Armchair Luck:
Apriority, Intellection and Epistemic Luck

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The paper argues that there is such a thing as luck in acquisition of candidate a *priori* beliefs and knowledge, and that the possibility of luck in this "armchair" domain shows that definitions of believing by luck that *p* offered in literature are inadequate, since they mostly rely on the possibility of it being the case that not-*p*. When *p* is necessary, such a definition should be supplemented by one pointing to variation in belief, not in the fact believed. Thus the paper suggests a focus upon the agent and her epistemic virtue in the account of epistemic luck in general.

Keywords: epistemic luck, a priori knowledge, virtue epistemology, skepticism.

I. Introduction

Let me start with a short dramatic story from the opening pages of the *Beautiful Mind* reporting a conversation of the mathematician John F. Nash with a Harvard professor.[1] The professor expresses his surprise that Nash, such a rational mathematician, would trust the presumed messages he has been claiming to receive from extraterrestrials, and Nash answers in all seriousness that he believes them because he is receiving them *from the same source* from which he is getting his mathematical beliefs. If one takes it in the sense that the messages from extraterrestrials arrive to him equipped with the same vividness, obviousness and compellingness that normally accompany obvious mathematical theorems, one has a ground for a serious worry. One might think one is merely *lucky* not to be in Nash's shoes. These worries generalize further, and seem to threaten to undermine our ability to achieve knowledge in the armchair areas like mathematics, philosophy and other candidate *a priori* domains. This brings us to the topic of the paper: is there such a thing as luck in acquisition of *a priori* beliefs and, if so, what is its nature? The answer to the first question seems to be yes; moreover, assuming that mathematics is an *a priori* discipline, and that famous mathematicians have made a lot of important discoveries groping in the dark, sometimes avoiding mistakes by what seems to be a pure luck.[2]

After the first and dramatic Nash example let me invite you to think of a less dramatic one. 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.[3] So, the affirmative answer to the first question, asserting the availability of *a priori* luck, seems to be quite secure. The issue of epistemic luck is a new and hot topic. It started developing in connection with Gettier cases, and was soon generalized to external world skepticism. In this paper I propose to extend the debate further to candidate *a priori* belief and knowledge. In order to avoid the cumbersome qualification "candidate," let me just refer to it as "armchair luck."

The second question, namely what constitutes luck in presumably *a priori* matters, is the main topic of this paper. It is especially pressing given the more dramatic cases of such armchair luck. There is an analogy with *a posteriori* luck, where one passes from Gettier to more dramatic cases of luck connected to the truth of big areas of inquiry and belief, famously to the truth of our beliefs concerning the external world. The issue of armchair luck has equally a notorious tendency to generalize, as Descartes and Kant were quick to point out. In fact, the problem is common to different traditions, for instance theistic Cartesian and naturalistic, and has been traced back to the discussions of Stoics with ancient skeptics.[4] Namely, besides simple and non-problematic luck cases, there are also more threatening ones, where agent's epistemic capacities come into question. Take the situation in which it is lucky that the agent is *capable* of knowledge, and call, following Prichard, the kind of luck involved "capacity luck" (2005: 135). Such cases seem to suggest that such capacity luck is often not harmless. To illustrate this claim let me remind you of a piece of reasoning on luck offered decades ago by M. Dummett. He invites us consider the following scenario. Suppose the space is in fact Euclidean, and we, humans, have synthetic *a priori* insight that it is so. This *a priori* insight happens to coincide with reality.

Next, he introduces a counterfactual supposition that will lead to a dilemma. It is logically possible for space not to conform to the laws of three-dimensional Euclidean geometry. We may therefore ask how things would be for us if it did not. Dummett sketches four options:

> One answer would be that we should fall into complete confusion, continually misinterpreting our sensations or unable to interpret them at all. Another would be that, in such a case, we should both imagine and perceive space as conforming to whatever was the true geometry. Yet a third answer would be that we should continue to perceive space as three-dimensional and Euclidean, but that we should be able to discover its true character and to arrive indirectly at correct judgments about the spatial disposition of objects. (. . .) A fourth possible answer is that, if the geometry of physical space were, say, elliptic, or if it had four dimensions, we could never become aware of the fact. This answer would deprive us of any ground whatever for taking physical space in fact to be as our intuitions represent it (1991: 152).

The dilemma seems to be the following: either our candidate *a priori* intuition is empirically corrigible, in which case it is not seriously *a priori*, or it is not, and in this case it is merely a matter of blind luck that it happens to be true.[5] Dummett clearly finds the second horn appalling: luck is incompatible with knowledge, he implies.[6] We might be victims of an undetectable mismatch between cognitive functioning and the world, or, which is almost equally bad, lucky simpletons, whose cognitive function matches the world without any merit and any reflective awareness from our side. That this is not a merely imaginary worry is nicely illustrated by our opening story.

So, what does armchair luck consist in? My main source of inspiration has been Duncan Pritchard's work, especially his *Epistemic Luck* (2005). I tend to agree with his general and informal characterization, according to which "an event is lucky if it obtains in the actual world but not in a wide class of near-by possible worlds where the relevant initial conditions for that event are the same as in the actual world" (2005:132 and Ms1.: 6), and where "the worlds are here being ordered in the usual way in terms of their similarity to the actual world." The problems begin with spelling out this semi-intuitive characterization.[7] 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. Showing this is the burden of section Three. Section Two is an interlude: since so little has been written explicitly about armchair luck, there is a need for a systematic overview of basic possible positions, concerning its *de facto* role and its normative status. I return to the main thread, in the Section Three, and argue that the inadequacy of available definitions is not just linked to the special character of armchair luck, but that these special cases show something important about epistemic luck in general.

This brings me to the third and concluding issue. Given that armchair beliefs mostly concern necessary propositions, it seems to me that armchair luck is primarily to be characterized in terms of various contingences favoring the agent herself, her capacities and methods, rather than in the terms of the world being some way or another, since all worlds are the same way in necessary matters, by definition of necessity. Recent debates on luck have been characterized by a polarity contrasting more agent-centered accounts with almost exclusively world-centered accounts. The focus upon agents has been traditionally, since times of Aristotle, linked to the idea of virtue: "The various virtues correspond to the different ways that agents themselves, in contrast to their resources or external circumstances, are well adapted for happiness," writes an excellent modern commentator (Irwin, 1995: 33). Replace "happiness" with "epistemic success" and the contrast between agent-cum-virtue focused and world-focused approach is there. The final point of the paper is that the case of armchair luck seems to speak in favor of the virtue-theoretic focus. I shall only sketch the materials for an argument in this direction. Before this, more stage setting.

II. Should Luck Be Tolerated?: A Taxonomy of Views

Let me first put the three issues listed into a wider context of the debate. I shall offer a handy taxonomy of attitudes to armchair luck, indicating along the way how the problem generalizes from armchair Gettier cases to cases suggesting skepticism about armchair matters, and about our intellective capacities in general. The analogous quandary in *a posteriori* matters is well-known, not to say notorious. Duncan Pritchard has discussed in detail the line of skeptical argument that focuses on the alleged insufficiency of our evidence decisively to favor agent's belief in everyday propositions over the known to be incompatible skeptical hypotheses. In such a case, the agent is not internalistically justified in believing everyday propositions, he claims. Indeed, it seems that our evidence indeed does not favor my belief in everyday propositions over the known to be incompatible skeptical hypotheses. Therefore, the skeptic concludes, we are not internalistically justified in believing everyday propositions. Pritchard argues against the skeptic that the difficulty posed by at least one kind of epistemic luck "is thus an unavoidable feature of our epistemic predicament," and that it need not paralyze our cognitive efforts (2005: 224).[8] As Machiavelli famously put it in relation to other matters, (in chapter six of *The Prince*), one needs both virtue and luck-fortune. But "he who has relied least on fortune is established the strongest."

