Case comment

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Case comment: responding to the implausible, incredible and highly improbable stories defendants tell: a Bayesian interpretation of the *Venray murder* ruling

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In criminal trials, defendants often offer alternative explanations of the facts when they plead for their innocence. In its ruling on the Venray murder case, the Dutch Supreme Court dealt with the question when and how courts can reject such alternative explanations. According to the Supreme court, while courts should typically refer to evidence that refutes the explanation, they can also argue that the explanation 'did not become plausible' or that it is 'not credible'. Finally, courts can state that an explanation is so 'highly improbable' that it requires no response. However, the Supreme Court did not explain these terms, leading to confusion about how they ought to be interpreted. This case comment offers a Bayesian interpretation according to which these three terms relate to (i) the posterior probability of the explanation, (ii) the credibility of the defendant, and (iii) how obvious it is that the explanation is improbable. This interpretation clarifies the Supreme Courts ruling and ties it to the criminal law system's goals of error minimization and of producing understandable decisions efficiently.

Keywords: criminal law; Bayesianism; alternative explanations; justification.

1. Introduction

In 2010, the Dutch Supreme Court ruled on a case that has since become known as the 'Venray murder'.[1] In this case the defendant was accused of having killed his wife. In his defence he claimed that he found his wife dead when he came home. When the court of appeal ruled on the case it acquitted the defendant on the grounds that there was no evidence that refuted his explanation. However, the defendant only offered this alternative explanation after he knew the results of the forensic investigation. So, it was possible that he carefully constructed his story[2] so that it would not conflict with the evidence. This raised the question—can courts never reject a defendant's alternative explanation when there is no evidence that refutes it?

The case then went to the Supreme Court. It decreed that while courts should ideally point to evidence that refutes the explanation,[3] they can also reject alternative explanations even when there is no evidence that refutes it. In particular, the Supreme Court distinguished three grounds for such a

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[1] Dutch Supreme Court, 16 March 2010, ECLI:NL:HR:2010:BK3359. The name comes from the town where the victim and her husband lived.

[2] I use the terms 'story' and 'explanation' interchangeably.

[3] Or, the Supreme Court notes, through 'facts and circumstances derived from the evidence that refute it' (Dutch Supreme Court, 16 March 2010, ECLI:NL:HR:2010:BK3359).

rejection. First and second, courts can argue that the explanation 'did not become plausible' or that it is 'not credible'. Third, some explanations are so 'highly improbable' that they require no response at all.

This ruling is important, because it set forth a framework for how courts should deal with the stories that defendants tell. However, it was also a nebulous ruling. The Supreme Court did not offer any explanation of the phrases it introduced, nor did it specify how these terms should be applied. As a result, both legal scholars and courts have been struggling to make sense of this ruling. In this case comment I offer an interpretation of the ruling.[4] This interpretation makes the ruling understandable and coherent with the legal rules and epistemic aims of the (Dutch) criminal law system. These aims are to minimize erroneous decisions, to make the decisions legitimate by making them understandable to others and to reach such decisions efficiently. Furthermore, I reflect on how courts can judge whether explanations are 'implausible', 'incredible' or 'highly unlikely'.

My account is broadly Bayesian in that I use the language of Bayesian epistemology to clarify the necessary distinctions (more on this in Section 3). I use this framework to precisely define and distinguish different terms that, in colloquial settings, all relate to the probability of an explanation, such as 'plausible', 'credible' and 'probable', in Sections 4–6. However, I first explain the Venray murder case in more detail.

2. The Venray murder case

In the Venray case, a man was accused of stabbing his wife to death. At first, the man called upon his right to remain silent. He only offered an alternative explanation after one and a half years had passed. At that point, he knew the results of the forensic investigations. He then claimed that he had found his wife dead and hypothesized that criminals might have killed her because of an argument they had with him. As the court of appeal noted, this explanation fitted with the limited available evidence (blood stains and shoe prints) at least as well as the story that he killed his wife. In fact, the court remarked, the explanation may even have fitted better with the evidence, for instance because no blood was found on the defendant's clothing, which is typically difficult to remove. However, the court did note that the defendant's story was somewhat hard to believe, especially because the defendant waited so long to come forward with it. Nonetheless, it did acquit him. The court reasoned that it could only convict if there was evidence that refuted the alternative explanation or if it was so implausible that it needed no explicit refutation. According to the court of appeal, neither was the case.

