

Consciousness, Attention, and Commonsense

1. Introduction

The relation of dependency between consciousness and attention is, once again, a matter of heated debate among scientists and philosophers. There are at least three general views on the issue. First, there are those who suggest that attention is both necessary and sufficient for consciousness (e.g. Posner, 1994; Prinz, 2000, forthcoming). Second, there are those who suggest that even though attention is necessary for consciousness, it may not be sufficient (e.g. Moran & Desimone, 1984; Rensink et al., 1997; Merikle & Joordens, 1997). Finally, there are those who suggest that attention is neither necessary nor sufficient for consciousness, that—at most—they are two different processes that happen to be concomitant some of the time, but which, under very specific circumstances, can be shown to come apart (e.g. Lamme, 2003; Koivisto et al., 2005; Koch & Tsuchiya, 2007). Piles of evidence have been marshaled in favor and against each of these alternatives, and as far as I can see, there is no hope of agreement on the horizon.

One of the most recent contributions to the debate has been advanced by the philosopher Christopher Mole in his paper “Attention and Consciousness” (2008). There he argues in favor of what he takes to be the view of commonsense psychology, namely that “one is conscious of everything that one pays attention to, but one does not pay attention to all the things that one is conscious of” (p. 86). In other words, he believes that, according to our commonsense, while consciousness is necessary for attention, attention isn’t necessary for consciousness. Mole spends most of his paper defending this view against some alleged empirical evidence to the contrary. To be precise, he argues against two particular lines of empirical research, one of which

suggests that attention is necessary for consciousness (Mack & Rock, 1998), and another one suggesting that consciousness is not necessary for attention (Kentridge & Heywood, 2001). Elsewhere I have offered an interpretation of similar studies that differs radically from Mole's, while favoring the view that attention is necessary and sufficient for consciousness (****, forthcoming). In this paper, however, I want to put forth an argument against Mole's assumption of what he takes to be the commonsense view of the relation between attention and consciousness. More precisely, I offer an argument against the claim that, according to our commonsense psychology, consciousness is necessary for attention. However, I don't claim it follows from this argument that commonsense has it the other way around, viz. that consciousness isn't necessary for attention. Instead, I want to motivate the claim that there isn't such a thing as *the* view of commonsense psychology about the relation between attention and consciousness. In fact, I argue that people's use of these terms—and, presumably, of their corresponding concepts—seems to be context-dependent. I conclude with a discussion of the possible implications of this claim for the empirical study of attention and consciousness.

2. Why commonsense need not treat attention as requiring consciousness

According to Mole (2008), it seems natural to say that catching someone's attention toward X is a way of making her conscious of X; likewise, getting X into someone's field of consciousness is a way of catching her attention. That we expect attention and consciousness to interact in this way is made intelligible—Mole suggests—“if we understand commonsense psychology to treat paying attention to something as a way of being conscious of that thing: a way that locates the thing in the foreground of experience. According to commonsense psychology, then, attention requires consciousness” (2008, 89).

To defend this allegedly commonsensical view, Mole would have to dismantle any attempt to show that, according to ordinary people, one can attend to something one is not conscious of. A referee of this journal offered this precise challenge to Mole by way of a counterexample (which, I think, echoes well-known examples in the philosophy of mind, e.g. Armstrong, 1981; Dretske, 1993). According to this referee, the fact that a baby's cry wakes her sleeping mother more readily than other noises seems to be accounted for, by our commonsense, in terms of the mother attending to the cry while she is unconscious. This constitutes a potential challenge for the alleged commonsense view because, as Mole puts it,

If the sleeping mother is not conscious of the cry, and if the selectivity demonstrated in the cry's waking her involves attention, then the case poses a serious problem for my claim that consciousness is necessary for attention. Since the case is an everyday one, the objection is not only to the claim about the necessity of consciousness for attention, but also to my attribution of that claim to the commonsense picture of the mind (Mole, 2008, 90).

In his defense, Mole argues that this case isn't a threat to commonsense, for commonsense has it the other way around: for most people the crying baby case is a case that involves consciousness and does not involve attention. And to prove this point he informally asked sixteen people to pick, among four possible answers, which would be "the most natural account of the fact that a baby's cry will wake a mother more readily than other sounds" (p. 91). Surprisingly, Mole reports that most participants thought it was most natural to describe the case as 'The cry wakes the sleeping mother because, although she is not paying attention, she is

conscious of it'. And so, Mole takes this to show that the crying baby case isn't a counterexample to the commonsensical view that consciousness is necessary for attention.

