Higher-Order Evidence and Legal Cross-Examination

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Abstract

This paper aims to show the central role that higher-order evidence plays in an established cultural practice in our society, namely, legal cross-examination. First, we will show how legal cross-examination can be epistemologically reconstructed as an epistemic practice that has the higher-order defeat of a witness's testimony as its main goal. Then, we will discuss how different paradigmatic cases of successful cross-examination arguably instantiate different mechanisms of higher-order defeat that have been described in the epistemological literature. We will argue that our analysis further demonstrates the significance of higher-order evidence as an epistemic phenomenon and provides a *prima facie* case for a pluralist view of higher-order defeat.

1 Introduction

In recent years, much ink has been spilled over the topic of higher-order evidence. Epistemologists have discussed at length the nature and the scope of this kind of evidence, as well as its (alleged) disruptive implications for many received views on the norms governing evidence, belief, justification, defeat, and knowledge. Despite this extensive body of work, many aspects of the phenomenon of higher-order evidence remain unclear. In particular, little effort has been dedicated to identifying concrete examples of higher-order evidence in actual epistemic

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practices that are independent from philosophical activity. Indeed, the bulk of the discussion over higher-order evidence has largely been confined to a handful of toy examples of this phenomenon. Is there life for higher-order evidence beyond logic students on drugs, pilots running low on fuel, sleep-deprived doctors, and restaurant-goers debating a fair split?

This paper seeks to improve this situation by showing the central role that higher-order evidence plays in a well-established cultural practice in our society, namely, legal cross-examination. We will show how the practice of legal cross-examination can be epistemologically reconstructed as an epistemic practice that has the higher-order defeat of a witness's testimony as its main goal. To do that, first, we will argue that legal cross-examination represents a natural testing ground for theories of higher-order evidence because of the unique role it plays in a legal proceeding. In fact, as we will see, legal cross-examination is a specific part of a legal proceeding, the aim of which is the undermining of the evidence provided by a witness. We will argue that such an aim is best described as a case of higher-order defeat. To support this claim, we will first analyze how the kind of defeat exemplified by successful cross-examination exhibits all the distinctive features of higher-order defeat. We will then show how different paradigmatic cases of cross-examination defeat instantiate different mechanisms of higher-order defeat discussed in the epistemological literature. In turn, this variety can be taken as evidence for a form of pluralism about the mechanisms underlying higher-order defeat.

The aim of this paper is twofold. First, we aim to demonstrate the important role that higher-order evidence plays in an established cultural practice such as legal cross-examination. This, in turn, will provide further evidence of the significance of higher-order evidence as an epistemic phenomenon and, potentially, open up a whole new domain of application for theories of higher-order evidence and higher-order defeat. Second, our more general aim is to illustrate once more the virtues of legal epistemology as a fine-grained testing ground for epistemological theories.

In Section 2, we will present the contemporary epistemological discussion over higher-order evidence and higher-order defeat. Section 3 will be dedicated to describing the practice of legal cross-examination and the specific role it plays within a legal proceeding. In Section 4, we will present our characterization of higher-order defeat as the main goal of legal cross-examination. We will also analyze whether and how different mechanisms of higher-order defeat sketched by epistemologists can be applied to different cases of successful cross-examination, drawing some general conclusions for the epistemology of higher-order evidence. Section 5 concludes.

2 Higher-order evidence

Traditionally, in epistemology, evidence is the kind of thing that rationally justifies someone to believe something. Recently, a growing number of epistemologists have distinguished between two types of evidence: first-order evidence and higher-order evidence (e.g., Christensen, 2010,

