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Psychology and Philosophical Intuitions

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Evolutionary psychology is an approach to psychology, in which knowledge and principles from evolutionary biology are put to use in research on the structure of the human mind.

-Leda Cosmides & John Tooby, "Evolutionary Psychology: A Primer"

Heading a philosophy paper with a quotation from two psychologists may seem strange until one realizes the potential analogy between psychology and epistemology. Similarly to Cosmides' and Tooby's view of evolutionary psychology, I view cognitive and evolutionary epistemology as an *approach* to the respective discipline, an approach I advocate. I believe that the approach can provide unique and philosophically interesting insights into the philosophers' methodology. It helps to uncover why philosophers reason the way they do, when they are likely to err, and how they can avoid the errors. In order to make sense of such an approach, one has to do some philosophical and psychological work. So in this paper, I focus on applying a cognitive and evolutionary epistemological approach to a contemporary philosophical debate. I introduce a common mental strategy (i.e. the availability heuristic, to be discussed later) which Amos Tversky and Daniel Kahneman first elucidate in their article "Availability: A Heuristic for Estimating Probability." I then analyze how it affects the use of intuitions in philosophy, expanding on the work of Jonathan Weinberg, Shaun Nichols, and Stephen Stich in their article "Normativity and Epistemic Intuitions". They provide research data suggesting that intuitions may be culturally relative and I draw conclusions about what that might mean for the way philosophers use intuitions, either narrowing conclusions or forcing philosophers to control for various troublesome causes of intuitions. I hope that my discussion demonstrates the effectiveness and usefulness of cognitive and evolutionary epistemology and helps to inspire a sustained interest in evolutionary and cognitive psychology and their philosophical implications.

Psychological Findings

Focusing on a particular heuristic (i.e. problem solving strategy) I now hope to unveil some hidden biases that haunt philosophy. First, consider: Of all dogs everywhere, what percentage are Golden Retrievers? Even if we ignore the potential difficulties of borderline cases (i.e. all but one of a dog's grandparents were Golden Retrievers), this question is still not very easy to answer. One way we might attempt to solve this puzzle is to think of all the dogs we can remember and ask ourselves 'of all the dogs I can remember, what percentage were Golden Retrievers?' Unfortunately, while this may give us a relatively accurate picture of the proportion of Golden Retrievers to other kinds of dogs that *we have encountered*, it seems unlikely that our experiences are representative of *all the*

world's dogs. If you live in a well-to-do western society (like me), being in such a location very well might bias our data set (i.e. all the dogs we can remember). For example, we are considerably more likely to see rare and expensive purebreds here than in many other poorer areas where there still happen to be many dogs (e.g. many parts of India). The way people go about approximating frequency and probability is the focus of much psychological investigation. To achieve a better understanding of the phenomena, how people make their estimates, when people are likely to err, and how people can correct those errors, one must consider the primary psychological literature, starting with Amos Tversky and Daniel Kahneman.

Tversky and Kahneman, in their article "Availability: A heuristic for judging frequency and probability", discuss how people often estimate "the frequency of a class or the probability of an event" (164). A fast and easy approach that people often employ to form such estimates is to judge "the ease with which instances or associations could be brought to mind" (164). Tversky and Kahneman call this economical style of reasoning "the availability heuristic" (164). The availability heuristic utilizes the ease with which one can remember instances or imagine scenarios "as a basis for the judgment of frequency" (164). However, while the availability heuristic may be quite useful in practical circumstances because "in general, frequent events are easier to recall or imagine than infrequent ones" (164), there are other factors, besides actual frequency, which can affect the ease with which one can remember or imagine an instance or a scenario. Therefore, in certain domains, when ease of recall and imaginability are not positively correlated with frequency or probability, "the use of the availability heuristic leads to systematic biases" (164). Such biases leave many people fallaciously inferring over-generalized conclusions from a relatively small or misleading data set.

Tversky and Kahneman demonstrate the systematic biases in their research subjects, which they propose are a result of the availability heuristic. When asked to estimate the frequency of words beginning with the letter 'R' or having 'R' in the third position, a majority of research subjects "judged the first position to be more likely" (167). However, there are actually more words with R in the third position than with R in the first. These results were replicated with other consonants (K, L, N, V) which are also more likely to be in the third position of a word than the first, but every time, a majority of the participants erroneously think there are more words beginning with the letters than having them in the third position. Tversky and Kahneman suggest that participants might be misestimating the number of words containing the letters in the first or third positions due to the availability heuristic and the way human memory works. It is "easier to think of words that start with [some particular letter] than words where

[the letter] is in the third position" (166), so if people utilize the availability heuristic, which implicitly assumes that the ease of recall positively correlates with frequency, then people will often misestimate the frequency of words beginning with some letter and containing the letter in the third position.

