Wishful reality distortions in confabulation: a case report

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Abstract

Several theories have been proposed to account for the complex cognitive mechanisms underlying the various forms and manifestations of confabulation. As regards the content of confabulations, deficit accounts explain what is lacking in the confabulations, but accounts of the positive features of the content may also be required to explain what remains. There is reason to believe that the content of confabulations is not motivationally neutral; in particular, they appear to ‘improve’ the world experienced by the patient, making it more pleasant than the reality of the situation demands. The present study investigated the content of the confabulations of a neurological patient, ES: a 56-year-old man, who developed a striking confabulatory syndrome following removal of a meningioma in the pituitary and suprasellar region. ES’s cognitive abilities were severely compromised, and he confabulated continuously and bizarrely. Raters presented with transcriptions of ES’s confabulations found them to represent significantly more pleasant experiences than their corresponding, misrepresented realities. This finding suggests that confabulations include motivated (or ‘wishful’) content. The influence of this motivational feature of confabulation must be considered in parallel with the memory and executive deficits which contribute to the mechanism of confabulation.

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1. Introduction

Confabulations, i.e. inaccurate or false narratives about the world or the self (Berrios, 1998), were first comprehensively described by Korsakoff (1889). Confabulation affecting the recollection of autobiographical memories has since been widely studied. It is now known to occur with a variety of neuropathologies, including anterior communicating artery (ACoA) aneurysms, traumatic brain injury, tumour, and dementia (for recent reviews see Berrios, 1998; DeLuca, 2000; Johnson, Hayes, D’Esposito, & Raye, 2000; Kopelman, 1999; Schneider, 2003).

Despite the progress in identifying the prevalence and pathological anatomy of confabulation, a generally accepted theoretical account of its neuropsychological mechanism has yet to emerge. Attempts have been made to explain confabulation with reference to impairments of general executive dysfunction (Baddeley & Wilson, 1986; Benson et al., 1986; Kapur & Couchlan, 1980; Papagno & Baddeley, 1997; Stuss, Alexander, Lieberman, & Levine, 1978), temporality (Dalla Barba, 1995; Korsakoff, 1889; Schneider, von Daniken, & Gurbrog, 1996; Talland, 1961), memory control processes (Burgess & Shallice, 1996; Moscovitch, 1995; Schnider, von Daniken, & Gurbrog, 1996; Talland, 1961), and source monitoring (Johnson, 1991, 1997). Commonly, these interpretations explain the memory distortion in terms of categories of cognitive deficit.

In Jacksonian terminology (Jackson, 1932), these accounts have been informative with regard to ‘negative’ symptoms of confabulation, such as the semantic anomaly of its content (Dalla Barba, 1995), or the specification of the memory domains affected by confabulation (Burgess & McNeil, 1999; Dab, Claes, Moraas, & Shallice, 1999; Moscovitch, 1995). However, when confronted with the ‘positive’ symptomatology of confabulation, most of these accounts face conceptual problems. For example, they cannot sufficiently explain why the content of confabulation should focus on particular themes, and why the content of specific confabulations should be so stable over time (for examples of content-specific confabulation see Burgess...
and motivational factors are argued to compromise both the constructive nature, and be subject to factors that have been identified as making normal subjects more prone to source misattributions and false memories. Accordingly, confabulation could be best understood as the magnification of existing normal misremembering mechanisms (Conway & Pleydell-Pearce, 1999; Conway & Tacchi, 1996; Johnson, 1991; Johnson et al., 2000). It further assumes that remembering following brain damage, no matter how severely or mildly affected, will continue to have a constructive nature, and depend on the particular pattern of preserved and impaired memory processes. Indeed, some studies have already begun to recognize and address this complexity in the production of confabulation (Burgess & McNeil, 1999; Conway & Tacchi, 1996; Johnson, O’Connor, & Cantor, 1997; Kopelman, Ng, & Van den Broecke, 1997).

However evident the potential theoretical contribution of motivational factors in confabulation, there has been little experimental work investigating the issues raised by the anecdotal clinical descriptions upon which such accounts are based. The present study reports a patient who produced striking confabulations, and systematically measures a motivational feature of the patient’s confabulation: the ‘pleasantness’ of its content.

2. Materials and methods

2.1. Case report

At the time of assessment, ES was a 56-year-old left-handed man. He was born in northern Italy and moved to southern Africa aged 11. He was an electronic engineer and a successful businessman. He was recently re-married, and had a young daughter. His wife described him as a highly active and knowledgeable person, one who likes “to chat to people and have control over situations”. He had no psychiatric history.

In January 1997 ES was admitted to a regional hospital for the removal of an olfactory sheath meningioma in the pituitary and suprasellar region. The operation was uneventful, but the meningioma recurred in the same region, and in May 2000 he was readmitted to the hospital. In the second operation the meningioma was completely removed and, apart from post-surgical gliosis in the right temporal fossa and in the region of the sella turcica, the brain appeared normal in subsequent CT scans. However, the patient developed pituitary hypothyroidism and was placed on thyroxine until his thyroid hormone levels settled. MRI scans taken 1 year later were uninformative, showing only the changes caused by the craniotomy: i.e. glotic change in the anterior aspect of the right temporal lobe, with a fairly large arachnoid cyst anteriorly in the right temporal fossa, and cortical
thinning and atrophy of the white matter in the right tempo-
ral lobe subjacent to the arachnoid cyst. It is assumed that
this patient had sustained a peri-surgical lesion, not detected
radiologically, in the basal forebrain or diencephalic region,
the site of the meningioma, and it is this lesion that gave
rise to his cognitive impairments. Confabulation following
lesions in this area has been previously reported by var-
ious authors (Damasio, Graff-Radford, Eslinger, Damasio,
& Kassell, 1985; Fischer, Alexander, D’Esposito, & Otto,
1995; Hashimoto, Tanaka, & Nakano, 2000; Luria, 1966;
Wright, Boeve, & Malec, 1999, for a review).

On waking from surgery ES was severely disoriented and
confused. One month post-operatively his mental function
remained profoundly impaired, with mental clouding and
disorientation. Thereafter there was a gradual improvement
until he reached a stage where he was able to cope relatively
independently at home. However, his memory abilities re-
mained markedly and disproportionately impaired. He was
often not aware that he was married, nor did he know the
names of his relatives, and his orientation in time and place
was poor. A gross reduction in motivation was also reported.
His expressive output was confabulatory and incoherent, and
was poor. A gross reduction in motivation was also reported.

