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ARTICLE

Why C-luck *really is* a problem for compatibilism

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ABSTRACT
Some philosophers have recently argued that luck at the time of decision is a problem for compatibilists and libertarians alike. But conceptual ambiguity regarding deterministic luck at the time of decision – henceforth C-luck – has obscured recognition of the problem C-luck poses to compatibilism. This paper clarifies C-luck and distinguishes it from present luck, showing that the former arises from contingent factors at the time of decision instead of presupposed free will requirements. We then argue that empirical findings confirm the existence of C-luck thereby raising a fundamental challenge to compatibilist accounts of moral responsibility.

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1. Introduction

A majority of research on luck at the time of decision has focused on forms arising from causal indeterminism, perpetuating false impressions that the phenomenon solely burdens libertarian accounts of free will and moral responsibility. Recently, more attention has been given to luck as it arises in deterministic contexts, with some philosophers arguing that luck at the time of decision is a problem for compatibilists and libertarians alike (Levy 2009, 2011; Perez de Calleja 2014). But these arguments face challenges. Conceptual ambiguity in the very idea of deterministic luck at the time of decision – henceforth Close-luck or C-luck – has hindered recognition of problems it poses to compatibilism (Mele 2015). We argue that C-luck is indeed a problem for compatibilists, though not perfectly analogous to the problem of present luck.[1] This paper clarifies the meaning of C-luck and assesses the difficulties posed by it to reasons-responsivity conditions typical of compatibilist accounts of moral responsibility.

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In general, C-luck differs from present luck in two essential ways. First, both are forms of luck at the time of decision, but each arises from different conditions. Present luck stems from typical libertarian time-of-action requirements – specifically, indeterminism at the time of decision – whereas C-luck arises from particular sorts of deterministic causal sequences at the time of decision which are not themselves time-of-action requirements for any compatibilist account of free will. Second, the fact that C-luck is not presupposed by any definition of free will means its existence cannot be analytically established, but must be shown empirically. This contingency implies two further differences from present luck in both scope and avoidability. Though we do not today know the extent to which C-luck burdens typical decisions, it is unlikely that C-lucky factors are present at the moment of all significant choices. In the absence of additional evidence, therefore, we cannot assume C-Luck has the global scope of present luck. Moreover, the contingency of C-luck implies at least in principle the possibility of avoiding its impact altogether. It may be possible to strengthen the will against C-luck in ways that are by definition unavailable as solutions to the problem of present luck.

Despite disanalogies between C-luck and present luck, we argue that current research confirms the impact of C-lucky factors on decision-making and that this impact limits agent control in ways importantly analogous to those arising from present luck. Overall our paper makes three contributions to the current literature: In Sections 2 and 3, we offer a plausible conception of C-luck, showing the concept refers to significant and modally fragile choices, which are decisively caused by factors occurring near the time of decision and operating outside agent control. Its meaning can be depicted by comparing worlds nearly identical up to the time of decision, separated only by the presence or absence of these sorts of factors and whose different outcomes are contrastively explained by them alone. The implication is that the concept of C-luck can be clarified by sharpening the nearly identical comparison at issue, which till now has been a source of considerable confusion.[2] We do so by pinpointing general properties of causal factors that tip agents in C-lucky ways i.e., so-called *peripheral scale tippers* (PSTs). In Section 4, we deploy these criteria to argue that recent experimental data is consistent with the widespread existence of C-luck. Psychology and behavioral economics increasingly reveal human beings to be 'predictably irrational' in that human decision-making is regularly influenced by factors that meet PST criteria (Ariely 2008; Alter 2013).

Finally, in Section 5, we argue that C-luck raises two problems for typical compatibilist accounts of moral responsibility which posit moderate reasons-responsivity as a necessary and sufficient condition. Where cases of C-luck show PSTs overriding abilities to respond to reasons, they demonstrate the relevance of PSTs to judgments about the moral responsibility of individual agents. In particular, agents regularly impacted by PSTs may lack a decision-

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mechanism that is moderately reasons-responsive. This fact prompts discussion of individual and collective strategies for avoiding PSTs. But further, where C-luck undermines reasons-responsivity by compromising reasons-reactivity in particular, these cases also tell against the sufficiency of weak-reactivity for moral responsibility. Agents in thrall to reactivity-undermining PSTs may meet weak-reactivity requirements yet be nearly always unable to act on reasons they themselves recognize. Avoiding this counterintuitive result means rethinking the condition of weak-reactivity. Thus, we claim that C-luck-style cases have potential to reorient particular judgments about moral responsibility and also to challenge compatibilists to rethink what it means to possess responsibility-level reasons-responsivity.

2. What is C-luck?

The major obstacle preventing wide recognition of C-luck is suspicion that it is impossible for any kind of luck to exist in a deterministic universe. This suspicion has arisen largely from the predominance of what Hales (2016) has called 'probability views of luck', or views which posit that lucky events are chancy because physically improbable and therefore incapable of arising from deterministic causes. The general claim that lucky events are essentially chancy is widely agreed, but probability views interpret this narrowly to mean that lucky events must have been *physically capable of being otherwise*.[3] This prompts one to say that if luck implies chance understood as physical improbability, then the fact that determinism is incompatible with physical improbability means that determinism prohibits the existence of luck. But Hales correctly notes that such positing of indeterminism as a necessary condition of chanciness ignores another sense of the term fully compatible with determinism, namely *modal chanciness* or what Hales sometimes calls 'modal fragility' (2016, 491). This notion refers to events that are chancy because hypersensitive to hypothetical modifications in their causes, implying that even miniscule changes in these causes would have – had they occurred – produced alternative outcomes. These events are those likely to have been otherwise, not because they were one of many physical possibilities, but because no more than small changes in their deterministic causal antecedents *would have produced* an alternative outcome.[4] An event may be chancy due to facts about whether it would obtain under similar counterfactual causal conditions, no matter whether those counterfactuals are themselves physically possible.

We can illustrate the core meaning of modal chance and its connection to luck using the film *Dunkirk* which, in its opening scenes, introduces Tommy, a British private who alone survives a German ambush that kills hundreds of Allied troops. As he runs for cover amidst a group of fellow soldiers, machine gun fire kills nearly everyone around him, but Tommy is miraculously spared

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long enough to reach safety behind a French barricade. A similar event occurs later in the film on a nearby beach, where Tommy hunkers helplessly among unprotected troop formations as enemy planes drop bombs, wreaking carnage around him. He and only a few others survive. These scenes highlight the fragile nature of survival in wartime, depending as it often does on subtly interlocking sets of causes largely outside agent control. Bullets a bit further right or bombs a bit further left would have made all the difference. It is common to say that soldiers who survive in such situations are lucky. But suppose that Tommy lives in a deterministic world. It would nonetheless seem to distort the common usage of 'luck' to say the bare presence of determinism – despite implying that Tommy's survival was the only physically possible outcome – bars one from accurately referring to him as lucky. Even if his death was never a physical possibility, there remain strong intuitions that his survival was chancy because no more than small changes in the antecedent situation *would have meant death*, and lucky because even on compatibilist accounts Tommy lacked freedom-level control over whether those small changes obtained.

