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ON WHAT IT TAKES TO BE AN EXPERT

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[penultimate version]

Abstract. This paper tackles the problem of defining what a cognitive expert is. Starting from a shared intuition that the definition of an expert depends upon the conceptual function of expertise, I shed light on two main approaches to the notion of an expert: according to *novice-oriented accounts* of expertise, experts need to provide laypeople with information they lack in some domain; whereas, according to *research-oriented accounts*, experts need to contribute to the epistemic progress of their discipline. In this paper, I defend the thesis that cognitive experts should be identified by their ability to perform the latter function rather than the former, as novice-oriented accounts, unlike research-oriented ones, fail to comply with the rules of a functionalist approach to expertise.

§1 INTRODUCTION

Recent works in social epistemology have shown how challenging it is to define what it takes for one to be a cognitive expert in some field.¹ Yet it seems important to be able to distinguish those trustworthy subjects who contribute to the epistemic welfare of our communities from those who do not deserve our epistemic credit and resources.

Alvin Goldman has been trying to settle the issue for more than two decades (see 1991, 2001, 2018), but his view of expertise has received persistent criticism. Some of Goldman’s critics (e.g., Coady 2006, Scholz 2009) accept his general strategy of reaching a satisfactory definition of an expert through conceptual analysis, but question some—or, every—condition of his account. Others reject the methodology of Goldman’s project and suggest alternative strategies for analysing the notion of an expert, such as a Wittgensteinian family-resemblance route (Majdik and Keith 2011), Edward Craig’s practical explication approach (Quast 2018), and Nelson Goodman’s symptom approach (Scholz 2018).

In this paper, taking up insights from these approaches and from Goldman’s most recent attempt to “advance a definition of expertise that ... is in roughly the same territory of some of his critics” (2018: 3), I will demonstrate that a conceptual analysis still has an

¹ This paper explores the topic of *cognitive* or *intellectual expertise*, i.e., the expertise pertaining to an agent’s propositional knowledge and understanding. A discussion of *practical* or *performative expertise*, i.e., the expertise pertaining to an agent’s “competence at performing a task” (Watson 2018: 40), would raise questions about the specific skills or know-how that some kinds of experts are required to possess, as it happens with pianists, football players, magicians and so forth. For the purposes of this paper, I leave practical expertise and questions about know-how aside.

important contribution to make. Starting from the intuition that the definition of an expert depends upon the epistemic function they fulfil in our communities,² the paper sheds light on two different roles of an expert, i.e., that of improving laypeople’s epistemic condition—broadly construed—and that of contributing to the epistemic progress of their discipline. The overall aim of this paper is to show that cognitive experts should be identified by their ability to perform the latter function, rather than the former.

To accomplish this goal, in section 2 I introduce the two rival accounts of an expert, which I respectively name the *novice-oriented account* and the *research-oriented account*. Section 3 is devoted to elaborating on their conditions in order to make sure we are working with the most convincing version of each account before providing an argument against the novice-oriented approach, which will be offered in section 4. In section 5, I shall motivate the superiority of the research-oriented account over the rival view. Finally, section 6 explores some consequences of the argument for the social function of experts.

§2 TWO ACCOUNTS OF EXPERTISE

According to Goldman’s (2018) and Quast’s (2018) recent diagnoses, the epistemological debate on the notion of the cognitive expert is based on a fundamental methodological assumption, according to which a compelling definition of an expert has to reflect their *function* within an epistemic community. More specifically, Goldman contends that such definition should highlight “what expertise *is* by reference to what experts can *do* for laypersons by means of their special knowledge or skill” (2018: 3). For these reasons, a functionalist approach to the notion of expertise should provide (i) a *functional definition* of an expert, and (ii) a *possession condition* that individuates what it takes for an epistemic subject to fulfil that function (4).

As regards (i), Coady (2012) and Goldman (2018) accept what I call a *novice-oriented* approach. According to them, “the main function of expertise is sharing some knowledge for the benefit of someone else”, where the recipient is often intended as a layperson or a novice (Quast 2018: 13). With Coady’s words, experts are supposed to fulfil “the practical role of the expert”, that is “being someone laypeople can go to in order to receive accurate answers to their questions” (2012: 30). The role of experts suggested by Coady is reflected in Goldman’s functional definition, according to which a subject S is an expert in domain D if and only if:

[NO-CAP] S has the capacity to help others (especially laypersons) solve a variety of problems in D or execute an assortment of tasks in D which the latter would not be able to solve or execute on their own. S can provide such

² See, e.g., Goldman (2018) and Quast (2018).

help by imparting to the layperson (or other client) his/her distinctive knowledge or skills. (2018: 4)³

As regards (ii), that is the cognitive states that allow one to fulfil this functional definition, Goldman recommends a veritistic or “truth-linked” possession condition, according to which an expert is someone who possesses more accurate information than most people do in a domain. Specifically, on his view a subject S is an expert in domain D if and only if:

[T-LC1] S has more true beliefs and fewer false beliefs in propositions pertaining to D than do most people. (4)⁴

In sum, the novice-oriented account defines expertise as the capacity specified by NO-CAP and suggests T-LC1 as a necessary and sufficient characterization of what allows one to possess that capacity.

Interestingly enough, some earlier remarks by Goldman allow us to suggest a different account of an expert. Even though when he wrote his 2001 paper Goldman did not have to face objections to his approach based on conceptual analysis, he already had in mind that “expertise features a propensity element as well as an element of actual attainment” (92). The propensity element in his less recent view amounts to “an ability to generate new knowledge in answer to questions within the domain” (91) while the element of actual attainment amounts to an expert’s possession of “more true beliefs and/or fewer false beliefs than most people do in D” (91). The distinction between propensity and actual attainment can now be adapted to his recent functionalist framework and offer grounds for what I call a *research-oriented account*. Specifically, the propensity—that is, disposition-based—element provides us with a research-oriented functional definition of expertise, according to which a subject S is an expert in domain D if and only if:

[RO-CAP] S has the capacity to contribute to the epistemic progress of D. S can provide such help by offering true answers to the questions under dispute in D.