No amount of agent's capacities, virtues or reflection guarantees realist knowledge by itself, against the tough skeptical stance for example the extreme Demon and BIV scenarios. So, Kant and the idealists propose to internalize knowledge: it really encompasses only what is up to the cognizer, things-as-seen-by-us, or, in the worst case, just appearances.[9] Blackburn, not in the context of specifically discussing luck, has proposed a much more cautious variant of the approach, that involves thinning the notion of truth, and combining it with a broadly verificationist theory of meaning: at the end of the day, it would be our epistemic make-up that would help dictate what we ought to accept, not a mind-independent substantial-objective truth. (2001: 26–29). Other contemporary epistemologists mostly assume some basic mind-independence of truth, so internalization is not an option for them. Those who reject closure seem to set aside the possibility that the agent can know that she has hands without knowing that she is not in the demon world. Both they and those who accept closure, have to define epistemic success (or virtue) starting from normally hospitable surroundings and assuming that the actual world is a normal, non-demon world. Still, one may concentrate either more upon the agent or upon the goodness and hospitality of the world.

Of course, all parties to the debate need to make their motivation more explicit. What is so bad about luck? A fashionable recent answer is that luck precludes "credit" and "discredits" the lucky belief, so to speak. The answer sounds convincing, but there is a subtle ambiguity hidden in it: on the one hand there is credit we attribute for responsible deeds (like avoiding a temptation), on the other the wider "credit" simply for impressive deeds (like a spectacular sporting result),

where the focus is upon capacity, rather than responsibility. A responsibilist like Riggs (Ms) concentrates upon the first kind, a reliabilist, like Greco (1999, 2003), upon the second. The warring factions can then just continue their war using the term "credit" each in its own way, arguing that it is the best, the most intuitive, the most plausible one and so on.[10]

Let us return now to the skeptical problems specific for intellection and other presumably *a priori* capacities and functionings. Simple *a priori* Gettier examples can be supplemented by more worrying examples concerning the possibility of armchair knowledge in general. We have already mentioned Dummett's dilemma concerning geometry. Let us then formulate the main questions and contrast the main options for the epistemologist. The first main question raised by the possibility of luck is the descriptive one: is luck needed in *a priori* matters? The second main question or family of questions is normative: is armchair luck permissible? Does it preclude knowledge or is it compatible with it? If it does preclude knowledge, why is it so? Are some kinds of luck permitted? Dummett seems to answer the normative question in the negative: serious luck is incompatible with knowledge. This negative or incompatibilist normative answer, the anti-luck option, as we might call it can be combined with both the affirmative and the negative answer to the descriptive question. The combination claiming that armchair luck is not needed but permissible is not interesting: the norm is beneath reality, so to speak. This leaves us with three reasonable combinations. In armchair domain, (1) luck is impermissible but needed, or (2) luck is impermissible and not needed, or (3) luck is needed and permissible (of course some kinds of luck, not all of them).[11]

Of course, the taxonomy doesn't suggest any answer as to how to substantiate each of the distinctive claims, and possible varieties and sub-varieties of each. Some kinds of luck might be more acceptable than others on the normative side, or deemed more important for epistemic access, on the descriptive side.[12] Here are the combinations:

NORMATIVE

D E S C R I P T I V E	ARMCHAIR LUCK IS...	PERMISSIBLE (At least some kinds of luck are compatible with knowledge)	COMPLETELY IMPERMISSIBLE (incompatible with knowledge)
	NEEDED FOR ARMCHAIR BELIEFS (at least some kind of luck)	3. PRO-LUCK OPTIMISM (Descartes, the present view)	1. ANTI-LUCK PESSIMISM entailing skepticism
	NOT NEEDED AT ALL	————————	2. ANTI-LUCK OPTIMISM

Let us briefly comment each of them.

1. Luck is impermissible but needed. This is the skeptical stance: without luck the cognizers can have no access to the *a priori* domain; unfortunately, on the other hand, luck precludes knowledge. This skeptical combination of an affirmative answer on the descriptive side and a negative answer on the normative one deserves to be called *anti-luck pessimism.* This brings us to the main skeptical arguments in the area. Let me briefly remind you of one line of thought that has worried anti-luck optimists, and delighted skeptics, normative incompatibilists. It is linked to the Achilles and the Tortoise argument, stressing the need for blind mechanism of inference that offers only limited possibilities of control. Basic inferential steps are either read off from explicit rules, or performed in a routine manner and enabled by causal ("hard wired") mechanism that are independent of learning and control of the cognizer. Here is a sketchy reconstruction of how the skeptic might proceed:

(a) Learning from explicit rules leads to regress (Achilles and the Tortoise). Therefore,
∴ (a) basic inferential steps are due to blind "hard wired" mechanism. Therefore,
∴ (b) *successful inference depends on cognitive mechanisms that execute basic steps blindly and without much of conscious control by cognizer.*
(c) The acquisition of many armchair beliefs, as well as understanding of any but most simple armchair propositions (contents of those beliefs) depends on inference. Therefore,
∴ (d) the success of inferences is open to blind veritic (procedural) luck.
(e) The reflective understanding of one's inference equally depends on *the very same blind cognitive mechanisms that perform basic steps in first-order reasoning.* Therefore,
∴ (f) the success of reflective inferences is open to blind procedural luck, i.e., the cognizer is lucky in regard to her reflective understanding of correct inferences and assurance in resulting true beliefs.

This line of reasoning reopens the issue of luck about capacities. The world-theorist, like Pritchard, would tend to minimize the dangers of such luck, which is clearly agent-centered, and which attacks of precludes executive epistemic virtues. He lists it as "the second harmless type of luck' in his classification (2005: 134). In contrast, as we already noted, skeptic's line suggests that capacity luck is often not harmless. Our inferential capacities might be due to blind mechanism of inference that offers only limited possibilities of control, and deprives the agent of her virtue.

What could a philosopher from the directly opposite camp, the anti-luck optimists answer? Most of the arguments that have been put forward have not been presented explicitly as anti-luck arguments, since the whole debate about luck in this field is so new, but they have a clear anti-luck import.[13] They usually bypass the

causal underpinnings of human candidate *a priori* beliefs, and normally take the following form: the content of such beliefs and the content of reasons for them guarantees their truth, so there is no need to revert to any kind of external sustaining factors. By implication, since luck has to do with these sustaining factors, one can conclude that there is no need for luck in typical armchair cognition.[14]

So, the crucial debate is about the sufficiency of content. An important problem arises in connection with the assumption that content guarantees the truth. This is made clear with what I shall call the Dreamers and Madmen argument, which starts *from phenomenology of armchair thought*. It has been anticipated by Descartes' Argument from madness,[15] and its real-world plausibility is nicely illustrated by the quote from Nash on extraterrestrials. The most sophisticated development and criticism of the argument has been offered by C. Wright who puts it in terms of "maundering," irrational quasi-understanding, (quasi-) inferring and (quasi-) proof-following that are phenomenally indistinguishable from rational understanding, inferring and proof-following. Here are the bare bones of the argument:

> It is possible coherently to imagine states of irrational quasi-understanding, (quasi-) inferring and (quasi-) proof-following that are phenomenally indistinguishable from rational understanding, inferring and proof-following.[16]
>
> There is a fair chance that actual pathology of though exhibits such phenomena: some scenarios of such occasional attacks are not only possible, but seem to be actual.
>
> Due to phenomenological indistinguishability, it is impossible to tell from the first-person perspective whether one is in such irrational state.[17] Therefore,
>
> ∴ (even if one is *de facto* in the rational state, one cannot know this by reflection alone. Therefore
>
> ∴ (one cannot in general *know* that one is undergoing an episode of rational understanding, rational inferring and proof-following, in contrast to their irrational counterparts. Therefore,
>
> ∴ (it is a matter of luck that one is in the rational state, rather than irrational one, and that one has true armchair beliefs (and has been performing correct inferences).[18]

The argument relies upon underdetermination at the level of phenomenology: what is phenomenologically accessible to the thinker does not decide between rational thinking and its irrational counterpart ("maundering").[19] Armed with the Achilles and the Tortoise argument the skeptic can argue that capacity luck, and perhaps veritic luck are unavoidable in matters of intellection, and form the Dreamers and Madmen argument she can conclude that reflective luck is equally unavoidable. She can then appeal to intuition that luck is incompatible with serious justification and high-grade knowledge, and conclude that we are doomed to remain ignorant in the whole of the (candidate) *a priori* domain.

