**SO THAT’S WHAT IT’S LIKE!**

INTRODUCTION

Nagel’s (1974/1998) question, “What is it like to be a bat?” launches philosophical inquiry in more than one respect. Standardly, it sets up discussions of the explanatory gap, the subjective-objective distinction, and the ultimate nature of consciousness. Alternatively, we might be interested in animal minds, especially when it comes to wonderment about which animals are conscious, which are not, and how we might know such things. A related target issue for this second project concerns knowing *what* it is like for this or that organism, not for the sake of advancing arguments about qualia, but simply out of intrinsic curiosity about the phenomenology of other creatures. As it happens, I think we can say something about what it is probably like to be a bat. A third project, which will be sketched has received little attention and concerns what our ideas and judgments about animal consciousness might suggest about the trustworthiness of naïve introspection.

As the third project depends on the second, I will start by saying something about the distribution and phenomenology of animal consciousness. One possibility, which I set aside, is that it isn’t like anything at all, as argued by “across the board” eliminativists, who do away with consciousness altogether, and “species specific” eliminativists, who argue skepticism for individual cases—as Akins does concerning bats (Allen-Hermanson, 2015a).[[1]](#footnote-1) For myself, I am a species-specific eliminativist only when it comes to very simple-minded organisms, or “natural zombies,” such as insects (Allen-Hermanson, 2008). The argument is that if we assume a broadly functionalist and representationalist framework (e.g. in terms of global accessibility or a cognitive “workspace”) then many animals, especially mammals and birds, and certainly bats, are most likely conscious. Meanwhile, there are prima facie doubts about consciousness in “simple minded” organisms, which act more like blindsight subjects. In short, the behavior of e.g. honeybees doesn’t seem best explained in terms of guidance by inner representations that are globally accessible. In any case, here I take the distribution question as, more or less, settled in order to turn to the phenomenological question about bats. Any attempt to actually characterize what it is like to be a bat might strike you as a crazy notion, but bear with me.

On this matter, two views are often encountered that I suspect are incorrect. The first, held by many professional philosophers, is that we cannot say what it is like, as bats present “a fundamentally *alien* form of life” (Nagel 1974/1998, p.520). The second, held by some experts and apparently many laypersons, is that echolocation is somehow, at least in part, a kind of visual experience. Either way, bat echolocation is taken to be something very mysterious and exotic. But I think both of these views are implausible and the answer to the phenomenological question is much more mundane: echolocatory experience probably just has an auditory character. It’s the experience of hearing rapid squeaks and shrieks, and their echoes, and though a bit unusual to consider, it is easily within one’s imaginative grasp.[[2]](#footnote-2) To the complaint that knowing what it is like *for a bat* to hear echoes isn’t the same as knowing what it is like for a human, or *for* *me*, one need only point out that it should at least be no more mysterious than asking what it is like for a dog to see something.[[3]](#footnote-3) Presumably, it is like seeing something. If this does not seem obvious, suppose for the moment it is correct. At least for me, an interesting residual question is: why are so many so wrong about this? This question ties the second project to the third. Assuming many, even those who study consciousness intensively, are in error about the likely phenomenology of bat echolocation, what does this suggest about our introspective abilities? If one’s experiential judgment can get things so wrong, what does this say about philosophies dependent on our having immediate knowledge of our ongoing states of consciousness? The remainder of this chapter considers this challenge and how it might be answered.