³ I replace Goldman’s original label “CAP” with “NO-CAP” to stress that on this account experts are required to fulfil a *novice-oriented* function, and make it easy to contrast it with the *research-oriented* function I shall introduce in §5.

⁴ The expression “belief in” is usually understood as involving an element of trust. However, that is not the connotation Goldman gives to this condition for expertise. I stick to his own connotation for the sake of consistency with his wording. I thank an anonymous reviewer for pointing this out to me.

In contrast, the element of actual attainment gives us a slightly different version of Goldman's recent truth-linked possession condition, which I shall call T-LC2, according to which a subject S is an expert in domain D if and only if:

[T-LC2] S possesses more true beliefs and/or fewer false beliefs than most people do in D.

Thus, the research-oriented account defines expertise as the capacity specified by RO-CAP and proposes T-LC2 as a necessary and sufficient characterization of what it takes for one to possess this capacity.

A quick comparison of the two accounts suggests a couple of remarks. First, notice that T-LC2 not only grants that someone can be an expert by having more true beliefs *and* fewer false beliefs than most people do in D, but also, and more importantly, that one can be an expert by having more true beliefs *or* fewer false beliefs than most people do in D. I take T-LC2 to be more problematic than T-LC1, but I shall discuss this in §3.1.

Second, someone might take the fact that two very similar versions of the truth-linked requirement serve as possession conditions on allegedly alternative accounts to be a sign that Goldman in fact thinks an expert to be someone who fulfils both a research-oriented and a novice-oriented function. Specifically, one might argue that if the propositions pertaining to a domain of expertise D include not only propositions at the object level of D but also propositions about the processes, methods, and skills the use of which is likely to yield true beliefs in D, then satisfying the veritistic condition on the novice-oriented account will typically result in the capacity to generate new knowledge in D (i.e., RO-CAP), at least in non-empirical domains.⁵

I do not buy into this argumentative line, for at least two reasons. First, I think it is unsuccessful: as I will show in §5, there are ways in which one can have more true beliefs than most people do at all these levels of D and yet lack the capacity to contribute to the progress of D. Second, no matter what the most faithful interpretation of Goldman's thought over the years is, we should still keep the two accounts separate for the sake of argument. If my arguments hit their target, we can conclude that the research-oriented view can account for what it takes to be an expert in Goldman's recent functionalist approach while the novice-oriented view fails to do so. Therefore, let us work on the assumption that neither view should be reduced to the other and examine the two accounts in detail.

⁵ I thank an anonymous reviewer for pointing this out to me.

§3 TOWARD A COMPELLING NOVICE-ORIENTED ACCOUNT OF AN EXPERT

The analysis of the novice-oriented account of an expert concerns the plausibility of the truth-linked condition and its relationship with the functional definition of expertise expressed by NO-CAP. Before starting to discuss the plausibility of the possession condition, it would be wise to address a preliminary issue that might affect our understanding of the notion of an expert. Some might be inclined to think that the truth-linked requirement makes Goldman's account *comparative*, as the attribution of expertise to someone partially depends on the reliability of most members of their epistemic community. Goldman does not deny that the notion of an expert has a comparative dimension that we refer to when we say that, for example, Anna is more of an expert in contemporary history than Nick, or that Giada is more of an expert in psychology than anyone else in the room. However, he adds a *non-comparative clause* (2001: 91), or *threshold condition* (2018: 5), to this account, according to which "[b]eing an expert is not simply a matter of veritistic superiority. Some non-comparative threshold of veritistic attainment must be reached" (2001: 91), even though this threshold might be difficult to determine.⁶ Thus, on Goldman's view the notion of an expert requires a minimum threshold of true beliefs in D below which someone should not be considered expert, no matter if they are better informed on D than most people in their (or other) communities.

Coady rejects the threshold condition, considering it unnecessary for a novice-oriented account. The debate about the necessity of this requirement will be discussed in §3.2. Before that, we shall discuss a specific objection against the possession condition, according to which T-LC1 is unnecessarily demanding, and offer a refined version of the condition that avoids this criticism (§3.1). Finally, we will challenge Goldman's veritistic project by arguing that an understanding-linked requirement better complies with NO-CAP than a truth-linked condition. A counterexample to standard novice-oriented accounts will be offered to support the claim that experts need to possess better understanding⁷ than most people in their domain of expertise (§3.3).

§3.1 The expertise of epistemically negligent subjects

⁶ In recent work (2018), Goldman has developed this thought and maintains that the non-comparative clause could be added to the definition of an expert as follows:

[TL-C*] S is an expert about domain D if and only if:

(A) S has more true beliefs (or high credences) in propositions concerning D than most people do, and fewer false beliefs; and

(B) The absolute number of true beliefs S has about propositions in D is very substantial.

He also admits that "the absolute condition stated in (B) is unclear" but contends that "whatever might be said to tighten this condition needn't affect the general type of approach proposed here" (3). Put it simply, it should remain a truth-linked, or veritistic, approach.

⁷ See §3.3 for a definition of "better understanding".

As I pointed out in §2, the truth-linked requirement introduced in the research-oriented account (T-LC2) differs from the one displayed in the novice-oriented account (T-LC1). However, given that they share a similar structure and the same components, I will discuss both here with the goal of reaching a more robust version of the possession condition that can be employed in both accounts. More specifically, I shall argue that T-LC2 is unduly weak, whereas T-LC1 is unduly demanding.

