

Five Questions

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Why were you initially drawn to epistemology (and what keeps you interested)?

I have the honor to be invited to this series for a second time. The first time, in its very first volume on Formal Philosophy, I told how I became determined to study philosophy when I was 16. So, let me add another bit of autobiography.

It is common for adolescents to approach philosophy via practical philosophy. One wants to know what is good and bad, right and wrong, one seeks guidance. I was no different. I recall having written a very idiosyncratic tractatus on the logic of volition (in retrospect a strange thing to do after the high school diploma). This interest continued till the present day, as is reflected in my master thesis on dyadic or conditional deontic logic (containing a correctness and completeness proof of an axiomatization of that logic discovered simultaneously with David Lewis' *Counterfactuals* (1973), but published only as Spohn (1975), my first publication), in my dissertation (1976/78) on decision theory, and in my ongoing work on decision and game theory and practical rationality in general.

How, though, could I not get interested in epistemology, with Wolfgang Stegmüller being my teacher and Rudolf Carnap being my philosophical hero at that time? I had the great luck of being employed by Stegmüller at a research project on de Finetti's philosophy of probability when I was 21. There, I just learned so much about that philosophy and the accompanying mathematics (and was even paid for it). Since then I keep claiming that probability theory is as important to philosophy as logic, a message not well respected by our curricula.

Another point I recall to have been important was that I concluded from my master thesis that the volitional or deontic side needs to be complemented by the doxastic or cognitive side; the former cannot be pursued independently of the latter; and the really interesting issue is the interplay of the theoretical and the practical attitudes. This interplay could apparently not be stated on a qualitative level. This is how I came to study decision theory in my dissertation (1976/78). Since decision theory is deeply entangled with issues of causation, I got ever more entangled, too, and finally wrote my Habilitationsschrift (1983) about causation. Thus, I moved more and more to epistemology. Or rather, my interest in theoretical philosophy in general became the dominating one which also covers philosophy of science, philosophy of language and mind and ontology and metaphysics.

What keeps me interested? Even the basics of many epistemological issues are in an unsatisfactory state. There are simply so many things left to do (see also below).

What do you see as being your main contributions to epistemology?

Ranking theory, of course. I remember the day in April 1982 when I finally knew how to do it; in retrospect I am surprised how difficult it was to come up with so simple a structure. It then formed a cornerstone of my Habilitationsschrift (1983) about causation. There, my aim was to reunite the theory of causation that seemed to have fallen apart into a deterministic and a probabilistic branch, with little communalities and communication in between. I felt that the probabilistic branch was much more advanced, roughly because of its much more sophisticated treatment of relevance relations provided by probability theory that found no counterpart whatsoever on the deterministic side. Ranking theory was designed to achieve the very same in the deterministic realm. Since then I keep claiming that there is a theory of causation that works exactly the same way for the deterministic and the probabilistic domain. This is a claim I still deeply believe in, though it has not been widely perceived. One reason may have been that the resulting theory of causation looked so dissuasively subjective; but that would be a misperception. The other reason certainly was that the theory of deterministic causation was dominated by the counterfactual approach and that the philosophers working within that approach did not take much notice of ranking theory, perhaps

also because of my bad publication policy. I am confident this will change.

Well, what is ranking theory? This is certainly not the place for an introduction; I refer to my first English publication on the topic, Spohn (1988), and to the survey article Spohn (forthcoming *a*). One noteworthy fact is that initially I had given it a silly name, “the theory of ordinal conditional functions”, and that I happily accepted the advice of Judea Pearl and Moises Goldszmidt in the early 90’s to call it by the present name. The other noteworthy fact is that it is a theory of belief (or disbelief), in fact, as I claim, the only adequate, fully dynamic theory of belief (that is, contrary to appearances, *not* provided by belief revision theory, as I realized after a long struggle finally giving birth to ranking theory). *Could there be anything more central to epistemology?* (As long as one does not speak of knowledge; for some remarks on the theory of belief and the theory of knowledge see below.)

