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The Most Social Epistemology

Social epistemology is concerned with building normative frameworks that entail that social factors are part and parcel of epistemic claims. We must note that social epistemologists tend not to give definitions as to what counts as knowledge, or what is social. Regardless of this point social epistemologists attempt to put forth systematic normative accounts of social systems and epistemic claims. On this point it does seem a bit peculiar that theories of social epistemology strive towards building normative frameworks. We must proceed, however, with a bit of good faith that social epistemology is a worthwhile endeavor. After all, several esteemed philosophers can't all be wrong, right? In describing social epistemology Goldman outlines the aspects of social epistemology that concern Solomon's account.

The veritistic approach to social epistemology aims to be evaluative or normative rather than purely descriptive or explanatory. It seeks to evaluate actual and prospective practices in terms of their impacts on true versus false beliefs. Although truth may have no explanatory role to play in the social studies of knowledge, it can play a regulative role (Goldman, Online).

Solomon's account is concerned with the issue of normativity within the scientific community. More specifically, Solomon wants to establish a normative framework that will strive to guarantee that science as a rational enterprise will continue to progress.

We must get a few things in order before we depart on our excursion here. To begin with we have to understand that the kind of knowledge that Solomon's argument addresses is that of scientific knowledge. I would say that an account of scientific knowledge provides an account of the most structured and thought out form of social knowledge. To begin with I will briefly detail what social epistemology in terms of an individual's rationality hopes to achieve. Then, in order to understand Solomon's argument I will first summarize her claims regarding social empiricism.

I will then go on to examine claims involving group rationality within scientific research communities in order to understand how scientific communities and the exchanges that occur within those communities is key to scientific progress. In order to gain a clearer picture of scientific development throughout history I will briefly look at Lakatos account of scientific development in order to strengthen the argument for group rationality. Finally, I will argue that although her general argument is quite solid, Solomon's marginalizing of individual rationality is flawed.

Several approaches to social epistemology entail that analysis of the methods for acquiring knowledge should include optimal conditions for the individual to make rational choices. For instance Kitcher's claim regarding distributive cognitive labor relies on the recognition that scientists choose from among many theories in order to determine what is the best scientific theory (Solomon 218). This account argues that the individual scientists discern what counts as the best theory; moreover each scientist is an important facet of the community. Instead of viewing the community as a whole, Kitcher's account includes the opinion of each individual scientist as a constitutive piece of the community. Longino's account of scientific knowledge includes the recognition that the individual counts as a fundamental part of the analysis of knowledge. Within her account of knowledge Longino asserts the claim that, "individuals are not replaced by a transcendent social entity"(Longino 143). This claim does entail that as an individual one is divorced from any community, on the contrary the individual claim is the foundation for the community and in turn the community influences what counts as knowledge. "The activities of knowledge construction, however, are the activities of individuals in interaction, of individuals in certain relation (of criticism and response) with others"(Ibid.).

For Longino the social interaction between individuals gives rise to knowledge construction, as such there is an individual foundation for the social aspect of epistemology.

Why should we care about all this talk about individuals as the center of the theories of knowledge within their respective communities? In order to answer this question we must look towards Solomon's account of a social epistemology. In short Solomon argues that social epistemology need not rely on individual rationality. "Social groups can work to attain and even recognize epistemic goals without individual rationality or individual cognizance of the overall epistemic situation"(Solomon 219). If we are to look at claims that entail that individual rationality is not a necessary component of scientific knowledge, then we should at least understand what a scientific knowledge claim generally would entail.

It is out the range of this paper to discuss the debates over what actually counts as the best picture of science, and what exactly scientist aim to achieve. One feature of science that we must note is that science involves a social aspect. In the terms of science as a social enterprise, we find that science is concerned with a consensus over a larger range of interests and goals. "The objective of science is not just to acquire information nor to utter all noncontradictory notions; its goal is a consensus of rational opinion over the widest possible field"(Ziman 51). So one feature of science that will be useful in our exploration of Solomon's thought is that science is based on a consensus within a large, diverse community. This makes sense of course in that if science is truly objective and is concerned with facts and theories about the natural world the diversity is not only desired it is key.