Indeed, the best evidence for this modal sense of chance and luck is to point out its use in everyday speech. Daniel Dennett notes that when we describe genetic mutations as chancy, for example, we are not committing ourselves to causal indeterminism (2003, 58). Proving determinism would not thereby disprove evolution. Evolutionary processes are chancy (and lucky for the beneficiaries) not because determinism is false, but because the causal processes required to explain them are fragile and occur outside the control of those who benefit. Indeed, evolution is like winning the lottery – it is lucky no matter whether determinism holds.[5] This view makes it possible to contrast modally fragile events like a species' acquisition of some trait with modally robust events like the existence of gravity or the infinity of prime numbers, attributing chanciness to the former because they would not exist in many worlds similar to our own, whereas the latter would obtain even in hypothetical worlds very different from the actual world. This notion of an event as chancy because modally fragile (and thereby potentially lucky) is essential to conceiving the compatibility of luck with determinism.

It is obvious, however, that the chanciness of an event is not by itself sufficient to make an event lucky. A basket made by Lebron James, for example, may be modally fragile but not a matter of luck since James exercises skillful control over its decisive causal antecedents. We follow Levy (2009) in holding that for events to be lucky in a deterministic world they must be modally fragile, beneficial, *and* beyond significant agent control. This triple criterion captures one very important sense of the concept. Nonetheless, we are not concerned to offer a view of luck that uniquely captures all competing intuitions. Our aim is to construct a concept that highlights a real phenomenon recognizable as luck and which poses a problem for compatibilists importantly analogous to the problem of present luck.

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Turning specifically to luck at the time of decision, the term refers to a type of luck in which beneficial decisions are chancy – due either to physical improbability or modal fragility – and beyond some significant forms of agent control due to factors occurring immediately prior to a given choice. Its classic formulation is *the problem of present luck*, in which both chance and limitations of agent control arise from indeterminism at the time of decision. If indeterminism is present, then a decision may be both chancy-because-physically-improbable and a result of factors outside agent control. In particular, indeterminism implies the possibility that opposing decisions may arise from identical sets of causal antecedents, including identical agent features. If we suppose that a beneficial decision taken under conditions of indeterminism is chancy-because-physically improbable, then it must also be true that the decision cannot be contrastively explained. But if a decision cannot be contrastively explained, then nothing about the past including agent features can explain its occurrence, implying the decision cannot be wholly within agent control. The agent is, therefore, lucky at the time of decision due to present luck. In the last two decades, free will debates have focused a great deal of energy on explaining how the lack of control implied by present luck is compatible with free will and moral responsibility (Kane 1996; Mele 2006).

Only recently have philosophers begun taking seriously the possibility that there is a deterministic analogue to present luck. Alfred Mele has coined the term *C-luck* to name a form of luck at the time of decision which arises due to causal factors other than physical indeterminism and as such may exist in deterministic worlds (2015, 4). We borrow this term both for continuity and also to highlight the close or nearly identical cross-world comparison used to reveal deterministic luck at the time of decision.[6] In such comparisons, agents in nearly identical deterministic worlds make opposing modally fragile decisions, one more beneficial than the other, due to different proximate factors over which they fail to exercise relevant levels of control. These initial characterizations of C-luck can be sharpened by offering a specific cross-world comparison.[7]

Bob lives in deterministic world (W) and has been placed in charge of flipping a coin to begin a football game. He must choose between tossing the coin at noon or taking Carl's $50 bribe in exchange for tossing the coin at 12:02 instead.[8] After some deliberation, Bob decides to toss the coin at noon. We compare this decision in (W) with a situation in nearby deterministic world (W2), nearly identical with (W) up to the moment of decision, except that in (W2) Bob^2 decides to cheat and tosses the coin at 12:02. Suppose that the contrastive explanation of this decision is not 'grounded in the attitudes, tendencies, skills, and features of the circumstance *which are relevant to what he is motivated and disposed to do in the circumstance*' (Perez de Calleja 2014, 115, emphasis added). For instance, suppose that what explains Bob's decision to toss the coin at noon is that 'the wind is just

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a bit stronger shortly before noon and he gets a whiff of some of the delicious food cooking in the vending area. This boosts his mood just a bit, which in turn slightly boosts the strength of his desire not to cheat people out of their money. This brief sequence of events tips the scales: at noon, Bob decides to toss the coin straightaway' (Mele 2015, 6).

In this case, the wind gust, the resulting difference in Bob's mood, and his increased desire to avoid cheating, all of which operate at or near decision, contrastively explain his choice not to cheat. The modal fragility of this causal sequence coupled with the fact that Bob is unaware how he is *decisively* impacted by the factors that contrastively explain his decision motivate an initial intuition that he got C-lucky. He made a beneficial decision due to chancy causes occurring near or at the moment of decision over which he appears to lack at least some important kinds of control.[9] Though we remain at the intuitive level, the fact that a gust of wind contrastively explains a beneficial decision without Bob being aware of its decisiveness raises the prospect that he has less control over his deliberation than it may have initially seemed.

We use peripheral scale tippers (PSTs) to refer to factors that tip the scales of decision in ways sufficient for C-Luck. This naming already implies the general structure of relevant cross-world comparisons. Unlike present luck, C-Luck is revealed by comparing *nearly identical* worlds. It is obvious that since the worlds under comparison are not identical prior to decision, there is need to answer how close they must be (Mele 2015, 6). Or, put differently, precisely what sort of contrastive explanation across these worlds is constitutive of C-luck? Clearly, not just any sort of explanation will do. If the comparison worlds differ merely at points remote from the decision, or if contrastive factors are under agent control, then the comparison may reveal some sort of luck other than C-luck or perhaps no luck at all.[10] C-luck requires that the contrastive explanation for a decision – which in Bob's case means wind, odor, and resulting impacts on desire and mood – is itself composed of PSTs. Since this is the case, it follows that cross-world comparisons aimed at generating C-luck should modify only PSTs, holding static all other features up to the moment of decision. This is the proper general criterion for C-luck-style cross-world comparisons.

3. What are PSTS?

Our motivating cross-world comparison suggests that PSTs should be conceived as a collection of causal factors which explain a beneficial decision by being (1) temporally proximate, (2) decisive, and (3) no more than a small modification of causal antecedents.[11] Further, PSTs must meet (1–3) while (4) operating beyond significant agent control. It is (4) that is of greatest consequence for our argument. We provide in this section an account of how causes

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of decision meeting criteria (1–3) may also undermine forms of agent control potentially significant by compatibilist lights. Our aim is to fix key intuitions about control and to distinguish our view from an alternative account of C-luck, while paving the way for a more precise analysis of criterion (4) and its implications for moral responsibility in the following sections.

