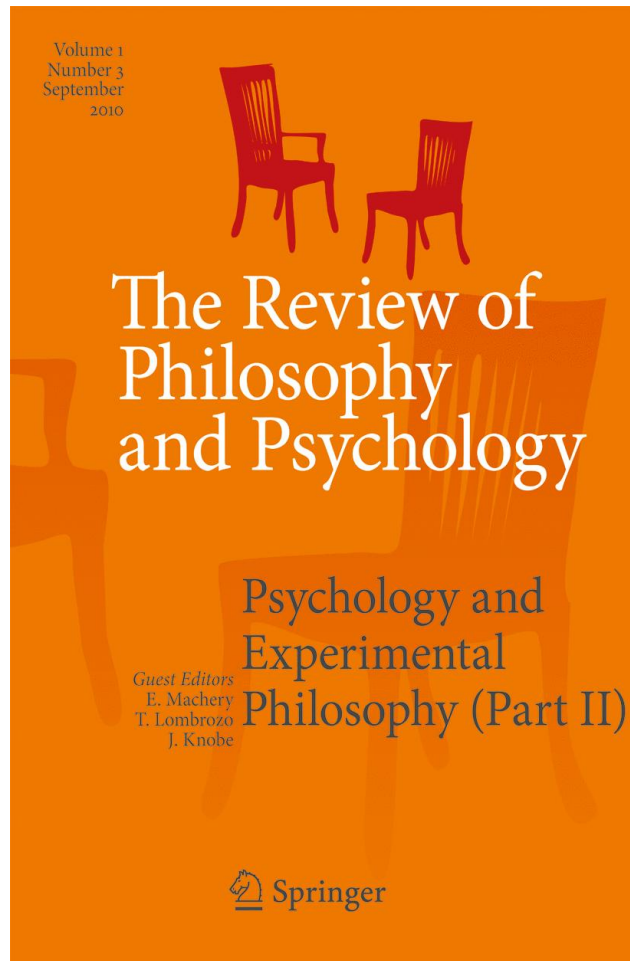


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Folk Concepts of Intentional Action in the Contexts of Amoral and Immoral Luck

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Abstract This paper concerns a recently discovered, puzzling asymmetry in judgments of whether an action is intentional or not (Knobe, *Philosophical Psychology* 16:309–324, 2003a; *Analysis* 63:190–193, b). We report new data replicating the asymmetry in the context of scenarios wherein an agent achieves an amoral or immoral goal due to luck. Participants' justifications of their judgments of the intentionality of the agent's action indicate that two distinct folk concepts of intentional action played a role in their judgments. When viewed from this perspective, the puzzle disappears, although the asymmetry remains.

1 Introduction

In 1997, Bertram Malle and Joshua Knobe published an article that has become a landmark in the contemporary psychology of social perception (Malle and Knobe 1997; reprinted in Lesko 1999). Drawing on a series of empirical studies, they proposed a model of the folk concept of intentional action that posits five necessary components: *desire*, *belief*, *intention*, *skill* and *awareness*. According to their model, an action A is considered intentional *only if* the agent desired an outcome, believed that A would lead to the outcome, formed the intention to A, had the skill to A, and performed A with awareness that A was being performed.¹

However, prompted by Alfred Mele's thorough analysis of the model (Mele 2001), Knobe pursued research showing that, when considering the intentionality of

¹In what follows, we will also refer to traditional philosophical analyses of the concept of intentional action. These "armchair" analyses may have, as their ultimate object, the folk concept of intentional action, the constitutive properties of an intentional action in itself, or both (*cf.* Adams 1986; Bratman 1987; Davidson 1980; Harman 1976; Mele and Moser 1994; Zimmerman 1984). Whatever their original purpose, in this paper we take these analyses simply as possible models of the folk concept of intentional action.

certain actions, people fail to produce the judgments predicted by the original model (Knobe 2003a, b). The most relevant conceptual components to our present discussion are *skill to A* and *intention to A*. As these components are supposed to be necessary, if the agent lacks either the intention or skill to A, then A should not be considered intentional. Thus, given a scenario wherein someone tried to accomplish something without the prerequisite skill, yet succeeded, the model predicts that most people would judge that the action was not intentional, but a fluke. For instance, if a person succeeded in hitting a bull's-eye despite lacking any shooting skill, their action should not be considered intentional. Similarly, given a scenario wherein someone knew that one of his intended actions would have some unintended side-effect, the model predicts that most people would judge that the side-effect action was not intentional, since it was not intended. For instance, if the CEO of a company decided to start a new program in order to increase profit, knowing that the program would have the side-effect of helping the environment, then this unintended side-effect action should not be considered intentional.

With the aforementioned absence-of-skill and absence-of-intention types of scenarios, the predictions of the model are borne out—most people do judge that the actions involved (i.e., *hitting the bull's-eye* and *helping the environment*) are not intentional. However, if, in the shooting scenario, the action *killing someone* replaces the action *hitting the bull's-eye*, and, in the CEO scenario, the side-effect action *harming the environment* substitutes for the side-effect action *helping the environment*, most people now say that the actions involved (i.e., *killing someone* and *harming the environment*) are intentional—the predictions of the original model do not hold.

This paper discusses this puzzling asymmetry in people's judgments—i.e., the attribution of unintentional action in some cases (with skill to A and intention to A presumably being taken as the missing properties) versus the attribution of intentional action in other cases (with the absence of skill to A or intention to A presumably being considered irrelevant).

This issue has now engaged a considerable amount of theoretical controversy and has generated a wide literature in which the asymmetry has been replicated with various subjects and designs (e.g., Adams and Steadman 2004; Aliche 2008; Knobe 2006; Leslie et al. 2006; McCann 2005; Machery 2008; Mallon 2008; Nadelhoffer 2005). For our present purposes, it suffices to group the theoretical landscape of solutions to the puzzle into two general camps. The predominant approach assumes that there is *one* folk concept of intentional action and either attempts to explain the asymmetry as a consequence of this concept (which is supposed to be different from Malle & Knobe's model), or attempts to explain away the asymmetry as a consequence of performance biases clouding the expression of this concept (which is supposed to be similar to Malle & Knobe's model). The minority approach acknowledges the possibility that *more than one* concept of intentional action is activated by words such as 'intentional' or 'intentionally,' and proposes to understand the asymmetry accordingly (e.g., Cushman and Mele 2008; Nichols and Ulatowski 2007).

