Introduction (JCS Special Issue on Hallucinations)

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It is far less uncommon than usually thought that our mind (or brain) makes us seem to see, hear, touch, smell or taste certain things despite none of such things being there in our surroundings. When this happens, we undergo a hallucination. States of mind of this kind can be extremely disturbing as well as fascinating. They also pose major challenges to both philosophy and psychology—here broadly understood as including psychology but also psychiatry and cognitive neuroscience (for a recent collection of essays, see MacPherson and Platchias 2013).

 For philosophers, hallucinations have been a constant source of puzzles regarding the very nature and the epistemic merits of genuine (veridical) perceptual experience. Regarding the first point, the case of hallucination has been often taken to set constraints on any acceptable theory of perception. The so called argument from hallucination constitutes the standard articulation of this assumption (see Crane 2015 for an overview). In its basic form, it proceeds in two steps. The first one consists in appreciating that, for any given perceptual experience P of S, a hallucinatory experience H is conceivable such that P and H are indistinguishable from S’s own perspective. The second step brings us directly to the conclusion that P and H are subjectively indistinguishable in virtue of their being mental states of the same kind. This reasoning is usually backed up by causal considerations along the following lines. I am now seeing a mug on my desk. Suppose some (future) neuroscientist were able to keep the patterns of activation in my brain constant even with the distal visual stimulus—the mug there on the desk—being removed. It seems natural to conclude that it would still visually look to me as if the mug were there before my eyes. However, I would no longer be seeing the mug—for it would be no longer there—, but rather hallucinating it. In such a case, I would be seamlessly switch from a veridical perception to a perfectly matching hallucination, both of which causally dependent on the same pattern of brain activation. Given the widely accepted principle that the same causes bring about the same effects, it would follow that brain states of the same kind cause visual experiences of the same kind, regardless of whether the subject is genuinely perceiving or hallucinating.

 As the general claim that a perception P and the perfectly matching hallucination H are mental states of the same kind can be fleshed out in different ways, acceptance of the argument from hallucination (supplemented by causal considerations) is compatible with various theories of perception. For instance, that P and H are token of the same mental kind could be explained by their being sensings of the same mind-dependent object (sense datum theory), by their sharing the same representational content (standard representationalism), or by their instantiating the same intrinsic phenomenological properties (qualia theory). For this reason, these accounts can be aptly seen as different versions of a more general “common kind” view of sensory experience. Importantly, each of the posita introduced by any such theory—sense data, representational contents or qualia—is also intended to explain the specific phenomenological character of perceptual experience.

 Some theories of perception—most notably, naïve realism—are incompatible with the conclusion forced by the argument from hallucination. Naïve realism claims that mind-independent items are the direct objects and constituents of our perceptual experience. In particular, the constitutive role naïve realism assigns to mind-independent items in perception is also supposed to explain the specific phenomenology of perceptual experience. When I see the mug on my desk, the naïve realist argues, what it looks like to have such a visual experience is—at least in part—determined by the sensible properties possessed by the mug itself which stands on my desk (see, for instance, Campbell 2002; Martin 1997, 2004). Hence, this view thus stands in sharp contrast to all those mentioned above when it comes to making sense of perception’s conscious character.

 As naïve realism cannot accommodate the conclusion of the argument from hallucination, proponents of this view need to block it. Given that the possibility of perfectly matching hallucinations seems hard to rule out, they typically deny that from the fact that P and H are subjectively indistinguishable one can conclude that P and H are mental states of the same kind. This rejection is sometimes substantiated by reflections on the general phenomenon of indistinguishability. In many ordinary contexts, that two things are indistinguishable does not license the conclusion that they are things of the same nature. To use J.L. Austin’s example (1962: 50), that a piece of soap may look precisely like a lemon does not mean they are things of the same kind. Naïve realists argue that introspective indistinguishability of experiential states is not different in this respect. The resulting view—known under the label of disjunctivism—is thus that hallucinations and perceptions, though it may be impossible for one to tell them apart, are nonetheless mental states of different kind.