The court's position is understandable if we look at it in the context of Dutch criminal law. First, whenever a defendant offers an alternative explanation, the court can only convict him if it provides a justification for rejecting this explanation in its ruling.[5] Second, the proof standard in the Netherlands states that a defendant can only be convicted if the court has to be convinced *based on the admissible evidence*.[6] So, at first sight, when the court has to justify *why* it is convinced of the guilt of the defendant, it should also do so by referring to the admissible evidence. When a conviction involves the court rejecting the defendant's story, this would then also require the court referring to some piece of evidence that refutes this alternative explanation.

[4] This comment is an expanded version of a conference paper that is to appear in the proceedings of the 3rd European Conference on Argumentation. Furthermore, in an unpublished manuscript, Scholten (2019) also offers an analysis of the Venray case, though her analysis differs substantially from mine.

[5] Article 359.2 Dutch code of criminal procedure. This article states that courts have to respond any time the defendant offers a clear argument in favour of his innocence (In Dutch legal terminology '*onderbouwd standpunt*', my translation). This includes any alternative explanations of the facts that the defendant offers that are consistent with his innocence.

[6] Article 338, Dutch code of criminal procedure.

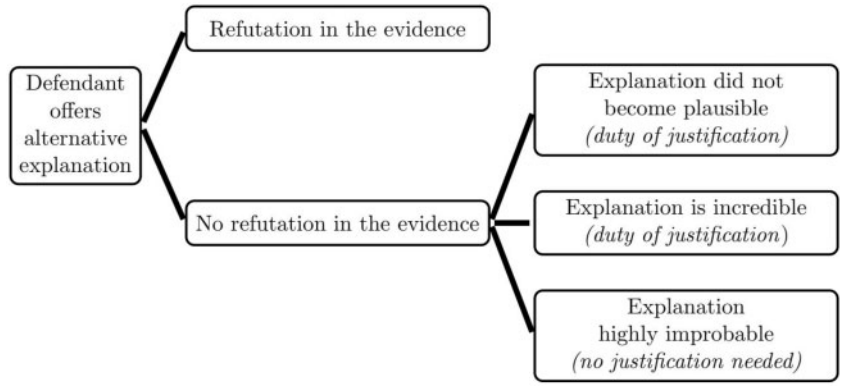

FIG 1. The ruling schematically.

However, the Supreme Court did not share this reading—it ruled that explanations can sometimes be rejected even when there is no evidence that contradicts it.[7] In particular, the Supreme Court stated that courts can argue that the defendant's story 'did not become plausible' or that it is 'not credible'. Finally, some explanations are so 'highly improbable' that they require no explicit justification by the court to be rejected. See Fig. 1 for a schematic summary of the ruling.

So, the Supreme Court's ruling is about how courts should deal with cases in which the evidence does not 'refute' a defendant's story, but they still wish to reject this alternative explanation. Before moving on to my interpretation of this ruling, I want to discuss both situations in which the court can point to evidence that refutes the defendant's story and situations in which the court can reject this explanation though no refuting evidence exists. I analyse both situations using a Bayesian framework.

3. Rejecting stories with and without evidence

When courts reject a defendant's explanation, they typically do so by referring to evidence that refutes this explanation. This does not mean that the evidence excludes the story, in the sense that the story cannot possibly be true. Even in cases with very strong evidence against an explanation—say multiple, seemingly reliable witnesses—there is always a remote possibility that the story is true. For instance, all witnesses could have had a reason to lie. This is rarely the case but it is not impossible. Instead, evidence refutes a story insofar as it makes the story (very) improbable. Courts should only reject a defendant's explanation if its probability is low, in order to avoid erroneous convictions.

