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Expert Assertion and Knowledge

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Jennifer Lackey argues that knowing that *p* is not sufficient for being epistemically properly positioned to assert that *p*. Where that knowledge is entirely second-hand and the subject is an expert, the subject is not properly positioned to make such an assertion—since experts are held to higher epistemic standards. We reject Lackey's argument. In particular, we argue that the division of labour in science makes isolated, second-hand assertions by experts both inevitable and frequent.

Keywords: assertion; knowledge; expertise; Jennifer Lackey

1. Introduction: Lackey on Expert Assertion and Isolated Second-Hand Knowledge

A knowledge norm for assertion is sometimes phrased thus (DeRose 2002: 180):

> KNA One is [epistemically] properly positioned to assert that *p* if and only if one knows that *p*.

Some reject KNA because they reject its left-to-right implication, holding that one can be properly positioned to assert that *p* without knowing that *p* (Weiner 2005, Douven 2006, Lackey 2007, Kvanvig 2009). Jennifer Lackey holds also that one should reject KNA because she rejects the right-to-left implication, *i.e.*:

> KNA-S One is [epistemically] properly positioned to assert that *p* if one knows that *p*.

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In Lackey's view KNA-S is false because under some circumstances, knowing is not sufficient for being properly positioned to assert that *p*. Such circumstances include cases of *isolated second-hand knowledge*, when possessed by someone who is an expert in the relevant field. In such cases, the subject knows that *p*, but her knowledge is second-hand—it comes solely from testimony, not from her own assessment of the evidence. And it is isolated in that *all* (or almost all) that the subject knows that is relevant to the truth of the proposition that *p* is what she learns from testimony. (Non-isolated second-hand knowledge would include a case where before receiving the knowledge-giving testimony, the subject had evidence that made it highly probable, but not known, that *p*.) Lackey holds that when one is an expert, one should not make assertions based on isolated second-hand knowledge, since as an expert one is expected to make assertions that draw on one's expertise; simply passing on what one knows from testimony is not to exercise one's expertise.

Let us summarize this position thus:

> EA One is not [epistemically] properly positioned to assert that *p* if (i) one is an expert with respect to the proposition that *p*; (ii) one's knowledge is second-hand; and (iii) one's knowledge is isolated.

Since experts can have isolated, second-hand knowledge, the truth of EA implies the falsity of KNA-S.

We reject EA—our principal reason for doing so is that it is inconsistent with the practice of science where the division of labour means that it is inevitable that scientists cite each other's work based on their testimony alone. We therefore reject Lackey's argument against KNA-S. But this paper remains neutral on KNA-S and KNA and is consistent with there being other kinds of argument against these principles, as we mention at the very end of the paper.[1]

Before we get to our argument against EA from the nature of science, we examine Lackey's argument for EA and against KNA-S. That argument depends centrally on certain vignettes where a subject, it is claimed, has isolated second hand knowledge that *p*, but where, intuitively, it is inappropriate for that subject to assert that *p*. We will look at one of these cases, *Doctor*, in detail below, as well as a second case, *Expert Panellist*, in a later section. As mentioned, Lackey's explanation for our intuitions is given by EA. We reject Lackey's argument against KNA-S which is based on these cases. If like us one rejects Lackey's argument, there are various routes one might take:

1. The two authors have differing views regarding KNA-S. AB accepts KNA-S whereas AH denies that it holds in all cases (see Section 7).

(i) Reject the claim that it is inappropriate for the subject to assert that *p*.
(ii) Reject the claim that the subject has isolated, second-hand knowledge. (Since the cases are constructed so that it is clear that the subject's belief is isolated and second-hand, this route will in fact amount to a rejection of the claim that the subject has knowledge at all.)
(iii) Accept the claims that the subject has isolated second hand knowledge, and that it is inappropriate for the subject to assert that *p*. But deny that this inappropriateness is due to any epistemic norm (and so deny that EA explains the inappropriateness).

Route (ii) is taken by Simion (2016) and by Anderson (2020). Simion holds that while Lackey claims that the quality of the evidence for the subject's beliefs in *Doctor* is inadequate, it is in fact the *quantity* of underlying evidence that is lacking—the subject lacks knowledge.[2] Anderson's more detailed argument is broadly similar in approach. Benton (2016) adopts a combination of (i) and (iii)—which one depends on quite how Lackey's cases are interpreted. In a brief discussion Milne (2012) adopts (iii). Lackey does have supporters. Montminy (2017) thinks that Lackey is largely right but the cases need improvement. DiPaolo (2022) argues that EA is true and a consequence of a broader epistemic norm that requires someone who is talking as an expert to have their knowledge grounded in their expertise. Carter and Gordon (2011) also think that Lackey is right about her cases because some assertions are governed by an understanding norm.