The aim of this paper is to bolster the multiple-concepts approach by analyzing new data on the type of scenarios that have supplied the bulk of the evidence for the asymmetry in contexts involving lack of skill. We shall argue that, (1) contrary to what has been generally supposed by the literature, these scenarios speak much more to the component *intention* than to the component *skill*, (2) our data evinces two distinct folk

concepts of intentional action being activated in the context of our scenarios, (3) Malle and Knobe's model concerns one of these concepts, though it requires elaboration to account for our data on this concept, (4) there is a fundamental difference between the two concepts in terms of their relevance in contexts of blame evaluations, and (5) with these hypotheses in mind, the asymmetry stays, but the puzzle disappears.

In the next section, we briefly summarize the basic findings of the current literature related to the absence-of-skill type of scenario. Then, we present two studies that revise and extend previous designs. After that, we discuss our findings in terms of our hypotheses. We conclude by briefly addressing some one-concept alternative hypotheses to explain our data.

2 Previous Scenarios and Results

Knobe's research manipulated two factors in the context of scenarios involving shooting (Knobe 2003a). The shooter's intention was either to hit a bull's-eye in order to win a contest, or to kill his aunt for the inheritance money. The shooting was performed either with skill or without skill. In a 2×2 between-subjects design, each participant was presented with one of the following scenarios:

CONTEST

Jake desperately wants to win the rifle contest. He knows that he will only win the contest if he hits the bulls-eye. He raises the rifle, gets the bull's-eye in the sights, and presses the trigger.

SKILL: Jake is an expert marksman. His hands are steady. The gun is aimed perfectly... The bullet lands directly on the bull's-eye.

LUCK: But Jake isn't very good at using his rifle. His hand slips on the barrel of the gun, and the shot goes wild... Nonetheless, the bullet lands directly on the bull's-eye. Jake wins the contest.

CRIME

Jake desperately wants to have more money. He knows that he will inherit a lot of money when his aunt dies. One day, he sees his aunt walking by the window. He raises his rifle, gets her in the sights, and presses the trigger.

SKILL: Jake is an expert marksman. His hands are steady. The gun is aimed perfectly... The bullet hits her directly in the heart.

LUCK: But Jake isn't very good at using his rifle. His hand slips on the barrel of the gun, and the shot goes wild... Nonetheless, the bullet hits her directly in the heart. She dies instantly.

The following question was then asked: "Did Jake intentionally hit the bull's-eye [kill his aunt]?" The response options were either YES or NO.

The percentages of YES answers in the contest-skill and crime-skill conditions were high (79% and 95%, respectively), but, in the contest-luck and crime-luck conditions, the puzzling asymmetry emerged: in the former condition, the minority of participants answered YES, while in the latter, the great majority answered YES (30% and 84%, respectively).² In one study, a question on how much praise/blame

² We are reporting the average of three separate studies that included the luck conditions (see Knobe 2003a).

Jake deserved for what he did was introduced before the intentionality probe. Given the prototypical association between intentionality and blame, many participants may have said that the killing was intentional to avoid conveying the idea that they did not blame the killer. The purpose of the blame question was to rule out this deflationary explanation of the high percentage of YES responses in the crime-luck condition. In principle, by offering participants a way of explicitly communicating their moral evaluation separately, this question should have freed them to pursue a more literal answer to the subsequent intentionality question. However, the puzzling asymmetry persisted, and, interestingly, an analogous asymmetry in terms of praise and blame was revealed—on a scale from 0 (no praise or blame) to 6 (a lot of praise or blame), participants attributed much less praise in the contest-luck condition ($M=3.4$) than blame in the crime-luck condition ($M=5.4$).

In response, Malle (2006) investigated the extent to which these findings could be replicated, but with a slightly different version of the luck conditions—rather than “His hand slips on the barrel of the gun, and the shot goes wild...,” Malle’s new scenarios stated “His hand slips on the barrel of the gun, and the shot goes wild, *bouncing off a heavy post*.” Malle offered more nuanced response options, but the asymmetry in judgments of intentionality persisted. The percentage of YES responses in the crime-luck condition even increased when, in a within-subjects design, this condition was presented together with the crime-skill condition. However, when Malle manipulated the intentionality probe by varying the type of action in question (whether *killing the aunt*, *shooting the aunt* or *hitting the aunt’s heart* was to be considered intentional), the percentage of intentionality YES responses in the crime-luck condition reduced substantially (100% of participants judged *killing the aunt* intentional, 84% judged *shooting the aunt* intentional, but only 49% judged *hitting the aunt’s heart* intentional). Thus, when the question was posed in terms of *hitting the aunt’s heart*, the puzzling asymmetry became much more modest (49% is much closer to the 30% that one finds in the contest-luck condition). Likewise, ratings of blame were affected by the type of action in question. Table 1 summarizes Knobe’s and Malle’s results.

3 Study One

The addition of the sentence “bouncing off a heavy post” makes Malle’s hypothetical lucky feats less probable than Knobe’s original luck conditions.

Table 1 Percentages of YES answers to the intentionality questions and means of praise/blame ratings (in parentheses) on a scale from 0 to 6

Question	Skill	Luck
Hitting the bull’s-eye (Knobe)	79% (5.1)	30% (3.4)
Hitting the bull’s-eye (Malle)	90% (5.2)	30% (3.1)
Killing the aunt (Knobe)	95% (5.7)	84% (5.4)
Killing the aunt (Malle)	100% (5.8)	100% (6.0)
Shooting the aunt (Malle)	90% (5.8)	84% (5.8)
Hitting the aunt’s heart (Malle)	95% (5.5)	49% (4.3)

Accordingly, we included two luck conditions in our study analogous to those of Knobe's and Malle's scenarios. Furthermore, we made Jake's absence of skill more apparent by replacing the phrase "Jake isn't very good at using his rifle" with "Jake has never fired a gun before, and he has no natural talent for this type of thing." This new phrasing was intended to convey that Jake is bad in using his rifle and therefore that the objective probability of his performing the action of hitting the target is low, which is not necessarily conveyed by the expression "isn't very good." Following Malle, the questions related to the crime conditions in our study were framed in terms of *hitting the aunt's heart* to focus on the level of action description most comparable to *hitting the bull's-eye*. We modified the scenarios themselves in order to equalize the scope of the respective intentions—e.g., we replaced "he gets her in the sights" and "he gets the bull's-eye in the sights" from previous scenarios with "he aims at his aunt's heart" and "he aims at the bull's-eye." Finally, we improved the similarity between the contest and crime conditions by precisely delimiting the distance of the shooting.