2.2. Formal neuropsychological investigation

ES was referred to London in February 2001, where he
underwent comprehensive neuropsychological assessment.
His profound amnesia, disorientation and confabulation
were still present, but he was cooperative during most of
the testing sessions. His performance is summarised in the
Tables 1–3. ES’s level of general intelligence (on
the W AIS-R, Wechsler, 1981) was lower than expected, based on
his previous education and occupational level, with his lower Performance IQ attributable partly
to his visual problems. His language abilities were only

Table 1

<table>
<thead>
<tr>
<th>Test</th>
<th>Performance</th>
<th>Normal data</th>
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<tbody>
<tr>
<td>Rey figure immediate recall</td>
<td>0/10 (impaired)</td>
<td>8.7 ± 2.5</td>
</tr>
<tr>
<td>Rey auditory verbal learning</td>
<td>Trial II: 0 (impaired)</td>
<td>6 ± 1.4</td>
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<tr>
<td>WMS subtest</td>
<td>SS</td>
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<td>Verbal IQ</td>
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<td>Information</td>
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<td>Comprehension</td>
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<td>Arithmetic</td>
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<td>Digit span</td>
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<tr>
<td>Performance IQ</td>
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<td>Picture completion</td>
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<td>Full scale IQ</td>
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<td>6 ± 1.4</td>
</tr>
<tr>
<td>WMS visual reproduction ²</td>
<td>6/14 (impaired)</td>
<td>7.3 ± 2.9</td>
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<tr>
<td>WMS logical memory ²</td>
<td>Immediate</td>
<td>3.5 (3, 0/3, 0/1, impaired)</td>
</tr>
<tr>
<td>WMS paired associate</td>
<td>0/23 (impaired)</td>
<td>17.3 ± 3.3</td>
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<td>WMS subtest</td>
<td>SS</td>
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<td>Verbal IQ</td>
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a Standardization scores from Lezak (1995).

b Standardization scores from Spreen and Strauss (1991).
Table 3
ES’s performance on tests of executive function

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<thead>
<tr>
<th>Test</th>
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<tr>
<td>Hayling test</td>
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<td></td>
</tr>
<tr>
<td>Hayling overall score</td>
<td>SS 1/10 (impaired)</td>
<td>Percentile &lt; 1</td>
</tr>
<tr>
<td>Verbal fluency</td>
<td>$F = 3, A = 2, S = 5$ (impaired)</td>
<td>Percentile &lt; 1</td>
</tr>
<tr>
<td>Stroop test</td>
<td>Score: 171 s</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Errors: 16/56 (impaired)</td>
<td>Percentile &lt; 2</td>
</tr>
<tr>
<td>WCST</td>
<td>No. of category 2 (impaired)</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Personal errors 14</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td>Total errors: 16 (impaired)</td>
<td></td>
</tr>
<tr>
<td>Cognitive estimates</td>
<td>Error score: 8 (impaired)</td>
<td>5th percentile</td>
</tr>
<tr>
<td>Benton test</td>
<td>Errors: 15 (high average)</td>
<td>10 ± 5.7</td>
</tr>
<tr>
<td>Rey complex figure (copy)</td>
<td>35/36 (intact)</td>
<td>90th percentile</td>
</tr>
<tr>
<td>Weigl colour form sorting</td>
<td>No. of category 2 (intact)</td>
<td></td>
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<tr>
<td>Luria rhythmic tapping</td>
<td>10/10 (intact)</td>
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</table>

completely different elements. This pattern of performance is often observed in confabulating patients (Box, Laing, & Kopelman, 1999; Dalla Barba, 1993a; Dalla Barba, Boisse, Bartolomeo, & Bachoud-Levi, 1997a; Dalla Barba, Cappelletti, Signorini, & Denes, 1997b; Papagno & Baddeley, 1997). On the WMS-R paired associate learning test, ES produced four intrusions (all of them extra-list, not prior-list errors). However, no intrusions were observed on the Rey auditory verbal learning test.

ES’s retrograde memory abilities were inferred from his answers to Dalla Barba’s Battery (1993a), and from extensive interviews with the patient (see below). He exhibited a gross retrograde memory deficit, showing problems in ordering events in time, and a general confusion regarding the temporal context of events—a characteristic often seen as causative of confabulation (e.g. Dalla Barba, 2002; Schneider, 2000) but also reported as absent in other studies (Dab et al., 1999; Johnson et al., 1997). It is of some interest that ES was able to recall isolated events in some detail on certain occasions, but not others, suggesting that it was at times hard to gain access to information rather than that the information itself was degraded (Baddley & Wilson, 1986; Conway & Pleydell-Pearce, 2000). Finally, although he frequently recalled the gist of remote events (e.g. he provided a coherent account of his wedding day), he was unable to recall specific details, or to recall the names of any of the guests. He appeared to compensate for this by initiating other (also incomplete) memory searches. In Baddeley and Wilson’s (1986) terms he presented with a “clouded” autobiographical memory.

ES’s performance on tasks measuring executive functions (Table 3) was markedly impaired on five tasks, i.e. verbal fluency, Stroop test (Trenerry, Crosson, Deboe & Leber, 1989), WCST (Heaton, 1981), cognitive estimates (Shallice & Evans, 1978) and Hayling test (Shallice & Burgess, 1997), while no impairment found on a further four tasks, i.e. Brixton test (Shallice & Burgess, 1997), Rey Complex Figure Copy, Weigl colour-form sorting and tapping test (Luria, 1966). Of the five on which he was impaired, two involve attention, response initiation and suppression abilities, and one involves reasoning and general problem-solving capacities. The rest concern cognitive flexibility and set-shifting abilities. These mixed results on tasks of executive performance are, of course, a pattern not uncommon among frontal patients (Shallice & Burgess, 1991).

2.3. Nature of ES’s confabulation

Collecting systematic data on confabulating patients presents several difficulties, especially as regards quantifying and characterizing the confabulatory material (Johnson & Raye, 1998). Furthermore, dissociations have been observed between the presence of confabulation in everyday life and in neuropsychological testing (Conway & Tacchi, 1996; Papagno & Muggia, 1996). Nevertheless, the role of behavioural observations, and detailed descriptions of specific confabulations in case reports, remains an important source of information for understanding the nature of confabulation. ES’s confabulations were ubiquitous, and he produced them even when there was no verbal or any other evident perceptual probe. For example, ES would greet the examiner with questions such as “Was somebody chasing us? Just now, out in the street, I saw somebody chasing us”; or, he would interrupt a session, asking his examiner: “Where is my beer?” and look for a bottle on the desk.