WHAT PHILOSOPHERS HAVE SAID

“The man born blind cannot grasp the concept of a visual experience of red, and human beings cannot conceive of the echolocatory experiences of bats.” So says McGinn (1991, p.9) who maintains there is *cognitive closure* of first-person subjective experience from the perspective of impersonal objective descriptions of behavior and brain states. Our failure to form a conception of echolocatory experience illustrates the poverty of our conceptual resources when they are deprived of the right type of first-person experience, owing to physical or functional eccentricities of our sense organs and information processing. The problem is supposed to be intractable. Even those who deny conclusions about the irreducibility of subjectivity and phenomenal appearances often take up Nagel’s premise that the experiential character of echolocation is, at least for now, closed to us. Biro (1991), for instance, allows that a bat can perceive what I do though it would “look very different to it” (p.124) in virtue of a different type of “perceptual apparatus.” Certainly, Biro and others may simply be granting a “vast difference between the character of their experience and ours” (p.126) merely for the sake of argument, though consider how awkward it would be if the example had been about, say, a cat looking at a bird. Many seem to agree that bats are prima facie *alien*, such as Russow (1982, p.57) who finds the “qualitative differences…especially striking” as we perceive and experience “by means of different senses.” Alter (2002) mentions Lewis (1988/1990, p.500) who writes that we’d need far-fetched neuroscience or “magic” to be able to know what it is like. Also consider Maloney (1985), who supposes without argument that bat consciousness must “radically differ” from our own, attributing this to features of their “unique” system of representation, which is dubbed “batese,” in contrast with our own Fodorian mentalese (p.43). Representational tokens in batese, differ as “physical kinds” from ours, resulting in a “unique phenomenological realm.” And yet since Maloney recognizes that batese representational tokens likely consist in transformations of sound waves within auditory systems (p.44), the reader wonders why this does not at least raise the possibility they fall under our physical type, after all? Perhaps it is just a bad example, as surely there are some types of experience inaccessible to any particular human being. But there is considerable irony here if perhaps *the* paradigmatic example of an intractably alien experience turned out to be all too familiar to us.

OTHER INTUITIONS ABOUT BATS

Another view, held by ordinary people and some philosophers and scientists, is that echolocation has, at least in part, a visual quality. I’ve asked audiences ranging from freshmen to professional philosophers variations on this question over the years:

*What is it like for a bat to echolocate?*

I have found that even when they are asked what it is like for a bat echolocating *in the darkness*, people rate visual experience almost as prominently as auditory experience—a typical set of responses from a survey of 39 undergraduates is summarized in Table 1 (see *appendix*). Respondents were allowed to pick more than one modality, thus accommodating those who thought echolocatory experience combines sight and sound. We should not put too much weight on these preliminary results, but it was notable that only 68% mentioned audition *at all*, and a measly 15% thought echolocation was exhausted by auditory experience. Meanwhile, a little more than half mentioned vision. You might expect that people would be uncertain or reluctant about committing themselves to judgment about seemingly alien phenomenology, yet this seems hardly ever to be the case. In this instance, literally nobody thought there was nothing that it was like to echolocate, and hardly any said it is like something, though we cannot say what. The remaining modalities received little support.So again, most people I’ve encountered (of those who think we can know what it is like) fall under one of three groups: it is like audition, or vision, or, somehow, a combination of the two. Assuming these results really are typical (perhaps they are not) what does this say about the phenomenological judgments of human beings? One’s first reaction is to think, “Somebody must be wrong!” But let us proceed more carefully.

One possibility to consider is that the question is misleading and some people are confusing the character of echolocatory experience itself with associated visual imagery. Perhaps most people actually think, qua echolocation, bats are just hearing sounds, though this is accompanied by visual ideas. Such a view is inspired by everyday experience, as when one tries to visualize a room while groping around in the dark.[[4]](#footnote-4) Another possibility is that respondents are confusing echolocatory with other types of experience a bat might simultaneously undergo while flying around eating bugs. With these points in mind, I consulted another group of 53 undergraduates who were only allowed to select one modality in response (results are summarized in Table 2). This time audition scored much more strongly, though about a third refused to agree that it was the best choice, with 11% opting for vision, again despite the question explicitly stating that the bat was echolocating in the darkness! I also used a 5-point scale to measure responses to “How confident are you about your answer?” with the result that there was no significant difference between those who chose audition (3.87) versus vision (3.83). I found these results somewhat surprising. Significant minorities seem committed to the view that echolocatory experience is either somehow visual, or perhaps something beyond the usual five senses, though when pressed most people acknowledge the primacy of audition.

Some philosophers and scientists have also been drawn to the view that echolocation is somehow comparable to vision including Dawkins (1986, p.33ff.) and more recently Macpherson (2011) and Godfrey-Smith (2013). In a *Nature* podcast, philosopher David Papineau and echolocation expert Jim Simmons are asked about what it might be like for bats.[[5]](#footnote-5) Papineau says he isn’t sure if it is sight or sound, as “we don’t have the physical goings on” though we might be able to figure it out by learning more about echolocation. On the other hand, Simmons’ research has convinced him that “the bats are clearly seeing things…they’re not hearing sounds, they’re seeing objects.”