On Goldman's view, in order for a subject to satisfy T-LC2 it is sufficient that she fulfils either of the following requirements:

[T-LCa] S possesses more true beliefs than most people do in D;

[T-LCb] S possesses fewer false beliefs than most people do in D.

Scholz (2009) and Coady (2012) argue that Goldman is wrong, because we are not willing to consider someone an expert if their superiority to laypeople in terms of reliability merely amounts to lacking some of the false beliefs laypeople have in a given domain, as required by T-LCb. A quick comparison of experts with epistemically negligent subjects should make clear that they are right.

In general, an expert has a much greater interest in the status and the epistemic progress of a given discipline than a layperson does. This interest inevitably comes with a greater risk of believing falsehoods in such a domain than laypeople do (see Coady 2012: 29; Scholz 2009: 193). Indeed, it may be the case that experts have both more true beliefs and more false beliefs about their subject matter than laypeople. Thus, experts might satisfy T-LCa without being in the position to satisfy T-LCb. In contrast, epistemically negligent people lack any interest in the epistemic progress of a domain and do not question their beliefs so frequently. Hence, they avoid any risk of acquiring false beliefs at the huge cost of not acquiring true beliefs. If we accepted T-LC2 then, epistemically negligent subjects would have a good chance of becoming experts simply by fulfilling T-LCb, particularly in those disciplines where there is widespread disagreement about the answers to the main questions of each domain.

This argument not only applies to epistemically negligent subjects, but also to those who doubt that we can acquire knowledge in some specific area of inquiry, i.e., local skeptics. These subjects can easily satisfy T-LCb: given that they doubt the possibility of acquiring knowledge in some domain, they avoid forming beliefs by suspending judgment in that domain. Thus, it is likely that they will possess fewer false beliefs than any other individual who assumes that knowledge can be obtained in that domain. According to Goldman's loose requirement, local skeptics will then be in the position to satisfy the possession condition on a research-oriented account of expertise by fulfilling T-LCb, as epistemically negligent people do.

But again, this result seems counterintuitive. If, for instance, we wanted to know more about the potential and the side effects of an experimental cure for cancer, it would

be very odd to ask a convinced herbalist who treats ill people with herbal extracts and suspends judgment on everything related to traditional medical experiments. This subject will no doubt have fewer false beliefs on the effects of the experimental treatment than the oncologists who are testing the new medicine—in fact, she will have none since she withholds judgment. Nevertheless, it seems evident that we would rather consult the oncologists than the herbalist, as the former possess more true beliefs about the cure than the latter does.

From these considerations it follows that it should not be the case that T-LCb is a *sufficient* component of the truth-linked condition, in that even epistemically negligent lay subjects and local skeptics can satisfy it. Nor should it be the case that T-LCb is a *necessary* component of the truth-linked condition, because an expert who puts forth a new theory in D may entertain more false beliefs than laypeople in D.⁸ This argument allows us to undermine both T-LC2 and T-LC1 at the same time. On the one hand, the fact that T-LCb is not a sufficient component of the possession condition proves that T-LC2 is too weak, because in general we shall not grant expertise to epistemically negligent laypeople. On the other hand, the fact that T-LCb is not a necessary component of the condition proves that T-LC1 is too demanding. As mentioned in §2, in order for a subject to satisfy T-LC1 it is necessary that she fulfil both T-LCa and T-LCb. But, as I have just shown, the mere fact that an expert may possess more false beliefs in a domain than laypeople do should not undermine her expertise. Thus, there seems to be no reason for retaining T-LCb as a component of the truth-linked condition. Goldman (2016) seems to acknowledge the effectiveness of this objection in footnote, where he mentions the possibility of requiring that experts merely have “a comparatively high *ratio* of true to false beliefs to qualify as experts” (3, fn. 3). For our purposes though, it suffices to follow Coady and Scholz and strengthen the possession condition on either account of an expert by getting rid of T-LCb. The revised definition of an expert on the novice-oriented account then states that S is an expert in D if and only if:

[T-LCa] S possesses more true beliefs than most people do in D.

§3.2 On the necessity of a non-comparative clause

The second criticism of the possession condition on Goldman’s novice-oriented account pertains to the non-comparative clause introduced above. Coady contends that there is no need to add such a clause to the possession condition, because “if some individuals are significantly better informed than most people about a subject [...] in their community,

⁸ Scholz contemplates an even more extreme scenario, in which a layperson might have more true and fewer false beliefs about D than an expert (see 2009: 193).

then [...] they should be considered experts on it, whether or not they are well-informed from a God's-eye point of view" (Coady 2012: 29).

I agree with Coady that on a novice-oriented account there is no need of a "God's eye" perspective. If the function of expertise merely amounts to helping laypeople acquire new knowledge, then a comparative notion of an expert would easily fit the bill. To see why this is the case, let us consider a couple of examples featuring Goldman's idea of epistemic communities: that is, groups such as "a doctrinal community whose members devoutly and uncritically agree with the opinions of some single leader" (2001: 98), a "community of scientists" (103), and professional communities (105).

First, consider the case of Skyler, an excellent chemistry scholar who is presenting the results of her study at an International Chemistry Conference. Both Goldman and Coady can grant her the expertise she acquired through years of intense study and research. In fact, not only does she have the capacity to help laypeople acquire knowledge about chemistry, but she supposedly has more true beliefs than most people do about chemistry and she exceeds the threshold condition, wherever we stipulate that it has to be set.