3.1 Method

3.1.1 Participants

The participants were 242 undergraduate students in an introductory psychology class at the University of Michigan who received partial class credit for their participation—all fluently English-speaking Americans (61% female).

3.1.2 Materials and Procedure

Participants answered the questionnaire in a silent room, alone or in groups (each seated at a separate desk). In a 2×3 between-subjects design, each participant was presented with one of the following scenarios:

CONTEST

Jake desperately wants to win the rifle contest. He knows that he will only win the contest if he hits the bull's-eye. He raises his brand-new rifle and aims at the bull's-eye, which is 150 feet away.

SKILL: Jake is an expert marksman. His hands are steady. The gun is aimed perfectly...The bullet goes directly into the bull's-eye.

LUCK1: Jake has never fired a gun before, and he has no natural talent for this type of thing. His hand slips on the barrel of the gun, and the shot goes wild... Nonetheless, the bullet goes directly into the bull's-eye.

LUCK2: Jake has never fired a gun before, and he has no natural talent for this type of thing. His hand slips on the barrel of the gun, and the shot goes wild... The bullet hits a rock situated 80 feet in front of Jake. He assumes he has completely missed the target. But what a surprise: the bullet actually bounces off the rock and goes directly into the bull's-eye.

CRIME

Jake desperately wants to have more money. He knows that he will inherit a lot of money when his aunt dies. Jake sees his aunt walking out to the car. He

raises his brand-new rifle and aims at his aunt's heart, which is 150 feet away.

SKILL: Jake is an expert marksman. His hands are steady. The gun is aimed perfectly... The bullet goes directly into his aunt's heart.

LUCK1: Jake has never fired a gun before, and he has no natural talent for this type of thing. His hand slips on the barrel of the gun, and the shot goes wild... Nonetheless, the bullet goes directly into his aunt's heart.

LUCK2: Jake has never fired a gun before, and he has no natural talent for this type of thing. His hand slips on the barrel of the gun, and the shot goes wild... The bullet hits a rock situated 80 feet in front of Jake. He assumes he has completely missed the target. But what a surprise: the bullet actually bounces off the rock and goes directly into his aunt's heart.

On the same page, two questions were asked in fixed order: (1) How much praise [blame] does Jake deserve for hitting the bull's-eye [his aunt's heart]? (2) Did Jake hit the bull's-eye [his aunt's heart] intentionally? The first question allowed participants to explicitly express a moral evaluation (in the crime conditions); the second constituted the main dependent measure. For the praise/blame question, the ratings were on a seven-point scale from 0 to 6 for all six conditions. For the intentionality question, there was a YES/NO alternative in all six conditions. For exploratory reasons, we included in our study an additional between-subjects version of each of the Luck2 conditions in which participants answered the intentionality question (and also the blame/praise question) on a five-point scale from 0 to 4 instead of the YES/NO alternative. To differentiate the primary Luck2 conditions from the exploratory ones, we shall call them Luck2a and Luck2b, respectively. On the following page, participants were asked to justify their answers to the praise/blame and intentionality questions separately. Participants answered these questions by writing down their justifications.

3.2 Results

Six participants were eliminated from the analysis. These participants were eliminated because, in inspecting their justifications, it became obvious that they misinterpreted the scenarios—i.e., they did not attribute to the shooter the intention to hit the target. All of them were in the crime conditions—e.g., “He could have just been aiming the gun fantasizing about killing her but not intending to do it” or “I took into account the money issue, but still, it doesn't mean he was willing to kill her for it.”

3.2.1 Judgments

Of the remaining, approximately thirty participants were in each of the eight conditions of the study. Table 2 represents the percentages and means of participants' answers in the six primary conditions. Table 3 represents the means of participants' ratings in the two exploratory conditions, as well as the distribution of participants' ratings concerning the intentionality question.

The puzzling intentionality asymmetry between the contest and crime conditions occurred in all primary luck conditions—in LUCK1, $\chi^2(1, N=58) = 23.15, p < .001, w = 0.63$; in LUCK2a, $\chi^2(1, N=61) = 13.87, p < .001, w = 0.47$. Amongst the contest

Table 2 Percentages of YES answers to the intentionality questions and means of praise/blame ratings (in parentheses) on a scale from 0 to 6

	Skill	LUCK1	LUCK2a
Contest	100% (3.9)	27% (2.9)	29% (2.6)
Crime	100% (5.8)	89% (5.8)	77% (5.5)

conditions, only the differences SKILL vs. LUCK1 and SKILL vs. LUCK2a reached statistical significance—respectively, $\chi^2(1, N=60) = 34.73, p < .001, w = 0.76$; $\chi^2(1, N=61) = 33.30, p < .001, w = 0.73$. Amongst the crime conditions, only the difference SKILL vs. LUCK2a reached statistical significance— $\chi^2(1, N=60) = 7.92, p < .05, w = 0.36$. The puzzling intentionality asymmetry occurred in the exploratory luck condition as well—in LUCK2b, $t(55) = 3.41, p < .01, d = 0.91$. It is also important to notice that the two patterns of distribution in LUCK2b were markedly distinct—while in the contest condition, the distribution looks bimodal, in the crime condition, the distribution is skewed to the left. The asymmetry between praise and blame ratings occurred in all conditions—in SKILL, $t(58) = 5.71, p < .001, d = 1.47$; in LUCK1, $t(56) = 8.96, p < .001, d = 2.40$; in LUCK2a, $t(59) = 7.32, p < .001, d = 1.89$; in LUCK2b, $t(55) = 8.96, p < .001, d = 2.43$. A significant correlation between intentionality and blame was found only in LUCK1— $r(28) = .54, p < .01$.

