

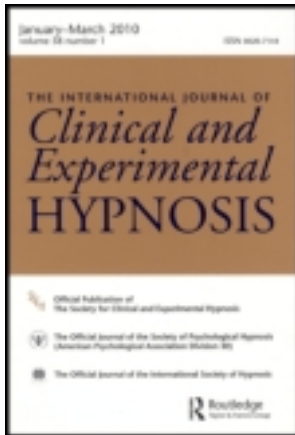
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### A Stranger in the Looking Glass: Developing and Challenging a Hypnotic Mirrored-Self Misidentification Delusion

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# A STRANGER IN THE LOOKING GLASS: *Developing and Challenging a Hypnotic Mirrored-Self Misidentification Delusion*<sup>1</sup>

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**Abstract:** This article describes a study that used hypnosis to temporarily re-create mirrored-self misidentification, which is the delusional belief that the person one sees in the mirror is a stranger. Following a hypnotic suggestion to see a stranger in the mirror, high hypnotizable subjects described seeing a stranger with physical characteristics different to their own. Whereas subjects' beliefs about seeing a stranger were clearly false, they had no difficulty generating sensible reasons to explain the stranger's presence. The authors tested the resilience of this belief with clinically inspired challenges. Although visual challenges (e.g., the hypnotist appearing in the mirror alongside the subject) were most likely to breach the delusion, some subjects maintained the delusion across all challenges. Findings are discussed in light of the dominant theory of delusions and highlight the advantages of using hypnosis to explore delusional beliefs.

Clinical delusions are cardinal features of a range of neuropsychological and psychiatric conditions, yet they are relatively difficult to study because they often occur in conjunction with other clinical symptoms. Recently, researchers have turned to hypnosis as an alternative means to investigate delusions in the laboratory. According to Oakley and Halligan (2009), the instrumental use of hypnosis focuses on modeling key symptoms of the clinical disorder of interest by creating a credible, reversible, psychological disturbance. Such hypnotic analogs

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allow researchers to selectively manipulate elements of information processing and then index the resulting cognitive output. Oakley and Halligan suggested that the hypnotic creation of “virtual patients” could be used to temporarily re-create a range of neuropsychological and psychiatric conditions. So far, hypnosis has been successfully used to re-create, for instance, functional amnesia (Barnier, 2002), conversion disorder (Halligan, Athwal, Oakley, & Frackowiak, 2000), hysterical blindness (Bryant & McConkey, 1989), selected delusions (Cox & Barnier, 2009a, 2009b; Cox & Bryant, 2008), and auditory hallucinations (Szechtman, Woody, Bowers, & Nahmias, 1998). The present study adopted this approach to investigate mirrored-self misidentification delusion, which is the delusional belief that the person I see when I look in the mirror is a stranger (Breen, Caine, Coltheart, Hendy, & Roberts, 2000).

## DELUSIONS AND HYPNOSIS

Langdon and Coltheart (2000; see also Coltheart, 2007) suggested that two factors are responsible for the production and maintenance of delusions such as mirrored-self misidentification. According to their cognitive neuropsychological theory, Factor 1 provides the content of the deluded belief and explains why the delusion arises in the first place. In mirrored-self misidentification, Factor 1 is thought to involve either a face-processing impairment or mirror agnosia (the inability to interact appropriately with mirrored space; Breen et al., 2000). However, people can have a Factor 1 deficit without developing a delusion. Thus, Langdon and Coltheart argued that a second factor is required. Factor 2 explains why the delusion is maintained and not rejected as untrue. Factor 2 involves a deficit or disruption to normal belief evaluation and is seen as a common factor across all delusions including mirrored-self misidentification.

These Factor 1 and Factor 2 impairments are often, but not always, neuropsychological in origin. Indeed, Langdon and Coltheart's (2000) two-factor theory is a general cognitive model, which suggests that delusional belief should arise whenever cognitive processing is disrupted in Factor 1- and Factor 2-like ways. This implies that we should be able to investigate delusions using other techniques that disrupt normal cognitive processing (even if only temporarily). We propose that hypnosis is one such technique. Hypnosis is particularly suited to modeling delusions, because specific hypnotic suggestions can generate anomalous experiences and false beliefs about the world (similar to Factor 1) as well as disrupt normal evaluation of these experiences and beliefs (similar to Factor 2; Barnier et al., 2008; Cox & Barnier, 2010). Also, hypnotic experiences have long been considered “delusion-like”

(Sutcliffe, 1961). Specifically, both hypnotic experiences and delusions are (a) believed with conviction, (b) resistant to rational counterargument, and (c) maintained regardless of evidence to the contrary (Kihlstrom & Hoyt, 1988).

Previous research has taken advantage of these shared features to explore delusional processes and beliefs in the laboratory, including sex-change delusions (Burn, Barnier, & McConkey, 2001; Noble & McConkey, 1995; Sutcliffe, 1961), experiences of paranoia (Zimbardo, Andersen, & Kabat, 1981), reverse intermetamorphosis or identity delusions (the belief that I have become someone else; Cox & Barnier, 2009a, 2009b), somatoparaphrenia (the belief that one of my limbs belongs to someone else; Rahmanovic, Barnier, & Cox, 2010), and alien control (the belief that my actions are caused by someone else; Scott, Barnier, & Cox, 2010). This work indicates that hypnotic suggestions can generate compelling delusional experiences among high hypnotizable individuals, with features that are strikingly similar to their clinical counterparts (Bortolotti, Cox, & Barnier, in press; Cox & Barnier, 2010). Just like clinical delusions, hypnotic delusions are resistant to challenge in a subset of talented hypnotic subjects. These talented subjects also appear to process information in a way that supports their delusional experience.

### *Hypnotic Mirrored-Self Misidentification*

In a series of studies, our team of hypnosis researchers and cognitive and clinical neuropsychologists has attempted to create a hypnotic analog of mirrored-self misidentification. This delusion typically occurs in cases of advanced global dementia and can involve different underlying neuropsychological deficits. Our preliminary work (Barnier et al., 2008) was based on two clinical patients reported by Breen et al. (2000). In Case 1, patient FE claimed that he saw a stranger when he looked at his reflection in a mirror. FE would acknowledge that the stranger looked very much like him but claimed that "I think you can distinguish that it's not me . . . he's got a personality himself." When the examiner stood next to FE so that both of their reflections were visible in the mirror, FE could identify the examiner but still failed to identify himself. When the examiner pointed to FE's reflection and asked him who it was, FE said, "I don't know what you would call him. I don't be too friendly with him because I don't see it does him any good." Neuropsychological testing revealed that FE had a disorder of face processing. He had difficulty identifying familiar and famous faces and had a heightened sense of familiarity for the faces of complete strangers. Based on this, Breen and colleagues reasoned that FE's Factor 1 appeared to involve a face-processing deficit.

