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Baseless Knowledge

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It is a commonly held view in contemporary epistemology that for having knowledge it is necessary to have an appropriately based belief, although numerous different views exist about when a belief's base is appropriate. Broadly speaking, they all share the view that one can only have knowledge if the belief's base is in some sense truth-related or tracking the truth. Baseless knowledge can then be defined as knowledge where the belief is acquired and sustained in a way that does not track the truth. I will argue that rejecting baseless knowledge leads to controversial consequences. The problem increases if we consider contrasting persons who know because of appropriate belief forming processes but who fail to possess further epistemic virtues such as understanding. I will not argue which belief bases constitute a sufficient condition for knowledge. Rather I will stress the point that the common assumption that an appropriate basing relation constitutes a necessary condition for knowledge has controversial consequences.

Keywords: Basing relation, externalism, reliabilism, sensitivity, safety, virtue epistemology.

1. *Baseless knowledge*

Overview: First, I will present two examples of persons to whom it is *prima facie* not implausible to ascribe knowledge, although their beliefs are not appropriately based. Second, I will show that the claim that these persons do not know becomes even more controversial if we consider contrasting persons to whom knowledge accounts typically ascribe knowledge that assume a basing relation as necessary for knowing. Third, I will illustrate in more detail, why prominent externalist knowledge accounts are committed to strongly affirming that baseless knowledge does not exist. Those accounts that I will discuss are process-reliabilism, sensitivity, safety and virtue epistemology. I will argue that these accounts not only face a problem if baseless knowledge clearly exists, they have already counter-intuitive consequences if the

existence of baseless knowledge is *prima facie* disputable. Fourth, I will compare my cases to Lehrer's gypsy lawyer case and, fifth, I will argue why we cannot understand the presented cases of baseless knowledge as instances of causal overdetermination or pseudo-overdetermination as one might suggest.

Here are two cases where it seems controversial to deny knowledge although the beliefs are not appropriately based:

Case 1: The obsessed detective

> Inspector X is an ambitious and passionate detective at a police department. Mrs Charming has been murdered and X is commissioned to catch her murderer. X visits her home to meet her husband Mr Charming. At the very moment of seeing Mr Charming for the first time X has the intuition that Charming murdered his wife. X becomes immediately convinced that Charming is the murderer, although Charming is a very handsome, distinguished and popular person and nobody else but X believes that he could have committed the crime. X starts seeking for evidence that Charming murdered his wife, but since Charming is also smart, X cannot find any piece of evidence for years. Over the years, X becomes obsessed with this case. She is totally convinced that Charming killed his wife and nothing, not even evidence to the contrary, could change her conviction anymore. After years, X finds the gun that is evidently the murder weapon and there are only Charming's fingerprints on it. X has hereby proven that Charming murdered his wife. She can easily convince all her colleagues and the rest of the world. X gets a promotion and becomes a legend of her department.

Case 2: The obsessed scientist

> Since she was a young boy O wanted to become a scientist like her hero Albert Einstein. O fulfils her dream and becomes professor of physics. However, O is not as successful as she dreamt of as a young boy. Like many colleagues, she is investigating a physical phenomenon ϕ that has not been explained yet, but without any success. One evening, O is kissed by the muse and has the intuition that there exists an undiscovered subatomic particle, whose features explain ϕ. O is enthusiastic about this idea, since the particle could be named after her, she would become immortal in the scientific community, and her childhood dream would come true. However, the particle is hard to find and O gets more and more obsessed with proving its existence until her obsession reaches a point, where nothing, not even evidence to the contrary, could change her conviction anymore. Finally, O can perform the decisive experiment that proves the existence of the sought-after particle. The particle becomes called the O-particle and O receives the Nobel prize for this discovery.[1]

[1] Klein (2012) presents a similar example of an astronomer who acquires a true belief about the moon by misunderstanding a conversation between two students, but then successfully proves that the believed proposition is true.

Further cases of obsessed believers can easily be created. Inspector X has proven that Charming murdered his wife and she received all the merits for her achievement. Professor O has proven the existence of the sub-atomic particles and was awarded the Nobel-prize. Does X *know* that Charming murdered his wife? Does O *know* that the particles exist? I think one intuition is that they do not know before finding evidence, but that they know after having found evidence. Accordingly, adequate theories of knowledge should capture this intuition. Remarkably, nearly all contemporary accounts on knowledge are committed to claiming that it is clearly the case that they still do not know after having found evidence.

I will call any kind of reason or cause for holding or sustaining a belief its *base*, including mental states as well as external factors such as states, events or processes that cause a belief.[2] I defined *baseless knowledge* as knowledge where the belief is acquired and sustained in a way that does not track the truth. According to this definition, knowledge of obsessed believers as in the case of inspector X and professor O is an instance baseless knowledge.[3]

In what follows, I will mainly discuss the case of professor O. Obviously, we obtain the same results for detective X. O has a strong conviction and possesses clear evidence. However, her beliefs are only based on her intuitions and not on this evidence. One reason why we seek evidence or justification is that we want to base new beliefs on it. In this respect, persons who are already totally convinced about a proposition, but still keep seeking for evidence for it might be practically incoherent. However, there are epistemic contexts, as in the two examples of the inspector and the scientist, where we seek evidence for the purpose of *proving* the truth of our convictions *to others*, but not for basing our own beliefs on it. In these contexts, which involve a social component, it is rational to seek evidence, even after having acquired an unchangeable conviction.

Let's suppose further that O has strong intuitions and acts according to them but that her intuitions are not truth-conducive in any sense, i.e. her intuitions are not more likely to be true than mere guessing.[4] Under this assumption, the following holds:

R: O's intuitions are not reliable belief forming processes.