We adopt route (i)—we do not share Lackey's intuitions. So, after introducing Lackey's *Doctor* case in Section 2, we develop several cases where, in our opinion, intuitions point in the opposite direction and which show that EA is not correct. Of course, the falsity of EA does not entail that KNA-S is safe from the thrust of Lackey's argument. She needs only *some* cases to go her way. Some restricted version of EA might still true. There might be further conditions to add to EA that would exclude our cases. If so, the ball is in Lackey's court. She does not give any indication that EA might need restricting. And we surmise that adjustments needed to exclude all our cases will make the revised EA look ad hoc.

Although we do not share Lackey's intuition regarding *Doctor*, we acknowledge that she and at least some others do have these intuitions. And so we also adopt an element of strategy (iii)—in Section 4 we provide two plausible hypotheses as to why some readers might share those intuitions—explanations that are consistent with KNA-S.

2. Simion also holds that for some cases that are held to be counter-examples to KNA-S, *e.g.* in Brown 2010, there are non-epistemic norms at play that have epistemic content; *i.e.* route (iii) is appropriate for such cases.

Our arguments to this point, we maintain, weaken Lackey's argument, but it is still open to her to insist on her intuitions in *Doctor* and that they show that there are EA-like conditions on assertion inconsistent with KNA-S. So, we present two further arguments against Lackey's position which we do not think could be handled by any plausible restriction of EA. In Section 5 we show that her view has the paradoxical implication that S may be entitled to assert a proposition but not be entitled to assert a second proposition entailed by the first. In Section 6 we emphasize that instances of assertion of isolated second-hand knowledge by experts in the relevant field are ubiquitous in medicine and in science. Indeed those fields, which depend on the division of epistemic labour, could not operate successfully without such assertions.

2. Lackey's *Doctor* Case

Lackey (2011: 253) illustrates isolated second-hand knowledge with the following case:

> *Doctor* Matilda is an oncologist at a teaching hospital who has been diagnosing and treating various kinds of cancers for the past fifteen years. One of her patients, Derek, was recently referred to her office because he has been experiencing intense abdominal pain for a couple of weeks. Matilda requested an ultrasound and MRI, but the results of the tests arrived on her day off; consequently, all the relevant data were reviewed by Nancy, a competent medical student in oncology training at her hospital. Being able to confer for only a very brief period of time prior to Derek's appointment today, Nancy communicated to Matilda simply that her diagnosis is pancreatic cancer, without offering any of the details of the test results or the reasons underlying her conclusion. Shortly thereafter, Matilda had her appointment with Derek, where she truly asserts to him purely on the basis of Nancy's reliable testimony, "I am very sorry to tell you this, but you have pancreatic cancer."

Matilda's knowledge is a case of isolated second-hand knowledge. Lackey then states:

> The question we must now consider is whether, under these conditions, Matilda is properly epistemically positioned to flat-out assert to Derek that he has pancreatic cancer.

> And here the answer is clearly no. For, while Nancy's reliable testimony may be sufficient for Matilda's knowing that Derek has pancreatic cancer, and while its isolated nature may not pose an epistemic obstacle to this being the case, the isolated second-hand nature of Matilda's knowledge makes it improper for her to flat-out assert this diagnosis to Derek. One reason for this is that Matilda is an *expert*—she is an oncologist and Derek's physician, and such roles carry with them certain epistemic duties. In Doctor, these responsibilities may include having reviewed the test results first hand, possessing reasons for choosing one condition over another, knowing details about the size and nature of the cancer, and so on. But the overarching epistemic duty here is that, *qua* oncologist, Matilda should be able (at least partially) to explain or justify the diagnosis of pancreatic cancer that she is offering to her patient. (2011: 254–255)

Lackey's argument starts from her intuitive judgment in response to *Doctor* and similar cases, which, as we have just seen, she explains by the hypothesis that when the speaker is an expert she is subject to more stringent epistemic duties than a non-expert. These duties include a first-hand assessment of (at least some of) the evidence. And so an expert fails in her epistemic duties when she makes an assertion, even if she knows, if that knowledge is second-hand and isolated. This is the claim EA.

3. Cases Inconsistent with EA

In this section we present cases that are inconsistent with EA. These arguments focus on Lackey's idea that it is the role of the subject as *expert* that puts them in the position of not being able to assert what they know. We argue that this can be problematic, for someone can play more than one role with respect to a proposition that they assert. This might happen because the subject makes an assertion both because they are an expert and also because they fill some other, non-expert role. A different but related problem for Lackey arises because the same knowledge may be generated by different routes, using expertise and not using expertise.

GP Mary is a GP (general practitioner, family doctor). Her patient, David, is recovering from a viral infection. But he still feels unwell, so Mary orders some blood tests, fearing that he may still have the infection. The results, fully analysed, are returned to the GP's surgery. They tell a different story. Mary tells David, "you are anaemic—you have a low red blood cell count."

Mary is a medical expert, and her knowledge is second-hand (she is just reporting the lab results), and isolated (she had no independent indication that David was anaemic—the blood test was ordered for another purpose). But there is nothing wrong in what the doctor told the patient. So *GP* is a counter-example to EA.