In Case 2, patient TH also claimed that he saw a stranger when he looked at his reflection in a mirror. TH had a curtain covering all the mirrors in his house and said, “as soon as you lift the corner [of the curtain] you see him.” When TH was asked what happens when he shaves, he said, “he’ll get his razor and he’ll be on the other side of the mirror and I’ll be on this side of the mirror and we’ll shave together.” TH explained the presence of the stranger by saying that he lived in an adjoining unit at the back of his home (although there was no adjoining unit). Neuropsychological testing revealed that TH appeared to have intact face processing, but he no longer knew how to interact with mirrors (mirror agnosia). When objects were held over TH’s shoulder while he was looking in the mirror and he was asked to touch them, he would reach out towards the mirror. Based on this, Breen and colleagues (2000) reasoned that TH’s Factor 1 was mirror agnosia. Thus, mirrored-self misidentification delusion may arise from one of two possible Factor 1 deficits—a face-processing deficit or mirror agnosia.

In our first attempt to re-create mirrored-self misidentification (Barnier et al., 2008), we gave 12 high hypnotizable subjects a hypnotic suggestion to see either: (a) a stranger in the mirror, (b) a mirror as a window, or (c) a mirror as a window with a view to a stranger on the other side. These suggestions were based on the different phenomenology of the delusion. Subjects then looked into a mirror and described what they saw. We challenged the suggested delusion by asking subjects to (a) explain how a close friend or family member would be able to tell them apart from the stranger in the mirror and (b) touch their nose while looking in the mirror.

We scored subjects as passing the suggestion if they did not recognize themselves in the mirror. We found that 3 (75%) subjects in the stranger in the mirror condition, 1 (25%) in the mirror as a window condition, and 4 (100%) in the mirror as a window with a view to a stranger condition passed the suggestion. Thus, the *stranger in the mirror* suggestion and the *mirror as a window with a view of a stranger* suggestion were more successful than the *mirror as a window* suggestion. Those who passed described seeing a stranger with physical characteristics different to their own. Some subjects looked around the room to find the stranger, attempted to converse with the stranger and expressed suspicion about the stranger. In response to the challenges, subjects commented that a friend or family member would have no difficulty distinguishing them from the stranger. They made comments such as “they would know me by the quality of my skin and my features . . . and the color and style of my hair and my voice.” When subjects touched their nose while looking in the mirror, they commented that the stranger in the mirror was copying their actions. One subject said, “he’s copying me . . . he touched his nose . . . maybe he’s trying

to make me seem like I'm crazy or something." Overall, we found striking similarities between clinical cases and our hypnotic analog of mirrored-self misidentification in the way subjects reported their delusional belief, reacted to the surrounding environment (e.g., looking around the room for the stranger) and resisted challenges. Notably, subjects generated sensible reasons to maintain and justify the suggested delusion (Bortolotti et al., in press). For instance, when one subject was asked to explain why the stranger was copying them, she said, "She's outside and wants to come in so she's imitating me so I'll feel closer to her."

### *Current Study*

The current study aimed to extend this preliminary work in three major ways. First, our original study involved a sample of only 12 high hypnotizable subjects who received one of three versions of the suggestion (Barnier et al., 2008). In the current study we examined response to the suggestion and pass rates among a much larger sample of high hypnotizable subjects who all received the most successful suggestion from Barnier et al. Second, we explored subjects' reasoning during the hypnotically suggested delusion. This issue is of philosophical interest in terms of whether people can reason rationally about a seemingly irrational belief (Bortolotti et al., in press). The clinical patients TH and FE appeared to have no difficulty providing reasons to explain the presence of the stranger in the mirror (Breen et al., 2000). Likewise, we found in our original study that our hypnotic subjects could easily explain the stranger's behavior. Third, our original study used just two procedures to challenge subjects' hypnotic delusions. In the current study, we tested subjects' reactions to a larger series of challenges because clinical patients are faced with relentless challenges to their delusional beliefs (e.g., from friends, family members, and clinicians). In consultation with our clinical collaborators, we developed a set of adverse, clinically inspired challenges.

To address these aims we gave high hypnotizable subjects a hypnotic suggestion to see a stranger in the mirror (the *stranger in the mirror* suggestion from Barnier et al., 2008). Half of the subjects received an additional suggestion that they would easily think of reasons to explain why they were seeing a stranger in the mirror. The other half received no such suggestion. After subjects looked in the mirror and described what they could see, we administered a series of (a) appearance challenges, (b) visual challenges, and (c) behavioral challenges. Throughout the experiment, we asked subjects how they could explain the presence and behavior of the stranger in the mirror. Following the hypnosis session, we conducted a postexperimental inquiry using the

Experiential Analysis Technique (EAT; Sheehan & McConkey, 1982) where subjects watched a video recording of their hypnosis session and commented in detail on their experience of the hypnotic mirrored-self misidentification delusion.

Consistent with the work of Barnier et al. (2008), we expected subjects to experience a compelling delusion of mirrored-self misidentification and to display features similar to the clinical condition. We were interested in whether our hypnotic subjects could provide reasons to explain seeing a stranger in the mirror and whether the reasons they provided were logical. We expected subjects who received the suggestion to think of reasons to explain seeing a stranger in the mirror would provide logical reasons to support their delusion. We were also interested in whether our hypnotic subjects could withstand a series of clinically inspired challenges and the types of challenges that might break down the suggested delusion. Consistent with previous research on hypnotic delusions, we expected some high hypnotizable subjects to maintain their delusion across the entire series of challenges. However, given that these challenges were more confronting (both in number and intensity) than those used by Barnier et al., for many subjects we expected conviction in the delusion to gradually lessen as the number of challenges increased.

## METHOD

### *Participants*

Thirty-eight high hypnotizable subjects (16 male and 22 female) of mean age 20.63 ( $SD = 6.53$ ) years participated in this experiment. Subjects were undergraduate students at the University of New South Wales who received credit towards their psychology course for their involvement. They were selected on the basis of their high scores on a modified 10-item version of the Harvard Group Scale of Hypnotic Susceptibility, Form A (HGSHS:A; Shor & Orne, 1962) and a modified 10-item version of the Stanford Hypnotic Susceptibility Scale, Form C (SHSS:C; Weitzenhoffer & Hilgard, 1962).<sup>3</sup> All subjects scored in the

<sup>3</sup>The 10-item modified HGSHS:A included: head falling, eye closure, hand lowering, finger lock, moving hands together, communication inhibition, experiencing of fly, eye catalepsy, posthypnotic suggestion, and posthypnotic amnesia; arm rigidity and arm immobilization items were removed to ensure that the procedure could be conducted within the time limits of a 1-hour class. The 10-item tailored SHSS:C included: hand lowering, moving hands apart, mosquito hallucination, taste hallucination, arm rigidity, dream, age regression, arm immobilization, negative visual hallucination, and posthypnotic amnesia; anosmia and auditory hallucination items were removed to ensure that the procedure could be conducted within the time limits of a 1-hour individual session.



range 7–10 on the HGSHS:A ( $M = 7.97$ ,  $SD = 0.94$ ) and 7–10 on the SHSS:C ( $M = 8.42$ ,  $SD = 1.11$ ).