2016; Horowitz, 2014; Kelly, 2010; Lasonen-Aarnio, 2014; Sliwa and Horowitz, 2015; Whiting, 2020; Worsnip, 2018). First-order evidence (FOE) is evidence about the world, that is, evidence about the content of our beliefs. FOE typically speaks for or against our hypotheses by showing us that some of our beliefs are true or false. As such, for example, if I believe that today will be sunny, by looking outside the window and seeing a sky full of black clouds, I can get first-order evidence that my belief is false. Higher-order evidence (HOE) is instead evidence about one's evidence.[1] That is, HOE includes evidence about what evidence one has, evidence about the strength or reliability of one's evidence, evidence about the normative import of one's evidence, or about one's belief-forming or evidence-gathering processes. Just like FOE, HOE can speak for or against our hypotheses. However, HOE does not typically speak directly for or against our beliefs by revealing their truth or falsity; rather, it does so indirectly, for instance, by indicating whether our belief-forming procedures are reliable. Consider the following case: suppose I believe that today will be sunny. By examining my past record of weather predictions, I notice that I have consistently been too optimistic, predicting sunny days more often than actually occur. In this way, I acquire higher-order evidence that my reliability as a weather forecaster is low, and this evidence speaks indirectly against my belief that today will be sunny.

An interesting feature of HOE is that it appears capable of challenging our beliefs so radically that it can lead us to revise even those that have been reliably formed. As many proponents of incorporating HOE into epistemology emphasize, HOE can make us question our own rationality as epistemic agents to such an extent that it can override even the strongest FOE supporting a given belief. This phenomenon is known as "higher-order defeat" (HOD). To get a clearer picture, let us look at four paradigmatic toy examples of HOD that have been put forward in the philosophical literature.

DRUG I am in a logic class and believe that I have just solved the logical puzzle assigned by the professor. Then a classmate informed me that some drug had been slipped into the coffee I just drank, which undetectably impairs one's logical reasoning ability. People affected by the drug have only a 50 % chance of correctly solving the logic puzzle (Christensen, 2010, p. 187).

HYPOXIA Aisha is out flying her small, unpressurized airplane, wondering whether she has enough fuel to make it to Hawaii.She looks at the gauges, dials, and maps, and obtains some evidence, E, which she knows strongly supports either the proposition that she has enough gas (G) or that she does not ($\neg$G), say to degree 0.99. Thinking it over and performing the necessary calculations, Aisha concludes G; in fact, this is what E supports. But then she checks her altitude and notices that she is at great risk for hypoxia, a condition which impairs one's

[1]There are many tentative definitions of HOE in the related epistemological literature, some very broad, some far more restrictive. In this paper, we use this intuitive, broad definition of HOE. For different, more formal, definitions of HOE see Eder and Brössel (2019) and Henderson (2022).

reasoning while leaving the reasoner feeling perfectly cogent and clear-headed. Aisha knows that at this altitude, pilots performing calculations like hers reach the correct conclusion only 50% of the time (Horowitz, 2025)

PRUDENCE I am a medical resident who diagnoses patients and prescribes appropriate treatment. After diagnosing a particular patient's condition and prescribing certain medications, I am informed by a nurse that I have been awake for 36 hours. Knowing what I do about people's propensities to make cognitive errors when sleep-deprived (or perhaps even knowing my own poor diagnostic track-record under such circumstances), I reduce my confidence in my diagnosis and prescription, pending a careful recheck of my thinking. (Christensen, 2010, p. 186)

PEER DISAGREEMENT My friend and I have been going out to dinner for many years. We always tip 20% and divide the bill equally, and we always do the math in our heads. We're quite accurate, but on those occasions where we have disagreed in the past, we have been right equally often. This evening seems typical, in that I do not feel unusually tired or alert, and neither my friend nor I have had more wine or coffee than usual. I get $43 in my mental calculation, and become quite confident of this answer. But then my friend says she got $45. I dramatically reduce my confidence that $43 is the right answer, and dramatically increase my confidence that $45 is correct, to the point that I have roughly equal confidence in each of the two answers. (Christensen, 2010, p. 187).

In all four cases, our fictional epistemic agents receive HOE that challenges a belief they initially formed based on FOE. Specifically, the HOE calls into question their reliability as epistemic agents at the time they formed the belief. Thus, it seems intuitively rational for the agents in the examples to revise their beliefs by taking into account also the HOE available to them. Yet, the exact way in which this HOD is supposed to happen remains somehow unclear. What is quite uncontroversial is that HOD possesses some distinctive features that set it apart from more ordinary forms of defeat. In particular, we can identify four main features of HOD that have been highlighted in the literature (e.g., Christensen, 2010; Feldman, 2005, 2009; Lasonen-Aarnio, 2014; Schechter, 2013; Worsnip, 2018). First, as we already hinted above, HOD seems to work somehow indirectly against our beliefs, without providing any evidence that directly contradicts them (Christensen, 2010). Secondly, HOD is typically retrospective, in the sense that it makes the agents aware of their past irrationality in forming a given belief (Lasonen-Aarnio, 2014). Thirdly, at least according to some scholars (e.g., Christensen, 2010; DiPaolo, 2018; Lasonen-Aarnio, 2014), HOD leaves the first-order evidential relation between FOE and a given belief somehow untouched.[2] Fourthly, HOD typically attacks the subject of