Returning to Bob, we approach more precisely whether his decision to play fair by tossing the coin at noon is C-lucky. This question can now be reformulated to ask whether his decision is contrastively explained by PSTs? Suppose that Bob's decision to play fair is beneficial and that its decisive causal factors – i.e. the wind, his smelling the food, his mood change, and his strengthened desire to avoid cheating – form a causal sequence that is temporally proximate and produces modal fragility.[12] Assuming criteria (1–3) by hypothesis, we now ask whether factors contrastively explaining Bob's decision also meet (4) by undermining intuitively significant forms of agent control.

Perez de Calleja supposes it is possible to contrastively explain different choices across deterministic worlds *without* modifying agent features prior to decision, including 'beliefs, desires, aims, preferences, values, habits, character traits, [and] capacities' (2014, 115). If this were possible, it would simplify our account of PSTs since agent features could be held static in nearly identical cross-world comparisons aiming to illustrate C-luck. It would also imply the existence of a set of contrastive factors which could operate without changing agent features prior to decision. These factors would be in principle impossible for an agent to be responsive to – since responsiveness requires at least some changes in agent features – establishing unequivocally how a deterministic causal sequence may meet (1–3) while operating outside agent control. It would be unnecessary for our account of C-luck to pinpoint *how* a causal factor may alter an agent prior to decision without that agent controlling the result in relevant ways. Otherwise, an explanation of this sort is necessary since agents typically acquire reflective ownership over voluntary decision-making (Levy 2009, 241).[13] Any account that shows how PSTs can be uncontrollable in principle would thereby improve the analogy between C-luck and present luck by showing that both forms of luck at the time of decision arise from factors that inevitably prohibit antecedent determining control.

We doubt, however, that there *exist* decisive causal factors which operate while leaving agent features unchanged prior to decision. It is not clear how such factors are supposed to influence decisions while bypassing key decisional structures nor does Perez de Calleja offer assistance in this regard. She provides neither examples of what causal factors she believes could serve this role nor analysis of how they might affect decisions while leaving the agent otherwise unchanged. Ultimately, this omission obscures the threat of C-luck to compatibilists by implying mysterious psychological operations, allowing easy dismissal on grounds

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that C-luck is psychologically unrealistic. We maintain, however, that relevant cross-world comparison aimed at generating C-luck need not hold agent features static across worlds, though it admittedly falls on us as defenders of this view to explain *which* modifications are consistent with C-luck. For now, notice that Bob's decision to flip the coin at noon would not constitute C-luck on any account that requires holding all agent features static prior to decision. It is the impact that odor has on Bob's *mood and desire* which is ultimately decisive. If agent features were held static between (W) and (W2), then changes in wind and odor would not have been decisive for Bob's decision and therefore not PSTs.

Despite inducing changes in Bob prior to decision, these factors nonetheless seem strong candidates for PSTs since Bob seems to lack important forms of control over them and their effects. Keep in mind that while Bob may be aware of the wind and odor around him, either consciously or in some less conscious and more embodied way, he does not and would not count their existence as reasons for action nor is he aware that they reduce his ability to respond to reasons that would otherwise be decisive for cheating.[14] Assuming these decisive proximate causes of Bob's decision are no more than small changes to the nearby comparison world, they are sufficient to produce modal fragility but not themselves reasons for decision.[15] These factors are irrational in the minimal sense that they would not be counted as reasons for action either by competent observers, or a fully-informed Bob looking retrospectively on his decision, or indeed anyone attempting to offer sound argument for the choice in question. Bob's deliberative process appears to have been hijacked by a collection of causally-potent but irrational factors that overpower or negate his rational capacities without him being aware. Moreover, since Bob is unaware of the process, he is not in position to anticipate or guard against their impact. Their operation is clandestine and counterintuitive enough to prevent Bob from representing their effects to himself or from developing a habitual embodied response to them over time. In short, Bob seems to be C-lucky due to causes that benefit him by neutralizing the efficacy of whatever otherwise sufficient reasons he has in favor of cheating, not because these causes are themselves reasons to avoid cheating, but because they block his abilities both to respond to reasons and to know his responsivity was blocked.

Cases like Bob's – many of which we will articulate in the section below – suggest that relevant cross-world comparisons aimed at generating C-luck need not hold agent features static across worlds prior to decision. We claim it is possible for PSTs to meet criterion (4) by inducing irrationality hidden from the agent despite altering agent features *vis-à-vis* cross-world counterparts. We believe that defenders of C-Luck such as Perez de Calleja create unnecessary burdens by supposing that agent decisions can be, or perhaps

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must be, overturned by factors that leave agents unchanged prior to decision. Admittedly, doing so would have preserved a closer analogy with present luck by retaining the complete identity of agents across worlds. But this supposition also makes it more difficult, indeed impossible, to show the actual existence rather than the hypothetical possibility of C-luck. A psychologically realistic conception of C-luck is needed in order to empirically pinpoint the real influence and existential scope of factors that meet PST criteria. Let us now turn to this task.

4. The existence of PSTs

The problem of present luck can be established without empirical basis because indeterminism at the time-of-action is both a requirement in standard libertarian accounts of free will and a sufficient condition.[16] Present luck is a problem for libertarianism, then, insofar as it *presupposes* the existence of luck at the moment of decision.[17] This implies a significant disanalogy between present luck and C-luck since no compatibilist account posits PSTs as time-of-decision requirements. Demonstrating the existence of C-luck depends, therefore, on demonstrating the existence and scope of PSTs. In the absence of empirical evidence, the conceptual construction of C-luck sketched in previous sections would remain a mere hypothetical possibility and the threat C-luck poses to compatibilism would be considerably weakened. But experimental evidence supports a picture of human decision-making subject to a variety of irrational influences, many of which approximate or meet PST criteria. Let us summarize a few of these factors and explain their operation as PSTs.

Consider growing evidence that *decoy-options* decisively impact choices. A variety of decisions are predictably biased simply by introducing a decoy into the choice set that creates a comparative relation flattering to one option (target) over the other (competitor). Teppan and Zanker, for example, have shown that targets higher in *quality* and *price* than their competitors can be made preferable for many consumers when a third option is introduced into the choice set, one which is 'never better in any dimension than the target, whereas it is always better in [at least] one dimension than the competitor' (2015, 4). Precisely, a decoy equal or inferior to the target in quality or price, while being superior to the competitor in at least one of these dimensions, creates a relation of asymmetric domination. The target is sometimes the superior but never the inferior, whereas the competitor is sometimes the inferior but never the superior. The impact of this asymmetrically dominating relationship exploits the human tendency to conduct simplified comparative assessments in making choices. Despite the fact that no one sees the decoy as an attractive choice in itself (no one chooses it) and no one cites it as a reason for believing the target is superior to the competitor, its mere presence is enough to cause people to choose the target.