Many have raised doubts about this strategy’s success in blocking the argument from hallucination. First, the causal considerations that undergird common versions of the argument seem to pose an additional challenge to those aiming at dismissing it. Second, the disjunctivist treatment of sensory experience fails to positively account for the fact that (certain) perceptions and hallucinations are subjectively indistinguishable. For whereas all versions of the “common kind” view can explain the indistinguishability of perceptions and hallucinations by appeal to mental features they are supposed to share—sense data, representational contents or qualia—, disjunctivists seem forced to consider it as some kind of brute epistemic fact.

 I now turn to the second kind of puzzles hallucinations pose to philosophers. Such are problems of epistemological ilk. Perception supplies us with the evidence based on which we form many of our beliefs about the external world. It therefore plays a key cognitive role in our epistemic practices. Hallucinations, however, exemplify that our perceptual system can fail flagrantly in fulfilling this role. More disturbingly, many philosophers have been inclined to think that occasional failures of this kind put in jeopardy the epistemic credential of perceptual experience as such. As Descartes puts it: “from time to time I have found that the senses deceive, and it is prudent never to trust completely those who have deceived us even once” (Descartes 1996 [1641]: 12).

Here is how appeal to hallucinations can be used to foster the kind of distrust in the senses advocated by Descartes. Suppose I am now veridically seeing the mug on my desk. As noted before, we can conceive of a hallucinatory state that, from my subjective point of view, would perfectly match such a visual perception. In both the veridical and the hallucinatory case, it would visually seem to me that a mug is on the desk. Philosophers following Descartes’ lead take this to show that the evidence supplied by a given perception and the one supplied by the matching hallucination are the same. Hence, they argue that, as no hallucinatory experience can put the subject in the position to know what goes on in the environment, nor can perceptual experience.[[1]](#footnote-1)

 Some philosophers have argued that a disjunctivist treatment of sensory experience can prevent this skeptical conclusion about the epistemic merits of genuine perception (most notably, McDowell 1982, 1994; see also Pritchard 2012). From the fact that a perception P and a matching hallucination H are introspectively indistinguishable, it does not follow that the subject’s epistemic situation is the same in both cases. As perception makes us aware of facts obtaining in our environment, the evidence it thereby provides suffices for knowledge of such facts. The idea is thus that the shortcomings of hallucination (and of other delusory states) do not affect the epistemic credential of genuine perception.

 Many remained unconvinced by the disjunctivist response to the epistemological puzzle raised by hallucination. A major protest is that epistemic disjuncticvism simply presupposes that the evidence conveyed to the subject by veridical experience enables knowledge of the external world. This, however, seems to be precisely the point targeted by Cartesian skepticism about the reliability of the senses. In particular, given that P and H are subjectively indistinguishable, it seems that the subject cannot tell by introspection alone whether she is in P rather than in H. And if she is unable to do that, how can she know that the evidence her current sensory experience conveys to her is of the good sort? For all she knows, it could be deceiving evidence supplied by a hallucination (for discussion of such issues, see McDowell 2008; Wright 2008; Piazza, this issue).

There are also a number of complex pending issues for those working from a more “empirical” approach to hallucinations (e.g. psychologists, neuroscientists, psychiatrists). Due to their idiosyncratic character, hallucinations are particularly hard to study in the lab. Though they are associated with different diagnoses and can thus be seen as relatively non-specific for clinical populations, they also occur in the absence of any pathology. Hence, they can be viewed as either continuous or discontinuous with normality. Due to their occurrence in such a large spectrum of different conditions, hallucinations also form a class of heterogeneous subjective phenomena whose aetiology can vary greatly and remains largely unclear. First, although hallucinations are usually defined as perceptual phenomena, a range of cognitive deficits can contribute to their production. Second, neurobiological studies suggest that hallucinations recruit networks implicated in mental processes and states like imagery, memory and even dreams. It is therefore hard to draw neat boundaries between the episodes we classify as hallucinations and all such states and processes. Third, there are significant differences (but also important similarities) concerning hallucinations across different clinical disorders and sensory modalities. Fourth, a wide variety of narrative/biographical, social and cultural factors have a profound, though yet poorly understood, impact on the emergence and development of hallucinations. All these points make it particularly difficult to work out convincing models.

