Penultimate Version

Forthcoming in: *Intruders in the Mind: Interdisciplinary Perspectives on Thought Insertion* (OUP), eds. López-Silva & McClelland

Thought Insertion as a Persecutory Delusion

Peter Langland-Hassan

University of Cincinnati

Abstract: Popular two-factor accounts of thought insertion hold that this symptom of psychosis is caused by two elements working in tandem: an anomalous experience of some kind (the first factor) and a reasoning deficit or bias (the second factor). This chapter develops a very different alternative to explaining and treating thought insertion—one that views thought insertion as a form persecutory delusion. If this thesis is correct, clinical interventions for persecutory delusions may be successful for thought insertion as well. The chapter begins by presenting several difficulties for two-factor accounts of thought insertion and for two-factor accounts of delusions more generally. It then discusses positive reasons for seeing thought insertion as a form of persecutory delusion. The positive case begins with reflection on first-person descriptions of thought insertion gleaned from online discussion forums. It continues by considering ways in which clinical diagnostic tools may create the appearance of deep differences between symptoms such as thought insertion and persecutory delusions where there are none. This case is bolstered by evidence for considerable variability in the content of delusions patients present with over time. Implications for the treatment of thought insertion are then considered.

1. Introduction

Thought insertion is the delusion that an outside agent has inserted thoughts into one's mind. Most existing explanations of the nature and etiology of thought insertion begin by

identifying a peculiar feature of the thoughts reported as "inserted." This approach makes sense if we think of thought insertion as a particular kind of *experience* a person might have—one with an unusual content or phenomenology that leaves the thinker with the odd impression that his own thoughts are someone else's. The most common such proposal is to hold that, normally, we experience a "sense of agency," or a feeling of having agential *control*, over our thoughts, the absence of which—in pathology—leads to reports of thought insertion (Carruthers, 2010; Frith, 1992; Langland-Hassan, 2008; Proust, 2006). Another approach appeals to the unwelcome content of the thoughts, with sufferers of thought insertion refusing to endorse as their own some of their more upsetting, accusatory, or rationally incongruous thoughts (Graham & Stephens, 2000; Pickard, 2010; Vosgerau & Newen, 2007). Other theories invoke more esoteric thought properties, such as Parrott's (2017) proposal that thought insertion results from one's having a sense that one's state of awareness is not ordinary first-person awareness.

Despite these differences, such accounts typically agree that there is more to be explained in thought insertion than the unusual phenomenological features of the (putatively) inserted thoughts. No matter how odd one's own thoughts might appear, after all, it will remain a poor explanation of that oddity to conclude that someone else has (somehow) inserted *their* thoughts into one's mind. Thus, theorists typically invoke an additional factor in explaining the formation and maintenance of such delusional beliefs—such as an inability to properly weigh evidence, or a tendency to jump to conclusions—that, in concert with the oddity of an experienced thought, may generate the delusion that another agent has inserted thoughts into one's mind (Coltheart, 2010; Davies & Coltheart, 2000; Davies, Coltheart, Langdon, & Breen, 2001).

I will follow Davies *et al.* (2001), McKay *et al*.(2005), and Coltheart *et al.* (2007, 2011) in calling this style of explanation a *two-factor* account, a style of explanation that has been extended to a variety of other delusions. On the broadest characterization of a two-factor view, delusions are to be explained by appeal to two distinct abnormalities working in tandem. The first is "what initially prompts the delusional belief and is responsible for the content of that delusion" (Coltheart et al., 2007, p. 292). This is often, though not always, held to be an anomalous experience of some kind.[1] The second factor, conceived as a deficit in belief-

[1] On a the most general of two-factor accounts, the first factor may be subconscious or motivational in nature—such as a desire for self-preservation. McKay, Langdon, and Coltheart (2005) even propose that in some cases "there are

evaluation, is "what prevents the person from rejecting the belief in the light of the very strong evidence against it" (*ibid.*). Davies et al. (2001) and Coltheart et al. (2007, 2011) argue that a wide variety of so-called "monothematic" delusions are amenable to this form of explanation. A monothematic delusion, on their understanding, is one whose subject-matter is tightly limited in scope—such as that one's family members have been replaced by imposters (as occurs in the Capgras delusion) or that one is being followed by friends or family members in disguise (as in the Fregoli delusion). On the classic two-factor account of the Capgras delusion, it is proposed that normal autonomic affective response to familiar faces are suppressed, and that this abnormal suppression serves as the first factor—that which gives rise to the specific claim that one's family member has been replaced by an imposter—while a general impairment in updating and revising beliefs in the light of conflicting evidence constitutes the second factor, explaining why the unusual belief is not revised in the light of contrary evidence (Coltheart et al., 2007, 2011).

Because it is the express role of the first factor to explain the specific content of a delusion, two-factor theories are less well suited to explaining delusions in a context where the patient has many delusions on many different topics—what are known as "polythematic" delusions. While it is possible, in principle, to appeal to different two-factor explanations to account for each delusion such an individual has on a distinct topic (see, e.g., Coltheart et al. (2011, p. 293), such maneuvering will appear *ad hoc,* suggesting an unlucky confluence of distinct delusion-causing mechanisms in a patient where a single underlying pathology is more likely. Thus, despite the relative popularity of two-factor accounts in explaining thought insertion, there remains a *prima facie* tension in extending them to this specific delusion, as thought insertion occurs almost invariably in patients with schizophrenia, where polythematic delusions are the norm (Mullins & Spence, 2003).

This is one reason that I want to chart an alternative path in this chapter, despite the fact that I have in the past been among those developing and defending two-factor accounts of thought insertion (with a focus on the first factor (Langland-Hassan, 2008, 2016)). It is not that I view two-factor accounts of thought insertion as dead in the water. I simply think that they face challenges strong enough to warrant considering alternatives. The thesis I will defend in their

multiple relevant first-factor sources," raising the possibility that the first factor—understood entirely generally as that which explains the content of the delusion—is in fact several factors working in tandem. (Thanks to a reviewer for emphasizing this flexibility in two-factor accounts.)

place is that thought insertion is better viewed as a type of persecutory delusion. Persecutory delusions are delusions to the effect that one is under threat of harm because others intend for one to be harmed (Freeman, 2007). If this assimilation on the right track, two-factor accounts of thought insertion may nevertheless succeed, if they can be extended to persecutory delusions. Yet, to date, two-factor theorists have had little to say about how persecutory delusions may be explained in their terms, even if persecutory delusions are the most common form of delusion in psychosis, occurring in over 70% of those experiencing their first psychotic symptoms (Freeman & Garety, 2014).[2] This is likely because persecutory delusions are characteristic of psychiatric illnesses, such as schizophrenia, where the kinds polythematic delusions ill-suited to explanation by two-factor accounts are common. (Nevertheless, persecutory delusions also occur in medical conditions with well-understood etiologies, such as Alzheimer's (Bassiony & Lyketsos, 2003), and in cases of traumatic brain injury (Fujii & Ahmed, 2002).)