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Indeed, one study at MIT's Sloan School of Management asked 100 students to choose between competing subscriptions to *The Economist*: 1. Internet-only for $59, 2. Print-only for $125, 3. Print-and-Internet for $125. When (2), the decoy, was present, 16 students picked (1), no one picked (2), and 84 students picked (3). But when the decoy was eliminated, the results flipped: 68 students chose (1), and only 32 chose (3) (Ariely 2008, 5–6). In another study, students were shown photographs of three different people and asked to pick the most attractive, one of which was a decoy, i.e. a similar but less attractive version of the target. The aim of the study was to determine if the presence of the decoy would cause participants to choose the target. It did. Ariely notes: 'whenever I handed out a sheet that had a regular picture, its inferior version, and another regular picture, the participants said they would prefer to date the "regular" person – the one who was similar, but clearly superior, to the distorted version – over the other, undistorted person on the sheet. This was not just a close call – it happened 75 percent of the time' (14).

Decoys seem to work by creating misleading relations of superiority and inferiority. They increase desire for targets over competitors, not by justifying those desires, but by introducing a baseline relative to which targets are superior and competitors are inferior. The flattering target/decoy comparison coaxes unsuspecting agents into thinking something important has been said about the relation between target and competitor. This is false. Indeed, the relation of superiority between target and decoy is perfectly real but irrelevant to the choice at hand since the existing decoy might easily have been replaced with one that favors the competitor. The equal possibility of creating decoys to favor any option means that relations established by decoys can never count as reasons for ranking those options. No relevant fact about the relationship between target and competitor depends on their relation to a decoy.

Consider this nearly-identical cross-world comparison: In deterministic world (W), Kayla is planning a vacation to either Paris or Rome. After talking to her friend about these options, the idea of visiting Rome excites her and she forms an intention to go there but wants to compare travel packages before committing. In her online search Kayla finds two options, one more expensive trip to Paris and one less expensive trip to Rome. Although the travel packages have different strengths and weaknesses, one difference is that the Paris package includes breakfast and sightseeing tours. After some deliberation, Kayla nonetheless chooses the trip to Rome. Compare this with world (W2), nearly the same as (W) up to the moment of decision, except that Kayla^2 now faces a choice-set that includes a decoy-option – a Paris travel package of the same quality offered by a different airline but more expensive than the original Paris choice. Suppose that Kayla^2 chooses Paris after comparing these options simply because the third package increases willingness

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to pay the extra money for the daily breakfast and sightseeing tours that she was unwilling to pay in (W) when comparing only Paris and Rome.

Decoy-options are plausible PSTs. They operate as proximate and decisive factors to produce modally fragile judgments, working irrationally and significantly *undetected* on decision-making and, as such, induce agents to attribute unjustifiable superiority to one option over another. Decoys secretly cause agents at or near the moment of decision to desire an option without this new desire being a conscious or unconscious response to *reasons* that support the desirability of the option. Agents under the influence of decoys make decisions on the basis of causes whose operation is hidden to them and so whose irrationality is not readily open to assessment. Decoys work, therefore, by sidestepping what many compatibilists believe to be a form of agent control crucial for free will and moral responsibility, i.e. the ability to judge the value of an option in light of reasons one has to value it. Where decoy-induced decisions benefit agents, they appear to be operating as PSTs.

Consider another plausible PST: serial positioning effects. Since at least Murdock (1962), research has shown that the ordering of options in a choice set can be decisive. Options appearing earlier or later in the set may receive preference. For instance, Felfernig et al. (2007) discovered that a product's order of appearance in online search engines affects product evaluation. They also found that the order of a product's advertised attributes matters for consumer choice. In a similar study, Teppan and Zanker (2015) have shown that when asking participants to choose a weapon for a 3-D shooter game, listing a weapon's strong attributes first increases the probability of choosing that weapon. The human tendency to resolve choices through the lens of this cognitive bias may entail significant burdens and benefits to agents despite escaping awareness.

Whereas decoys function as PSTs by arbitrarily priming agents in favor of targets, *positioning effects* bias decisions toward first and last options. The implication is that an option may ultimately be chosen due to the pure contingency of its place. This suggests that insofar as serial positioning effects can proximally impact significant decisions in decisive ways and are themselves sources of modal fragility, they may also work as irrational causes of decision. There is no barrier, then, to prevent positioning effects from operating as PSTs since there are reasons to think this type of effect can satisfy criteria (1–4).

Finally, consider how physical warmth can bias perceptions of trust and feelings of altruism. In one experiment, holding either hot or cold beverages for a few minutes prior to judging personality traits biased the way people rated others: those who had briefly held warm drinks assessed strangers as more trustworthy than did those subjects who held iced drinks (Williams and Bargh 2008). In other scenarios, physical warmth encouraged altruistic

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behavior. When participants held heated or frozen packs and were then asked to choose between receiving a gift certificate for a friend or a reward for themselves, those who held the hot pack were more likely to be altruistic (Williams and Bargh 2008). This effect has been confirmed in multiple experiments (Bargh John and Shalev 2012).[18]

If the mere presence of a decoy, the order of options, or bodily temperature makes a potentially decisive difference to important decisions at the moment of choice, then agent control over these choices becomes suspect. Revealing such effects highlights one important way that proximate deterministic causal sequences can operate beyond agent control i.e., by being both irrational and invisible or lowly-visible to the agent. Precisely, a causal sequence meets criterion (4) by decisively producing a modally fragile decision *without* an agent detecting that it has done so, thereby rendering the agent incapable of avoiding its influence. In such cases, the given causal sequence overturns the agent's decision, transforming it from one otherwise explained by reasons to one now explained by hidden irrational influences. A problem of C-luck arises anytime a significant decision is contrastively explained by a deterministic causal sequence that meets (1–3) while producing irrational effects outside agent awareness.

We note that the visibility of causal sequences can be reduced in several ways. First, the very nature of causes meeting (1–3) make it difficult to discern their impacts on decisions. Proximate causes occur near the moment of decision and so provide little time for adequate deliberation and consideration of their influence. Agents may get C-lucky due to the small window of time they have to deal with counterintuitive causes. Similarly, modally fragile decisions are by definition produced in subtle ways, by factors whose slight modification would have caused different outcomes. This feature alone can make it difficult for agents to understand how they are being influenced. In addition, agents may underestimate their own susceptibility to non-rational causes. We may not see ourselves as capable of being swayed by seemingly insignificant factors. These effects on visibility may be compounded by lack of scientific knowledge about which causes regularly operate as PSTs. If an agent is not on lookout for potential PSTs because they falsely believe themselves immune to such effects, then it is nearly impossible to guard against them. But even if one is on guard, the decisive influence of PSTs may remain hidden without scientific investigation that uncovers the statistical significance of their effects, and so may not be avoidable by individuals where the relevant research is unavailable. This last fact highlights the necessity of collective strategies for improving PST visibility.