Then, compare Skyler's case with that of Emma, a young member of a close-minded community led by a charismatic faith-healer who pretends to cure ill people with his spiritual powers. Suppose also that Emma challenges his opinion based on what she reads in an introductory textbook of medicine. In this case, Goldman's non-comparative clause would prevent Emma from being considered an expert in medicine, as she certainly fails to fulfil the threshold condition. But that clashes with the methodological assumption of his functionalist approach because Emma might well be in the position to help other members of her community acquire true beliefs in medicine. Coady's view avoids this problem: on his account, Emma can be an expert in medicine in her community because she is in the position to fulfil NO-CAP. As a matter of fact, Emma has acquired more true beliefs than the other members of the community by reading the introductory textbook and carefully observing the alleged treatments provided by the faith healer. Were someone to notice this fact, they would start to consider her an expert in the field and disregard the leader's advice.

It should now be evident that, unlike Goldman's view, Coady's comparative notion of an expert fits the methodological assumption introduced in §1 because it confers expertise to epistemic subjects based on the function that they can provide to other members of their communities. On the novice-oriented account, both Skyler and Emma can be considered experts because they have the ability to provide other members of their communities with information they lack, thereby fulfilling NO-CAP. Therefore, pace Goldman, there is no reason why we should constrain the novice-oriented account by imposing a threshold condition, when a comparative approach—such as Coady's—already ensures the accomplishment of the novice-oriented function.

§3.3 Veritism and understanding

Both objections considered so far concerned specific features of Goldman's truth-linked possession condition. However, his veritistic account of an expert incurs at least two further problems relative to its broad truth-linked scope.

The first problem arises from the fact that scientific progress is transitional by nature.⁹ As an example, recall that before the Fifties most scientists believed that cigarettes did not contain harmful chemicals; now, we all know that smoking may cause cancer and other diseases. This consideration threatens Goldman's novice-oriented account because we are obviously unable to put ourselves in the "God's eye" perspective and evaluate who, among thousands of alleged experts, possesses a sufficiently large number of true beliefs in some domain. Goldman acknowledges this as "a common problem" (2016: 3), yet he holds that this is not enough to undercut the appropriateness of the veritistic approach. The mere fact that it's hard to find out who possesses true beliefs in some discipline does not entail that objective expertise cannot be found in that domain.¹⁰

Let us assume that Goldman's defence is successful. A second far more troubling issue puts pressure on his approach. Consider the following example:

EXPERT BY HEART. Suppose that Denny, a young ski instructor with a special talent for remembering, decides to help his lazy brother Brett pass his physiology licensing examination. This difficult exam consists of a random selection of 100 multiple choice questions that each candidate receives on their laptop at the beginning of the exam session and has to answer in a very short amount of time. All candidates know is that the computer selects among 10000 questions that the examiners gave to each candidate together with the reading list. Denny offers to memorize the whole list of 10000 questions, with each respective correct answer, and to provide Brett with the list of correct replies ten minutes after receiving screenshots of the test. The plan works perfectly: following Brett's instructions, Denny selects the wrong answers to five questions on purpose, not to arouse the examiner's suspicion. With 95% of correct answers, Brett is the only candidate who passes the examination with distinction this year.

If we analyse Denny's profile under Goldman's requirements, we notice that Denny satisfies T-LCa by hypothesis, as he has acquired more true beliefs about physiology than

⁹ This problem is raised by Watson (2016: 7), who calls it "the shoulders of giants problem".

¹⁰ Notice that the same problem affects any novice-oriented approach, including Coady's comparative view. For what is problematic in this respect is not the presence of a non-comparative clause, but rather the truth-linked condition on which novice-oriented accounts are based.

most people do. Furthermore, it is reasonable to suppose that he goes beyond the threshold for being an expert in physiology: not only is he significantly better informed than most members of his community, but also the overall number of true beliefs in physiology he possesses is incredibly high. Finally, Denny fulfils NO-CAP by doing a great service to his brother, who did not prepare for the exam. Were other candidates to ask for his help in the future, he would be happy to do that, despite any considerations about the morality of his actions.

Nonetheless, it seems intuitively evident that Denny should not be considered an expert in physiology. There are at least two ways in which we can try to back this claim up. First, one might argue that Denny possesses lots of true, yet unjustified, beliefs: in fact, he has no reason to offer in support of these propositions about physiology. However, this argumentative line appears to be unpromising on closer inspection. On the one hand, it is unclear whether Goldman takes experts to possess not only a substantial number of true beliefs in D, but also a substantial number of *justified* true beliefs in D.¹¹ On the other, it can be argued that Denny acquires all this information about physiology from a reliable source, such as the list made by the board of examiners, and has no defeaters for it. Thus, many epistemologists would agree that Denny has acquired testimonial knowledge of these propositions.

The second strategy to support the idea that Denny is not an expert appeals to the notion of *understanding* as a fundamental epistemic goal. This notion is open to different interpretations. Here I follow a well-established tradition that considers understanding as “grasping systematic connections among elements of a complex whole, or gaining insight into certain relations between items within a larger body of information” (Jäger 2016: 180).¹² Thus, I focus on the “objectual” dimension of understanding, as related to subject matters, theories, and bodies of information requiring explanation, rather than mere propositions.¹³ I appeal to this notion to suggest that what should distinguish experts from laypeople is not merely the high number of true beliefs the former—unlike the latter—possess in some domain D. On the contrary, a more plausible measure of someone’s expertise in D is their understanding of the background assumptions of D, the main

¹¹ No mention of justification as a necessary requirement for expertise has been found in Goldman’s 2001 definition, where he defines an expert as someone who has “extensive knowledge (in the weak sense of knowledge, i.e., true belief) of the state of the evidence” (92). In contrast, he explicitly admits the possibility of an *evidential (or justificational) approach* in contrast to, or in support of, a veritistic approach (see 2018: 6-7), but acknowledges that grounding the definition of an expert on a justification- or evidence-based requirement leads to several problems.

¹² Further definitions of understanding can be found in Grimm (forthcoming), Kvanvig (2003), and Pritchard (2009).

