Accidents, Luck, Credit, Epistemic Explanation

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1. Accidental Events

It is standard practice to use the terms 'accident' and 'luck' interchangeably. Here are some examples:

> A popular alternative diagnosis is that a belief constitutes knowledge only if it is not an accident or a piece of luck that it is true. (Dutant, 2016, p. 155)
>
> When we say that *S* knows *p*, we imply that it is not just an accident that *S* believes the truth with respect to *p* [...] [w]e mean to say that getting it right can be put down to S's abilities, rather than to dumb luck, or blind chance, or something else. (Greco, 2003, p. 116)

This is loose talk not equivocation, and is pervasive in ordinary usage. One may reasonably wonder why this is so. If what follows holds up to scrutiny then we may have an answer. Since I will be concerned with counterfactual robustness, I will assume Pritchard's (older i.e., 2005) modal account of luck:

> *e* occurs by luck iff.
>
> > L1 *e* occurs, and given *e*'s relevant initial conditions *R*, *e* could have easily failed to occur,
> > L2 there exists an *S* such that *e* is significant to *S*.

But under what conditions is an event's occurrence an accident? Some say that accidentality is a *causal* phenomenon. Consider:

> The right answer, I believe, is that pains are *non-accidental accompaniments* of bodily disturbances. This relation of non-accidental accompaniment is grounded in causation. (Molnar, 2003, p. 79) (Italics in original.)

Riggs has offered the following condition:

> An event *E* is an accident for *X* if *E*'s happening is not (sufficiently) caused in an appropriate way by *X*'s intention to bring *E* about. (Riggs, 1998, p. 462)

There are at least two reasons to be dissatisfied. First: it is contentious that intentions are causes. Second: this does not apply to all entities that can accidentally behave. On the alternative I am recommending:

> *e* occurs by accident iff.
>
> > A1 there exists an *x* such that *x* causes *e* by aiming to cause *e*′,
> > and either
> > A2 *x* did not aim to cause *e*,
> > or
> > A3 *x* aimed to cause *e*, but deviantly caused *e*.

To describe an event as accidental is to offer information about its causal origin; the concept is *explanatory*. A3's left conjunct is redundant, I think. Plausibly a chain is deviant only if its aim is satisfied. An event that satisfies A1 and A2 I call a *blunder*. An event that satisfies A1 and A3 I call an *anomaly*.

A1: Aim-Directedness

Aim-directedness should be construed broadly to include: (1) intentional aims (Harry accidentally shut down the power grid), (2) artefact aims (the 'auto-mower' accidentally murders ants), and (3) natural aims (the heart accidentally goes 'thump-thump'). (3) may be important, given the rejection of doxastic voluntarism.

Why accept A1? Suppose Millie's ming vase falls and smashes to pieces. Suppose also that we know that the vase's fall was *not* caused by aim-directed behaviour (i.e., the wind knocked it). Then we may infer the event was not an accident. Suppose now we know that it *was* caused by aim-directed behaviour (perhaps Millie's arm knocked it). We may no longer infer to the same conclusion: the event may or may not be an accident.

A1 & A2: Blunders

> *e* is a *blunder* iff.
>
> > A1 there exists an *x* such that *x* causes *e* by aiming to cause *e*′,
> > A2 *x* did not aim to cause *e*.

Given A1, A2 could fail to hold in one of two ways: either $e' = e$, or else e' is a proper part of *e*. Some cases:

> *Shoot the Deputy* Bob intends to shoot the Deputy. He aims his gun and fires. Unfortunately, Bob shoots the Sheriff; he does not shoot the Deputy.
>
> *Windshield Wiper* A car activates a device *D*, which is designed to wipe rain from the windshield. As the car passes through a dust cloud, *D* activates, and brushes off gathering dust from the windshield.[1]

A1 & A3: Anomalies

> *e* is an *anomaly* iff.
>
> > A1 there exists an *x* such that *x* causes *e* by aiming to cause *e*′
> > A3 *x* aimed to cause *e*, but deviantly caused *e*.

Consider Peacocke:

[1] For an analogous case, see the 'watch' case in (Wright, 1973).