Furthermore, ES defended his false beliefs strenuously, and he failed to acknowledge their unreliability, to the extent that he often acted upon his confabulations (see also Schneider et al., 1996). For example, he once refused to leave the clinic with his wife because he initially insisted that he was not married to her. He then added that she was his “other wife”, but he was waiting for the “first one” to come and pick him up. More often, ES would ask the examiner for permission to “phone the gate” to check the whereabouts of his car, or to “ask the guys” for details of the business affairs he was talking about, but had forgotten.
Many of ES's confabulations were moderately plausible, so that it was hard to identify them without detailed knowledge of his everyday life. However, he occasionally also produced bizarre and implausible confabulations. For example, ES: “I had gone to see Dr. S. Quite a few doctors, I think. Well in the last 3 years they replaced, basically, my eyes.” Examiner: “They replaced your eyes? What did they replace? The lenses?” ES: “No, no. He started with, about 4–5 years ago, I used to come and he used to try my eyes and say, ‘that eye, the lens is not working properly’. He used to take the lens off, polish it, or replace it.” Examiner: “The lens in your spectacles?” ES: “No, my eyes.”

ES's confabulations were typically accompanied by denial of deficit (anosognosia). Schacter and Pegatano (1991) have distinguished between unawareness of the existence of a neuropsychological deficit itself, and unawareness of some of the consequences of the deficit. The examples below illustrate that while ES appeared to be unaware of his memory deficit, on several occasions (when confronted) he accepted the consequences of these deficits, and tried to find alternative explanations. Some examples, (1) examiner: “Do you sometimes confuse memories?” ES: “It’s a few glasses of drink ... It’s once a year.” (2) Examiner: “Your memory is failing you?” ES: “It is. More than failing is that I am not interested in helping it along ... You talk to me and say, let’s say for example, ‘I’ll see you now at five o’clock in the afternoon and we can go for a beer and have a swim.” Examiner: “You won’t remember that?” ES: “I won’t bother. Do you understand the difference?” (3) Examiner: “And how about your memory? How is that doing?” ES: “Old age. Everyone would like to have a better ... but we get to a certain age in which you have to accept”.

Although ES’s confabulations often appeared to consist of previously real events misplaced in time or place, he also often produced “memories” completely unrelated to his previous or current life. For example, on different sessions ES claimed that he had a Porsche and a Maserati, that he was working at a Grand Prix selling explosives, that he was working as a race-car driver, that he was working with the police doing chemical analysis, that he had two grown up sons, that his older son was a motorcycle, that he was working in a chemical and explosives factory, and I did most of this in M [the site of a chemical and explosives factory] ... and, um, they finished about April last year ... got back um ... August, September, October, November, October. And they seemed to be very good results. But I mean, from when I started there about 4 years ago, there have been about 20 of us. Last year when we finished I think there were about two of us. But they are separate results because it was the best thing.”

In summary, ES’s memory recall was contaminated by an enormous amount of confabulation, produced both spontaneously and with provocation. It was not restricted to plausible information, past events misplaced in time, or specific and constant events, but included bizarre and implausible accounts of events that never took place in the past, and showed some theme specificity and constancy. The patient was unaware of his amnesia and confabulation, although he would (when challenged) demonstrate some awareness of the consequences of his memory difficulties.

3. Experimental investigations

3.1. Assessment of confabulation

In order to address the nature of ES’s confabulations formally, the confabulation battery of Dalla Barba (1993b) was administered. This test consists of six subsections of questions, concerning personal semantic memory, episodic memory, orientation in time and place, general semantic memory, and “I don’t know” semantic and episodic memory sections. When necessary, the questions were adjusted to the patient’s cultural background (see also Box et al., 1999), e.g. “Who is Nelson Mandela?” replaced “Who is
Charles De Gaulle?’ The test was administered in one session and the patient’s answers were recorded on audio- and video-tape. A full transcription of the sessions was made. Kopelman et al. (1997) healthy control (aged 44 and 42) scores on the same battery were used to compare ES’s performance. In order to corroborate ES’s memory statements, five extensive interviews were conducted with the patient’s wife, and one shorter interview was conducted with his oldest brother. Dalla Barba’s criteria (1993b) for classifying answers were followed as closely as possible.

4. Motivated distortions of reality

4.1. Eliciting confabulations

4.1.1. Patient ES

Twelve 1 h long interviews were conducted with the patient on 12 successive days (excluding Sundays), at the same time every day and in the same room. The examiner’s role in the interviews was restricted to setting some initial everyday conversational questions, reflecting the patient’s statements, asking for clarifications when needed, and providing information or explanations when required by the patient. These minimally guided interviews allowed the patient himself to choose the topics discussed, the amount of detail given, the time dedicated to each theme, and the temporal reference of each topic (e.g. past, present or future events). The aim was to obtain a representative sample of ES’s confabulations, as these spontaneously occurred in his everyday interactions. The interviews were recorded on audiotape and fully transcribed.

An unselected, consecutive listing of the first 155 confabulatory statements, as they occurred in the transcripts of the first six sessions, were presented to naïve raters (see later), along with a synopsis of the general situation in which they arose. The confabulated statements were set in bold letters, for purposes of identification. Each confabulatory statement was accompanied by (verified) ‘real’ information, set in parentheses. The ‘real’ information distorted or replaced the patient regarding any past, present or future object (event, thoughts) or information impossible to verify, which meant that it was impossible to present to raters a comparable corresponding reality. However, repeated, incoherent or obscure confabulatory statements, were not excluded from the list, since this would require arbitrary decisions, by the experimenter. Instead, the raters themselves were given the option to characterise statements as ‘unclear/impossible to judge’.

Although common methodological practice might require randomly ordering the sequence of confabulations between different groups of raters, in this case the natural unfolding of the conversation often revealed the bizarreness of a memory, or helped establish its implausibility, and therefore the sequence of the material was preserved.

4.1.2. Controls

The question of ‘control’ investigations of confabulation is complex: confabulation in neurologically normal subjects, unlike in confabulating neurological patients, can only be studied in experimental conditions. However, existing experimental paradigms which elicit false memories in controls (Barclay & DeCooke, 1988; Loftus, 1993; Loftus & Pickrell, 1995; Loftus, Miller, & Burns, 1978; Suengas & Johnson, 1988) do not require the controls to generate their own material. Typically, all (Heaps & Nash, 2001; Hyman & Bilings, 1998; Hyman & Pentland, 1996; Johnson, Foley, Suengas, & Raye, 1988; Suengas & Johnson, 1988) or part of (Conway, Collins, Gathercole, & Anderson, 1996) the false and true events tested are chosen, constructed and/or manipulated by the experimenters (see also Lampinen, Neutschatz, & Payne, 1998; Pezdek, Finger, & Hodge, 1997). To address this problem, the present study proposes a method of eliciting false memories in control subjects which allows them to spontaneously choose the theme, temporal reference, importance, amount of detail and emotional valence of each memory produced.