A key difference between the view of thought insertion I will propose and existing two-factor accounts is that the present view does not posit any unusual *experiential* feature shared by all and only the thoughts that are reported as inserted. We should no more expect to discover an anomalous experience distinctive to thought insertion, I will propose, than we should one that causes all and delusions about spy agencies (however common the latter may be). To be sure, there could be very general anomalous experiences of a type that gives rise to many different persecutory delusions, and which, in some cases, may help to explain why a delusion concerning secret service agencies has arisen. But we would be spinning our wheels in seeking a particular type of anomalous experience specific *only* to secret service delusions. Similarly, I will suggest, were we to gather up all the thought episodes that trigger reports of thought insertion, there will be no phenomenological or content-related feature they share that would unify them and, in so doing, serve to explain why they generated the delusion that thoughts have been into one's mind (*as opposed to* a delusion with some other persecutory content).

In short, I propose a reorientation away from the question of "what sort of experience would lead someone to think that another's thoughts have been inserted into their mind?" and toward the more general question of, "what would lead a person to form irrational beliefs to the

[2] McKay, Langdon, and Coltheart's (2005) generalized two-factor account, which allows for motivational factors to constitute the first factor, is the best suited two-factor view (of which I am aware) for explaining persecutory delusions; yet they do not explicitly extend the view to persecutory delusions.

effect that others intend to harm him (where claims of thought insertion are just one manifestation of such)?" (See Ratcliffe & Wilkinson (2015) for a similar reorientation.) This reorientation—which sees thought insertion most fundamentally as a kind of (delusional) belief, and not an abnormal type of experience—is at odds with at least one standard definition of thought insertion. The Schedules for Clinical Assessment in Neuropsychiatry (SCAN)—formerly known as the Present State Examination (PSE-10)—is a set of clinical tools endorsed by the World Health Organization for the diagnosis of psychiatric symptoms. The SCAN includes thought insertion in Section 18 under "experiences of thought interference and replacement of will," where it is noted that "experiences of thoughts being inserted into the respondents' minds are…rated here" (Wing et al., 1990). In the SCAN, all forms of delusion—including "paranoid" (and persecutory) delusions—are diagnosed separately, in accordance with procedures outlined in its Section 19. Thus, according to the SCAN, thought insertion is not itself a delusion, but, rather, a kind of pathological *experience*—not unlike a hallucination that may, but need not, lead to delusions.

However, the idea that thought insertion is best viewed as an experience and not as a kind of (delusional) belief is not universally endorsed. In an influential review article on how thought insertion has been approached in psychiatry, Mullins and Spence (2003) note that, unlike the symptom of thought broadcast, thought insertion "has developed a reliable definition" (p. 293). Ironically, however, they cite two contradictory definitions in support of said reliability. The first, taken from the Schedules for the Assessment of Positive Symptoms (SAPS) (Andreasen, 1984), holds that thought insertion occurs when "the subject believes that thoughts that are not his own have been inserted into his mind." By this commonly used assessment tool, simply having the delusional belief that thoughts have been inserted into one's mind is sufficient for having the symptom of thought insertion. The second definition, pulled from Wing et al.'s (1983) predecessor to the SCAN, describes thought insertion as occurring when "the subject experiences thoughts which are not his own intruding into his mind." This definition allows for thought insertion to occur (as a pathological "experience") in the absence of delusional beliefs, even if it is unlikely to be reported when there is not a corresponding delusion. It also allows for someone to have the delusion that someone has inserted thoughts into their minds without in fact experiencing the symptom of thought insertion.

My working hypothesis will be that the first definition of thought insertion is preferable: to have the symptom of thought insertion is nothing other than to have a delusional belief that some of one's thoughts are not one's own and have been inserted into one's mind by someone else. Further, I will argue that this delusional belief is, in most cases, best viewed as a persecutory delusion. The plan in what follows is to motivate this approach, in Section Two, by explaining some of the challenges faced by two-factor theories of thought insertion. Then, in Section Three, I will offer independent evidence—including numerous first-person accounts from people suffering thought insertion—for viewing thought insertion as a persecutory delusion. I will also consider and rebut the objection that, because thought insertion does not cluster under the same factor with persecutory delusions in principal component analyses (Paolini, Moretti, & Compton, 2016), it should not be viewed as a form of persecutory delusion. Part of this rebuttal will appeal to the considerable variability in the kinds of delusions individual patients present with over time. Section Four concludes by discussing some of the means for treating thought insertion that become available on the hypothesis that thought insertion is a form of persecutory delusion. The ultimate value of the present proposal will indeed hang on the efficacy of treating persecutory delusions and thought insertion with similar interventions.

2. *Challenges for two-factor accounts of thought insertion*

The first challenge for any two-factor account of thought insertion is to say something comprehensible about the first factor. Thoughts that patients report as inserted are said to have acquired a phenomenology of *alienness* or of *otherness*. What do we mean by this? To start, it seems we need to know what it is in the normal case that makes thoughts seem as though they are one's own, such that this normal sense of ownership might get disrupted in psychosis. The first and most obvious answer may be that we have introspective access to the thought. By "introspective access" I mean that form of privileged and peculiar (Byrne, 2005) access each person has to (many of) her own thoughts, and that others lack, whatever the ultimate mechanisms underlying that access. However, people suffering from thought insertion presumably have that sort of access to the thoughts they deem inserted, yet still conclude that the introspected thoughts are not their own. This has led many to suppose that it is instead a sense of being the agent, or causal source, of an introspected thought that has gone missing (Campbell, 1999; Frith, 1992; Gallagher, 2000; Proust, 2006). The problem—now frequently remarked—is

that it is not very clear what it is, in general, to feel like the agent of one's thoughts. Sure, thinking may at times be difficult. We may have a sense of working at it, or of trying to keep it on course. But most are also familiar with thoughts coming effortlessly, randomly, and even against one's will. We might try, but fail, to stop thinking about some disturbing or annoying topic, for instance. If this is what it is to lack a sense of agency over a thought, the phenomenon is not anomalous or pathological. Nor does it tend to raise suspicions that some other agent is doing the thinking. Thus, it is not clear how a lack of such a sense of agency could play an explanatory role as a first factor in two factor accounts. Moreover, the normal feeling of lacking control over one's thoughts can rise to pathological levels—as in Obsessive Compulsive Disorder—without those suffering it having any phenomenological impression that someone else is the agent of their thinking (Graham & Stephens, 2000; Langland-Hassan, 2008; Parrott, 2017). What, then, does the pathological sense of "alieness" or "otherness"—the putative first factor in two factor accounts of thought insertion—consist in?