In Bayesian terms this means that the probability of the hypothesis (H, the explanation) conditional on the all the evidence in the case (E), (P(H|E)) is very low. This 'posterior probability' can be calculated with Bayes' formula:

$$P(H|E) = \Big(P(E|H) \times P(H)\Big)/P(E)$$

Whether the evidence in a case *makes* the hypothesis improbable therefore depends on the likelihood of the hypothesis, which refers to the probability of observing the evidence if we assume that the

[7] It the referred the case back to another court of appeal. This court of appeal then convicted the defendant of murder. Court of justice of Arnhem, 15 October 2012, ECLI:NL:GHARN:2012:BY0075.

hypothesis (the explanation) is true, P(E|H). A low likelihood means that we would not expect this evidence to occur if the hypothesis were true. For example, assume (counterfactually) that a witness testified in the Venray case that he saw the husband kill the victim. While witnesses can be unreliable, we would not expect such a witness statement if the husband's story about the attackers was true.

In cases with two competing explanations, such as the Venray case, we are often interested in the probability of one explanation compared to the other. For that purpose, we can rewrite Bayes' rule to its 'odds' version:

$$\frac{P(H_1|E) = P(E|H_1) \times P(H_1)}{P(H_2|E) = P(E|H_2) \times P(H_2)}$$

Here H_1 and H_2 represent the hypotheses that either one or the other explanation is true. In this version of the formula, whether the evidence skews the prior ratio in favor of guilt or innocence depends on the 'likelihood ratio', $P(E|H_1)/P(E|H_2)$. When the likelihood ratio is higher than 1 it means that the evidence raises the probability of H_1 whereas a likelihood ratio lower than 1 means that the probability of H_2 is raised.

When reasoning about which story to accept, rejecting one story and accepting the other often means finding 'discriminating evidence', i.e. evidence that fits better with one story than another (Van Koppen, 2011, pp. 52–55). In Bayesian terms this means evidence where the likelihood ratio strongly favors one story over the other. Such evidence discriminates between the two explanations because we would expect the evidence much more if one explanation were true than if the other was. If the likelihood ratio is sufficiently much greater than 1, the probability of one explanation will be high and the probability that the alternative explanation is true will be low. In such a cases the court can point to the discriminating evidence as a reason why it rejects the alternative explanation.

What about situations where the evidence does *not* refute the defendant's story, as in the Venray case? In that case the key question was which of two competing stories to accept, a situation that is best captured by the odds-version of Bayes rule. There the court noted that the evidence did not discriminate between these stories. Whether it was the husband who killed his wife or someone else, either way, we would expect to find the kind of evidence that was found (such as the shoe prints and the blood stains). This means that the likelihood ratio is close to 1. So, the evidence did not significantly change the prior probability of either explanation.

As I noted, courts should only reject a defendant's alternative explanation if its probability is low. Recall that on Bayes' rule, a low posterior probability of a hypothesis can depend either on a low likelihood, P(E|H) or on a low prior probability, P(H) of the hypothesis. So, we might assume that, if the evidence does not discriminate between explanations in terms of the likelihood, an alternative explanation's low posterior probability can only be because that explanation has a low prior probability. Is this how we should read the Supreme Court's ruling? To put it differently, when courts reject a defendant's explanation for being implausible, incredible or highly unlikely, is this always a judgment about that explanation's prior probability? And what should we then make of the distinction between these three terms?

In the following sections I will argue that prior probability only plays a key role in one of the three criteria that the Supreme Court mentioned, namely whether the explanation needs to 'become plausible'. I will look at this criterion next. For the other two criteria we need different concepts, which I discuss in Sections 4 and 5 respectively. In Section 4 I argue that whether an explanation is 'incredible'

depends on the credibility of the defendant. Finally, in Section 5 I argue that whether an explanation is 'highly improbable' depends on how obvious it is that the explanation is improbable.

4. Implausible explanations fail to become probable

According to the Supreme Court, courts can reject an explanation if it 'did not become plausible' during the criminal proceedings.[8] The obvious question when interpreting this statement is why some explanations need to 'become plausible'. The answer to this lies in the proof standard. As mentioned, in the Netherlands the proof standard states that the court should be convinced of the defendant's guilt based on the admissible evidence. However, in practice, many legal scholars believe that the standard is actually similar to that of common law countries—that guilt has to be proven beyond a reasonable doubt (Ter Haar & Meijer, 2018, 7.4; Nijboer *et al.*, 2017, pp. 73–74). So, if the defendant hopes to be acquitted by telling an alternative story, that story needs to be good enough to create a reasonable doubt about his guilt (assuming that the prosecution's case is in itself strong enough).