 Unfortunately, and despite the large amount of empirical data collected in the last few decades, the (few) available models still prove highly unsatisfactory. They all are essentially neurocognitive models based on some of the original theoretical propositions made in the early stages of the field (e.g. 1980s and 1990s). To illustrate the basic form of such models, we shall briefly focus on those devised to explain auditory verbal hallucinations (for a recent overview, see Jardri et al. 2013). Though difficult to sum up these models under a single account, the idea underlying most of them is, roughly, that AVH are due to difficulties in recognizing one’s own thoughts (or other mental episodes and states such as memories or inner speech). According to a very influential model (see Frith 1992), such difficulties derive from a breakdown within the systems monitoring our intentions to act. To distinguish between self-generated and externally generated actions we rely on a “feed forward” signal of our intentions to an internal monitor. If information about our intentions fails to reach the internal monitor, the resulting actions can be experienced as unintended. Consequently, inner speech can be misinterpreted as another’s voice if the experience of “hearing” it is not accompanied by any sense of intention, resulting in a hallucination. Memory models of AVHs (see Waters et al. 2006) are another theoretical option. Such models emphasize more where the raw material of AVHs comes from, proposing that they result from memory intrusions. They argue that due to impaired encoding of contextual information of previous experiences, memories are more likely to unintentionally retrieved and misattributed. This approach therefore views AVHs as resulting from the intrusion of “de-contextualised” memories.

These models (as well as similar ones for the visual modality) suffer from important limitations. To begin with, they are not nearly sophisticated and fine-grained enough to provide genuinely competing explanations of the different kinds of hallucinations. A more serious shortcoming concerns the failure to integrate the (admittedly very large) sets of data on hallucinatory phenomena made available over the past few decades. Current models typically draw on data regarding only a few pathological conditions and only one sensory modality (usually, either audition or vision). Moreover, they fail to integrate a range of factors (cultural, social, narrative/biographical, clinical, experiential, etc.) that we know also play a major role in provoking the occurrence of hallucinations. Finally, these models also tend to be too linear and static to capture phenomena whose nature is most probably much more complex and dynamic. Successful models need therefore (a) to integrate data from cross-pathology and cross-modality studies; (b) to take into account not only the neurobiological basis of hallucinations, but also all the social, cultural and biographical factors that contribute to their aetiology; (c) and to prove more sensitive to hallucinations’ developmental profile. These three points deserve to be emphasized, as they nicely illustrate in which direction future empirical research should move. Solid models are able not only to aid researchers in their future studies, but also provide clinicians with an effective basis for their interventions. However, for such models to develop, a genuine and general widening of the field is required.

 The transdiagnostic (or “cross-diagnostic”) problem is particularly pressing. The large majority of hallucination studies have included patients with a psychosis and, more specifically, patients with a schizophrenia diagnosis. We know that hallucinations are often associated with other pathological conditions, yet studies including these patient groups are few and far behind. This includes not only other psychiatric diagnoses (bipolar disorder, personality disorders, mood disorders, etc.), but also patients with neurological disorders and those with neurodegenerative disorders (Parkinson’s disease, Alzheimer’s disease). Hallucinations associated with so different pathological conditions can vary along several dimensions: frequency, modality, phenomenological features and content, patient’s insight (or lack thereof). Take again the case of auditory hallucinations. They can range from simple sounds (ear worms) to the complex “voices” (e.g. conversations) often heard by schizophrenia patients. Even if we restrict our attention to verbal hallucinations, they may differ in terms of loudness, vividness, familiarity, emotional character of the content, spatial localization, etc. Importantly, the ways in which patients cope with hallucinations can also change drastically across disorders and even individual cases. All of these variations (and similarities across disorders) need to be examined and factored in.