### *Apparatus*

A video camera and a DVD recorder were used to record both the hypnosis and EAT sessions onto DVD. A DVD player and a color monitor were used to play the recording of the hypnosis session to subjects during the EAT session. During the suggested delusion, a square mirror (approx 28.5 cm × 28.5 cm framed with a 2.5 cm wooden border) was mounted on the wall to the left of the subjects. The mirror was positioned such that subjects could look easily into it when instructed to do so by the hypnotist. Before and after the delusion item, the mirror was covered with a white screen of similar coloring to the wall. This screen was removed during the suggestion.

### *Procedure*

Subjects were tested individually in 2-hour sessions, which involved a hypnosis session and an EAT inquiry. Both the hypnosis procedure and the EAT inquiry were conducted by the same experimenter.

*Hypnosis session.* Following informed-consent procedures, subjects received a 12-minute standard hypnotic induction procedure (based on the SHSS:C induction; Weitzenhoffer & Hilgard, 1962), which included suggestions to close their eyes and relax whilst paying close attention to the hypnotist's voice. The induction concluded with the hypnotist counting from 1 to 20 and instructing subjects to become more deeply hypnotized as she counted. Next, subjects received suggestions for arm levitation, a sweet taste hallucination, a heat delusion, and verbal inhibition. Following this, subjects were randomly assigned to either the *think of reasons* condition ( $n = 19$ ) or the *no reasons* condition ( $n = 19$ ). Subjects in the *think of reasons* condition were told:

You feel pleasantly and deeply hypnotized as you continue to listen to my voice. In a moment, I am going to ask you to open your eyes, and when you do, I would like you to lean forward and to look to your left. When you look to your left, there will be a mirror there, and you will see a person in it. The person you see in the mirror will not be you, it will be a stranger. When you open your eyes and turn your head to your left, whilst remaining as deeply relaxed and comfortably hypnotized as you feel now, you will see a stranger in the mirror. As you look in the mirror, you will easily think of reasons to explain why you see a stranger. You will have no difficulty explaining why you see a stranger in the mirror, no matter how unlikely these explanations may be. Do you understand? Fine. When you open your eyes and turn your head to your

left you will see a stranger in the mirror. I would now like you to slowly open your eyes, turn your head to the left and look into the mirror.

Subjects in the *no reasons* condition were told:

You feel pleasantly and deeply hypnotized as you continue to listen to my voice. In a moment, I am going to ask you to open your eyes, and when you do, I would like you to lean forward and to look to your left. When you look to your left, there will be a mirror there, and you will see a person in it. The person you see in the mirror will not be you, it will be a stranger. When you open your eyes and turn your head to your left, whilst remaining as deeply relaxed and comfortably hypnotized as you feel now, you will see a stranger in the mirror. Do you understand? Fine. When you open your eyes and turn your head to your left you will see a stranger in the mirror. I would now like you to slowly open your eyes, turn your head to the left and look into the mirror.

Following the suggestion, all subjects were asked the following questions:

1. Please tell me what you see in the mirror.

*[If subject sees stranger]:* How do you explain seeing that person in the mirror?

2. I would like you to tell me (more) about the person you can see in the mirror.
3. Is the person you can see male or female?
4. What do they look like?
5. a. Have you ever seen this person before?

*[If yes]:* b. Who is this person?

c. What is it about the person in the mirror that makes you think they are . . . ?

d. How do you explain being able to see this person in the mirror?

*[If no]:* b. Do they remind you of anybody? If so, who do they remind you of?

c. What is it about the person in the mirror that reminds you of . . . ?

6. In what ways does the person you see look like you?
7. In what ways does the person you see look different to you?

The hypnotist then challenged the delusion with a series of appearance, visual, and behavioral challenges.

In the appearance challenges, subjects were asked:

1. How is it possible that you and the person you see look so similar?
2. If a close friend or a member of your family came into the room right now and looked at you and looked in the mirror, what would they say about what they could see?
3. How would they be able to tell you apart from the person you see?
4. How would you explain to them what they see?

Upon completion of the appearance challenges, subjects were asked:

5. Tell me again, who do you see in the mirror?

Next, the hypnotist administered the visual challenges. For these challenges, the hypnotist moved so that she appeared in the mirror beside the subject and she asked:

1. Who else do you now see in the mirror?
2. Where are you in the mirror?

*[If subject says they are not in the mirror or they don't know]:* How do you explain that you can see me but not you?

3. Take a moment to look around the room and tell me how many people are in the room at the moment?

*[If subject says there are two people]:* Ok, if there are two people in the room, and two people in the mirror, who must the people in the mirror be?

*[If subject says there are more or less than two people]:* I can only see myself and you in the room. There are only two people in the room. If there are two people in the room and two people in the mirror, who must the two people in the mirror be?

4. Where in the room is the person that you see in the mirror?

*[If subject says that they are not in the room]:* How do you explain that you can see the stranger in the mirror but they are not in the room?

In the behavioral challenges, subjects were asked:

1. I would like you now to touch your nose *[wait for subject to touch their nose]*. What did the person in the mirror do?
2. Why did they do that?

Next, the hypnotist held a tennis ball over the subjects' shoulder that was visible in the mirror and said:

3. I would like you now to touch the ball *[wait for subject to touch the ball]*. What did the person in the mirror do?
4. Why did they do that?
5. How do you explain that the person you can see always does exactly what you do?

If at any point, the subjects said that they could see themselves in the mirror, the hypnotist said, "That's fine. You see yourself in the mirror" and cancelled the suggestion by saying:

That's fine. Now, lean back, close your eyes and relax. You're comfortably relaxed and deeply hypnotized. You will become even more relaxed

and hypnotized as you pay close attention to my voice and my words. The mirror to your left is turning back into what it has always been, a normal mirror that reflects things exactly as they are. In a moment, I would like you to open your eyes and look to your left and tell me what you see. Just slowly open your eyes, lean forward and look to your left and tell me what you see. . . .

That's right, it's a normal mirror and you can see your reflection in it. Everything is back to normal. It is just a normal mirror. Just lean back and close your eyes again. You are becoming more and more relaxed. Comfortably relaxed and deeply hypnotized.

Finally, the hypnotist administered a standard deinduction (based on Weitzenhoffer & Hilgard, 1962) and commenced the postexperimental inquiry.