Six male adults (mean age 55 years, range 53–58 years) were asked to generate 20 self-referential but false statements each, and provide corresponding ‘real’ information about each statement. False statements were defined as: events or facts related to one’s self which were in fact completely incongruent with the subject’s past, or which distorted the subject’s past experience in some way. Participants were told that such facts could potentially include any topic of their preference, could be recent or remote, short or long, important or trivial, emotional or neutral. It was also stressed to the participants that their self-generated false statements could involve great or no relation at all with their previous lives—but it was essential that such statements had at least one element of fabrication or distortion that involved their personal past or present.

To increase the ability of the control group to ‘simulate’ confabulations, six examples of ES’s confabulations, balanced for valence (i.e. two positive, two negative and two neutral confabulations) were read out to them. These examples included a variety of topics and were either false
In order to investigate the possible ‘positive’ distortions in the content of ES’s confabulations, 15 raters were asked to rate the pleasantness or unpleasantness of the confabulated events and facts described by the patient in comparison with the corresponding reality (i.e., the events and facts distorted or replaced by the confabulation). The raters were 15 adults, eight males and seven females, of higher educational level (the mean number of years of education was 11) and mean age 38 years (range: 26–59 years). All were blind to the hypotheses of the study.

In order to investigate similar or different tendencies in the content of the false memories produced by the control participants, two of the naive raters mentioned above (males of ages 55 and 52) were asked to rate the 120 false memories produced. The corresponding reality of each of ES’s confabulations was also read out to them and they were informed that following each false statement they constructed, they would have to describe the most relevant corresponding true situation or fact. For example one of the control subjects stated: “Yesterday evening leaving the pub I saw two very big fat lads trying to attack a young pretty-looking girl”. When asked for the corresponding reality of the above false memory he said: “The two fat lads were drunk but they were just having fun, not doing anything violent, you know”. Another control participant said: “I feel great today because the reviews I’ve got from my painting exhibition were beyond my expectation. It was my third exhibition and particularly the international reviews were wonderful”. When asked for a true statement in relation to the above he said: “I am not a painter, I am a chemical engineer. I did follow a painting summer school in the past though”.

Their statements were recorded and fully transcribed. For each of the six control participants, a list of 20 false statements, each followed by corresponding reality information, was presented to the raters (see below). The overall questionnaire format was identical to that of ES’s confabulation questionnaire.

4.2. Rating procedure

In order to investigate the possible ‘positive’ distortions in the content of ES’s confabulations, 15 raters were asked to rate the pleasantness or unpleasantness of the confabulated events and facts described by the patient in comparison with the corresponding reality (i.e., the events and facts distorted or replaced by the confabulation). The raters were 15 adults, eight males and seven females, of higher educational level (the mean number of years of education was 11) and mean age 38 years (range: 26–59 years). All were blind to the hypotheses of the study.

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Raters were given the listings of ‘confabulations’ (here referring also to false statements generated by controls), and asked to judge whether the invented situation described in each of the presented ‘confabulations’, when compared to the actual reality (given in parenthesis alongside each ‘confabulation’), was more pleasant or more unpleasant from the perspective of the patient or the subject. Ratings were given on a seven-point Likert-type scale, anchored at 1, extremely unpleasant to 7, extremely pleasant. In cases when the raters were unable to make a judgement, they were asked to characterise these ‘confabulations’ as “Impossible to judge”. Finally, the option was provided for the raters to make any qualitative comments regarding their judgement.

For example, in the following instance the judges had to decide, using the seven-point scale, whether ES’s statement regarding his false belief that he travelled to the clinic by car was more pleasant or more unpleasant than the corresponding reality, which in this case was the fact that he travelled to the clinic by bus:

Example: Confabulation 128. The patient explains how he got to the clinic:

Usually I come in my car.

(In reality, the patient comes by bus.)

Is the confabulated situation more pleasant or more unpleasant (for the patient) than the actual reality?

(a) Extremely unpleasant 1–2–3–4–5–6–7 extremely pleasant.

(b) Impossible to judge.

Comments . . .

This particular confabulation was judged as slightly more pleasant than the corresponding reality with a mean score of M = 4.58 (see Appendix A for more examples).

All subjects, including raters, gave written informed consent. Raters were paid to participate in the study. The study was approved by the local research Ethics Committee.

4.3. Data analysis

In order to avoid confounding the data analysis with confabulations that many raters had evaluated as “Impossible to judge”, an additional criterion of exclusion was used. If more than 5/15 raters agreed that a confabulation ES made was impossible to judge, this confabulation was excluded from the analysis. A similar criterion was not applicable in the rating of the controls’ false memories, because none of the self-generated memories was considered impossible to judge. Following from the use of the seven-point scale, ratings below the 4/7 Likert mid-point were considered negative (unpleasant), and ratings greater than 4/7 were considered positive (pleasant).1 Ratings of 4/7 were rated as neutral.

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1 The use of the characterisations “positive” and “negative” here refers to the pleasantness and unpleasantness of the confabulations and not to ‘negative’ and ‘positive’ symptoms in the Jacksonian sense.
5. Results

5.1. Confabulation battery results

Fig. 1 shows ES’s general performance, in percentage terms, across each category of items within the confabulation battery. Fig. 2 shows the percentage of confabulatory statements made by ES and by normal subjects across all sections.

ES confabulated in every section of the battery. The most striking confabulatory tendency was observed in response to the “Episodic Memory” items (60%) and “I don’t know” episodic questions (90%). Similar patterns of results have been documented in other confabulating patients (Dalla Barba, 1993a; Dalla Barba, Mantovan, Cappelletti, & Denes, 1998; Kopelman et al., 1997).

Somewhat surprisingly, ES confabulated only minimally in response to General Semantic questions (6.6%), in contrast with Kopelman et al.’s (1997) confabulating and control subjects who produced more confabulations in this section. This result could be partly attributed to ES’s higher educational level (university degree in engineering) in comparison with control subjects. It should also be noted that ES produced a substantial number of correct responses (53.3%) in this section.

These responses concerned mainly questions referring to the remote past (e.g. When did the first World War start?), while more mistakes and confabulations were produced as the facts which he had to recall became more recent. Although, this suggests a possible temporal gradient in his retrograde general semantic memory, a test such as that employed by Kopelman et al. (1997) which distributes events knowledge requirements and exposure evenly in time is needed to verify such a conclusion. Indeed they observed a temporal gradient in their patient’s retrograde semantic memory, particularly in the recognition version of the test used.

