

## Epistemic luck and logical necessities: armchair luck revisited

[FINAL VERSION]

### Introduction

Modal knowledge accounts like sensitivity or safety face a problem when it comes to knowing propositions that are necessarily true because the modal condition is always fulfilled no matter how random the belief forming method is. Pritchard models the anti-luck condition for knowledge in terms of the modal principle safety. Thus, his anti-luck epistemology faces the same problem when it comes to logical necessities. Any belief in a proposition that is necessarily true fulfills the anti-luck condition and, therefore, qualifies as knowledge. Mišćević shares Pritchard's take on epistemic luck and acknowledges the resulting problem. In his intriguing article "Armchair Luck: Apriority, Intellection and Epistemic Luck" Mišćević suggests solving the problem by supplementing safety with a virtue theoretic condition—"agent stability"—which he also spells out in modal terms. I will argue that Mišćević is on the right track when he suggests adding a virtue-theoretic component to the safety condition. However, it should not be specified modally but rather in terms of performances that manifest competences.

### 1 Modal knowledge accounts and necessary truths

Modal knowledge accounts are externalistic in spirit. They aim to capture the relevant external condition for a true belief to constitute knowledge in modal terms, often by using possible world semantics. One of the first prominent modal knowledge accounts is Nozick's (1981) tracking account of knowledge. Nozick defines knowing via a method as follows:

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

- (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  $p$ . (Nozick 1981, 179)

Condition (3) became known as the sensitivity condition and condition (4) as the adherence condition. In terms of possible world semantics Nozick's knowledge account can be spelled out as follows:

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

- (1)  $p$  is true.
- (2) S believes, via method or way of coming to believe M, that  $p$ .
- (3) In the nearest possible worlds where  $p$  is not true and where S uses M to arrive at a belief whether (or not)  $p$ , S does not believe, via M, that  $p$ .
- (4) In the nearest possible worlds where  $p$  is true and where S uses M to arrive at a belief whether (or not)  $p$ , S believes, via M, that  $p$ .

Nozick's sensitivity based knowledge account faces serious problems as Vogel (1987), Sosa (1999) and Kripke (2011) convincingly pointed out. Sosa (1999) suggests replacing sensitivity by the alternative modal principle *safety* which he defines as follows:

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)

Nozick already noted that knowledge cannot be satisfactorily characterized if one does not take the belief forming method into account. Sosa’s original definition for safety does not consider belief forming methods. Accordingly, safety should also be relativized to methods. The following definition of safety by Pritchard is a version of method relative safety:

*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.<sup>1</sup> (Pritchard 2007, 281)

Modal knowledge accounts face particular problems when it comes to propositions that are necessarily true (or necessarily false). Take Nozick’s sensitivity condition:

(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*.

Suppose that *p* is necessarily true. In this case there is no nearby possible world where *p* is not true and where *S* uses *M* to arrive at a belief whether (or not) *p*. Thus, the antecedent of (3) is necessarily false, and, therefore, (3) is necessarily true, viz. (3) is vacuously true. The safety condition faces the same problem. If *p* is necessarily true then *p* is true in all possible worlds. Thus, for trivial reasons, 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. Hence, the safety condition is also trivially fulfilled for any necessarily true proposition.

Modal knowledge accounts face the problem that the modal conditions are too easily fulfilled for propositions that are necessarily true. Intuitively we want to discriminate between knowing a necessarily true proposition and merely believing a necessarily true proposition. However, neither sensitivity accounts nor safety accounts can explain this intuitive difference since any belief in a necessarily true proposition trivially fulfils the modal conditions of sensitivity or safety, and therefore, constitutes knowledge on these modal knowledge accounts.

## 2 Safety, epistemic luck and armchair luck

It has been argued that safety accounts of knowledge can be independently motivated. Pritchard (2005 and 2007) uses the safety principle as a central component of his anti-luck epistemology project. His starting point is the common sense claim that knowledge excludes luck. Pritchard provides the following definition of lucky events:

If an event is lucky, then it is an event that occurs in the actual world but which does not occur in a wide class of the nearest possible worlds where the relevant initial conditions for that event are the same as in the actual world. (Pritchard 2005, 128)

Pritchard applies this general concept of lucky events to luckily true beliefs when he suggests:

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<sup>1</sup> For a similar formulations of basis relative safety see Pritchard (2005, 156).