*EAT inquiry.* The hypnotist informed subjects that she would show them the videotape of the hypnosis session they had just completed, stop the videotape at various points and ask them about their experiences. After watching the delusion suggestion and their initial reaction to looking in the mirror, subjects were asked: (1) What thoughts did you have when you looked in the mirror? (2) How did that make you feel? (3) On a scale of 1 to 7, to what extent did you believe there was a stranger in the mirror (1 = "not at all," 7 = "completely")? (4) On a scale of 1 to 7, how distressing was it to look in the mirror (1 = "not at all distressing," 7 = "extremely distressing")? and (5) Were you trying to think of explanations or reasons as to why you were seeing a stranger in the mirror? If subjects indicated they had been trying to think of explanations they were asked: (6) What explanations or reasons did you come up with?

Following this, subjects watched the challenge procedures and were asked: (7) How did you feel when the person in the mirror copied everything you were doing? and (8) What were you experiencing when I appeared in the mirror next to you?

Finally, the hypnotist invited subjects to ask questions, debriefed them and thanked them for their time.

## RESULTS

### *Response to the Suggestion*

Consistent with Barnier et al. (2008), subjects were scored as passing the suggestion if they did not recognize themselves in the mirror. Table 1 presents the number and percentage of subjects in the *think of reasons* and *no reasons* conditions who passed the suggestion. Overall, 26 (68%) subjects passed the suggestion. For those who passed, Table 1 also presents the number and percentage of subjects who described

Table 1  
*Subjects Who Passed the Suggestion, Described Physical Differences, and Provided Explanations for Seeing a Stranger in the Mirror*

	Think of Reasons	No Reasons
Pass Suggestion	13 (68%)	13 (68%)
Different Characteristics	9 (69%)	5 (38%)
Provide Explanation	8 (62%)	3 (23%)

seeing a stranger with physical characteristics different to their own. Overall, 14 (54%) subjects described physical differences between themselves and the stranger.

Separate chi-square analyses indicated that there were no significant differences between the number of subjects in the *think of reasons* and *no reasons* conditions who passed the suggestion,  $\chi^2(1, n = 38) = 0.00$ ,  $p = 1.00$ , and who described different physical characteristics,  $\chi^2(1, n = 26) = 2.48$ ,  $p = .12$ . That is, being asked to think of reasons did not influence the likelihood of subjects developing the delusion or some of its initial qualities. For instance, irrespective of reasons condition, 9 (36%) subjects claimed that they had seen the person in the mirror before, 4 (16%) were unsure, and 12 (48%) said they had not seen the person before. Similarly, irrespective of reasons condition, 8 (32%) subjects said the person reminded them of themselves, 7 (28%) said the person was someone known to them, 3 (12%) were unsure who the person reminded them of, and 7 (28%) said the person didn't remind them of anyone. Of those who said the person reminded them of someone they knew, 5 (71%) said the person reminded them of a family member.

The following transcript illustrates one subject's — a 21-year-old woman — compelling experience of seeing a stranger in the mirror. She described a stranger with physical characteristics different to her own and said that the stranger reminded her of a family member.

- Hypnotist: Please tell me what you see in the mirror.  
 Subject: An old person. The skin is old and spotted.  
 Hypnotist: Tell me more about the person you see.  
 Subject: They look tired.  
 Hypnotist: Is the person a man or a woman?  
 Subject: A woman.  
 Hypnotist: What do they look like?  
 Subject: They look old. They look like my nanna.  
 Hypnotist: Have you seen this person before?  
 Subject: No.  
 Hypnotist: Who do they remind you of?  
 Subject: They remind me of my nanna.  
 Hypnotist: What is it about them that reminds you of your nanna?

- Subject: Their eyes.  
 Hypnotist: In what ways does the person you see look like you?  
 Subject: They look sort of like me. They have the same lips as me.  
 Hypnotist: In what ways does the person you see look different to you?  
 Subject: They look older.  
 Hypnotist: How is it possible that you and the person you see look so similar?  
 Subject: I don't know. Maybe they're in my family.

Subjects' EAT comments and ratings reinforce the compelling nature of the delusional experience for some subjects. For example, when subjects were asked what thoughts and feelings they had when they first looked into the mirror, they made comments such as "I didn't think it was a mirror because the person I saw wasn't me. I thought you were playing a trick. The person in the mirror looked very familiar but I just had no idea who it was," "I thought that it looked like someone similar to me . . . like a relative . . . but I knew that it wasn't me," and "I really thought that someone else was in that mirror . . . it really didn't look anything like me." Many reported that the experience of seeing a stranger in the mirror made them feel confused or suspicious. They made comments such as "I was a bit shocked," "I was a little bit afraid of him," "It was quite unpleasant," and "It was really confusing."

During the EAT, subjects rated the extent to which they believed there was a stranger in the mirror (1 = "not at all," 7 = "completely") and how distressing it was to look in the mirror (1 = "not at all," 7 = "extremely"). Table 2 presents belief and distress ratings according to the reasons condition and whether subjects passed or failed the delusion. These ratings reflect subjects' experiences upon first looking into the mirror. Separate 2 (reasons condition)  $\times$  2 (response to suggestion) analyses of variance (ANOVAs) revealed only significant main effects for response to suggestion. Subjects who passed the suggestion

Table 2  
*Belief and Distress Ratings According to Whether Subjects Passed or Failed Suggestion*

	Think of Reasons	No Reasons
Belief		
Pass	4.75 (1.66)	4.91 (1.81)
Fail	2.00 (1.00)	1.33 (0.52)
Distress		
Pass	3.08 (2.02)	4.00 (1.55)
Fail	1.33 (0.58)	2.33 (2.00)

*Note.* Belief ratings were made on a scale of 1 to 7 (1 = "no belief", 7 = "complete belief"). Distress ratings were made on a scale of 1 to 7 (1 = "no distress", 7 = extreme distress"). Standard deviations are in parentheses.

believed more strongly in their delusional experience than those who failed,  $F(1, 28) = 24.99, p < .01$  (see Table 2). Similarly, subjects who passed the suggestion were more distressed than those who failed,  $F(1, 28) = 5.45, p < .03$  (see Table 2); note, however, that distress ratings were only moderate, never extreme. Again, being asked to think of reasons for the delusional experience did not influence its success as indexed in this way (all  $F_s < 1.72$ , all  $p_s > .20$ ).

#### *Reasons Provided to Explain Presence of Stranger*

Subjects who passed the suggestion were asked how they could explain seeing a stranger in the mirror. For those who passed, Table 1 presents the number and percentage of subjects who provided an explanation. Overall, 11 (42%) provided an explanation but chi-square analysis indicated that subjects in the *think of reasons* condition did so more often than subjects in the *no reasons* condition,  $\chi^2(1, N = 26) = 3.94, p < .05$ . These explanations mostly involved external rather than internal attributions. That is, they attributed the presence of the stranger to elements in their external environment rather than to some internal disruption. Importantly, their explanations were rational and reasonable. For instance, they made comments such as "There's another room on the other side," "The stranger was here before I came and he stayed here," "I'm wearing a mask," "It's a picture," and "It's a hole in the wall."