In both the “I don’t know” sections the patient confabulated freely, in contrast to control subjects. This performance has not been observed in all confabulating patients, as some do not confabulate at all in these sections (Box et al., 1999; Dalla Barba, 1993a,b; Dalla et al., 1997b). Nevertheless, ES’s performance was similar to that of other patients (Dalla Barba, 1995; Kopelman et al., 1997) in that he
clearly showed a tendency to confabulate more in response to episodic "I don’t know" questions, than semantic "I don’t know" questions.

Overall, in the 60 questions comprising the battery (excluding the "I don’t know" sections which have independent scoring criteria, i.e. where correct answers are the "I don’t know answers"). ES’s answers were either correct or confabulatory, with 23 correct answers (38.3%) and 21 confabulations (35%). Wrong answers and "I don’t know" answers were less common, at 11.6 and 23.3%, respectively. In sum, therefore ES can be classified unequivocally as a confabulating patient, showing confabulation in both episodic and semantic memory.

5.2. Affective valence results

Confabulations, the affective valence of which the raters found "Impossible to judge" on the exclusion criterion developed earlier, totalled six (3.9%). These were not included in the analyses. The data consisted of the remaining 149 confabulations, each of which were judged by more than 10/15 raters. Inter-rater reliability was good (alpha = 0.92). There were no significant differences between the ratings of male and female judges.

As regards the control data, there were no false memories whose affective valence the raters found “Impossible to judge”. Thus, the control data consisted of 120 false memories. Inter-rater reliability between the two raters was good (r = 0.87, p < 0.001).

5.2.1. ES: estimating ‘pleasantness’ by comparing frequencies

Out of 149 confabulations, 118 (79.2%) were rated as positive (pleasant) (M = 5.42). Two (1.3%) confabulations were judged as neutral, and 29 (19.5%) confabulations were judged as negative (unpleasant) (M = 3.21). Thus, many more confabulations were rated as positive than negative and neutral. A $\chi^2$ goodness-of-fit test confirmed the significance of the observed difference, $\chi^2(2) = 148.4; p < 0.01$.

5.2.2. ES: estimating the ‘degree of pleasantness’ by comparing means

The overall mean of the 149 confabulations was 4.98, and the 95% confidence interval for mean extended from 4.80 to 5.12. A one-sample $t$-test showed that the difference between the sample mean and the hypothetical mean value (4, or neutral) was highly significant, $t(148) = 11.17; p < 0.001$. These results confirmed that the content of the confabulations were significantly more positive (i.e. more pleasant) than neutral or negative (unpleasant).

5.2.3. Controls: estimating ‘pleasantness’ by comparing frequencies

Out of 120 false memories, 55 (46%) were rated as positive (pleasant), 18 (15%) were judged as neutral, and 47 (39%) false memories were judged as negative (unpleasant). A $\chi^2$ goodness-of-fit test failed to reject the null hypothesis that there is no emotional bias ($\chi^2(1) = 0.83; p > 0.05$), indicating that the false memories of control subjects did not distort reality in any given emotional direction (pleasant or unpleasant).

5.2.4. Controls: estimating the ‘degree of pleasantness’ by comparing means

The overall mean of the 120 false memories was $M = 4.13$, S.D. = 1.2. A one-sample $t$-test showed the difference between the sample mean and the hypothetical mean value (4, or neutral) was not significant, $t(119) = 1.23, p > 0.05$.

One-sample $t$-tests also showed the same results for the false memories of every individual control, t(19), p > 0.05, with values ranging from 0.28 to 1.92. These results show that, although the false memories produced by control subjects were generally rated as slightly more positive than reality, they did not differ significantly from the hypothetical neutral rating.

5.2.5. ES and controls: comparing ‘pleasantness’ frequencies directly

ES produced a substantially higher number of pleasant, rather than unpleasant and neutral, confabulations. In contrast, controls produced marginally more unpleasant and neutral false memories than pleasant ones. This difference was significant ($\chi^2 = 32.23; d.f. = 1; p < 0.01$) between the groups (ES versus controls) and emotional valence ratings (pleasant versus unpleasant and neutral). This finding is depicted in Fig. 3.

5.2.6. ES and controls: comparing ‘pleasantness’ means directly

When examined independently, as well as combined, controls subjects had lower means of pleasantness than ES (ranging from 3.57 to 4.47). There was a significant effect of control group on pleasantness rating, F(6, 262) = 8.13; p < 0.01, as tested using one-way ANOVA. Furthermore, planned contrasts revealed that ES’s confabulations were rated as significantly more pleasant than controls’ false memories, F(213) = 6.07, p < 0.01. These results are depicted in Fig. 4.
In summary, both direct and indirect comparisons between control subjects and ES revealed significant differences between the groups in the frequency and magnitude of 'confabulations' rated as pleasant rather than neutral or unpleasant. Control subjects overall showed a marginally (and non-significant) positive bias in their 'false memories', which was significantly different from the marked bias towards pleasantness seen in ES's confabulations.

6. Discussion

In the context of profound memory loss and selective executive dysfunction, ES showed abundant evidence of confabulation. His confabulations were produced without provocation, had strikingly bizarre content, and were often acted upon. ES would be classified as a 'spontaneous', 'fantastic' or 'severe' confabulator, according to the criteria set by different authors. Our preliminary task was to identify whether ES's bizarre memories and beliefs are explicable with reference to previously proposed accounts of confabulation, focussing on general executive dysfunction (Baddeley & Wilson, 1986; Benson et al., 1996; Kapur & Couchlan, 1980; Kopelman, 1987; Luria, 1976; Papagno & Baddeley, 1997), temporal confusion (Dalla Barba, 1995; Korsakoff, 1889; Schnider et al., 1996; Talland, 1961), impaired semantics (Dalla Barba, 1993b), some specific memory control impairment (Burgess & Shallice, 1996; Moscovitch, 1989; Schacter et al., 1998), or a combination of the above deficits.

6.1. Confabulation and executive functions

A frontal lesion was not demonstrable by neuro-imaging but this does not exclude the possibility of frontal abnormality. Although ES was not impaired on all executive tests assessed (e.g. Brixton test, Weigl colour form sorting, tapping test) his impaired performance on various tests (e.g. cognitive estimates, Hayling task, WCST) clearly demonstrated executive dysfunction. This finding is consistent with other studies which have proposed that a specific, rather than a general, executive disorder, is associated with confabulation (Burgess & Shallice, 1996; Johnson, 1991; Johnson et al., 1997; Kopelman et al., 1997; Schnider et al., 1996). However, the finding of executive dysfunction does not, by itself, predict confabulation and nor does it explain the nature of the confabulatory content in ES.