2. Luck is impermissible and not needed. We just mentioned Kant, the grand old man of this tradition, and have already mentioned an important line of answer to the Achilles and the Tortoise argument. The negative evaluation of luck is incorporated into the present stance, but does not lead to skepticism. On the contrary, once it is combined with negative answer to the descriptive question, i.e., that luck is not needed, the resulting incompatibilism yields an optimistic view according to which luck is neither permissible nor needed, and we can achieve knowledge, the *a priori* one, of course. Call it *anti-luck optimism.* On the contemporary scene there are many philosophers who are in spirit anti-luck optimists, but don't formulate their view directly in terms of luck. Thomas Nagel talks in this context of contingency, which comes close to luck, and takes a staunch anti-contingency stance (analogous to some aspects of his stance towards luck in moral matters). Barry Stroud has been for decades worried about capacity luck, and has in his early paper on inference and understanding (1979) argued that understanding saves us from the need to rely on mechanical inference: a stance very close to anti-luck optimism. As in the *a posteriori* cases, there are also several ways to avoid the appeal to armchair luck: one is to internalize the relevant cognitive domain, in this case the domain of mathematics and logic for instance, and claim that we have control over it because it is anyway mind-dependent. The other is to allow for mind-independence of the relevant domain, but argue that we have a luck-free access to it. The first option is more Kantian, the second is realist apriorist.

We now pass to the opposite views. The compatibilist answer to the normative question, claiming that at least some kinds of luck are permissible, yields what I shall call pro-luck stance. It is normally combined with the affirmative answer to the descriptive one, so that it yields *pro-luck optimism* that answers both questions in the affirmative:

3. Luck is needed and permissible (at least those kinds of luck that are needed are also permissible). Here is one venue to this option: The Dreamers and Madmen Argument suggests that the phenomenology of understanding and reasoning is the same in the case of correct such processes and incorrect ones. If this holds, and if we are not mad, then there is an element of luck (both first- and second-order one) in human armchair achievements. Contingent causal underpinning of our capacities are relevant, as both classical rationalists and contemporary naturalists have argued. Luck is inevitable, and is, therefore, permitted, at least to some extent. We have mentioned Pritchard and Millikan in *a posteriori* matters. One could read Descartes as a proponent of a moderate pro-luck optimism, according to which at least some kinds of luck are both needed and permissible (whereas others are neither needed nor permissible).[20] Personally, I agree with Pritchard and Millikan on the general point, and with Descartes, read in this fashion, on the armchair beliefs, but I would like to give the Cartesian account a more naturalistically acceptable twist. Also, I would defend a moderate virtue-theoretic stance on luck. Some luck is unavoidable, but it

is not fatal to knowledge. In particular, I believe that causal explanation of thinkers having of *a priori* intuitions and of their reliability is compatible with their responsible holding of them, but I will not defend this belief in any detail in the present paper.

This brings us to the next main contrast in the luck debate, the one between agent-focused virtue-theoretic views and the world-focused ones. Machiavelli famously claimed (in Chapter 25 of *The Prince*) that Lady Luck is the arbiter of one-half of our actions, but that she still leaves us and our virtues to direct the other half. And the more credit our virtues deserve, the better for us. When it comes to epistemic luck not all would agree. Pritchard has been quite persuasively arguing that we don't really need epistemic virtues to avoid skeptical problems: those that are avoidable, can be get rid off thanks to the hospitality of the world, i.e., the safety of our beliefs, guaranteed by the fact that we live in a normal world. Those that are not avoidable, remain such, no matter how much virtue the cognizer possesses. We shall address these issues obliquely, through the question of how to characterize armchair luck in the first place.

III. Armchair Luck: An Agent-Centered Plot

a. The Background: The Modal Approach

Let us return to our initial example of armchair Gettier luck (from *Introduction*) and fill it out a bit.[21] Consider first a simple miscalculation (or a faulty attempt at proving a theorem) that yields the correct result by fluke: two mistakes cancel each other and a happy end ensues. Imagine now that calculations (or the proofs) are very difficult, and that the calculator (or the theorem prover), whom we have called Jane, is a good mathematician, who normally has reason to trust her capacities. Jane arrives at correct result R, which is further corroborated in application. In fact, it takes a genius to detect two subtle mistakes that have cancelled each other. Then, Jane is *a priori* justified in believing the result R. She thus has a true justified belief, which is, by most people's lights, not a piece of knowledge.

In order to place this simple examples within a more systematic picture, let me borrow a nice classification offered over ten years ago by Bill Harper (1996: 279), replacing his *a posteriori* example by an *a priori* one, to the effect that there is no largest prime. The following seems to be a fine rough classification of the roles luck can have with respect to knowledge:[22]

(1) It can be a matter of luck that the subject S is capable of knowledge. (S by chance escaped a fatal accident in S's careless youth, so S is lucky to be alive to have beliefs. Also, that same lucky break cured S of a growing disposition to be radically skeptical, so S is again lucky to have beliefs.)

(2) It can be a matter of luck that S acquired the belief p. (S was in a freak accident that damaged his brain and left him with the inexplicable belief that there is no largest prime.)

(3) It can be a matter of luck that S acquired the evidence for p. (It was by luck that S saw a popular science article mentioning there is no largest prime.)

(4) It can be a matter of luck that p is true relative to S's justification. (S saw only a crank pseudo-science paper which, by accident, mentioned there is no largest prime. Equally, the Jane example fits the bill.)

Harper notes that the first and second example seem to be compatible with knowledge.[23] The third type of luck, he notes, seems to pose no problems for knowledge. The fourth type of luck seems incompatible with knowledge. It is this type (at least) that must be ruled out in any analysis of knowledge. It is a special case of Unger's "not at all an accident" condition. The kind has been first pointed out as a distinct kind by Mylan Engel in his (1992a) paper, to which Harper also refers. Engel calls this kind of luck "veritic luck" and characterizes it in terms of a person being "epistemically lucky in virtue of the fact that, given her evidential situation, it is simply a matter of luck that her belief turns out to be true (. . .)" (p. 67). He claims that it is incompatible with knowledge.[24]

Let us agree that with Jane's result it is a matter of luck that R is true relative to her justification. Since the justification in question is not perceptual, but is acquired in the armchair, so that R is a (candidate) *a priori* belief, we have a *prima facie* case of armchair luck. This will be our *in vitro* exhibit of a non-dramatic case of luck helping the acquisition of true belief but, at the same time, standing in the way of acquisition of knowledge.[25] How should we characterize it? As mentioned, the best accounts of *a posteriori* luck, including Pritchard's recent book (2005), start from the ordinary and non-problematic occurrences of luck in Gettier cases. These occurrences, happening in quite ordinary scenarios, like in the Smith and Jones stories, and sheep in the field or stopped clock examples, offer a fine opportunity to define epistemic luck *in vitro*, in modest, easily manipulable contexts.[26] The more dramatic cases of luck, connected to the general skepticism concerning the external world, are fully discussed at a later stage. This strategy seems quite promising and can be usefully applied to the *a priori* domain. I shall therefore in this section concentrate upon the possibility of simple Gettier-style cases of luck in the domain. So, let me set the stage for the discussion of issues of characterization, by summarizing the relevant points of general accounts of luck.

We shall be dealing mostly with the kind of luck where it is "a matter of luck that *p* is true relative to S's justification," as Harper puts it in his list we quoted in the Introduction. D. Pritchard has added another useful kind, easily illustrated by the classical skeptical tactics. The skeptic typically insists that the agent is not internalistically justified in believing everyday propositions. Even if they are true, given only what we are able to know by reflection alone, it is a matter of luck that it is so. Pritchard describes this as a case of "reflective epistemic luck" (2005:174). We shall briefly consider its appearance in *a priori* domain at the end of the next sub-section.

