**Soundless voices, silenced selves: Are auditory-verbal hallucinations in schizophrenia truly perceptual?**

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**Summary**

In much contemporary psychiatric training and practice, there is a strong emphasis on the audible or perceptual quality and externality of auditory-verbal hallucinations in clinical assessments. A typical question during clinical assessment is ‘Do the voices you hear sound just like what I sound to you now?’. In this Personal View, we argue that the most important factor in auditory-verbal hallucinations found in schizophrenia-spectrum psychoses is a loss of first-person authority, and that a perceptual quality is not required. We draw on evidence from cognitive neuroscience, demonstrating that the brain networks retrieved during capture of auditory-verbal hallucinations experienced while in the functional magnetic resonance imaging scanner do not match networks retrieved during auditory perception. We propose that, despite early writings by Esquirol and Schneider defining auditory-verbal hallucinations as beliefs in perception rather than true perception, cognitive neuroscience, psychiatric training/practice, and even patients adopting clinical vocabulary, have been strongly influenced by the progression of the diagnostic criteria for schizophrenia, which increasingly place emphasis on language such as the ‘full force’ of a true perception. We hold that this has resulted in an unhelpful top-down influence on the field imposing perceptual qualities on auditory-verbal hallucinations, leading to misunderstandings and inaccuracies in clinical practice, patients’ self-reports, and misinterpretations in cognitive neuroscience. We encourage a revision of the definition of auditory-verbal hallucinations to move away from the necessity for auditory perception, and towards beliefs in perception due to the loss of first-person authority.

**Introduction: A brief history on the definitions of auditory-verbal hallucinations**

What is a hallucination? More specifically, what is a hallucination in the auditory-verbal modality and why is it so seemingly important for the diagnosis of psychotic disorders such as schizophrenia? These apparently straightforward questions about definitions are in fact notoriously difficult to answer, as they invariably tap into and contend with one’s notions of (sensory) perception, feelings of reality and senses of self. For example, the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5)1 defines hallucinations as follows:

‘Hallucinations are perception-like experiences that occur without an external stimulus. They are vivid and clear, with the full force and impact of normal perceptions, and not under voluntary control. They may occur in any sensory modality, but auditory hallucinations are the most common in schizophrenia and related disorders. Auditory hallucinations are usually experienced as voices […].’ (p.87)

Previously, David2 offered the following definition for a hallucination:

‘A sensory experience which occurs in the absence of corresponding external stimulation of the relevant sensory organ, has a sufficient sense of reality to resemble a veridical perception, over which the subject does not feel they have direct and voluntary control, and which occurs in the awake state.’ (p.108).

Chronologically speaking at least, David’s definition is more nuanced than that of the DSM-5, in that a hallucination only *resembles* a veridical perception due to its *sense of* reality, whereas the DSM-5 definition clearly demands the full force and impact of *normal perceptions* despite only being ‘perception-like’. A common theme between these two definitions is the lack of voluntary control and the lack of (external) sensory stimuli, however, both still more or less focus on the sensory, or at least quasi-sensory, nature of a hallucination as its defining feature. These current definitions form an interesting contrast to when auditory-verbal hallucinations were *first* described by Esquirol3 over 200 years ago, where he conceived a hallucination as ‘the intimate conviction of actually perceiving a sensation for which there is no external object’. For Esquirol, it seems that to perceive is to believe with conviction. Indeed, he also went to state that auditory-verbal hallucinations ‘make patients believe they have a perception’4, challenging what is ordinarily considered as a perceptual event.

As Berrios and Marková5 wrote, *perception* now in the west carries the dual meaning of 1) a general meaning of getting to know the world, whether it is via intuitions, representations or other methods; and 2) a sensorial meaning that the knowledge of the world is gained exclusively via sense-data, i.e., through bottom-up information obtained from sensory organs. In this meaning, there is indeed no way at all to differentiate between ‘someone has experienced a hallucination’ and ‘someone *believes/thinks/is convinced* that they have experienced a hallucination’ for the (again) seemingly obvious reason that there is no object to be perceived in the first place, otherwise the phenomenon at hand would not be called a hallucination. As a phenomenon – perceptual or not – that arises from ‘nothing’ external, auditory-verbal hallucinations undeniably carry qualities other than those of a sensory nature (or the absence thereof).