Tversky and Kahneman suggest that particularly salient memories may negatively affect one's ability to estimate frequencies or probabilities. An example is "a temporary rise in the subjective probability of [a car] accident" (178) right after one has seen an accident. Furthermore, the availability heuristic relies on memory to be a representative sample of the frequency of instances. If a particular kind of event is over or under-represented in memory, then one may judge it to be more or less frequent than it actually is. Seeing news stories about murder every day on the evening news ('if it bleeds it leads') may increase the representation of murder in one's memory and may thus increase one's estimation of the frequency of murder. Even if relatively few United States citizens are actually murdered (i.e. less than a hundredth of one percent of all people in the US in 2008 according to the FBI's annual crime report), one may estimate a higher murder rate due to how available instances of murder are in one's memory.

Relying on the availability heuristic, even when one does not have a representative sample in memory, may be a legacy of humans' shared ancestral history. The human brain, where data processing including the use the availability heuristic occurs, is an evolved organ. As Steven Pinker elucidates in his book *How the Mind Works,* in order to operate effectively in practical circumstances, the brain must make some "tacit assumptions about the world" (346). For example, because human sensory perception makes assumptions about the world, humans tend to fall victim to a wide array of optical illusions when the perceptual assumptions which natural selection has instilled in humans are violated. We make inferences about a 3-dimensional (i.e. 3-D) world around us based on assumptions about the way light will bounce off of 3-D objects and arrange itself on our 2-D retina. For example, when humans look at a television, they tend to see the shapes on the screen as filling into some 3-D world (i.e. people perceive width, height, and depth). Some things appear to be in front of or behind other things, even though actually all the shapes are merely composed of differently colored arrays of 2-D pixels. Human perceptual systems tend to assume that if objects (or patterns of color) appear to overlap each other, then one is in front of the other.

In a similar way, human patterns of reasoning tend to make assumptions that, when violated, leave humans unable to easily come to correct conclusions. In our ancestral history (roughly 100,000 years ago), it may have been useful to assume that one's memory was representative of frequency for most practical

concerns. For example, if one of our ancestors wondered about how likely he was to get bit by a poisonous snake while hunting, he may very well have inferred something close to the actual probability if he had had a decent memory of every time someone in his tribe had been bitten while hunting in the past. If our ancestor had remembered the number of people who had hunted, and that one person had gotten bit per week, or one per year, or one per decade, then our ancestor could have formed a relatively accurate judgment of his chances of being bit. This is how the availability heuristic could have been quite useful and therefore how it could become prevalent in the gene pool. This is not to say that the availability heuristic definitely evolved for this reason – that is an open empirical question – but we can see that the success of the availability heuristic hinges on the scope of the conclusions that one draws from one's memory. In our ancestral history, humans may have only been seeking local conclusions (e.g. How likely am I to fall victim to a snake bite right here?) as opposed to global conclusions (e.g. How likely is one to fall victim to a snake bite anywhere on earth?). Such an account of the availability heuristic explains why it is so tempting, and why it tends to lead people into error in certain contexts.

Philosophical Implications

I propose that the availability heuristic, and the systematic biases that come with it, might endanger some philosophical projects if any philosophers use the availability heuristic to estimate a frequency or probability and their memory is not representative of the actual frequency or probability. After all, as Tversky and Kahneman point out in their article "Judgment under Uncertainty: Heuristics and Biases": "the reliance on heuristics and the prevalence of biases are not restricted to laymen" (1130).

An example of such a problematic philosophical project is reliance upon intuition to support a theory. One might rely on 'our' intuitions to support some claim/theory about a particular concept. However, if there is a substantial portion of the population which does not share that intuition, then the argument will fall on deaf ears and will hold no water for that substantial portion of the population. Furthermore, if the intuitions vary from person to person, they may vary for arbitrary reasons, leaving one to wonder why one ought to pay special attention or give more weight to any one of the intuitions in question.