During the EAT, 25 subjects were asked if they had been trying to think of reasons to explain why they were seeing a stranger. Twenty (80%; 11 in *think of reasons*, 9 in *no reasons*) agreed they had been. Chi-square analysis indicated no difference across the *think of reasons* and *no reasons* conditions, which means that, although subjects in both conditions tried to think of explanations, those in the *think of reasons* condition were more successful at arriving at one.

The following transcript illustrates the type of logical reasoning that one subject engaged in when looking at herself in the mirror. This subject described seeing someone who looked exactly like her but commented that something about the person in the mirror didn't feel quite right.

- Hypnotist: Tell me, what do you see in the mirror?  
 Subject: (*Looks behind her and around the room*) I think it's myself but I don't know. There is no one there (*looks around the room*).
- Hypnotist: Tell me more about the person you see in the mirror.  
 Subject: It looks a lot like myself.
- Hypnotist: Are they male or female?  
 Subject: Female. It looks just like me but I don't think it's me.
- Hypnotist: Who do you think this person is?  
 Subject: I don't know. I don't have a twin or anything. Maybe it's me . . . it could be.

- Hypnotist: Does the person you see look different to you?  
 Subject: No, it looks like me.
- Hypnotist: How is it possible that the person in the mirror looks just like you?  
 Subject: Well it's not possible because there is no one there (*looks around the room and gestures to space*). How can it be me if I don't know that it's me? If it was me, I'd have the feeling that it was me.
- Hypnotist: What would a friend or member of your family say if they saw the reflection in the mirror?  
 Subject: I think they would say it was me.
- Hypnotist: How would you explain to them what they see?  
 Subject: I'd say, well it's not me, it's someone else. Because, if it was me, I'd know it was me.

### Response to Challenges

Participants were subject to a series of challenges to their delusional experiences. Consistent with Barnier et al. (2008), if at any stage during the challenge procedures, subjects reported seeing themselves in the mirror, they did not receive subsequent challenges. The following challenge results reflect only those subjects who received each challenge. Figure 1 presents the number of subjects who initially received each set of (appearance, visual, and behavioral) challenges and the number of subjects who continued to maintain the delusion at the end of each set.

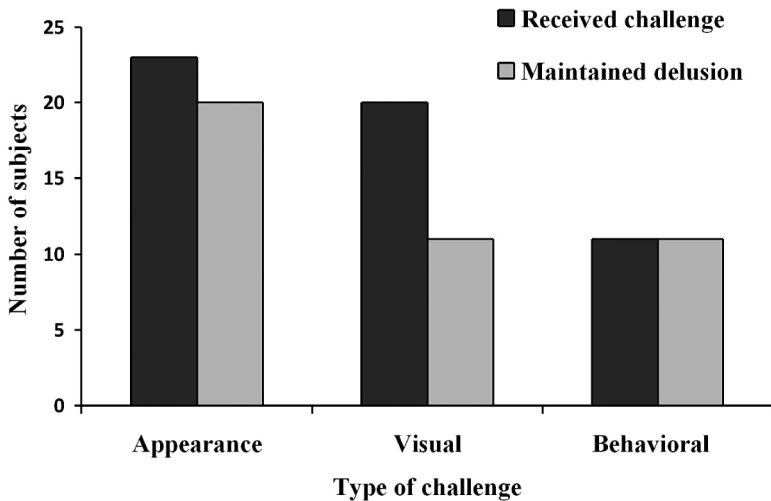


Figure 1. Number of subjects who received each set of challenges and maintained the delusion upon their completion.



*Appearance challenges.* In first appearance challenge, 22 subjects were asked how it was possible that they could look so similar to the person in the mirror. In response, 22 (100%; 10 in *think of reasons*, 12 in *no reasons*) maintained their delusional experience. They made comments such as: "I guess you just found someone who looks like me," "It's a picture of me," "A lot of people look similar," and "Maybe they're in my family."

In the second appearance challenge, 23 subjects were asked what a close friend or family member would say if they looked at the subject and then looked in the mirror. In response, 23 (100%; 10 in *think of reasons*, 13 in *no reasons*) maintained their delusional experience. They made comments such as: "They'd say we're related," "They'd say it's different and it's not me," "I think they can tell the difference," and "I don't think they'd get us mixed up."

In the third appearance challenge, 23 subjects were asked how this friend or family member would be able to tell them apart from the person in the mirror. In response, 23 (100%; 10 in *think of reasons*, 13 in *no reasons*) maintained their delusional experience. They claimed that a friend or family member would be able to distinguish them from the person in the mirror based on specific features. They made comments such as: "This person looks older and has different hair color."

In the fourth appearance challenge, 23 subjects were asked how they would explain to a friend or family member what they could see. In response, 20 (87%; 9 in *think of reasons*, 11 in *no reasons*) maintained their delusional experience. They made comments such as "They've just found someone who looks like me." During the EAT, one subject described this challenge as helpful, saying "Describing what a person who had just walked into the room would say helped to explain things for me about what I was experiencing. I was able to step back from the situation and let all the unnecessary confusion go."

For all the appearance challenges, the reasons condition did not influence whether subjects maintained the delusion. However, it did influence whether subjects provided an explanation. For instance, when they were asked how it was possible that they could look so similar to the person in the mirror, 8 subjects in the *think of reasons* condition, compared to 5 subjects in the *no reasons* condition, provided an explanation,  $\chi^2(1, n = 22) = 3.32, p < .07$ . Similarly, when they were asked how they would explain to a friend or family member what they could see, 8 subjects in the *think of reasons* condition, compared to 4 subjects in the *no reasons* condition, provided an explanation,  $\chi^2(1, n = 23) = 5.49, p < .02$ .

*Visual challenges.* In the first visual challenge, the hypnotist appeared in the mirror alongside 20 subjects and asked them "who else do you now see in the mirror?" In response, 18 (90%; 8 in *think of reasons*, 10

in *no reasons*) could identify the hypnotist in the mirror. In the second visual challenge, 19 subjects were asked where they were in the mirror. In response, 13 (68%; 6 in *think of reasons*, 7 in *no reasons*) subjects maintained their delusional experience and could not identify themselves in the mirror. In the third visual challenge, 16 subjects were asked how they could explain seeing the hypnotist but not themselves. In response, 16 (100%; 8 in *think of reasons*, 8 in *no reasons*) maintained their delusional experience. They made comments such as "This person has taken my spot. . . . They must be playing a trick on me."