[2]This feature is particularly problematic for calibrationist accounts of HOE. See Schoenfield (2018) for a discussion of this issue.

epistemic attitudes (and, specifically, their epistemic abilities or cognitive capacities at a given time), rather than the object of these attitudes (e.g., Christensen, 2010; DiPaolo, 2018).

To characterize this particular type of defeat, epistemologists have put forward several different models of how HOE could defeat the first-order evidence in favor of a belief. We will survey here four possible characterizations of HOD, i.e., bracketing (Christensen, 2010, 2016; Elga, 2007), undercutting (Feldman, 2005; Skipper, 2019), outweighing (DiPaolo, 2018), and evidence dispossession (González de Prado, 2020; Greco, 2019).

BRACKETING In one of the most famous discussions of HOE, Christensen (2010) proposed *bracketing* as a possible mechanism for HOD. That is, HOE can defeat first-order evidence in favor of a given belief by setting aside (some of) that FOE. As Christensen explains by discussing some of the aforementioned examples, when an agent receives HOE that calls into question the reliability of her reasoning (such as the physician realizing they have been awake for 36 hours in the PRUDENCE case) they might set aside some of the evidence they gathered while in that unreliable state, thereby lowering their confidence in the conclusion.

UNDERCUTTING Another popular mechanism by which HOD has been characterized is Pollock's (Pollock, 1986) famous notion of *undercutting* (Feldman, 2005; Skipper, 2019). This notion was used originally by Pollock to identify a specific way in which evidence could speak against a certain belief, not by giving evidence of its falsity, but rather by undermining the evidential connection between the belief and the evidence supporting it, thus making the belief not justified anymore. According to the undercutting characterization of HOD, this type of defeat is nothing but a particular form of undercutting that attacks the general evidential relation between some FOE and a certain (set of) belief(s). From this perspective, in the DRUG case, HOE of the unreliability of one's logical reasoning can be seen as undercutting the (normally perfectly legitimate) evidential connection between the proof that the student confidently wrote and the belief that she has solved the problem assigned to her.

OUTWEIGHING A different mechanism by virtue of which HOE has been said to be able to defeat FOE is *outweighing* (DiPaolo, 2018). In this picture, HOE acts as an independent reason-giving factor in our reasoning, giving reasons not to believe what our FOE supports. More specifically, HOE issues a specific kind of reasons, which pertain to the epistemic value of maintaining a given belief.[3] According to this characterization of higher-order defeat, then, in cases of HOD, agents get HOE that there is something epistemically wrong with a given belief (because of the conditions in which it was formed, for instance) and this evidence produces epistemic reasons that outweigh the epistemic reasons in favor of the belief, thus making the

[3]These reasons are characterized by DiPaolo, in his proposal of HOD as outweighing, using a meta-ethical distinction between state-given and object-given reasons. We bracket here this distinction, which is quite technical, and point the interested reader to the original article (DiPaolo, 2018).

agent revise their belief. According to this view, then, in a case like HYPOXIA, the pilot revises her belief that she can make it safely to Hawaii because the HOE-based epistemic reasons for the disvalue of this belief outweigh the original reasons, based on her observation of the instruments, in favor of it.

EVIDENCE DISPOSSESSING Finally, a fourth mechanism by virtue of which higher-order defeat has been characterized is the phenomenon of *evidence dispossession* (e.g., González de Prado, 2020; Greco, 2019). In this characterization, HOE can make agents lack the necessary epistemic competence for treating the first-order evidence as reason for believing something. Supporters of this view of HOD as dispossessing defeat argue that, in order to rationally believe something based on certain evidence, agents need to meet certain epistemic conditions (e.g., awareness, belief, etc.). Among these necessary conditions, there is epistemic competence, i.e., the ability to competently treat a certain piece of evidence as a reason for forming a given belief. According to this view of HOD, when an agent gets HOE of her unreliability as an epistemic agent, as in the DRUG case, she *ipso facto* loses this epistemic competence and, as such, she is no longer justified to believe that she has solved the logical problem assigned to her.