**The nosological significance of AVH in schizophrenia in theory and practice**

Given the prominence of auditory-verbal hallucinations in modern psychiatric diagnostic systems such as the aforementioned DSM-5 for the differential diagnosis of schizophrenia-spectrum psychoses, it is surprising that they were only considered one of the ‘accessory symptoms’ amongst a ‘group of schizophrenias’ in the earliest conceptualisations of the disorder by Kraepelin and Bleuler (for a detailed discussion, see6). It was not until Schneider’s first-rank symptoms that auditory-verbal hallucinations were considered to bear at least some diagnostic utility to schizophrenia; even then, the presence of auditory-verbal hallucinations by and of themselves were neither necessary nor sufficient to diagnose schizophrenia. Auditory-verbal hallucinations have to be persistent over at least one month and also need to cause significant distress, dysfunction and disability in the sufferer. However, certain types of auditory-verbal hallucinations, such as those providing a running commentary on the patient’s behaviour or talking amongst themselves about the patient in the third person, were considered more clinically important than, say, second person auditory-verbal hallucinations or even those of a commanding nature7. It is widely accepted that auditory-verbal hallucinations can occur in a vast variety of other ‘organic’ and ‘functional’ psychoses (for which the boundaries between each other are sometimes blurred), as well as personality disorders (in particular, borderline or emotionally unstable personality disorder), severe depression with psychotic features, neurological disorders and hearing loss8. Granted, the phenomenology of the voices a patient with schizophrenia might experience can be vastly different from those someone with hearing loss reports, yet there are often overlapping features especially given the definitions provided above about externality, perceptual qualities and uncontrollability. In fact, we will argue that the auditory-verbal hallucinations in some organic or neurological disorders might be more closely aligned with their DSM-5 definitions if the statement about ‘the full force and impact of normal perceptions’ is to be followed.

Schneider did not hold that auditory-verbal hallucinations are perceptions without a source. He wrote in *Clinical Psychopathology* that auditory-verbal hallucinations are often not comparable to the normal perception6,9, which would be directly at odds with the current emphasis placed on perceptual qualities by the DSM. What underlies all first-rank symptoms is actually the permeation and perforation of one’s ego-boundary, the barrier between self and other, or the boundary between a person’s internal world that is only subjectively accessible, and the external environment with which the individual interacts and is shared intersubjectively. In other words, sound or other perceptual qualities are not essential for a symptom to be of the first rank. Rather than the hallucinations themselves being perceptual, it may be that the process by which a person gains information by perceiving that is disrupted. It is the mode of experience and perception that has lost (at least partially) the first-person authority that individuals without schizophrenia take for granted, and it is not required that the auditory-verbal hallucinations are perceptual. Such an authority to the perceptions one experiences in the here-and-now is imbued with a sense of givenness, an immediate access from the first-person perspective over which the individual would usually endorse a feeling of direct control. In other words, it is the ‘how’ and not the ‘what’ about gaining perceptual information that is severely interrupted. As Schneider wrote, the essence of schizophrenia ought to be summarised by the passivity, influence, and diffusion of thought, and that schizophrenia should be diagnosed in the presence of these symptoms *and* in the absence of organic or somatic illnesses10.