¹³ An important difference between objectual understanding and propositional understanding is that understanding a proposition p, e.g., understanding that my smartphone is broken, does not seem to differentiate much from knowing that p. Rather, understanding a subject matter x, or a domain D, e.g., understanding meteorology, cannot be reduced to merely knowing some propositions (see Kvanvig 2009). On the propositional model of understanding see also Grimm (2014: 330-ss). For a recent discussion of objectual understanding, see Carter and Gordon (2014).

questions arising within the discipline, and the available answers. In sum, experts are supposed to understand the relationships between the various components of D. Going back to EXPERT BY HEART, it should be evident that Denny lacks expertise in physiology because he has no understanding whatsoever of the thousands of true beliefs he learned by heart. All he knows is the correct answer associated with each question of the examination list.

Therefore, I suggest that Goldman's truth-linked condition be replaced with the following understanding-linked condition. A subject S is an expert in domain D if and only if:

[U-LC] S possesses better understanding of D than most people do.

Following Elgin (2007), I take understanding to be matter of degrees. Specifically, I take it to include the three following dimensions: *breadth*—S's ability to imbed some true belief pertaining to a domain into a more comprehensive set of beliefs concerning that domain; *depth*—the number of propositions and/or non-trivial inferential connections between propositions within S's network of beliefs; and *significance*—S's ability to appreciate the relevance of the beliefs included in D, not merely to recognize that they are true (36). I consider the notion of "better understanding" to include all three dimensions just introduced, to the extent that if S is an expert in D, S has broader, deeper, and more significant grip on the relationship between true bodies of information constituting D than most people do.¹⁴ Thus, adopting U-LC not only avoids the problem generated by EXPERT BY HEART; it also offers a more plausible rendering of the veritistic account Goldman aims to provide.

To briefly summarize, section 3 has been devoted to offering a more plausible version of the novice-oriented account of an expert originally proposed by Goldman. First, I stressed the advantages of amending Goldman's truth-linked condition as Coady and Scholz suggested, i.e., by getting rid of the false idea that possessing fewer false beliefs in a domain than laypeople do is a necessary condition for one to be an expert. Then, I argued against Goldman that his threshold condition (or, non-comparative clause) unjustifiably constrains the attribution of expertise to a "God's-eye" perspective. This requirement is unnecessary if we simply want experts to exert a novice-oriented function, that is, to provide laypeople with accurate information they lack. Finally, I explained why an understanding-linked possession condition fares better than a truth-linked condition when it comes to fulfilling NO-CAP.

¹⁴ Scholz (2018) introduces the idea of understanding as a "symptom of expertise" and admits a great variety of objects of understanding (34-36). He also concedes that understanding can vary along breadth and depth, but makes no reference to the dimension of significance, nor to Elgin's account. I am not sure what the relationship between his Goodmanian idea of "symptoms" and the standard notion of "necessary condition" should be. Thus, I limit myself to acknowledging his similar intuitions, and stick to my project of providing a compelling account of expertise through conceptual analysis.

As a concluding remark of this section, I shall briefly discuss in which respects the novice-oriented account of an expert differs from Jäger’s recent account of a *Socratic epistemic authority* (2016). On Jäger’s view, a Socratic authority is “someone who not only succeeds more often in attaining the truth [than the subject does], but who also is able to foster the subject’s overall insight into the problem under consideration” (178-79). These accounts have two main elements in common: first, they assume that these kinds of epistemically superior subjects have a novice-oriented function to fulfil; second, they measure the epistemic superiority of both experts and Socratic authorities by the level of their respective understanding of a domain.

However, the accounts also differ in two important respects: First, experts need to be epistemically superior to most people in a domain, whereas Socratic authorities merely need to be epistemically superior to their interlocutors. Second, the novice-oriented account does not restrict the strategies an expert can use to help novices improve their epistemic position, while Socratic authorities must perform their function in a very peculiar way, namely by using their maieutic ability to ask questions that guide the interlocutor to understand things for themselves (see also Croce 2017: §3.3). I shall return to these differences in the next section to discuss important features of the service conception of epistemic authority, which Jäger’s account belongs to. For now, it suffices to say that despite their commonalities, we have reasons to keep Goldman’s notion of an expert and Jäger’s notion of a Socratic authority distinct.

§4 AGAINST THE NOVICE-ORIENTED ACCOUNT OF AN EXPERT

Despite the attempt to provide a compelling novice-oriented account of an expert made in the previous section, I now want to show that this view is liable to at least two objections that make it far less attractive than it might initially seem. Specifically, the objections show that the novice-oriented account fails to comply with Goldman’s functionalist approach and, in particular, with the methodological assumption introduced in §2. First, I shall argue that neither the understanding-linked condition nor Goldman’s truth-linked condition suffices to determine what it takes to have the capacity to help laypeople solve problems in a given domain, as some further condition is required. Second, NO-CAP is too weak as a functional definition of expertise, in that it attributes to experts a role that other kinds of epistemic subjects—whom we would not be willing to consider experts in general—can easily satisfy.

Let us consider the first problem affecting the novice-oriented account, namely that fulfilling U-LC is not sufficient for one to satisfy NO-CAP. Indeed, there may well be subjects who have much better understanding than most people in a domain and nonetheless lack the capacity to help others improve their epistemic position in that domain. Establishing exactly which dispositions ensure that one has the capacity to help novices in some domain appears to be a very difficult task, one that probably involves

empirical considerations too. For our purposes, it suffices to say that this capacity involves at least the following set of intellectual virtues:

Novice-oriented abilities: virtues that allow an epistemic subject to properly address a layperson's epistemic dependency on them (e.g., sensitivity to the novice's needs, intellectual generosity, intellectual empathy, sensitivity to the novice's epistemic resources, and maieutic ability).

It should be evident that we do not get these abilities for free simply by having better understanding in a domain than most people do. As a matter of fact, there can be several ways in which a subject S who fulfils U-LC can fail to display novice-oriented abilities.