This demands that the agent's belief is true in the actual world, but that in a wide class of nearby possible worlds in which the relevant initial conditions are the same as in the actual world—and this will mean, in the basic case, that the agent at the very least forms the same belief in the same way as in the actual world [...] the belief is false. (Pritchard 2005, 146)

Accordingly, Pritchard (2007, 281) defines a true belief as non-lucky “*iff* there is *no* wide class of nearby possible worlds in which *S* continues to believe the target proposition, and the relevant initial conditions for the formation of that belief are the same as in the actual world, and yet the belief is false.” This conception of non-lucky beliefs is obviously based on the safety principle.<sup>2</sup> Pritchard's safety based anti-luck epistemology has it that true beliefs that involve the wrong kind of luck (which Pritchard calls ‘veritic luck’) fail to constitute knowledge where a true belief is lucky (or an instance of veritic luck) if it is not safe. Thus, safety is necessary for knowledge according to Pritchard since safety excludes veritic luck.

Gettier cases are paradigmatic instances of veritic luck according to Pritchard. Suppose, Keith observes one of his students, Mrs Nogot, driving a Ferrari and concludes that one of the students in his class owns a Ferrari. Suppose further that Mrs Nogot does not own a Ferrari but, unbeknownst to Keith, one of his other students Mrs Haveit owns a Ferrari. Keith's belief that one of his students owns a Ferrari fails to be safe, because in many nearby possible worlds where Keith comes to believe that someone own a Ferrari via the same method, i.e. via observation of Mrs Nogot, his belief that someone in the class own a Ferrari will be false, because in these worlds Mrs Haveit does not own a Ferrari. Thus, Pritchard's anti-luck account can explain why we fail to know in Gettier cases by pointing out that Gettierized beliefs are not safe and, therefore, luckily held.<sup>3</sup>

The general problems that modal knowledge accounts face when it comes to necessarily true propositions carries over to Pritchard's safety based anti-luck epistemology. According to this account, veritic luck is spelled out in terms of safety. However, any belief in a necessarily true proposition is trivially safe. Thus, no belief in a necessarily true proposition involves veritic luck. If *S* answers a mathematical question correctly by pure guessing then *S* knows the answer since the corresponding belief is one in a proposition that is necessarily true and, therefore, trivially safe. This is a highly implausible consequence.

Miščević (2007) addresses the problem of epistemic luck and necessary truths from the angle of a priori knowledge and armchair reasoning. His main target is how to characterize armchair luck, i.e. the particular version of epistemic luck that is involved in a priori reasoning in the armchair. Miščević notes that the debate about epistemic luck started with Gettier cases and then reached external world skepticism. In his paper, Miščević (2007, 49) proposes “to extend the debate further to candidate a priori belief and knowledge” which he refers to as “armchair luck”. Miščević presents the following Gettier-style case for a priori luck:

## JANE

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<sup>2</sup> Greco (2007) doubts that the safety principle can handle all cases of knowledge, which it has to do, if it captures the essential aspect of knowledge. In order to meet these objections Pritchard (2007, 292) refines his initial account of safety as following: *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, and in all very close nearby 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.

<sup>3</sup> There are convincing counterexamples against Pritchard's take on the Gettier-problem. Hiller and Neta (2007) point out that Gettierized beliefs can be safe. For example, Keith's belief that someone in the class owns a Ferrari is safe if there is no nearby possible world where Haveit does not own a Ferrari. Nevertheless, his Gettierized belief involves an undesired element of luck and intuitively does not constitute knowledge. I cannot address these issues here.

Take the case of two mistakes in calculation or proof that cancel each other out resulting in the correct solution. Suppose they are extremely hard to detect, so that the thinker, call her Jane, is justified in trusting her calculation. Jane is Gettier lucky in her final belief. Cases of luck like the Jane example are only to be expected in matters of mathematical problem solving and theorem proving. (Mišćević 2007, 49)

Mišćević (2007, 50) shares Pritchard's characterization of epistemic luck when we admits: "I tend to agree with his general and informal characterization." Consequently, Mišćević also accepts the diagnosis of the problem that arises for safety-based epistemic luck when it comes to necessary truths. Mišćević formulates this problem as follows:

Even the simple Gettier-style cases show that the proposed detailed characterizations of believing by luck, offered in the literature, are inadequate even to capture the simplest examples of armchair luck. They mostly rely on the possibility of it being the case that not- $p$ , for some  $p$  believed a priori by the thinker. When  $p$  is necessary, such a definition is of no help. It should be supplemented by one pointing to variation in belief, not in the fact believed. (Mišćević 2007, 50)

I find Mišćević's presentation of the problem dialectically slightly misleading. Gettier-cases are originally designed as examples for justified true beliefs that do not constitute knowledge. The justification in Gettier cases is originally *internalistic*. Moreover, Gettier-cases are regarded as involving epistemic luck according to an *externalistic* conception of luck. Thus, if one buys into Pritchard's externalistic conception of epistemic luck as Mišćević does, then there is no need to emphasize that Jane has internalistic justification for her belief. Rather, it is sufficient to construe a case were Jane luckily reaches a true belief via a priori reasoning. However, this is only a minor concern.