In the fourth visual challenge, the hypnotist instructed 18 subjects to look around the room and said that if there were only two people in the room, who must the people in the mirror be? At this point, only 6 (33%; 4 in *think of reasons*; 2 in *no reasons*) subjects maintained their delusional experience. The remaining 12 (66%; 4 in *think of reasons*, 8 in *no reasons*) subjects stated that it must be themselves and the hypnotist in the mirror. As illustrated in Figure 1, the visual challenges (and this challenge in particular) appeared to be the most successful at breaching the delusion. In the fifth visual challenge, 8 subjects were asked how they could explain seeing a stranger in the mirror but not in the room. In response, 7 (88%; 5 in *think of reasons*, 2 in *no reasons*) maintained their delusional experience. They made comments such as "It's like someone on the other side and they're imitating," and "It's not a mirror, it's a window."

For all the visual challenges, the reasons condition did not influence whether subjects maintained the delusion. However, it did influence whether subjects provided an explanation. For instance, when they were asked how they could explain seeing the hypnotist but not themselves in the mirror, 6 subjects in the *think of reasons* condition, compared with 1 subject in the *no reasons* condition provided an explanation,  $\chi^2(1, n = 16) = 6.35, p < .02$ .

During the EAT, subjects who received these visual challenges were asked what they were experiencing when the hypnotist had appeared in the mirror alongside them. Those who maintained the delusion in response to this challenge made comments such as "I saw that it was you but for some reason I felt as if me and my reflection weren't connected," and "The logic of the situation escaped me. . . . I wasn't sure if someone else popping into the edge of the mirror was my imagination." In contrast, those who did not maintain the delusion made comments such as "The idea of there being a stranger became less plausible" and "When you stepped in, I just accepted that it was a mirror."

*Behavioral challenges.* In the first behavioral challenge, 11 subjects were asked to touch their nose while looking in the mirror and describe what the person in the mirror did. In response, all 11 (100%; 5 in *think of reasons*, 6 in *no reasons*) maintained the delusion and claimed that the

person in the mirror touched their nose as well. They made comments such as: "They're copying . . . they're taunting me," and "They're trying to imitate me." Similarly, in the second behavioral challenge 11 subjects were asked to touch the tennis ball and all 11 (100%; 5 in *think of reasons*; 6 in *no reasons*) maintained the delusion and claimed that the person in the mirror was touching the ball as well. They made comments such as "They're mocking me" and "He must be playing a trick again." In the third behavioral challenge, 11 subjects were asked why the person in the mirror always did the same things they did. In response, 11 (100%; 5 in *think of reasons*; 6 in *no reasons*) maintained their delusional experience. They made comments such as "We think similarly," and "She probably wants to be like me."

Once again, for all the behavioral challenges, the reasons condition did not influence whether subjects maintained the delusion. However, it did influence whether subjects provided an explanation. For instance, when they were asked why the person in the mirror touched the ball, 7 (64%; 5 in *think of reasons*, 2 in *no reasons*) provided an explanation,  $\chi^2(1, n = 11) = 5.24, p = .02$ .

During the EAT, subjects who received the behavioral challenges were asked how they felt when the stranger copied everything they were doing. Those who maintained their delusion in response to this challenge made comments such as "I was confused. I wasn't sure what was happening. I had this fixed belief in my head that there was a stranger looking back at me. Everything else that tried to contradict that was confusing me."

## DISCUSSION

These findings highlight the ability of hypnosis to re-create the features of mirrored-self misidentification in high hypnotizable individuals. In response to the suggestion to see a stranger in the mirror, over two thirds of our subjects believed they saw a stranger in the mirror who looked different from themselves. Those who received the suggestion to think of reasons generated sensible explanations for this experience. And some subjects maintained their delusion across an extensive set of clinically inspired challenges.

### *Reaction to the Delusion Suggestion*

This study replicates the findings of our original hypnotic analog (Barnier et al., 2008) in a much larger sample. Whereas 67% passed the delusion suggestion in that experiment, 68% passed in this study. These high pass rates are comparable with successful hypnotic analogs of sex change delusions (89% pass rate; Noble & McConkey, 1995) and identity delusions (78% pass rate; Cox & Barnier, 2009a). They

are particularly notable given that hypnotic delusion suggestions are difficult, cognitive items (Barnier & McConkey, 2004). These pass rates are also substantially higher than in other attempted analogs. For instance, only 29% passed suggestions attempting to re-create somatoparaphrenia (Rahmanovic et al., 2010). These differences might be due to the specific wording of the particular hypnotic suggestions. As noted by Oakley and Halligan (2009), the specific wording of hypnotic suggestions must be closely tied to the features of the clinical phenomenon that is being replicated. Suggestions must be clear enough for subjects to understand, but not overly directive about how they should respond.

Although our suggestion to “see a stranger in the mirror” was directive and clearly stipulated the hypnotic experience that subjects should have, in a recent study we examined the impact of a less specific suggestion. Based on Langdon and Coltheart’s (2000) two-factor theory of delusions, we gave participants a prosopagnosia-like suggestion that they would not be able to recognize the person in the mirror (“You will see a face in the mirror that you will not be able to identify”). We did not tell them that they would see a stranger. We were interested in whether the experience of an unfamiliar face in the mirror would lead to the delusional hypothesis that there was a stranger in the mirror. It did: 70% of subjects reported seeing a stranger in the mirror (Connors, Barnier, Coltheart, Cox, & Langdon, in press). Thus, even a less directive suggestion works to temporarily re-create the mirrored-self misidentification delusion. Just like in clinical cases, hypnotic subjects will transform an anomalous experience of seeing an unfamiliar face in the mirror into a delusional belief of seeing a stranger.

Consistent with our preliminary data (Barnier et al., 2008), subjects described a stranger who looked quite similar to them but who had physical characteristics different to their own. Interestingly, in the present study, many subjects claimed that the stranger looked familiar and reminded them of a family member. This suggests that they had some awareness of a connection between the stranger and themselves. We saw similar evidence of “covert recognition” in our original study, which mapped similar behavior in the clinical patients TH and FE reported by Breen et al. (2000).

### *Reasoning About an Unreasonable Experience*

In this study, we also explored whether subjects could generate reasons to explain seeing a stranger in the mirror and the type of reasons they provided. Not surprisingly, subjects who received the suggestion to easily think of reasons generated more explanations than those who did not receive this suggestion. Often, these explanations involved external attributions; subjects never attributed their

experience to the hypnotist's suggestions (i.e., nobody said they saw a stranger in the mirror because the hypnotist told them they would). Subjects' initial explanations also influenced their later experiences during the challenges. They appeared to build upon their initial explanations to justify maintaining their delusion. For example, one subject initially explained her experience by stating that she was not looking at a mirror. Later, during the visual challenges, when she was asked why the stranger was in the mirror but not in the room, she responded by saying "because it's not a mirror, it's a window." Another subject initially claimed that "the stranger was here before I came and he stayed here." When this subject was asked how they would explain to a friend or family member what they see, she said, "What you're looking at is a stranger who came here to watch me and he's going to be there for some time."