There is the beautiful book *The Probable and the Provable* by Cohen (1977) (which I did not know at that time) which expounded a far-reaching parallel or dualism between, well, the probable and the provable (not in the logical or mathematical, but rather in the juridical sense), between what he called Pascalian and Baconian probability in Cohen (1980). I like the latter terms very much. Of course, “Baconian probability” is a euphemism. There never was a theory of Baconian probability; Pascalian, genuine probability is centuries ahead. Alternatives, something like a formal theory, started only with Shackle (1949), and I feel that ranking theory finally established Baconian probability as a full, independent, and most fruitful theory. (It did so, I think, by transcending the predecessors by a hitherto unexplained notion of *conditional ranks* on which all the dynamic theorizing depends.)

I said that ranking theory is *the* theory of belief (or disbelief), and I mentioned causation as one important application. This may be reason enough to value this theory. What makes me really fond of it is its far-reaching parallel to probability theory that carried a 25 years long and nowhere exhausted research program. I knew about the parallel from the outset (see my remarks above about causation). So, the obvious move was to translate important and beautiful facts about probability into ranking theory. This looks like an automatic procedure, a simple working program. In some way this is true, although one must always reckon with mathematical niceties. The fact, however, that even surprised me was that the translation always resulted into something meaningful and im-

portant, something providing new insights into long-standing issues in philosophy of science and epistemology. Indeed, sometimes it was the other around. I thought about the issue, found a way of treating it with ranking theoretic means, and then noticed that this treatment parallels something well known from probability theory. If this is true, my enthusiasm is so as well.

What I have just indicated raises the deep question of the relation between probability and ranking theory, again an issue which I cannot discuss here and for which I have no conclusive response. There is a formal unification (cf. Spohn (forthcoming *a*), sect. 3.1) the substantial sense of which still escapes me. Therefore, my attitude has always been what I call methodological separatism that may not be satisfying, but is, I think, the best we can do. The simple fact is: belief and probability do not easily mesh, and no one has a good idea how they do. (Well, Isaac Levi is closest to such ideas, but I have doubts about his program; cf. Spohn (2006).) However, despite apparently unbridgeable gaps the parallel works, as indicated, in a most fruitful way. Of course, there are characteristic differences as well. On the negative side we find that decision theory, or practical reasoning in general, is a probabilistic affair. The best ranking theoretic analogue I know of is Giang, Shenoy (2000), but I am still unsure whether it makes more than formal sense. Secondly, we there find statistics, of course. However, on that score the difference is not so large as it may seem; there are quite a number of phenomena in science that are better treated in a ranking theoretic than in a statistical way; and the relation between statistics and ranking theory may be closer than expected (cf. Hild, to appear). On the positive side we find that ranking theory is a theory of belief, a notion probabilistically inexplicable (as the lottery paradox shows), that is related to truth in a way in which subjective probabilities are not and is thus connectible to all of traditional epistemology in a straightforward way. I do not say that probability and ranking theory are on a par. How could they after probability theory alone fills libraries? But if we find that probability theory has a little sister that can do many things equally well and some things even better than the big sister, this would be more than a surprise.

This is, by far, enough of self-advertising. Let me rush on.

What do you think is the proper role of epistemology in relation to other areas of philosophy and other academic disciplines?

First to philosophy! A preliminary rough grip on the history of philosophy divides the philosophical eras according to their leading discipline of theoretical philosophy; ethics never changed its importance. In ancient times metaphysics and ontology formed the *prima philosophia*; this is still true of the medieval times. In the 17th century, with the Enlightenment, epistemology took the leading role. And in the beginning of the 20th century we experienced the linguistic turn; philosophy had to first look at meanings and to start with philosophy of language. This era lasted for a surprisingly short time. (Well, perhaps not surprisingly; the number of philosophers grew exponentially, and so the length of philosophical eras might be expected to diminish exponentially.) I date its end with Kripke's *Naming and Necessity* and his rearrangement of modalities, others may date it with Rawls' *Theory of Justice* and his return from metaethics to material ethics; there is no sharp transition, anyway. (But let me hasten to add how glad I feel to have grown up in the era of philosophy of language; it had to teach so many invaluable lessons.)