R can be strengthened by assuming that O's intuitions are even *unreliable* belief forming processes such that mere guessing is more likely to be true than her intuitions.

Moreover, O is a totally obsessed believer and would not change her beliefs under any circumstances. This obsession can be characterised by the following counterfactual claims:

[2] Here, I follow the terminology of Williamson (2000, and 2009).

[3] The notion of baseless knowledge is used by Turri (2011).

[4] I do not assume a particular concept of intuitions here.

CF_1: O would believe that the particles exist, if they did not exist.
CF_2: O would believe that the particles exist, if she did not perform any verifying experiment.
CF_3: O would believe that the particles exist, if she or someone else did perform an experiment that proves the contrary.

The counterfactual conditional CF_1 is true, since O holds her belief only because of her intuitions. Her belief is not caused by the facts that make her belief true. CF_2 is true because the intuitions are completely causally independent from the process of seeking and finding evidence.

CF_3 is normally a stronger claim than CF_2 because persons who believe that p for a reason despite evidence against it usually also believe that p, if there is no evidence. However, the opposite implication does not hold. CF_3 holds, if O is so obsessed with her convictions that she is psychologically unable to revise her views. This can be the case if proving the truth of her intuitions is for some psychological reason so important to her that she would go insane if she did find evidence that her convictions are false.[5]

O is prejudiced. She would hold her belief without any evidence and she would even sustain her belief despite evidence to the contrary. In this respect, she violates two rules of rationality: first, that one should believe only if one has reasons or justification for believing, and second, that one should not believe if one has evidence to the contrary. Violating the second rule is more serious than violating the first one. In this respect, O is not an ideal rational agent. However, in evaluating the epistemic circumstances of O it is important to note that CF_1-CF_3 are only *counterfactual* conditionals. Whenever we consider them, we consider something that is not the case. In the *actual* world, O proved that the subatomic particles exist. In the *actual* world, she does not believe despite her beliefs being false, her finding no evidence or her finding evidence to the contrary. Considering different possible worlds for evaluating the actual world, is, of course, a usual move in philosophy. However, I doubt that we would do this outside philosophical contexts in clear cases of praiseworthy discoveries. It seems implausible that in non-philosophical contexts we determine whether Albert Einstein knows that $E = mc^2$ by asking whether he believes this in another possible world where he did not find the proof or did find a proof to the contrary. I think in non-philosophical contexts we do not put that much emphasize on counterfactual situations.

The counterfactual claims CF_1-CF_3 aim at illustrating that there is no appropriate causal relation between the beliefs and their truthmakers or between the evidence and the belief. However, one could object that we cannot adequately capture causal relations by using counterfactual claims. Taking this objection into account, we can reformulate

[5] Moreover, I assume in the presented cases that the beliefs that the detective and the scientist form are not based on any kind of inference to the best explanation that might involve a truth connection.

the case of O such that she simply does not have good enough reasons to believe, based on an intuitive understanding of good enough reasons.

O bases her belief on a defective belief forming process. However, do we really want to admit that she does not know? If O knows, her knowledge is not ideal with respect to the involved belief forming processes. If one accepts *fallible* justification or warrant, then warrant and justification come in degrees. We have infallible justification on one end of the spectrum and the weakest possible evidence that still converts true beliefs into knowledge on the other end, and numerous forms of justification or warrant in between. In this case, we are inclined to accept non-ideal knowledge with respect to justification and warrant. But if we accept non-ideal knowledge in one respect, why should we exclude non-ideal knowledge in another respect, i.e. with respect to the belief forming process? In what follows, I will present various counterintuitive claims that follow from the assumption that O does not know.

Those who deny that O knows argue that she fails to know because of the defectiveness of her belief forming processes. If one accepts this view, then counterintuitive general claims of the following form can be true:

Ci_1: S is convinced that p and S has proven that p, but S does not know that p.

In case of O, the following is true:

Ci_{1O}: O is convinced that O-particles exist and O has proven it, but O does not know it.

In this case, one has to accept that O believes a proposition and has proven the proposition to be true, *and* she does not know this proposition. One can increase the counter-intuitiveness of Ci_1 and of the following claims by adding that S has not only proven that p, but that S is also aware of this fact.

Moreover, the counter-intuitiveness increases, if we consider the fact that it is O's *achievement* or *merit* that she has proven her beliefs to be true (or that O is creditable for having proven that O). O did not stumble luckily across the evidence, but was searching intentionally and systematically for it. If she does not possess knowledge, then counterintuitive claims of the following form can be true as well:

Ci_2: S is convinced that p and S has proven that p and it is S's merit that S has proven that p, but S does not know that p.

In the case of O, the following is true:

Ci_{2O}: O is convinced that O-particles exist and O has proven it, and this is her merit, but O does not know it.

Claims of type Ci_2 sound even more implausible than those of type Ci_1.

2. *Contrasting persons*

The claim the neither the inspector nor the scientist knows becomes even more problematic, if we contrast them with other persons to whom

those accounts ascribe knowledge, which at the same time deny that the inspector or the scientist know due to inappropriate belief forming processes. In the following, I will first contrast them with other experts and, second, with laypersons.

Let's suppose that O has a colleague, professor P. O performs her experiment and convinces P that the sub-atomic particles exist and that they explain the physical phenomenon ϕ. As a result, P believes that O-particles exist. P is justified in believing it and P believes it because of the evidence. Therefore, those who argue that O does not know because her belief is not based on the evidence presumably admit that P knows.[6] If one agrees with this view, then claims of the even more counterintuitive type can turn out to be true:

Ci_3: S_1 is convinced that p and S_1 has proven that p to S_2, but S_1 does not know that p, whereas S_2 does.