3.2.2 Justifications

We shall now describe the patterns in participants' justifications of the answers to the intentionality question in the luck conditions. We start with those justifications of answers completely (or almost completely) denying the intentionality of A (hitting the bull's-eye or hitting the aunt's heart)—i.e., answers of NO, 0 or 1 to the intentionality question.

In our scenarios, the shooter's normal plan to perform A involves at least two means-constituents: willfully pulling the trigger and hitting the target directly. Accordingly, the causal route constituting A may deviate from the normal plan of the shooter by departing from either of these mean-constituents—e.g., the shot may be triggered accidentally or the target may be hit indirectly. Let us call these two basic types of deviance primary and secondary causal deviances, respectively. Across the contest and crime conditions, participants' most recurrent type of justification for denying that A was intentional invoked the fact that the performance of A did not follow the shooter's plan, that is, invoked the existence of some primary and/or

Table 3 Means of intentionality ratings and of praise/blame ratings (in parentheses) on a scale from 0 to 4 and distribution of intentionality ratings

	LUCK2b	0	1	2	3	4
Contest	2.0 (1.6)	34%	13%	13%	3%	37%
Crime	3.3 (3.9)	0%	11%	11%	15%	63%

secondary causal deviance breaking the link between the plan of the shooter and the causal route actually constituting A.³ Here are some examples:⁴

[Contest-Luck1; NO] Jake may have been intending to hit the bull's-eye, but instead he slipped and got lucky. The slip was unintentional, and therefore the shot resulting from it was also unintentionally aimed.

[Contest-Luck1; NO] ...because his hand slipped and he didn't mean to fire the gun at that point in time.

[Crime-Luck1; NO] His shot went wild, thus his aim was not directly on his aunt's heart. Though he was trying to hit her heart the bullet he shot was out of his control.

[Contest-Luck2a; NO] ...because although he really wanted to hit the bullseye, he hadn't yet gone through what he thought was the process of aiming at his target. His hand mistakenly slipped, plus he hit a rock accidentally, then his "target" accidentally.

[Contest-Luck2a; NO]: Because although his intention was to hit the target, the means by which he hit the bull's-eye wasn't planned, and so the unintentional means of hitting the bull's-eye qualifies the hit as unintentional.

[Crime-Luck2a; NO] Because the act of shooting was not followed through as intended.

[Contest-Luck2b; 0] ...because although he was aiming at the bull's-eye he slipped and shot the rock. Therefore it was sheer luck that he hit the bull's-eye.

[Contest-Luck2b; 1] He intended to hit the bull's-eye, but he didn't hit it the way that he intended (with a direct hit).

[Crime-Luck2b; 1] It is unintentional that the bullet bounced from the wall to the heart. Although he intentionally attempted to hit his aunt's heart, he unintentionally actually hit her.

Out of the seventy-one participants whose answers denied completely (or almost completely) the intentionality of A, only eight participants (11%) did not fit neatly and exclusively into this plan-departure type of justification. Of these, two invoked the absence of skill of the shooter, such as:

[Contest-Luck1; NO] He of course wanted to hit the bull's-eye but since his skill level was so minimal it was a matter of chance that he actually hit the bull's-eye.

One seemed to appeal to the low *subjective* probability of performing A:

[Contest-Luck1; NO] ...because he did not have the expectations of hitting it, although it was the purpose. Since it was his first shot, he must have expected to miss.

³ We use "primary and secondary causal deviances" in *roughly* the same way that Mele and Moser (1994) use these terms. However, there seems to be two different scenarios evoked by participants who reference the primary causal deviance: (i) the shooter may have aimed the gun without forming the proximal intention to shoot straightaway (he did not mean to pull it yet—he was just rehearsing) and something happened making the gun fire; (ii) the shooter may have aimed the gun with the proximal intention to shoot straightaway, but then something happened making the gun fire and negating the causal influence of the proximal intention. Of these, the latter scenario is closer to Mele & Moser's notion of primary causal deviance.

⁴ The bracketed information below indicates the condition of the study and the answer to the intentionality question (numbers correspond to the rating on the scale from 0 to 4).

The remainder invoked mixed rationales, such as:

[Crime-Luck2a; NO] ...because he was not a natural marksman. If it was completely intentional, he would have hit her directly. Because his hand slipped, he fired accidentally, therefore he did not mean to shoot her at that point in time.

We turn now to participants' justifications of answers attributing complete (or almost complete) intentionality to A in the luck conditions—i.e., answers of YES, 3 or 4 to the intentionality question. Across the contest and crime conditions, the sole type of justification offered by participants invoked the fact that, in performing A, the shooters satisfied their intention or goal, often highlighting that the plan departure is irrelevant. Here are some examples:

[Contest-Luck1; YES] His intention was to hit the bull's-eye before he fired the gun. The method of how he did it was an accident, but he succeeded in his goal of hitting it.

[Crime-Luck1; YES] ...because he originally aimed it at her heart.

[Crime-Luck1; YES] ...because that was the first thing he aimed for. Regardless of whether or not he was a good shot, that was where his intentions were for hitting her.

[Contest-Luck2a; YES] ...because he was originally trying to hit it when the story began, so even though the way he hit it was unintended, the end result was intentional.

[Crime-Luck2a; YES] ...because the effect of hitting his aunt's heart (whether he missed or not, or got lucky) was still there. He accomplished his goal, even if it was indirectly.

[Crime-Luck2a; YES] ...because he meant to. It does not matter how good of a shot he is or whether or not he hit the rock first...

[Contest-Luck2b; 4] Jake's goal was to hit the bull's-eye. It was what he intended to do all along. He did not hit it in the manner in which he intended, but his intention to hit the bull's-eye never changed.

[Crime-Luck2b; 4] ...because that was his original intent. The fact that he dropped the gun is inconsequential.

[Crime-Luck2b; 4] Jake's intent was to hit his aunt's heart, and he succeeded in doing so. He had the motive and the attempt was successful. Hitting the rock first is an arbitrary fact.