 So far we have considered the occurrence of hallucinations in the different groups of clinical populations. However, we know that hallucinations are a relatively frequent phenomenon also among the normal population. Important questions arise here: Are the hallucinatory experiences of normal people the same as those of patients with a schizophrenia diagnosis, Parkinson’s disease or personality disorder? What makes certain people more prone to hallucinate—e.g. genetic, neurocognitive, environmental, social, and cultural factors? To what extent, if at all, is hallucination proneness a reliable indicator of psychic distress or even of potential disorders? Does the developmental trajectory of these subjects differ from that of patients with clinical diagnoses? Can they (and their hallucinatory experiences) also be divided into subgroups or clusters of subjects (and experiences)? Finally—in what can be viewed as a veritable sub-field within the field of hallucination research—, one can examine the fascinating question of how psychotic symptoms such as hallucinations may be related to ordinary mental life.

 Let us turn to the importance of cross-modal integration. Again, the large majority of studies have been limited in their scope and have only examined hallucinations in the auditory modality. This bias is largely due to the fact that VAHs are a hallmark of schizophrenia. However, we know that many schizophrenia patients also have hallucinations in other modalities, in particular the visual modality (but also others). Also testing the visual phenomena would surely be a welcome development in these studies. Further, valuable insights could be gathered by including, for example, neurological patients who mainly experience visual hallucinations, but only rarely auditory ones. Though following these suggestions would only constitute a partial progress, there are signs that researchers are beginning to take the occurrence of visual hallucinations in psychic disorders seriously (see Waters et al. 2014). A large body of research is also beginning to accumulate that examines (complex) visual hallucinations especially in disorders such as eye disease, Parkinson’s disease and Lewy body dementia (see Collerton et al., this issue).

 Far too little is known about the developmental nature of hallucinations. When (and why) does a hallucinatory experience come about and how does it change over time (if it does at all)? How does it change within the same individual and across individuals? When (and why) does it become problematic for the subject? We know, for example, that hallucinations may occur in different age groups—in children, adolescents, adults as well as in the elderly. Some of them are transitory, while others are more persistent. Among those who start having these experiences early on in their life and then continue to have them, some develop problematic behaviors (i.e. psychopathologies such as psychosis, but also mood disorders, substance disorders, PTSD, social phobia, etc.), while others don’t. For yet others, such hallucinatory experiences will gradually reduce and then disappear either spontaneously or, for example, when the stressful situations associated with them are resolved. Our understanding of which factors determine and drive such disparate developmental profiles is particularly poor. This is probably, at least in part, due to the fact that these questions require methods and methodologies that are less commonly used in the field—such as longitudinal studies, individual case-studies, qualitative research designs etc. Social and cultural factors are likely to be an important element here (but also with regard to the other aspects of hallucinations discussed earlier). Whereas social factors have fortunately started to receive attention from researchers (see Bentall and Fernyhough 2008, Ben-Alderson and Fernyhough, this issue; Bell 2013), culture and its potential impact on the experience, understanding and labelling of hallucinations remains a clearly neglected aspect in the literature (Larøi et al. 2014).

 All this is not to deny that hallucination research provides us with a very rich terrain. After all, this is still a young field of research, so it should be no surprise that we currently have more questions to ask than answers to give. Thus, there is no reason to react with pessimism to the difficulties and unresolved issues pointed out in the last few paragraphs. The take-away message is, rather, that mental phenomena of such a complexity require extremely sophisticated research techniques as well as a wide-ranging and pluralist methodological approach.