6.2. Confabulation and temporal confusion

The nature of ES's retrograde amnesia is highly informative. He had clear difficulties in sequencing recent and remote events in time and could not date events about which he had good episodic knowledge. Furthermore, ES's performance on the orientation in time and place section of the confabulation battery was markedly defective and contaminated by confabulation. Finally, his persistent and spontaneous tendency to date events resulted in the same episodes being variously defined in time, without his being aware of the emerging contradictions. However, achronogonesis by itself does not account for the nature of ES's confabulation, which clearly involved more than mere temporal dislocations. A substantial number of ES's confabulations were unrelated to his present or past life, so that his confabulations could not be described as valid memories misplaced in time.

The presence of both types of confabulation (temporal confusion of events and fabrication of events) suggests that the motivational bias identified in the present study cannot be accounted for by either temporal confusion or fabrication of events alone. Rather, both types of confabulation appear to have been recruited in the service of wishful distortion. For example, ES misidentified his unsuccessful brain operation as a successful dental procedure he underwent some years previously (temporal confusion), and he claimed he owned various Italian sports cars which in reality he never owned (fabricated events). This suggests that motivational bias represents an additional feature of confabulation, which needs to be considered in any account of its underlying mechanism(s).

6.3. Confabulation and semantic processing

Although ES gave confabulatory answers to one-third of the personal semantic memory questions, and to half the "I don't Know" semantic questions, he confabulated only minimally in response to the general semantic items of the confabulation battery. Kopelman et al. (1997) have claimed that the semantic and episodic confabulations in their patient AB were produced by distinct cognitive impairments, i.e. perseveration and temporal confusion, respectively. Although such differences were not observed in ES, the behavioural observation that his retrieval latency for answers to semantic questions, and particularly those that he answered correctly, appeared to be shorter, combined with ES's high educational level and the number of correct answers he gave in this section, suggests that ES's low confabulation score in general semantic memory may be explicable.
by his preserved ability to retrieve such information directly, without requiring ‘generative’ or ‘strategic’ retrieval control processes (Burgess & Shallice, 1996; Conway & Pleydell-Pearce, 2000; Moscovitch, 1989; see also below).

By contrast, in episodic memory (but also in personal semantic knowledge, and in semantic ‘I don’t know’ memory questions in which he did not or could not know the answer) ES produced many confabulations. In this section, ES showed “clouded” retrieval (Baddeley & Wilson, 1986) suggesting an inability to achieve a successful “generative retrieval cycle” (Conway & Fthenaki, 2000, p. 297) and to accurately contextualise (including temporally) a memory within his personal history (Conway & Fthenaki, 2000; see also later).

Finally, ES’s confabulation was not confined to episodic memory; it clearly also affected his semantic memory, although apparently to a lesser extent. This finding, in combination with the described ‘implausability’ of ES’s confabulations, is consistent with Dalla Barba’s (1993a,b) hypothesis (see also Dalla Barba et al., 1997b, 1998; Nedjam, Dalla Barba, & Pillon, 2000) to the effect that the appearance of confabulation is determined by an impairment in monitoring, but the implausibility of its content is determined by the presence of a semantic deficit. However, this begs the question whether a semantic deficit by itself can account for the multiple features of ES’s confabulations.

6.4. Confabulation and retrieval control processes

Which specific memory control impairments might account for ES’s implausible confabulations? Firstly, the neuropsychological findings show a marked impairment in response suppression, as revealed by his poor performance in the Hayling, Stroop and verbal fluency tasks. Such deficits appear to be linked in confabulating patients with their inability to suppress irrelevant memory traces and disengage from current representations, in order to initiate ‘volitional’ memory search procedures (Burgess & Shallice, 1996; Cunningham, Piskin, Cassissi, Tsang, & Rao, 1997; Mercer, Wapner, Gardner, & Benson, 1977; Moscovitch, 1989; Shapiro, Alexander, Gardner, & Mercer, 1981). Consistent with this, ES appeared to be unaware of the contradictions in, and the implausibility of, his memory recollections, suggesting an impairment in the monitoring (Moscovitch, 1989) or editing (Burgess & Shallice, 1996) of memory output. Finally, ES’s poor performance on the cognitive estimates test, including unreasonable responses, are consistent with a damaged ‘mediator’ (i.e. problem-solving) mechanism in memory retrieval (Burgess & Shallice, 1996). The principal finding of the present study demonstrates, however, that these retrieval control deficits do not result in ‘random’ retrieval errors. The irrelevant memory traces that ES was unable to suppress, for example, displayed an affective content bias. This bias requires an explanation which supplements existing cognitive ‘deficit’ accounts (although see Burgess & McNeil, 1999; Burgess & Shallice, 1996 discussed below).

In summary, ES’s confabulatory syndrome presented negative features consistent with several recent accounts of the neuropsychological basis of confabulation, but none of these accounts seem capable of explaining all aspects of his confabulation syndrome (see Burgess & McNeil, 1999; Johnson et al., 1997; Kopelman et al., 1997; Shapiro et al., 1981 for other multiple impairments explanations).

7. The pleasantness of ES’s confabulations

ES’s confabulations were rated as significantly more pleasant than the corresponding actual reality. In contrast, the valence of the control subjects’ confabulations was not significantly biased either positively or negatively. In the light of existing theories, the ‘positive valence’ distortions of ES’s memory might be interpreted in two ways.

7.1. A conscious intention to fill gaps in memory

According to this view, the patient’s conscious wishful thoughts and memories might actively cause confabulation. This interpretation would be similar to the well-known ‘gap-filling’ account, according to which confabulation occurs as a purposive act contrived by the patient to spare him from the embarrassment of not being able to remember the events of his life (Barbizet, 1963, cited in Berlyne, 1972; Bonhoeffer, 1901, cited in Talland, 1965). Indeed, among all the sections of the confabulation battery, ES showed the highest rate of confabulatory answers (90%) in the episodic “I Don’t Know” section, which appears to favour the gap-filling hypothesis (Dalla Barba et al., 1997b; Kopelman et al., 1997; Schneider et al., 1996). However, this explanation seems incomplete in ES’s case since, as the formal testing and the behavioural observations reveal, he was profoundly amnesic and unaware of his memory deficit. Thus, his wishful confabulations were unlikely to have been conscious attempts to compensate for memory loss. The possible relationship between motivated confabulation and anosognosia clearly warrants further study, given that “no generally accepted theory of anosognosia exists in neuropsychology” (Burgess & Shallice, 1996, p. 398) to which the present findings could be related.