I'm skeptical of this claim on two grounds. On the one hand, Mole's informal experiment lacks the methodological rigor required to use it as empirical evidence against the referee's counterexample. A controlled study is called for. On the other hand, even if a controlled study was to validate Mole's informal poll, there is another plausible interpretation of those results: they may be read as showing that what is commonsensical is the view that there is a contrast between the sleeping mother's response to her baby's cry and her (lack of) response to other noises, not that the contrast is, in fact, between attention and consciousness. Indeed, when I first started thinking about this possibility, I asked some of my non-philosopher friends to pick the most natural way of describing that case. However, instead of asking them to answer in terms to attention and consciousness, I phrased the possible answers in terms of consciousness and auditory perception. Then, many of them suggested that the most natural way of describing the case was as 'The cry wakes the sleeping mother because, although she is not conscious of it, she can hear it'. Could it be possible that, when contrasted with auditory perception, commonsense does not take this to be a case of consciousness after all?

In order to test this possibility, I conducted a study in which I presented participants with the scenario suggested by the referee. In this study, however, there were two conditions. In the *attention* condition, participants were to read a brief vignette describing the case, and then were required to select the best description of the phenomenon among four possible answers contrasting attention and consciousness. In the *hearing* condition, participants read the same vignette but their four possible answers contrasted consciousness and hearing. All participants

were undergraduates at ****, and were randomly assigned to one of the two conditions (N=66).

The vignette they received read as follows:

Please read carefully the following passage and answer the question below

It is a fact that a baby's cry will wake her mother more readily than any other noise of equivalent pitch or volume. In other words, if a mother is completely asleep, she'd be more likely to be awakened by her baby crying than by any other sound of similar intensity.

Which of the following statements do you think best describes this phenomenon? (Please circle only one answer)

Participants in the attention condition were given the following four possible answers (the order of presentation was randomized between subjects):

1. The cry wakes the sleeping mother because she is conscious of it and she is attending.
2. The cry wakes the sleeping mother because she is attending but she's not conscious of it.
3. The cry wakes the sleeping mother because she's conscious of it, but she is not attending.
4. None of the above.

In other words, participants were given the option of describing the phenomenon in terms of attention and consciousness (1), attention only (2), consciousness only (3), or neither (4). In contrast, participants in the hearing condition received the following four answers (again, the answers were randomized between subjects):

1. The cry wakes the sleeping mother because she is conscious of it and she can hear it.
2. The cry wakes the sleeping mother because she can hear it, but she's not conscious of it.

3. The cry wakes the sleeping mother because she's conscious of it, but she can't hear it.
4. None of the above

That is to say, participants were given the option of describing the phenomenon in terms of consciousness and hearing (1), hearing only (2), consciousness only (3), or neither (4).

The results were surprising. In the attention condition, which is basically a replica of Mole's own informal poll, the results varied drastically from those he reported: 21.2% of participants described the case in terms of attention and consciousness (answer 1), an astonishing 60.6% described the case in terms of attention alone (answer 2), while only 12.1% did it in terms of consciousness alone (answer 3). Finally, 6.1% of the participants selected answer 4 (Figure 1). The first thing to notice about these results is that they pose a serious threat to Mole's claim that, according to commonsense, consciousness is necessary for attention. An overwhelming majority of participants in the present study preferred to describe the case in terms of attention rather than consciousness. In fact, they were five times more likely to describe it in terms of attention alone than they were to describe it in terms of consciousness alone. Thus, contrary to Mole's conjecture from his informal poll, a controlled study suggests that most people take the case of the baby's cry as one of attention instead of consciousness. The anonymous referee may have been right, after all.

[Figure 1]

Nonetheless, I don't think these results need to be taken as evidence in favor of the view that, according to commonsense, the baby's cry case is clearly a case of attention and not a case

of consciousness. This is because, as suggested by the results in the hearing condition, when contrasted with auditory perception (as opposed to attention) people seem much more likely to describe it as a case of consciousness: 42% of participants in the hearing condition described the case in terms of consciousness and hearing (answer 1), 27.3% did it in terms of hearing alone (answer 2); the exact same proportion, 27.3%, described it in terms of consciousness alone (answer 3), while only 3% selected “None of the above” (answer 4. Figure 2).