First, S might be unable to figure out what a layperson does not understand about their theories, claims, or scientific findings, which S takes to be extremely clear, thereby displaying insensitivity to the layperson's epistemic needs. Second, S might be unable to tailor their answer to the novice's questions: for instance, S might provide overly complex information for the novice to understand; alternatively, S might underestimate the novice's epistemic resources and offer overly simplistic information, thereby failing to satisfy their epistemic needs. Finally, S might be able to figure out the layperson's needs but lack the ability to ask those questions that guide them to understand things for themselves. In this particular situation, S displays a lack of maieutic ability and intellectual empathy with the novice's epistemic situation—i.e., with their level of understanding of the domain, with how their understanding could be broadened, deepened, or made more significant.

This list is not supposed to include every possible way in which a subject who has better understanding than most people can fail to be a virtuous *teacher*. It does show though that these scenarios are plausible, and therefore puts pressure on those who endorse a novice-oriented account of an expert. If we want to find people who can fulfil NO-CAP, we cannot simply look for individuals who have great understanding of a domain. These subjects need, additionally, to have novice-oriented abilities.

Before considering the second problem with the novice-oriented account, it is worth noticing that the same issue would arise if we stuck to the most plausible version of Goldman's veritistic condition, namely T-LCa. If having better understanding than most people do in a domain is not sufficient to identify who can fulfil NO-CAP, *a fortiori* having more true beliefs than most people do cannot do any better. This is because T-LCa can be met by subjects who do not even grasp the relationships between different parts of a body of information, which is a fundamental feature that allows one to address others' questions and help them improve their epistemic position in a given field. Thus, we can conclude that no matter whether we endorse a truth-linked or an understanding-linked possession condition of expertise, further dispositional requirements are needed for one to satisfy NO-CAP.

The second problem with the novice-oriented account is that it offers an overly weak functional definition of what it takes for one to be an expert. All that is required for one to satisfy NO-CAP is that they are better epistemically positioned than *the interlocutor* is in that domain. A recent debate on the notion of *epistemic authority* can help us clarify this problem. On the service conception of epistemic authority I adopt, following Joseph Raz (1986, 2006), Linda Zagzebski (2012), and Christoph Jäger (2016), a subject is an epistemic authority for another insofar as they can help their interlocutors achieve some epistemic goal in a given domain through their superior knowledge and/or understanding to the interlocutors. Thus, the function of epistemic authorities on the service conception is just a slightly revised version of Goldman’s NO-CAP.

However, a relevant difference between the two accounts emerges when we compare their respective possession conditions. Elsewhere I argued that a subject S is an epistemic authority for a subject S* in domain D insofar as S (i) is more reliable than S* in D and (ii) makes use of their novice-oriented abilities to answer S*’s questions in D (see, for example, Croce 2017: 20; 2018: 315-17).¹⁵ As I briefly anticipated in the previous section while discussing Jäger’s view, the possession condition of epistemic authorities illustrates that the novice-oriented function can be fulfilled by subjects who are merely better epistemically positioned than their interlocutors but may not be better positioned than most people are in D, as U-LC or T-LCa require.

For example, a grandmother—let’s call her Loren—can help her grandson acquire knowledge or understanding of how fish breathe simply by having some vague and basic understanding of zoology while he knows nothing about that. Similarly, my friend Yaos can teach me what she just learned in an introductory Portuguese course, as I have no competence whatsoever in that language. Supposing Loren (or Yaos) also has some novice-oriented abilities through which she helps her grandson (me) improve his (my) understanding of ichthyology (Portuguese language), she proves to be an epistemic authority for the grandson (me) and, at same time, she fulfils NO-CAP.¹⁶ But it should be evident that neither of them is better epistemically positioned than most people are in the respective domains. This is a problem for the novice-oriented account because it shows that rather ordinary epistemic subjects, simply by being in an epistemically privileged position with respect to their interlocutors, can satisfy its functional definition, which should capture a necessary and sufficient capacity for one to be an expert.

¹⁵ This definition is meant to refine Zagzebski’s notion of epistemic authority, which is grounded in the notion of “epistemic conscientiousness” rather than in “epistemic reliability”. For further discussion on this topic, see Croce (2017), Jäger (2016), Keren (2014), and Zagzebski (2012, 2016). Following Zagzebski, I work under the assumption that the notion of epistemic authority requires a minimum threshold meant to prevent cases in which a reckless person is an authority for an even more reckless interlocutor. Arguably, though, the reliability threshold for epistemic authority is lower than the threshold for expertise.

¹⁶ Notice that my account of an epistemic authority is more concessive than Jäger’s in that it contemplates the possibility that an authority fulfils the novice-oriented function through their maieutic ability but also admits further strategies: for example, an authority can simply teach what they know or present their interlocutor with explanatory stories that help them acquire understanding in some domain.

More could be said about the distinction between experts and epistemic authorities, but this quick comparison should be enough to show that they are two different kinds of epistemically proficient subjects and hence to create trouble for Goldman's novice-oriented approach.¹⁷ If he wants to hold firm that NO-CAP is a functional definition of an expert and to extract possession conditions by reference to it—as his methodological assumption requires—he is forced to give up on T-LCa or U-LC and endorse weaker requirements. For NO-CAP merely requires that one be better epistemically positioned than the interlocutor is—yet not than most people are in a domain, as U-LC demands. But that is no less problematic, because intuitively it seems wrong to contend that epistemic authorities such as Yaos and Loren possess what it takes to be an expert simply by being better epistemically positioned than their interlocutors in a given domain. These considerations allow us to conclude that the novice-oriented account does not comply with Goldman's functionalist approach. But, as I have anticipated, all is not lost: in the next section, I shall argue that the research-oriented view is not liable to the same objections.