7.2. Combinations of and interactions between preserved and damaged processes

A second possible explanation would be that ES’s pleasant and wishful thoughts were not causative of his confabulations, but rather contributed to the content of his confabulations by way of the retrieval processes used in normal autobiographical memory. This explanation would be consistent with accounts that explain confabulation through complex combinations of damaged and spared memory functions (Conway & Tacchi, 1996; Downes & Mayes, 1995; Johnson et al., 1997; Kopelman et al., 1997; Prigatano & Weistein, 1996).
Normal distortion in autobiographical memory has been widely studied, and these investigations provide a useful background to the present findings. The latter revealed that control participants, in contrast with ES, showed only a mild positive bias in constructing false memories on experimental demand—although the differences in self-engagement and motivational complexity between the two experimental procedures should be taken into account. In this light, it is assumed that the positive bias found in this study would be even greater in the reconstruction of one’s own past in natural settings. The latter assumption is consistent with recent findings of studies on autobiographical memory (for reviews see Conway & Pleydell-Pearce, 2000; Woike, 2003). Crucially, the generation of false memories that do more than simply provide a rationale for the external bewildering perplexity (cf. ‘gap-filling’). Their patient, OP, was unable to distinguish between fantasies and memories (i.e. reality monitoring deficit Johnson, 1991) and she used her fantasies to re-create her personal past and present in a way that served the purpose (not necessarily conscious) of protecting the self from the unpleasantness of her actual reality. In this account, when the ‘self’ becomes partly disconnected from the knowledge base, the compromised ability to form autobiographical memories is heavily shaped by unconstrained self-goals (wishes) and thus by the emotional consequences of a particular thought or memory—so that the patient is more likely to affirm thoughts or memories that have positive affective consequences.

ES’s striking tendency to experience his past and present reality as pleasant could be explained in a similar way. ES’s memory control processes appeared to be disrupted, in that he was unable to voluntarily suppress, monitor and verify words, what was previously endogenously activated, but rather than permanently unavailable (Baddeley & Wilson, 1986; Conway & Pleydell-Pearce, 2000; Papagno & Muggia, 1996). Indeed, although ES was unable to correctly describe specific events upon request, his ‘accidental’ retrievals showed preserved knowledge of some personal facts (e.g. his profession) and apparently the personal goals, intentions and feelings associated with these facts (e.g. his professional success prior to his pathology).

Thus, the affective bias of ES’s confabulations could be regarded as a combination of dysfunctional mechanisms of retrieval and evaluation, together with preserved knowledge of his personal goals (vices), and of the emotional consequences of particular thoughts and memories. The disruption to ES’s retrieval mechanisms thus allowed for a greater proportion of imagined events and wishful thoughts to emerge and to be accepted as real memories. In other words, what was previously endogenously activated, but recognised as not-real and hence inhibited, is no longer rejected as inaccurate (Johnson et al., 1997). This implicit material thereby found its way into ES’s explicit recollections.
and beliefs, creating a more pleasant personal past, present and future. Not all false memories created by ES were positive and wishful. Indeed, the findings of this study confirm that at least 29 (19.5%) of his observed confabulations were more unpleasant in comparison with the corresponding actual situation. This finding is similar to previously reported cases of confabulation, in which strenuously and repeatedly defended confabulations (Downes & Mayes, 1995; Stuss et al., 1978, cases 3–5; Talland, 1961, patient AI) included very unpleasant events, such as descriptions of the violent death or injury of relatives or oneself, and often were paranoid in nature (Benson & Stuss, 1990, case 3; Kopelman et al., 1985; HS/LH/HT, Talland, Sweet, & Ballantine, 1967, patients I/II, Talland, 1961, patients HS/LH/HT, Talland, Sweet, & Ballantine, 1967, patients ER/GO). It would be of great interest in future research to investigate the differential basis of positive versus negative affective biases in confabulation.

Burgess and Shallice’s (1996) account of confabulation as an exaggeration of normal memory distortion phenomena, describing similar control mechanisms in autobiographical recall, can accommodate an explanation of motivated confabulation. They claim that “the marked personal significance for the individual” (Burgess & McNeil, 1999, p. 179) of some generic memories render them capable of “motivating the emergence of this particular generic memory over others”. However, this process does not appear to be anticipated specifically by the hypothesised descriptor mechanism dysfunction proposed by these authors (although see Costello, Fletcher, Dolan, Frith, & Shallice, 1998 for a more specific consideration of the relation between memory and motivational factors). Instead, descriptor failure seems to result in generic memories of all possible emotional valence and significance dominating memory search by their power as “starting values” of the recollection process—without the need for further “motivation”. The specific issue of selection between the various possible generic memories thus remains unexplained by the descriptor process dysfunction itself. Therefore, their model addresses confabulation specificity, constancy and resistance to contradiction (dysfunctional editor processes), but it does not provide adequate explanation of the specificity and constancy of the emotional bias observed in the content of the present patient’s confabulations.

Dalla Barba (2001, 2002) and Dalla et al. (1997a,b), adopting a view different from that of most other authors mentioned, has argued against the existence of unconscious control processes in memory retrieval on theoretical grounds. However, Schneider, Valenza, Morand, and Michel (2002) in a recent high resolution event-related potential study, have provided evidence for the assumption that normal subjects suppress currently irrelevant memory traces (e.g. memories of a different source) before the conscious stages of learning and recognition. They have argued on this basis that the suppression of currently irrelevant memories is a pre-conscious mechanism, intervening before the content of a memory is consciously recognised and consolidated. This finding is consistent with other models of normal memory retrieval, which assume unconscious retrieval stages before the stage of conscious recollection and post-retrieval monitoring (e.g. Burgess & Shallice, 1996; Conway & Tacchi, 1996; Johnson, 1991; Moscovitch, 1989; Schacter et al., 1998). Considering the above, it is unclear why Schneider (2003), Schneider and Prak (1999), Schneider et al. (2002) persist in claiming that “the stories (of confabulating patients) can virtually always be traced back to elements of real events”, when their model explicitly states that the suppression mechanism, whose failure is associated with confabulation, “may also explain the ability to distinguish between the memory of a true event and the memory of a thought” (Schnider et al., 2002, p. 59). Thus, not only memories but also thoughts (and potentially other mental processes e.g. dreams, fantasies) may also become the stuff that confabulations are made of. In fact, Schnider et al. (2002) cite animal studies which show (anatomically and behaviourally) a comparable failure in monkeys to suppress their previous responses to cues that are no longer rewarded, and postulate that “if one accepts the idea that human behaviour, too, is motivated by predicted goals, this model may be applied to the human ability to adapt behaviour and thinking to the changing reality”.