Presumably, all subjects in this study were aware of receiving the hypnotic suggestion to see a stranger in the mirror. However, in future work we plan to give subjects an instruction to forget the hypnotist's suggestion and examine how this might influence their explanations of the suggested experience. Zimbardo and colleagues (1981) demonstrated how a lack of awareness about a hypnotically suggested experience could lead to delusion-like experiences. They gave subjects a posthypnotic suggestion to experience deafness. They then gave half of the subjects an additional instruction to forget that the hypnotist had given them this suggestion. After hypnosis, those who were unaware of the source of their deafness expressed paranoia about two confederates who engaged in a whispered conversation nearby.

Recently, we used an amnesia suggestion to produce a lack of awareness in a hypnotic analog of somatoparaphrenia (the delusional belief that my arm belongs to someone else). Somatoparaphrenia often occurs in the context of anosognosia (denial of impairment) so we gave subjects a suggestion that their left arm would belong to someone else plus an instruction to forget that they had received this suggestion. However, our amnesia suggestion did not fully capture anosognosia because, although subjects could not remember receiving the hypnotic suggestion, they remained aware that something was wrong with their arm. Despite this, some subjects experienced compelling elements of somatoparaphrenia and generated a variety of explanations about their arm. They never attributed their experience to the hypnotist's suggestion (Cox & Barnier, 2010; Rahmanovic et al., 2010).

One important feature of subjects' explanations in the current study is that they were sensible and logical. They could reason about an unreasonable experience. This is similar to the clinical patient TH (Breen et al., 2000) who also showed evidence of reasoning about his delusion. He explained the presence of the stranger in the mirror by saying that the stranger lived in a unit adjoining the house.

These findings are a little perplexing since according to Langdon and Coltheart (2000), Factor 2 in delusions is thought to involve impaired-belief evaluation. It implies either that the deficit in belief evaluation is specific only to the anomaly that first generates the content of the delusion or that the belief evaluation deficit in delusions is different from more general reality monitoring or reasoning processes.

Freeman et al. (2004) suggested that the ability to generate alternative explanations for delusions may be important in breaking them down. They claimed that deluded individuals who can generate alternative (rational) explanations have a better prognosis than those who cannot generate alternatives. Given that our hypnotic subjects easily generated explanations for their anomalous experiences, it would be useful to explore whether the likelihood of providing a reason or type of reason provided (e.g., external vs. internal attributions) is related to breaching of the delusion.

### *Challenging the Delusion*

To confront the delusional beliefs of our hypnotic subjects in the relentless manner that some clinical patients face, we developed three sets of clinically inspired challenges. Consistent with our small study (Barnier et al., 2008), and with past work on hypnotic delusions (Burn et al., 2001; Cox & Barnier, 2009a, 2009b; Noble & McConkey, 1995), a subset of our subjects maintained their mirrored-self misidentification delusion until the very end when the suggestion was cancelled. This suggests that, as in clinical cases, some hypnotic subjects will dismiss or reinterpret all and any evidence that threatens their delusional belief.

Although some subjects maintained their delusional belief across all challenges, for many the hypnotic mirrored-self misidentification was breached by one of the challenges. The most effective appeared to be the visual challenges, which involved the hypnotist appearing in the mirror and subjects counting the number of people in the room and linking this back to the number of people in the mirror. After this challenge, many subjects reasoned that it must be themselves in the mirror, along with the hypnotist. There may have been something specific about this type of challenge, or it may have been the number of challenges that preceded it that made it so successful. Interestingly, the visual challenges involved diverting subjects' attention away from the "stranger" in the mirror to focus on the hypnotist and, later, to count the number of people in the room. This diversion of attention may have facilitated breaching the delusion in some subjects. There is some evidence that in Capgras delusion diverting attention can temporarily lessen delusion conviction. For instance, Coltheart (2007) reported the case of a patient with Capgras delusion who believed his wife was an impostor.

The patient was asked why the impostor had an identical wedding ring to his wife and the patient claimed that she must have bought it from the same store. However, when he was asked to look at the engraving on his wife's wedding ring, he found that his name was engraved there and this temporarily convinced him that she must be his wife.

The clinically inspired challenges used in this study illustrate the advantages of developing hypnotic analogs of delusions such as mirrored-self misidentification. They can provide a useful testing ground for exploring treatment possibilities. Given the fragile state of clinically deluded patients, it would be detrimental to use relentless or extremely confrontational challenges, especially lest they have unintended consequences. For instance, one of us (M. Coltheart) attempted to challenge a male patient's Capgras delusion by encouraging him to ask his wife (whom he believed was an impostor) questions that only his wife should know the answer to. Unfortunately, the patient's wife could not remember the answers to many of the questions and this served to reinforce the patient's belief that she was an impostor. Instead, using temporary, reversible hypnotic delusions, we can explore the types of challenges that are most effective and least distressing.

#### *Implications, Limitations, and Future Directions*

Although our research suggests that hypnosis can model the features of clinical mirrored-self misidentification, it is unclear whether hypnosis can also model the underlying processes. In the Introduction, we noted that one pathway to mirrored-self misidentification is a face-processing impairment of one's own face. One subject commented that, when she looked in the mirror, the person she could see looked just like her but it didn't feel like her. The comments made by this subject indicate that she experienced a change in her affective response to her own face. She identified the face as similar to her own but did not feel the appropriate emotional reaction to it. This implies that the hypnotic suggestion influenced underlying processes involved in face recognition, especially the affective pathway (which is thought to be involved in a number of delusions including mirrored-self misidentification and Capgras delusion). This specific process-level effect is consistent with other hypnotic work on visual processing and pain (Kosslyn, Thompson, Costantini-Ferrando, Alpert, & Spiegel, 2000; Rainville & Price, 2004).

Despite such effects, one important difference between hypnotic and clinical mirrored-self misidentification is the etiology of the delusion. In clinical cases, the etiology is organic, arising in the context of a neuropsychological impairment (either a deficit in face processing or mirror agnosia) in cases of advanced global dementia. In hypnotic mirrored-self misidentification, there is no neuropsychological

impairment. However, Oakley and Halligan (2009) suggested that hypnotic analogs may share similar neural underpinnings with their clinical counterparts. For instance, Halligan and colleagues demonstrated similar patterns of neural activity across a clinical case of conversion disorder paralysis (of the left leg) with its hypnotic analog (Halligan, Bass, & Wade, 2000; Halligan, Athwal, et al., 2000). Both the clinical case and the hypnotic case showed neural activation in the premotor cortex and cerebellum suggesting genuine attempts to move the leg. However, both showed a lack of activation in brain areas responsible for motor action (primary sensorimotor areas) and increased activation in the anterior cingulate cortex and right orbitofrontal cortex, suggesting unconscious inhibition of intended leg movements. It remains to be seen whether hypnotic mirrored-self misidentification involves the same neural patterns as clinical cases of mirrored-self misidentification (see Oakley & Halligan, 2009 for a discussion of this issue).