But even where increases in visibility are made possible by seeing oneself as vulnerable to irrational causes and by being acquainted with research on PSTs, particular PSTs may remain lowly visible because of the burdensome nature of judgments one must make about them in order to avoid their

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effects. For example, general knowledge that higher bodily temperature is correlated with irrational increases in trust may not tell much about whether a particular decision to trust resulted decisively from an increase in bodily temperature. It is difficult enough to monitor temperature changes in our bodies, let alone to identify their effects on deliberation. This suggests that the visibility of causal factors can be decreased (thereby decreasing levels of agent control), not only by a false sense of self as immune to PSTs or by lack of scientific data, but by the difficulty of discerning their influence in particular cases.

Let us take stock. We claimed that a deterministic causal sequence meeting criteria (1–3) may also operate beyond agent control – thereby meeting criterion (4) – when the decisiveness of that sequence and its irrational impact on the agent has low visibility. We have argued that decoy-effects, positioning-effects, and temperature-effects are examples of PSTs and, therefore, raise problems of C-luck. Several factors involved in creating low-visibility have been identified, including an unrealistic conception of oneself as immune to non-rational causes and a low general state of scientific literacy concerning the impact of PSTs. Moreover, individuals who have access to statistical data on PSTs may nonetheless be unable to verify in particular cases when and if their influence has been neutralized. It is not farfetched in such cases to wonder whether control adequate for free will and moral responsibility may be practically impossible. It seems the task of compatibilists in the face of C-luck is much the same as libertarians facing the problem of present-luck. They must explain how loss of control resulting from the operation of PSTs is compatible with free will and moral responsibility.

This section began by noting two core differences between problems of C-luck and present luck. No compatibilist presupposes the existence of PSTs, implying they must be empirically established. Precisely because of this empirical dimension we cannot characterize potential sources of C-luck as in principle outside agent control as we can with indeterminism at the time of decision. The latter demand is both typical of libertarian accounts and by itself sufficient to guarantee present luck. We do not claim to have more than scarcely begun the enormous empirical task of cataloguing the variety and scope of PSTs.[19] What we have done is the preliminary philosophical work of providing abstract criteria and concrete exemplars to help identify the sorts of factors that should be sought after. In particular, we have clarified a psychologically realistic explanation of what it means for a PST to be beyond agent control and have shown how interpretation of this criterion may give special consideration to both rationality and visibility. Importantly, there remains the need to discover whether decision-making is regularly susceptible to PSTs or if their influence is rare for most agents. At present the growing body of research on the pervasiveness of human irrationality suggests the real and unsettling

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possibility that apparently free and responsible choices may be regularly subject to C-luck.

5. C-luck and moral responsibility

If previous sections were successful, then C-Luck is a coherent possibility whose existence is confirmed by recent empirical research on human decision-making. It remains to explain more precisely how C-Luck threatens compatibilist accounts of moral responsibility. We take up this task by considering a leading account offered by John Martin Fischer and Mark Ravizza.[20]

Fischer and Ravizza argue that moral responsibility – 'being an apt target of reactive attitudes' – requires 'guidance control', a feature of agents who possess a 'moderately reasons-responsive' (MRR) mechanism for decision-making (1998, 69).[21] In particular, they understand (MRR) to entail regular receptivity to reasons – where 'regular' means a 'minimally comprehensible pattern of recognition' of reasons – and at least weak reactivity to reasons, meaning the ability of a decision mechanism to act on recognized practical reasons in at least one case (1998, 69–76).[22] Our view is that PSTs entail two major implications for this and similar models of moral responsibility. First, our account of C-luck highlights previously unrecognized or unappreciated factors sufficient to undermine (MRR). Demonstrating that an agent possesses a minimally comprehensible pattern of reasons-recognition entails that the agent enjoys regular insulation from PSTs. Second, the real possibility that an agent's reasons-reactivity (rather than reasons-receptivity) may be systematically undermined by PSTs supports the need to posit regular rather than weak reactivity as a condition of moral responsibility. Agents regularly susceptible to PSTs that undermine reasons-reactivity may meet Fischer and Ravizza's condition for weak reactivity despite being nearly always unable to act on reasons. Avoiding this paradoxical result requires affirming a regular reactivity condition.

The science on PSTs is still young and has not yet fully grasped their exact mode of operation. Though it is known *that* factors are impacting many sorts of important decisions in C-lucky ways, it is less clear *how* they are doing so. There are at least four distinct possibilities. First, it could be that PSTs undermine the ability to recognize reasons agents would have otherwise recognized at the moment of decision. In such scenarios, decisions are altered because some reasons which would otherwise have entered consideration are not considered due to the influence of PSTs. Second, it may be that PSTs work by introducing what appear to be reasons, but which are not reasons at all. This seems to be what is happening in the case of decoys and positioning effects. Third, it could be that PSTs affect decisions not by inducing misrecognition of reasons but by disturbing ways agents lend weight and importance to reasons they recognize. These

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three possibilities are similar in that they undermine reasons-receptivity.[23] But, fourth, it could be that PSTs induce neither misrecognition nor improper weighting, but rather impair the ability of agents to react to reasons. Finally, PSTs may work through some combination of these four.

To the extent that PSTs undermine receptivity, C-luck style cases require no essential revision of Fisher and Ravizza's account. This is because they argue that moral responsibility requires regular receptivity, meaning their account recognizes any threat to regular receptivity as threatening to moral responsibility and, therefore, can recognize in principle that PSTs which compromise regular receptivity are also threats to moral responsibility. If it turns out on further research that PSTs exclusively undermine receptivity, the major implication of C-luck for Fischer and Ravizza's model will be to highlight a broad range of lowly-visible factors that must be considered when making judgments about an agent's possession of (MRR). It may be that agents are regularly susceptible to PSTs and to the extent these undermine reasons-receptivity they would come to bear on whether an agent has a receptive decision-mechanism.