Many of the pioneers in psychopathology (e.g., Bleuler, Jaspers, Gruhle, Schneider, Conrad, Minkowski, Binswanger, Blankenburg, to name but a few) were not only theorists or academic researchers but practising psychiatrists themselves. To say their clinical observations paved the way to the advent of modern psychiatry, especially to psychiatric nosology, is a massive understatement. Sadly, their seminal contributions seem to have been diluted if not overshadowed by biological psychiatry since the serendipitous discovery of anti-dopaminergic drugs. For example, the Early Heidelberg School of Psychiatrists famously experimented with mescaline to study the phenomena of the ‘becoming sensory’ of thoughts11,12, and later psychiatric assessment systems such as the Basic Symptoms Approach (Huber, Gross and Klosterkötter) describe a transitional sequence of events from rudimentary, ineffable, unspecific and amorphous changes in basic cognitive functions (e.g., the speed, pressure, and felt ‘quality’ of thought) to an externalisation of internal processes (e.g., ‘as if’ experiences, dissociative symptoms, delusional atmosphere, perplexity) to concretised and florid first-rank psychotic symptoms (e.g., no more ‘as if’ qualifiers; loss of insight, acute delusions and auditory-verbal hallucinations). By ‘externalisation’ it describes a process of thoughts gaining an external quality and not that thoughts are somehow simply projected into external space. Paradoxically, in order to ‘perceive’ the external quality, one needs to maintain one’s own subjectivity and the ‘as if’ qualifier. If all boundaries between internal and external worlds are already dissolved, there will be no difference in the quality of that thought. Audible thoughts (and soundless voices – in other words, phenomena reported as ‘voices’ by the individual but devoid of perceptual qualities or auditory features) are salient and alarming experiences because they are living contradictions of, and anomalies in, thought and perception. They are everything thoughts and percepts *should not be experienced as*. It is this in-between space, this airless dimension of unwanted yet irresistible revelations and epiphanies (or apophany; cf. Conrad’s Beginning Schizophrenia13) that torments the souls of those afflicted with schizophrenia, not necessarily just what the voices sound like or even what they say to the patient.

**Issues with current clinical assessments of auditory-verbal hallucinations**

In contemporary psychiatric training and practice (at least in the UK), there frequently seems to be an over-emphasis on the audible or perceptual quality and externality of auditory-verbal hallucinations in clinical assessments. ‘Do the voices you hear sound just like what I sound to you now?’ is the prototypical and often one of the very first questions asked when enquiring about auditory-verbal hallucinations in the clinical encounter. The question prior to this is often ‘do you hear/are you hearing voices?’ with the expectation of yes or no answers, as if they were going down a binary decision tree. The impact of the patient’s response can go two ways. If the patient had already been diagnosed with psychosis, then the negative response may be seen as a lack of insight. If it was the very first clinical encounter, then the denial about ‘voices’ or even worse, about their perceptual qualities, may be seen as ‘pseudo-hallucinations’ (for a critique, see14) possibly indicative of an emotionally unstable personality disorder or even malingering / ‘attention-seeking’. Indeed, auditory-verbal hallucinations in borderline (emotionally unstable) personality disorders have been found to share many similarities in phenomenology with those in schizophrenia15.

Auditory-verbal hallucinations in schizophrenia are given an exotic quality that demarcates the ‘mad’ from the ‘normal’. There is a sense of excitement when a trainee psychiatrist assesses an acutely psychotic patient for the first time. However, if the voices those ‘mad people’ hear were not so distinctive or audible, perhaps if the voices are just like thoughts that *everyone* can have from time to time, the clearly drawn demarcation lines would suddenly become not so clear and the mad is not so far removed from the normal. If the emphasis on the perceptual quality of auditory-verbal hallucinations was released, and auditory-verbal hallucinations were considered a type of belief rather than an exotic perception, the discussion with the patient may be changed from a simple response to a query about voices to another way to understand the perception-like thoughts tormenting of the patient. Schneider himself devised the ideas about first-rank symptoms from his own clinical observations. It is ironic and unfortunate that ideas about externality and audibility are so deeply ingrained, and the phenomenological traditions of these early observers which focus on beliefs in a perception rather than a true perception, seem to have been largely overlooked in the clinic in favour of a minimalist top-down query about audible or perceptual qualities.