Finally, let us describe a pattern that occurred across denials and attributions of intentionality to A. As we delineated above, there were two basic rationales in participants' justifications. Approximately 35% of participants, most in the contest conditions, took the fact that the causal route constituting A did not follow the shooter's plan as sufficient grounds for denying intentionality. Approximately 55% of participants, most in the crime conditions, took the fact that the shooters accomplished their intention or goal as sufficient for attributing intentionality, despite frequently acknowledging that the performance of A did not follow the shooter's plan. Now, some participants seemed to indicate that both types of answers/justifications were possible. This was

expressed by some participants, all in the contest conditions, who acknowledged the reasonableness of both alternatives:

[Contest-Luck2a; NO] At first I said he hit it unintentionally because it was not in the manner he planned. Now, I realize that he had all the intentions of hitting the target and did hit the target. Therefore, it was intentional. If I broke it down farther though I could say that the moment his finger was slipping, his intentions may have changed to maintaining safety so no one would be hit. If on this level, we could say he hit the target unintentionally.

[Contest-Luck2a; NO] ...because the bullet hit the rock first. I mean, his intentions were to hit the bull's-eye but the way he accomplished it was unintentional. It makes me reconsider.

[Contest-Luck1; YES] It was hard to decide, but Jake did intend and want to hit the bull's-eye, regardless of his hand slipping; so although it was by mistake/chance, that was his intention.

[Contest-Luck2b; 4] Jake did fully intend on hitting the bull's-eye. However, the manner in which he hit it was unintentional, but that wasn't the question.

This may also have been the message intended by some participants who answered "2" in the Luck2b condition, seemingly as a way of indicating a compromise between the two rationales:

[Contest-Luck2b; 2] I was in between because Jake did intend to hit the bull's-eye. He just did not intend to do it the way it happened.

[Crime-Luck2b; 2] I said in between because Jake wanted to intentionally kill his aunt. However, the way he went about killing her, was unintentional.

4 Study Two

These luck scenarios have previously been discussed in the literature as though they were tools for examining the role of the skill component in the folk concept of intentional action; participants' denials of intentionality in these contexts have been interpreted as evidence that skill is indeed a necessary component of the folk concept of intentional action. But we observed that the great majority of our participants' justifications of answers denying intentionality invoked an absence-of-plan-following instead of the absence-of-skill of the shooter. If these justifications reliably reflected the participants' actual reasoning, then they did not consider the shooter's lack of skill in itself as the reason for their denial of intentionality.

Nevertheless, one may yet argue that participants in our study were alluding to absence of skill, albeit implicitly, and that our strict description of their justifications in terms of plan departure is incautious. In relation to the slip, perhaps what is being evoked by participants is the clumsy execution of a decision to pull the trigger, in which a proximal intention to pull the trigger still plays an important causal role, but one distorted by the absence of skill of the shooter. Or, one may say that the fact that some of the participants also mentioned luck in their justifications (see related justifications above) should be interpreted as an allusion to an absence of control tantamount to the shooter's absence of skill.

We think that the justifications indeed show that, in their denials of intentionality, our participants focused on a breakage of the causal link between the shooter's plan and the causal route constituting A. Furthermore, we do not think the usage of the word 'luck' in these justifications refers to an absence of reliable control as a dispositional property of the agent that lowers the objective probability of performing A, which is the type of absence of control that could be related to an absence of skill. Instead, the usage of 'luck' seems to reference the absence of control entailed by the causal deviances themselves, that is, by the fact that the causal route constituting A did not follow the shooter's plan.

Since our construal of participants' justifications plays a fundamental role in how we shall develop the multiple-concepts approach (and thereby cause the puzzle to fade away), it is important to provide additional evidence to disambiguate this issue. In our second study, we presented participants scenarios in which the same lucky events happened to a marksman.

4.1 Method

4.1.1 Participants

The participants were 40 English-speaking Americans (48% female) recruited from the subject pool of the Institute of Cognition and Culture, Queen's University, Belfast.

4.1.2 Materials and Procedure

Participation took place online via a website titled "7-Minute Study on the Concept of Intentional Action." We utilized the SurveyMonkey[®] builder to reproduce the procedure of the initial study. We investigated only the contest conditions because it was in these conditions that most of the NO answers, which are most relevant to our issue, occurred. Each participant was presented with one of the following two scenarios:

Jake desperately wants to win the rifle contest. He knows that he will only win the contest if he hits the bull's-eye. He raises his brand-new rifle and aims at the bull's-eye, which is 150 feet away.

SKILL/LUCK1: Jake is an expert marksman. However, his hand slips on the barrel of the gun, and the shot goes wild... Nonetheless, the bullet goes directly into the bull's-eye.

SKILL/LUCK2: Jake is an expert marksman. However, his hand slips on the barrel of the gun, and the shot goes wild... The bullet hits a rock situated 80 feet in front of Jake. He assumes he has completely missed the target. But what a surprise: the bullet actually bounces off the rock and goes directly into the bull's-eye.

4.2 Results

4.2.1 Judgments

Twenty participants were in each of the conditions. Table 4 represents the percentages and means of participants' answers in the two new conditions plus the related results of our previous study.

Table 4 Percentages of YES answers to the intentionality questions and means of praise ratings (in parentheses) on a scale from 0 to 6

	Level 1	Level 2
LUCK (Study 1)	27% (2.9)	29% (2.6)
SKILL/LUCK (Study 2)	30% (3.3)	20% (2.7)

As with the initial study, no statistically significant difference was found between the two luck levels (1 and 2)— $\chi^2(1, N=40) = .53, p = .46, ns$. Comparing the two studies in each of the luck levels, no statistically significant difference was found either—at level 1, $\chi^2(1, N=50) = .06, p = .79, ns$; at level 2, $\chi^2(1, N=51) = .52, p = .47, ns$.

4.2.2 Justifications

Participants' justifications were quite similar to the corresponding results of the previous study. The great majority of participants denying the intentionality of A appealed to the fact that the causal route constituting A did not follow the shooter's plan:

[Skill/Luck1; NO] ...because it was not done in the way he intended. The journey is the destination.

[Skill/Luck1; NO] While it was plausible that Jake planned for his hand to slip and was good enough to still make the shot, the wording of the story seemed to indicate that Jake's hand did not slip intentionally.

[Skill/Luck1; NO] Because his hand slipped, thus altering his intentional aimed shot.