> [T]hat is not sufficient for the matching to be *nonaccidental* in our present sense: for that, one must cause the other (or they must have a common cause) *via the right kind of causal route*. (Peacocke, 1979, p. 63) (Italics my own.)

Stampede Smith intends to kill Jones by shooting him from afar. Smith is a sloppy shot. He fires well off-course. As it happens the bullet hits a nearby herd of pigs which subsequently stampede, murdering poor Jones.[2]

Kidneys Kitty's kidneys are diseased. As such, they no longer filter the blood as they are supposed to. However, a byproduct of the disease fills the kidneys, which in turn filters Kitty's blood.

2. Lucky or Accidental?

Riggs' 'anti-accident' requirement is supposed to sit side-by-side the anti-luck requirement. In contrast, I am sceptical of the epistemological significance of luck. I will now support:

Bear the Burden The concept of accident can play the role that luck has traditionally played in epistemology.

There are at least two 'core' classes of case accidentality must rule out. The first involve sloppy reasoning. Two cases:

Occult Insight Otto falsely believes that he has special powers of intuition. He needs to know the answer to a complex sum. Otto decides to use his special powers: he holds a finger to each side of his temple, hums, and forms a true belief that <the answer is 1,234,567>.

Double Mistake Debbie is calculating a complex sum. She makes two mistakes that cancel out. Thus, Debbie comes to the correct answer.

In *Occult Insight* the aim is not satisfied. Otto aimed to activate his special power. But (presumably) no such power was activated.[3] In *Double Mistake*, the chain is deviant. The second are Gettier cases:

Sheepy Dog On the basis of his visual experience Smith believes that <there is a sheep in the field>. Smith is looking at a sheep-like dog. Nonetheless, there is a sheep in the field, out of sight.

Notice that when arguing that his account deals with Gettier cases, Greco (2003, 73-75) makes use of their deviancy and *not* the absence of safety. Gettier cases are *anomalies*, cases in which the resulting belief is not formed 'in the right way'. One may disagree. After all, is Smith not forming her belief appropriately? Is it not the *environment* that is awry? It is. But the objection rests on an implausibly internalist conception of causal deviance. Folk psychology is world-involving.[4] The notion of deviancy, when applied to certain mental processes, requires that those processes are individuated in a 'long armed' or 'wide scope' fashion.[5] Furthermore: the deviance may run mind to world (intentional action), mind to mind (reasoning a priori) or world to mind (perception).

We might even see (perceptual) Gettier cases as biological dispositional *mimics*. Compare:

Anomalous Regulation A strange substance enters Jones' blood stream and mimics the behaviour of glucose molecules. As a result, the pancreas releases insulin. As it happens, Jones has just eaten a carbohydrate rich meal, and thus the pancreas successfully regulates her blood sugar.

In *Anomalous Regulation*, Jones' pancreas regulates the blood sugar. *Nevertheless, it does so only accidentally, because whether it is working how it is supposed to is determined, in part, by the kind of stimulus it receives*. So too with Smith. In *Sheepy Dog*, the belief is accidentally true because Smith forms a belief that there is a sheep on the basis of looking at a dog. *That is not how Smith is supposed to form beliefs*. The causal chain is deviant: The deviancy lies in the external stimulus of the belief formation capacities. Now for some objections.

Objection 1 'Deviant' is vague. Thus is cannot play a theoretical role in epistemology, until satisfactorily explicated.

Reply 1 I am happy to take deviant to be primitive. 'But, it is vague!' True, but it is a fallacy to suppose that vague predicates cannot be taken as primitive. (Cf. (Lewis, 1986b), (Williamson, 2009).) Deviant *is* vague, it is *not* ill-understood. Moreover, I contend 'deviant' passes Molnar's 'tests' for primitivity.[6]

Objection 2 Barn cases are not 'accidental' formations. But they are not cases of knowing.

Reply 2 I do not have the barn intuition. Nor do a wide range of other individuals. Thus, that the anti-accident requirement does not cover barn cases is a *plus* for me! Moreover, I argue that, given the large amount of disagreement surrounding barn cases, intuition alone is not sufficient to support their being cases of knowing. And in this context, appeals to the 'anti-luck' platitude are circular.