This is where I entered the debate some years ago, building on influential theories of Frith (1992), Blakemore *et al.* (2002), and others to offer a version of the comparator account of thought insertion (Langland-Hassan, 2008, 2016). On this style of view, schizophrenic symptoms of passivity and alien control result from a disruption in the prediction and comparison mechanisms that help to guide ordinary perception and action. An influential view of motor control holds that, when we act on the environment, a copy of the motor command is sent to a cognitive system (known as a "forward model") that generates a prediction of the sensory consequences of carrying out the command (Miall, Weir, Wolpert, & Stein, 1993; Wolpert, Miall, & Kawato, 1998). That prediction is then compared to actual sensory feedback. If there is a match, one is left with a sense of having successfully carried out the intended action. If there is not a match, an error signal is generated that alerts one to adjust the motion or reattempt the action. This error signal, whatever its phenomenological upshot, could be associated with unexpected intervention by other agents, as such interventions may often be the cause of prediction errors. An advantage of this approach is that it builds on an architecture for sensorimotor control that has considerable independent support. Further, people with schizophrenia have been shown to have a variety of motor and perceptual deficits over and above thought insertion that mesh with the hypothesis that people with schizophrenia have general problems with sensorimotor self-monitoring (Blakemore, Wolpert, & Frith, 1998; Frith, 2012).

While some have argued that comparator-style accounts cannot be extended to thought insertion precisely because thinking is not a motor process (Campbell, 1999; Synofzik, Vosgerau, & Newen, 2008), this skepticism can be resisted. Speaking and hearing are sensorimotor processes, elements of which are exploited in acts of inner speech (i.e., of talking to oneself silently, "in the head"). If episodes of inner speech are the relevant "thoughts" that seem not to be one's own, then we have a way of uniting the "sense of otherness" corresponding to the first factor in two-factor accounts of thought insertion to the kinds of sensorimotor self-monitoring mechanisms invoked by comparator theories—even if *other kinds* of thoughts are not well-viewed as sensorimotor processes. Further, we can expect this sort of disruption in the sense of agency to be categorically different than the lack of agency attending ordinary unwilled and undesired thoughts. I have filled in details of this inner-speech-related proposal elsewhere (Langland-Hassan, 2008, 2016). The key move is to assimilate thought insertion onto a single experiential spectrum with auditory verbal hallucinations (AVHs), which are one of the most common and disruptive symptoms of schizophrenia. Both AVHs and thought insertion can then be seen as symptoms resulting from a failure to appropriately monitor (or "filter," or "attenuate," in my terms) one's own inner speech. Episodes with higher degrees of sensory character, and which seem to come from outside the head, may be more likely to be reported as AVHs, while episodes that are low in sensory character and that seem to emanate from within the head may be more likely reported as inserted thoughts. In either case, they could be symptoms that occur due to disruptions in the ordinary sub-conscious mechanisms that serve to filter and attenuate self-generated inner speech signals, through prediction and comparison processes involved in the generation of ordinary speech (and reused in the case of inner speech).

In my view, this remains a promising approach to explaining thought insertion, *if* one is committed to articulating a two-factor account. It has the advantage of assimilating thought insertion to the more commonly reported and studied phenomenon of AVH. It also avoids positing entirely *sui generis* mechanisms or phenomenological elements and, instead, builds on a well-supported framework for understanding how sensorimotor control works in healthy individuals (and how it becomes disrupted in people with schizophrenia). However, my project here is to say what I find lacking in this approach.

First, to assimilate thought insertion to AVHs—and to find an impaired sensorimotor process at work—we need to assume that cases of thought insertion really are mis-monitored episodes of inner speech and not some other form of thought. Yet there is, at present, relatively little empirical data that directly supports (or undermines) this assumption. It certainly *could be* that most or all episodes that get reported as inserted thoughts are aberrant episodes of inner speech. But it is equally possible that they are not. Due in part to its relative infrequency, there are no neuroimaging studies of people suffering thought insertion that correlate reports of thought insertion with activation of the language areas underlying inner speech (such as Broca's and Wernicke's areas). By contrast, there are numerous such studies with respect to AVHs (Allen, Aleman, & Mcguire, 2007; Allen et al., 2012; S. S. Shergill, 2003; S.S. Shergill, Bullmore, Simmons, Murray, & McGuire, 2000).

Other forms of evidence remain possible, however. For instance, if a patient reports that their inserted thoughts occur in a particular spoken language (such as English), this is good reason to conclude that their language-production mechanisms are involved in their generation (Langland-Hassan, 2018). Such a conclusion would, in turn, warrant applying theories of sensorimotor self-monitoring to thought insertion. However, current clinical assessments of thought insertion do not ask patients whether their inserted thoughts occur in a particular language. Suitable data is therefore lacking. Alternatively, should we find that a person's experiences of thought insertion suddenly dissipate upon their having a stroke that disables language production areas, or if their inserted thoughts are modulated by Transcranial Magnetic Stimulation(TMS) to language areas, this would be reason to think that thought insertion is impaired (or "mis-monitored") inner speech. On the other hand, if the experience of thought insertion continued despite the loss—or temporary impairment—of language abilities, this would be reason to think that sensorimotor approaches cannot be extended to thought insertion. Yet, to my knowledge, there are no existing reports that trend in either direction.

Aside from the challenges in experimentally discriminating the first factor in thought insertion, the approach is further weighted by a commitment to a second factor—some additional deficit in belief evaluation that leads people to move from a merely unusual phenomenology to the delusional belief that someone else has (per *impossible*) inserted thoughts into their minds. It is commonly recognized that this reasoning deficit must be only partial, or intermittent. People

experiencing thought insertion—and with schizophrenia more generally—do not form delusional beliefs about the nature of *every* unusual experience they might have, after all. Nor are they completely unable to weigh evidence and form reasonable conclusions in experimental reasoning tasks. For instance, while people suffering delusions have been shown not to gather as much evidence as healthy individuals before generating a hypothesis (Colbert, Peters, & Garety, 2010; Fine, Gardner, Craigie, & Gold, 2007), their delusional beliefs tend to remain fixed even when they are forced to encounter a large amount of disconfirming evidence from friends and caregivers. Thus, the reasoning deficit that would lead one to adopt and then *maintain* such an unusual hypothesis appears more profound than a tendency to gather less evidence before forming an opinion. Moreover, data concerning the jumping to conclusions bias and its correlation with the experience of delusions is decidedly mixed, with one cross-study meta-analysis finding no correlation between decreased data gathering and the concurrent possession of delusions (Ross, McKay, Coltheart, & Langdon, 2015).

A two-factor theorist can instead propose that those suffering delusions only reason poorly on certain topics. However, when the reasoning deficit corresponding to the second factor is fine-tuned to give rise only to delusions with a certain range of contents, it begins to subsume the work of the first factor. For instance, if I only reason in pathological ways when the topic is the control of my own thoughts and actions, there is no need to appeal to an anomalous (first factor) experience to explain the resulting (mental-control-related) delusion. The view will have collapsed into a one-factor account, where the one factor is a content-specific reasoning deficit.