The proposed definitions of epistemic luck have been generally modeled on *a posteriori* cases and are often explicitly limited to such cases. This poses two prob-

lems: first, how to characterize *a priori* ones, second, what is then the right *general* characterization of epistemic luck? Since Pritchard's modal account is the most worked out one, and since I find it very congenial and inspiring, I will concentrate upon it, taking it as a guide and as a foil for answering the two questions that go beyond Pritchard's explicitly delimited domain of interest in his book, i.e., the domain of contingent truths. Let me first quote his two general conditions, which I find exactly to the point:

(L1) 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.

This condition is not sufficient, so he adds:

(L2) If an event is lucky, then it is an event that is significant to the agent concerned (or would be significant, were the agent to be availed of the relevant facts) (2005:132).

Things get more precise but also more difficult with further precisification. Veritic epistemic luck is first roughly defined in the usual way, i.e., that it is a matter of luck that the agent's belief is true. Translated into safety considerations,

> "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 (we will examine a little more what this clause means in a moment)—the belief is false" (200:156).

Notice the formulation "the same belief"; this is the one that we shall have to focus upon in the sequel. Finally, we get a formulation of safety along the following lines:

> Safety II
> For all agents, φ, (A) if an agent knows a contingent proposition φ, then, in most nearby possible worlds in which she forms her belief about φ in the same way as she forms her belief in the actual world, that agent only believes that φ when φ is true (Ibid.).

The characterization relies essentially on belief staying exactly the same in nearby possible worlds, and proposition φ changing its *truth value* in close possible worlds. The state of the agent is the same, and the rest of the world changes. Just to be on the safe side, I shall call the world-minus-the agent(and her beliefs) "world'", when needed. So, worlds⁻ vary: in some of them the proposition is true, in some of them false. Pritchard next refines the proposal into Safety III[27]

> For all agents, φ, (A) if an agent knows a contingent proposition φ, then, in nearly all (if not all) nearby possible worlds in which she forms her belief about φ in the same way as she forms her belief in the actual world, that agent only believes that φ when φ is true (2005:163).

Pritchard argues that externalism can deal with veritic luck through safety requirement. The really difficult case is, however, the important one of Reflective Epistemic Luck

This type of epistemic luck, Pritchard stipulates, concerns the manner in which, *from the agent's reflective position*, it is a matter of luck that her belief is true. And he argues, convincingly to my mind, that this type of luck can remain even if when the agent in question has a true belief that is safe. The definition offered is the following:

> *Reflective epistemic luck*
> Given only what the agent is able to know by reflection alone, it is a matter of luck that her belief is true (2005:174).

Unfortunately, there is an important issue concerning what exactly counts as reflection, and what is its epistemic status; it will be addressed briefly towards the end of the next section.

b. Luck and Stability in *a priori* Matters

A good starting point is Pritchard's characterization of an event due to luck as an event that "occurs in the actual world but which does not occur in a wide class of the nearest possible worlds" with same initial conditions formulated as his (L1) and (L2). This rough description seems to capture the armchair cases, if by "event" one means something like "the forming of the true belief that p." However, the way it is made precise in characterizations of safety assume that there are possible worlds in which "p" is not true, and this creates a problem with necessary truths, typical objects of true armchair beliefs. To see this for veritic epistemic luck, consider Pritchard's unpacking of the claim that it is a matter of luck that the agent's belief is true: "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 (. . .) the belief is false"(2005:156), meaning of course, the very same belief. Pritchard himself stresses that the truth in question is supposed to be contingent. In the Jane example, the truth is necessary, so the very same belief is bound to remain true. Worlds are fixed and all the same as far as a necessary proposition goes. But can the definition be somehow generalized?

A way to go is to allow for epistemically possible, but metaphysically impossible worlds. (We might need them anyway for antecedents of counterfactuals of the following kind: If 2 plus 3 were 5, you and me would have enough money to buy a pizza). Such is the world W* in which the theorem R is false, and it is epistemically (relative to what Jane knows about math) very close to the actual world. Dummett's example from the Introduction features an analogous assumption about geometry: it is logically possible for space not to conform to the laws of three-dimensional Euclidean geometry, he assumes. This may be acceptable in case of geometry, but Dummett himself rejects an analogous assumption for logic and arithmetic. On the other hand, impossible possible worlds are also a problematic bunch. Moreover, this line misconstrues the problem; it is wrong headed, not just mistaken in detail.

In order to make this plausible, let me re-use the old metaphor of cognitive "hitting the target," and contrast hitting it by luck as opposed to skill.[28] In the case

of luck, the shooter might have easily missed the target. When the target is moving, like in a hunt, it is the instability of the target that often accounts for the ease of missing. But many targets are quite immovable. To dramatize, imagine a dialog between an envious Göring and a proud Werner von Braun in the wake of the first V-2 bombings of London. Von Braun is bragging, and Göring is downtrodden, since the rockets seem to be much more destructive than the bombs thrown by his ace pilots. "Oh, Werner, it's a sheer piece of luck that your rockets hit London," he says. Obviously, he doesn't mean that *London could have been elsewhere*, say, far away in China. The target is fixed and it is the rockets that are alleged to be imprecise, or swerve, or whatever. They could have hit pastures instead of hitting the city.

The case with necessary truths is like this imagined London case. They don't "move," don't change across the world, but stay the same. There is no moving target. So, in the case of armchair luck, it is the thinker that could have been wrong about the topic. It is her mind that could easily have swerved, "hitting" the negation of the theorem instead of the theorem itself. It is not the immovable necessary truth of a theorem that accounts for possibility, but the unstable human mind with its limited capacities. To revert to Pritchard's Safety II, that agent only believes that φ when φ is true is not to the point, since φ is always true. In other words, we don't need impossible worlds in which the target has moved, but a better general characterization of what was wrong with Jane, not with the theorem, since there was nothing wrong with *it*. It is not up to any world, a possible world considered in isolation from Jane and her beliefs, to represent the unwelcome situation, but to something having to do with Jane herself. So, the possibility of luck in *a priori* domain shows that the best precisifications of the definition of luck offered in literature are inadequate, since they mostly rely on the possibility of it being the case that not-p. When p is necessary, such a definition should at the very least be supplemented by one pointing to variation in belief, not in the worldly facts, that happened to be believed when the truth is hit upon by the agent.[29]

In short, armchair luck is definitively agent-centered, not world-centered. Although external circumstances might and do help, it is not the obtaining of p in the good case that contrastively explains agents success, nor does the obtaining of not-p contrastively explain the failure in the bad case, since p obtains in all cases. It is primarily *the matters concerning the agent* that provide the focus in the armchair domain. So here is a shot at

> Veritic armchair luck
> It is a matter of luck that the agent's belief is true.
> The agent's belief is true in the actual world, but in a wide class of nearby possible worlds in which the relevant initial conditions are almost the same as in the actual world—and this will mean, in the basic case, *that the agent at the very least forms her belief in the sufficiently similar way as in the actual world—the agent has a false belief.*

So, here is the closest equivalent to safety, a kind of truth-tracking that can be proposed for containing armchair luck. In contrast to safety, it does not trade on coun-

terfactual stability of environment, but on counterfactual stability of the cognizer: even if cognizer's ways of thinking and even capacities were to vary slightly, she would manage to arrive at the same true belief as in the actual world and thus continue to track truth. Call it

> Agent Stability:
> For all agents, A, if an agent knows an armchair 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.

Obviously, Jane's justification is not up to the task. This has nothing to do with the structure of external world(s), with counterfactual instability of environment. The problem lies in the thinker: her thinking is the locus of trouble. The counterfactual picture would have to be focused upon variations there, e.g., what would have happened it there hadn't been a second mistake that killed the first one. So the proposal would have to be along the following lines: had the cognizer's ways of thinking (or even her capacities) been slightly different, she would not have managed to arrive at the same true belief as in the actual world. She might have ended up with believing the negation of the target proposition, or with agnosticism about it.

