582. <https://doi.org/10.1212/WNL.34.5.577>
- Lie, C-H., Specht, K., Marshall, J. C., & Fink G. R. (2006). Using fMRI to decompose the neural processes underlying the Wisconsin Card Sorting Test. *NeuroImage*, *30*, 1038–1049. <https://doi.org/10.1016/j.neuroimage.2005.10.031>
- Mele, A. R. (1998). Motivated belief and agency. *Philosophical Psychology*, *11*, 353–369. <https://doi.org/10.1080/09515089808573266>
- Nighoghossian, N., Trouillas, P., Vighetto, A., & Philippon, B. (1992). Spatial delirium following a right subcortical infarct with frontal deactivation. *Journal of Neurology, Neurosurgery, & Psychiatry*, *55*, 334–335. <https://doi.org/10.1136/jnnp.55.4.334>

- Ovelacq, E., Gallois, Ph., Berteloot, E., Catrysse, C., Steinling, M., & Dereux, J.-F. (1988). Le délire des lieux: Apport de la débitmétrie cérébrale. *Cortex*, *24*, 329–337.  
[https://doi.org/10.1016/s0010-9452\(88\)80041-8](https://doi.org/10.1016/s0010-9452(88)80041-8)
- Paterson, A., & Zangwill, O. L. (1944). Recovery of spatial orientation in the post-traumatic confusional state. *Brain*, *67*, 54–68.  
<https://doi.org/10.1093/brain/67.1.54>
- Pick, A. (1903). Clinical Studies: III On reduplicative paramnesia. *Brain*, *26*, 260–267.  
<https://doi.org/10.1093/brain/26.2.242>
- Pignat, J. M., Ptak, R., Leemann, B., Guggisberg, A. G., Zahler, B., & Schnider, A. (2013). Modulation of environmental reduplicative paramnesia by perceptual experience. *Neurocase*, *19*, 445–450.  
<https://doi.org/10.1080/13554794.2012.690428>
- Politis, M., & Loane, C. (2012). Reduplicative paramnesia: A review. *Psychopathology*, *45*, 337–343.  
<https://doi.org/10.1159/000337748>
- Prigatano, G. P. (1996). Edwin A. Weinstein's contributions to neuropsychological rehabilitation. *Neuropsychological Rehabilitation*, *6*, 305–326.  
<https://doi.org/10.1080/713755515>
- Pyszczynski, T., & Greenberg, J. (1987). Toward an integration of cognitive and motivational perspectives on social inference: A biased hypothesis-testing model. In L. Berkowitz (Ed.), *Advances in Experimental Social Psychology* (Volume 20, pp. 297–340). New York: Academic Press.  
[https://doi.org/10.1016/S0065-2601\(08\)60417-7](https://doi.org/10.1016/S0065-2601(08)60417-7)
- Robertson, I. H., Ward, T., Ridgeway, V., & Nimmo-Smith, I. (1994). *The Test of Everyday Attention (TEA)*. Bury St Edmunds, UK: Thames Valley Test Company.
- Ruff, R.L., & Volpe, B.T. (1981). Environmental reduplication associated with right frontal and parietal lobe injury. *Journal of Neurology, Neurosurgery, & Psychiatry*, *44*, 382–386.  
<https://doi.org/10.1136/jnnp.44.5.382>
- Sanford, N., Veckenstedt, R., Moritz, S., Balzan, R. P., & Woodward, T. S. (2014). Impaired integration of disambiguating evidence in delusional schizophrenia patients. *Psychological Medicine*, *44*, 2729–2738.  
<https://doi.org/10.1017/S0033291714000397>
- Staton, R. D., Brumback, R. A., & Wilson, H. (1982). Reduplicative paramnesia: A disconnection syndrome of memory. *Cortex*, *18*, 23–36.  
[https://doi.org/10.1016/S0010-9452\(82\)80016-6](https://doi.org/10.1016/S0010-9452(82)80016-6)

