Clarifying Testimonial Independence
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Frank Zenker's "reply" to my article on the inference of knowledge from multiple testimonies is more of a clarifying restatement and a rejoinder. It mostly puts in even more precise terms the main ideas of the article. I cannot offer therefore much of a "reply to the reply," but a clarification to a clarification.

Frank notes correctly that the major innovation of the article is the development of a new concept of testimonial *independence* distinct of, and irreducible to, causal and conditional screening. The reason for this reconceptualization of independence is pragmatic, it works better, it is more useful for the inference of knowledge from multiple testimonies. Consequently, experts who specialize in the inference of knowledge from testimonies assume and use it, whether or not they conceptualize it abstractly.

A Third Way for Social Epistemology

In effect, I offer a methodological "third way" for social epistemology, to supplant the thought experimental and formal methods. Similarly, the philosophy of science advanced by studying paradigmatic cases of scientific knowledge that it described, or explicated, or explained, and generally fitted. I suggest that social epistemology can follow this method by modeling what the best experts in the inference of knowledge from multiple testimonies do. Almost everything we know about the human past, history, is via inferences from multiple testimonies. Human intelligence (HUMINT) analysts, detectives, and investigative journalists use similar methods to historians. Formal models should fit the best practices of these experts. Thought experiments can be useful and economic in simple cases. But when the experiments make otherworldly or implicit assumptions or are complex, their results are indecisive because they generate conflicting intuitions. Even when thought experiments are clear and decisive, examining real natural experiments rather than hypothetical contrived ones may be an easier and more reliable method for reaching the same results.

I argue that the inference of knowledge from testimonies is from the *information* they transmit, rather than from their propositional content, though there is much overlap. Transmitted information can contradict propositional content. For example, when a testimony is followed by a wink, or has patently false parts that the testifier knows the receiver would detect to discredit the content of testimonies exacted under duress, or when a polygraph attached to the testifier attests that the testimony is false. Silence, the absence of any propositional content, can also transmit information in a context, e.g. admission of guilt.

There are also sentences with propositional content that do not transmit any information. For example, when a testifier would give exactly the same testimony irrespective of context, like a politician who stays on message or a biased bigot who would scapegoat the same group (Mexicans, Jews, Moslems etc.) for anything anywhere. Frank mostly sticks with the information ontology of the article, but occasionally he drifts to talk of

propositional content, though prevalent in received epistemologies of testimony, I reject its significance.

Testimonies as Information

Frank suggests that the interpretation of testimonies as information coherent or not, and consequently inferences drawn from the degree of coherence, are based on intersubjective agreements that are less than objective and certain. I argued recently that agreements may be explained by expertise in the sense of special knowledge and impartiality, and that this hypothesis can be shown to be more probable than the alternatives, coincidental agreement or bias, by using the Neyman-Rubin method, thus merging social epistemology with social science.[1]

I also argued that after the identification of areas where expertise probably generates knowledge, it is possible to remove the social scientific "scaffoldings." Once epistemologists can study "internal" methods that generate knowledge reliably and their epistemic and theoretical assumptions, epistemologists do not need to rely on "external" social indicators of knowledge such as special kinds of consensus or agreement. This conclusion applies also to the epistemology of testimony. Intersubjective expert (historians, analysts etc.) agreement on the interpretation of testimonies and the inference of knowledge from them indicated fallibly the likelihood of a reliable procedure for the inference of knowledge from testimonies. Once epistemologists study this procedure, as I have, I do not think it is necessary to rely on expert agreement. The coherence of information in its mathematical (e.g. Bar Hillel's) sense can at least in principle be theorized, formalized, and even mechanized in computer software.

The epistemology of testimony I proposed is founded on the inference of the existence and some of the properties of a common origin from its information preserving receivers. The inference of common origins of species in phylogeny is another type of such inference.[2] The distinction between phylogeny and the epistemology of testimony is not just in their application to different domains, but in relying on different information transmission theories. DNA transmitted from genome to genome across many generations is governed by different information transmission theories than the transmission of words from person to person. Still, at least in principle, it should be possible to reach a level of objectivity in the inference of knowledge from testimonies that is commensurable with that of scientific inferences in phylogeny.

Frank notes correctly that the inference of knowledge from multiple testimonies is difficult because the necessary "evidence 'need not be cheap to come by '… to offer an understatement …' correctly evaluating the probability of any such hypothesis faces all genuine issues of evaluating the inductive support that data lend to hypotheses." Sometimes, when there is insufficient evidence to lower the probability that testimonies cohere because they had separate sources of information that were tokens of the same

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[1] Aviezer Tucker, in Carlo Martini and Marcel Boumans, eds. 2014, 155-170.
[2] I made this argument in: Aviezer Tucker, *Our Knowledge of the Past: A Philosophy of Historiography*, 2004.

type (e.g. all the witnesses hated the accused for different reasons and wished to frame him but there is no evidence for it) or to establish their independence (e.g. it was possible for them to meet and exchange information without leaving evidence for it) it is impossible to generate much knowledge from multiple testimonies.

In other cases the inference requires great skill, the use of appropriate theories about the transmission of information from person to person sometimes in institutional settings, and epistemic diligence in looking and knowing where to look for relevant evidence for the transmission of information, e.g. in which archives. For this reason, the inference of knowledge from testimonies is a profession (e.g. a historian, a human intelligence analyst, an investigative journalist & etc.) that requires study and apprenticeship. Since to a large extent expert knowledge of how to infer from multiple testimonies is tacit, the task of the social epistemologist as a social scientist is to make that tacit knowledge explicit; most explicit in a formal model, which I attempted in this article.

Knowledge and Inference

Finally, Frank doubts whether the result of the modular model of inference I presented can be called knowledge: "At low knowledge thresholds, of course, lots can pass for knowledge that might not be. And that may matter, too! In some of the jurisprudential literature, for instance, numerical likelihood ratios, n, are endorsed as sufficient for a judge or jury to convict a suspect on circumstantial grounds, i.e., when the assumption of the suspect's guilt must make the available evidence n times more likely than when assuming her innocence." Indeed, American legal procedures that follows different evidential standards for criminal and civil cases can lead to inconsistent results. To take celebrity cases as examples, Robert Blake and O. J. Simpson were at the same time innocent and guilty of murdering their wives according to criminal and civil law respectively, though obviously their innocence and guilt cannot be both true. If one feels comfortable with epistemic contextualism, as I do, this counterintuitive result has acceptable philosophical solutions. If not, then vice versa. Be that as it may, the epistemology of testimony does not raise in this respect new issues that are not addressed already in the debates about epistemic contextualism and Bayesian epistemology.

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