Suppose that the defendant's story is weak and that the prosecution's case is strong. This means that if no further evidence or arguments were adduced, the defendant would most likely lose the case and be found guilty beyond a reasonable doubt. So, if the defendant tells a story that is initially improbable, he risks losing the case if no new evidence confirms his story. The defendant may then have a burden to introduce new arguments or evidence that would make the court decide in his favor or he risks losing the case.[9]

There are two reasons why an explanation can be improbable: due to the evidence in the case (likelihood) or due to its prior probability. If an explanation is improbable due to the likelihood, it conflicts with (reliable) evidence that was already brought forward in court. In such cases the court can point to that evidence when justifying its decision to reject the explanation. Yet the Supreme Court's ruling is about cases in which courts *cannot* point to such evidence. So, the court presumably describes situations in which an explanation is improbable because of its low prior probability. The prior probability of an explanation is its probability before any evidence is observed. The lower the prior probability of an explanation is, the stronger the evidence has to be to make that explanation probable. If the evidence is not strong enough (in terms of the likelihood) then the prior probability will not be raised sufficiently to create a reasonable doubt. In that case, the explanation has not become 'plausible'.

What does an explanation with a low prior probability look like? First, it may have parts that do not fit well together. For instance, the explanation might imply that the defendant was in two places at the same time. Alternatively, the defendant may tell a story in which motive and action do not fit well together, such as a story about a robbery where nothing was stolen. Finally, the explanation may consist of a number of independent and individually unlikely events (Lettinga, 2015, p. 53; Josephson, 2000). Second, an explanation can also have a low prior probability because it does not fit well with our generalizations about how the world typically works. For instance, we may believe that innocent bystanders do not run away from the police, that a suspect cannot cross the city in 10 min or that the

[8] In Dutch 'niet aannemelijk geworden'. My translation.

[9] This is known as the *tactical burden of proof* (Prakken & Sartor, 2009). While the defendant caries the risk of conviction when offering a weak explanation, he is not always the one who carries the burden of producing evidence that will make his story plausible. Especially in inquisitorial (as opposed to adversarial) systems like the Dutch, it can also be the police or the prosecution that is tasked with looking for possible evidence that confirms or refutes the defendant's story.

police rarely forges evidence. The more an explanation violates such generalizations, the lower its prior probability is.

5. Incredible explanations are told by an unreliable storyteller

Apart from arguing that the explanation is implausible, the Supreme Court also decreed that courts can reject explanations by arguing that they are 'incredible'.[10] How does this differ from an explanation that is implausible—i.e. improbable, either a priori or due to the evidence? When the term 'incredible' is used by Dutch courts, it typically refers to actions within the scenario that the defendant undertook or in how the defendant told the story (Lettinga, 2015). For instance, suppose that the defendant claims that he was a bystander of a murder but that he did not call the emergency services while he did spend time trying to hide possessions of the victim.[11] Such a story would be implausible, in the way we just saw: it contains illogical elements and therefore has a low prior probability. However, it would also be incredible. The defendant would not come across as a reliable storyteller. Telling bad stories and lacking credibility as a storyteller often go hand in hand, but not always. Some stories fit well with the evidence and with our background beliefs, perhaps even better than the true explanation but are still improbable due to the lack of credibility of the defendant.

First, an otherwise plausible story may be incredible because it fits poorly with the characteristics and past behaviour of the defendant. For instance, if a defendant has made statements in the past that conflict with his current story and he does not have a good explanation for these earlier statements then this lowers his credibility. An example of this comes from the Venray case. After the case went back to the court of appeal, the defendant gave a partial confession. He admitted to attacking his wife, but claimed that there was another person involved who slit her throat. However, the court of appeal argued that they did not believe this partial confession because the defendant lacked credibility due to the contradictory explanations he had given. Instead the court claimed that the defendant had premeditated killing his wife and convicted him of murder.[12]