- Stuss, D. T. (2011). Traumatic brain injury: Relation to executive dysfunction and the frontal lobes. *Current Opinion in Neurology*, *24*, 584–589.  
<https://doi.org/10.1097/WCO.0b013e32834c7eb9>
- Trope, Y., Gervy, B., & Liberman, N. (1997). Wishful thinking from a pragmatic hypothesis-testing perspective. In M. S. Myslobodsky (Ed.), *The Mythomanias: The Nature of Deception and Self-Deception* (pp. 105–131). Hove, UK: Psychology Press.
- Trope, Y., & Liberman, A. (1996). Social hypothesis testing: Cognitive and motivational mechanisms. In E. Higgins, & A. Kruglanski (Eds.), *Social Psychology: Handbook of Basic Principles* (pp. 239–270). New York: Guilford Press.
- Turnbull, O. H., Berry, H., & Evans, C. E. Y. (2004). A positive emotional bias in confabulatory false beliefs about place. *Brain and Cognition*, *55*, 490–494.  
<https://doi.org/10.1016/j.bandc.2004.02.069>
- Turnbull, O. H., Fotopoulou, A., & Solms, M. (2014). Anosognosia as motivated unawareness: The ‘defence’ hypothesis revisited. *Cortex*, *61*, 18–29.  
<https://doi.org/10.1016/j.cortex.2014.10.008>
- Turnbull, O. H., & Salas, C. E. (2017). Confabulation: Developing the ‘emotion dysregulation’ hypothesis. *Cortex*, *87*, 52–61.  
<https://doi.org/10.1016/j.cortex.2016.09.024>
- Vighetto, A., Aimard, G., Confavreux, C., & Devic, M. (1980) Une observation anatomo-clinique de fabulation (ou délire) topographique. *Cortex*, *16*, 501–507.  
[https://doi.org/10.1016/s0010-9452\(80\)80052-9](https://doi.org/10.1016/s0010-9452(80)80052-9)
- Vighetto, A., Henry, E., Garde, P., & Aimard, G. (1985). Le délire spatial: Une manifestation des lésions de l’hémisphère mineur. *Revue Neurologique (Paris)*, *141*, 476–481.
- Vocat, R., Saj, A., & Vuilleumier, P. (2013). The riddle of anosognosia: Does unawareness of hemiplegia involve a failure to update beliefs? *Cortex*, *49*, 1771–1781.  
<https://doi.org/10.1016/j.cortex.2012.10.009>
- Weinstein, E.A. (1996). Reduplicative misidentification syndromes. In P. W. Halligan, & Marshall, J. C. (Eds.), *Method in Madness: Case Studies in Cognitive Neuropsychiatry* (pp. 13–36). Hove, UK: Psychology Press.
- Weinstein, E. A., Kahn, R. I., & Sugarman, L. A. (1952). Phenomenon of reduplication. *Archives of Neurology and Psychiatry*, *67*, 808–814.  
<https://doi.org/10.1001/archneurpsyc.1952.02320180085010>
- Weinstein, E. A., & Lyerly, O. G. (1968). Confabulation following brain injury: Its analogues and sequelae. *Archives of General Psychiatry*, *18*, 348–354.  
<https://doi.org/10.1001/archpsyc.1968.01740030092009>

**Table 1.** Forms of delusional belief about location. In all cases the patient claims to be living at a location D, different from the true location of the named hospital.

<b>Belief Category</b>	<b>Belief #</b>
<b><i>Mislocation of the hospital with duplication</i></b> I am living at location D in a replica of the named hospital. I am living at location D in a branch or annex of the named hospital.	<b>1</b> <b>2</b>
<b><i>Mislocation of the hospital without duplication</i></b> I am living at location D in the named hospital.	<b>3</b>
<b><i>Mislocation of the patient without mislocation of the hospital</i></b> I am living at location D in a different hospital. I am living at location D in my home. I am living at location D in another place, neither a hospital nor my home.	<b>4</b> <b>7</b> <b>8</b>
<b><i>Chimeric assimilation</i></b> I am living at location D in my home, which has been transformed into a hospital. I am living at location D in a duplicate of the named hospital, inside my home.	<b>5</b> <b>6</b>