EA might be refined to exclude the case of *GP* as a counter-example by denying that the GP is a sufficiently high-level expert. One reasonable way of maintaining the latter would be to point out that the GP is insufficiently expert to assess the bloodwork evidence for herself. So EA should be adjusted thus:

> EA′ One is not [epistemically] properly positioned to assert that *p* if (i) one is an expert with respect to the proposition that *p*, where someone is an expert with respect to *p* only if they are competent to assess the evidence relevant to *p*; (ii) one's knowledge is second-hand; and (iii) one's knowledge is isolated.

EA′ implies that someone who is competent to assess the evidence with respect to some assertion *ought* to have assessed the evidence themselves rather than leave that to someone else. But we do not see why that is the case. Consider the following case.

> *Haematologist* Sarah is a haematologist, an expert in anaemia and other blood problems. Jonathan's GP has concerns and refers him to Sarah who has ordered blood tests from the lab. Sometimes the blood test analysis is entirely straightforward, albeit time-consuming—it can be carried out with a very high degree of reliability by the laboratory staff (and increasingly by an automated system). But sometimes the analysis is not straightforward—the data cannot be interpreted to the highest degree of reliability by the laboratory staff. So the lab's practice is as follows. In straightforward cases, they send through to the expert haematologist (Sarah, in this case) the results only and no underlying data. There is simply no point in sending the underlying data because in every case Sarah would reach the same result in reviewing the data, and would have spent valuable time in so doing. But if the data are at all problematic, they are sent to the haematologist, who can then use their expertise in providing a specialist interpretation of the data. In Jonathan's case the analysis is straightforward and carried out by the lab, which reports the results to Sarah, who tells Jonathan, "you are anaemic—you have a low red blood cell count."

This would seem a perfectly proper, indeed laudable procedure. Yet, if EA′ is right and if Jonathan's blood test is a straightforward case and reveals anaemia,

Sarah cannot properly tell him that he has anaemia. That is intuitively incorrect. Surely Sarah can properly tell Jonathan the diagnosis, both in the complex case when she has reached the conclusion herself and when it is a straightforward case where the lab has done the work for her.

> *Expert Partner I* Samira and Hillary are partners. Samira is a haematologist and is at work reviewing a list of results of blood tests ordered by her department. She sees Hillary's name and the result, which says that Hillary has pernicious anaemia. She notes that the laboratory officer who carried out the analysis is someone she knows to be highly reliable. She returns home to tell Hillary the news.

Putting aside ethics, procedural propriety, and so forth, is Samira *epistemically* properly positioned to assert that Hillary has pernicious anaemia? Lackey's view implies that Samira is not in a position to make this assertion as a haematologist, but *is* in a position to make this assertion as Hillary's partner.

That result seems odd. But it might be responded that in this case, Samira is talking *only* as Hillary's partner. After all a clerical assistant might equally have seen the list with *their* partner's name on it and delivered the information as Samira as done. And so it really is only *qua* partner that Samira is talking to Hillary. So EA now needs to be refined thus:

> EA″ One is not [epistemically] properly positioned to assert that p if (i) one is an expert with respect to the proposition that p, where someone is an expert with respect to p only if they are competent to assess the evidence relevant to p; (ii) one's knowledge is second-hand; and (iii) one's knowledge is isolated, and (iv) one is asserting that p in one's role as an expert.

But we can have a version of the story in which Samira is asserting in both roles:

> *Expert Partner II* As *Expert Partner I*, and in addition Samira reasons as follows: "If I had seen Hillary's name on a list of diagnoses outside my specialism, say in oncology, then I would not have spoken to her. For it is important that whoever delivers the information can answer questions about prognosis and treatment options and so forth. In this case, I am an expert and can do those things. I've chosen to deliver the information myself rather than let the designated expert haematologist, Patrick do so, because I think Hillary will find the bad news less upsetting coming from me."

In this case Samira is asserting the news both qua expert and qua partner. And it seems *epistemically* perfectly fine for Samira to tell Hillary what she knows. That verdict contradicts both EA and its revision, EA″.

We are not sure how EA″ could reasonably be adjusted to account for *Expert Partner II*. The ball is in Lackey's court. We conjecture that all these cases, rather than showing that we need to find a further revision of EA, in fact show that EA and its kind are fundamentally flawed—being an expert does not imply any additional epistemic duties beyond those in KNA-S.

4. Intuitions

In Section 2 we presented Lackey's *Doctor* example, which, she claims is intuitively a counter-example to KNA-S. She explained why we have this intuition by appeal to EA. In Section 3 we presented cases which, we hold, pump our intuitions in the other direction, and which we hold to be counter-examples to EA. Our cases do not by themselves refute Lackey's case against KNA-S. It could be that there is some revision of EA that accommodates our cases while supporting Lackey's judgment regarding *Doctor*. We find it difficult to see what that is.

We, however, do not share Lackey's intuition. Unless we are outliers, *Doctor* is not enough to reject KNA-S. Nonetheless, we acknowledge that some readers do share Lackey's intuition. So in this section we provide two (mutually consistent) hypotheses that explain why that intuition might arise, hypotheses that are consistent with the falsity of EA.