This points to a general tension in all two-factor accounts: if the second factor reasoning deficit is entirely domain general—i.e., not restricted to any particular contents or subject-matter—then, given the seriousness of that deficit, we should expect a person with one delusion to have very many delusions on many different topics, formed in response to ordinary odd thoughts that (in the non-delusional) are quickly dismissed.[3] In short, we should not expect to

[3] Coltheart et al. (2011) offer a response to this objection, proposing that the belief-revision capacity is "impaired but not abolished," which allows it to reject odd ideas that only occur sporadically. They suggest that it is only when faced with a persistent first factor—a continuous anomalous experience, say—that the impaired belief revision capacity is unable to overcome the delusional belief. However, this wrongly predicts that patients experiencing Capgras will give up their delusion when their spouse is not present (and, thus, when they are not experiencing the

find the very monothematic delusions that two factor accounts seem best equipped to explain. On the other hand, if the second factor reasoning deficit is not domain general and is instead limited to certain topics or subject-matters, then we have no need for the first factor, whose only role was to explain the content of the delusion.

The difficulties in articulating an experimentally tractable first factor for thought insertion, combined with the tensions inherent in two-factor views more generally (as applied both to polythematic and monothematic delusions), give reason to shift focus from trying to describe the distinctive anomalous experience (or thought content) responsible for thought insertion to the question of what it is that makes a person susceptible to (possibly polythematic) delusions in general. When we shift focus in this way, the thesis that thought insertion is just one form of persecutory delusion gains plausibility, for reasons we will now explore.

3. *The persecutory content of inserted thoughts*

As earlier remarked, persecutory delusions are by far the most common form of delusion in schizophrenia, marked by the concern that one is under a threat of harm from others. People with persecutory delusions tend to believe they are under constant surveillance: their phones are tapped, homes bugged, computers hacked. They are being followed by cars on the road and monitored by satellites. On an intuitive level, having another person's thoughts in one's mind—feeling as though someone else is *using* one's thoughts to think—would constitute a similar, if more profound, invasion of privacy. To fear that someone else's thoughts are in one's mind is to fear that the last and most solid privacy wall has been breached and that one is not free from persecution even within the confines of one's own mind. In short, to believe that one has had thoughts inserted into one's mind by some other agent is a very short step from believing that one is being persecuted. Or so one might propose.

However, it is not immediately obvious from the small number of cases of thought insertion quoted (and requoted) in the literature that those experiencing thought insertion view themselves as under threat. There is, for instance, the man quoted by Mellor (1970, p. 17) who

abnormal affect related to a lack of autonomic response to familiar faces). Further, continuously high levels of stress and anxiety are relatively commonplace in everyday life and, in a person with an impaired (domain-general) ability to evaluate beliefs, ought to generate a panoply of delusions on multiple topics as coping strategies.

explains that "the thoughts of Eamonn Andrews come into my mind. There are no other thoughts there, only his." We do not, from this snippet, get a clear sense of whether the patient feels harmed or threatened by the thoughts (or by Mr. Andrews). There is also the patient quoted by Frith (1992, p. 66) who says that "thoughts are put into my mind like 'Kill God.'…they come from this chap, Chris. They are his thoughts." While "Chris" is described amiably as a "chap," the order to kill God is not a friendly piece of advice. Arguably, the patient feels persecuted by having such thoughts forced upon him.

The ambiguity in these brief reports warrants a search for more (and more detailed) reports of thought insertion, from which we might more clearly assess whether inserted thoughts are indeed viewed, by those suffering them, as a kind of persecution. Publicly available online discussions among people with schizophrenia provide a rich source of such data, even if it must be taken with a grain of salt due to our inability to confirm the sincerity of the reports.[4] I offer them here as evidence suggestive of a common theme, rather than as proof thereof. What follow are several first-person accounts pulled from the public discussion boards at Schizophrenia.com and Crazyboards.org, two websites aimed at fostering supportive conversation among those suffering from schizophrenia and other forms of mental illness. The accounts—only a handful of which I reproduce here—were retrieved from these discussion boards by using "thought insertion" as a search term to narrow topics. As we will see, there is a strong persecutory theme throughout.

> "I've been having this feeling that maybe this person that I know is inserting thoughts into my head or controlling them. Now I feel like my life isn't my own anymore and that I'm forever cursed to live with that person manipulating my mind." (from *Fleur2576*[5]).

> "Alien is evil spirit living in my head and he puts his thoughts into my head. When he puts these in my head I suddenly have a thought that's in my head but it didn't come from

[4] I am following Rachel Gunn (2015)[CITE] in making use of reports from these websites in theorizing about the nature of thought insertion.

[5] Retrieved on May 5, 2022 from https://forum.schizophrenia.com/t/thought-insertion-thought-control-by-a-person/244626

me - its foreign…It's definitely not mine and causes irritation and distress." (from EarthChild[6]).

"Now I have voices and inserted thoughts reminding me all day long that I'm going to be tortured after death forever." (from Rei26, *Schizophrenia.com*[7]).

"I have intrusive thoughts and inserted thoughts. Not sure what the difference is except inserted thoughts seem foreign or inserted and not from me, but are 'inserted' in my head from an external source like ET, chip, AI, God, quantum physics, parallel universes, past lives, etc. Knowledge that comes from no-where, but it's hard to get at and prove and makes me miserable" (from johnnyboy 1[8]).

"People from my past constantly interfere with my mind and insert things into it. It used to be manageable but it's becoming less so. Hoping Clozapine wipes out all of this nonsense, as it's driving me crazy" (from Joker, *Schizophrenia.com*[9]).

> (Replying to Joker) "Yes, I've had this as well @Joker. It's almost as if they're really talking to you and it's not a good feeling, as usually it's kinda menacing—at least for me" (from Schztuna, *Schizophrenia.com*[10]).

"Annette, my main voice, even when silent inserts thoughts in my head and takes thoughts from my head. I am in her control. puppet in her hands. just a toy in her hands. anyone else feeling the same?" (from Om_Sadasiva,[11])

"I am going through some of the same stuff like thought insertion and a lot of fake memories. And it seems like whatever spirit it's taking a lot of time and effort to mess

---

[6] Retrieved on February 10, 2021 from https://forum.schizophrenia.com/t/whats-the-difference-between-intrusive-thoughts-and-inserted-thoughts/220352/26
[7] Retrieved on February 10, 2021 from https://forum.schizophrenia.com/t/psychosis-as-a-distorting-mirror/196472/3
[8] Retrieved on February 10, 2021 from https://forum.schizophrenia.com/t/whats-the-difference-between-intrusive-thoughts-and-inserted-thoughts/220352/26
[9] Retrieved on May 6, 2022 from https://forum.schizophrenia.com/t/thought-insertion/260837/5 .
[10] Retrieved on May 6, 2022 from https://forum.schizophrenia.com/t/thought-insertion/260837/5 .
[11] Retrieved on February 10, 2021 from https://forum.schizophrenia.com/t/thought-insertion-thought-withdrawal/101687

with me. Also says I am gonna be tortured after death just for smoking." (from Jesse25, *Schizophrenia.com*[12]).