This brief overview of the conceptual and empirical puzzles raised by hallucinations suffices to highlight how differently philosophers and psychologists approach this peculiar class of mental episodes. Surely, the most profound difference is due to the fact that, whereas psychologists are interested in discovering the mechanisms that cause “real” hallucinations and in alleviating their effects, philosophers typically focus on idealized hallucinatory cases in order to counterfactually draw from them lessons on the nature of veridical perception.[[2]](#footnote-2) Should we then conclude that the empirical discoveries made by psychologists simply have no bearing on the conceptual issues addressed by philosophers, and vice versa? We believe that no general answer is available here. Depending on the specific issue, cross-fertilization between these different areas may prove more or less mutually illuminating. For instance, due to their normative nature, the resolution of the epistemological puzzles raised by hallucinatory cases is less likely to depend on which empirical model of hallucinations will prove right. Things are arguably more nuanced when it comes to the philosophical problem of perception. Though here too philosophers aren’t primarily concerned with concrete episodes, it seems reasonable to think that empirical findings may help to assess, and perhaps even put constraints on, which philosophical view of perception and hallucination is more plausible. Similarly, though the conceptual problems philosophers are concerned with have no direct bearing on the experimental work done in the lab, they may be relevant to certain foundational issues in psychology and related areas. One such issue is, for instance, the notoriously confused taxonomy of psychological states used in psychiatry and, perhaps to a minor extent, in the neurocognitive sciences.

 This issue collects 8 papers, 4 written by philosophers and 4 written by psychologists. Except for one, they are all based on presentations given at two workshops we organized in Porto (Portugal) in October 2014 and March 2015. These two events were part of a multidisciplinary research project on hallucination hosted by the Institute of Philosophy of the University of Porto and generously founded by the BIAL foundation (Portugal).

 Dorsch’s paper contributes to the recent discussion about the nature of perceptual and hallucinatory experience. A basic way of distinguishing between the two is to argue that by perceiving one is (in some sense) related to mind-independent objects in a way one is not when hallucinating. Dorsch distinguishes different versions of this basic idea and focuses on one such version, which he calls Acquaintance Relationalism. According to this view, perception consists in direct acquaintance with mind-independent objects. Dorsch then sets out three general constraints that, he claims, any successful account of the nature of perceptual and hallucinatory experience needs to satisfy and argues that Acquaintance Relationalism has troubles in accommodating two of them. The paper ends with the sketch of an alternative view that spells out the relationalist intuition in epistemological terms.

 The ongoing debate between representationalists and relationalists also sets the background for Nanay’s paper. Whereas relationalists deny that perception and hallucination share any substantial mental feature, representationalists typically hold that they both share the same representational content (at least in part). To put it differently, relationalists deny whereas representationalists accept that perception and hallucination are mental states of the same kind. Nanay’s argument comprises two main steps. First, he argues that hallucination is best understood as a specific kind of imagery. Second, he surveys empirical evidence suggesting that there is a substantial common denominator between imagery and perception. Finally, he argues that taken together these two claims put considerable pressure on relationalism and thus favor representationalism.

 In his paper, Dokic puts forward a unified account of hallucinations that aims at explaining not only sensory hallucinations, but also cases of cognitive and affective hallucinations. The paper starts by addressing the (among philosophers) widespread view that hallucinations can be explained as states which are indiscriminable from perceptions. After critically surveying different attempts to spell out the relevant notion of indiscriminability in cognitive, epistemic and introspective terms, Dokic turns to metacognitive approaches according to which sensory hallucinations are due to some kind of metacognitive or monitoring error. After discarding a doxastic version of this view, he introduces and defends an affective account according to which the indiscriminabilty of hallucinations and perceptions is due to their both involving a distinctive “feeling of reality”. Finally, he argues that the proposed affective account can be successfully extended also to the cases of cognitive and affective hallucinations.

 Piazza’s paper is concerned with the epistemological problems raised by the (at least possible) cases of hallucinations that perfectly match genuine perceptions. As we saw, the mere possibility of cases of this sort fuels powerful skeptical arguments. Piazza considers whether McDowell’s influential epistemological version of disjunctivism about perceptual experience succeeds in blocking such arguments. As McDowell understands his own position as compatible with standard access internalism about justification, Piazza focuses on the two principles that make up this view. The bulk of the paper is then devoted to arguing that McDowell’s disjunctivist response to the skeptical challenge can only work by violating (at least one of) such principles. In the final part of the paper, he then goes on to suggest that a non-disjunctivist response to external world skepticism is available which fully vindicates access internalism.