**Evidence from patient reports**

Phenomenological surveys of auditory-verbal hallucinations indicate that thought-like voices, or an ‘in-between’ state of mixed thought-like and audible voices, account for the majority of voice-hearing experiences not only in schizophrenia but also in a variety of diagnoses, as well as in individuals without a formal psychiatric diagnosis. For example, Woods et al.16 found that under half of all participants reported voices with actual sound features, and this finding is supported by Moseley and colleagues17 regarding nonclinical spiritual voices and psychotic voices. These newer phenomenological surveys clearly demonstrate a continuum between thought-like and sound-like voices across clinical and nonclinical individuals.

Through a series of case vignettes and references to previous phenomenological surveys, Parnas, Yttri, and Urfer-Parnas9 directly challenge the perception definition of auditory-verbal hallucinations in schizophrenia. Some of their patients report only *reframing* their experiences from ‘thoughts’ to ‘voices’ because their clinicians explained to them it was ‘voices’, but auditory-verbal hallucinations are in fact the thoughts they are ‘forced to think’. Patients often find their clinicians and social surroundings equally as baffling and impenetrable as their own internal mindscape. Due to the role of the clinician and the readily available tools of medical terminology they can employ, the patients’ own views and descriptions of their symptoms can sometimes be dictated if not transformed by the clinician’s language even when it bears little use to the patient. As Parnas and colleagues9 write in one of the vignettes, the patient explains with painful clarity that ‘The voices and so on were not that important. I think that the enduring and pervasive feeling of being unreal is the disease itself. When I realised this condition of looking at myself in a movie was permanent, I understood it would eventually destroy the core of my life’. Despite this, patients are likely heavily influenced by the availability of clinical vocabulary (like auditory-verbal hallucinations or ‘voices’), perhaps sometimes even stemming from a desire to ‘fit’ with the medical narrative in order to be taken seriously, to be a ‘good patient’, and engage in conversations with ‘the doctor’. This could significantly inflate the prevalence of auditory-verbal hallucinations reported by patients (and the prevalence reported in research papers and psychiatric textbooks). Patients are often dismissed if they do not report ‘real’ hallucinations, i.e., those with the full force of veridical perception. It may be that few auditory-verbal hallucinations are ‘real’ by that definition. Instead, phrases like ‘thought-voices’, ‘malfunctioning radio signals’, or ‘messages’ seem far more appropriate when describing patients’ true experiences.

**Evidence from neuroimaging: Are auditory-verbal hallucinations the same as perceptions?**

We do not intend to refute the notion that voices – like all other mental events – originate from the brain. There is of course a biological basis to auditory-verbal hallucinations, which will always be a subject of study. Nevertheless, unless medical professionals can be convinced that there is some biological basis to the challenges posed by the soundless voices perspective, there will be no real reason to believe otherwise, and these debates may not directly benefit patient care. To provide this evidence, we appeal to cognitive neuroscience, which can effectively test how the brain networks involved in auditory-verbal hallucinations compare to those elicited by auditory perception.

Research into the cognitive neuroscience of the experience of auditory-verbal hallucinations has been dominated by functional magnetic resonance imaging (fMRI). In this field it is very clear that linguistic processing maps onto a Broca’s- and Wernicke’s-area-based linguistic processing network18,19, and speech perception activates superior temporal gyrus-based auditory language perception network20–22. Functional magnetic resonance imaging studies have investigated the brain networks activated during the *experience* of hallucinations (symptom capture or *state* studies) but have also compared the brain network activity between patients who are likely to hallucinate and those who are not, based on reports of experiencing hallucination in the recent past (symptom association or *trait* studies). These symptom association studies commonly find involvement of the language and auditory perception networks, providing evidence that fMRI can measure brain changes that lead to an increased likelihood of hallucinations in the near future23–25. Here, we are concerned with brain imaging investigations on the experience of hallucinations (symptom capture or *state* studies).