Occasionally philosophers offer explicit arguments, such as Macpherson (2011) who contends that it is unclear whether or not echolocation is a kind of hearing. This is because no matter which criterion we choose for individuating the senses, echolocation shares some features with seeing, others with hearing, and still others with neither. She notes that echolocation consists in representing three-dimensional objects moving through space, a proprietary feature of sight (p.30). But since bats represent through sound, and not paradigmatic visual contents, such as colors, we are pulled in two directions (p.30). In addition, she suggests that since the bat’s ears, sonar inputs, and auditory system are somewhat different from our own, maybe they aren’t “ears” at all. Perhaps echolocation is better compared to vision, some combination of seeing and hearing, or perhaps even something weird and altogether different. But I suspect these points exaggerate the differences.

As noted by Aristotle,[[6]](#footnote-6) every sense provides information about shape, number, and movement—this is true even of smell, so why should the presentation of objects in egoistic space be assumed to be propriety of vision rather than a “common sensible”? It is question-begging to say that a feature shared between vision and some other sense ought to be assumed to belong to the former. Meanwhile, bat ears and auditory cortex are not *that* different from our own—they are mammals, their “ears” process sound waves, etc…and there is no confusing these structures with those parts of the bat which most resemble parts of the human visual system. I side with Akins in rejecting the idea that echolocation has a “strangely ‘visual’ quality” (1996, p.349).

ECHOLOCATION IS JUST AUDITORY EXPERIENCE

Assuming bats are conscious, can we go further and say something about what echolocation might be like? Nagel’s argument assumed not. On his view, bat sonar is “not similar in operation to any sense that we possess” (1974/1998, p.520) and so we are limited to, at most, “a schematic conception” which leaves out the essential character of consciousness as it is experienced in the first-person (p.521). Knowing what it is like requires taking up the perspective of another being, and for entities with radically different sense modalities this seems impossible if we are supposed to imagine experiences that depend on perceptions and sense organs we don’t possess. But perhaps we can be reasonably confidant about the character of subjective experiences for sense organs we do share. Although this sounds straightforward, some cases might require a certain amount of introspection and reflection to make this clear. Other cases might be indeterminate.

Take the example of “electroreception” by which certain fish sense electric fields. What might this be like? We know the property detected is a complex combination of (roughly) shape, location, and conductivity. As for the accompanying phenomenology, this may be “completely mysterious” (Seager 1999, p.150). This might be a case where further consideration offers insight, but perhaps not. We do *know* what it is like to sense electric fields directly; it is, in short, a feeling closest to a kind of pain. Perhaps with a bit of imagination it is even imaginable how this could convey information about the presence and location of objects (e.g. a zap on the left indicating something on the portside). Maybe electroreception is something like that (that is, if kinds of phenomenology supervene on biological families).[[7]](#footnote-7) Then again, maybe the way we experience electricity has nothing at all to do with what fish undergo. It is hard to say, given that electricity can be experienced in different ways, or even represented in the absence of consciousness.

So, what of bat echolocation? I can think of four reasons why echolocatory experience is auditory:

1. Ears are for hearing sound waves, and bats have ears.
2. Hearing an echo sounds like something.
3. Echolocation is processed in auditory cortex in neurotypical subjects.
4. Processing differs in congenitally blind expert echolocators, nevertheless they describe their experiences exclusively in terms of sound.

As I’ve already said something about the first point, I’ll confine my remarks to the remainder. First, I’ll reiterate that, phenomenologically, echolocation is just a form of hearing. It’s not uncanny to use sound to identify objects and locate them in space relative to one’s own body, or hear one’s way through the spatial environment. This is commonplace, though thinking of sound experience in this way is perhaps a little unfamiliar. Yet we know what it is like to “see” an insect flying nearby with our ears. It isn’t seeing, but hearing when I identify a mosquito buzzing within a few centimeters to the right and towards the back of my head, moving horizontally and counterclockwise. True, these judgments are crude compared to what bats do, but there’s nothing mysterious about knowing what it is like to recognize an insect by sound alone and form an awareness of its rough position and trajectory. Genuine echolocation is also a feature of ordinary human hearing. Some even refine this ability to the point that they can make very subtle discriminations.