Second, some stories are vague. For example, a defendant may claim that 'something else happened', without providing further details. People tend to find such stories difficult to believe because they lack relevant details (Pennington & Hastie, 1991). However, such a story does not conflict with the evidence or with our background assumptions, nor is it necessarily internally incoherent. However, the fact that it is vague can sometimes be a reason why the story is improbable. Suppose that the defendant claimed he was a bystander of a murder. If he is telling the truth we might expect him to be able to testify to details of what happened. However, if he then offers a vague explanation we might become suspicious that he is lying by deliberately offering story that his vague enough not to be contradicted by the evidence. In other words, if we can reasonably assume that the defendant *could* tell a more specific story, which better explains the facts, then we have reason to doubt the credibility of his story.[13]

[10] In Dutch 'ongeloofwaardig', my translation.

[11] E.g. Court of justice Den Haag, 17 October 2011, ECLI:NL:GHSGR:2011:BT7563; Court Rotterdam 30 November 2012, ECLI:NL:RBROT:2012:BY4663; Court Midden-Nederland, 30 July 2013, ECLI:NL:RBMNE:2013:3068.

[12] Court of justice Arnhem, 15 October 2012, ECLI:NL:GHARN:2012:BY0075.

[13] Not all vague stories are improbable. For instance, our memory and powers of observation are far less reliable than we like to think (Wise *et al.*, 2014). Especially in stressful situations—such as when we are bystanders of a murder or are being interrogated by the police—our memories may fail us. So, a defendant who offers a vague story may simply not remember much of a given situation.

A third important category of incredible stories are *ad hoc* explanations. An *ad hoc* explanation is an explanation that is made up to fit the available evidence but that is difficult or impossible to falsify. For instance, a guilty defendant can call upon his right to remain silent and only offer an explanation once all the evidence has been presented that is fitted to this evidence (Mackor, 2017). This was what the defendant in the Venray case may have done. Such a story is not necessarily implausible or incoherent. On the contrary, false explanations of criminal evidence are sometimes more coherent (Vredeveldt *et al.*, 2014) and better supported by the evidence (Gunn *et al.*, 2016) than true explanations. This is because they can be tailored to the known facts. However, if we have good reasons to suspect that the defendant has fitted his story to the evidence, then this should lower our degree of belief that he is truthfully reporting on his own experiences.[14]

The notion of credibility can easily be expressed in Bayesian terms. Whether a story is credible depends on the answer to the following question: 'given that a witness testifies to fact X, what is the probability of X?' (Goldman, 1999, 4.2–4.4). To put it in terms of a formula, we are interested in P(Defendant's explanation | Defendant offers this explanation in this way). So, the fact that *this* defendant offers *this* explanation, and at *this* moment, can count as evidence about whether that explanation is true.

A brief clarification is in place here. I said before that the Venray case is about situations where the defendant's story is not refuted by the evidence. Yet I have just argued that a lack of credibility *is* because the explanation is improbable due to evidence about the defendant's credibility. However, this is because the court of appeal (to which the Supreme Court is responding) did not consider the fact that the defendant waited so long to offer his alternative explanation as admissible evidence. It claimed it could not reject the defendant's story because it was not refuted by the evidence, despite claiming that the story was difficult to believe given the defendant's timing. On a Bayesian both shoe prints, blood stains and timing can all count as evidence.

6. Highly improbable explanations are obviously false

When a court considers an explanation to be implausible or incredible it must generally justify why it does not believe the defendants explanation before convicting him. However, according to the Supreme Court, some explanations are so 'highly improbable' that courts do not have a duty to respond to them.[15]

Of the terms that the Supreme Court introduces in its ruling, this one is possibly the most nebulous. At first sight, the term seems to refer to explanations that have a very low (posterior) probability. But this straightforward interpretation faces the difficulty that *any* alternative explanation that the court rejects is highly improbable. I mentioned earlier that (in practice) Dutch criminal law requires that a defendant's guilt must be proven beyond a reasonable doubt. This is a high standard for proof. In probabilistic terms, the standard is often taken to mean that the probability of guilt should be high enough (e.g. 95%) (Cheng, 2012, p. 1256). However, this means that the probability of *any* story consistent with guilt can be *at most* 5% and will often be even lower. So, if all rejected alternative explanations are very improbable, what distinguishes those that are 'highly improbable' that they need

[14] Note that not every defendant who fits his story to the evidence is lying. For instance, receiving post-event information may influence our memories subconsciously (Shaw, 2016). Furthermore, new information can remind us that our initial memories were wrong ('ah, yes, I remember now!') (Vredeveldt *et al.*, 2014). So, even veracious defendants may offer seemingly *ad hoc* explanations.