An example of a philosophical project resting almost entirely on questionable intuition assumptions is Edmund Gettier's paper "Is Justified True Belief Knowledge?" In his article, Gettier responds to the traditional understanding of knowledge which extends back as far as Plato's *Theaetetus*. More recently, A.J. Ayer and Roderick Chisholm elucidate the three traditional

criteria for knowledge which Gettier sums up as justified true belief. However, Gettier claims that justified true belief is not sufficient for knowledge because "it is possible for a person to be justified in believing a proposition that is in fact false" (444). Gettier proposes that chance events can turn a justified false belief into a justified true belief using a thought experiment about Smith, a man applying for a job. Smith has "strong evidence" (445) that the other applicant, Jones, will get the job (maybe the boss told Smith) and that Jones has ten coins in his pocket (maybe Smith saw Jones counting them). Accordingly, Smith believes that "(e) the man who will get the job has ten coins in his pocket" (445). Yet, Smith gets the job, not Jones, and unbeknownst to Smith, he too has ten coins in his pocket.

According to Gettier, although Smith thought Jones would get the job, events just so happened to make his belief (e) true and justified. Therefore, Gettier asserts that one can have justified true belief while "it is equally clear" (445) that the belief is not sufficient for knowledge (i.e. the Gettier problem). However, it is unclear what Gettier meant by "clear"; he seems to be referring to an epistemic intuition, i.e. an impulsive response to the thought experiment. Gettier uses his intuition, that Smith does not have knowledge, to support his claim that a justified true belief is not a "sufficient condition for someone's knowing a given proposition" (446).

However, if Gettier's intuition about whether or not Smith has knowledge happens not to be representative of many other people's intuitions, then his whole project may be misguided, or at the very least, quite overstated in that it may only capture what knowledge is for some small subset of the population. There is cause for concern because Gettier may be merely assuming his intuition is representative of most people's intuition because his intuition is particularly salient and available in memory, potentially due to the fact that the limited number of people he encounters also happen to share his intuition. He may be falling victim to the availability heuristic and the ensuing biases, which seem to be tempting Gettier to fallaciously over-generalize his intuition onto the rest of the population of English speakers.

Furthermore, it seems like any attempt to analyze a concept based on some intuitive response to a thought experiment is likely to fall into the same trap. For example, one may formulate some theory to make sense of several intuitions that one has in response to several thought experiments. But then one may come to find out that one's intuitions are not universally shared or worse, they are the minority intuitions. In such a scenario, one's whole chain of reasoning and the theory hoping to make sense of some group of intuitions ultimately cannot get off the ground if the theorist hopes to make a universal claim which applies to

everyone. At the very least the theorist must back off from the more general claim and adopt a much narrower claim, which specifies that the argument only holds for those who share the intuitions. A limited conclusion is necessary because the arguments the theorist presents, which rely a series of intuitions in response to thought experiments, will not hold any significance for a substantial portion of the population. One will probably have a hard time convincing an audience of a theory if the method one uses appeals to intuitions which the audience does not share. For example, if a philosopher presents a thought experiment in order to foster some intuition in the mind of the audience and from there he/she argues in favor of some ethical theory, and the thought experiment leaves the audience with some other intuition, then the audience will lack motivation for accepting the ethical theory.

Unfortunately, Gettier is hardly the only philosopher to utilize intuitions in such a manner. In the past 20 years, at least 10 articles contained in JSTOR explicitly hope to tackle the Gettier problem and reference the Gettier Problem in their titles. All of these articles run the risk of building upon the faulty foundation which Gettier set out, because he bases his argument primarily on an over-generalized intuition. Also unfortunately, the erroneous reliance upon intuition in philosophy is not limited to the conceptual analysis of knowledge.

The 'experimental philosophers', Jonathan Weinberg, Shaun Nichols, and Stephen Stich, in their paper "Normativity and Epistemic Intuitions," question such uses of intuition to support philosophical theory, using intuition to mean "a spontaneous judgment about the …properties of some specific case" (5). They propose that "a fair amount of what goes on in…epistemology can be classified as [utilizing intuition to support theory]" (8). Weinberg et al. actually take the trouble to get an accurate picture of people's intuitions, rather than relying on the availability heuristic, only to find systematic differences in people's intuitions about the concept of knowledge. They conducted research asking participants to judge whether individuals in particular cases have knowledge. This empirically oriented philosophical project is known as 'experimental philoosphy'. For the Gettier case, Weinberg et al. discovered large and systematic differences between Westerners and East Asians; Westerners tended not to call the Gettier cases examples of knowledge, while the East Asians did. Perhaps even more surprising, Weinberg et al. found large and systematic differences between people of high socioeconomic status and people of low socioeconomic status, when the participants were asked whether individuals in different cases have knowledge. When ascribing knowledge to individuals in different thought experiments, compared to people of low socioeconomic status, people of high socioeconomic status tend to require that the individual have more evidence.