In the case of O, the following is then true:

Ci_{3O}: O is convinced that O-particles exist and O has proven this to professor P, but O does not know it, whereas P does.

In these cases, the persons who present the proof do not know, but their colleagues, to whom the evidence is presented, know. This seems controversial.

The cases of contrasting persons can be strengthened by taking *laypersons* as contrasting persons into account. Take for example schoolboy B who learns from a textbook that O-particles exist.[7] If we admit that schoolboy B acquires knowledge this way because his beliefs are appropriately based, then the following counter-intuitive claims are also true:

$Ci_{3O'}$: O is convinced that O-particles exist and O has proven it. Schoolboy B learns from a textbook that O-particles exist, but O does not know it, whereas B does.

These claims sound even more implausible. We can increase their implausibility by assuming that O has the strongest possible evidence and understanding and the contrast person the weakest possible justification and understanding that turns an appropriately formed true belief into knowledge.

Moreover, we can suppose that B and everybody else would not know that O-particles exist, if O hadn't proven it because if O hadn't proven it nobody else would have proven it. In this respect, we can say that it is O's merit that B knows that O-particles exist. In this case, instances of the following general claim are true:

[6] We can construct a similar scenario for X, when she convinces colleague Y via presenting the evidence.

[7] Analogously we can assume Granny G as contrasting layperson for inspector X, who is reading in the local newspaper that X has proven that Charming murdered his wife and believes this because of reading the newspaper.

Ci_4: S_1 is convinced that p and S_1 has proven that p to S_2, and S_2 thereby comes to know that p and it is S_1's merit that S_2 knows that p, but S_1 does not know that p.

In the case of O, the following is true:

Ci_{4O}: O is convinced that O-particles exist and O has proven it and it is O's merit that schoolboy B knows that O-particles exist, but O does not know it.[8]

These claims seem very controversial. To make this point more explicit, consider the following dialogue between two physicists at the Nobel Prize ceremony:

A: O really deserves the Nobel Prize. Nobody believed that the existence of a particle can explain the ϕ-phenomenon. She was seeking for decisive evidence for years. Thanks to her, we now understand this phenomenon and know that O-particles exist.
B: That's true; it's just a personal tragedy that O will never know all this.
A: Why not?
B: Because she became obsessed with the idea that these particles exist during her research.
A: I see. What a pity.

We do not easily admit that those two physicists share a correct understanding of knowledge. Rather we are at least inclined to affirm that this is not clearly the case.[9]

3. *Externalist knowledge accounts*

Externalist accounts of justification and knowledge share the view that appropriately forming or sustaining a belief is at least necessary for

[8] Lackey (2007 and 2009) argues that S can know that p without deserving credit for truly believing that p. If one goes with Lackey, then one can also suppose that schoolboy B knows without even deserving credit for it, which is a further contrast to the scientist, who deserve credit that B knows. Moreover, Lackey argues that a person S can know that p via testimony from a person T, although T does not know that p. Lackey (2008) presents the case of Stella, a teacher who believes in the truth of creationism and in the falsity of evolutionary theory. Nevertheless, Stella carries out her duty and teaches evolutionary theory at school. Lackey argues that Stella does not know that evolutionary theory is true, although her students can know via Stella's reliable testimony that evolutionary theory is true. Thus, one might think that the case of professor O and schoolboy B is just an instance of Lackey's case and not particularly problematic. Notably, the two cases are different. Stella fails to know that evolutionary theory is true because she fails to *believe* it. O, in contrast, believes that O particles exist and acknowledges the evidence for it. O just fails to believe for the 'right' reason.

[9] Notably A and B take O's strange belief-forming process explicitly into account. Still, their rejection of knowledge seems false. Hence, the counter-intuitiveness of Ci1O-Ci4O is not based on the fact that they do not mention O's strange belief-forming process.

having knowledge. Process reliabilism is the view that beliefs have to result from processes that reliably produce true beliefs, sensitivity and safety principles interpret the belief forming process modally, and virtue epistemologists claim that the belief has to result from an agent's epistemic virtues. In what follows, I will argue briefly, why externalist accounts are committed to strongly affirming Ci_1 and Ci_2 and presumably also Ci_3 and Ci_4. I will not offer a complete selection of all externalist accounts defending a basing relation as a necessary component of knowledge; I only focus on some of the most prominent, selecting the best-known representatives of these accounts.

3.1. *Knowledge without reliability*

Process reliabilism is (or at least was) more concerned with epistemic justification than with knowledge. Goldman (1979: 9) argues that "correct principles of justified beliefs must be principles that make causal requirements, where "cause" is constructed broadly to include sustainers as well as initiators of beliefs (i.e., processes that determine, or help to overdetermine, a belief's continuing to be held)." Goldman notes that belief-forming processes that are intuitively justification-conferring share reliability, but that faulty belief forming processes do not. Goldman (1979: 10) concludes that the "justificational status of a belief is a function of the reliability of the process or processes that cause it, where […] reliability consists in the tendency of a process to produce beliefs that are true rather than false." The first version of reliability that Goldman considers is the following:

> S's believing p at t is justified if and only if S's believing p at t results from a reliable belief-forming process (or set of processes).

This version captures the core idea of process reliabilism. O holds and sustains her beliefs as a result of her intuitions, which are not reliable belief forming processes. Therefore, these beliefs are not justified according to process reliabilism. Hence, Goldman's account implies the counter-intuitive claims Ci_1 and Ci_2 reformulated for justified beliefs. Moreover, suppose that the processes leading to schoolboy B's belief are reliable since the textbooks are reliable sources. Hence, reliabilists would admit that B has justified beliefs and that the counterintuitive claims Ci_3 and Ci_4 reformulated for justified beliefs hold as well.