Pritchard has (in a blog discussion) kindly revealed his own hunches, which seem to be along similar lines. He would look at various worlds in which Jane forms her belief as to whether the theorem holds, and would, of course, find also those in which she believes it doesn't. He also produced a nice example that highlights a problem with the proposed (should I say "our") solution. Suppose someone thinks that tossing a coin can settle mathematical questions, and this method happens to result in a true belief in a necessary mathematical proposition. Then, intuitively there is a near-by possible world where the person forms a belief concerning this proposition on the same basis and the belief is false—since the coin-toss has lead to the wrong result.

This dovetails with a problem of how exactly to characterize Jane's reasoning. It is not like coin tossing: the two mistakes she made are subtle (we need this in order for her to be justified), so the incorrect procedure she followed is the one that seems quite compelling to a good mathematician. Why then believe that in nearby possible worlds the procedure is changed at all? Well, we need some change, in order to capture the intuitive idea that it a matter of luck that the theorem is true *relative to Jane's justification*. So, we have to concentrate upon ways of thinking. This would yield the following proposal:

> Procedural veritic luck: It is a matter of luck that the procedure used by the agent has resulted in true belief.
>   The agent's belief is true and has been justifiably arrived at in the actual world, but in a wide class of nearby possible worlds in which the relevant initial conditions are almost the same as in the actual world—and this will mean, in the basic case, *that the agent at the very least forms her belief in the sufficiently similar way as in the actual world—the agent arrives at a false belief* (or no belief at all).

The corresponding positive requirement would be a kind of stability of the cognizer:

> 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 (*Agent Stability*).

Let me add a brief note about the "slightly changed cognitive apparatus," a topic that merits a separate paper. We have seen from the Nash example, and from the Dreamers and Madmen argument that it could matter that the agent's cognitive structure might have differed in a minimal way from the actual one, and produce wildly irrational and false beliefs. All this reopens the issue of capacity luck, which seems to be a variety of constitutive luck. There is, I think, an interesting contrast between cases relevant in the moral debate (including equality debate) on constitutive luck, which features prominently character and basic abilities of the agent on the one hand, and the epistemic case on the other. The problem with the non-epistemic constitutive luck is that it often appears as if it may have tinkered with agent's essential properties, and thereby with her identity; the opponent can then argue that the whole notion is incoherent. Andrew Latus, in his defense of constitutive luck (2003; see also bibliography cited there) appeals to a notion of perspective, and also to a frequentist treatment of luck: just look how few people in your surroundings have the relevant property that you have; so, you are lucky to have it.[30] With cognitive capacities the range of identity-preserving variation is intuitively much wider. The possible world in which my otherwise identical counterpart makes systematically ten times more logical mistakes than I normally make, and is quite stubborn in defending them, is the world in which he is still *me*; complete acalculia would not touch my identity at all, and even a bit of occasional madness in yet another possible world seems still permissible: it's just our good old Nenad, but a bit crazy, my actual family and friends would say if allowed to peek into this hopefully distant world. If this holds, an important obstacle to the assumption that there is a constitutive armchair luck is removed. This capacity luck is *the most narrowly agent-focused kind of luck*, and one would expect it to raise its head in the clearly agent-centered domain of armchair luck. And indeed it does. This importance of capacity luck dovetails nicely with the general tendency of armchair luck to oppose agent's capacities- executive virtues, rather than to tinker with her relation to her particular world.

Of course, the formulation proposed above needs working out. For instance, one might still be bothered by the subtlety of both mistakes: if they are very, very subtle, then Jane would continue to make both of them in nearby possible worlds.[31] But, is it on the right track at least?

In order to argue that it is, let me consider a metaphysical objection raised by Mark Balaguer at the Bled conference. It concerns the issue of similarity of worlds, where non-epistemological, in particular metaphysical, considerations could play a major role. Suppose that mathematical propositions are about mathematical objects

and states of affairs, that they are made true or false by the latter, and that there are mathematical objects in the actual world @ and there is a world which is exactly like ours, but deprived of them, call it W*. How close are the two worlds? One line of thought is that mathematical objects are causally inert, so their absence produces no big change, or no change at all, for that matter. Therefore, the two worlds, @ and W* are very close neighbors. And in W* all the standard math is false. Should we than say that one's standard mathematical beliefs are true by luck?

Well, if all the assumptions hold, and the two worlds really are similar, and therefore neighboring, then it *is* as case of ordinary luck, veritic and reflective. It is not only Jane, but all mathematicians that happen to be lucky in matters of existence of mathematical objects. This would, however, be very strange. So, it is perhaps better to reject some of the assumptions, or the similarity metrics proposed. Start with this last item. The difference in inventory between @ and W* is *huge*, one might argue; the first contains a huge infinity of objects that the second does not. That the objects *do* nothing is a separate matter; the difference in inventory is enough. If you think it is not the inventory, but causal powers that matters, there is another strategy. Ordinary mathematical beliefs don't have to be true in a full, metaphysically rich sense, rather in a deflationary or minimalistic one. Mathematicians are really not that much bothered by literal existence or nonexistence of sets; it is more our, philosophical worry. Now, on deflationary understanding of mathematical truths, the standard math is true in W* so Jane's two mistakes are mistakes in W* as well, so the problem disappears.

Finally, let me briefly address a problem about reflective armchair luck. Consider what happens if we retain Pritchard's just quoted formulation, which focuses on what the agent is able to know by reflection alone: given only that, it is a matter of luck that her belief is true. (2005:174). Here, we seem to have a new problem, since armchair knowledge just is knowledge by reflection alone. So it seems that veritic and reflective luck *collapse* into one and the same phenomenon in the case of armchair knowledge.

A natural proposal is the following: in the case of armchair luck, the reflective luck is just second order luck of the same kind: the agent is reflecting, in the armchair of course, about her first-order armchair beliefs. But how does one prevent collapse?

I am attracted to insisting that there is a mistake in this natural proposal, and that there is a substantial distinction between the first and the second order belief. There are two ways to go, a more traditional and a more innovative. The traditional way appeals to narrow reflective equilibrium. Consider an agent, call him Kurt, who is mathematically sophisticated, and also finds it obvious and believes that two plus three equal five. Now, his first order belief is supported just by the obviousness and compellingness. However, once Kurt starts reflecting, he can draw upon his mathematical knowledge and philosophical acumen. He is able to prove the proposition from Peano axioms, and also from the axioms of *Principia Mathematica*,

he sees how it fits into the larger whole of number theory and so on. So, his (presumably) *a priori reflective* justification is much more impressive than the first order one.

The more radical way appeals to wide reflective equilibrium. A second agent, Willard, is equally mathematically sophisticated, and also finds it obvious and believes that two plus three equal five on the same immediate ground. However, in his reflective justification he is willing to appeal also to his *empirical* beliefs. Here we should note that "reflective" in the original formulation encompasses all beliefs abut one's inner state, so that my belief that I believe that I have hands is included. Our reflection can thus, in an oblique way, freely test empirical beliefs against other empirical beliefs, ponder about empirical explanation(s) of us having such and such beliefs and so on.[32] So, Willard uses at the second, reflective level "the totality of available science and commonsense" in order to test his first level simple mathematical beliefs. In this case, the reflective test is not only vastly more encompassing, but also substantially heterogeneous to the first level justification. Whichever way one takes, the level distinction is preserved, and Pritchard's basic proposal goes through. So, the first-level belief is reflectively lucky if the following holds: Given only what the agent is able to know by second-order reflection alone, it is a matter of luck that her first-order armchair belief is true. Much more needs to be said, but I am leaving it for later. It is time for the first moral of the whole story.

I hope we have established 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.*

Can we draw more general morals from the importance of the agent and her qualities (or lack of such) in the characterization of armchair luck? I think we can, and I want to sketch here the main line, along which one would have to proceed. The question concerns epistemic qualities, executive virtues of a good cognizer: are there important for reducing luck and, if so, how? Return to the shooter and the bombing examples. The information that a shooter or a bomber has hit his target by luck doesn't tell one if the problem lies, so to speak, more in the target or in the shooter. There are fixed targets and nervous and fidgeting shooters, and there are concentrated shooters, but too speedily or unpredictably moving targets. The (candidate) *a priori* examples show that at least the armchair domain has be accounted for in terms of fixed, even immovable targets, i.e., truths that hold everywhere in the space of possible worlds. But once we notice the symmetry between the moving target and the "moving" shooter, we understand that exclusive focus upon modal instability of truth(s) is unwarranted even in the *a posteriori* cases. It is often the thinker that could have been wrong about the topic, not the world⁻ that might have "shifted." The unstable human mind with its limited capacities is often the main focus of our discontent, not any particular modal shiftiness of truths.