In his pioneering work, Griffin (1958) notes at one point that “echolocation has long been used by sailors under conditions of fog or darkness when shore or rocks are suspected to be near at hand…Sometimes a shout suffices…and it is sometimes quite easy to hear a distinct echo a second or two after the emission of such a signal.” Localization can be achieved through careful listening at intervals, and Griffin remarks that the primitive technique has been employed “probably since the days of the Phoenicians” (pp.324-5). Some blind persons achieve more impressive results by utilizing taps with a cane or stick, or by making clicking noises with the tongue and carefully attending to the reflected sounds (Stroffregen and Pittenger, 1995). Though human echolocation has occasionally been misconstrued as “facial vision” (Ammons *et al.* 1953), it is clearly a form of hearing. Human echolocation can be developed to staggering accuracy, enabling identifications of everyday objects such as trees, walls, garbage bins, and cars. One expert echolocator, Daniel Kish, goes hiking, rides a bike, and plays basketball despite his lifelong blindness (Thaler *et al.*, 2011). Acuity studies are suggesting that the precision of human echolocation is comparable to the abilities of bats and human peripheral vision (Teng and Whitney, 2012). Expert echolocators attend to stimuli average people could notice, but ordinarily don’t. It improves with practice even for those who start late in life. Though they normally have no reason to develop it, those with sight can rapidly acquire proficiency (Ammons *et al.*, 1953, Teng and Whitney 2011). Perhaps echolocation is easier to develop in the absence of vision because the various senses compete for the use of attention or other neural resources. Or perhaps this has something to do with the primacy of vision as a source for our intuitions and metaphors about perception and everyday spatial representation. It is not clear.

Then again, just because echolocation in sighted subjects is auditory, could blind echolocators be experiencing it differently? It could be argued that human echolocation is only somewhat like ordinary hearing, nevertheless the difference seems more a matter of degree than kind—just as we don’t think of colorblind persons as lacking vision just because they don’t access the same frequencies as others. There are, however, some special considerations in play when it comes to active echolocators who happen to be blind. The area known as calcarine cortex or V1, associated with visual perception in sighted persons, is responsible for processing auditory inputs in blind echolocators (Thaler *et al*. 2011) perhaps suggesting that it is experienced as sight, not sound (their auditory cortex still processes other kinds of sounds). Yet it is also reasonable to expect Kish’s brain to be somewhat unusual given a lifetime of blindness, and so perhaps for him V1 has been recruited by the auditory system. Another possibility is that V1 has been misidentified as “visual” cortex and is dedicated to processing spatial representations regardless of their sensory origins, as suggested by Pascual-Leone and Hamilton (2001, p.15). If so, V1 is better thought of as *spatial* cortex, and though it normally handles inputs from multiple-modalities (again in keeping with the ancient observation that every sense conveys spatial information) this has been overlooked because inputs arising from other sources are normally masked by the massive contribution from vision. We can note that tactile inputs for congenitally blind persons reading Braille are also processed in “visual” cortex, but the resulting phenomenology is, nevertheless, tactile (Hurley and Noë, 2003, p.139). That sensory cortex also “defers” to auditory inputs supports the idea that Kish is experiencing echoes as sounds after all.

This interpretation is backed up by the way Kish talks and writes about what it is like. For example, in an instructional document subtitled “Learning a new way to see” Kish uses both visual and auditory descriptors for his “flash sonar.”[[8]](#footnote-8) Yet despite this, and the seemingly radical implications of the title, auditory descriptors like “hear,” “sound” or “listen” predominate, and are only used with reference to echolocation, whereas visual descriptors are often used metaphorically as cognates for non-perceptual judgment, as in “we see this process as interactive.” In addition, although he often uses quotation marks to hedge the description of echolocation as “seeing,” non-literal meaning is never implied for auditory descriptors like “hear” or “sound” or “listen.” Despite occasional references to generic “images,” echolocation is never characterized as “vision,” “visual,” or “sight.” Meanwhile, he pays close attention to the specific character of sounds, which can be “broad and sparse,” “hollow,” or “scattery.” While other alternatives cannot be completely ruled out, the balance of experimental evidence, Kish’s self-reports, and plain commonsense suggests that echolocation is a type of auditory experience.

So blind humans who echolocate report sounds not visual images and although they utilize “visual,” not “auditory” cortex, perhaps the brain is deferring to auditory input and cortical regions function differently in the congenitally blind—as seems to be the case when it comes to a blind person reading Braille. Meanwhile, ordinary humans also echolocate, and while it often transpires unconsciously, when it doesn’t it takes the form of auditory experience, and is never experienced visually.