Are we at an impasse? We are not. I contend *the anti-luck barn intuition can be explained away*. Here is how. Like knowledge, dispositional concepts have been given counterfactual analyses. Consider Bird:

> [T]he existence of the causal basis plus stimulus will never be enough to guarantee the required response **(think A2)** nor, if the response comes into being, that it came about in the right way **(think A3)**. A causal chain can always be interfered with. The conditional element is a red herring; I suggest that its presence in the simple conditional analysis is due simply to the close relation between conditionals and causation. Once we have the latter we do not need the former. (Bird, 1998, p. 233) (Boldfaced parenthesised text my own.)

Here is my contention. Something similar is going on in epistemology. Reliability (i.e., anti-luck) is a red herring. Once the non-accidental requirements obtain, we do not need counterfactual robustness. Consider:

DT1 Typically, where an event *e* occurs by accident, *e* could have easily failed to occur.

DT2 Typically, where *e* could not have easily failed to occur and is caused by aim-directed behaviour, *e* is non-accidental.

DT3 Typically, where *e* occurs non-accidentally but is caused by aim-directed behaviour, *e* could not have easily failed to occur.

[2] Cf. (Bennett, 1965) for the original. See also (Davidson, 1978).

[3] If Otto had not tried to do so, but had thought this was a good way to form beliefs, we may also say the case is deviant.

[4] Cf. (Hurley, 1998, 2003, esp ch 7,8).

[5] Cf. (Block, 1978), and (Harman, 1973).

[6] Cf. (Molnar, 2003, ch. 12)

DT1 and **DT2** are false. 'Accidentally causing *e*' is often counterfactually robust

> *Big Red Button* Donald presses the Big Red Button, thinking that it will order him a whopper. Unfortunately, Donald's pressing the Big Red Button ejects a nuclear missile.[7]

And counterfactual robustness in aim-directed entities is often accidental

> *Dust Mote* Whenever Smith walks, she kicks dust motes about. In many cases, she could not have easily failed to kick dust motes. Nevertheless, she does not ever *intend* to kick dust motes.

Nevertheless, and importantly: **DT3** is true. If Harry non-accidentally scores a try, or an auto-mower non-accidentally cuts the grass, or the heart non-accidentally pumps, then typically they could not have easily failed to succeed. Why so? Three reasons.

Reason 1 Aim-directed systems typically find ways of robustly satisfying their aims. (Not always, though. Think nuclear fusion reactors!)

Reason 2 Non-deviant occurrences are often robust. Many interferences and other inauspicious circumstances that are liable to yield counterfactual fragility have been ruled out.

Reason 3 Accidental events are typically (always?) the manifestations of dispositional properties. And dispositional manifestations are typically counterfactually robust.

We are now in a position to explain the barn intuition away. Sometimes, 'accident' facts are more difficult to determine than modal facts. To know whether a belief *could easily* have been false is often easier to determine than whether the belief was formed appropriately. Similarly, determining the etiology of biological traits is hard (Millikan (1984) speaks of 'guesses' of evolutionary history). Sometimes (oddly enough) the modal facts are more accessible than the etiological facts. So modal facts, due to **DT3**, can be employed as a useful heuristic.

3. Creditability

According to

> *Virtuous Agency* S knows that p only if S is creditable for the truth of p.

What is it to be creditable in the relevant sense? In what follows I (a) reject standard 'anti-luck' approaches to this question, and (b) support an 'anti-accident' approach.

View 1: Anti-Luck: Successful Because of Ability (SBA)

Consider Greco's (2003/2010) account of creditability:

> S is creditable for e's occurence iff.
>
> > 1_L e occurred because S manifested an e-ability.

An e-ability is a stable environment-relative disposition to cause events of the type 'e'. Pritchard has, *contra* Greco, argued that abilities need not be stable. I accept that abilities are stable dispositions. But I disagree that abilities are necessary for creditability. Notice 1_L makes use of the 'because of' locution. Greco writes:

> The term 'because' [...] *marks a causal explanation*. The idea is that, in cases of knowledge, S's abilities explain why S has a true belief. S believes the truth because, for example, she saw clearly, or reasoned well, or remembered accurately. (Greco, 2010, p. 12) (Italics my own.)