[Figure 2]

Put together, these results show that, if people are asked to describe the baby’s cry case and are given the option to do it in terms of either attention or consciousness, only 33.3% of them would describe it as a case of consciousness. However, if the same case is presented but now they are asked to describe it in terms of either consciousness or auditory perception, 69.7% would describe it in terms of consciousness (and this difference is statistically significant: $\chi^2(2, N=66) = 8.735, p=.003$). Now, does this mean that people are contradicting themselves? Not necessarily. I think there is a more charitable explanation.

2. Why there may not be a commonsense view on the relation between attention and consciousness

In order to make my case, let us consider two examples of so-called “contrasting cases”.
Example 1: You and your wife decide to repaint the living room to some shade of red. You go to the store and ask the attendant to show you a few such shades. In this particular store they tend to show you colors in pairs, so you can contrast them. First they give you two samples, one of

which looks definitely red to you and another one that looks kind of orange. Your wife, though, seems to like this second one. Pointing at it she asks you: ‘Do you like this red or does it look orange to you?’ ‘I think that’s orange’, you reply, in all honesty. But then she asks the attendant to hand her a yellowish-red. Now, next to that yellowish-red sample, the original sample your wife liked definitely doesn’t look orange. ‘I guess it is red after all’, you concede. *Example 2:* You find yourself one morning walking down the street with your child. At some point, he picks a little branch that fell off a tree and shows it to you: ‘Is this a stick or a branch?’, he asks, to which you reply ‘I think it is a branch’. With childish persistence your son asks again: ‘Would you say, though, that this is a branch or a twig’. Perhaps focused more now on the size of the branch rather than its shape and origin, you confess: “I guess it is a twig”.

In both examples you changed your answer after contrasting your previous response with a different category-term. The question is: by changing your answer, are you contradicting yourself? I think the answer in both cases is ‘no’. But this is not necessarily because you were right in one case and wrong in the other. In the first example, for instance, it seems rather natural to say that whether or not a color patch looks red to you is highly dependent upon the adjacent color with which it is contrasted (Lotto & Purves 2000). As a result, saying that color-patch A seems orange to me at time t_1 under conditions c_1 and red at time t_2 under conditions c_2 does not imply a contradiction (Graff 2001). Now, notice that if you are asked to judge how a particular color patch looks to you, and the question is phrased as a contrast between two color-categories to which such a patch could belong (again, given the right surrounding colors), the answer you give is going to be highly dependent upon the precise categories you have to choose from. Thus, when the particular shade of red you were exposed to was contrasted with a more intense red, and you were asked to report your answer either as a red-appearance or as an orange-appearance,

you were inclined to report it as a orange-appearance because the other one seemed to be clearly a case of red. However, when contrasted with the yellowish-red, and asked to answer in terms of either yellow- or red-appearances, the original patch seemed to be clearly *not* a case of yellow, and red became the obvious choice.

Similarly, in the second example, whether a shoot that broke off a tree looks like a branch or a twig to you may depend upon the feature that is highlighted by the option against which each category-term is contrasted. Thus, when you are asked to decide whether it is a stick or a branch, you may focus on the natural-looking shape of the branch, and although you would have been okay calling it a stick under different circumstances—say, next to a piece of metal—this particular one seems too natural-looking to be called a stick. Given the option, ‘branch’ seems more appropriate. Nonetheless, when ‘branch’ is contrasted with ‘twig’, the relative size is now highlighted, and given the size of the one your son is holding in his hand, ‘twig’ seems more appropriate; after all, unlike twigs, branches can also be quite big.

This is not to say that all uses of words like ‘red’ or ‘branch’ are shifting in this particular way. For the most part, our uses of these terms are highly consistent. If our visual system works properly, most of us would say that ripe tomatoes in an appropriately illuminated supermarket appear red, and that cloudless skies in full light appear blue. Similarly, most of us would have no trouble identifying as a stick one little thin piece of wood confused among plastic straws. Problems arise when we are asked to produce comparative judgments, using precisely *these* terms, under conditions in which our assessments vary as a function of the contrasting category. In the case of the color samples, for instance, when luminance conditions are so that adjacent colors make your patch look different than it would have looked had a different color being attached to it, our appearance judgments shift as a function of the contrasting patch. Likewise,

when a branch that could have been identified as a stick among straws is then contrasted with larger branches, and one is asked to judge it either as a branch or as a twig, it is natural to opt for the latter given that the contrasting conditions call now for a focus in relative size rather than material.