§5 TOWARD A RESEARCH-ORIENTED ACCOUNT OF AN EXPERT

A broader question one might want to ask about the novice-oriented account is what are the legitimate and plausible ways an expert can fulfil their novice-oriented function. Surely teachers fulfil this role, as I argued in the previous section, but on a more charitable reading of NO-CAP it might seem as though also *researchers*—that is, figures such as Marie Curie or Rita Levi Montalcini—should be included. As a matter of fact, researchers' contribution to the progress of a discipline, now or in the future, will allow themselves or others to answer the novices' questions and help an entire community improve knowledge and understanding in that field.

On closer inspection, though, this charitable reading turns into a further problem for the novice-oriented approach. Consider the case of a chemistry researcher—let's call her Shyler—who, despite her contribution to the progress of her field through her discoveries and publications, is completely deprived of novice-oriented abilities and social skills. Shyler's social interactions are limited to what is necessary for keeping her research position at some institution; she conducts her work in isolation as much as possible. I take it that the very fact that she made discoveries in chemistry intuitively suffices to grant that Shyler is an expert in that domain, no matter her social limitations. If so, then the novice-oriented abilities and the capacity to help laypeople acquire knowledge or understanding in a domain become less than necessary features of experts. To accommodate a case like this, the novice-oriented account would have to pay a huge cost,

¹⁷ For a more detailed analysis, see Croce (2017).

in that it should water down its novice-oriented spirit to such an extent that it is not anymore clear that Shyler and Yaos (or Loren) have a specific capacity in common.

These considerations allow us to bring the research-oriented account back on stage. As I shall argue in the rest of this section, the research-oriented view avoids these unwelcome results and complies with Goldman's methodological assumption better than the novice-oriented account does, in that it is not liable to the objections raised in the previous section against the novice-oriented account. However, before developing the arguments in favor of the research-oriented view, the account has to be refined in light of the problems affecting the truth-linked condition discussed in §3.

In the original version of the research-oriented account, expertise is defined as someone's capacity to give a contribution to the progress of some domain (RO-CAP), and the possession of more true beliefs and/or fewer false beliefs (T-LC2) is considered as a necessary and sufficient condition for one to fulfil RO-CAP. In §3.1, I offered reasons to replace T-LC2 with T-LCa. However, it seems clear that replacing T-LCa with the understanding-linked condition (U-LC) has better prospects for success for there are many ways in which someone can possess more true beliefs than most people do in a domain without having the capacity to contribute to the progress of that domain. To consider one of them, let us go back to EXPERT BY HEART (§3.3). The fact that Denny fulfils T-LCa does not put him in a position to satisfy RO-CAP—that is, does not ensure that he has the capacity to answer new questions arising within a domain. After all, all he can do is reply to specific questions about physiology whose answers he learnt by heart, but he has no idea of the current challenges of this field and how to solve them, due at least in part to a lack of understanding.

As I anticipated in §2, someone might want to resist this argument, holding that if the propositions pertaining to a domain of expertise D include propositions about the processes, methods, and skills the use of which is likely to yield true beliefs in D, then satisfying T-LCa will typically result in the capacity to generate new knowledge in D, at least in non-empirical domains. I think this move cannot settle the issue. We could think of a slightly revised version of EXPERT BY HEART in which Denny helps his brother with a difficult algebra exam, and specify that the information Denny learns by heart includes propositions about the processes, methods, and necessary skills one needs to deploy in the field. But it is hard to see how this could allow him to contribute to the progress of the research in algebra. The fact that he has lots of true beliefs about that domain and about its research methodologies does not ensure that he understands how these pieces of information connect to each other and has the capacity to use them to conduct research in algebra. Thus, I think we have good reasons to abandon T-LCa again and endorse U-LC as the possession condition on the research-oriented account.

The rest of the section is devoted to arguing that this view has better prospects to succeed as a functionalist account of expertise. The first, general, task is to show that the research-oriented account, unlike the novice-oriented one, can accommodate our intuition

that figures such as Marie Curie but also Shyler are experts while Yaos and Loren are not. This view accounts well for such an intuition: specifically, it grants expertise to the former as they satisfy the research-oriented function, while the latter do not and therefore lack expertise. Indeed, Yaos and Loren have the capacity to address the lay interlocutor's question by virtue of having better understanding than the interlocutor in the respective domains, yet both lack the capacity to answer new questions arising within them. As a matter of fact, Yaos is just a beginner in Portuguese and Loren only has a rough understanding of some basics of ichthyology. That is good news for the research-oriented view because it shows that this account, unlike the novice-oriented one, is not committed to grant epistemic authorities the status of experts.

The second task is to verify whether the research-oriented account complies with Goldman's methodological assumption. To do that, we need to have positive reasons in favour of the idea that U-LC is a necessary and sufficient characterization of what it takes for one to fulfil RO-CAP. Making a case for the *necessity* of U-LC is a relatively easy task. Surely, one of the reasons why Rita Levi Montalcini managed to contribute to the progress of medicine with her work in neurobiology is that she had a much better understanding of human physiology, as well as several other branches of medicine, than most people have. U-LC is a necessary feature of those who fulfil RO-CAP because this capacity involves at least a solid grasp of the relationships that link various elements of a domain, previous issues that other people had to solve within the domain, and questions that need to be addressed to advance our competence in the domain. But only people who have great understanding of a discipline can grasp these elements.

Yet it is far from clear that U-LC can be a *sufficient* requirement for individuating who satisfies RO-CAP, as there may be subjects who, despite having much better understanding than most people do in a domain, still lack the capacity to contribute to its progress. Suppose, for instance, that an outstanding scholar who has published dozens of important articles in her field is the victim of a terrible car accident, which impairs her ability to do research and acquire new information, without compromising her memory (see Coady 2012: 30). In such circumstances, the scholar still satisfies U-LC but since she is no longer able to keep updated on the progress of her discipline, she loses the capacity to contribute to the research in the field, thereby failing to satisfy RO-CAP.