But C-Luck-style cases are also relevant for assessing Fischer and Ravizza's claim that (MRR) requires only weak reactivity (1998, 73–76). As is widely known, their justification for this claim is that there is an 'interesting difference' between mechanisms that are weakly reactive and those entirely unreactive (2000, 467–480). While this is true, it remains unclear why this interesting difference is taken by Fischer and Ravizza as the threshold of reactivity for moral responsibility. It is after all also the case that there is an interesting difference between weakly receptive and non-receptive mechanisms, though Fischer and Ravizza do not find this difference to be the proper threshold of receptivity (1998, 72). Indeed, as has been argued by Mele and others, weakly reactive mechanisms may be nearly always – except in uniquely extreme situations – incapable of converting reasons into actions. An agoraphobic incapable of reacting to reasons for leaving the house (except in cases where survival is at issue) meets the threshold of weak reactivity, yet it seems counterintuitive to hold him morally responsible for not attending his sister's wedding (Mele 2005, 2006, 150–152). The same is true of moral responsibility shortfalls among people with autism (Stout 2016). In such cases, individuals are weakly reactive but incapacitated in ways that may preclude treating them as morally responsible agents.

To the extent that PSTs undermine agent reactivity, C-luck-style cases compel us to reconsider whether weak reactivity ought to be viewed as *enough reactivity* for moral responsibility. While PSTs that undermine receptivity bear on whether particular human beings satisfy existing criteria for moral responsibility, there remains the real possibility that PSTs may also regularly undermine reactivity. For instance, consider the disturbing impacts of sexual arousal on reactivity[24]: In deterministic world (W), Julian and his

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date plan to spend the night together. As they approach the entrance to her apartment, they kiss and caress one another in foreplay. While entering her place minutes later, Julian – who sees himself as a responsible young man and believes in safe sex – thinks to check his condom and realizes it has expired. He fears his date might change her mind about sex if he goes to the store to get new condoms, though he is worried about the risks of having unsafe and nonconsensual sex. Nonetheless, Julian uses the unsafe condom without telling his partner. Compare this with nearby world (W2) in which foreplay does not occur prior to entering the apartment. Unaroused at the moment of decision, Julian^2 has the same fears and worries as in (W), but decides to go to the store instead.

Unlike agents with compromised receptivity due to decoys, positioning effects, and changes in bodily temperature, Julian and Julian^2 both believe there are sufficient reasons to postpone sex until new condoms are purchased. But the sheer causal impact of Julian's arousal prevents him from acting in accord with those reasons. In this case, the contrastive explanation for Julian's decision is not that he believed arousal was a sufficient reason for action – we have supposed that receptivity to reasons is the same across worlds – but that the arousal worked as a decisive factor independent of his beliefs. Thus, in such an idealized case, arousal at the moment of decision would be a PST capable of impairing the reactivity of a decision-mechanism. It may be that similar reactivity-compromising operations explain some decisions taken by agents gripped by anger, jealousy, or hunger.[25]

The possibility that PSTs operate by impairing reactivity demonstrates the second challenge posed by C-luck to Fischer and Ravizza's account of moral responsibility. It is not simply that PSTs should be considered as additional factors when making judgments about moral responsibility. Recognition that PSTs may undermine reactivity strengthens the case for including regular reactivity in the very concept of moral responsibility. We can schematize the challenge as follows: An agent whose decision-making mechanism is impacted by the presence of reactivity-undermining PSTs across a wide swath of decisions would lack regular reactivity. Empirical research and PST-style hypothetical cases give us a rich description of what this would mean. While being able to recognize and reasonably weight reasons for action, such an agent would be nearly always unable to act on those reasons or at least unable to act on them in ways that form a minimally comprehensible pattern. Moreover, such agents would lack the ability to judge accurately the cause of their shortfalls. Our aim here is simply to highlight that Fischer and Ravizza are committed to an implausible claim. If empirical evidence were to reveal people subjected to reactivity compromising PSTs in an overwhelming majority of their decisions – a real possibility given research cited above – Fischer and Ravizza's account recommends that we judge these people as nonetheless equipped with enough reactivity for moral responsibility.

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It is of course an open question which ideal of reasons-reactivity beyond the Fischer and Ravizza account should be adopted as a response to the problem of C-luck. Indeed, this is part of what C-luck-style cases call on compatibilists to answer. What is clear is that C-luck-style cases may fundamentally clash with deep intuitions and current assumptions concerning agent control and moral responsibility.

6. Conclusion

This paper has argued for the coherence of C-luck and has begun to catalogue C-lucky factors. Though the precise scope of C-luck is still unclear, existing data suggest that its influence is wide enough to undermine reasons-responsivity conditions of moral responsibility in at least some agents. This may occur through disruption of either an agent's receptivity or reactivity. On one hand, analysis of the influence of PSTs is necessary for reliable judgments about whether particular mechanisms are reasons-responsive. In addition, C-luck-style cases provide support for including regular-reactivity as a condition of moral responsibility. In both these ways, C-luck *really is* a problem of potentially fundamental importance for compatibilist accounts of moral responsibility.

Future research on C-luck, then, should proceed from three directions. First, philosophers should continue in cooperation with empirical scientists to establish the existence and scope of PSTs. Second, research should continue toward understanding the implications of PSTs for judgments about moral responsibility from the perspective of existing compatibilist models. Finally, more reflection is needed on what the existence and scope of PSTs implies about the very idea of moral responsibility.

We should keep in mind that C-luck is not a perfect analogue to present luck. This paper has identified four key differences: (1) The particular causes of C-luck are not presuppositions of compatibilist free action and can only, therefore, be known empirically. (2) Since C-luck does not arise from indeterminism, the kinds of deterministic causal sequences from which it arises must be described philosophically and linked to empirical judgments. (3) Due to the contingent nature of C-luck, its scope is unlikely to be global. Finally, (4) its contingency also means that avoidance is in principle possible. Whatever the scope of C-luck turns out to be, strategies to avoid the influence of PSTs altogether should be part of any solution to the problem of C-luck.

In particular, we have argued that collective efforts to identify and educate about PSTs are necessary to avoid them. It is no inconsequential reminder that reducing irrationality and promoting moral responsibility is inherently a collective project that requires social investment and institutional design. Nonetheless, there are practical limits. Even widespread public knowledge about the existence of PSTs cannot eliminate the difficulty of

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discerning when PSTs are operating in specific cases, perhaps making complete debiasing impossible in practice. It may be that our best efforts only lessen the impacts of C-luck in much the same way that solutions to present luck allow that free and morally responsible agents may shape but not determine probable outcomes. Whatever future research shows, compatibilists should direct their attention to the mounting evidence that C-luck can undermine their own models of free will and moral responsibility. It is more than the compatibility of moral responsibility and causal determinism they must explain. Compatibilists must also reconcile agent control with myriad irrational forces being revealed by science as playing considerable and potentially disempowering roles in human decision-making.