[Skill/Luck2; NO] His hand slipped, which I assume was unintentional. Had he intended to use the rock as a means to hit the bull's-eye, his hand wouldn't have "slipped". Therefore, regardless of the final outcome, Jake's hitting the bull's-eye was unintentional.

[Skill/Luck2; NO] While Jake's intentions were to hit the target, he didn't mean to hit the target in the manner he did. His hitting the target was the intention but the way it was achieved is not what he intended. He intended shoot directly at the target and hit it. He didn't do that, instead, he accidentally shot the target.

[Skill/Luck2; NO] He intended to hit it, but the action he took was not what he meant to do. There was no continuity between his thought and his action. So it was an unintentional action that led to him hitting the bull's-eye.

Out of the thirty participants whose answers denied the intentionality of A, six participants (20%) did not fit neatly and exclusively into this type of justification. Interestingly, all of these justifications seem contradictory—the participants wrote as if they had answered YES to the intentionality question:

[Skill/Luck1; NO] That was his goal. The rifle slipping and him still being able to hit the bull's-eye show how much of an expert he is as his muscular intuition took over and allowed for him to still get off a good shot.

[Skill/Luck2; NO] He was trying to hit it and he did, it just went a different way.

All participants attributing intentionality to A appealed to the fact that, in performing A, the shooters satisfied their intention or goal, despite the plan departure:

[Skill/Luck1; YES] His intention was to hit the bull's-eye. He hit the bull's-eye. Whatever may have happened in between is kind of inconsequential in my mind because he had an intention and that intention was carried out.

[Skill/Luck2; YES] His intention to hit the bull's-eye was obvious from the beginning. He took aim and wanted to hit it but slipped, the fact that he slipped does not make his intention diminish.

Finally, some participants seemed to indicate that both types of answers/justifications were reasonable:

[Skill/Luck1; NO] This was a very difficult question. Though his intention clearly was to hit the bull's-eye, his shot did not go off through his complete intentional action. I'm still not sure about my answer.

[Skill/Luck2; NO] Jake's intent was to hit the bull's-eye through skill from training. He did not intend to slip while firing his weapon and accidentally hit the bull's-eye. His intention was not executed the way he intended it but the outcome was the same. I believe either answer on the previous page could be the right answer.

5 Discussion

Participants' answers to the intentionality question in the first study replicated the asymmetry in judgments found in the literature, and the effect was not diminished by either a higher level of luck or by posing the question in terms of hitting the aunt's heart (instead of killing the aunt), contrary to Malle's previous results. Participants' justifications in both studies evinced two basic types of rationales, suggesting that two distinct folk concepts of intentional action played a role in their answers. We discuss these two folk concepts in turn;⁵ then we show how the puzzle disappears.

One sort of rationale is this: participants say that A is not intentional because the causal route constituting A did not follow the shooters' plan. In emphasizing this unsatisfied condition, this type of justification implies that the component *causal route constituting A follows the agent's plan* (hereafter, simply *route-follows-plan* component) is necessary, and that the component *intention to A* is not sufficient. Since for a causal route constituting A to follow the plan of an agent, there should be a specific plan to A activated by an intention to A, this type of justification also

⁵ Although we believe that one should be as explicit as possible about the theory (or theories) of concepts one envisions, we lack the space to explore this here. Thus, our general characterizations of the folk concepts should not be taken to favor any specific view of conceptual structure (for theories of concepts in the cognitive sciences, see Laurence and Margolis 1999; Machery 2009; Rosch 2010).

implies that the component *intention to A* is necessary.⁶ Consequently, our first folk concept of intentional action has at least two necessary components: *intention to A* and *route-follows-plan*.

Based on results related to judgments (without justifications) coming from numerous scenarios, some related to the issues raised here, Fiery Cushman and Alfred Mele (2008) claimed that there are two (or perhaps three) folk concepts of intentional action (see also Mele and Cushman 2007). One of them, we assume, is the concept under discussion. However, they take this concept to be centered on the component desire to A: “An action is intentional if it is performed with desire, given the necessary background conditions (which do not include belief).” Perhaps Cushman and Mele do not characterize the concept under discussion in terms of the component intention to A because they think that this folk concept of intentional action would also include cases with a weaker property such as intention to try to A. We are sympathetic to this point and our data does not preclude that some of the participants were reasoning in terms of the shooters having simply an intention to try to A. For this reason, we shall qualify our intention to A component as intention to (try to) A.

We take Malle & Knobe’s model also to concern the folk concept under discussion. However, it cannot easily explain our data. The scenarios make it clear that the shooters had a desire for an outcome (win the contest/get the prize or kill the aunt/get the inheritance), that they had a belief that A (*hitting the bull’s-eye* or *hitting the aunt’s heart*) would lead to the outcome, and that they had the intention to (try to) A.⁷ The other candidates are *skill to A* and *awareness that A was being performed*. But these weren’t the unsatisfied conditions emphasized by our participants’ justifications. In the first study, the justifications suggest that the great majority took neither awareness nor skill as the missing property; and in the follow-up study, they certainly did not take skill as the missing property because the actor was a marksman. Could their model accommodate our participants’ concern that the causal route constituting A did not follow the shooter’s plan?

If the *skill* component is literally understood as a dispositional property of the agent, as Malle and Knobe normally characterize it, it cannot explain our results. Sometimes Malle and Knobe talk about the *skill* component as related to a property of the performance of A instead of a property of the agent, in which case the *skill* component could, in principle, explain our results. However, if this is the intended

⁶ Some philosophical views on the concept of intention claim that the content of an intention to A in itself includes a specific plan to A (e.g., Mele 1992; cf. Bratman 1987). If this is true of some folk concept of intention, in utilizing such a concept, one could not, without blatant contradiction, affirm that the shooter satisfied his intention to A and that the causal route constituting A did not follow the shooter’s plan. Interestingly, this first rationale says NO because the causal route constituting A did not follow the shooter’s plan simply, that is, without affirming that the intention to A was satisfied (cf. the second rationale, which says YES because the shooters satisfied their intention to A, despite the fact of plan departure). In not affirming this, this type of justification leaves open the possibility that the folk concept of intention related to this folk concept of intentional action understands an intention as including in its content a specific plan to A—since the plan was not followed, one does not affirm that the intention to A was satisfied. We kept *intention to A* and *plan to A* apart, but if this possibility is the case, one can easily reinterpret our claims accordingly.