First, Matilda may have violated some obligation other than EA. Before examining this, let us look at another of Lackey's cases:

> *Expert Panellist I (Smith)* In the wake of the Space Shuttle *Challenger* disintegration, the United States House Committee on Science and Technology conducted a hearing to determine the cause of the disaster. One of the experts called to testify at the hearing was John Smith, a manager at NASA. Though it was part of Smith's responsibilities to monitor the details of the shuttle operation, both before and after the accident, he has been preoccupied with personal problems and has thus been negligent in carrying out his official duties. On the morning of the hearing, Smith met very briefly with one of his co-workers, who told him only that the cause of the shuttle's disintegration was the failure of an O-ring seal at liftoff. Despite the fact that Smith is not privy to any of the data or reasoning underlying this explanation, and has only his co-worker's reliable testimony to ground his belief, he truly asserts at the House Committee hear-

> ing, "The Space Shuttle *Challenger* disintegrated because of the failure of an O-ring seal at liftoff … ." (Lackey 2011: 253–254)

According to EA, Smith should not have asserted "The Space Shuttle *Challenger* disintegrated because of the failure of an O-ring seal at liftoff" since he is an expert and his assertion is second-hand and isolated.

Compare Lackey's case with one of ours:

> *Expert Panellist II (Jones)* The United States House Committee on Science and Technology is conducting an inquiry into the building of new nuclear power plants of an advanced design, which involves sealing radioactive gas at high temperatures and pressures. Jada Jones is an expert in this kind of technology and has been asked to testify as regards the safety of the specific design. She says "This design uses O-rings. While a much-used technology, it is prone to catastrophic failure in rare cases. So I would recommend against their use for this purpose." A committee member (whose district stands to benefit from building the components for these reactors) presses her on this. "Why do you say that?" he asks. "Can you give an example of such a failure?" Jones replies, "The Space Shuttle *Challenger* disintegrated because of the failure of an O-ring seal at liftoff." Jones has not studied the *Challenger* disaster, but her close colleagues have done so in detail, and they have told her that there is no doubt that the O-rings are the cause of the disaster. She could have cited several cases where she had studied the O-ring failure, but it would have required rather more time and effort to explain their significance to the committee. The *Challenger* example is both pertinent and easily comprehended.

Lackey should say about Jones what she said about Smith: neither should have asserted "The Space Shuttle *Challenger* disintegrated because of the failure of an O-ring seal at liftoff." For like Smith, Jones is an expert and her assertion is second-hand and isolated. Yet this case is entirely unproblematic. What is the difference between the two? One difference is that the focus of the committee in *Expert Panellist I (Smith)* is exactly the question on which Smith gave second-hand advice, whereas in the case of *Expert Panellist II (Jones)* the same proposition is not the focus of the committee's interest. We think that Lackey may be right in this, that the House Committee expects the expert to use their expertise in answering the question that is the focus of their inquiry. But we do not think that this arises simply from the expert's status as an expert which gives rise to higher epistemic standards for assertion. Rather it arises from the implicit relationship between the committee and the expert. When a committee invites an expert to testify on an important question, it is implicit in the relationship

thereby established that the expert is expected to deploy their expertise in giving their answer to that question. Lackey says this about the case:

> In *Expert Panellist* [*I (Smith)*], John Smith—*qua* manager of NASA whose responsibilities included the monitoring of the shuttle operation, and *qua* expert called to testify at the House Committee hearing—should be able to explain or justify the conclusion that a failed O-ring seal is the cause of the *Challenger* disaster. Were fellow NASA workers and those present at the House Committee hearing to press Smith for additional information supporting this explanation, they would rightly feel epistemically cheated when they hear that he is basing this claim entirely on one co-worker's testimony and that he is unable to offer anything beyond this assertion. (Lackey 2011: 255–256)

The committee may well feel cheated, but is that because Smith failed in a duty *qua* expert? Or because he failed to deliver on a duty implicit in his being invited to testify as an expert on this very question? We think the latter.[3] First, compare the case with *Expert Panellist II (Jones)*, where Jones asserts the same proposition in her capacity *qua* expert. There could be no reasonable feeling of being cheated in her case. Secondly, compare the case with:

> *Expert Panellist III (Smythe)* In the wake of the Space Shuttle *Challenger* disintegration, the United States House Committee on Science and Technology conducted a hearing in an effort to determine the cause of the disaster. One of the experts called to testify at the hearing was Sam Shah, a manager at NASA whose responsibilities included monitoring the details of the shuttle operation. Just as he is about to testify, Shah falls ill. One of his colleagues, John Smythe, happens to be present in the audience at the hearings. Smythe is an expert in the very same matters as Shah, but had not studied the *Challenger* disaster. That morning Shah has told Smythe that he was 100% confident that the O-rings were the cause, and that he would testify in no uncertain terms on this point. Lacking their intended expert, the House Committee chair calls on Smythe, even though he is there only as a member of the audience. When asked, Smythe asserts at the House Committee hearing, "The Space Shuttle *Challenger* disintegrated because of the failure of an O-ring seal at liftoff."