Goldman (1979) notes that beliefs may be over-determined in the sense that they may have a number of distinct ancestral trees. He admits that they need not all be full of reliable or conditionally reliable processes, but at least one ancestral tree must have reliable or conditionally reliable processes throughout. However, the case of professor O can easily be formulated in way that her belief is not causally over-determined, since it is exclusively caused and causally sustained by her intuitions, which are not reliable processes. Hence, there is no ancestral tree that has reliable processes throughout.

The only possible way for reliabilism to avoid the conclusion that O does not have justified beliefs that comes to my mind is to claim that O acquires a *second* belief when performing the experiment for the first time. This second belief would be the result of reliable belief-forming processes, and, hence they would be justified. But this is not a viable way for reliabilists: If they claim ad hoc that anybody with appropriate evidence acquires a second belief, then these beliefs are not primarily characterized by the quality of the belief forming processes anymore, but by the quality of the evidence the person has.

Goldman regards his original version of reliabilism as unsatisfactory and later refined it in various ways by adding further conditions as necessary for justified believing.[10] However, the belief forming processes of O are simply unreliable and, therefore, they violate the core idea of process reliabilism. They fail to fulfil at least one necessary condition for justified believing, and in some cases, they fail to fulfil additional conditions as well. Hence, these refined versions of reliabilism also imply the truth of the counter-intuitive claims Ci_1 and Ci_2 for justified beliefs. Moreover, one can easily modify the case of B in a way that B's belief fulfils all the conditions for justified believing. As a result, these refined versions of process reliabilism also imply Ci_3 and Ci_4 for justified beliefs.[11]

3.2. *Knowledge without sensitivity*

Nozick (1981) interprets knowledge modally. As a first approximation, he defines that S knows p iff (1) p is true; (2) S believes that p; (3) If p weren't true, S wouldn't believe that p; and (4) If p were true, S would believe that p. Each of the premises (1)–(4) constitute a necessary condition for knowledge. Condition (3), which is the crucial one for most purposes, is often called the sensitivity requirement. In a further step, Nozick (1981: 179) defines knowing via a method as follows:

S knows, via method (or way of believing) M, that p:

[10] Goldman (1979: 20) adds as a further condition for justification to mere reliability that "there is no reliable or conditionally reliable process available to S which, had it been used by S in addition to the process actually used, would have resulted in S's not believing p at t." In *Epistemology and Cognition* (1986: 111f), Goldman adds a negative higher-order condition in the form of a non-undermining condition according to which a cognizer cannot be justified, if she does have reason to believe that her first-order belief *isn't* reliably caused. For further variants of process reliabilism and its connection to related accounts see Goldman (2011).

[11] Plantinga (1993) regards reliability as a necessary, but not as a sufficient condition for justification or for the third condition of knowledge beyond true belief, which he calls "warrant". He introduces the notion of proper function which implies the existence of a design plan. Bergmann (2006) offers a modified version of Plantinga's account of warrant, but also defends reliability as necessary for knowledge. Hence, those following Plantinga or Bergmann must accept Ci1 and Ci2 as well.

(1) p is true.
(2) S believes, via method or way of coming to believe M, that p.
(3) If p weren't true and S were to use M to arrive at a belief whether (or not) p, then S wouldn't believe, via M, that p.
(4) If p were true and S were to use M to arrive at a belief whether (or not) p, then S would believe, via M, that p.

Notably, Nozick explicitly deals with the question of causal over-determination, which is relevant for the case of O. He discusses the case of a father, who believes that his son is innocent of committing a particular crime via two methods, namely because of faith in his son and because of a conclusive demonstration in the courtroom.[12] This case is similar to the ones of obsessed knowledge. Nozick argues that the father does only know if the good method outweighs the defective method. If persons come to believe that p via two or more distinct methods, then the modal features of the "dominant" method that outweighes all other methods determines whether the person knows. Nozick (1981: 182) captures this idea as following:

> S knows that p if and only if there is a method M such that (a) he knows that p via M, his belief via M that p satisfies conditions 1–4, and (b) all other methods M_1 via which he believes that p that do not satisfy conditions 1–4 are outweighed by M.

Nozick (1981: 182) defines outweighing methods as following:

> [M]ethod M is outweighed by others if when M would have the person believe p, the person believes not-p if the other methods would lead to the belief that not-p, or when M would have the person believe not-p, the person believes p if the other methods would lead to the belief that p.

The case of the scientist O is set up in way that there is no causal relation between O's belief and the evidence for this belief. However, let's suppose, for the sake of the argument that O believes that the particles exist via her intuition *and* via the experiment. Her belief via the experiment satisfies Nozick's conditions 1–4.[13] Hence, O knows *via the experiment*. O knows according to Nozick, if and only if all other methods via which she believes that the particles exist are outweighed by the experiment. O also believes via her intuition, but her intuition clearly violates conditions (3) and (4): If the particles did not exist and O were to use her intuition to arrive at a belief whether (or not) they exist, then S would still believe, via her intuition, that they exist. Therefore, condition (3) is not satisfied. Therefore, O only knows, according to Nozick, if

[12] Nozick refers for this example to Armstrong (1973).

[13] This is the case because (1), the theory is true, (2), O believes the theory via the experiment, (3), if the theory weren't true and O were to use the experiment to arrive at a belief whether (or not) the theory is true, then O wouldn't believe, via the experiment, that the theory is true, and, (4), if the theory were true and O were to use the experiment to arrive at a belief whether (or not) the theory is true, then S would believe, via the experiment, that the theory is true.

her intuition is outweighed by the experiment. This would be the case if: when O's intuition would lead to the belief that the particles exist, O would nevertheless not believe this if the experiment showed that such particles do not exist. However, this condition is not satisfied for O since she would believe according to what her intuitions tell her, no matter what results the experiment gains. Therefore, O's intuitions are not outweighed by the experiment and O does not know according to Nozick. Thus, Nozick's definition of knowledge implies the truth of Ci_1 and Ci_2.