Let us return to the usual Evil Demon topics, bearing in mind the symmetry between the mind and the world (i.e., world⁻) as potential contributors to cognitive disaster. Indeed, the skeptical problem for our knowledge of the external world is mind-centered: it is the manipulability of our minds (by the Demon), and the poverty-underdetermination of the phenomenology that produce skeptical worries. The fantasy of a different, Demon-ruled world (world⁻, of course) is just a graphic device to tell the reader something about *us and our cognitive weakness*, rather than about demons, or about the modal instability of truths. If this holds, then the characterization of in terms of safety is not only limited and not sufficiently general, but it can be seriously misleading, focusing the philosopher's attention upon the wrong subclass of mismatches. The definition of luck in terms of surrounding worlds is *world-centered*, whereas the skeptical problem is rather *mind-centered*. We can now supplement our weaker claim with a stronger claim, to be argued for in more detail on some other occasion: *the phenomenon of armchair luck throws interesting light on the problem of the external world. Both external world luck and armchair luck have a common root, not capturable by considerations of safety. The both seem to be primarily agent-related, not world⁻ related.*

The key slogans for agent-focused strategies seems to be "credit" and "virtue": the epistemic success is due to the agent if the agent can be credited with success (Greco, Sosa, Riggs), and the qualities to which the credit is given are virtues. The world-focused strategy, as represented for instance by Duncan Pritchard, promotes the qualities of safety, understood completely in worldly terms.[33] Pritchard has been defending a "provocative claim regarding the status of virtue epistemology," as he himself puts it, i.e., that "virtue epistemology is at worst false and at best unmotivated, and that reflecting on epistemic luck highlights this fact to us" (Ms1: 1). His criticism of the competing view, i.e., the agent-focused truth-centered one, claims that the appeals invoking virtue and reliability are idle when it comes to luck about the truth of the belief, and impotent when it comes to what the agent can know herself by reflection. This impotence is quite common, however: nobody has a remedy against "reflective luck," as Pritchard calls it, and we should just stop being nervous about it. We don't need a reliabilist account, since safety can do as well, and safety is a world-related quality: so long as the actual world is "normal" we can know such anti-skeptical truths as that we are not brains in vats. (For my part I fail to see how safety can replace reliability, if the two basically come to the same thing; moreover, safety needs explanation in terms of agent's capacities anyway.[34])

Here is his most recent formulation of the problem for the virtue theoretician (who relies on safety as the main anti-luck device):

> In essence, my claim is two-fold. First, that virtue epistemologists are going to have to cite an anti-luck condition in order to deal with the Gettier cases and thus offer a fully-fledged theory of knowledge. Second, that insofar as the virtue epistemologist concedes this much to anti-luck epistemology, then the case for the view is lost. This is because an anti-luck condition can, I argue,

deal with all the cases the agent reliabilist wants to cover, but can do so without making any essential mention of cognitive faculties or intellectual virtues. This is not to deny, of course, the importance of the virtue-theoretic story in accounting for how creatures such as us come to have knowledge; the point is rather that this virtue theoretic story comes after an anti-luck account of knowledge, and need form no essential part of that account. Anti-luck epistemology thus not only casts light on a key debate in contemporary epistemology, but also serves to undermine the defining claim of one the major movements in the recent literature (Pritchard, Ms3: 13).

However, the issue of armchair luck highlights the importance of virtue, by focusing our attention upon variation in belief, and not in the world (since there are no variations there anyway, when it comes to necessary propositions). Thereby, the focus changes, from the surroundings towards the thinker herself. It is here that a virtue epistemologist might again see a chance for stressing the qualities of the thinker, as opposed to mere hospitality of the world. The epistemologist can perhaps follow Machiavelli's already quoted saying, (from Ch. 26 of his *Prince*), according to which luck (fortune) is the arbiter of one-half of our actions, "but she still leaves us to direct the other half" by relying on our own virtues. In (candidate) *a priori* matters the focus should be upon the agent herself. The agent- and virtue-centered approach is much more promising than the merely world-centered one, for reasons discussed above. If there is a domain in which virtue epistemology is clearly the favored option, it is the armchair domain. Descartes seems to be right about yet another point besides his general moderate pro-luck attitude. But to argue for this in any detail is a task for future.

Conclusion

The main focus of the present paper are the issues concerning the proposed definition of armchair luck, and, on the negative side, the impact of the phenomenon in question upon those definitions of epistemic luck which have been generally modeled on the *a posteriori* cases and couched in terms of safety. The possibility of luck in the *a priori* domain shows that definitions of believing by luck that *p* offered in the literature are inadequate. This leads to two claims. The weaker claim is that there is a particular type of luck concerning (candidate) *a priori* beliefs that that requires the available modal definitions of epistemic luck, geared to the problem of the external world be enlarged and supplemented by a different kind of characterization. Armchair veritic luck should be characterized in terms of instability of cognitive functioning: the agent has a false belief in a wide class of nearby possible worlds in which the relevant initial conditions are almost the same as in the actual world so that the agent at the very least forms her belief in the sufficiently similar way as in the actual world. In other words, the agent's belief is true in the actual world, but her cognitive structure and/or functioning might have differed in a minimal way from the actual one, and her beliefs would be false. The symmetrical positive condition, called Agent Stability, requires that slight changes should not lead

to false beliefs. The main result is that characterization of luck should have a strong agent-concerning component.

However, a mere supplementation would lead to a non-homogenous account, which would lack generality. This prompts a stronger claim: The phenomenon of armchair luck throws an interesting light on the problem of luck in general. We should redefine veritic luck in matters of the external world. The modal definitions of luck in terms of surrounding worlds is world-centered, whereas the skeptical problem of the external world is mind-centered: it is the manipulability of our minds by the Demon and the poverty-underdetermination of the phenomenology that produce skeptical worries. So both external world luck and armchair luck have a common root and a definition of epistemic luck is needed that captures this common root having to do with qualities of "virtues" of the agent.

The ordinary examples of armchair luck concern the Gettierized mathematical reasoning. The more challenging examples have been around in literature. I have presented a taxonomy of attitudes towards luck, armchair and other. I then briefly summarized the Achilles and the Tortoise Argument, showing that basic inferential steps are due to blind "hard-wired" mechanisms that execute basic steps blindly and without much conscious control by the cognizer. This leaves the success of inferences subject to blind veritic (procedural) luck. Since the reflective understanding of one's inference equally depends on the very same blind cognitive mechanisms that perform basic steps in first-order reasoning, the success of reflective inferences is open to blind procedural luck, i.e., the cognizer is reflectively lucky in her correct inferences and resulting true beliefs. The threat is made worse by further skeptical arguments, modeled on Descartes figures of dreamers and madmen. If these are correct, then even if one is *de facto* in the rational state, one cannot know this by reflection alone. It is a matter of reflective luck that one is in the rational, rather than irrational state, and that one has true armchair beliefs and has been performing correct inferences.

Let me conclude by reiterating that my own sympathies lie with virtue epistemology that is moderately friendly to luck. Lady Luck is not fatal to knowledge. Its effects are not completely eliminable, but they can be minimized. The external, veritic luck is best kept at bay with some combination of safety and agent-stability, explained in terms of the agent's executive virtues. (The basic, motivating virtue of inquisitiveness or curiosity motivates the role of executive virtues, since the later at least reliably produce true beliefs). The reflective luck can be minimized by using a coherentist strategy at the reflective level. It is admittedly circular, plagued by the worrying issue of how small a circle is allowed, but it differs from other related proposals in the literature, in stressing that we need all epistemic sources, empirical as well as armchair ones, to mitigate the effect of armchair luck and to reduce it to a tolerable level. The resulting knowledge might not be very seriously *a priori*, but it is still knowledge, and this is what counts. Arguing fully for all of this would, of course, demand a book.