Notes

1. The term 'present luck' has been used to denote both the general problem of luck at the time of decision in all its forms (Levy 2009) and also the specific problem of indeterministic luck raised by Mele (2006). We restrict our use of present luck to the narrow sense and use luck at the time of decision as the more general term. Hence, both C-luck and present luck are treated as specific types of luck at the time of decision. We acknowledge the phrase 'luck at the time of decision' misleadingly suggests luck might occur entirely at a single moment rather than being a process temporally extended across an agent's decision, the causal antecedents of the decision, and its beneficial consequences. Unfortunately, using the phrase 'present luck' in its broader sense does no better, as it still suggests luck is 'present' rather than temporally extended. What's more, using 'present luck' in its broader meaning may confuse readers accustomed to its specialized use.
2. While this paper can be read without first engaging Mele's (2015) critical response to Perez de Calleja (2014), it also contains a response to Mele. On one hand, he is correct to argue that a properly articulated concept of C-luck cannot support Perez de Calleja's claim that all 'split decisions' are essentially C-lucky. As we argue, the existence of C-luck is a contingent fact that must be empirically established. On the other hand, the concept of C-luck can be made coherent and empirical evidence can be adduced to support its existence. We aim to show that Perez de Calleja was right to claim that C-luck is a problem for compatibilists – but right for the wrong reasons.
3. In particular, probability views of luck see events as lucky only if the probability of being physically otherwise is greater than 50%. See Kane (1999) for argument that the core meaning of luck refers to chancy or improbable success.
4. Levy captures the intuitive meaning of modal fragility when he says that an event may be chancy in a deterministic world if 'in a significant proportion of relevant possible worlds the event does not obtain, where the relevant possible worlds are those obtainable by making no more than a small change in the actual world at a time just prior to the event's occurrence' (2009, 239).
5. Comparing the evolutionary distribution of traits to a 'natural lottery' is important to liberal political theory. Rawls (1971), for example, makes this comparison while avoiding – as his 'political' approach requires – any comprehensive metaphysical position regarding causal determinism.

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6. The complete term is 'Close-luck' which Mele (2015) uses to refer to the occurrence at or near the time of decision of factors necessary to render the decision C-lucky. It may also refer to the 'close' identity of nearly-identical comparison worlds used to depict the meaning of C-luck. Alternatively, the letter C in C-luck may recall that it is a form of luck which burdens *compatibilist* theories of free will and moral responsibility.
7. The original form of this example was first introduced by Mele (2006, 73–74) and reused by Perez de Calleja (2014, 113–114). Mele's name for this scenario is *Hungry Bob*.
8. Carl is willing to pay Bob to toss the coin at 12:02 because he has convinced other bettors to wager that Bob will flip the coin at noon. So, if Carl can pay Bob to flip the coin at 12:02, then he can collect wagers from all who bet that Bob will flip at noon.
9. Nothing turns on how we construe the content of beneficial or valuable decisions. For example, we may assume the decision to play fair was beneficial because we believe fair decisions are intrinsically good *or* because we assume cheating would have led to injurious consequences.
10. Indeed, the central form of luck widely believed to burden compatiblists is remote luck, especially constitutive luck, in which the decisive causal factors are temporally distant from beneficial events. See Levy (2009, 1–5).
11. Both (2) and (3) are necessary for an event to be modally fragile. The meaning of decisiveness is uncontroversial since it refers simply to factors whose existence contrastively explains an occurrence *vis-a- vis* an alternative possibility. The requirement that a PST be 'no more than a small modification of causal antecedents' raises the question of how small a modification is necessary for modal fragility. A full exploration of this topic is beyond the scope of our paper. For our purposes, readers may assume an intuitive sense of 'small modification'. For discussion of issues involving similarity and difference between possible worlds, see Taylor and Dennett (2002) and Dennett (2003, 63–70).
12. For evidence that odor can be a decisive factor in decision-making see Baron (1997).
13. The possibility of owning one's determined characteristics is at the heart of the compatibilist response to remote sources of deterministic luck. A typical compatibilist reply to Peter van Inwagen's 'Consequence Argument', for example, is that traits and dispositions causally determined by temporally remote sources can nonetheless be 'owned' through the exercise of reason over time.
14. There is no need to suppose that rational behavior implies being *conscious* of reasons for action. C-luck is compatible with views of rationality that require conscious recognition of reasons *and* those which insist rational behavior need not imply conscious awareness of reasons (e.g. views which hold that embodied habits may reflect reasons for action). As an example of the latter, one may note that excellent carpenters or cooks may respond to reasons for action without noticing at the moment of action that they are doing so.
15. We are not here taking a position on the ultimate nature of practical reasons since this is ultimately irrelevant to our argument. Rather, focus is placed primarily on whether an agent is in position to recognize and react to reasons for action whatever their nature.
16. Indeterministic time-of-decision requirements are sufficient to generate a problem of present luck because indeterminism implies both the physical improbability of the decision and the absence of antecedent determining control over it.

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17. Some libertarian accounts of free will and moral responsibility locate indeterminism further in time from the moment of decision. This 'less daring' form of libertarianism, as Mele (2006) shows, does not presuppose a problem of present luck.
18. It appears that primal unconscious associations in key areas of the brain underpin these temperature effects. Cold or warm stimuli trigger strong activity in the insular cortex, a part of the brain infants use to register typical correlations between increases in temperature (often resulting from close contact with a parent) and feelings of trust and security (Williams and Bargh 2008).
19. Research on some other potential PSTs has found the following: arbitrarily set commodity-prices may irrationally influence judgments about price or value of similar commodities once these standards become anchored or imprinted in the mind (Ariely 2008; Tversky and Kahneman 1981). Consumer choices can be decisively impacted by merely reading certain numbers close to the moment of decision (Ariely 2008). Seemingly insignificant forms of aesthetic presentation such as color or font in which a choice has been communicated have been shown to have decisive effects on decision-making (Mlodinow 2012; Brian., Painter, and Koert 2001). The similarity of a person's name to one's own has been linked with having greater affection for that person (Jones et al. 2004). These and other studies on irrational factors decisively biasing choices at the moment of decision can serve as a basis for continued investigation into the scope of C-luck.
20. Scanlon defends a similar account of conditions for moral responsibility (1998, 277–299).
21. Moral responsibility here refers to capacities necessary and sufficient for being a morally responsible agent at all – and therefore for being a proper target of praise and blame – rather than to judgments about the morality of any action or decision.
22. Fischer and Ravizza operationalize reasons-reactivity as a counterfactual possibility to act other than one did had there been practical reasons to do so.
23. We follow Fischer and Ravizza in understanding both recognition and weighting as capacities of reception.
24. A study on the impact of arousal on sexual preferences, unsafe sex, and willingness to engage in nonconsensual sexual behavior asked male participants to answer questions on these topics while in a 'cold' state of mind and later while aroused. The results were striking. For instance, willingness to engage in a variety of odd sexual activities nearly doubled in states of arousal. Willingness to engage in nonconsensual sexual behaviors like slipping a drug into a woman's drink in order to increase chances of intercourse was on average 'twice as high as (136 percent higher than) … predicted in the cold state' (Ariely 2008, 96). On questions measuring willingness to have unprotected sex, subjects 'were 25 percent more likely in the aroused state than in the cold state to predict that they would forego condoms' (97). Contrary to their self-understanding, subjects failed by a significant margin to predict the extent to which affective states can impact deliberation and judgment.
25. Many studies demonstrate that affective states like arousal, anger, hunger, and jealousy alter behavior, in part because people predictably underestimate how they will be impacted by these states (Ariely 2008; Ariely and Loewenstein 2006; Ditto et al. 2006; Loewenstein 1996). Given this underestimation, subjects fail to anticipate the difficulty of resisting such states and therefore fail to prepare adequate resistance.