Moreover, one can easily reformulate the case of schoolboy B in a way that his beliefs fulfil Nozick's refined concept of knowledge, either by supposing that he only believes via one method which is reading the textbook or by supposing that all other methods are outweighed by this method. In these cases, the counterfactual conditionals Ci_3 and Ci_4 hold as well.

3.3. *Knowledge without safety*

Sensitivity accounts of knowledge have been criticised in various ways.[14] Sosa (1999) suggests replacing sensitivity by the alternative modal principle *safety*, which he defines as following:

> Call a belief by S that p "safe" iff: S would believe that p only if it were so that p.
> (Alternatively, a belief by S that p is "safe" iff: S would not believe that p without it being the case that p; or, better, iff: as a matter of fact, though perhaps not as a matter of strict necessity, not easily would S believe that p without it being the case that p.)
> Safety In order to (be said correctly to) constitute knowledge a belief must be safe (rather than sensitive). (Sosa 1999: 142)

Sosa points out that sensitivity and safety are not equivalent, since subjunctive conditionals do not contrapose. Safety is a modal principle. Therefore, one can formulate it by using the notion of possible worlds. Pritchard (2007: 81) formulates the safety principle as following:

> (SP) *S*'s belief is safe *iff* in most near-by possible worlds in which *S* continues to form her belief about the target proposition in the same way as in the actual world the belief continues to be true.[15]

[14] Some argue that the fact that sensitivity excludes knowledge-closure shows that sensitivity has to be false. See for example Williamson (2000). For influential criticisms see Vogel (1987) and Sosa (1999). For recent criticisms of sensitivity accounts of knowledge see Melchior (2014a, 2014b and 2015).

[15] For a similar formulation see Pritchard (2005: 156). Pritchard (2007: 283) also considers strengthening the safety principle by demanding that the agent's belief has to be true not just in most of the relevant nearby possible worlds, but in *nearly all (if not all)* of them. Fur a further variant of the safety principle see Pritchard (2007: 292). Sosa (2007) later replaced his initial concept of safety by basis-relative safety which relativizes safety to a belief forming method as Pritchard's principle (SP) does. Pritchard's (2005 and 2007) starting point of his anti-luck epistemology is

What about the safety principle and the case of the scientist? Her beliefs are only based on her intuitions which do not stand in any causal relation to the part of the actual world that makes them true. Hence, it is easily possible that she still has her beliefs on the basis of her intuitions, although her beliefs are false. It is not the case that the scientist would believe that the particles exist, only if they did exist; as a matter of fact, she would easily believe this without it being the case. Therefore, the scientist's belief is not safe according to Sosa's formulation. But since a belief must be safe in order to constitute knowledge, she does not know. The scientist also violates Pritchard's safety principle (SP), since not in most nearby possible worlds in which she continues to form her beliefs based on her intuitions her beliefs continue to be true. Pritchard (2007: 289 and 2009a) explicitly states that safety is necessary for knowledge. Therefore, he is forced to admit, as Sosa is, that the obsessed scientist does not know and that Ci_1 and Ci_2 hold.[16]

What about the contrasting person schoolboy B? Let's take the safety principle (SP) as example. There are possible worlds, where B continues to form his beliefs the same way as in the actual world, but his beliefs are false. These can be possible worlds where O-particles do not exist, but one of the textbook authors mistakenly reports that they do. Whether B knows in the actual world depends on whether such possible worlds are nearby. If they are nearby and if there are sufficiently many of them, then B's belief is not safe according to (SP) and he fails to have knowledge. However, if one regards these worlds as nearby, then knowledge acquisition by reading the textbooks is excluded in general. However, excluding this kind of testimonial knowledge in general seems an unwanted consequence of safety. Hence, those defending safety as the core principle of knowledge face a dilemma: they either must deny testimonial knowledge or accept that schoolboy B knows and that, therefore, the counterintuitive claims Ci3 and Ci4 are true as well.[17]

the common sense claim that knowledge excludes luck. His conception of non-lucky beliefs is closely related to the safety principle, i.e. a belief is non-lucky iff it is safe.

[16] One could argue that any possible world where O-particles do not exist is already far off, since its physical consistency is different from the one of the actual world. In this case, we can take the case of inspector X into account, (or other cases of knowledge by obsession) where this kind of problem does not arise.

[17] Interestingly, Pritchard (2007: 279) also considers the case of a prejudiced detective. In accordance with his anti-luck epistemology he explicitly claims that the detective does not know: "Suppose, for instance, that it was only a matter of luck that the detective stumbled across the crucial piece of evidence which proves the defendant's guilt. So long as her resultant true belief in the defendant's guilt is not lucky, then this poses no problem for the claim that she knows what she believes. In contrast, suppose her belief was only luckily true—suppose, for example, that her belief was based on prejudice rather than evidence, but was true nonetheless—then this would be inconsistent with her possessing knowledge in this regard." Pritchard uses his example for pointing out that his main worry is luck in the truth of the relevant belief and not the luck in coming across evidence.