By 'causal explanation' Greco means 'salient causal explanation': his conception of explanation is epistemic, not (purely) ontic. On its face, this claim is contentious. First, speaking of *causally* explaining the *truth* of a belief seems odd. Explain, perhaps.[8] But causally explain? Suppose (as Lewis (1986a) holds) events are the causal *relata*. Is the 'truth' to be regarded as part of the event? Not obviously, to me. Second, the epistemic salience is wedded—in an admittedly elegant move—to contextualism. Those of us who are wary of contextualism will be dissatisfied.

If abilities are explanatory, and abilities are dispositions, we should ask: how do dispositional ascriptions explain?

1. Hypothesis Decreasing Explanations

> **Q1** Why did S sleep after drinking the potion?
>
> **E1** Because the potion is soporific.

Why so? On a fairly standard view (Mumford, 1998; Lewis, 1986a), the explanatory force of **E1** consists in providing information about the causal origin of the event (S's falling asleep). More precisely, it tells us that the cause is, in some sense, 'located within' the potion (rather than being due to external reasons). Thus, **E1** functions as a *hypothesis decreasing* explanation.

Abilities can enter into hypothesis decreasing explanations. We locate the causal source. The success did not occur due to external causes. We learn that the manifestation is a significant part of the *whole cause* of the success. This does not obviously apply to *epistemic abilities*, though.

2. Hypothesis Increasing Explanations

> **Q2** Why did the vase break in transit?
>
> **E2** Because the vase was fragile.

E2 does not rule out any hypotheses. I contend, instead, that it acts as a *hypothesis increasing* explanation. We come to learn that the vase would have shattered if exposed to a *wider range of strikes*. This raises the probability of breaking.

Abilities can enter into hypothesis increasing explanations. The *stability* gives us the hypothesis increasing explanation (a wider range of stimuli would have resulted in success). The probability of the *explanandum*'s occurrence, conditional on the exercise of the ability, is higher, *ceteris paribus*.[9]

View 2. Non-Accidental Success (NAS)

I agree creditability is an *explanatory* notion and that it requires that one's success is caused by the manifestations of one's dispositions. But on the alternative I am proposing, creditability has nothing to do with abilities—and thus luck. To be creditable (and thus to know) is not for one's *abilities* to explain one's success. Rather, creditability is intimately connected to accidentality. To be creditable is for one's aim-directed behaviour to explain the success. Explicitly:

> x is creditable for an event e iff.

[7] Similar cases could be given for *anomalies*. Cf. (Peacocke, 1979, pp. 71-73).

[8] Cf. (Lipton, 2004) for discussion on non-causal explanation.

[9] Functional explanation is also dispositional. See (Cummins 1975, 1983) and (Hurley & Pemberton, 2013).

1_A x caused e,

2_A x aimed to cause e,

3_A x did not deviantly cause e.

From the definition of accidentally, it follows that accidentality and creditability bear an inverse relationship:

> **ACT** x accidentally causes e iff. x non-creditably causes e.

How does (non)accidentality explain?

First, $\mathbf{1}_A$. The explanation is hypothesis decreasing: the aim-directed behaviour caused the event's occurrence. We locate part of the whole cause.

Second, $\mathbf{2}_A$. Also hypothesis decreasing. Unaimed occurrences are ruled out. Moreover, the probability of the event's occurrence is increased. Consider:

> *Sobriety* Alfie has been sober six months. But tonight, Alfie intends to break his sobriety. He pours a generous glass from the bottle marked 'gin'. Nevertheless, the bottle is filled with water, not gin.

We want to explain why Alfie stuck to his sobriety. Alfie's aiming to pour *gin* does not enter into a virtuous explanation of his doing so. If Alfie's aims were in line with the *explanandum*, they may enter into a virtuous explanation of his doing so. The probability conditional on Alfie trying to stick to his sobriety is higher than the probability conditional on his not trying, or his trying to break it. Typically, when we try to cause e, the conditional probability of e's occurrence increases.

Third, $\mathbf{3}_A$. How does non-deviance explain? I argue that deviance results in *explanatory inelegance*. To explain a deviant occurrence within the aim-relevant discipline, one must include further *explanans*. Thus, consider:

> *Anomalous Catch* Micky runs full speed to the centre field wall and leaps with an outstretched glove. The ball hits Micky's hat, flies upward, and lands in Micky's glove.