"I have rarely had images that are especially vivid, involuntary and strange and seem to come out of nowhere a few of them seemed to be another person's thoughts, memories or experience…two of them involved puppets…someone was or was at least attempting to manipulate my mind, this experience was unpleasant and fortunately isolated in my case" (bobhope 74, from *Crazyboards*[13]).

"I don't hear voices very often, but I have experienced thought insertion. I thought the thoughts were being inserted by the sun. I felt like they were distinctly NOT my own thoughts. They felt foreign, and it sometimes hurt when they were inserted and I would flinch and bang my head to get them out. They were thoughts I would never have on my own. It was horrible." (from Parapluie, on *Crazyboards*[14]).

"For the past few weeks, I have been getting severe thought insertion. It has been telling me dangerous things and scary things. There are times where it is so bad that I nearly break down in tears. Some of it is from the government and some is from aliens from another galaxy…they enjoy controlling me and sending me scary thoughts. They tell me it is better if I kill myself quickly instead of the slow and painful death they promise me…The thought insertion is different than voices as it isn't audible. But it is stronger than my own thoughts. So, what do I do?" (From FireBird at *Crazyboards.com*[15])

We should put ourselves in the shoes of a clinician treating these individuals. Clearly, we can identify such patients as suffering from the symptom of thought insertion. Should we also conclude that they have persecutory delusions? On the one hand, they appear to satisfy the standard criteria for such. Each seems to have an irrational belief to the effect that "harm is

[12] Retrieved on February 10, 2021 from https://forum.schizophrenia.com/t/inserted-thoughts/178478/3. I have made several corrections to obvious typos in this post.
[13] Retrieved on February 10, 2021 from https://www.crazyboards.org/topic/68230-thought-insertion-something-in-your-mind/?tab=comments#comment-716274
[14] Retrieved on February 10, 2021 from https://www.crazyboards.org/topic/68230-thought-insertion-something-in-your-mind/?tab=comments#comment-716274
[15] Retrieved February 21, 2012 from https://www.crazyboards.org/topic/23396-severe-thought-insertion/?tab=comments#comment-288579.

occurring, or is going to occur," because a "perceived persecutor has the intention to cause harm" (Freeman & Garety, 2004, p. 13). This would suggest that the reports qualify them as having both thought insertion and persecutory delusions—that, often enough, having the former suffices for having the latter. On the other hand, the symptom of thought insertion is classed separately from persecutory delusions. As noted, the SCAN diagnostic system includes all delusions in an entirely distinct diagnostic class from pathological "experiences" such as thought insertion. And while the also popular SAPS diagnostic system classifies thought insertion as a delusion, it lists thought insertion as a different type of delusion than persecutory delusions—not a possible sub-type thereof. A clinician using either diagnostic system will thus most likely respond to the reports above by simply diagnosing thought insertion and not a persecutory delusion.

And, indeed, from symptom correlation studies, we can see that most reports of thought insertion appear not to be coded additionally as persecutory delusions. For instance, Peralta & Cuesta (1999) found only a .13 correlation between (what they term) Schneiderian "bizarre" delusions (which includes thought insertion) and paranoid delusions (which includes persecutory delusions). While statistically significant, it is a far weaker correlation than one would expect if many reports of thought insertion were also coded as paranoid delusions. Consider also the many principal component analyses that have been used to look for significant clusters of symptoms among schizophrenia patients (Ellersgaard et al., 2014; Kimhy, Goetz, Yale, Corcoran, & Malaspina, 2005; Paolini et al., 2016; Vázquez-Barquero, Lastra, Nuñez, Castanedo, & Dunn, 1996). These studies use statistical methods to investigate which symptoms tend to appear together in clusters, in hopes of revealing an underlying causal basis for such clusters. For instance, the SAPS contains descriptions for 34 distinct schizophrenic symptoms. However, these symptoms "load" onto three, four, or five factors—depending on which meta-analysis one consults—meaning that we can identify three or so symptom clusters where to have one symptom in the cluster makes it more likely that one will have another symptom in the cluster, and less likely that one has a symptom in another cluster. In all of these studies, thought insertion tends to cluster with other "Schneiderian first rank," symptoms, such as thought broadcasting, delusions of control, and thought withdrawal, while *not* clustering with persecutory

delusions (which themselves cluster on another factor with delusions of reference) (Ellersgaard et al., 2014; Paolini et al., 2016).

This might seem to challenge the hypothesis that thought insertion is well-viewed as a species of persecutory delusion. After all, if thought insertion is itself a persecutory delusion, we should expect patients reporting thought insertion to have other persecutory delusions as well, and thus for thought insertion to cluster with persecutory delusions. However, we have also noted the possibility that artificial divisions in how the most commonly used diagnostic systems group symptoms could lead clinicians to exclusively diagnose thought insertion in contexts where patients clearly satisfy criteria for having persecutory delusions in addition. This, too, could plausibly prevent the symptoms from clustering together on a single factor in principal component analyses.

Which explanation for the failure of thought insertion to cluster with persecutory delusions should we favor? Is there a deep underlying difference between the two symptoms, or is the appearance of such an artifact of arbitrary classification criteria? Striking evidence for the latter can be found in numerous studies that have shown relatively little longitudinal stability in the content and type of delusions had by patients with schizophrenia (Appelbaum, Robbins, & Vesselinov, 2004; Ellersgaard et al., 2014; Jørgensen & Jensen, 1994; Sinha & Chaturvedi, 1990). For instance, Ellersgaard et al. (2014) examined clinical reports of 411 patients with schizophrenia spectrum disorders and delusions at four different time periods: initial exam, one year, two years, and five years later. The patients' delusions were in all cases scored according to the SAPS criteria. When looking only at symptoms coded on the first clinical visit, thought insertion again clustered separately from persecutory delusions. However, looking *across* visits, the researchers found "delusional themes being just as likely to change as to stabilize," and that "delusional themes do not necessarily reappear during consecutive psychotic episodes" and "are, in fact, likely to change" (p. 347). They noted "frequent shifts" where "patients shifted between…delusional themes of FRSs [i.e., first rank Schneiderian symptoms, such as thought insertion] or 'mind reading' and persecution or reference" (p. 346). Patients who were not diagnosed with persecutory delusions on a first visit often presented with such delusions later, with delusions of persecution being "frequent at all three follow-up points" and "not only in patients having these delusions at baseline" (i.e. at first visit) (p. 343). More generally, "the

majority of patients with a certain predominant delusion at a follow-up point did not have this delusion as predominant at baseline" (ibid.).