Mišćević's primary target is the connection between a priori knowledge and epistemic luck. As he concedes, there arises a problem of armchair luck because of the well-known general problem with epistemic luck and necessarily true propositions. At that point one might wonder whether a priority of candidate armchair knowledge adds something to this well-known problem or whether a priori knowledge is only a facet of it. As we will see a priority does not add anything to the existing problem. Take first the case of *a posteriori* beliefs in necessarily true propositions which intuitively involve epistemic luck. Here are two examples:

#### **POCKY**

Pocky uses a defective pocket calculator for determining the product of  $7*8$  that delivers 56 as answer to any operation. However, Pocky's belief based on the pocket calculator is safe. In all possible worlds where Pocky believes  $7*8=56$  based on using the calculator,  $7*8=56$  is true.

#### **DICY**

Dicy uses a die to determine the sum of  $2+3$ . She throws the die and the die indicates 5. Dicy's belief that  $2+3=5$  is safe. In all possible worlds where Dicy believes that  $2+3=5$  based on throwing the die, her belief is true.

In both cases the beliefs are safe for the trivial reason that the target propositions are necessarily true and that, therefore, there is no possible world where they are falsely held. However, the belief forming methods in these two cases are using a (defective) pocket calculator and throwing a die. None of the methods is an armchair method. Consequently, the resulting beliefs are not candidates for constituting *a priori* knowledge. Thus, there is a problem of epistemic luck for necessary true propositions that does not involve a priority.

Moreover, it also seems that a priori beliefs fail to pose a problem if it does not involve necessarily true propositions. Suppose for argument's sake that we can acquire contingent a priori knowledge about philosophical

propositions via armchair reasoning and that consequentialism is a contingently true philosophical theory, viz. there are many nearby possible worlds where consequentialism is false.<sup>4</sup> Suppose further that Trola reflects about the Trolley case in the armchair and comes to the conclusion that consequentialism is true. Plausibly we can make a distinction between Trola carefully and reliably reflecting about the Trolley problem and Trola randomly or irrationally reflecting about it. In the first case, safety is presumably fulfilled because in most nearby possible worlds where Trola's careful reflection leads to the belief that consequentialism is correct, this belief is true. In contrast, in the second case there are plausibly many nearby possible worlds where Trola forms her belief that consequentialism is correct via irrational reflection and where this belief is false. In this case, Trola's belief is unsafe. Thus, there is no problem of epistemic luck for a priori reasoning about contingent propositions.

To sum up: There are well-known problems of epistemic luck for propositions that are necessarily true but that are believed a posteriori. Furthermore, there is no problem of epistemic luck for a priori beliefs that are contingently true. In this respect, there is no particular problem of armchair luck. Therefore, the problem of armchair luck boils down to the problem of epistemic luck for propositions that are necessarily true.

Admittedly, one might not find the two cases entirely convincing, viz. one might object that Pocky's and Dicy's beliefs have an a priori character because they *can* be known a priori. Moreover, one might accept the orthodox view and reject contingent a priori knowledge. In these cases, we do not have reasons *against* the view that a prioricity poses an additional problem. However, we still do not have any support *for* the view that it poses one.

### 3 Agent stability and competence luck

In this section, I will reflect on Mišćević's solution to the problem of armchair luck and contrast it with alternative proposals. I will argue that Mišćević is on the right track when he suggests supplementing the safety condition by a virtue theoretic component but he is mistaken to characterize this component modally.

For evaluating beliefs in necessarily true propositions we cannot look at possible worlds which vary with respect to the target propositions. Mišćević suggests that we should look rather at variations of worlds where the agent's actions are slightly modified. Mišćević summarizes the resulting view which he labels 'agent stability' as follows:

#### **Agent Stability**

For all agents, A, if an agent knows an armchair proposition *p* [knows a priori a (necessary) proposition *p*], then, in most nearby possible worlds in which she forms her belief about *p* in a slightly different way or with slightly changed cognitive apparatus as in the actual world, that agent will also come to believe that *p*. (Mišćević 2007, 61)

With this account Mišćević (2007, 64) hopes to establish the following: "There is a particular type of luck concerning (candidate) a priori beliefs, which requires an enlargement and supplementation of the available modal definitions of epistemic luck, geared to the problem of the external world, enlargement focusing upon the luck in constitution of the cognizer's mind."