Scientists as a collective, test theories and observe empirical evidence that give rise to the confirmation or reworking of a theory. We must also note that the scientific inquiry strives to be rational as well as rigorously methodical. Any individual cannot do Science as that individual

sees fit to his or her own purpose. The image of a mad scientist toiling away in the garage is an erroneous image that would not *count* as an accurate picture of the scientific community.

“Individual choices in scientific change are frequently influenced by cognitive, social, or motivational factors that do not reliably select the most successful (or most plausible) theory”(Solomon 235). Science is carried out over specific constraints in which certain models are accepted and certain models are not. This is the specific context of individual rationality that Solomon will argue is not necessary for a well-formulated social epistemology. Notice that there does seem to be a certain persuasive air that scientific knowledge might not rely on individual rationality in order to achieve scientific epistemic goals, but lets not get ahead of ourselves on this point.

Solomon’s account of scientific knowledge based on a rational group consensus focuses on the accumulation of influences of “individual and social processes (epistemic, cognitive, motivational, socio-political) which are as a whole, adequately responsive to empirical success”(Solomon 220). Without simply repeating the whole of Solomon’s case studies I believe it is worth while to at least look at the case of plate tectonics in order to gain a firmer grasp of Solomon’s project.

Within the account of the plate tectonics debate the theory of continental drift was questioned for a variety of reasons. Different sets of data lent support to the theory of continental drift, and certain scientists within their respective fields such as geology, oceanography etc... formed beliefs in regards to the data. It is important that we note that some scientists such as Heirtzler, and Ewing opposed the theory of continental drift. This is important in that certain individual bias do not determine the outcome of what counts as a theory. “Consensus took place when plate tectonics had *universal* (in the scientific community) empirical successes, so that

even biased evaluations of the importance of some successes led to the same choice of plate tectonics”(Solomon 221). With our tour of plate tectonics finished I want to turn the complexities of Solomon’s argument in order to fully appreciate what it means to discard individual rationality as criteria for scientific knowledge.

Earlier in our discussion I mentioned the fact that certain conditions of bias present in Solomon’s account of individual rationality disqualified individuals from being adequate agents in choosing what theories should be accepted. A curious point arises in Solomon’s argument at this juncture. Solomon counts ‘traditional’ biasing factors as part of a group’s consensus on a theory. Specifically, the scientific community chooses a particular theory, such as the contemporary model of plate tectonics, through “cognitive salience and availability motivational biases such as self-interest, pride, and peer pressure and social factors such as the influence of institutional training and institutional structure”(Solomon 221). One might be concerned at this point that both group rationality and individual rationality have ‘biasing factors’ that are inextricable from the decision process that either the individual our group is engaged in.

The diversity of different situations that arise in the testing and formulation of theories appear to point to the fact that if individual bias is accepted as the reason for the acceptance of a theory then that very theory might be deficient. The problem of individual bias within science stems from social, political such as peer pressure from research institutions or perhaps ethical governmental regulations. Certain individual scientists might put forth weak theories that don’t have the best science built into those theories. If we consent solely to trust that an individual scientists theory is the best theory, then the end result might very well be “bad science.” Of course this scenario hardly seems plausible in that science does not occur in isolation. Science is a social activity that occurs through group recognition and consensus.

We have now arrived at the main point of Solomon's argument, which entails that due to biasing factors social empiricism is a normative framework that entails "good science." As we have seen all along, which is not very far at this point, Solomon has argued that we cannot not look at scientific rationality being composed of individuals selecting what counts as a scientific theory. According to Solomon, as an individual within different social groups your own desires and motivations are not necessarily articulated as the product of scientific rationality (Solomon 225). Distribution of data and theories across a wide range of interested parties within the specific scientific field give rise to a working theory. Social empiricism entails that any individual will not function in a scientific epistemological framework in the way a group functions.