My suggestion is that a similar explanation is available for the shifting judgments uncovered by the crying baby case. In ordinary cases, when trying to make sense of what strikes us as a difference in behavior due to what we would explain in terms of distinct underlying psychological causes, we resort to folk psychological notions like ‘belief’ and ‘desire, but also—and importantly—‘attention’ and ‘consciousness’. Some times the application of folk psychological terms is unproblematic. Many of us use the locutions ‘consciousness’ and ‘being conscious’ in relatively systematic ways over a large number of cases. For example, if we were asked to decide whether a dead person is either conscious or unconscious, the vast majority would opt for the latter option. Ditto for a person who is completely asleep or anesthetized. A similar story can be told about the locutions ‘attention’ and ‘being attentive’. If someone is doing her homework, cooking dinner, or actively playing poker with her friends, and we are asked to determine whether she is paying attention or not to what she is doing, most of us would say that she is, in fact, paying attention. These all seem to be uncontroversial cases.

However, cases like that of the crying baby are controversial precisely because, given the appropriate contrasting categories, both ‘attention’ and ‘consciousness’ can be used to refer to whatever psychological mechanism people think was responsible for the mother being awakened by the baby’s cry. What initially strikes us as a difference in the subject’s response to two different stimuli (i.e. the baby’s cry *versus* other equivalent noises), we tend to explain in terms of two underlying psychological processes: one responsible for the behavior in one case (the

mother waking up), and the other responsible for the behavior in the other case (i.e. the mother sleeping through the noise). But this may be as much consistency as we can get in our folk psychological explanations. Commonsense psychology does not have the resources to fine-tune our judgments so as to have clear-cut application rules for both terms. In borderline cases like the one at hand, whether we use the term ‘attention’ or ‘consciousness’ to refer to the underlying psychological mechanism is going to depend on the particular contrasting category that is offered to us at the time in which we are asked to make the judgment.

Someone may object that although the results reviewed suggest that people are more likely to judge the crying baby case as one involving consciousness if contrasted with auditory perception than if contrasted with attention, this may still just mean that, for the folk, such cases non-controversially involve attention. In other words, my objector could argue that these results are only direct evidence against Mole’s claim that the crying baby case is a case of consciousness and not a case of attention, but that, at most, they are only indirect evidence in favor of my claim that the use of ‘attention’ and ‘consciousness’ in this particular case depends upon the contrast category. After all, it may as well be that, every time we ask people to judge this case and we give them the option of classifying it as a case of attention, most of them would do just that. Since this is an empirical claim, I decided to conduct a follow up study in which I presented participants (N=24) with the exact same vignette as before, but now I gave them the option of describing the case either in terms of ‘attending to’ or in terms of ‘noticing’. More specifically, they received the following four possible answers (randomized):

1. The cry wakes the sleeping mother because she notices and she is attending to it.
2. The cry wakes the sleeping mother because she notices it but she is not attending to it.

3. The cry wakes the sleeping mother because she is attending but she doesn't notice it.
4. None of the above.

That is, participants were given the option of describing the phenomenon in terms of attending and noticing (1), noticing only (2), attending only (3), or neither (4).

If this case were clearly one of attention, as the objector may suggest, one would expect to see most people favoring the options that describe the case in terms of 'attending to' rather than 'noticing'. However, the results indicate otherwise: while 46% of participants described the case in terms of attending and noticing (answer 1), and 33% described it in terms of noticing alone (answer 2), only 13% did it in terms of attending alone (answer 3)—almost the same amount (8%) who opted for answer 4 (Figure 3). So it looks as though, when the options are given as a choice between attending and noticing, most people judge the crying baby case to be one of 'noticing' rather than 'attending to' (a collapse across samples *attending* x *noticing* gives us statistical significance: $\chi^2(2, N=41) = 10.775, p=.001$). But people needn't be contradicting themselves. A more plausible explanation is simply that, in controversial cases, our colloquial use of these terms depends on the psychological category they are contrasted with.