Note that Mišćević's account involves a disjunction of forming a belief that *p* in a slightly different way *or* with slightly different cognitive apparatus. If this 'or' is not meant to be exclusive, then the nearby possible worlds which we have to consider can be worlds where A forms her belief that *p* in a slightly different way *and* with slightly changed cognitive apparatus and still A comes to believe that *p*. Modal modifications can add up. However, if one opts for a kind of agent stability, then I do not see a clear case why it should be characterized *either* by the

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<sup>4</sup> For a defense of deeply contingent a priori knowledge see Hawthorne (2002).

way A forms a belief *or* by A's cognitive apparatus. Therefore, I do not see any problem with this disjunctive account.

Let's put agent stability in a broader context by comparing it with Sosa's (2010) competent archer Diana. Analogous to Mišćević's distinction we can distinguish between Diana's stability over different situations and over different apparatus:

#### **Stability over situations**

Diana performs a skillful shot with her favorite bow in situation S and hits the target. Diana is only a competent archer, if she were to hit the target with her favorite bow also in (slightly) different situations.

#### **Stability over apparatus**

Diana performs a skillful shot with her favorite bow in situation S and hits the target. Diana is a competent archer, only if she were to hit the target with a (slightly) different bow but in the same situation.

Following Mišćević, Diana is a competent archer only if she were to hit the target with a (slightly) different bow *or* (slightly) different situations which might also involve small variations of both factors. This seems correct to me.

So far so good. Here is the problem for Mišćević's agent stability. His account assumes that if "an agent knows a priori a (necessary) proposition *p*, then, in most nearby possible worlds in which she forms her belief about *p* in a slightly different way or with slightly changed cognitive apparatus as in the actual world, that agent will also come to believe that *p*." This condition is violated by Jane -Mišćević's original example- where Jane's true belief is Gettierized by two subtle mistakes that cancel each other out. In many nearby possible worlds where Jane forms her belief in a slightly different way or with slightly changed cognitive apparatus, she does not come to believe that *p*; e.g. because she does not make *both* mistakes that cancel each other out. Thus, agent stability provides the desired result for Jane. Perhaps, Mišćević had this kind of a priori Gettier cases primarily in mind. But now take the following example of candidate epistemic luck that does not involve Gettierization.

#### **TWOTHREE**

Twothree lives in 1950 and is member of a very weird cult whose main thesis is that the number 2 expresses cosmic harmony whereas 3 represents distortion of harmony. Based on this cult, Twothree believes Fermat's last theorem that no three positive integers *a*, *b*, and *c* satisfy the equation  $a^n + b^n = c^n$  for any integer value of *n* greater than two, although the theorem is not proven in 1950. Twothree has been born into the cult and is strongly primed about its doctrine. Thus, even if Twothree reflects about Fermat's theorem in a slightly different way or with a slightly different cognitive apparatus, she will come to believe that Fermat's last theorem is true. Therefore, Twothree's belief does not fall under armchair luck according to Mišćević and, consequently, his account does not predict that Twothree does not know Fermat's last theorem. This is a clear shortcoming.

Mišćević's account of agent stability works for Gettier cases where S forms different beliefs under slightly different circumstances, but if we modify the cases such that the agent's belief in the proposition is stable (although for the wrong reasons), then agent stability delivers the wrong result.

What are the alternatives for solving the problem of epistemic luck for logical necessities? Pritchard originally formulates his safety based anti-luck epistemology for fully contingent propositions. Pritchard argues in a similar way as Mišćević, quoting Mišćević, when he suggests the following extension to necessarily true propositions:

Notice, however, that it is pretty easy to see how one might go about extending the account of safety to these propositions, even if the details might be tricky. After all, all we need to do is to talk of the doxastic result of the target belief-forming process, whatever that might be, and not focus solely on belief in the

target proposition. For example, if one forms one's belief that  $2 + 2 = 4$  by tossing a coin, then while there are no near-by possible worlds where *that* belief is false, there is a wide class of near-by possible worlds where that belief forming process brings about a doxastic result which is false (e.g., a possible world in which one in this way forms the belief that  $2 + 2 = 5$ ). The focus on fully contingent propositions is thus simply a way of simplifying the account; it does not represent an admission that the account only applies to a restricted class of propositions. (Pritchard 2009, 34)