The concerns put forth in the argument for social empiricism are centered around the link between biasing factors and empirical success, and more broadly scientific progress. Once we have all three of these conceptions in hand then Solomon's theory will come alive. First let's take a gander at the concept of empirical success. "Empirical successes are engagements with the world which include experimental, observational, predictive, and some technological successes"(Solomon 226). Regardless of the methodology that scientist employ in their endeavors, that fact of the matter is that all theories rely on empirical data for the validation. The social factors that influence science are not part and parcel responsible for the acceptance of one theory over another. Scientist rely on empirical data to ascertain whether or not they are even on the right track in pursuing answers to their questions. The key point here is that success means just that, empirical data generally corroborates with a theory, which in turn leads to an advancement of that very theory.

The extent to which theories are empirically successful turns out to be a significant factor for social empiricism. “Scientific decision making furthers scientific goals, and in this sense is scientifically rational, when empirical success are produced and maintained”(Solomon 226). If we look back to the earlier discussion regarding individual rationality we find that the argument against individual rationality becomes a little clearer in light of the Solomon’s aforementioned claim. In order to achieve scientific rationality, empirical successes must not only be sought they must be maintained. By maintaining the empirical success of science, scientists have a foundation from which to posit further claims that support certain theories. With empirical success remaining intact throughout a theory that theory becomes stronger as evidence in support of that theory continues to grow.

The final point regarding empirical success might just be the sort of claim that worries Solomon’s critics. Without getting too far ahead of the big finale, we can see shades of Solomon’s theory being too stringent. In order to achieve the goals of “good science” all empirical successes must be available to the entire scientific community. If certain empirical successes are suppressed or even overlooked do to bias, then “good science” becomes a harder goal to achieve. “The Consequences of suppressing less successful theories (e.g., cytoplasmic theories of inheritance) can be bad for science not only because of the failure to make widely known some empirical successes, but also because the theories suggest directions for development of *other* theories”(Solomon 227). In some sense competition not only brings out the best and brightest during contemporary debates regarding scientific theories; competition also leaves behind fragments of the losing side that might very well turn out to be diamonds in the rough during later periods of research.

Biasing factors are the next salient feature of social empiricism that we must explore. Empirical successes are only one part of the story when it comes to fleshing out the goals of scientific research. Properly understood, biasing factors allow for a well-rounded assessment of scientific theories. Empirical success might be influenced by the goals of a particular researcher or that researchers group. Certain theories might also have different but equally weighted empirical data that goes towards the validity of a particular theory. Thus, Solomon argues, “when different theories have different empirical successes, social, institutional, political, cognitive, and motivational factors (so called “biasing factors”) influencing choice should be well distributed amongst scientists”(Solomon 226).

To ignore that science does not occur under the influence solely of empirical fact finding and theorizing about those facts, is to ignore a fairly well articulated picture of the scientific community. It isn't hard to imagine the romantic notion of Newton or Einstein milling away in their studies as isolated genius, painting pictures of the world that no one has previously been able to paint. Yet, even if we ascribe to this notion, the fact is that those theories as portraits of a certain world make their way into the scientific community. Through time the scientific community modifies, revises and cleans up these scientific theories. As these revisions and modifications occur as scientific activity, certain biasing factors come into play. The more well distributed these factors are the more likely it is that rational science occurs. Solomon admits that what constitutes good distribution of biasing factors is not articulated in her theory. (Solomon 227). No matter, the details of such a model can and should be worked out in the future. The framework of social empiricism seems to be a sufficient starting point for a normative epistemology that aims at improving the goal of scientific rationality.

Even though Solomon does not propose a specific method detailing how biasing factors should be distributed amongst the scientific community, she does argue that not only scientists should be involved in scientific debate. Solomon's point is that philosophers of science and historians' analysis should be counted amongst scientific debates. The context and the scope of such involvement is rather lacking in Solomon's article, so we should note that we would have to divert our attention considerably to flesh out what the precise role should be. This idea points back towards the notion of the fair distribution of biasing factors. Scientifically literate observers "are in more of a position to evaluate claims of empirical success, since they are less likely to reason with confirmation bias, motivational factors and so on" (Solomon 230). This conception of analysis broadens the scope of the scientific community, and if we are to agree with Solomon, weakens the role of the individual in assessing what counts as knowledge in science.