3.4. *Williamson on reliability and safety*

Williamson regards reliability as a necessary condition for knowledge. "No reason has emerged to doubt the intuitive claim that reliability is necessary for knowledge" (Williamson 2000: 100). Williamson (2000: 123) understands reliability and unreliability as modal states like stability and instability. He thinks that safety is the crucial instance of reliability, which is a necessary condition for knowledge.[18] Williamson (2000: 128) explains the relations between knowledge and safety as following:

> Now assume a connection between knowledge and safety from error […] For all cases α and ß, if ß is close to α and in α one knows that C obtains, then in ß one does not falsely believe that C obtains.

However, Williamson famously reverses the orthodox direction of explanation dominant in epistemology. In his "knowledge first" methodology, Williamson (2000: v) takes the simple distinction between knowledge and ignorance as a starting point from which to explain other things, not as something itself to be explained. According to Williamson, we must use our understanding of knowledge for explaining safety and not the other way round. Consequently, Williamson argues that we have to use our understanding of knowledge to determine whether the similarity to a case of error is great enough in a given case to exclude knowledge. Consequently Williamson (2009: 305) suggests that in "many cases, someone with no idea of what knowledge is would be unable to determine whether safety obtained. … One may have to decide whether safety obtains by first deciding whether knowledge obtains, rather than vice versa."

In order to handle the case of professor O and schoolboy B, Williamson cannot rely on defined notions of safety in determining whether they know, since he inverted the direction of explanation. Therefore, his starting point has to be a judgement about whether O and whether B knows. There are four possible cases:

Case (1): O knows and B knows.
Case (2): O knows and B does not know.
Case (3): O does not know and B knows.
Case (4): O does not know and B does not know.

However, each of these four cases is problematic for Williamson's account.

Case (1): This case seems the desired result given our intuitions. Since safety is, according to Williamson, a necessary condition for knowledge, no possible world where O falsely believes is close. Hence, a world which is exactly the same as the actual world except the fact that O had false intuitions is already far off. But such a restrictive concept of closeness implies an extremely loose concept of safety according to

[18] See Williamson (2000, 124). For a discussion on Williamson's account of reliability and safety see also Goldman (2009) and Williamson (2009).

which nearly any belief is safe and safety is not a useful criterion for knowledge anymore. In this case, Williamson's claim that safety is necessary for knowledge becomes inoperable.

Case (2): In this case, the same problematic consequences as in case (1) follow from the claim that O knows. Moreover, the claim that B does not know seems ad hoc, unless we abandon any kind of testimonial knowledge in general.

Case (3): In this case Williamson can make use of an plausible account of safety according to which O does not know for the reason that her belief is not safe but B knows and, therefore, has safe beliefs. However, the problem of case (3) is simply that Williamson is committed to accepting all counterintuitive claims Ci1-Ci4.

Case (4): On the one hand, this case is less problematic than case (3) since it only implies Ci_1 and Ci_2, but not the even more counterintuitive claims Ci_3 and Ci_4. On the other hand, it is–as in case (2)–ad hoc to claim that B does not know, if we do not abandon any kind of testimonial knowledge.

At first sight, Williamson might seem to be in a better position than those who define knowledge in terms of reliability, sensitivity or safety because he need not deny that the detective and the scientist know. But at a closer look, his alternatives are not less problematic.

3.5. *Knowledge without virtue*

Important variants of virtue epistemology are version of epistemic externalism. While process reliabilism focuses on features of the belief forming process, virtue epistemologists mainly focus on features of the believing person. They claim that knowledge has to be the result of a truth-conductive intellectual virtue. Greco argues that simple process reliabilism is too weak. Greco (2000: 177) suggests replacing process reliabilism by the following position, which he calls "agent reliabilism":

> A belief p has positive epistemic status for a person S just in case S's believing p results from stable and reliable dispositions that make up S's cognitive character.[19]

Sosa (2007: 23) regards knowledge as apt performances. Any performance with an aim can have the AAA structure "accuracy: reaching the aim; adroitness: manifesting skills or competences; and aptness: reaching the aim through the adroitness manifest." Sosa (2007: 23) regards beliefs as performances which fall under this AAA structure. "We can distinguish between a belief's accuracy, i.e., its truth; its adroitness, i.e., its manifesting epistemic virtue or competence; and its aptness, i.e., its being true because competent." Sosa distinguishes between animal knowledge and reflective knowledge, a more demanding higher-level knowledge. Leaving the word "knows" undefined, Sosa (2007: 24)

[19] The same definition can be found in Greco (1999: 287–88). For Greco's more recent formulation see also Greco (2010).

formulates the core idea of his virtue epistemology as follows.

(a) affirm that knowledge entails belief;
(b) understand "animal" knowledge as requiring apt belief *without* requiring *defensibly* apt belief, i.e., apt belief that the subject aptly believes to be apt, and whose aptness the subject can therefore defend against relevant skeptical doubts; and
(c) understand "reflective" knowledge as requiring not only apt belief *also* defensibly apt belief.

One can easily argue that the obsessed scientist fails to know by adopting one of these virtue epistemologist approaches. It has been assumed that the scientist's intuitions are unreliable belief forming processes and, therefore, not reliable dispositions of her character as Greco's agent reliabilism demands. Therefore, she does not know according to Greco. If one accepts Sosa's virtue epistemology one must admit that the beliefs are accurate because true. It might be subject to debate whether they manifest any epistemic virtue or competence and whether they are, therefore adroit. However, their accurateness does not manifest their adroitness and therefore, they fail to be apt. Hence, Sosa and his followers must confess that O fails to have animal knowledge, and, therefore, also reflective knowledge. Hence, virtue epistemological accounts such as Greco's agent reliabilism or Sosa's virtue epistemology imply that the detective and the scientist do not know and that the counterintuitive claims Ci_1 and Ci_2 are true.[20]