A similar instability in the content of delusions over time is reported by others. Jørgensen & Jensen (1996) found that less than half of patients maintained an earlier delusion from one follow-up point to another. Likewise, in a population of 262 patients who were treated multiple times for delusions, Appelbaum *et al.* (2004) found that most showed variation in the content of their primary delusion over time. They note that "delusions appear to be more fluid over relatively short periods of time than has been suggested by many classic descriptions and contemporary formulations" (Appelbaum et al., 2004).

In short, having delusions concerning a certain subject-matter during a first assessment does not reliably predict that one's delusions will have the same subject-matter at follow-up. This suggests that there is no deep etiological difference between delusions with different contents—at least, not among those with psychosis. Whatever pathological processes lead to delusions with one subject-matter can be expected to lead to delusions with another. Thus, while the SAPS, for instance, allows clinicians to diagnose 12 different forms of delusion—differentiating them by contents such as "religious delusions," "delusions of guilt or sin," "delusions of reference," "thought insertion," "persecutory delusions," and "delusions of being controlled"—these different categories may not track correspondingly different underlying processes. At the same time, the simple fact that a diagnostic system includes distinct places to rate each "form" of delusion may lead clinicians to treat a patient's report as evidence for only one type of delusion. This may occur even though some reports—such as that one is forced to have distressing thoughts to "kill God"— could plausibly qualify one as having many forms of delusion, including thought insertion, religious delusion, persecutory delusion, delusion of being controlled, delusions of sin, and delusions of mind reading (all of which are coded separately on the SAPS).

The especially odd content of Schneiderian First Rank delusions such as thought insertion and thought broadcasting further fuel a tendency to see (and code) them as categorically distinct from other delusions. Standard persecutory delusions—such as that one is being followed by the FBI—cite events of a sort that actually occur. By contrast, Schneiderian First Rank delusions are

patently bizarre and involve events that seem, to many, to be impossible. The oddity of such delusions intuitively suggests a correspondingly bizarre basis in experience (though I have challenged that intuition). If, at one visit, a patient remarks most adamantly about experiencing inserted thoughts or thought broadcasting, this may lead the clinician to assign less significance to the fact that the patient is simultaneously voicing persecutory delusions. Indeed, as one reads through a large variety of thought insertion reports on patient bulletin boards, it is hard to see any reason why thought insertion would *not* highly correlate with persecutory delusions *other than* that they are treated by many clinicians as mutually exclusive. In each one of the patient reports quoted, there is material that warrants ascribing a persecutory delusion, such as that, for EarthChild, "Alien is an evil spirit living in my head" that "causes irritation and distress," or that, for Rei26, inserted thoughts are "reminding me all day long that I'm going to be tortured after death"; or that, for FireBird, the government and aliens "enjoy controlling me and sending me scary thoughts."

These reports leave open the possibility that, at a subsequent visit, the patient will be troubled by delusions that are less patently bizarre. Their responses during that clinical assessment may focus instead on the comparatively pedestrian theme that their employer is spying on them. They will then be diagnosed with persecutory delusions, even if, properly understood, persecution has remained a theme across multiple visits.

To consider a possible objection (raised by a reviewer for this volume) one might worry that labelling reports of thought insertion as persecutory delusions is only plausible given an overly broad and theoretically unhelpful conception of what it is to be a persecutory delusion. Of course, the traditional category of "persecutory delusion" is already broad, encompassing delusions with many different contents. The complaint, in this case, is that we would need to understand it in *even broader* terms to bring thought insertion into the fold. For instance, the reviewer rightly notes that simply feeling as though one is harmed by the (putatively) inserted thoughts is not enough to render the delusion persecutory, as one may feel harmed by the sting of a doctor's needle, despite not feeling persecuted by the doctor (this is the reviewer's example). To feel persecuted, one must, in addition, think that someone else intends one harm and that this intention is guiding their actions. Yet it seems quite clear, from the quotes provided, that patients invariably *do* think that another agency intends to harm them through the insertion of the

thoughts. The very idea that the thoughts are described as *inserted*—as opposed to merely *caused*—by another entity clearly implies intent; and in no case does the patient suggest that the resulting harm is an accidental by-product of the insertion.

A related worry may be that, if we include thought insertion among the persecutory delusions, the category will have become trivially broad, as we will have equal grounds for assimilating other delusions to that class—including delusions of alien control, and even the Capgras and Fregoli delusions. After all, it is not hard to see how these may also be conceived as examples of believing that some other agent intends one harm. In response, the longitudinal fluidity of delusional themes in individual patients suggests that we may indeed be warranted in collapsing the traditional boundaries between many delusion "types," instead identifying a general susceptibility to persecutory delusions as the single underlying pathology. Of course, whether or not we are correct to lump delusions in these ways will turn on the question of whether doing so leads to better theories and more effective interventions, in the long term. I will expand on this point in the next, concluding section.

First, however, it should be granted that not *all* reports of thought insertion will be well viewed as persecutory delusions; nor is the present thesis that all episodes of thought insertion are persecutory delusions—only that the vast majority are. In reading many descriptions of thought insertion on *Schizophrenia.com* and *Crazyboards.org,* I came upon one where the writer described his inserted thoughts in wholly positive terms:

> My 'voices' are inserted thoughts. I can identify who the 'speaker' is even though I can't 'hear' anything. Do you actually 'hear' auditory voices? or do you get your voices via inserted thoughts? I like my voices and miss them. I don't get them that much anymore since I got the Invega shot. My 'voices' are comforting, reassuring and validating so it's no fun when they go away (from non-average at Schizophrenia.com[16]).

Interestingly, non-average goes on to explain that they suffer from "delusions of grandeur," which constitute another common form of delusion in psychosis, distinguished from persecutory delusions. Specifically, non-average reports being monitored constantly by scientists and spy

[16] Retrieved on May 6, 2022 from https://forum.schizophrenia.com/t/hearing-voices-vs-inserted-thoughts/249426

agencies as part of an important brain study (while also showing some degree of insight into the delusional nature of these beliefs). Just as the themes of being spied upon can appear in both persecutory and grandiose delusions, so, too, can the theme of having thoughts inserted into one's mind. In neither case need we suppose that there is a particular type of phenomenal experience responsible for each type of report.

4. *Treating thought insertion as a multi-componential persecutory delusion*

An advantage of viewing thought insertion as a persecutory delusion is that one avoids the explanatory demand of providing an account of the distinctive anomalous experience, or unusual phenomenology, that gives rise to such delusions. Like believing that one's neighbor wishes one ill, or that aliens, or the FBI, plan to cause one harm, believing that someone has inserted thoughts into one's mind is, typically, an expression an underlying propensity for persecutory delusions. There may well be anomalous experiences of a kind that are causally implicated in such delusions. But it would be a mistake to put too fine a point on them—to suggest that, if only we too had such an experience, we would understand why it generated the delusional belief (which, again, is the key explanatory role of the "first factor" in two factor accounts).