[15] In Dutch 'zo onwaarschijnlijk is, dat zij geen uitdrukkelijke weerlegging behoeft', my translation.

not be addressed? Perhaps some explanations are *highly* improbable, say less than 0.01%. Yet this still leaves us with the question why courts do not have to respond to such explanations. What makes highly improbable explanations special?

An answer to this question begins with a discussion about why courts usually *should* justify their decision to reject an alternative explanation. There are, broadly speaking, two purposes that such justification serves: making the explanation understandable and forcing the court to reflect on its reasoning. First, explicit justification helps make the decision understandable for its audience, which includes the parties at trial, the legal community and society as a whole (Knigge, 1980; Dreissen, 2007, pp. 392–404). If the audience understands the arguments for the decision, then this makes the court's decision more legitimate for them. It also allows courts of appeal, judicial scholars, experts and other interested parties to check whether the decision was correct and to point out possible flaws. Finally, by making the reasons for the decision understandable, parties might be less inclined to appeal the ruling. This would aid the efficiency of the criminal law system because courts of appeal would have to hear fewer cases (Buruma, 2005). The second reason why judges should justify their decision is that it forces courts to reflect on the arguments for their ruling. This in turn can help them avoid reasoning errors (see e.g. Dreissen, 2007, pp. 392–404). This is in line with psychological research that suggests that explaining one's decision-making process helps people make better decisions (Wilkenfeld & Lombrozo, 2015).

These benefits of justification also occur when courts justify why they reject an alternative explanation. In such cases the justification gives both the court and the audience insight into why that explanation is improbable enough not to create a reasonable doubt. However, there are cases in which this kind of insight is not required. In particular, some stories that defendants tell are so *obviously* improbable that we would gain little by arguing against them. For example, take a (real) case in which the defendant pleaded that he was not accountable for the child porn on his computer because his mind was controlled by aliens.[16] It seems fair to say that no reasonable audience would consider the 'alien' explanation remotely probable. Furthermore, a defendant who offers such an explanation would either be delusional or insincere. So, it is improbable that arguments would sway him. Hence, the court would (most likely) gain little by justifying why it rejects this alternative explanation, with respect to the parties, legal community and general audience's understanding of it.

What about justifications other benefit of reflecting on one's reasoning? My proposal is that the more difficult it is to see why an explanation is improbable, the more room for error there is. However, when an explanation's improbability is obvious, the reasoning required to understand its probability does not require much thought. Hence, there is less to be gained by carefully spelling out one's reasoning to see whether this reasoning is sound. For instance, the court does not have to carefully reflect on whether they might be making an error when they assume that mind controlling aliens do not exist.

So, there is little gain to justifying why we reject obviously improbable explanations. Yet spelling out such arguments does take time and effort and impedes the efficiency of decision-making. The costs of explicit justification will then outweigh the benefits.

That 'highly improbable' should be interpreted as 'obviously improbable' is also something that has implicitly been noted by Dutch courts. For example, the Dutch Supreme Court once overturned a decision by a lower court because it had failed to give a justification for its decision to reject the

[16] Court of Noord-Holland, 24 November 2014, ECLI:NL:RBNHO:2014:11709.

defendant's alternative scenario.[17] The supreme court argued that even if the lower court thinks that a defendant's alternative scenario is improbable, it will sometimes have to offer a justification for this conclusion, because not every improbability is 'evident'.

What makes an explanation obvious improbable? I do not have a fully worked out answer to this question. Nonetheless, I want to propose the following tentative answer. Understanding that an explanation is improbable often means seeing that it conflicts with evidence or with our background assumptions. So, whether it is *obvious* that an explanation is improbable then depends on how difficult it is to see such conflicts. This depends both on the information the audience has and on their capacities. It also depends on the number and complexity of coherence relations that the audience has to see.