Moreover, one can easily suppose that the beliefs of schoolboy B result from the stable and reliable dispositions to consult serious textbooks and that these dispositions make up his cognitive character and that, therefore, his beliefs have a positive epistemic status as Greco demands. Moreover, his beliefs are according to Sosa accurate because true, they are adroit since they manifest epistemic virtues or competences, and they are apt, since they are true because competent. Hence, B acquires animal knowledge by studying the textbook. Moreover, he can also acquire reflective knowledge if his apt belief is also defensible e.g. against the objection that the textbook is not reliable. Hence, virtue epistemological accounts such as the presented ones not only imply the counterfactual claims Ci_1 and Ci_2, but also the more problematic claims Ci_3 and Ci_4.[21]

To sum up: Inspector X's and professor O's beliefs are neither caused nor causally sustained by a reliable belief forming process. They are insensitive and unsafe and they do not result from an epistemic virtue

[20] Assuming that the obsessed persons form a *second* belief when acquiring evidence fails to be a viable way for the same reasons as for process reliabilists.

[21] Pritchard recently changed his view that safety alone converts true beliefs into knowledge. Pritchard (2009a and 2009b) still defends the necessity of safety to an analysis of knowledge, but he thinks that an ability condition of some sort has to be added. Pritchard (2009a) and (2012) now argues that this *antiluck virtue epistemology* is the right theory of knowledge. However, this account gains the same results with regard to professor O and schoolboy B.

such as stable and reliable dispositions or aptness. Hence, everybody who defends one of these externalist accounts of justification or knowledge is committed to accepting the problematic claims Ci_1 and Ci_2. Moreover, defenders of these externalist accounts are presumably committed to accepting the even more controversial claims Ci_3 and Ci_4 too.

Characteristically, externalist accounts of knowledge and justification do not demand any believer knowledge about the reliability of the belief forming source. Hence, B can acquire knowledge and justified beliefs by simply believing what the textbook tells him and without having any further information about the textbook at all. In all externalist cases, the low standards for knowledge and justification with respect to meta-knowledge conflict with the high standards with respect to the belief forming process that exclude O from knowing.

Notably, problems for externalist knowledge accounts not only arise if Ci_3 and Ci_4 clearly turn out to be false. They already arise if they do not clearly turn out to be *true*. Professor O clearly fails to fulfil any externalist criterion for knowledge and schoolboy B clearly fulfils these criteria. Thus, there should not be any doubts about the truth of Ci_3 and Ci_4 according to externalist knowledge accounts. However, this does not seem to be the case. Rather Ci_3 and Ci_4 are at least controversial borderline cases of knowledge.

Defenders of externalist knowledge accounts could simply argue that their accounts are true and, therefore, Ci_1-Ci_4 are also true and that there is no problem at all. However, this is not a viable strategy, if theories of knowledge shall also *explain* our pre-theoretical understanding of knowledge. Given this is aim, theories of knowledge have to deliver results that resemble our intuitions whether persons know in particular cases and this is not the case, if theories of knowledge clearly imply that Ci_1-Ci_4 are true.

I think one persisting intuition about the cases of X and O is that they do not know until they discovers the evidence, but that they know after having discovered it. However, this intuition cannot be captured by any of these externalist accounts. If X and O clearly know, then these cases of baseless knowledge provide direct counter-examples against externalist knowledge accounts. However, I am not convinced that they clearly know. Rather it seems prima facie disputable whether we should ascribe knowledge to them. However, this *controversy* about the question whether X and O know already confronts externalist knowledge accounts with a problem. X and O clearly do not fulfil any externalist criteria, i.e. their beliefs are to no extend reliably formed or safe and they are clearly not sensitive or apt. Thus, these externalist accounts have it that X or O undoubtedly does not know. They are in no way borderline cases of knowledge according to externalism. However, our intuition seems to be that it is at least subject of discussion whether they know. In this respect, externalist accounts do not adequately capture our intuitions about knowledge.

4. *Lehrer's gypsy lawyer*

The two examples for baseless knowledge presented here are similar to Lehrer's gypsy-lawyer cases. Lehrer (1971 and 1974) presents the case of a gypsy lawyer who proves his client's innocence via a complicated line of reasoning, though his conviction that his client is innocent is completely based on reading the cards. Lehrer concludes that the lawyer knows that his client is innocent, although his belief is in no way caused by his evidence.[22] Lehrer argues against any causal interpretation of the basing relation. Lehrer (1990) claims that the reason a person has for believing something must not be confused with the cause of her believing it. He calls this confusion the *causal fallacy*.

There are similarities and differences between Lehrer's cases of the gypsy lawyer and the racist on the one hand and the case of the obsessed scientist on the other hand. In each of the cases the evidence in no way explains, causes or causally sustains the beliefs. So much for the similarities. However, Lehrer's examples and the cases of obsessed knowledge diverge in important respects. First, we tend to evaluate the causes of holding these beliefs differently. Reading the cards and being a racist are elements of superstition or prejudices which we regard as the opposite of enlightenment and knowledge. At least in our cultural context we tend to have a negative attitude towards superstition and racial prejudices and a positive one towards enlightenment and knowledge. The case of intuitions, in contrast, is less clear. In certain contexts such as scientific discoveries we tend to evaluate the epistemic status of intuitions someway positively, by saying that someone was kissed, touched or inspired by the muse or had a divine inspiration, even if we admit that intuitions are not a reliable guide to truth. From this point of view, one can say that O had a genius moment, when she first came to believe that particles explain the ϕ-phenomenon, although her intuitions did not produce true beliefs in other cases. Being superstitious as the gypsy lawyer or being generally prejudiced as the racist is inconsistent with having knowledge in a way that being inspired by the muse or having a divine inspiration is not. I do not claim that phenomena such as inspiration already constitute instances of knowledge. I only argue that they do not prima facie rule out knowledge.