THE THREAT TO NAÏVE INTROSPECTION

People are often confused about all sorts of things, so why not about what it is like to echolocate? Perhaps the problem is that naïve introspection about here-and-now conscious appearances is simply unreliable. This view finds support from those such as Schwitzgebel, who claims “We have no reliable means of learning about our own ongoing conscious experience, our current imagery, our inward sensation—we are as in the dark about that as about anything else, perhaps even more in the dark…[w]e are both ignorant and prone to error…and we make gross, enduring mistakes about even the most basic features of our currently ongoing conscious experience” (2008, p.246, p.247). If this is correct, then it is not at all surprising people will falter when it comes to judgments about the inner lives of another species! Indeed, although we echolocate frequently, Schwitzgebel claims we often confuse this with fictitious haptic experiences, sometimes referred to as “facial vision.” These errors are so serious that he is led to provocatively conclude, “we hardly even know what it is like to be ourselves” (Schwitzgebel and Gordon 2000, p.244). The implications are several. Whether conscious introspection is in general trustworthy matters because it is commonly taken to be an important source of self-knowledge. In addition, it is critical to foundationalist theories of knowledge, contrastingly, it also challenges the view of neurophilosophers that the natural sciences take a privileged place epistemically. Finally, this issue bears on disagreement about how first-person reports should be utilized in cognitive science (Peels, forthcoming). I would just add that the unreliability of introspection bears on the stock we should place in claims about what is or isn’t conceivable. If I am in the dark about what it is like, *for me*, *right now* then why would I expect that my “intuitions” (my non-reflective, non-discursive and immediate beliefs) are any guide to what is or isn’t the case when it comes to bats? Though I agree most people, even many philosophers, seem to be mixed up about this, there’s nothing wrong with naïve introspective judgment.

Certainly if ordinary people confused sounds with tactile experiences felt on the face, this would be a stunning failure of first-person epistemic authority. But I think this worry is overblown. Some human echolocators are accurately reporting diverse experiences from other sense modalities, especially those that are haptic. Some do hear sounds though this is complicated by the fact that echolocation is often confused with a related phenomenon known as “spatial hearing.” Meanwhile, those who report not hearing sounds are probably echolocating unconsciously. Genuine tactile feelings on the face might be caused by “tensing up” in anticipation of a collision, air currents, drafts and gusts of wind; the latter are especially likely concerning reports made outdoors. When considered carefully, the example of human echolocation rather strongly supports the presumption of introspective privilege after all (Allen-Hermanson, 2015b).

ASSESSING THE THREAT

What do judgments about what it is like to be a bat suggest about introspection—about whether it is reliable and trustworthy? Despite the fact that I want to assert both that echolocatory experience is auditory, and that philosophers and non-philosophers often get this wrong, these errors do not pose a serious threat to the reliability of naïve introspection. I propose that the reason is because these are only performance errors. When people are attending carefully, they will tend to get things right. There are some scientists who appear to agree—de Waal for one has called the claim that we can’t imagine what it is like to be a bat “overly pessimistic” in light of the example of human echolocators (de Waal 2008, p.76). Surely a few philosophers over the past 40 years have also noticed that the prime example of cognitive closure isn’t one! And indeed there are several.

Alter (2002, p.145) realizes “bat sonar involves hearing. Thus, perhaps the bat’s experiences are less alien to us than Nagel supposes,” though Alter doesn’t seem to realize that humans literally echolocate; it is assumed to be a “modality we lack” and an imaginative difference in kind, not degree (p.146). However, he adds that bats are “only an example” and play no essential role in the argument, as there “could be such creatures” (p.145).”[[9]](#footnote-9) Flanagan concurs (1996, p.447) even declaring it “patently false” that humans cannot know what it is like to be a bat. Of course, we never experience the world exactlyas another being does (including each other), but we certainly do grasp what it is like to have echolocatory experiences as a type since “All humans make use of echolocation in getting about. If anything will help to form “a schematic conception” of what it is like to be a bat, practicing echolocation will” (ibid.). There’s also Lopes, who thinks echolocatory experiences have the “phenomenal character of hearing” though perhaps alongside some perplexity about “facial vision” (2000, pp.449-50). Thus, some “experts” (insofar as philosophers can be trusted!) really do see things more or less clearly, and when they seem not to it’s beside the point of their argument. Still, why should there be confusion at all, and why should it tend towards vision?