Until now we have not seen the explicit connection between empirical successes and biasing factors. "The effects of 'biasing factors' are essential for scientific progress and internal to scientific disputes. It is rather that social empiricism encourages such factors when they magnify and transmit the effects produced by empirical successes and stimulate the production of more empirical success" (Solomon 230). Social empiricism allows for social factors inherent in the scientific community to actually play a positive role towards the progress of science. Without reducing science to any linguistic or historical analysis, Solomon has devised a framework that encourages scientists and academics to include bias without falling prey to weak scientific theories based solely on social factors.

The final point we need to assess in terms of Solomon's argument is how does social empiricism fit in with the historical progress of science? We should look at an account of rationality in light of knowledge production. By doing so we have to remember that the men and

women of science engage in their activities within a historical and social framework as rational actors. Science is based on its own historical developments. Some of which occur over scores of years, such as the Copernican revolution, some seemingly overnight, e.g., human cloning (of course this is a bit of an over-simplification, but it serves its purpose in comparison to the length of time during which the Copernican revolution occurred). As Holzner and Marx argue “The cultural imperatives of science, as well as the social structure of scientific institutions, promote not merely generalized skepticism but provide incentives for the systematic and rational critique of explanations already advanced”(Holzner, Marx 195). Science as a systematic structure entails that scientist depend on evaluations of theories previously understood under different circumstances. As theories are developed they are open to revision. If we recall Solomon argued that all empirical successes should be available to the scientific community for the very same reasons. Incentives should exist for scientists to undertake rational critiques of all theories in order to guarantee that weak theories might possibly be rooted out. In this sense any theory that might have been conceived by an individual, and perhaps even accepted by one or two individuals who were authorities on such a theory, does not entail that that theory will survive historical and epistemic analysis.

The most appealing theory that coincides quite well with Solomon’s social empiricism is Lakatos’ scientific research programmes. Lakatos proposes that any domain of science is not predicated on one theory. “Lakatos begins by denying that isolated theories are the appropriate units of appraisal; what ought to be appraised are clusters of interconnected theories or ‘scientific research programmes”(Blaug 143). Notice that social empiricism is an attempt to avoid bias by distributing biasing factors over the largest range of researchers possible. Now take into account that if we accept this preliminary formulation of Lakatos’ theory, then there appears to be at the

very least acceptance that scientific theories are dependent on groups of researchers in order to be workable theories. What we are most concerned with is the normative component of social empiricism, which entails that science itself, should be progressive. We should really become a bit clearer about certain aims in science such as progress if we are going to understand the implications of social empiricism.

There is one salient feature of scientific research programmes that is relevant to our topic at hand. Scientific theories should always be considered re-workable if not for any other reason then for the fact that re-working theories allows for the possibility that there is never any bedrock set of facts about the world that are consistent with the entire history of mankind. Without going into the details and nuances of scientific research programmes “For Lakatos, therefore an SRP is not ‘scientific’ once and for all; it may cease to be scientific as time passes, slipping from the status of being ‘progressive’ to that of being ‘degenerating’ but the reverse may also happen”(Blaug 143). This is really the whole point in for those who argue that science should be progressive such as Solomon. Science must be open to revision if it is to be progressive at all.

Through his detailing of sophisticated falsificationism Lakatos demonstrates how a series of theories adds to the empirical content of science. “Let us say that such a series of theories is *theoretically progressive* if each new theory has some excess empirical content over its predecessor, that is if it predicts some novel, hitherto unexpected fact”(Lakatos 21). If we were to thoroughly dissect our earlier discussion of plate tectonics we would find that such a theory is comprised of several theories. Through the progression of these theories the scientific community gained more and more evidence to support the claims entailed in plate tectonics. Note that it was a successive theory of wide ranging empirical success that lead to the eventual

acceptance of plate tectonics. At no time was one individual in place to dismiss or accept the theory as a whole.