These symptom capture brain imaging findings were summarised in three meta-analyses, and it was concluded that activity in speech and perception and linguistic processing networks were associated with the experience of hallucinations26–28. However, a flaw in this literature is that in most symptom capture studies, the experimental procedure to monitor auditory-verbal hallucinations in the scanner consists of participants pressing a button/squeezing a ball, to indicate the timing of hallucinatory events26–28. Since functional neuroimaging measures the blood-oxygen-level-dependent (BOLD) signal increases in response to the timing of cognitive events, and the timing of auditory-verbal hallucinations onset/offset was confounded with response, this leads to complications, and the sensorimotor response network must be separated from the linguistic processing and speech perception networks when investigating the potential brain networks underlying auditory-verbal hallucinations, as is acknowledged in some studies(e.g.,29)

To disentangle the language perception and response networks involved in in cognitive neuroscience investigations into auditory-verbal hallucinations, we previously analysed internationally shared data30 using functional neuroimaging methodology that allowed retrieved networks to be anatomically compared to templates of networks with known anatomical configurations and associated cognitive functions, previously derived by replication over a range of published work, with the templates being publicly available for download31. The anatomical hypotheses for hallucination-capture studies were that the configurations should match both language processing/perception and response networks, since both were involved. In addition, a functional hypothesis was also proposed: namely, that the duration of the auditory-verbal-hallucination-induced BOLD signal would increase with the duration of the experienced auditory-verbal hallucinations, and this should also be the case for the duration of perceived speech.

Symptom capture data was analysed by merging auditory-verbal hallucination datasets from two sites (Melbourne and Utrecht), and radio-speech-sample events were also collected (at the Melbourne site only). The results showed that for perception of radio-speech, an auditory perception network clearly emerged, meeting the anatomical requirement, and speech-duration-dependent BOLD signal changes associated with this network were clear, meeting the temporal requirement (Gill et al.30, their Figure 1). However, during symptom capture of auditory-verbal hallucinations during functional neuroimaging, no hallucination-event-induced BOLD signal changes showed duration dependence, and no language-related brain networks emerged. However, the response network did emerge (Gill et al.30 Figure 3 and Table 1).

This suggests that the cognitive processes taking place during the timing of hallucination events are not sufficiently different from the cognitive processes taking place outside the timing of auditory-verbal hallucinations events to elicit a detectable response in BOLD signal that is distinct from a response. This fits with the perspective that auditory-verbal hallucinations events are more akin to thought processes than to real perceptions.

An implication of these results is that the previous reports on brain networks detected by functional neuroimaging during hallucination capture, including the aforementioned three meta-analyses26–28, may be misreporting response activations as linguistic auditory-verbal hallucinations. In the originally published work we carried out a voxel-by-voxel review of the meta-analytic studies (see Gill et al.30, Table S11), and this supported the proposition that response network activations may be misreported as AVH activations. Here, we have prepared a figure showing the brain activations reported as auditory-verbal hallucinations in the meta-analytic studies26–28 superimposed on the auditory perception, linguistic processing, and response networks (see Figure 1 and Appendix Figure S1, p. 1). From this we can observe that these meta-analysis points appear to line up better with the response network than the linguistic-processing/auditory-perception networks.

**Insert Figure 1 about here**

Thus, as with clinical interview and patient reports, the field of neuroimaging may have been affected by the top-down influence of the insistence on audible or perceptual quality and externality of auditory-verbal hallucinations. This may have led to interpretation of brain activations involved in response as ‘close enough’ to language/auditory perception regions, leading to the conclusion that auditory perception regions were in fact observed during the experience of auditory-verbal hallucinations; however, this conclusion appears to be questionable (Figure 1 and Supplementary Appendix Figure S1, p.1).