To be sure, none of these four different characterizations of higher-order defeat went uncriticized in the philosophical literature. Leaving aside the specific critiques that target only one of the proposed mechanisms, we can isolate two main types of general critiques of HOD *tout court*. The first type of general critique of HOD concerns the fact that this kind of defeat seems to go against some very general epistemic norms, such as evidentialism (cf. Elga, 2007; Hedden and Dorst, 2022; Steglich-Petersen, 2019), or to condemn agents to face some intuitively deficient epistemic situations, such as epistemic *akrasia* (see Titelbaum, 2015) or unsolvable epistemic dilemmas (see Lasonen-Aarnio, 2014). Indeed, several epistemologists deny the very possibility that HOE can defeat FOE and thus change the beliefs reliably formed on its basis, because of the alleged breakdown of epistemic norms that this phenomenon would determine. The deniers of HOD roughly split into two camps: level-splitters and stedfasters. Level-splitters (e.g., Hazlett, 2012; Lasonen-Aarnio, 2020) claim that the rationality of the different levels of evidence should be kept separated so that HOE should not bear on our FOE-based beliefs; steadfasters (e.g., Littlejohn, 2018; Titelbaum, 2015) instead hold that HOE cannot defeat FOE, either because they believe in the infallibilism of first-order justification or because they deny that there is HOE in the first place. Either way, level-splitters and steadfasters both want to preserve basic epistemic norms such as evidentialism, protecting them from the alleged falsification these norms would suffer if HOD were recognized.

A second type of general critique of higher-order defeat concerns instead not the relationship between HOD and other epistemic norms or principles, but the very idea of HOD itself (see Kelly, 2010; Schoenfield, 2015; Whiting, 2019). In fact, even some philosophers who would

in principle be open to admitting the possibility of HOD criticized the mechanisms of HOD proposed in the literature for their vagueness and ambiguity. Indeed, none of the four accounts of HOD we saw above can be considered more of a tentative sketch of an epistemic mechanism by virtue of which HOE could defeat FOE. None of these accounts, in fact, specifies necessary or sufficient conditions for HOD to happen, nor does it give details about the process of belief revision that such a defeat would determine. As such, it is safe to say that the exact nature and scope of HOD remain unclear and, with them, also the role and normative significance of HOE in an agent's epistemic life.

In what follows, to improve this situation, we will shed some light on the nature and role of HOE and HOD by highlighting the hitherto under-appreciated role that HOE plays in an important epistemic practice in our society, namely, legal cross-examination. We will do that because we are convinced that a significant impediment to a better understanding of HOE lies in the fact that only few cases of actual epistemic situations have been thoroughly analyzed through the lens of HOE. The aforementioned discussion between supporters and skeptics of HOE has, in fact, largely confined itself to discussing a handful of toy examples of HOD. While this focus on a few artificial examples of an epistemic phenomenon is not problematic *per se*, we believe that the study of HOD "in the wild" can help the whole discussion. In particular, as we will argue in the rest of the paper, we believe that the practice of legal cross-examination possesses some particular features that make it a perfect testing ground for theories of HOE and HOD. In the next section, we will give a general presentation of legal cross-examination as an epistemic practice, while in Section 4, we will analyze this epistemic practice through the lens of HOE.

3 Cross-examination in legal proceedings

From an epistemological standpoint, legal proceedings present a uniquely compelling setting. This is because they revolve around a structured process in which a third party must render a judgment based on the evidence presented. It is an environment where decision-making hinges on the strength and reliability of evidence, and where the focus is not necessarily on uncovering absolute *truth*, but rather on establishing what can be *proven*. In other words, legal practice is deeply intertwined with concepts central to epistemology: proof, evidence, testimony, expertise, probability, and more. It is no coincidence, then, that an increasing number of philosophers have begun studying certain epistemological aspects of legal practice, a field known as legal epistemology (see Gardiner, 2019a and Haack, 2014 for an overview).