Ernest Sosa attempts to defend the use of intuitions in philosophy in his article "Experimental Philosophy and Philosophical Intuition." Sosa doubts that the experiments in question adequately support the hypothesis that "there really are philosophically important disagreements rooted in cultural and socioeconomic differences" (235). He acknowledges that there are *prima facie* differences but suggests that they may be merely "verbal" (235). Sosa indicates that if the differences are merely verbal and if one found a way to clarify the verbal confusion, then people may still share the same intuitions. Weinberg et al. acknowledge this possibility (as well as the *possibility* of other confounding variables) but maintain that the experiments have "at least shifted the burden of argument well over in the direction of the defender [of the use of intuitions in philosophy]" (14). Sosa proposes an alternative testable hypothesis in order to cast doubt on the validity of the experiments which Weinberg et al. perform, namely that verbal differences account for the entirety of different cultures' answers to questions about whether someone has knowledge in various circumstances. However, if the experimental philosopher acknowledges the possibility of an alternative hypothesis, it seems like he or she would recommend *testing* this alternative hypothesis, as opposed to assuming that it is true and that intuitions are just as reliable a source of evidence as philosophers ever thought they were. To test this hypothesis, one would have to investigate some intuition while controlling for verbal disagreement as much as possible. An experimenter could achieve this if the experimenter stipulates definitions of key words and tests whether other variables, besides geographical location, affect intuitions. For example, one could ascertain whether or not the ordering of questions affects intuitive judgment (i.e. whether there is an ordering effect; Swain et al. do just such an investigation which we will consider below).

Furthermore, even if someone performed new experiments and found that Sosa's alternative hypothesis is true, I propose that it would still have a dramatic impact on the use of intuitions in philosophy. At the very least it would force philosophers to limit their conclusions and back off the universal claims which are supposed to appeal to everyone. Instead, as Weinberg at al. explain, philosophers would be partaking "in a culturally local endeavor" (36) of theorizing about and making sense of the intuitions of some subset of the population.

Sosa attempts to defend the use of intuitions in another way as well. After acknowledging the ordering effect which Stacey Swain, Joshua Alexander, and Jonathan Weinberg demonstrate in their article "The Instability of Philosophical Inuitions: Running Hot and Cold on Truetemp," Sosa insists that "such contextual factors" (237) only cast doubt on intuition "in the sort of way" (237) that they cast doubt on perception. Sosa concludes that "we have to be careful in how we use intuition" (237) but that some uses of intuition may be acceptable. This is right in

line with the goals of the experimental philosopher who wants to caution his or her audience about the ways that intuitions can be misleading. As Joshua Knobe and Shaun Nichols indicate in their article "An Experimental Philosophy Manifesto," the question to ask about any particular intuition which one hopes to use in an argument is "can the intuition be *trusted* [italics in the original]?" (8). They draw an analogy between philosophical intuitions and a child's religious belief: both assertions come into doubt if one realizes that they are largely a product of one's "cultural upbringing" (11), and that it is merely an "accident that [one] had the cultural upbringing that [one] did" (11). This analogy forces one to wonder if one's intuitions are really the most accurate way of understanding the world, i.e. do they map well onto reality, or are they just as arbitrary as different cultures' religious practices/ beliefs, which might have an interesting historical explanation but ultimately do not seem to be accurately tracking reality.

Even if intuitions are as reliable as sensory perception, I propose that the experiments could still teach many philosophers an important lesson which would impact the way they use intuitions. Just as a scientist would control for any expected individual differences when conducting an experiment, the philosopher may feel the need to control for those things which affect intuitions in a way that the philosopher did not intend (e.g. an ordering effect) if the philosopher is attempting to draw a general conclusion from the intuitions. For example, consider a biologist who is investigating courtship/mating behavior and timing the dance-like moves of the blue-footed booby on one of the islands of the Galapagos. Consider how the biologist might respond if he/she comes to realize that he/she is actually color blind and that people tend to be awful at keeping time mentally. The biologist would acknowledge that he/she may have mixed up the blue-footed booby with the red-footed booby due to his/her color blindness, and he/she may not have been timing the booby's dance accurately due to the human tendency to deviate from perfect time keeping. The biologist, in such a situation, may ask someone else, who is not color blind, to verify the color of the booby's feet, and the biologist may bring a stopwatch to keep track of time. These considerations suggest the importance independent and objective verification.