This finding does not bear on the proposition that there is overlap in the *neural activity* elicited by auditory perception and auditory-verbal hallucinations. It only suggests that they are not the same, because functional neuroimaging easily detects *actual* perception of auditory stimuli, but probably not auditory-verbal hallucinations. This aligns with the perspective that auditory-verbal hallucinations have more in common with thoughts (that are taking place during on- and off-hallucinatory periods when being scanned) than perceptions. However, functional neuroimaging does not measure neural activity directly, it measures the BOLD signal flowing around the brain. From the way the BOLD signal flows, one can observe that actual auditory perception produces a *very* clear, robust and easily quantified BOLD signature, while auditory-verbal hallucinations do not. Due to the focus of functional neuroimaging on BOLD and not neural activity directly, there is no way to know for certain whether or not there is overlap in *neural activity* for the experience of auditory-verbal hallucinations versus the experience of an auditory perception.

**Rethinking AVH and schizophrenia: To broaden, or to narrow down?**

It would seem that despite decades of empirical research and centuries of attempts at conceptualising auditory-verbal hallucinations in psychopathology, their precise nature (neurobiology as well as phenomenology) remains elusive. If clinicians and researchers continue to take the current definitions of hallucinated voices for granted in their training, practice and research studies, there is a real risk that patient experience will be diluted, if not dismissed, in the face of certain longstanding traditions in diagnosis and assessment that are entrenched in many and for a very long time. As described above, auditory-verbal hallucinations have not always been one of the major ‘building blocks’ of the schizophrenia concept and these symptoms by themselves bear little to no diagnostic specificity unless they are deemed a first-rank symptom. The argument here may seem somewhat circular: as things stand, auditory-verbal hallucinations are one of the key criteria for diagnosing schizophrenia, yet the modern concept of schizophrenia is centred on auditory-verbal hallucinations at least to a certain extent. Do hallucinated voices ‘create’ a diagnosis of schizophrenia, or does schizophrenia lead to the experience of such voices?

This question might mean that researchers, clinicians or even policy makers (e.g., those involved in the provision of early intervention for psychosis services) need to engage in a drastic rethink of how symptoms of schizophrenia, especially auditory-verbal hallucinations, are viewed and treated against the backdrop of a person’s wider phenomenology and being-in-the-world. All too often complaints about thought interference and disrupted agency or control of thinking processes that are not easily discernible from other more concrete symptoms are ‘downgraded’ to pseudo-hallucinations, outright dismissed, re-classified as personality disorder pathology or misinterpreted as attempts to garner the clinician’s attention. This may be particularly true in the prodromal phase or during a first episode of psychosis, where psychopathological symptoms are highly fluid, amorphous, ineffable and plainly indescribable in everyday language. Nevertheless, this is also the critical period for effective intervention and in turn ensuring a better prognosis for many patients suffering from the beginnings of a psychotic disorder. Even if conversion rates from at-risk mental states to a diagnosable schizophrenic condition are low, further cases could be prevented if early complaints about the agency of thought, loss of first-person authority and the diffusion or permeation of ego-boundaries were taken more seriously. Certainly, there is the risk of over-diagnosis and unnecessary treatment (false positives), however, the likelihood of under-diagnosis (false negatives) cannot be underestimated either.

However, just exactly what can we do with the auditory-verbal hallucination concept to help our patients in concrete terms? If, as we suggest, auditory-verbal hallucinations are not readily separable from other events in one’s stream of thoughts and are not perceptual, does this mean they are some esoteric mental events that can never be properly defined or studied? Or are auditory-verbal hallucinations better conceptualised as a very specific type of thought that has lost first-person authority, and are reported as voices instead of inserted thoughts (thought insertion is another first-rank symptom of schizophrenia)? How might this impact the diagnosis of complex disorders such as schizophrenia, especially given that these types of diagnoses carry significant burdens on a person's social life and self-concept, but are also essential in receiving much-needed help (whether medical, legal or psychosocial)? Perhaps the answer does not lie in solving the ‘puzzle’ of auditory-verbal hallucinations. For us, the emphasis is misplaced if one solely focuses on diagnosing the symptom, drawing highly specific boundaries between thought and perception, or even coming up with extremely detailed theories about perceptuality or audibility. Maybe more attention ought to be paid to the silenced selves behind the voices – whether such silencing is due to personal choice or the othering effect of society, whether the patient prefers to be alone (and not lonely) in their own mind or finds the solitude unbearable and can only seek solace in their elaborate delusional systems32, real patient empowerment surely comes from the re-instillation of the senses of agency and ownership over their thinking processes to begin with. The focus needs to be shifted towards an individualised approach where the definition of auditory-verbal hallucinations in a particular case can be fluid depending on the patient’s own interpretations and appraisal, whether they are thought-voices, audible thoughts or soundless voices and with all the uncertainties, complexities and nuances.