[Figure 3]

Of course, to say that the pattern of responses people give to the crying baby example is due to its being a contrast case involving the psychological terms 'attention' and 'consciousness' is merely the beginning of an explanation. Just as perception researchers may want to know under which contrasting conditions are we prone to use 'red' rather than 'orange, and just as

linguists and philosophers of language may want to know which contrast-terms make us utter ‘twig’ rather than ‘branch’, philosophers of mind and psychologists may want to know the conditions under which the term ‘consciousness’ is preferred over the term ‘attention’. One possibility is that our preference for either ‘consciousness’ or ‘attention’ in contrasting cases like the one at hand, may depend on particular features that are thought to be either proprietary or common to both psychological phenomena (Pashler, 1998). So, for example, if it turns out that most people take attention to be selective, then it is highly probable that when selectivity is the highlighted feature when attention is contrasted with consciousness, then people are going to be more likely to pick the former over the latter. (This may be the underlying explanation of the results reviewed above). On the other hand, if it is true that most people take consciousness to involve some sort of phenomenological awareness, then it is likely that when such is the feature highlighted in a contrasting judgment, ‘consciousness’ will prevail over ‘attention’. This is just a hypothesis, however, and it is far from being the last word on this issue.

3. Conclusion

“Everyone knows what attention is” is one of the most oft-quoted remarks ever made by William James (1890). As times goes by, researchers are becoming more and more skeptical of the veracity of this claim, and some have even argued that “it would be closer to the truth to say that “nobody knows what attention is.” (Styles, 1997, 1. See also Pashler, 1998). I think philosophers of mind could benefit from this skepticism. The reviewed studies suggest that there is little agreement, insofar as our commonsense psychology is concerned, about the relation between attention and consciousness. Although there may be some consistency to the way in which most people use these terms in common parlance, there are definitively certain situations

in which our preference for one or another is context-dependent, i.e. dependent on the category against which each term is contrasted. The crying baby case may be only one among many. Our commonsense notion of attention is more complicated than we thought. My recommendation is that, following the example of some philosophers who have been studying the folk notion of consciousness (e.g. Knobe and Prinz, 2008; Huebner, forthcoming; Systems & Machery, MS; forthcoming), philosophers of mind interested in the folk notion of attention should be wary of unsupported claims regarding the folk psychological use of such term. Meanwhile, our best strategy to study the relationship between attention and consciousness may be resorting to our good-old scientific tactics: to make use of working-definitions, based-off pre-theoretical conceptions of what attention and consciousness are taken to be in common parlance, but further defined in cognitive and/or behavioral terms in conformity to verifiable evidence. And so long as we keep doing that, we may be in the clear.¹

References:

Armstrong, D. 1981. What is Consciousness. In: *The Nature of Mind*. Ithaca, NY: Cornell University Press.

Dretske, F. 1993. "Conscious experience." *Mind*, 102: 263-283.

Fara, D.G. 2001. Phenomenal Continua and the Sorites. *Mind*.110(440): 905–935

Huebner, B. Forthcoming. Commonsense concepts of phenomenal consciousness: Does anyone *care* about functional zombies?

¹ Thanks to Ram Neta for the branch-twigg example. Thanks also to Joseph Paxton and Joshua Knobe for helpful comments.

- James, W. (1890). *The Principles of Psychology*. New York, NY: Henry Holt and Co.
- Kentridge, R.W. & Heywood, C.A. 2001. Attention and alerting: Cognitive processes spared in blindsight. In: B. De Gelder, E. De Haan & C.A. Heywood (eds.) *Varieties of Unconscious Processing: New Findings and Models*. Oxford: Oxford University Press.
- Knobe, J. & Prinz, J. (2008). Intuitions about consciousness: Experimental studies. *Phenom Cogn Sci.* 7:67–83
- Koch, C.; & Tsuchiya, N. 2007. Attention and consciousness: two different processes. *Trends Cog. Sci.* 11(1), 16-22.
- Koivisto, M.; Revonsuo, A.; & Salminen, N. 2005. Independence of visual awareness from attention at early processing stages. *Neuroreport.* 16(8), 817-21.
- Lamme, V.A.F. 2003. Why visual attention and awareness are different. *Trends Cog. Sci.* 7(1), 12-8.
- Lotto, R.B. & Purves, D. 2000. An Empirical Explanation of Color Contrast. *PNAS.* 97(23):12834-39.
- Mack, A. & Rock, I. 1998. *Inattentional Blindness*. MIT Press.
- Merikle, P.M. & Joordens, S. 1997. Parallels between Perception without Attention and Perception without Awareness. *Cons. and Cog.* 6, 219-36.
- Mole, C. 2008. Attention and Consciousness. *J. Consc. Stud.*, 15: 4, 86–104.
- Moran, J. & Desimone, R. (1985). Selective attention gates visual processing in the extrastriate cortex. *Science.* 229, 782-4.
- Pashler, H. E. (1998). *The Psychology of Attention*. MIT Press.