Bringing the point back to intuitions, if a philosopher has reason to believe that one's intuitions may be deviating from reality, i.e. something other than the truth of the intuitions causes one to have the intuition, then the philosopher may want to control for the various interfering factors like culture and ordering. To do this, the philosopher may have to seek the help of others who do not share the same cultural upbringing or who did not first consider the thought experiments in the same order. This is exactly what experimental philosophy strives to do in order to keep philosophers cautious, so that they do not over-generalize, or assume that their intuitions are reliable sources of information which accurately

track truth, when in fact the intuitions may be just products of several arbitrary causes.

The availability heuristic explains why philosophers might be tempted to overestimate the frequency of their own intuitions in the population at large. Furthermore, it suggests why it can be dangerous to build a case for a particular philosophical theory of a concept if one relies on an intuitive foundation. Such a philosophical theory only stands as a theory of some universal concept if one supposes that the intuition is nearly universal among people. Recognizing the availability heuristic as a psychological phenomenon assists the experimental philosopher (e.g. Weinberg et al.) because with it one can help victims of its bias recognize and overcome the temptation to project their own intuitions onto the population at large.

Furthermore, rather than just using empirical data to contradict the philosophers who over-generalize their own intuitions, the availability heuristic explains *why* one over-generalizes in the first place. It also indicates how one can alleviate the problem, i.e. one can either be extraordinarily careful when using intuitions in an argument, being sure that one's conclusions do not extend beyond one's evidence and that one has controlled for the various effects which complicate intuitions, or one can try to argue for one's conclusion without relying on intuitions but rather calling for pragmatic, empirical, or some other kind of consideration. A strong understanding of the problem may be the best way to search for a cure. Rather than treating the symptom, the experimental philosopher, equipped with psychological understanding (i.e. recognizing the availability heuristic), can treat the cause.

Conclusion

Researchers in this tradition clearly share a set of assumptions: the ecological validities are probably high, the heuristics are generally useful, but common and profoundly important exceptions are to be found.

-Thomas Gilovich & Dale Griffin, Introduction to *Heuristics and Biases: The Psychology of Intuitive Judgement*

Because this paper opened with a quotation from a pair of psychologists, it seems fitting for it to end with another such quotation. This particularly insightful comment indicates how the most prominent researchers of human judgment think that a cognitive and evolutionary perspective can illuminate and bring together, in one coherent view, generally successful human reasoning, occasional mistakes, and the hope for improvement. The cognitive and evolutionary epistemologist can still hope to uncover how people reason and how people can improve their

reasoning. Cognitive and evolutionary psychology shed light on the way philosophers reason in a variety of ways. They indicate how philosophers tend to reason and why philosophers reason that way. Furthermore, they indicate the systematic ways that philosophers are likely to make mistakes of reasoning, and provide possible ways to overcome the mistakes. So, while humans' heuristics (i.e. mental problem solving strategies) may be generally fairly well suited to day to day practical life, there are also some situations which often lead us into error. Falling victim to such mistakes of reasoning may be particularly tempting because of how effective the human heuristics are in other general circumstances. As we have seen in respect to the philosophical use of intuitions, cognitive and evolutionary epistemology, if used efficiently, can help one to overcome temptation in such problematic circumstances.

Specifically, I have shown why philosophers are so tempted to assume that their intuitions generalize to the population at large (i.e. the availability heuristic). Furthermore, I have proposed the relevance of experimental philosophy, which does not rely on the availability heuristic, but rather conducts survey's to determine what people's intuitions are and what affects them. Finally, my original contribution to the debate is a suggestion about how to interpret the survey findings. I recommend that philosophers consider the data before attempting to utilize intuitions in philosophical arguments for two reasons. First, if philosophers are relying on an intuition that others are unlikely to share, any arguments based on the intuition are likely to be unmotivated for all those who do not share the intuition. Secondly, if a philosopher still wants to rely on her intuitions, she may feel obliged to proceed as a scientist would, limiting her conclusions which only apply to those who share her intuitions, and controlling for any factors that might cause her intuitions to vary for arbitrary reasons, like the order in which she considered the various thought experiments, and her socio-economic status.

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