Notes

1. The paper and its various parts has been discussed at Bled conference in 2006, and at two blogs, *Certain Doubts* and *Epistemic Value*. I wish to thank all the discussants, on the one hand conference participants in Bled including in particular M. Engel, G. Mills and Mark Balaguer, and on the other the blog critics: Duncan Pritchard for very fine discussion, Jon Kvanvig for blog-hospitality and encouragement and Jonny Blamey and Rodrigo Borges for pressing me on number of points. Alex Barber and John Collins offered generous help with the penultimate draft of the paper.

2. An early discussion of issues of luck in *a priori* matters can be found in Benfield, D. (1974). (I owe the reference to Gene Mills who mentions in his 1990 dissertation *"The Definition of A priori Knowledge,"* that Gettier-style cases seem to be common in the *a priori* domain.). Some examples are given also in Mylan Engel:(1992) and in section I entitled "*A priori* Intuitions and Epistemic Luck" of Tidman, P. (1996).

3. The Gettier-style scenarios involving mutually canceling mistakes have, of course, been proposed quite early by several authors, for instance by C. Ginet, first very briefly in his *Knowledge, Perception and Memory (1975)*, Ch. 4, and much later in a worked-out form in his "The Fourth Condition," in Austin, D:F. ed. (1988), *Philosophical Analysis: A Defense by Examples*, Kluwer, 105–107.

4. See, for instance papers collected in Schofield, M. et al. (eds), (1980).

5. Dummett uses it against the view that geometry is synthetic *a priori*:

    It is to this dilemma that the doctrine that geometry is synthetic *a priori* and rests on intuition leads, when understood against the background of a realist view of the physical universe. (Ibid.)

6. Dummett thinks that, thankfully, it does not generalize:

    "Frege's logicist theory of arithmetic is not caught in this fork. One cannot argue against it that, if the laws of arithmetic did not hold, then either we should be aware of their failure, in which case arithmetic is an empirical science, or it would make no difference to us, in which case we have no reason for believing those laws to hold: for, on Frege's account, the failure of arithmetical laws is a logical impossibility."(Ibid.)

7. *Semi*-intuitive since it nicely capture the intuition that the event might have very easily not have obtained (the "- intuitive" part), but does so using possible worlds apparatus which is not part of the intuition itself (the "semi-" part).

8. Here is a quote from Millikan illustrating a similar pro-luck view:

    A contemporary tradition in epistemology has it that whether a thinker has knowledge as opposed to true belief is determined by a partly serendipitous relation between thinker and environment. Contrary to Plato's claims, there is cognitive luck involved in knowing. More fundamental, cognitive luck is required for success in thinking OF things, for success in entertaining coherent propositions. Environmental luck is required for the cognitive systems to maintain a coherent inner representational system. This means that cognitive psychology must be the study of happy interactions with the environment, an essentially ecological study. This follows from the externalist view of mental semantics I have been presenting. . . .(2000: 211)

9. The ethical parallel is strict internalism about morality proned by Kant, and strict internalism about prudential and moral matters, proned perhaps by some Stoics in some of their moods, most famously, by Epictetus at the opening lines of his *Manual*.

10. A further topic one might want to look at are relations between responsibility, luck and merit as they appear for instance in debates about distribution and equality. It would be interesting to look for possible and telling analogies with epistemic merit. For an overview see Arneson (Ms).

11. Thanks go to the reviewer for pointing out the mixed cases, where some luck is permitted, and some not, which lead to the useful and obvious reformulation of the options.

12. For instance, a contextualist (or a sensitive invariantist like, for instance, Hawthorne) might embrace the need for luck but propose a two-levels normative account. First, in ordinary contexts

luck is allowed, so we do have armchair knowledge on ordinary criteria. Second, in very demanding contexts luck is prohibited, so we don't have such knowledge, and one ends up with anti-luck pessimism at the higher level.

13. See, for instance, the pioneering paper by Barry Stroud (1979) and the work of Peacocke, C. on rational compellingness and self-sufficiency of meta-semantic account, for instance in his (1998) and the recent (2004) and (2005).

14. The main line of authors mentioned in the previous note relies upon defining the luminousness or obviousness-compellingness of candidate *a priori* beliefs. These presumably result from an insight into the propositions whose positive epistemic status (truth, etc.) is directly "perceivable," open to understanding (= luminous) and normatively compelling. It is presented as dependent only on intrinsic, constitutive features of propositions (in contrast to causal, extrinsic ones). The forming of beliefs is often presented as responsible and in required measure "free" doxastic action: the result of "spontaneity"). In contrast, blindness is characterized by lack of understanding (say, blind following of Modus Ponens in the Achilles-Tortoise example, minimal role of normativity or its absence, total dependence on causal factors beyond thinker's control. Ironically, at least one author, Brewer, compares luminousness of *a priori* with openness of perception.

15. "I may persuade myself that I have been so constituted by nature as to be sometimes deceived, even in matters which I think I apprehend with the greatest evidence and certitude, especially when I recollect that I frequently considered many things to be true and certain which other reasons afterward constrained me to reckon as wholly false." *Meditations,* V. 14.

    The name I gave to the argument is, of course, inspired by the title of H. Frankfurt's *Demons, Dreamers and Madmen.* For a fine reading of Descartes on the voluntariness of belief see Cottingham, J. (2002)'.

16. Here is C. Wright's formulation of the main idea of the argument:

    . . . . on any occasion where I correctly follow, or comprehendingly construct a chain of inference, it is possible that the train of my thought in so doing should have occurred in exactly the same detail yet my performance have involved no genuine understanding of the reasoning. There is, for example, no absurdity in the idea of a subject who, while capable of grasping each of the ingredient thoughts involved in ratifying a sophisticated proof, lacks the ability to follow the reasoning involved; yet can nevertheless rehearse it, with every confidence and a strong sense of familiarity, as a result of hypnotic suggestion. Such a subject does not, under hypnosis, mysteriously acquire a local intellectual penetration which generally and elsewhere eludes him. And the reason why not is that the succession of his thoughts, as he rehearses the proof is causally sustained not by his apprehension of inferentially relevant characteristics but by the original hypnotic episode. (1991), Skepticism and Dreaming: Imploding the Demon, *Mind,* v. 100, 87–116: 105

17. C. Wright puts it in terms of "maundering":

    Say that a state or series of states of consciousness is *phenomenologically smooth* just in case any normally experienced and reflective subject would find no cause therein to suspect that he was not perceiving and thinking perfectly normally. Dreams, even phenomenologically smooth ones, always and necessarily exclude perceiving. But our first response to the sceptical argument foundered on the realization that-at least for all that has been shown—dreaming does not. always and necessarily, exclude cogent intellection, though it may sometimes do so. However. it now seems that it is merely a work of definition to restore the response, at least in essentials. Say that

    > *x* is *maundering* at *t*

    just in case *x* is then in a phenomenologically smooth state which, like dreaming, necessarily precludes the causal conditions for perception but, in addition, likewise precludes the causal conditions of competent intellection. To stress: I do not know whether and am not claiming that any of our actual dreams are also maunderings. (Of course, as noted, they not infrequently involve disruption of the etiology of sound intellec-

tion.) But it does not seem unlikely. In any case, any phenomenologically smooth episode *may*, as far as the phenomenology is concerned, be a case of maundering. 106

18. We shall say more about this kind of luck, to be called, following Pritchard, «reflective luck»in the next section.

19. Thanks go to Guy Axtel for suggesting that I link it thus more closely to Pritchard's taxonomy of skeptical arguments.

20. This is how I read Cottingham, J. (2002) on Descartes: some initial luck is needed. We are, thanks God, lucky to be situated in a non-Demon world, and we can come to know this by reflecting on God and our situation. C. Wright has argued more than three decades ago *a propos* his own sophisticated variant of the Dreamers and Madmen Argument (from which we have taken the main idea) that the best response to skeptic about intellective capacities, as he calls them is to "drop the assumption that the availability of a warrant consists in the possibility of acquiring it. Warrants-at least some warrants—can be *unearned*. (1991: 103).