⁷ Notice that, in Malle and Knobe’s model, the component *desire* relates to the outcome (not to A) and the component *belief* is *belief that A would lead to the outcome* (not *belief that one would A*).

notion of skill, what their model lacks is a clear characterization of the sort of control over the performance of an action that is part of this folk concept of intentional action. One step in this characterization would be to incorporate into their model the *route-follows-plan* component. However, even if plan departure indicates an absence of control over the performance of A, plan following is not sufficient for the presence of control over the performance of A—there is some evidence that cases of beginner's luck in which the novice hits the target by the normal plan (i.e., by pulling the trigger and hitting the target directly in the first try, but missing the target in subsequent ones) are not judged to be intentional by the folk (see Malle and Knobe 1997).

What we think should be added to the characterization is a *reliable-capacity* component understood roughly as *the success in performing A is based on the exercise of a reliable capacity of the agent*. Now, since, as Mele (2001) pointed out, the *belief* and *desire* components of Malle & Knobe's model can be necessary components only of the folk concept of *instrumental* intentional action (not of the folk concept of intentional action in general), and the *awareness* component is not directly relevant to our discussion here, our model of the first folk concept is as follows: an action A of an agent is considered intentional *only if* the agent had the intention to (try to) A, the causal route constituting A followed the agent's plan to A, and the success in performing A was based on the exercise of a reliable capacity of the agent.⁸

The second sort of rationale is this: participants say that A is intentional because the shooters satisfied their intention to A, despite the fact that the causal route constituting A did not follow the shooters' plan. Although this type of justification supports the hypothesis that the component *route-follows-plan* is not a necessary condition, it is important to raise the question whether our second folk concept would accept any amount or variety of causal deviance. Take the example of a person who tried to kill someone with a gun and missed his victim by a mile, but the shot stampeded a herd of wild pigs that trampled the intended victim to death (Davidson 1980: 78). In utilizing the second concept of intentional action, would the folk consider that the person killed the victim intentionally? Perhaps not.

But not considering the stampede-killing an intentional action of the person may be related to intuitions about the stampede-killing not being an action of the person at all. One should distinguish the components that are related to the difference (at the superordinate level) between an event being an action of the agent and not being an action of the agent from the components that are related to the difference (at the subordinate level) between an action of the agent being intentional and being unintentional. We raise the hypothesis that, in relation to the second folk concept of intentional action, causal deviance becomes pertinent only when it compromises the boundaries of this concept at the superordinate level—i.e., while for the first folk

⁸ Mele and Moser (1994) provide a detailed discussion of these components. They link control over the performance of A to knowledge (including skill). Our notion of capacity is supposed to include knowledge (including skill) and natural talent. As with Mele & Moser, we consider this concept to be vague in the sense of having an extension with no sharp boundary, hence the existence of borderline cases. Zimmerman (1984: chapter 6) discusses traditional philosophical analyses of an in the way intended component that is equivalent to our *route-follows-plan* component.

concept any kind of plan departure is pertinent, for the second only those kinds implying that the event was not an action of the agent are. In our view, the variables relevant to the superordinate distinction are the ‘length’ of the causal chain between an immediate (intentional or unintentional) action of the agent and its subsequent effects, and the presence/absence in this causal chain of an (non joint) action of another agent. If the effect is too distant and/or is the result of the ‘intrusion’ of another agent, it will not be perceived as part of an action of the agent (it will not be susceptible to the accordion effect of action descriptions, to use Feinberg’s fitting metaphor)—thus, the intuition that the stampede-killing was not an action of the person in question.⁹

Although the second rationale does not preclude the possibility that there are other (subordinate level) necessary components, the emphasis of participants on the fact that the shooters satisfied their intention or goal suggests that the intention (to try) to A component is a sufficient condition. Although the second rationale does not give any evidence on whether this component is simply a sufficient condition or is also a necessary condition, for the sake of our discussion here, we shall presume that it is a necessary condition as well.¹⁰ Thus, our model of the second folk concept is as follows: an action A of an agent is considered intentional *if and only if* the agent had the intention to (try to) A.

Since our second folk concept has only one component and our first folk concept has more than one component, we shall call them the simple and the composite folk concepts, respectively. We assume that the two concepts constitute a true polysemy in the minds of most of our participants in that they possess a stable association between the words ‘intentional’ and ‘intentionally’ and these two concepts, although there may be substantial individual variation in terms of the relative strength of the associations, and, to use the vocabulary of contemporary lexical pragmatics, some individuals may have built an *ad hoc* concept in the context of the task derived from a single pre-existing concept (see Carston 2002). If so, we must explain why the composite concept was more activated in the context of the contest conditions (leading to more NO/0/1 answers), whereas the simple concept was more activated in the context of the crime conditions (leading to more YES/3/4 answers).

While the simple concept seems to be salient in both the crime and contest conditions, the composite concept does not seem salient at all in the crime

⁹ See Feinberg (1970: chapter 6) on the accordion effect, and Zimmerman (1984) for a thorough analysis of action. Since this concept of action is vague, we consider the second folk concept to be vague as well. An anonymous reviewer raised the possibility of interpreting the NO answers of study 2 in terms of denial of action of the marksman instead of plan departure. The short causal chain involved, the absence of another agent, and participants’ justifications (“he accidentally shot the target”) count against this interpretation. This is a topic that deserves empirical research, though; one may even envisage some puzzling asymmetry at the superordinate level, which would complicate the overall picture we are portraying.

¹⁰ In fact, there is evidence that these two possible versions (one concept having *intention* as a necessary and sufficient component, the other having *intention* simply as a sufficient component) exist at the folk-legal level, which suggests that this is also the case at the folk-lay level. Furthermore, legal codes suggest that a lay concept having *intention* simply as sufficient would correspond to one of the lay concepts discussed in the context of side-effects: “‘Intentionally’ means that the actor either has a purpose to do the thing or cause the result specified, or is aware that his or her conduct is practically certain to cause that result” [Wisconsin’s Criminal Code, 939.23(3)] (*Awareness of being practically certain* is one of the definitions of “knowledge” in the legal system).

conditions: almost all participants who seemed to regard both answers as reasonable were in the contest conditions; in the exploratory conditions, the distribution was bimodal in the contest condition, whereas it was skewed to the left in the crime condition; in the first study, overall, more participants evinced the rationale related to the simple concept; finally, the contradictory justifications of the follow-up study, with only contest conditions, suggest that the simple concept was also salient.