3. Milne (2012: 339–340) also holds that there are non-epistemic social and institutional norms in play that explain Lackey's intuitions. Benton (2016: 496–497) also suggests that Lackey's intuition regarding Doctor may be generated by a non-epistemic factor—that Derek ought to seek the advice of a *specific* expert—Matilda. In not revealing that the opinion she offers is in fact that of the student, Matilda's assertion is also pragmatically misleading (which itself has additional epistemic consequences). See Lackey (2016) for a reply.

When it transpires that Smythe asserts this only on the basis of Shah's testimony to him, Smythe explains that he has seen Shah at work on this question for weeks. From working together, Smythe knows and testifies that Shah is an impeccably thorough investigator who would not make any assertion without incontrovertible proof. The committee might feel disappointed that they will not learn more, but they cannot feel *epistemically* cheated (even though Smythe is an expert providing isolated second-hand testimony). The relationship the committee has with Smythe is clearly unlike that with the original Smith in *Expert Panellist I (Smith)*. In the latter case the committee invited him with advance warning to testify on this question as an expert and so could reasonably expect him to deploy his expertise in his testimony. Whereas in the former case, Smythe was invited only at the last minute and pulled from the audience. Even though invited as an expert, this relationship does not give the committee a reasonable expectation that Smythe could and should deploy his expertise in his testimony.

So we conclude that insofar as there is an intuition that Smith failed in his duty, this arises from the wider expectations implicit in the relationship that Smith has with the committee, not simply from his being an expert testifier. This might explain our differing response to *Doctor*. The nature of a relationship and the expectations it gives rise to can depend on institutional settings. In a private healthcare system the relationship between doctor and patient is in part coloured by the fact that the latter is paying the former, either directly or indirectly through insurance. This may be especially relevant when consulting an expensive specialist. Given the expensive fees, you would reasonably expect *that* specialist to do the work and not a junior colleague. Likewise you might feel cheated if you hired a celebrity chef to cater for your wedding but found instead that he sent along a competent sous-chef.[4]

But in a 'socialized' medical system, the patient's relationship to the specialist is different and is founded on the patient's relationship to the medical system as a whole. If the system (or this bit of it) can be relied upon to do a good job, then the patient is less concerned as to whether this is because the specialist has done it or because a competent junior colleague has done it. We speculate that because we (the authors) benefit from a national health care system, we do not share Lackey's intuition in the case of *Doctor*.

4. We therefore wonder, like Benton (2016: 495–496), whether those who share Lackey's intuition in *Doctor* would have had the same intuition if, in the story, the analysis had been carried out not by a student but by an equally competent peer—or by a senior colleague, who is even more expert than she is. Simion (2016) also raises the latter possibility as one that would remove the intuition. She draws a different conclusion from us, that it is reliability that is at stake. As Benton notes, Nancy changed from a competent student (Lackey 2011) to a very competent colleague (Lackey 2016).

A second hypothesis regarding our intuitions in these cases concerns higher-order knowledge. When a matter is particularly important to us, we want to know about it—for example when aiming to gain some important benefit or good. When choosing a university, a young person will want to *know* that it provides the kind of education, environment, and future opportunities she is seeking. In epistemic contexts, knowledge itself is a good that we seek. So similarly, when knowledge matters, we may want to know that we have it. When the House Committee called on Smith to testify as an expert, it did so on the basis of his credentials. The committee could expect that someone with those credentials, deploying his expertise, would reliably get to the truth of the matter. So, if Smith deploys his expertise in testifying that *p* to the committee, the committee thereby not only knows that *p* (it received reliable testimony that *p*), it knows that it knows that *p* (by choosing Smith on the basis of his credentials, the committee knows that his testimony will deliver knowledge—assuming he does deploy his expertise).

This basis for higher-order knowledge breaks down, however, if Smith does not deploy his expertise in his testimony. When the basis of Smith's testimony goes beyond his credential-backed expertise, then high-order knowledge is no longer available. The committee's knowledge of Smith's credentials tells them that he is perfectly reliable when he uses his technical expertise. But those credentials are perfectly consistent with Smith being a poor judge of character and being prone to believing the testimony of plausible but unreliable individuals. So even if it is in fact the case that Smith does and would only choose reliable informants, the House Committee, not knowing this, cannot know that what Smith knows by testimony is in fact knowledge. So when Smith, in *Expert Panellist I (Smith)*, testifies on the basis of his co-worker's word alone, the Committee thereby will gain first-order knowledge but not second-order knowledge. It will know but it will not know that it knows.

So our intuitions regarding *Expert Panellist I (Smith)* may be influenced by sensitivity to the fact that the House Committee is in a worse (higher order) epistemic state than it would have been. But this poorer position does not imply Smith's failure to meet an epistemic duty on experts who make assertions. For the committee will be in that worse position in the cases of Jones and Smythe. It is only problematic in the case of Smith because the broader institutional context (as discussed above) means that the committee had expectations, including the expectation of being able to know that it knows, on which Smith failed to deliver.