Not every explanation that is (very) improbable is also obviously improbable. For instance, in criminal cases the mere description of the evidence can sometimes be hundreds of pages long. Judging whether the evidence makes the explanation unlikely might therefore require seeing how numerous pieces of evidence cohere with one another. Similarly, an explanation can have a very low prior probability because of internal inconsistencies, without this being immediately obvious. Understanding that the explanation is highly improbable might then involve, for instance, creating a time line of the story and seeing that the story does not make sense. For example, we might then find out that the story implies that the defendant is in two places at the same time. Such a story will have a very low probability (perhaps even a probability of 0) but it will not be obviously improbable. So, how obvious it is that an explanation is improbable is not captured in Bayes' formula.

As a final note, whether something is obvious is not always obvious. First, the *curse of knowledge* refers to the difficulty of imagining what it is like for someone else not to know something that you know (Birch & Bloom, 2007). When we know or understand something, we sometimes imagine this to be common knowledge without wondering whether it is (Nickerson, 2001). So, what is obvious to a judge who has preceded over the entire case, who has seen and reflected on the evidence and the arguments, may not be obvious to outsiders. Second, many if not most of us sometimes suffer from *the illusion of knowing*—the idea that we know and understand more than we actually do (Glenberg *et al.*, 1982). A common experience associated with the illusion of knowing is the feeling of understanding a concept, but then realizing that this is not the case when you try to explain it to someone else. In other words, our lack of knowing may only become apparent once we explain our reasoning (Schwartz, 2013). So, while courts do not have to respond to absurd explanations, they should be wary of their own biases.

7. Conclusion

In the Venray murder case, the Dutch Supreme Court determined on what grounds courts may reject the alternative explanations offered by defendants and when they should justify their decision to do so. In this case comment I offered an interpretation employing Bayesian probability theory.

At the heart of the Supreme Court's ruling is the idea that courts can reject a defendant's explanation even in cases where the evidence does not refute this explanation. While rejecting the story by referring to a 'smoking gun' (i.e. refuting evidence) may be the ideal, other responses are possible too. The Supreme Court distinguishes three categories. First, some explanations can be rejected because they 'did not become plausible'. I argued that whether an explanation needs to 'become plausible' during the criminal proceedings depends on its inherent plausibility at the time it is offered—its prior

[17] Dutch Supreme Court, 9 December 1997, ECLI:NL:HR:1997:ZD0160.

probability. If an explanation with a low prior probability does not become probable by means of the evidence, then the explanation fails to create a reasonable doubt. Second, some explanations are 'incredible'. Whether an explanation offered by a defendant is probable partially depends on evidence about the credibility of the defendant. Finally, some explanations are so 'highly improbable' that the court does not have a duty to respond to them. I argued that what distinguishes these explanations from explanations that the court *should* respond to is that their improbability is *obvious.* When an explanation is obviously improbable, the court would not serve the goals of making its decision understandable by offering a response. A duty to respond would then only reduce the efficiency of the decision process.

To conclude I want to remark that my conclusions are also potentially informative to other legal systems. First, some legal systems have a similar duty to respond to alternative explanations. For instance, German criminal law also requires courts to respond to alternative explanations of the facts (Dreissen, 2007, p. 319). One of the key goals of this duty is to make the ruling understandable to others (in particular higher courts that have to check whether the reasons for conviction are valid) (Dreissen, 2007, p. 405). Second, while common law countries do not have a judicial duty to respond to alternative explanations, my remarks here might help further illuminate the notoriously difficult to interpret beyond a reasonable doubt standard of proof. In particular, as Ho (2008, pp. 153–154) points out such countries often have case law which stipulates that a reasonable doubt is not created by explanations that are 'fantastic and unreal', 'mere conjecture[s]' (High court of Australia), 'illusory' or 'fanciful' (Supreme court of Singapore) or 'of which there is no evidence and which cannot be reasonably inferred from the evidence' (British House of Lords). The argument I presented here could help further interpret these terms, by offering ways to understand why certain explanations require no serious consideration.

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