Given these findings, it will suffice to focus our efforts on explaining why the composite concept is *not* salient in the crime conditions. We do so by discussing two perspectives on an argument implicit in much of Malle's discussion of the puzzle so far, and suggested in this passage:

Joshua Knobe (2003a, b) presented data that suggest people's judgments of a behavior's intentionality may be significantly influenced by moral considerations. In particular, Knobe (2003a) showed that when people judge the intentionality of an action that has moral consequences, they fail to consider an important component of intentionality (the agent's skill) and are quite likely to consider the immoral action intentional even if, by strict standards (and previous findings; Malle and Knobe 1997) it may not be intentional. (...) [These findings] raise the specter of a bias in people's thinking, namely to ignore important information when judging morally significant actions, which, if true, would have considerable impact on legal proceedings. (Malle 2006: 98–99)

The implicit argument on the relation between attributions of intentional action, blame evaluations and legal implications can be framed in terms of the following *modus ponendo ponens*:

(Premise 1) If people ignore the skill component when judging the intentionality of immoral actions, then they are biased to make incorrect blame evaluations and this has considerable consequences for legal proceedings

(Premise 2) People ignore the skill component when judging the intentionality of immoral actions

(Conclusion) People are biased to make incorrect blame evaluations and this has considerable consequences for legal proceedings

Malle and we agree that the conclusion is false in relation to the point at stake here. Since the argument is logically valid yet the conclusion is deemed false, at least one of the premises is to be considered false.

From Malle's perspective, Knobe's results do not really support premise 2—i.e., they do not generalize. He has attempted to show that there are problems with the type of task utilized that, if corrected, would eliminate the high percentage of YES answers to the intentionality question in the crime conditions.

Malle takes premise 1 to be true. He assumes that there is only one folk concept of intentional action and that people should use this concept to compute the amount of deserved blame—to ignore the skill component is to ignore his folk concept and to arrive at an incorrect blame evaluation, with considerable consequences for legal proceedings.

From our perspective, premise 1 is false. Who would argue that the participants who considered the lucky hitting of the aunt's heart as intentional made some incorrect blame evaluation (remember that the attribution of blame was at ceiling level in all crime conditions)? Not the folk. We think that the best explanation for

Malle's results where participants attributed much less intentionality and much less blame in the crime conditions is that many of these participants, like those eliminated from our main study, misinterpreted the scenarios. Furthermore, which current legal system would consider the lucky killing of the aunt as a crime other than murder? Neither a skill, nor a reliable-capacity, nor a route-follows-plan component is to be found in any legal definition of (first or second degree) murder, and the general principle of causation behind result crimes such as murder allows a good amount of causal deviance. Actually, if one were to use Malle's folk concept of intentional action (or our composite folk concept) to compute the amount of blame of the shooter in our lucky scenarios (and therefore diminish his culpability because the action was not intentional), then indeed one could be accused of making incorrect blame evaluations and the legal system would be concerned about such a person serving on a jury.

We take premise 2 to be true in the following sense: people ignore the skill component (and the reliable-capacity and route-follows-plan components) when judging the intentionality of immoral actions because they unreflectively ignore the composite folk concept of intentional action when thinking about actions in the context of blame attributions, since this concept is not relevant in this context.

In sum, where is the puzzle?

6 Conclusion

In this paper, we tried to push a multiple-concepts approach to luck contexts as far as we could. There might be three (or perhaps four) folk concepts of intentional action—the additional concepts being related to side-effect contexts (see Cushman and Mele 2008; Nichols and Ulatowski 2007; also note 10). We conclude by briefly raising two one-concept alternative hypotheses to explain our results.

The first alternative would say that the simple model alone could explain our data. The idea is that the adverb 'intentionally' used in the intentionality question allows different interpretations of the question, each focusing on a different aspect of the action—was the way of performing A intentional? Was the *result* of A intentional?¹¹ The rationale saying NO because it was not in the way intended (e.g., the shot was accidental) shows that the component *intention* is necessary, because related to the way-construal of the question. The rationale saying YES because the intention to A was satisfied (therefore its result was satisfied) shows that the component *intention* is sufficient, because related to the result-construal of the question. Therefore, the simple model can explain both rationales. Now, in the crime conditions, participants do not interpret the intentionality question in terms of the way-construal because this is not relevant in the context of blame attributions in our scenarios and perhaps also because the heart-hit is quite vivid in these scenarios. One problem with this hypothesis is that it cannot handle other results in luck contexts—why would people say NO in cases of beginner's luck in which the novice hits the target by the normal plan?

¹¹ We use "result" not in the sense of a causal consequence of an action but in the sense of an issue of an action as discussed by some philosophers (cf. Zimmerman 1984; G.H. von Wright 1971)—e.g. the result of the action *killing a person* is the death of the person.

The second alternative would say that the composite model alone could explain our data. The idea here is that, since our study is a kind of categorization task and processes of categorization utilizing the same concept are not necessarily consistent across contexts, our participants were simply selecting the components of the composite concept that were most salient in the different conditions of our study, which led to differences in judgments and justifications. For example, they selected the component *intention to A* without selecting the components *route-follows-plan* and *reliable-capacity* in our crime conditions because the latter are irrelevant in these contexts. Although we are aware that the issue of concept individuation is fraught with theoretical impasses (see Machery 2009), we believe that the quite different inferential roles played by these components in participants' judgments favor our interpretation in terms of two concepts (for a more neutral position on a similar question in the context of side-effects, see Nichols and Ulatowski 2007). Furthermore, the existence at the folk-legal level of a concept akin to the simple concept (and clearly different from the composite concept) gives additional plausibility to the hypothesis that the simple concept is also a distinct concept at the folk-lay level.

Although we see problems with these two alternative hypotheses, we do not regard the available data as decisive. Future research should refine the methodology in order to furnish evidence that in the long run could rule out some of the hypotheses raised in this paper.

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