5. Paradoxical Consequences of EA

This section assumes the following principle, that someone is entitled to assert the known consequences of what they are entitled to assert:

> If S is entitled to assert that p and knows that p entails q then S is entitled to assert q.[5]

We point out that EA is in conflict with this principle. This is because while it says that entitlement to assert is closed under known entailment, being a non-expert with respect to a proposition is not closed under known entailment. A subject might be in a position to assert p where she is not an expert with respect to p, while it is also the case that p entails q, where she is an expert with respect to q and so cannot assert q (according to EA). Furthermore, she can be in position to assert that p entails q. So she will end up in a position where she can assert p and that p entails q while not being able to assert q. The following conversation illustrates this:

AWKWARD CONVERSATION

1. Derek: I'm very worried. Doctor, do I have pancreatic cancer?
2. Matilda: I'm afraid I'm not in a position to tell you.
3. Derek: What? Haven't my tests been analysed?
4. Matilda: Oh yes, the tests have been analysed.
5. Derek: What do they say?
6. Matilda: Again, I'm afraid I'm not in a position to tell you—I didn't do the analysis.
7. Derek: Who did do the analysis then?
8. Matilda: That was my colleague, Nancy.
9. Derek: And what does Nancy's analysis say?
10. Matilda: Nancy says that the tests clearly indicate cancer.
11. Derek: Is Nancy a bad oncologist? Is she unreliable at analysing the tests?
12. Matilda: Oh no, Nancy is a first-rate oncologist, every bit as good as I am. Nancy, like me, is very reliable analysing these tests.
13. Derek: So, if Nancy thinks I have cancer, then she knows that I have cancer?
14. Matilda: Yes.
15. Derek: So Nancy knows I have cancer.
16. Matilda: Yes, Nancy knows you have cancer.
17. Derek: So Nancy knows I have cancer, and has told you that I have cancer. Surely then, you too also know that I have cancer?
18. Matilda: Yes. I know you have cancer.
19. Derek: I'm confused. Tell me, do I have cancer?

5. Opponents of the closure of knowledge may not like this principle as it stands. But they can still accept our argument: (i) this is not the kind of case, *e.g.* a sceptical scenario, where closure fails; (ii) we can modify the principle thus: If S knows and is entitled to assert that p and knows that p entails q and S thereby knows that q then S is entitled to assert q.

20. Matilda: I'm afraid I'm not in a position to tell you whether you have cancer.
21. Derek: I'm an epistemologist by profession. We epistemologists all agree that knowledge entails truth. For example, if you know that I have cancer, then it is true that I have cancer. Do you agree?
22. Matilda: Yes, I agree—if I know that you have cancer, then you have cancer.
23. Derek: So to summarise—you know that I have cancer and if you know I have cancer, it is true that I have cancer. Agreed?
24. Matilda: Agreed, I know you have cancer and if I know you have cancer, then you do have cancer.
25. Derek: Okay. Then, do I have cancer?
26. Matilda: I'm afraid I'm not in a position to tell you whether you have cancer.
27. Derek: [*incredulous stare*]

Matilda has ended up having to assert something with a distinctly Moore-paradoxical character. Putting her assertions in lines 18, 22, and 16 together, we get:

(M) Matilda properly asserts "I know you have cancer, and if I know you have cancer, you do have cancer, but I cannot tell you that you have cancer."

This seems a perverse consequence of Lackey's view. Note that while EA prevents Matilda saying "you have cancer," EA does not prevent Matilda saying "I know you have cancer, and if I know you have cancer, you do have cancer." Let us be more precise about this. Matilda can assert "I know you have cancer" because she can assert two things (a) "Nancy knows you have cancer" and (b) "If Nancy knows you have cancer, and tells me that you have cancer, then I know you have cancer." (b) is a platitude about the transfer of testimonial knowledge (in vanilla cases) and is not an assertion for which expertise in oncology is relevant. EA does not rule out asserting (b). Is expertise in oncology required to assert (a)? No. For the hospital where Matilda and Nancy work routinely monitors the reliability of their specialists' diagnoses, and the hospital administrator tells them both that they are both very highly reliable, and indeed that their diagnoses always agree. Since that is statistical knowledge gained from the administrator, even if it is isolated second-hand knowledge, Matilda can assert it, since that is not her area of expertise. So EA does not rule out Matilda's being able to assert: "Nancy . . . is very reliable analysing these tests" (line 12) and so agreeing that "if Nancy thinks I [Derek] have cancer, then she knows that I have cancer" (lines 13–14). Matilda

knows what Nancy's analysis says without her own expertise being relevant (all she needs is to be able to read Nancy's report), so EA does not rule out asserting "Nancy says that the tests clearly indicate cancer" (line 10). So EA is consistent with lines 10 to 14 and also with Matilda's assertion of what follows from those lines, "Nancy knows you have cancer" (line 16). So EA does not prevent Matilda from asserting (a) "Nancy knows you have cancer" and (b) "If Nancy knows you have cancer, and tells me that you have cancer, then I know you have cancer." So there seems to be no reason why EA should prevent Matilda from asserting what follows from these assertions, namely, "I know you have cancer."