21. The view that there are Gettier problems in *a priori* domain has by now become wide-spread. Here is M. Steup in *Stanford Encyclopaedia*, entry *Epistemology*, n. 50

> There is no escape from Gettier problems even in the area of *a priori* justification. What would be an example of a true belief that is justified *a priori* but is nevertheless not an instance of knowledge? Suppose Carl is a logician. He is trying to prove that *p* (which we assume to be a rather complicated proposition) is a necessary truth. He runs through a long and complex proof and concludes that *p* is indeed necessarily true. Unfortunately, even though Carl is right, he made a small and subtle mistake so difficult to spot that it leaves Carl's justification intact. It seems we should judge that, because of his mistake, that Carl does not know that *p* is a necessary truth. So Carl's belief that *p* is a necessary truth is a justified true belief that fails to be knowledge.

The Jane example is, obviously, almost identical to his. For my part, I first encountered the canceling mistakes example in the *a priori* setting by reading Lewis's *On the Plurality of Worlds* (1986:113), probably after having listened to J. Hawthorne's discussion of it at Spindel Conference 1999. Lewis's example concerns a very simple propositions, "2 + 2 = 4" and "there are no true contradictions." He asks the rhetorical question: would your acceptance of *these* statements fail to be knowledge if you only accepted them because, among other possibilities, "two of your mistakes cancelled out"? J. Hawthorne has at the conference proposed a context-sensitive defense of a weaker version of Lewis's claim in his (2000) paper.

22. I am renumbering his classification since his first kind, cases in which the truth of p itself can be a matter of luck, doesn't fit well the armchair truths (unless we use very problematic examples, like the alleged *a priori* semantic knowledge associated with natural kind concepts).

23. The second because the subject might have an acceptable justification for the belief which is his reason for continuing to hold the belief. In such a case, the method of initial acquisition of the target belief would not matter.

24. The relevant contrast is with ". . . a person who is epistemically lucky in virtue of the fact that she is lucky to be in the evidential situation she is in but that, given her evidential situation, it is *not* a matter of luck that her belief is true."(Ibid.) This is called by Engel and later by Pritchard "evidential luck".

25. If you are not persuaded by Jane example, and think that there might be a problem with Gettierizing *a priori* beliefs, here are some related recent armchair Gettier examples. B. Weatherson has discussed Gettier type *a priori* scenarios with a number of people, including the present author, on his *Thoughts Arguments and Rants*. His method of producing examples is summarized there by Aidan McGlynn as follows:

> The recipe (. . .) seems to just require that the subject forms a justified belief, P, by a safe method. They then form a belief in the disjunction of P and some necessary truth X (doesn't matter what X is). P is false, but (P or X) is true, justified, and plausibly safe (assuming, as seems plausible, that disjoining a belief with a necessary truth is also a safe method). (*Thoughts Arguments and Rants*, September 27, 2005)

Cian Dorr in his "De Re *A priori* Knowledge" offers another example, involving the phenomenon of knowing more by knowing less:

> Here is a possible case: Most of the mathematical community has been taken in by a spurious but fiendishly plausible argument that purports to show that there is a largest prime. Through a stroke of sheer luck, I have managed to avoid hearing about this argument, which I would certainly be taken in by if I did hear of it; consequently, I continue to believe on the basis of the usual proof that there is no largest prime. (Draft of August 31, 2005 p. 32. note 28, available on the author's web-page).

A case very similar to the Jane story, but involving a testimonial component is offered by Baron Reed in his "How To Think About Fallibilism":

> Even though S's belief in a necessary truth cannot be mistaken, in the sense of being false, it could nevertheless fail to be knowledge—even if in that possible world S has the same justification for it that allows the belief to count as knowledge in the actual world. Suppose that Seth has excellent reasons for trusting Linda, his logic instructor, and has so far acquired nothing but justified true beliefs from her. Now Linda presents Seth with argument A, which is valid. Seth does not follow all of the details of the argument but gains merely a general sense of how it is supposed to work. On the basis of this limited grasp of the argument and Linda's authority, he comes to know that the premises entail the conclusions. But compatibly with this, Linda could have made two errors with negations that cancel each other out. In that case, Seth would have come to believe, with the same justification, that the premises entail the conclusion. His belief would have been true—but it wouldn't have been knowledge. Despite holding the belief with considerable justification, the justification for it wouldn't have been connected to the truth in the right sort of way for it to count as knowledge. *Philosophical Studies* (2002), 107: 143–157: p. 147

26. The ordinary character of Gettier scenarios is finely discussed in the recent work of T. Williamson (2004) and (2007).
27. The motivation for refinement comes from the lottery puzzle. "The agent who forms her belief that she has lost the lottery purely on the basis of the odds involved lacks knowledge because her belief, whilst true and matching the truth in most nearby possible worlds in which she forms her belief in the same way as in the actual world, does not match the truth in a small cluster of nearby possible worlds in which what she believes is false (i.e., where she wins the lottery). Her belief is thus veritically lucky in this stronger sense of veritic epistemic luck that is at issue in Safety III and thus does not count as an instance of knowledge."(Ibid.)
28. The metaphor has been skillfully revived by E. Sosa in his (2002), sect. III, pp. 163–4. It is also discussed in his John Locke Lectures.
29. J. Driver 2006, notes the problem: a modal account will have issues with necessary truths, she writes. However she does not elaborate upon this.
30. Thanks go to G. Axtel for drawing my attention to Latus's paper and the debate.
31. touched upon at Bled conference by several participants, whom I thank.
32. What is exactly the character of beliefs involved in reflective justification? The question turns out to be very difficult, and much more should be said about it. Here is a beginning. A natural and charitable reading, which I have followed in the body of the text is internalist: the reflecting agent just looks "into her own head"; this reading yields the result Pritchard wants, i.e., that some reflective luck is unavoidable: indeed, I cannot, just by introspecting, find whether there is an external world.

    However, Pritchard has been moving towards disjunctivism recently, and has noted that this move raises an equivalent of McKinsey problem. He points out, that on the disjunctivist view gaining reflective knowledge of one's factive empirical reasons is not a purely introspective affair, in contrast to the classical internalist view. Thus, recognizing that one is in possession of a factive empirical reason, such as that one sees that such-and-such is the case, is itself a partly world-directed activity. And he reasonably concludes that the drawing of relevant consequences from one's reflective knowledge in this regard will result in empirical knowledge. (Ms2:19)

I don't see how one can defend the unavoidability of reflective luck on this disjunctivist conception of reflection ("disjunctivist reflection" or d-reflection):

I assume that a McDowellian is introducing the whole disjunctivist apparatus to block the skeptical attack. Then, of course, the relevant kind of reflection for debate about skepticism is the d-reflection, and this seems confirmed in the discussion of "McKinsey problem" by Duncan himself. However, in the case of d-reflection, its factive ties are accessible to the armchair thinker. She can draw anti-skeptical consequences from what she is able to know by d-reflection alone. But then, it is NOT a matter of luck that my anti-skeptical belief is true. But in this case, the McDowellian Neo-Moorean is bound to claim that there is no significant non-disjunctivist reflection, and also that there is no disjunctivist reflective luck. Bad luck.

On the other hand, if our McDowellian Neo-Moorean allows for some internalist reflection (-kind), it only introduces new complications. Since this kind leaves one helpless against the skeptic, so, if there are two kind of reflection available, one should turn immediately to d-reflection.

I conclude for now that disjunctivist conception of reflection is incompatible with there being an important element of reflective luck in our anti-skeptical beliefs.

33. See the debate in Brady, M. S., & Pritchard, D. H. (eds.), 2003, 2006, and in Pritchard, 2005, chapter 6, and Ms1.

34. I recognize the force of the main idea, a kind of modal situationism about knowledge, i.e., that safety has more to do with being placed in a decent world-neighborhood (normal world, surrounded by its peers), then with the virtues: securing the good epistemic functioning of an agent is more an issue of housing her in the right world-neighborhood, then of educating her in virtuous ways.

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