Posner, M.I. (1994). Attention: The Mechanisms of Consciousness. *Proc. Acad. Sci. U.S.A.* 91, 738-7403.

Prinz, J. (2000). A neurofunctional theory of consciousness. *Cons. Cog.* 9(2): 243-59.

Prinz, J. (Forthcoming). *The Conscious Brain*. Oxford: Oxford University Press.

Rensink, R.A.; J.K.O'Regan; & J.J. Clark. (1997). To see or not to see: The need for attention to perceive changes in scenes. *Psy. Sci.* 8, 368-373.

Styles, E.A. (1997). *The Psychology of Attention*. Psychology Press.

Sytsma, J.M. and Machery, E. (MS). Two Conceptions of Subjective Experience

Sytsma, J.M. and Machery, E. (Forthcoming). How to study Folk Intuitions about Phenomenal Consciousness. *Phil. Psych.*

Abstract:

In a recent paper, Christopher Mole (2008) argued in favor of the view that, according to our commonsense psychology, while consciousness is necessary for attention, attention isn't necessary for consciousness. In this paper I offer an argument against this view. More precisely, I offer an argument against the claim that, according to our commonsense psychology, consciousness is necessary for attention. However, I don't claim it follows from this argument that commonsense has it the other way around, viz. that consciousness isn't necessary for attention. Instead, I want to motivate the claim that there isn't such a thing as *the* view of commonsense psychology about the relation between attention and consciousness. I argue that people's use of these terms—and, presumably, of their corresponding concepts—seems to be context-dependent. I conclude with a discussion of the possible implications of this claim for the empirical study of attention and consciousness.

Figure 1

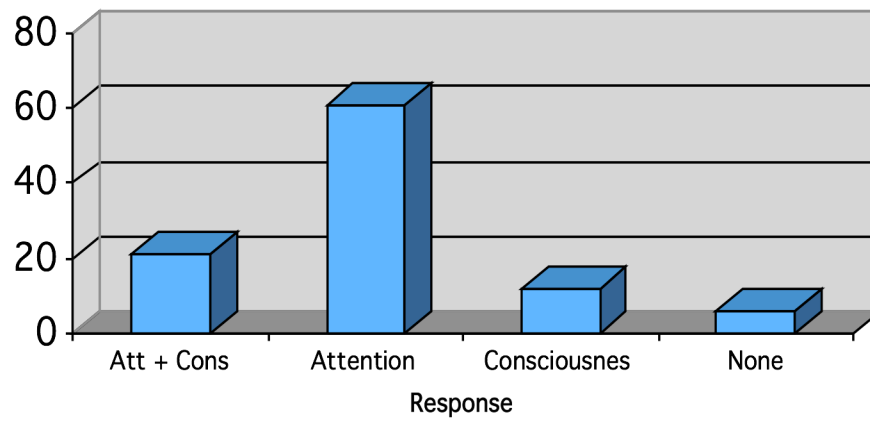


Figure 2

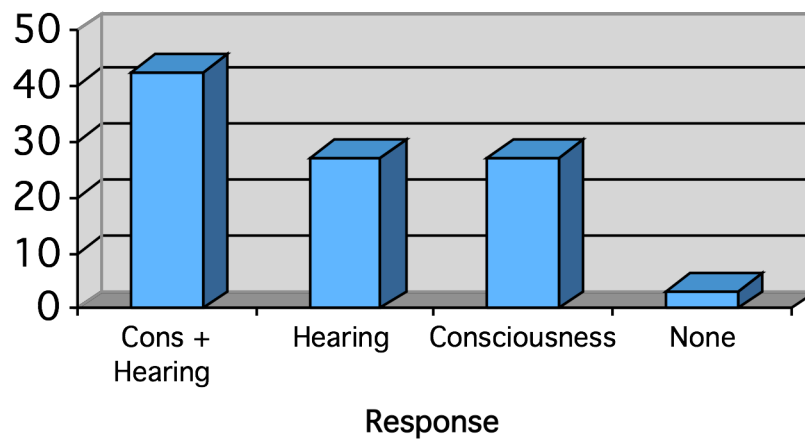


Figure 3