To explain the occurrence of this event by appeal to the relevant psychological aim-*explanans* (i.e., Micky aimed to catch the ball), one must add the unintended hat strike. The *source* (in some sense) of the behaviour does not fully explain its occurrence. Similarly, the origins of biological traits (that which previous tokens of the type did that enter into a selectionist explanation of its existence) do not explain the pancreas' regulating the blood sugar in response to the strange substance alone: *they do so only in response to glucose*. We must add details of the chemical's mimicking glucose, combined with the relevant etiological history. Similarly, whilst Smith's seeing a sheep would be explained by the etiology of her capacities, her truly believing is *not* so explained in *Sheepy Dog*. We must include the similarity of her dog-perception to sheep-perceptions. Deviant chains require inelegant explanations; non-deviant chains do not.

4. Two Arguments for NAS over SBA

Argument 1: Creditability without Ability

There are cases in which one is creditable for causing an event, despite not bearing an ability to cause events of that type. First, consider:

> *Long Shot* Tiger needs to hit to green if he is to win the tournament. The shot is long. He aims at the green and hits the ball. The ball lands on the green, just where he intended.

Let us suppose that Tiger does not have an environmentally robust disposition to hit the green. Is Tiger not creditable for doing so? It is tempting to suppose that he is not. But I contend, that would be because typically in such cases we would *assume* that there was deviancy in the causal chain which, as we shall see below, would result in lack of creditability. (Again: modal robustness is a useful heuristic). Nevertheless, if we make it salient that this is not the case then it seems clear that Tiger is creditable.

Second, let ψ denote a *perfect archery shot* i.e., a shot a master archer *would* take, if they were to manifest their competence. It seems plausible that:

> (α) Possibly, S ψ-s and S does not have an ability to ψ.

Put another way: one can take a shot that one who has an ability would take, even if one does not bear the relevant ability. Why so? A quick proof. Let S be in an environment ϵ in which S would stably hit the bull's eye. Let S ψ. Now shift S to an environment ϵ' such that the ability is not stable (perhaps the wind is high). That the wind *would* steer the arrow off course does not imply that it *does*. So S can still ψ in ϵ'. That gives us (α). Now consider:

> *Identical Success* S ψ-s in ϵ and S' ψ-s in ϵ'. Their ψ-ing is intrinsically identical, but in ϵ the shot is stable, in ϵ' the shot is not. Both hit the target with stunning accuracy.

Is S more creditable for ψ-ing than S'? According to Greco: we must say *yes*. But that is counterintuitive. Again, we would *assume* that the chain was deviant in the non-stable case. But it need not be, and if so they are *both identically creditable*. So creditability is independent from ability. *What matters are the dispositions (and etiologies); not how stable those dispositions are.*

Argument 2: An Explanatory Swamping Problem

Suppose we want to know:

Q Why did S land a bull's eye?

and are provided with the following *explanans*:

$\mathbf{E}_{DIS}$ S manifested an ability to land bull's eyes.

Is the explanation *improved* if we are to include:

$\mathbf{E}_{DEV}$ S non-deviantly landed a bull's eye.

$\mathbf{E}_{AIM}$ S aimed to land a bull's eye.

Yes. (1) The probability of landing a bull's eye conditional on manifesting an ability non-deviantly *and* aiming to do so is higher than *just* manifesting that ability. (2) Many hypotheses are now ruled out, namely any deviant chains and 'unaimed' occurrences.

Now consider the converse: suppose we are provided with $\mathbf{E}_{AIM}$ and $\mathbf{E}_{DEV}$. Does including $\mathbf{E}_{DIS}$ offer a better explanation of the event? No! At least: (1′) The probability is *not* increased. (2′) No other hypotheses are ruled out.

The point is: the presence of non-accidentality *swamps* any explanatory value that abilities provide. I suggest instead that the explanatory value of ability ascriptions consists in an increase in the probability that the event's occurrence was non-accidental. To know that S has an ability to cause events of the type e bestows predictive power with respect to S's non-accidentally causing events of the relevant type.

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