As noted by Barnier et al. (2008), there remain important differences between hypnotic and clinical delusions. For instance, hypnotic and clinical delusions differ in their longevity, intensity, and behavioral consequences. Whereas hypnotic delusions are confined to the hypnotic setting and do not typically produce intense behavioral consequences, clinical delusions persist over time, in the face of repeated challenges, and may lead to intense behavioral consequences. For example, in some clinical cases of mirrored-self misidentification, patients cover all the mirrors in their house because they believe the stranger is following them around. Note, however, that some hypnotic suggestions (i.e., posthypnotic suggestions) can also have long-term influences on behavior (e.g., a posthypnotic suggestion to quit smoking; Nash & Barnier, 2008, or a posthypnotic suggestion to mail a postcard everyday for 16 weeks; Barnier & MConkey, 1998).

Despite these differences between hypnotic and clinical delusions, there is great scope for future research. As mentioned above, future research might explore different combinations and types of challenges, as well as examine hypnotic subjects' reasoning during a delusion. One other avenue of research involves tailoring the hypnotic suggestion to theories of delusions. The hypnotic suggestion used in the present study was based on our preliminary work (Barnier et al., 2008) and can be considered a "fully formed" suggestion. Fully formed suggestions involve a suggestion for the complete delusional experience (i.e., "You will see a stranger in the mirror"). However, as noted earlier, according to Langdon and Coltheart (2000), two separate factors are responsible for the production and maintenance of delusions. Factor 1 explains why the delusion arises in the first place and is responsible for the content of the delusion, and Factor 2 explains why the delusion is



maintained and not rejected as untrue. Future hypnosis work can apply this theory by using separate Factor 1 and Factor 2 hypnotic suggestions to re-create delusions. Separate Factor 1 and Factor 2 suggestions may be more effective than a fully formed suggestion because they more closely resemble the proposed underlying mechanisms. In our laboratory, we have given subjects a Factor 1 suggestion that they will not recognize the face they see in the mirror (designed to reflect a face-processing impairment). We then gave them a Factor 2 suggestion that any explanations they come up with to account for seeing a stranger in the mirror will seem plausible. This Factor 2 suggestion was based on work by Turner (2006), who suggested that Factor 2 in delusions involves bypassing the normal process of checking beliefs for plausibility. Our preliminary findings indicate that these separate Factor 1 and Factor 2 suggestions are just as effective as a fully formed suggestion in re-creating the features of mirrored-self misidentification (Connors, Cox, & Barnier, 2008).

## CONCLUSIONS

This study contributes to an expanding catalogue of compelling hypnotic analogs of clinical delusions with features similar to the clinical versions. Such research and other work like it (Cox & Barnier, 2010; Oakley & Halligan, 2009) offer a new framework for investigating clinical disorders — such as delusions — in neurologically intact individuals. Creating virtual patients with hypnosis can provide insight into cognitive models and may ultimately inform clinical treatment.

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### Ein Fremder im Spiegel: Entwicklung und Herausforderung einer Fehlidentifizierung des eigenen Spiegelbildes unter Hypnose

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**Abstract:** Der vorliegende Artikel beschreibt eine Studie, in der Hypnose verwendet wurde, um temporär eine Fehlidentifizierung des eigenen Spiegelbildes zu schaffen, genauer gesagt die eingebildete Überzeugung, dass die Person in einem Spiegel ein Fremder sei. Nach der Suggestion unter Hypnose, einen Fremden im Spiegel zu sehen, beschrieben hoch hypnotisierbare Probanden, dass sie eine fremde Person mit von ihrem eigenen Aussehen abweichenden physikalischen Eigenschaften im Spiegel sehen würden. Während die Überzeugungen der Probanden eindeutig falsch waren, jemanden Fremden im Spiegel sehen zu können, hatten sie hingegen keine Schwierigkeiten, etwaige Erklärungen für die Präsenz des Fremden zu finden. Die Autoren testeten die Resistenz dieser Überzeugungen mit klinisch inspirierten Herausforderungen. Obwohl visuelle Herausforderungen die Täuschung meistens durchbrachen (bspw. das Erscheinen des Hypnotiseurs im Spiegel unmittelbar neben dem Subjekt), hielten einige Probanden die Einbildung über alle Herausforderungen hinweg weiterhin aufrecht. Die Befunde werden Rahmen gängiger Theorien zu Wahnideen diskutiert und heben die Vorteile der Verwendung von Hypnose bei der Erforschung wahnhafter Überzeugungen hervor.

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*Un étranger dans le miroir: Créer et contester par l'hypnose l'idée délirante d'une fausse identification du reflet de soi dans un miroir*

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**Résumé:** Cet article décrit une étude utilisant l'hypnose pour recréer temporairement une fausse identification, soit la conviction délirante que la réflexion de soi dans le miroir représente un étranger. Après avoir reçu la suggestion hypnotique de voir un étranger dans un miroir au lieu de leur propre reflet, des sujets hautement hypnotisables ont dit y avoir vu un étranger possédant des caractéristiques physiques différentes des leurs. Bien que leur conviction de voir un étranger dans le miroir fût manifestement fausse, les sujets n'avaient aucune difficulté à trouver une explication à la présence de cet étranger. Les auteurs ont testé la résilience de cette conviction à l'aide de moyens (défis) de nature clinique. Même si des défis visuels (p. ex. l'hypnotiseur regardant sa réflexion dans le miroir à côté du sujet) avaient tendance à affaiblir la pensée déréelle des sujets, certains d'entre eux ont maintenu leur conviction délirante malgré tous les défis qui leur étaient posés. Les résultats de cette étude sont traités à la lumière de la théorie dominante relative aux idées délirantes et soulignent les avantages d'utiliser l'hypnose pour examiner les convictions délirantes.

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*Un extraño en el espejo: Desarrollando y desafiando un delirio hipnótico de auto-identificación errónea en el espejo*

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**Resumen:** Este artículo describe un estudio que utiliza la hipnosis para recrear temporalmente una auto-identificación errónea en el espejo, la creencia delirante de que la persona en el espejo es un extraño. Siguiendo una sugerencia hipnótica de ver a un extraño en el espejo, sujetos altamente hipnotizables describieron ver a un extraño con características físicas distintas a las propias. Mientras que las creencias de los sujetos sobre la percepción de los extraños era claramente falsa, no tuvieron dificultades para generar explicaciones sobre la presencia del extraño. Los autores evaluaron la resiliencia de esta creencia con desafíos clínicos. A pesar de que los cuestionamientos visuales (e.g., el hipnotista apareciendo en el espejo junto al sujeto) eran los más probables de interrumpir el delirio, algunos sujetos mantuvieron el delirio a través de todos los cuestionamientos. Los resultados se discuten a la luz de la teoría dominante sobre el delirio y se enfatizan las ventajas de utilizar la hipnosis para explorar creencias delirantes.

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