But let us say that it is objected that "I know you have cancer" is just too close to the (forbidden by EA) "you have cancer"; EA ought also to forbid "I know you have cancer." We can still generate a paradoxical statement that Matilda is right to assert, if EA is correct. For we can leave Matilda's own states of knowledge out of it. We agreed that Matilda can assert "Nancy knows you have cancer" (line 16) because this follows from statistical information about Nancy's reliability which is not a topic on which Matilda is an expert. And Matilda can assert "if Nancy knows you have cancer, then you have cancer," because this, like line 22, is just an instance of the entailment of truth by knowledge, again a matter on which Matilda is not an expert. So Matilda can properly assert "Nancy knows you have cancer and if Nancy knows you have cancer, then you have cancer," but cannot properly assert what follows from these, namely "you have cancer." EA could be strengthened to exclude from proper assertion *any* proposition that entails a proposition that EA currently excludes. This, strengthening would, we are confident, lead to further paradoxical consequences.

6. The Division of Labour in Science

In this section we turn to our principal reason for rejecting EA. The structure of science, with its widespread and unavoidable division of labour, means that scientists are frequently in the position of being experts who make assertions of isolated second-hand knowledge. If Lackey is right, our cognitively most successful enterprise is riddled with epistemically sub-par practices.

During the COVID-19 pandemic, British audiences watched regular televised briefings from Sir Chris Whitty, the Chief Medical Officer for England and colleagues. In the United States, Dr Anthony Fauci, as chief medical advisor to the President, played a similar role to Whitty.

In his briefings, Whitty provided copious information about COVID-19 in England and globally. This included information about numbers of deaths and of new infections, details on the new variants of the Sars-CoV-2 virus, data on the development and then efficacy of the vaccines, advice about preventative

measures (such as mask-wearing), and so on. Whitty is an expert epidemiologist, having been a Professor of Public and International Health, and it is in virtue of his expertise that he was providing information to the public. While Whitty had some role in the analysis of the underlying data for some of the information he was providing, this was true only for a very small proportion. Given the quantity of information he was providing, he could not have provided the analyses himself. Most of the analysis and interpretation will have been done by his colleagues in the Department of Health and Social Care or by other organizations, such as the Jenner Institute, among several others. So, in Lackey's terms, Whitty was an expert passing on isolated second-hand knowledge to the public. The same may be said of Fauci who was Director of National Institute of Allergy and Infectious Diseases (NIAID) from 1984 to 2022. Before becoming a member of and spokesman for the White House Coronavirus Task Force, Fauci made many important contributions to clinical and epidemiological research into AIDS and other serious communicable diseases such as swine flu and Ebola. Like Whitty, Fauci was an expert who has the authority to deliver and explain information about COVID-19, but who was not in a position to participate in the bulk of the underlying research. According to Lackey's view, Whitty and Fauci were not, therefore, properly placed, epistemically, to make many of the assertions that they did make. Whitty and Fauci came in for a lot of (almost entirely unjustified) criticism. But none of it concerned the fact that they were experts asserting propositions of which they had only isolated, second-hand knowledge.

Although the cases of Whitty and Fauci are unusual because of the circumstances, they do also exhibit a structure widely found in science. Senior leaders in a field get to lead large and often diverse teams. The teams are diverse because of the division of labour in science, especially in interdisciplinary science. Here is a simplified example. Fabiola, a senior physicist, is pondering the highly important question in fundamental physics, whether q. She realises that if, through experiment, one can show p then it may be possible to demonstrate q. Hard mathematical work would need to be done to show the connection, that if p then q. But that seems at least feasible. So she assembles a research project made of two sub-teams. Sub-team A, a group of experimental physicists, is tasked with devising and carrying out an experiment to investigate whether p, and sub-team B, made up of mathematicians and theoretical physicists, is challenged with coming up with a proof of $p \rightarrow q$.

In due course the leaders of both sub-teams come to Fabiola with their results. The leader of sub-team A reports, "It hasn't been easy to show p definitively, but we have now done it. We had to develop some completely new experimental techniques, and so a lot of effort went into verifying that these techniques are reliable. But we have shown that they are. We are certain that p is true." The leader of sub-team B reports, "I'm sorry that it has taken so long to come up

with the proof. You will recall the Appel–Haken proof of the four-colour theorem, in which 633 reducible configurations had to be checked by computer? Our problem turned out to be similar, though not quite that bad. We had to devise and check a large number of sub-proofs. By splitting sub-team B into smaller sub-teams we were able to generate these proofs, then have other sub-teams check them. I am now absolutely certain we have shown $p \rightarrow q$ to be true." Fabiola announces to the world's scientific press, "p is true, discovered by an advanced experiment, and $p \rightarrow q$ is also true, shown by a complex proof. We can therefore conclude that q is true."