Besides the case of the impaired researcher, a more general reason why a subject who has great understanding in some field might not satisfy RO-CAP is that they may lack important abilities that are necessary for contributing to the research in any field. As in the case of the novice-oriented account, we cannot arrive at a conclusive set of necessary and sufficient dispositions, but RO-CAP seems to involve at least the following set of intellectual virtues:

Research-oriented abilities: virtues that allow an expert or authority to exploit their fund of knowledge and understanding to find and face new problems in

their field of expertise (e.g., thoroughness, intellectual perseverance, intellectual courage, self-scrutiny, intellectual creativity, open-mindedness, intellectual curiosity, and autonomy).

Coady would disagree with this analysis and argue that having great understanding of a domain already shows that one possesses research-oriented abilities and therefore conclude that these abilities add no extra requirement to the possession condition (2012: 29). On closer inspection, this claim seems wrong. As a matter of fact, someone may have great understanding of a domain because they are intellectually virtuous and dedicated subjects, or because they just have intellectual talent. But a talented subject could lack the capacity to address new questions arising in a domain because, for example, they lack the curiosity that makes one ask good questions about the problems of the domain, the creativity that makes one find possible answers to those problems, the thoroughness that is necessary to notice opportunities for progress in small details, the perseverance that is necessary to carry on with a project despite objective obstacles, the courage that allows one to defend their view in the face of potential harm, or the open-mindedness that allows one to consider alternative standpoints.¹⁸ Thus, someone might possess great understanding of some field and nonetheless fail to contribute to the progress of that field because of a lack of research-oriented abilities, which therefore appear to be necessary for a subject who displays great understanding to satisfy the functional definition of expertise on the research-oriented account.

In conclusion, this analysis has shown that the research-oriented account, unlike the novice-oriented account, complies with Goldman's functionalist approach, as it provides (i) a functional definition of expertise that other kinds of epistemic subjects—namely, epistemic authorities—are unable to fulfil (i.e., RO-CAP), and (ii) a possession condition (i.e., U-LC plus research-oriented abilities) that is at least necessary for individuating those subjects who can satisfy the functional definition. Furthermore, the research-oriented account accommodates several intuitive cases that threaten the plausibility of the novice-oriented approach. Specifically, it allows us to contend that Shyler is an expert because she has the capacity to further the progress of chemistry through her great understanding of the domain and the research-oriented abilities she employs to conduct research. In contrast, it entails that Yaos and Loren are not experts, because they can merely help their respective interlocutor understand something better in a given domain but lack both better understanding than most people have in that domain and the abilities to contribute to its progress.

The arguments provided in these sections allow us to conclude that the research-oriented account better explains what it takes for one to be an expert than the rival, novice-

¹⁸ Further considerations on the distinction between intellectual talent and intellectual virtues can be found in Baehr (2011: §2).

oriented approach. The fact that the set of research-oriented abilities largely differs from that of novice-oriented ones helps us explain why neither functional definition of the two competing accounts can be taken to include the other. Just as epistemic authorities have the capacity to help others without necessarily possessing the ability to make contributions in any domain, so experts can contribute to the progress of their domain without necessarily having the capacity to help their interlocutors acquire knowledge or understanding in that domain.

§6 CONCLUSION

This paper surveyed two major approaches to the notion of the cognitive expert, based on Goldman's idea that a compelling definition of an expert needs to reflect the function of expertise that these subjects fulfil in the epistemic community. The main goal of this work was to show that a research-oriented account complies with Goldman's functionalist approach, while a novice-oriented account fails to do so. To pursue this aim, in section 2 I introduced the basic features of both views and showed how their functional definitions are meant to fall in line with their respective possession condition, as required by Goldman's methodological assumption. In section 3, I refined the possession conditions of both accounts to make sure we were working with the best versions of them. In section 4, I developed an argument against the novice-oriented account by showing that its functional definition commits us to grant epistemic authorities the status of experts, against our broad intuitions about expertise. Finally, in section 5, I argued that the research-oriented account is not liable to the problems affecting the rival approach and that it complies with Goldman's methodological assumption.

As a final remark, I want to go back to the distinction between experts and epistemic authorities introduced in §4. It may have been noticed that in a few passages I characterized the difference between epistemic authorities and experts by referring to *teachers*, i.e., those who are trained to help novices acquire knowledge and understanding of a given domain, and *researchers*, i.e., those who are trained to foster the epistemic progress of a discipline. In the ideal scenario, we would rather be taught by researchers: the more this happens, the better it is for everyone. For, when an expert possesses novice-oriented abilities, laypeople can acquire fresh knowledge and understanding from someone who works first-hand in the domain. This is beneficial for novices not only because it minimizes their risk of getting improper or outdated information, but also because an expert can direct them towards the right kind of issues that they need to explore if they want to increase their understanding of D.¹⁹

¹⁹ More on the idea of experts and epistemic authorities as advisors can be found in Elga (2007), Jäger (2016), and Lackey (2018).

As I tried to argue in sections 4 and 5 though, we cannot take it for granted that experts possess novice-oriented abilities. Those who work in education know how important it is that teachers be trained to perform their task effectively. It might well be the case that great researchers prove to be less effective as teachers than trained teachers who lack research-oriented abilities. An important consequence of the argument of this paper for real-life scenarios, then, is that we would rather have experts working on advances in their fields than spending lots of time teaching novices when they lack the capacity to do so. For, if my argument hits the target, it should be clear that experts can do a better service to the whole society by fulfilling their research-oriented function than by working as—or, trying to become—epistemic authorities²⁰.

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