And today? There is no longer any primacy of one discipline over the others; that would be presumptuous. Epistemology is just one central discipline of theoretical philosophy; metaphysics and ontology, philosophy of language and philosophy of mind are others; logic is a presupposition of all of them; and still others I find less central. However, I have a picture how the central disciplines relate:

Philosophy of mind falls into two parts. On the one hand, there is the mind-body problem. I tend to subsume it under ontology; after all, the main stances towards it, various forms of dualism and monism, are all ontological positions. On the other hand, there is the problem of intentionality; this is perhaps the most common label. It concerns the representational capacities of the mind, the nature of contents, the status of meanings; and it is the one justifying speaking of the philosophy of mind *and* language. So, in this extended sense we are left with ontology, epistemology, and philosophy of language. And the picture I have in mind relates these three fields:

In my view, their relation is founded by two-dimensional semantics. This is a line of research deeply suggested by Saul Kripke and Hilary Putnam, definitely started by David Kaplan and Robert

Stalnaker, with discontinuous progress and presently with devoted disciples (like David Chalmers) in a largely skeptical or ignorant environment; its shape is not too good, and not too bad. I am one of its determinate defenders, too. Intensions, “senses”, had a determinately epistemological character from Frege onwards. With Kripke and his predecessors like Ruth Barcan Marcus and Dagfinn Føllesdal intensions took on an ontological character. Two-dimensional semantics started with the insight that there are two different notions of an intension (of a linguistic expression). And it proposed to integrate these two notions into one scheme. Thus, the meaning of a linguistic expression became two-dimensional; its extension became doubly dependent, dependent on an ontological and on an epistemological dimension, on two dimensions of possibility, ontological and epistemological possibility. How precisely this double dependence should be construed is deeply contested. Still, I firmly believe into the truth of the basic scheme. It provides a fundamental connection between ontology, epistemology, and the theory of meaning. Whether it entails a primacy among these fields is not really of importance. My view is that one needs to develop ontology and epistemology and to pursue the consequences for the philosophy of language via the two-dimensional scheme. (For more on my picture, see Spohn (forthcoming b), introduction and chapters 14 and 16.)

Did I forget about metaphysics? It is not so clear what “metaphysics” presently denotes. Sometimes, it is taken as tantamount to ontology; and then it is part of the scheme indicated. Sometimes, it is taken to go beyond ontology in various ways. I shall comment on some of these ways below.

What is the relation of epistemology to other academic disciplines? This is, in a way, by far the more important issue; it addresses long-standing jealousies and misunderstandings between philosophy and the sciences. The basic issue is: who is first, the hen or the egg, philosophy or the sciences? Sciences seek knowledge; but then epistemology must first tell what that is and how to do it. Or the acquisition of knowledge is one of the many processes in the world that need to be studied by science. This opposition was paradigmatically exposed in Quine’s famous essay *Epistemology Naturalized* and dissolved in favor of the naturalistic attitude.

The traditional version of this issue or opposition is this: Science makes knowledge claims, and they have to be justified. To some extent, this justification may refer to other knowledge claims; ultimately, though, this must be avoided, on pain of circularity. It

is epistemology which is the judge of those claims, and it must be so on an a priori basis; otherwise, we would fall back into circularity. Very well. But then one looks at the poverty of centuries of aprioristic epistemology and thinks, as Quine did, how weird this conception is. No wonder how *in* naturalized epistemology presently is.

As I said, however, this is a big misunderstanding. Of course, naturalized epistemology is most valuable. We need to study how cognition actually works. This is not an inquiry confined to psychology and neurophysiology. It needs to be, and actually is, carried out on all human levels; it has not only an individual, but also a social and indeed a huge historical dimension. And many are working at it, from the biochemist to the historian of ideas. Philosophy always contributed to it. How else, for instance, can it be understood when Hume is widely admired and extensively quoted even in not so old teaching books of cognitive psychology as the founder of associationist psychology? In fact, naturalized epistemology had not been invented by Quine. For instance, the famous Austrian biologist and ethologist Konrad Lorenz has proposed an evolutionary reinterpretation of Kant long before (see Lorenz 1941).