The second distinction between Lehrer's examples and the case of the obsessed scientist concerns the inter-personal and, hence, social aspects. O not only proves her convictions for her own concerns, she also proves it to *others*. Hence, it is not only her merit that she knows, but also her merit that others know. Moreover, O might have a much better understanding of the evidence and how it is related to the proven theories than those persons to whom she proves it. By only focusing O's beliefs and on Ci_1 and Ci_2, we might just create new versions of

[22] Lehrer (1990) presents a similar example of a racist, who has scientific evidence that only members of some race are susceptible to some disease, but who believes this only because of his racial prejudices.

gypsy-lawyer cases, but by taking contrasting persons and Ci_3 and Ci_4 into account, the case against the basing relation receives new support. Lehrer's own cases could have been reconstructed along these lines, but to the best of my knowledge, this hasn't been done yet.[23]

Third, Lehrer wants to argue against externalist knowledge accounts by arguing that baseless knowledge exists. I take a weaker position concerning the existence of baseless knowledge. I only claim that it is controversial whether X and O know. However, this weaker position already suffices for pointing out that pure externalist knowledge accounts do not always capture our intuitions about knowledge.

5. *Overdetermination and pseudo-overdetermination*

There are two possible lines of objection against the claim that O possesses baseless knowledge; first, that she does not possess knowledge at all. All those who defend one of the externalist knowledge accounts sketched above take this line.[24] They are committed to accepting Ci_1 and Ci_2 and typically committed to accepting Ci_3 and Ci_4 as well. Taking the second line of objection means to argue that O possesses knowledge, but that it is not baseless. In this case, one has to argue that even in the cases of O there *is* a kind of causal relation between the beliefs and the evidence that justifies the belief. One way of defending this claim is to argue that O's belief is causally overdetermined because it is caused or causally sustained by her intuitions *and* her evidence. However, the case of O is constructed in a way that her beliefs are only caused and causally sustained by her intuitions. Even after finding evidence, her beliefs are in no respect caused or causally sustained by this evidence. In this respect, her beliefs are not causally overdetermined.[25]

Swain (1981) argues that the belief of the gypsy lawyer and consequently also the belief of O are *pseudo-overdetermined*. He claims in accordance with Lehrer that the gypsy lawyer knows that his client is innocent, but against Lehrer, he argues that the lawyer's belief in the innocence of his client is still based on the complicated line of reasoning. Swain argues that the lawyer's belief is pseudo-overdetermined by the line of reasoning and, hence, based on it because the reasoning would

[23] Interestingly, in his example of the gypsy lawyer Lehrer (1974: 124) denies that the lawyer convinces others by demonstrating his justifying line of evidence, and assumes that the others, "impressed by the similarity of the crimes and eager to believe that the agent of them all has been apprehended, refuse to accept the lawyer's cogent reasoning."

[24] This line is also the most popular reaction to Lehrer's gypsy lawyer case. See for example Harman (1973), Pollock (1986) or Audi (1993).

[25] Goldman (1979) for example notes that beliefs may be over-determined in the sense that they may have a number of distinct ancestral trees. He admits that they need not all be full of reliable or conditionally reliable processes, but at least one ancestral tree must have reliable or conditionally reliable processes throughout. However, the cases of X and O are formulated in a way that there is no ancestral tree that has reliable processes throughout.

have caused the lawyer's belief, if the card reading had not caused it. One can argue analogously that O's belief is pseudo-overdetermined because the evidence resulting from the experiment would have caused O's belief, if her intuition had not caused it.

Swain's account of the basing relation has been criticized by various authors. Kvanvig (1985) argues that we can reformulate the case of the gypsy lawyer in a way that his belief does not fulfil Swain's criterion of pseudo-overdetermination. This can be achieved, for example, by supposing that if the card reading did not cause his belief that his client is innocent, then he would consult a fortune teller, and the evidence would still not cause his belief. In this case, the gypsy lawyer's is not pseudo-overdetermined and, therefore, he does not know according to Swain. Similar counterfactual scenarios can be formulated for O. For example, one can suppose that O would believe that O-particles exist because of religious faith, if she did not have her intuition. In this case, in the nearest possible worlds where O's belief is not caused by her intuition, it is still not caused by the experiment, and consequently O's belief is not pseudo-overdetermined.[26]

6. *Conclusion*

Most accounts of knowledge, especially externalist accounts, share the view that the appropriateness of the way that a true belief is caused or causally sustained is a necessary condition for knowledge. These accounts are committed to accepting that the obsessed scientist and the obsessed detective clearly fail to know. This is counter-intuitive if we ascribe to them other epistemic virtues such as full understanding or praiseworthiness for proving what they believe to others. The view that they clearly do not know becomes even more counter-intuitive if we consider contrasting persons who know because of appropriate belief forming processes but who fail to possess further epistemic virtues.

The conclusion is a moderate one: the appropriateness of the belief-forming process can be one aspect of knowledge among others. The obsessed scientist and the obsessed detective are in one respect not ideal epistemic agents, but so are the contrasting persons who possess weaker understanding than the scientist and the detective and who acquire evidence quite accidentally. Appropriate belief forming processes may be necessary, sufficient, or necessary and sufficient for knowledge in many contexts, but it is dubitable whether they are a necessary condition in all contexts. Any externalist knowledge account that regards a correct belief forming method as necessary in all contexts seems too restrictive.

[26] Furthermore, Tolliver (1982) argues against Swain that according to his account, a belief that p could cause a belief that q, nevertheless the belief that q could pseudo-overdetermine the belief that p, which is an unacceptable consequence of Swain's account.

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