According to Lackey's view, Fabiola should not have made these claims, at least not the first two, concerning p and $p \rightarrow q$. She is an expert, and she has isolated, second-hand knowledge of those propositions. She has not received any evidence for either; she takes on trust the claims of the two sub-team leaders. Clearly, though, she should not come in for any criticism on that basis. Being the expert she is, she could have checked the work of her sub-teams. But why would she do that? It would take weeks of work and would quite likely be less reliable than her sub-teams' checks. It is important to note that Fabiola is still speaking qua expert. She is the project leader because she is a leading expert. She had the original scientific insight, breaking the problem into p and $p \rightarrow q$. Her expertise enabled her to know whom she could trust to be project members. Her expertise meant that she could advise when problems arise or even lend a hand when needed. So, in speaking as project leader, she is speaking as an expert.

This example, though schematic, exemplifies a common structure in science. It also emphasizes the inescapable role of trust in science (Hardwig 1991). Scientists almost never generate for themselves all the data they need for their results. Almost always auxiliary hypotheses or supporting data are used that the scientist using them cannot verify for herself. The relevant propositions will, for the using scientist, be isolated second-hand knowledge. She cannot, therefore, assert them, according to Lackey. But what of the results based on such isolated second-hand knowledge? Can our scientist assert those? (Note that many kinds of research, such as systematic reviews and meta-analyses in medicine, use only second-hand knowledge.) On the one hand it would be odd to say that a scientist cannot assert the evidence from which her assertible conclusions are drawn. Fabiola can assert 'q', but she cannot assert 'p' or '$p \rightarrow q$', which are her reasons for her assertions. On the other hand, if a scientist *cannot* properly assert conclusions that depend essentially (or even entirely) on isolated second-hand knowledge, then a lot of scientific research should not be published that is published.

Lackey might respond that a scientist might have to weigh obligations and costs and benefits. It may be reasonable to fall short of perfection in one's epistemic duties, if there are practical benefits elsewhere, such as increased efficiency or faster scientific progress. But this response seems implausible for two reasons.

It would mean that much of science is epistemically sub-par, with scientists failing to meet their epistemic duties, making assertions (including, primarily, in their publications) that they should not be making. That conclusion seems false. Without stating that everything science does is epistemically perfect, it can still be said that much of science is epistemically high quality and not sub-par. The organisation of science with division of labour (here we can include the case of Sarah, in Haematologist, whose straightforward tests are sent to the lab for analysis) is an epistemically rational way of organising resources, not a pragmatically justified dereliction of epistemic responsibility.

7. Conclusion

We do not share Lackey's intuitions regarding all these cases. Where intuitions do arise that the testifier has failed in some respect, we have hypothesized that this is not because of general duties on expert testifiers. The testifier's perceived failure arises because reasonable expectations, formed in relationships within institutional settings, are not met. Sometimes, when met, those expectations will allow the hearer to have higher-order knowledge. So if they are not met, the hearer is also in a poorer epistemic state. Recognizing this may also influence the thought that the testifier has done something wrong. But, again, it is a wrong only because of the expectations implicit in the broader relationship between testifier and hearer, the nature of which may be generated by the institutional context.

We have argued that experts in medicine and science can legitimately assert isolated second-hand knowledge, even in their role as expert. Not only is this permitted, but it is expected and even required by the structure of scientific practice which involves a significant division of epistemic labour that is essential to scientific progress. Scientific experts frequently lead large teams carrying out collective projects and do not personally check every result. They also rely on the methods and results of other teams in the field without reproducing that work. This can and often does mean that acquiring, using and asserting isolated second-hand knowledge is part of the role of scientific and medical experts, and an important facet of their expertise is judiciously trusting and building on the work of others. The point extends to scientific and medical education.[6] Lecturers and authors of textbooks are experts who make many assertions that are not the products of their own expertise. To acquire and maintain her expertise, an expert will read textbooks and journals and will attend continuing professional development courses, and so a non-trivial proportion of her own expertise will itself be isolated second-hand knowledge.

6. We thank Mark Steen for this point.

We therefore conclude that scientific and medical experts are in an epistemic position to assert that *p* if they know that *p*, even if that knowledge is isolated and second-hand. We support the knowledge norm of assertion in this context.

This argument leaves open whether KNA-S is true in other contexts. We take it that any context in which a division of epistemic labour is valuable is likely to support KNA-S. However, some of Lackey's other examples relate to aesthetic judgments, and within aesthetics, as within ethics, it is not so clear that a division of epistemic labour is essential or even appropriate, in the way that it is in science and medicine. In ethics and aesthetics, it might instead be important to come to your own judgment, on the basis of your own grasp of what matters. Expertise in these fields would involve moral and aesthetic understanding and these domains would be governed by a norm of assertion relating to understanding, *i.e.* your assertion that *p* should be based on your *understanding* why *p* (Hills 2009). Carter and Gordon (2011) argue that Lackey's cases are to be explained by the fact that these cases (but not all cases) are governed by an *understanding* norm for assertion, and because isolated, second-hand knowledge cannot give understanding. We disagree regarding Doctor, but leave it open whether their claim might be right regarding aesthetic and ethical cases. A full evaluation of norms of assertion outside of scientific and medical expertise is, however, beyond the scope of this paper.

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