 In his paper, Raballo discusses the contribution of the relatively neglected phenomenological approach to the field of AVH research. As illustrated by the rich and fascinating self-descriptions reported in the paper, this view pays close attention to the individual experiential character of hallucinatory episodes. The paper discusses some of its important implications. First, Raballo stresses how—contrary to the standard perception-based view and definition of AVHs—the phenomenological approach sees them as possessing a complex architecture. Second, he highlights that conventional definitions appear far too rigid to capture the experiential features of actual hallucinatory episodes. Moreover, he argues, as we use assessment tools based on such conventional definitions, we are essentially determining a priori how patients will be describing their experiences and therefore highly limiting and perhaps even vitiating the accuracy of their reports. Third, Raballo claims that by construing AVHs as emergent episodes in one’s stream of consciousness the phenomenological approach better makes sense of the developmental and dynamic nature of these experiences, whereas other contemporary approaches to AVH have painfully little to say about such features.

Belzeaux et al. discuss the challenges related to bridging together two major lines of thinking in the field of AVH research: phenomenology (understood as the philosophical tradition initiated by the work of Edmund Husserl) and the neurosciences. First, they consider how promising interactions between these two fields could look like by focusing, in particular, on “neurophenomenology” and “front-loaded phenomenology”. To further explore this general methodological problem, the authors focus on two specific issues. A first one is whether there is a continuum among all (clinical and non-clinical) subjects suffering from hallucinations and to what extent both brain imaging studies and phenomenologically informed approaches can validate this hypothesis. A second question addressed by Belzeaux et al. is how the classical phenomenology-oriented self-disorder approach to schizophrenia and the more recent neuroscience approach to positive symptoms such as AVHs can be integrated. On a final note, due to the very limited amount of experimental work on hallucinations based on this dialogue between phenomenology and brain imaging, the authors stress the programmatic character of the suggestions advanced in the paper.

Alderson-Day and Fernyhough are interested in exploring the idea that, in addition to being experienced as perceptual objects, AVHs may also be experienced as social entities. This view is (in part) motivated by the fact that first-person accounts often describe voices as independent agents capable of a range of complex (speech) acts. Further, there have been effective psychological interventions based on this observation. The authors begin by reviewing evidence suggesting that AVHs have important social features and that such features are crucial to understanding the very nature of these hallucinatory experiences. After addressing a potential objection to the effect that social features of AVHs are merely secondary appraisals, they consider how three major neurocognitive models (inner speech model, memory model, and predictive processing models) can account for the social characteristics of voices. They then conclude that speech-based models, once properly extended so as to integrate ideas from developmental and social-cognitive theories, are best suited to accommodate the social features of voice-hearing.

Collerton et al.’s paper, which offers a review of recent literature on visual hallucinations (VHs), argues that this type of research may also teach us important lessons about visual perception in general. After summarizing data regarding four main groups—healthy controls, eye disease patients, Parkinson’s disease patients and Lewy body dementia patients, they highlight a number of intriguing features such as that VHs seem to be appropriate to context but generally discontinuous with what goes before and after; that— and in contrast, for example, to auditory hallucinations in psychosis—, prior emotional state or expectancies do not appear to play a major role in VHs; that the environment usually continues to be (partially) perceived during a VH. These features suggesting that VHs are highly integrated into shifts in the visual environment raise the question why we do not hallucinate more frequently. To answer this question, the authors first highlight three main factors contributing to the occurrence of VHs: the subject’s attentional capacity, certain features of the perceptual system and constrains relating to the balance between energy expenditure and maximizing information processing. They then argue that impairment along one (or more) of these dimensions, though undoubtedly important, cannot alone account for the genesis of VHs. The missing factor, they claim, is adaptive compensation or “resilience”. According to this proposal, hallucinations should not be seen as essentially aberrant symptoms necessarily implying malfunction in the visual system, but rather as “a worthwhile price for maintaining a higher degree of functionality than would otherwise be possible”.

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References

Alderson-Day B. & Fernyhough C. (this issue). Auditory verbal hallucinations: Social, but how?

Austin J. L. (1962). *Sense and Sensibilia*. Oxford: Oxford University Press.

Bell V. (2013). A community of one: Social cognition and auditory verbal hallucinations. *PLoS Biology*, 11, e1001723.