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References

Alter, A. 2013. *Drunk Tank Pink: And Other Unexpected Forces that Shape How We Think, Feel, and Behave*. New York: Penguin Books.

Ariely, D. 2008. *Predictably Irrational: The Hidden Forces that Shape Our Decisions*. New York: Harper Collins Publishers.

Ariely, D., and G. Loewenstein. 2006. "The Heat of the Moment: The Effect of Sexual Arousal on Sexual Decision Making." *Journal of Behavioral Decision Making* 19 (2): 87–98. doi:10.1002/bdm.501.

Bargh John, A., and I. Shalev. 2012. "The Substitutability of Physical and Social Warmth in Daily Life." *Emotion* 12 (1): 154–162. doi:10.1037/a0023527.

Baron, R. 1997. "The Sweet Smell Of. . .Helping: Effects of Pleasant Ambient Fragrance on Prosocial Behavior in Shopping Malls." *Personality and Social Psychology Bulletin* 23: 498–503. doi:10.1177/0146167297235005.

Brian., W., J. Painter, and V. I. Koert. 2001. "Descriptive Menu Labels' Effect on Sales." *Cornell Hotel and Restaurant Administration Quarterly* 42 (4): 68–72. doi:10.1016/S0010-8804(01)81011-9.

Dennett, D. C. 2003. *Freedom Evolves*. New York: Penguin Books.

Ditto, P. H., D. A. Pizarro, E. B. Epstein, J. A. Jacobson, and T. K. MacDonald. 2006. "Motivational Myopia: Visceral Influences on Risk Taking Behavior." *Journal of Behavioral Decision Making* 19 (2): 99–113. doi:10.1002/bdm.520.

Felfernig, A., E. Teppan, S. Rudolf Melcher, O. Strauss, V. D. Riepan, G. Leitner, T. Kruggel, M. Hitz, B. Gula, and G. Friedrich. 2007. "Persuasive Recommendation: Serial Position Effects in Knowledge-Based Recommender Systems." In *PERSUASIVE '07 Proceedings of the 2nd International Conference on PERSUASIVE Technology*, edited by Y. de Kort, 283–294. Berlin: Springer-Verlag.

Fischer, J. M., and M. Ravizza. 1998. *Responsibility and Control: A Theory of Moral Responsibility*. Cambridge: Cambridge University Press.

Fischer, J. M., and M. Ravizza. 2000. "Replies." *Philosophy and Phenomenological Research*, no. 61: 467–480. doi:10.1111/j.1933-1592.2009.00319.x.

Hales, S. D. 2016. "Why Every Theory of Luck Is Wrong." *Nous* 50 (3): 290–508. doi:10.1111/nous.12076.

Jones, J. T., B. W. Pelham, M. Caravallo, and M. C. Mirenberg. 2004. "How Do I Love Thee? Let Me Count the Js: Implicit Egotism and Interpersonal Attraction." *Journal of Personality and Social Psychology* 87 (5): 665–683. doi:10.1037/0022-3514.87.5.665.

Kane, R. 1996. *The Significance of Free Will*. New York: Oxford University Press.

Kane, R. 1999. "Responsibility, Luck, and Chance: Reflections on Free Will and Indeterminism." *The Journal of Philosophy* 96 (5): 217–240. doi:10.2307/2564666.

Levy, N. 2009. "Luck and History-Sensitive Compatibilism." *Philosophical Quarterly* 59 (235): 237–251. doi:10.1111/j.1467-9213.2008.568.x.

Levy, N. 2011. *Hard Luck: How Luck Undermines Free Will and Moral Responsibility*. Oxford: Oxford University Press.

https://doi.org/10.1080/00455091.2018.1531464 Published online by Cambridge University Press

Loewenstein, G. 1996. "Out of Control: Visceral Influences on Behavior." *Organizational Behavior and Human Decision Processes* 65 (3): 272–292. doi:10.1006/obhd.1996.0028.

Mele, A. R. 2005. "Fisher and Ravizza on Moral Responsibility." *The Journal of Ethics* 10 (3): 283–294. doi:10.1007/s10892-005-5780-2.

Mele, A. R. 2006. *Free Will and Luck*. Oxford: Oxford University Press.

Mele, A. R. 2015. "Libertarianism, Compatibilism, and Luck." *Journal of Ethics* 19: 1–21. doi:10.1007/s10892-014-9188-8.

Mlodinow, L. 2012. *Subliminal: How Your Unconscious Mind Rules Your Behavior*. New York: Random House.

Murdock, B. B., Jr. 1962. "The Serial Positioning Effect of Free Recall." *Journal of Experimental Psychology* 64 (5): 482–488. doi:10.1037/h0045106.

Perez de Calleja, M. 2014. "Cross-World Luck at the Time of Decision Is a Problem for Compatibilists as Well." *Philosophical Explorations* 17 (2): 112–125. doi:10.1080/13869795.2014.912673.

Rawls, J. 1971. *A Theory of Justice*. Cambridge, MA: Harvard University Press.

Scalon, T. M. 1998. *What We Owe to Each Other*. Cambridge, MA: Harvard University Press.

Stout, N. 2016. "Reasons-Responsiveness and Moral Responsibility: The Case of Autism." *Journal of Ethics* 20 (4): 401–418. doi:10.1007/s10892-016-9218-9.

Taylor, C., and D. Dennett. 2002. "Who's Afraid Of Determinism? Rethinking Causes and Possibilities." In *The Oxford Handbook Of Free Will*, edited by Robert Kane, 257-277. Oxford: Oxford University Press.

Teppan, E., and M. Zanker. 2015. "Decision Biases in Recommender Systems." *Journal of Internet Commerce* 14 (2): 255–275. doi:10.1080/15332861.2015.1018703.

Tversky, A., and D. Kahneman. 1981. "The Framing of Decisions and the Psychology of Choice." In *Behavioral Decision Making*. Boston, MA: Springer. doi: 10.1007/978-1-4613-2391-4_2.

Williams, L. E., and J. A. Bargh. 2008. "Experiencing Physical Warmth Promotes Interpersonal Warmth." *Science* 322 (5901): 606–607. doi:10.1126/science.1162548.

https://doi.org/10.1080/00455091.2018.1531464 Published online by Cambridge University Press