Part of the explanation may be that less reflective philosophers and others are misled by popular culture. Movies, educational materials, comic books, and other media sometimes portray echolocation using the bright greens and sharp lines characteristic of the display screens of submarines or what transpires in the mind’s eye of superhumans like *Daredevil*. Educational films and nature programs often explicitly present bat echolocation in visual motifs inspired by sonar or radar, and the audience might even be told echolocation is literally “seeing with sound.” But this explanation only puts off the problem, for why does popular culture have this tendency? The likely answer is that most people haven’t put much thought into it, and as we are visual creatures, we instinctively think in these terms when it comes to spatial awareness with fine detail. However, the surveys I conducted (tentatively) suggest that when attending more carefully people converge on the idea that it is just sound, after all.

CONCLUSION

So, does confusion and disarray about what it is like to echolocate mean we are poor introspectors? Perhaps not, though we are often unreflectiveintrospectors. Indeed, instead of saying that introspection is untrustworthy, we might instead call into question the claims of those who say that the problems of consciousness are intractable. A closing thought concerns the debate about the individuation of the senses. The concern here is “On what philosophical grounds should we decide which organisms possess which modalities?” (Keeley 2002/2011, p.226). Keeley’s view encompasses criteria such as the nature of the physical signal, transducer cells, evolutionary dedication, and discriminatory behavior, but not qualia, which “do not have a role to play” (p.240) when it comes to differentiating sensory modalities. But I am not sure about that. The phenomenal problem is at the heart of the dispute between naturalized and traditional philosophizing. Suppose Keeley’s account supports my claim that bat echolocation is just auditory (as I suspect it does), yet despite this human echolocators experienced it visually. I think this would make it inappropriate to describe it as hearing. Given that first-person report could trump other considerations, to say that special introspectible character “does not define the difference [or similarity] between the senses” (p.238) seems at least an overstatement.

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APPENDIX

TABLE 1

TABLE 2

Sample questionnaire

What kind of experience best describes what is it like to be a bat echolocating in the darkness? (Choose one only):

a) vision

b) audition

c) taste

d) smell

e) touch

f) something else

g) can’t say

h) nothing

How confident are you about your answer?

(circle one):

not confident somewhat Very

at all confident confident

1 2 3 4 5

1. Even on Akins’ Strawsonian grounds, bats are probably conscious. They distinguish between self and world, and seem to keep track of particular things, even when not continuously perceived. [↑](#footnote-ref-1)
2. Or just click here, then close your eyes: http://www.werc.usgs.gov/OLDsitedata/bats/sounds/california-myotis-search.wav [↑](#footnote-ref-2)
3. Biro (1991, p.123) notes Nagel’s ambiguity between the problem of “ineliminable individual subjectivity” and “types of points of view.” [↑](#footnote-ref-3)
4. So, for example, would people tend to mention vision when asked to imagine the experience of groping around a dark room? [↑](#footnote-ref-4)
5. http://www.nature.com/nature/podcast/index-audiofile-2015-01-12.html [↑](#footnote-ref-5)
6. “Common sensibles are movement, rest, number, figure, magnitude; these are not special to any one sense, but are common to all” (*De Anima*, Book II, Ch.6). [↑](#footnote-ref-6)
7. This is Keeley’s (2002/2011, p.230) example, though his purpose is quite different. Keeley thinks it’s just absurd to say that humans possess an electric modality on a par with the electric fish. But, for my purposes, whether our discriminatory ability is a genuine “sense” or a mere ability is moot. It seems like an open question as to whether *what it is like* to exercise that ability is on a par with what it is like for the electric fish. However, it is noteworthy that Keeley mentions how we experience electricity varies depending on the method of detection. If with our eyes we see a flash, and with our ears we hear a roar. Again, what this has to do with electric fish is anybody’s guess. This could be a case where we do know what it is like to be another organism, but we can’t know we know. [↑](#footnote-ref-7)
8. <http://www.worldaccessfortheblind.org/sites/default/files/snr-pgm2011.htm> retrieved on January 11, 2013. [↑](#footnote-ref-8)
9. Nagel (1974/1998, p.526 n.8) himself briefly entertains the idea that echolocation is a form of audition, but sets it aside as it is not relevant to his central point about the gap between subjectivity and objectivity. No harm at all is done to his argument if it turns out that we can know what it is like to be a bat, since his claim is only that knowing what it is like essentially depends on undergoing the experience. So, while the example might be poorly chosen, presumably there are many types of experiences inaccessible to humans (e.g. perhaps the color “bee purple,” perceived only by insects and birds sensitive to ultra-violet light, or the previously mentioned electroreception of certain fish). [↑](#footnote-ref-9)