Again I want to emphasize that by including all empirical successes science will achieve the goals of progress by analyzing all competing theories. For Lakatos, “falsification is *not* simply a relation between a theory and the empirical basis, but a multiple relation between competing theories, the original ‘empirical basis’. And the empirical growth resulting from the competition”(Lakatos 22). Remember that the goal of science for many philosophers of science, and of scientist too I would imagine, is to increase the empirical content of theories. Through strategies devised by scientific communities, the biases experienced by a one or two individuals engaged in research are minimized through community consensus. In this manner as science proceeds historically and with the open possibility of revision, the empirical content of science will grow and thus science will progress.

We are nearing the completion of our tour here today, so as promised, I will address the claim that Solomon’s argument certainly has significant merit in that science certainly progresses through communities and not individuals. Although individuals are constitutive of scientific communities, arguments such as Longino’s don’t seem to eliminate Solomon’s account for the evaluation of scientific progress based heavily on group rationality and consensus. “Assessments should be made primarily of communities and only derivatively of individuals”(Solomon 226). Solomon’s suggestion here seems rather fruitful in light of our analysis up until this point. Yet, something doesn’t feel quite right in assuming that we shouldn’t evaluate individual epistemic factors along with group factors.

One weak point that we have not addressed concerns the idea of communication. Regardless of the research community one belongs too, those involved in that community must

all communicate on some individual basis. “One mechanism of central importance in early as well as in contemporary science, as revealed in the importance of proper communication and the stress of the reliability of research results, is the reciprocal exchange of information among scientific workers” (Holzner, Marx 190). Granted the aggregate of individual communication eventually becomes available to an entire community. The initial communiqués of each individual researcher, scientist, graduate student, what have you, are all predicated on the reliability of each individual as a rational actor within a specific community to communicate effectively. By effective communication I would include as honest appraisal of empirical findings as possible. Along with this effective communication one should presuppose that the aims of each scientist are fairly similar to at least those within the research group, or at the very least researchers in a group should understand the others aims and methods. Say one research group is plagued by ineffective communication. Constant miscommunication might slow certain individuals who rely on other individuals down. If communication between respective individuals is not effective then it is possible that science will begin to fall behind in the terms of progress set forth by Solomon.

Another problem we encounter with Solomon’s theory is the case of the individual expert. Take the case of an unequal distribution of expertise within a scientific community. Within every group no one individual possess the exact same knowledge that other individuals possess. This line of inquiry might prompt a question such as how are we justified in accepting the claims of another individual. Can we guarantee that their status as a so-called expert grants enough support to the claim to consider that experts claim reliable. In the end there does seem to a lingering doubt that we can simply marginalize individual epistemic claims in the scientific community.

Hopefully, in the future I will examine some theories that are concerned with expertise, and will come to find that individual rationality should indeed play a role in evaluating epistemic norms for science. On a final note it must be said that if we can somehow work in individual rationality with social empiricism, then we might have a rather robust working model of normativity and not merely a framework, perhaps we would have the most social epistemology.

Bibliography

- Blaug, Mark. "Kuhn versus Lakatos or Paradigms Versus Research Programs in the History of Economics" in G. Gutting, ed., Paradigms and Revolutions (Notre Dame-London; University of Notre Dame press, 1980) pp.180ff
- Goldman, Alvin. "Social Epistemology" Stanford Encyclopedia of Philosophy. Online. Internet. March 16th 2003.
Available: <http://plato.stanford.edu/entries/epistemology-social/#4>
- Holzner, Burkhard. Marx John h., *Knowledge Application the Knowledge System in Society*. Boston, Massachusetts: Allyn and Bacon Inc. 1979. pp.190-195
- Lakatos, Imre. "Falsification and the Methodology of Scientific Research Programs", *Readings in the Philosophy of Science*. Edited by Theodore Schick, Jr. Mountain View, California: Mayfield Publishing Co. 2000: pp. 20-25
- Longino, Helen "Conclusion" (Ch.9), *The Fate of Knowledge*. Princeton 2002
- Solomon, Miriam. "A More Social Epistemology," in Fredrick F. Schmitt, ed. *Socializing Epistemology*. Rowman and Littlefield. 1994. pp. 217-233
- Ziman, John. "What is Science", *Introductory Readings in the Philosophy of Science*. Edited by E.D. Klemke, Robert Hollinger, and David Wyss Rudge. New York: Prometheus Books 1998: pp. 48-53