We may grant all this. This is not to grant, however, that aprioristic epistemology would be meaningless or fruitless or superfluous. On the contrary, it is of the same importance as naturalized epistemology. It only needs to be properly understood.

There is a deep philosophical dispute how apriority is to be adequately explained. I can certainly not engage into it here. Let me only state my favorite explication: A feature of a doxastic state is *unrevisably a priori* if and only if all doxastic states capable of having it necessarily have it. (This is accompanied by a twin notion: A feature of a doxastic state is *defeasibly a priori* iff all initial doxastic states have it – where all depends on explaining initiality. But let us not pursue the twin notion.) So, in general it is such features that are a priori. That a proposition is believed in a doxastic state is a possible feature of the state. Hence, more specifically, a proposition is a priori iff it is necessarily believed in all doxastic states grasping it. (Note, by the way, how much better ranking theoretically conceived doxastic states are able to substantiate this definition than probabilistically conceived.)

It seems that this cannot be taken literally. People believe all kinds of nonsense and do not believe the most obvious things. So, hardly anything survives as a priori. However, this is not how the

explication is to be read. It only refers to all *rational* doxastic states that conform to the principles epistemic rationality. Not that this would be clear. But it shifts the discussion to its proper place. There is not only naturalized epistemology, there is also *normative* epistemology that tells us what we should rationally believe or, more generally, how our doxastic states should rationally be. *The normativity is the source of the apriority*. Of course, the content of the rationality is disputed and thus also the extension of apriority. How could it be otherwise? However, it is a legitimate dispute, and it is one about apriority.

Indeed, no one can doubt the legitimacy of normative epistemology. All scientists should welcome it since they are great practitioners of normative epistemology. All life long we face the question: what should we believe? Usually, this is a matter of course, but in complex epistemic situations some explicit guidance is most helpful. Such situations particularly obtain in the sciences. Each discipline has an elaborated methodology how to epistemically proceed; and methodology is normative through and through.

There is a lot of truth in the slogan: methodology follows content. Therefore scientists tend to become nervous when confronted with general principles by philosophers; they feel intruded into their domain of competence. However, the slogan cannot be the whole truth; there must be a rule how methodology follows content, and that rule cannot depend on content in turn. In other words, there must be a priori epistemic norms; epistemologists try to find out which they are; and of course they have to relate their findings with scientific practice, if only hypothetically, not apodictically. Normative theorizing is no less difficult than empirical research. Unlike cognitive science it is not an interdisciplinary enterprise, though; with the exception of statisticians philosophers are left alone, perhaps because empirical scientists hardly dare talking of normativity.

My basic point should be clear by now. There is no opposition whatsoever between aprioristic and naturalized epistemology. On the contrary, they necessarily and easily coexist. The reason is that epistemology is subject to both perspectives, the empirical and the normative, and that the a priori principles or features derive from the normative perspective. As things stand, the empirical perspective is mainly pursued in the cognitive sciences (although philosophers also engage in something like experimental philosophy), and the normative perspective is mainly pursued by philosophers. This is how epistemologists and scientists remain

bound to inform each other.

What do you consider to be the most neglected topics and/or contributions in contemporary epistemology?

In my first contribution to this series I already made some general remarks about the well- and malfunctioning of historic memory in philosophy. In general, my complaints are little. In particular, I am not aware of any badly neglected topics or contributions in epistemology. I have three concerns, however:

The *first* concern is about the relation between the normative and the empirical perspective on epistemology I just spoke about. I find that normative epistemologists are too defensive about their mission, maybe because they are not trendy and to some extent marginalized, maybe because they have too weak a notion of their own potential. I am convinced that the normative perspective is much richer than it presently shows and that big progress concerning content and systematization lies ahead of us. In any case, I always perceived ranking theory as a decidedly normative enterprise, and I try to offer some new views from the normative perspective.