The findings of the present study do not contradict Schneider et al.’s (2002) results, but further broaden the “currently irrelevant” information which confabulation patients cannot suppress in everyday interaction (as opposed to laboratory conditions). There is a potentially infinite number of memories, thoughts and fantasies available as candidates for recollection, which in normal autobiographical memory construction are selected, combined and checked (Burgess & Shallice, 1996; Conway & Tacchi, 1996; Moscovitch,
1989) according to both personal significance (Conway & Pleydell-Pearce, 2000; McAdams, 2001) and current reality criteria (Johnson, 1991; Schnider, 2000, 2003). The present study suggests that in confabulation, in which such reality-based recollection processes are dysfunctional, the memories finally selected and retrieved are the ones most relevant to, and in agreement with, the patient’s self-goals and emotions.

8. Conclusions

Confabulation after brain lesions in the anterior forebrain has been explained by several cognitive ‘deficit’ theories. The many ways in which confabulation can manifest suggest that these theories might best be regarded as complementary rather than competing. The findings from ES provide empirical support for the hypothesis that confabulation can in part be ‘motivated’, or at least show a consistent positive emotional bias. This ‘positive’ feature of confabulation has not previously received due attention in accounts of the mechanism(s) of confabulation. However, it can readily be considered in parallel with the ‘negative’ aspects of the cognitive profile, such that a complex combination of damaged (poor retrieval control) and spared (emotionally driven retrieval) procedures apparently interact in generating false beliefs and memories.

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Appendix A. Examples of confabulation ratings

A.1. Rated as positive

Confabulation 55, $M = 5.92$, $N = 12$. The patient continues talking about his eyesight problems. He concludes: “Then last year I had a complete repair of the eyes” (This did not occur in reality).

Is the confabulated situation more pleasant or more unpleasant (for the patient) than the actual reality?

(a) Extremely unpleasant 1–2–3–4–5–6–7 extremely pleasant.
(b) Impossible to judge.

Comments . . .

A.2. Rated as positive

Confabulation 130, $M = 6.38$, $N = 14$. The patient continues:

“Other people take my cars . . . take them somewhere, people feel . . . um . . . they have a car, have a Porsche. That’s from buying a ticket or whatever the case is.”

The examiner is confused. He asks: “What did you say? People have a car . . . a Porsche.”

Patient: “No, I’ve got a Porsche. The 540 . . . 54, 94, I don’t even know—I must check if I have still got it. It’s been in the garage for almost a month.”

The patient does not possess a Porsche in reality.

Is the confabulated situation more pleasant or more unpleasant (for the patient) than the actual reality?

(a) Extremely unpleasant 1–2–3–4–5–6–7 extremely pleasant.
(b) Impossible to judge.

Comments . . .

A.3. Rated as negative

Confabulation 22, $M = 2.42$, $N = 12$.

Examiner: “Was it the valve that they replaced or the whole heart?”

Patient: “Actually it wasn’t the heart they replaced.”

Examiner: “What was it?”

Patient: “The surroundings. What have we got around our hearts? I don’t know. But they took the whole thing out . . . I mean I have been playing soccer here for Wits for 20 odd years. Saw my captain about a month ago. And . . .
about 8 years ago I had a pump—what do you call it? It is quite a strong pump here?
Examiner: “Do you mean the heart?”
Patient: “Must be the heart. Anyway they replaced that thing. He replaced that and said it’s fine. And it was fine for quite a while but then they decided to replace inside my heart. Got a lot of damage.”
Examiner: “Was it the vessels that were blocked?”
Patient: “That’s what I said. But I was happy that I had it done.”
The patient did play soccer for Wits for many years. It is uncertain whether or not he saw his captain a month ago.

A.5. Rated as neutral
Confabulation 32, $M = 4.0, N = 13$. A few moments later:

“About 2 weeks ago I went to see Duncan.” (A dental surgeon previously mentioned by the patient.)
This did not occur in reality.
Is the confabulated situation more pleasant or more unpleasant (for the patient) than the actual reality?
(a) Extremely unpleasant 1–2–3–4–5–6–7 extremely pleasant.
(b) Impossible to judge.
Comments...

A.6. Rated as neutral
Confabulation 143, $M = 4.15, N = 13$.
Patient: “Oh, lovely . . . We were at school together.” (Referring to his wife.)
Examiner: You were at school together?
Patient: We still are.
Examiner: You and Val? Really? I didn’t know that. When you say you still are, do you mean you are still at school now?
Patient: Well not at school, at university.
Examiner: Oh. So the two of you are at university together?
Patient: Yes. She is doing third year and I am doing computer.
Examiner: What is she studying?
Patient: I don’t know. I think criminology. I am not really sure.

In reality, the patient left university (where he studied electronic engineering) many years ago. Val (who is 20 years his junior) was never at school or university with him.

Is the confabulated situation more pleasant or more unpleasant (for the patient) than the actual reality?
(a) Extremely unpleasant 1–2–3–4–5–6–7 extremely pleasant.
(b) Impossible to judge.
Comments...

A.7. Rated as unscorable
Confabulation 135, $N = 6$. The patient then tells the examiner how he went to a certain person (apparently a garage owner) to confront him about his missing car. It is unclear whether or not the episode in question ever occurred (with reference to some other car of the patient’s). However, the patient then asks the examiner what aspect of the car business he is in. The examiner clarifies that he is not in that trade, that he works with brains not cars.

Patient: “Oh I see, so how come you have my car?”
Examiner: “I haven’t got your car!”
Patient: “Come off it!” (Looks incredulous.)

Is the confabulated situation more pleasant or more unpleasant (for the patient) than the actual reality?
(a) Extremely unpleasant 1–2–3–4–5–6–7 extremely pleasant.
(b) Impossible to judge.
Comments...

A.8. Rated as unscorable
Confabulation 140, $N = 9$.
Examiner: “Oh, so you were married twice. And Val?
Patient: She’s Italian.
In reality, the patient’s second wife is South African, not Italian.

Is the confabulated situation more pleasant or more unpleasant (for the patient) than the actual reality?
(a) Extremely unpleasant 1–2–3–4–5–6–7 extremely pleasant.
(b) Impossible to judge.
Comments...

References