Miščević thinks that we should look at slightly different cognitive apparatus. Pritchard suggests looking at possible worlds where the belief forming mechanism is the same, but where the proposition in question is different. Pritchard's solution faces a similar problem as Miščević's agent stability. Here is a problematic case for Pritchard:

### **RENÉ THE FERMATIST**

René lives in 1950 and is member of a cult called the Fermatists. Members of this cult believe everything that Pierre de Fermat ever said, but not due to his proofs but because they think that Fermat is the chosen one. (They believe that Fermat just proved his theorems for convincing those who do not see that he is the chosen one.) René believes based on Fermatism Fermat's last theorem which is not proven in 1950. Moreover, all the other propositions that René believes via Fermatism are also necessarily true. Thus, there is no nearby possible world where René uses the same belief forming method as in the actual world of consulting Fermat's work (perhaps with respect to another target proposition) and where the resulting belief is false. Thus, René knows Fermat's last theorem according to Pritchard. This is highly counterintuitive.<sup>5</sup>

The particular problems that Miščević and Pritchard face point towards a more general problem. In case of necessarily true propositions, we cannot consider possible worlds which vary with respect to the truth value of the target proposition but we can consider other variations, e.g. different cognitive apparatus (Miščević) or different propositions (Pritchard). However, for such cases we can modify the setting in a way that any possible world where the variation takes place is modally far off and in this case the necessary conditions for knowledge are fulfilled. Thus, modal variation does not offer a way out of the problem.

One aspect that all the discussed cases share is that the agents in question like Jane, Twothree and René form the crucial belief *incompetently* according to an intuitive understanding of competence. This brings us to aptness accounts of knowledge. Sosa (2007) 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."<sup>6</sup> Sosa regards beliefs as performances which fall under this AAA structure. Sosa (2007, 23) suggests that "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." By adopting Sosa's aptness account of knowledge, we can say that in cases like Jane, Twothree and René, the beliefs do not manifest an epistemic competence. Therefore, it is not the case that they are true *because of* being competently formed. For these reasons Jane, Twothree and René do not believe aptly and consequently do not know.

If an agent reaches a goal through a particular performance that does not manifest the agent's skill, then a certain kind of luck is involved. I have no competences when it comes to archery. Suppose I want to hit the bull's eye in a price shooting and actually I hit it. In one sense, I was lucky to hit the bull's eye. This is also the case if there is a strong magnet installed behind the bull's eye such that most of my shots hit the target, despite my lack of

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<sup>5</sup> I assume here that any world where Fermat holds a false mathematical belief is modally far off. Thanks to Wes Siscoe for stressing this pointing.

<sup>6</sup> Sosa (2007, 23).

competence. Let's us call the kind of luck which is involved in reaching a goal via a performance that does not manifest the agent's competence *competence-luck*. If an agent A is competence-lucky in reaching a goal via a particular performance, then it is not A's *achievement* that he reached the goal. A is not *creditworthy* for reaching the goal. Competence luck does not entail veritic luck (which excludes safety) as the case of the magnet installed behind the bull's eye illustrates where competence luck but not veritic luck is involved. Moreover, competence luck must not be confused with facultative luck which means, according to Unger (1968) luckily having the required competence (e.g. of archery). Competence luck, in contrast, is lack of competence.

Miščević (2007) expresses strong sympathies for virtue epistemology and aims to solve the problem of armchair luck by adding a virtue theoretic component to veritic luck accounts. He specifies this virtue component modally which makes his account of armchair luck fall prey to counterexamples. However, competence luck does not suffer from this kind of counterexamples. Miščević was on the right track when seeking a virtue theoretic solution, but he was mistaken to specify the required additional condition modally.

There is one more thing worth noting. Pritchard originally thought that the anti-luck condition is the crucial condition for knowledge. Developing this view, Pritchard (2012) presently argues for an anti-luck virtue epistemology which has it that an anti-luck condition together with an ability condition provides an adequate analyses of knowledge. Pritchard argues that the anti-luck intuition and the ability-intuition are two distinct intuitions, stemming from different sources and that the two intuitions neatly complement each other. Thus, virtues and competent performances do not fall under the anti-luck label for Pritchard. Success despite lack of competence does not entail luck according to Pritchard. However, cases like Jane, Twothree or René intuitively involve an element of luck. If this true then veritic luck is simply not the only kind of luck we have to consider when analyzing knowledge.

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