The most important upshot of this analysis, however, lies in the kinds of treatments and interventions it suggests. If most or all cases of thought insertion are persecutory delusions, treatments already shown successful for persecutory delusions may be effective in the treatment of thought insertion as well. For instance, Daniel Freeman and colleagues have advanced a multi-component account of the causal bases for persecutory delusions (Freeman, 2007, 2016; Freeman et al., 2015; Freeman & Garety, 2014). In a 2016 overview of his theory, Freeman explains that "debates about delusions being caused by either one or two factors are outdated," and holds instead that "many contributory factors are implicated in persecutory delusions," and that "it is most certainly not a matter of one or two causes" (Freeman, 2016, p. 686). Nor, he argues, should we think they are caused by the same combination of causes in each situation. According to Freeman, when we identify causally relevant elements to a delusion, we are identifying insufficient but non-redundant parts of an unnecessary but sufficient condition (an "INUS condition") for the delusion (Freeman, 2016, p. 686). Each such cause "only increases

the probability of the delusion occurring." Freeman's model synthesizes results across a wide spectrum of studies to identify six core processes centrally involved in the development and persistence of persecutory delusions: worry, negative self-beliefs, anomalous experiences, sleep dysfunction, reasoning bias, and safety behaviors (p. 687).

We see in Freeman's account the familiar anomalous experiences and reasoning biases of many two-factor accounts. Yet they are placed in a broader context where other features, such as a "worry thinking style," are equally likely to lie at the root of a persecutory delusion. Freeman and colleagues (2015) showed that persecutory delusions were significantly decreased by means of cognitive behavioral therapy (CBT) aimed at counteracting worry, comparing a patient group who paired such therapy with standard treatment to a control patient group who received only ordinary treatment. Further, it is known that most patients suffering persecutory delusions tend to sleep poorly. Freeman proposes that disrupted sleep can maintain paranoia in several ways, including elevating negative emotion, mood dysregulation, and anomalous perceptions, while limiting cognitive resources available for revising initial interpretations of ambiguous situations (Freeman, 2016, p. 687). A separate review of 66 studies has indeed found sleep dysfunction to be a contributing cause to delusions generally (Reeve, Sheaves, & Freeman, 2015).

This all suggests a very different approach to treating thought insertion than that encouraged by two-factor theories. As we saw above, many two-factor theories invoke disrupted sensorimotor self-monitoring mechanisms as necessary contributors to the experience of thought insertion. From that theoretical standpoint, intervening on thought insertion seems to require remedying these sensorimotor irregularities. By contrast, in viewing thought insertion as a persecutory delusion, we have reason to think that intervening on a worrying thinking style, or facilitating better sleep, may equally likely provide substantial relief. More generally, because persecutory delusions are by far the most diagnosed form of delusion—and therefore most easily studied—assimilating thought insertion as a sub-class instantly allows large amount of data and research to be applied to the treatment of this symptom. The ultimate value and interest of the present proposal will indeed hinge on how successful therapeutic approaches to persecutory delusions are when applied to those suffering thought insertion.

References

Allen, P., Aleman, A., & Mcguire, P. K. (2007). Inner speech models of auditory verbal hallucinations: evidence from behavioural and neuroimaging studies. *International Review of Psychiatry, 19*(4), 407-415.

Allen, P., Modinos, G., Hubl, D., Shields, G., Cachia, A., Jardri, R., . . . Hoffman, R. (2012). Neuroimaging Auditory Hallucinations in Schizophrenia: From Neuroanatomy to Neurochemistry and Beyond. *Schizophrenia Bulletin, 38*(4), 695-703. doi:10.1093/schbul/sbs066

Andreasen, N. C. (1984). *Scale for the assessment of positive symptoms (SAPS)*. Iowa City: University of Iowa.

Appelbaum, P. S., Robbins, P. C., & Vesselinov, R. (2004). Persistence and stability of delusions over time. *Compr Psychiatry, 45*(5), 317-324. doi:10.1016/j.comppsych.2004.06.001

Bassiony, M. M., & Lyketsos, C. G. (2003). Delusions and hallucinations in Alzheimer's disease: review of the brain decade. *Psychosomatics, 44*(5), 388-401.

Blakemore, S. J., Wolpert, D. M., & Frith, C. D. (1998). Central cancellation of self-produced tickle sensation. *Nature Neuroscience, 1*, 635-640.

Blakemore, S. J., Wolpert, D. M., & Frith, C. D. (2002). Abnormalities in the awareness of action. *TRENDS in Cognitive Science, 6*, 237-241.

Byrne, A. (2005). Introspection. *Philosophical Topics, 33*(1), 79-104.

Campbell, J. (1999). Schizophrenia, the space of reasons, and thinking as a motor process. *The Monist, 82*(4), 609-626.

Carruthers, G. (2010). The case for the comparator model as an explanation of the sense of agency and its breakdowns. *Consciousness and Cognition*. doi:10.1016/j.concog.2010.08.005

Colbert, S. M., Peters, E., & Garety, P. (2010). Jumping to conclusions and perceptions in early psychosis: Relationship with delusional beliefs. *Cogn Neuropsychiatry, 15*(4), 422-440. doi:10.1080/13546800903495684

Coltheart, M. (2010). The neuropsychology of delusions. *Ann N Y Acad Sci, 1191*(1), 16-26. doi:https://doi.org/10.1111/j.1749-6632.2010.05496.x

Coltheart, M., Langdon, R., & McKay, R. (2007). Schizophrenia and monothematic delusions. *Schizophrenia Bulletin, 33*(3), 642-647.

Coltheart, M., Langdon, R., & McKay, R. (2011). Delusional Belief. *Annual Review of Psychology, 62*(1), 271-298. doi:10.1146/annurev.psych.121208.131622

Davies, M., & Coltheart, M. (2000). Pathologies of Belief. *Mind and Language, 15*, 1-46.

Davies, M., Coltheart, M., Langdon, R., & Breen, N. (2001). Monothematic Delusions: Towards a Two-Factor Account. *Philosophy, Psychiatry, & Psychology, 8*(2), 133-158. doi:10.1353/ppp.2001.0007

Ellersgaard, D., Mors, O., Thorup, A., Jørgensen, P., Jeppesen, P., & Nordentoft, M. (2014). Prospective study of the course of delusional themes in first-episode non-affective psychosis. *Early Interv Psychiatry, 8*(4), 340-347. doi:10.1111/eip.12059

Fine, C., Gardner, M., Craigie, J., & Gold, I. (2007). Hopping, skipping or jumping to conclusions? Clarifying the role of the JTC bias in delusions. *Cogn Neuropsychiatry, 12*(1), 46-77. doi:10.1080/13546800600750597

Freeman, D. (2007). Suspicious minds: The psychology of persecutory delusions. *Clinical Psychology Review, 27*(4), 425-457. doi:https://doi.org/10.1016/j.cpr.2006.10.004

Freeman, D. (2016). Persecutory delusions: a cognitive perspective on understanding and treatment. *Lancet Psychiatry, 3*(7), 685-692. doi:10.1016/s2215-0366(16)00066-3

Freeman, D., Dunn, G., Startup, H., Pugh, K., Cordwell, J., Mander, H., . . . Kingdon, D. (2015). Effects of cognitive behaviour therapy for worry on persecutory delusions in patients with psychosis (WIT): a parallel, single-blind, randomised controlled trial with a mediation analysis. *The Lancet Psychiatry, 2*(4), 305-313. doi:10.1016/s2215-0366(15)00039-5

Freeman, D., & Garety, P. (2014). Advances in understanding and treating persecutory delusions: a review. *Social Psychiatry and Psychiatric Epidemiology, 49*(8), 1179-1189. doi:10.1007/s00127-014-0928-7

Freeman, D., & Garety, P. A. (2004). *Paranoia: The psychology of persecutory delusions*. Hove and New York: Psychology Press.