One could conclude that auditory-verbal hallucinations are thoughts lost in consciousness that are devoid of first-person authority, gaining new meanings and qualities by being reported as external sounds. External sound features and personification seem to be the new agent given to such voices by patients, consciously or unconsciously, and this transitioning from thought-like to percept-like phenomenology (and vice versa) potentially captures the core of auditory-verbal hallucinations which is nothing like the concrete entities many clinicians have come to believe. We recommend that medical students and trainee clinicians pay more attention to the phenomenological nuances and complexities of anomalous thought and perception in patients with (or at risk of) a schizophrenia-spectrum condition. For example, instead of ‘do you hear voices’, clinicians could instead ask ‘have your thoughts felt alien, as if they do not belong to you?’ or ‘are your thoughts so loud that you can almost hear them?’. If the answer is positive, it is imperative to enquire by following up with ‘can you tell me more about these experiences?’.

Just like any other human experience, auditory-verbal hallucinations are to be understood in the entirety of the individual and cannot be easily isolated from the human factors intrinsically at play. However, unlike any other human experience, auditory-verbal hallucinations will surely continue to puzzle, intrigue and torment the psyche of everyone they affect, directly or indirectly. Auditory-verbal hallucinations are more than some perceptual abnormalities of the mind; they are produced by the mind yet do not have to always reside in the same mind or self because they are experienced by the entirety of one’s being (and not just *heard*). Auditory-verbal hallucinations are the constant reminders of the unknown capabilities, potentials and dangers of *every* mind; they represent the very human and perfectly normal urge to make sense, to find meaning and to protect the integrity of one’s self.

**Conclusion: For those thoughts lost in consciousness**

In this Personal View, we have put forward the argument that voices in schizophrenia should not always be considered or assessed in the context of purely perceptual qualities or audibility, given their history, phenomenology and cognitive neuroscience. Rather, auditory-verbal hallucinations are more akin to phenomena arising from a fragmentation of self-consciousness and permeation of ego-boundaries that may lie somewhere between thought and perception which, depending on the patient themselves, could shift between a spectrum of silent, inner thoughts and thoughts that have become sensory. Our previous work33 have already paved the way to a more concrete model regarding this continuum of phenomenology Clinical assessment methods that solely focus on sound qualities of auditory-verbal hallucinations in relation to differential diagnosis are not helpful in establishing a therapeutic alliance and do not reflect the patients’ best interests. When it comes to both the neuroscience *and* the phenomenology of auditory-verbal hallucinations in schizophrenia (as opposed to organic neurological syndromes), a radical rethink is urgently needed in how researchers and clinicians first view the phenomena in question and in the methodology of study and assessment. For example, interrater reliability, internal consistency and related psychometric properties should always be reported when using questionnaires and/or semi-structured interviews. Information about *how* questions are asked and not just the questions themselves can also be useful, as well as detailed accounts of the patient’s own interpretation of their experiences prior to conducting structured assessments or semi-structured interviews, even if the latter might be from a more phenomenological angle.

**Conflict of Interest**

The authors declared no conflicts of interest.

**Contributors**

CSH and TSW - Conceptualisation, writing - original draft, writing - review and editing.

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**Figure 1**. Montreal Neurological Institute (MNI) X Y Z coordinates (left is left) from three meta-analyses26-28 superimposed on three prototype brain networks31: Response, Auditory Language Perception, and Linguistic Processing. The meta-analysis coordinates26-28 were selected for this figure based on having a Y-axis value between -4 and 17, which capture the essential elements of all prototype networks.