Bentall R. P. & Fernyhough C. (2008). Social predictors of psychotic experiences: specificity and psychological mechanisms. *Schizophrenia Bulletin*, 34, 1012-1020.

Campbell J. (2002). *Reference and Consciousness*. Oxford, New York: Oxford University Press.

Crane T. & French C. (2016). The problem of perception. In E. N. Zalta (ed.), *The Stanford Encyclopedia of Philosophy* (Spring 2016 Edition), URL = <http://plato.stanford.edu/archives/spr2016/entries/perception-problem/>

Collerton D., Taylor J.P., Tsuda I., Fuji H., Nara S., Aihara K. & Katori, Y. (this issue). How can we see things that are not there? Current insights into complex visual hallucinations.

Descartes R. (1996 [1641]): *Meditations on first philosophy*. Ed. by J. Cottingham. Cambridge: Cambridge University Press.

Frith C.D. (1992). *The cognitive neuropsychology of schizophrenia*. Hove, Psychology Press.

Jardri R., Cachia A., Thomas P. & Pins D. (eds.) (2013). *The neuroscience of hallucinations*. New York, Heidelberg, Dordrecht and London: Springer.

Larøi, F., Luhrmann, T., Bell, V., Christian, W., Deshpande, S., Fernyhough, C., Jenkins, J., & Woods, A. (2014). Culture and hallucinations: overview and future directions. *Schizophrenia Bulletin*, 40, 213-220.

Martin G. F. M. (1997). The reality of appearances. In M. Sainsbury (ed.), *Thought and ontology*. Milan: Franco Angeli. Reprinted in A. Byrne, H. Logue (eds.) *Disjunctivism. Contemporary readings*. Cambridge (MA): MIT Press 2009, 91-116.

Macpherson F. & Platchias D. (eds.) (2013). *Hallucination. Philosophy and psychology*. Cambridge (MA): MIT Press.

Martin G. F. M (2004). The limits of self-awareness. *Philosophical Studies*, 120, 37-89.

McDowell J. (1982). Criteria, defeasibility, and knowledge. *Proceedings of the British Academy* 68, 455-79.

McDowell J. (1994). *Mind and world*. Cambridge (MA): Harvard University Press.

McDowell J. (2008). The disjunctive conception of experience as material for a transcendental argument. In A. Haddock & F. Macpherson (eds.), *Disjunctivism: perception, action and knowledge*. Oxford, New York: Oxford University Press, 376-389.

Piazza T. (this issue). Counterfeiting perceptual experience. Scepticism, internalism, and the disjunctive conception of experience.

Pritchard D. (2012): *Epistemological disjunctivism*. Oxford, New York: Oxford University Press.

Waters F., Badcock J., Michie P., & Maybery M. (2006). Auditory hallucinations in schizophrenia: Intrusive thoughts and forgotten memories. *Cognitive Neuropsychiatry*, 11, 65–83.

Waters F., Collerton D., ffytche D., Jardri R., Pins D., Dudley R., Blom J.D., Mosimann U.P., Eperjesi F., Ford S., & Larøi F. (2014). Visual hallucinations in the psychosis-spectrum, and comparative information from neurodegenerative disorders and eye disease. *Schizophrenia Bulletin*, 40, 233-245.

Wright C. (2008): Comment on John McDowell’s “The disjunctive conception of experience as material for a transcendental argument’. In A. Haddock & F. Macpherson (eds.), *Disjunctivism: perception, action and knowledge*. Oxford, New York: Oxford University Press, 390-404.

1. Here, I frame the general problem in terms of knowledge, but it could equally be couched in terms of justified belief. [↑](#footnote-ref-1)
2. Pursue of such diverging agendas is also responsible for a range of other minor differences. For instance, as we saw, the great bulk of empirical research on hallucinations has focused on verbal auditory hallucinations due to their high occurrence in disorders such as schizophrenia and to their extremely distressing character. Philosophers, on the contrary, follow their tacit preference for the visual modality also when dealing with hallucination. [↑](#footnote-ref-2)