On the other hand, I find naturalized epistemology and cognitive science too dismissive about the normative perspective. I know we live in the era of neuroscience. The public is all too prone to believe in its benefits, and neuroscience skillfully exploits this favorable situation; this is not blameworthy. However, its representatives have adopted a style of exaggeration and a level of promise (at least in their public statements) that I find quite annoying; these promises won't come true. Moreover, I am alienated by the atheoretical, if not antitheoretical attitude to be found there. This cannot work; cognitive scientists should recognize all the theoretical work that is around, even if they cannot directly use it.

More to the point: It should be clear that the empirical perspective on epistemology cannot be completed without the normative perspective. Rationality is normative, in the first place. However, it is also an empirical ideal. What is going on empirically can ultimately not be understood without reference to this ideal that is provided only by the normative perspective. This is my basic reason why cognitive science should respect normative epistemology even in its own interest and why normative epistemologists should be more offensive.

My *second* concern is that I perceive a great schism in epistemology, namely between traditional and formal epistemology,

(although this is almost as crooked an opposition as that between analytic and continental philosophy) or between a theory of knowledge and a theory of belief. These are obviously two different distinctions that must not be confused. Still, the factual overlap between them is large. This is indeed the crux.

Epistemology centers around two fundamental notions, knowledge and belief. Of course, they are related, the starting point being the “justified true belief” analysis of knowledge, even if it is to be rejected or amended. To some extent, though, they can be studied independently. Under the heading “belief” one must attend to degrees of belief, something foreign to knowledge discussions, and to the relations to perceptual input and behavioral output, etc. Under the heading “knowledge” one tends to focus on such topics as justification, on the relation between belief and truth, and perhaps on apriority (because what is a priori is always supposed to be knowledge), etc. This is legitimate.

What worries me is the fact that these studies are pursued in almost disjoint communities cultivating different philosophical styles and languages, different references to the history of philosophy, different attitudes to formal methods, and so on. I see little understanding and even less communication between the communities. This is definitely to the detriment of epistemology. If I have to take side, I would count myself among the “belief theorists”, and when I read texts from the “knowledge camp” I often find them despairing and hopeless. Still, I see the urgent need to bring and keep the communities together. Ranking theory may be seen as my contribution to do this. In any case, the issue is worth of our joint efforts.

My *third* and final concern is the relation between ontology / metaphysics and epistemology. For me, this topic is the most confusing, the deepest, and the most pressing, the climax of theoretical philosophy we must reach. Theoretical philosophy during Enlightenment is characterized by a thorough-going epistemologization of ontology/metaphysics – I mentioned already that epistemology then became the prime discipline – and Kant’s transcendental idealism brought this process to perfection. This was most insightful, and a terrible mistake at the same time, that started long before Kant, of course. The mistake held philosophy in its grip for a long time. For me it was vanquished only with Kripke’s rearrangement of modalities and his reestablishment of genuine metaphysical necessity and with Putnam’s proclamation of realism. What the insights to be preserved have been is, however,

not so clear. Putnam soon started vacillating and invented various forms of soft realism. Sellars' and Strawson's great efforts to familiarize analytic philosophy with Kant did not have resounding success, it seems to me. Brandom's similar efforts with respect to German idealism are still too fresh. And so on.

These are all efforts to come to terms with the relation of ontology/metaphysics and epistemology, on the presupposition that there is no simple answer saying either there is no relation at all or there is a uni-directional relation (as metaphysical realism or idealism would have it). There are quite a number of further attempts beyond those just mentioned. To call all of them idiosyncratic is not meant pejoratively. It only means that they go different ways in a most uncertain terrain and are difficult to compare and assess. As I say, though, this issue is our ultimate task as epistemologists we must never lose sight of. We must prove worthy of our problems.

What do you think the future of epistemology will (or should) hold?

Let me be brief. As I had noticed with embarrassment, I had produced the longest contribution to the first volume of this series. I do not want to repeat this.

The future of mankind may be dark, but the future of epistemology is definitely bright. As long as mankind exists, it will be deeply engaged in epistemology; this is our reflective nature and our fate. Even on shorter terms, I can only foresee epistemology prospering. And it would prosper even more, if epistemologists would take my three concerns above to their heart.

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