Frith, C. D. (1992). *The Cognitive Neuropsychology of Schizophrenia*. Hove, UK: Lawrence Erlbaum.

Frith, C. D. (2012). Explaining delusions of control: the comparator model 20 years on. *Consciousness and Cognition, 21*, 52-54.

Fujii, D., & Ahmed, I. (2002). Characteristics of psychotic disorder due to traumatic brain injury: an analysis of case studies in the literature. *The Journal of neuropsychiatry and clinical neurosciences, 14*(2), 130-140.

Gallagher, S. (2000). Self-Reference and Schizophrenia: A Cognitive Model of Immunity to Error through Misidentification. In Z. D. (Ed.), *Exploring the Self: Philosophical and Psychological Perspectives on Self-Experience*. Philadelphia: John Benjamins.

Graham, G., & Stephens, G. L. (2000). *When Self-Consciousness Breaks*. Cambridge, MA: MIT Press.

Jørgensen, P., & Jensen, J. (1994). How to understand the formation of delusional beliefs: a proposal. *Psychopathology, 27*(1-2), 64-72. doi:10.1159/000284850

Kimhy, D., Goetz, R., Yale, S., Corcoran, C., & Malaspina, D. (2005). Delusions in individuals with schizophrenia: factor structure, clinical correlates, and putative neurobiology. *Psychopathology, 38*(6), 338-344. doi:10.1159/000089455

Langland-Hassan, P. (2008). Fractured Phenomenologies: Thought Insertion, Inner Speech, and the Puzzle of Extraneity. *Mind & language, 23*(4), 369-401.

Langland-Hassan, P. (2016). Hearing a Voice as one's own: Two Views of Inner Speech Self-Monitoring Deficits in Schizophrenia. *Review of Philosophy and Psychology, 7*(3), 675-699. doi:10.1007/s13164-015-0250-7

Langland-Hassan, P. (2018). From Introspection to Essence: The Auditory Nature of Inner Speech. In P. Langland-Hassan & A. Vicente (Eds.), *Inner Speech: New Voices* (pp. 71). Oxford: Oxford University Press.

McKay, R., Langdon, R., & Coltheart, M. (2005). "Sleights of mind": Delusions, defences, and self-deception. *Cogn Neuropsychiatry, 10*(4), 305-326.

Miall, R. C., Weir, D. J., Wolpert, D. M., & Stein, R. C. (1993). Is the cerebellum a Smith Predictor? *Journal of Motor Behavior, 25*, 203-216.

Mullins, S., & Spence, S. A. (2003). Re-examining thought insertion. *The British Journal of Psychiatry, 182*(4), 293.

Paolini, E., Moretti, P., & Compton, M. T. (2016). Delusions in first-episode psychosis: Principal component analysis of twelve types of delusions and demographic and clinical correlates of resulting domains. *Psychiatry research, 243*, 5-13. doi:10.1016/j.psychres.2016.06.002

Parrott, M. (2017). Subjective misidentification and thought insertion. *Mind & language, 32*(1), 39-64.

Pickard, H. (2010). Schizophrenia and the epistemology of self-knowledge. *European Journal of Analytic Philosophy, 6*(1), 55-74.

Proust, J. (2006). Agency in schiophrenia from a control theory viewpoint. In N. Sebanz & W. Prinz (Eds.), *Disorders of Volition*. Cambrdige, MA: MIT Press.

Ratcliffe, M., & Wilkinson, S. (2015). Thought Insertion Clarified. *Journal of Consciousness Studies, 22*(11-12), 246-269.

Reeve, S., Sheaves, B., & Freeman, D. (2015). The role of sleep dysfunction in the occurrence of delusions and hallucinations: A systematic review. *Clinical Psychology Review, 42*, 96-115. doi:10.1016/j.cpr.2015.09.001

Ross, R. M., McKay, R., Coltheart, M., & Langdon, R. (2015). Jumping to Conclusions About the Beads Task? A Meta-analysis of Delusional Ideation and Data-Gathering. *Schizophr Bull, 41*(5), 1183-1191. doi:10.1093/schbul/sbu187

Shergill, S. S. (2003). Engagement of brain areas implicated in processing inner speech in people with auditory hallucinations. *The British Journal of Psychiatry, 182*(>6), 525-531. doi:10.1192/bjp.182.6.525

Shergill, S. S., Bullmore, E., Simmons, A., Murray, R. M., & McGuire, P. K. (2000). Functional anatomy of auditory verbal imagery in schizophrenic patients with auditory hallucinations. *American Journal of Psychiatry, 157*, 1691-1693.

Sinha, V. K., & Chaturvedi, S. K. (1990). Consistency of delusions in schizophrenia and affective disorder. *Schizophr Res, 3*(5-6), 347-350. doi:10.1016/0920-9964(90)90020-8

Synofzik, M., Vosgerau, G., & Newen, A. (2008). Beyond the comparator model: A multifactorial two-step account of agency. *Consciousness and Cognition, 17*(1), 219-239. doi:http://dx.doi.org/10.1016/j.concog.2007.03.010

Vázquez-Barquero, J. L., Lastra, I., Nuñez, M. J. C., Castanedo, S. H., & Dunn, G. (1996). Patterns of Positive and Negative Symptoms in First Episode Schizophrenia. *British Journal of Psychiatry, 168*(6), 693-701. doi:10.1192/bjp.168.6.693

Vosgerau, G., & Newen, A. (2007). Thoughts, motor actions, and the self. *Mind and Language, 22*, 22-43.

Wing, J., Babor, T., Brugha, T., Burke, J., Cooper, J., Giel, R., . . . Sartorius, N. (1990). SCAN. Schedules for Clinical Assessment in Neuropsychiatry. *Archives of General Psychiatry, 47*(6), 589.

Wing, J., Cooper, J., & Sartorius, N. (1983). *Present State Examination (9th Edition)* (9 ed.). Cambridge: Cambridge University Press.

Wolpert, D. M., Miall, R. C., & Kawato, M. (1998). Internal Models in the cerebellum. *TRENDS in Cognitive Science, 2*, 338-347.