Among the most debated topics in legal epistemology is the interpretation of legal standards of proof (e.g., Gardiner, 2019b; Hedden & Colyvan, 2019; Laudan, 2006; Ross, 2024; Urbaniak & Di Bello, 2021). More precisely, legal epistemology explores whether standards such as "beyond reasonable doubt" or "preponderance of evidence" should be understood as degrees of belief, statistical likelihoods, or qualitative standards. It also examines when and

why evidence has probative value, that is, how it increases the likelihood of a litigated claim. Closely related to this is the study of legal phenomena such as expert testimony, which raises distinct epistemological questions, including how courts should evaluate and manage scientific evidence in judicial proceedings (e.g., Beecher-Monas, 2009; Dwyer, 2008; Fischer & Jukola, 2026; Guerrero, 2021; Haack, 2015; Jasanoff, 1997; Martini, 2015; Miller, 2016; Peruzzi, 2023; Satta, 2022; Sikorski, 2022).

At the heart of all these debates lies a relatively clear and straightforward epistemological setting. During a trial, evidence is gathered and presented to a fact-finder, who ultimately renders a judgment based on that evidence.[4] In most jurisdictions, there are precise rules that guide judges and parties in litigation by regulating the admissibility and presentation of evidence.[5] However, when stripped down to its core, a legal proceeding resembles, epistemologically, something like Figure 1:

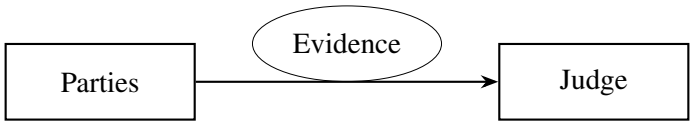

Figure 1: A simplified schema of a legal proceeding.

An important actor in practically every legal proceedings is the witness, who mainly serve as source of evidence, offering firsthand accounts that can corroborate or challenge the claims made by the parties involved. Witnesses' testimony can significantly influence the outcome of a case by providing evidence that might otherwise remain concealed from the court's view.[6] Generally, a witness is initially questioned by the party who called them to the stand on direct examination. Afterwards, most jurisdictions allow the opposing party to question the witness – a procedure known as "cross-examination." A cross-examination is the process in which the opposing party questions a witness during a trial. The primary goal of cross-examination is to challenge the witness's credibility. For example, a lawyer may try to show that some of the witness's sensory perceptions are less sharp or accurate than the witness believes.[7]

To illustrate the characteristics of cross-examination, consider the following fictional example: suppose a witness claims to have seen the suspect driving a black car and asserts that this evidence is relevant to the suspect's guilt. One immediate strategy for the opposing lawyer is

[4]"Fact-finder" refers to the individual or entity responsible for assessing the facts of the case—typically the judge in a bench trial or the jury in a jury trial, depending on the type of case.

[5]For example, the *Federal Rules of Evidence* articulate in a concise manner the rules governing the admission of evidence in United States federal trial courts (available online here: https://www.uscourts.gov/forms-rules/current-rules-practice-procedure/federal-rules-evidence).

[6]There are different types of witnesses, including lay witnesses, who are individuals with personal knowledge of the matter, and expert witnesses, who possess specialized knowledge and are called upon to provide expert testimony within their area of expertise. Here, unless specified, we use the term "witness" as a shorthand for "lay witness". We leave the epistemological analysis of the cross-examination of expert witnesses to future work.

[7]The practice of cross-examination and its role in the judicial process is a topic widely studied by legal scholars and practitioners. Beyond the classic work of Wellman (1997), see also Kassin et al. (1990), Perdue (1993), and Underwood (1997).

to show that the witness's statement may be incorrect. During cross-examination, the lawyer might demonstrate that the witness could not have reliably identified the car's color, due to factors such as poor visibility, distance, the presence of many other cars on the road, and the fact that the suspect's car is generic in appearance.

More systematically, two main objectives can be identified for why cross-examination is performed. First, the lawyer will try to highlight the weaknesses in the reliability and credibility of the evidence supporting the opposing party's case. This often involves attempting to show that the witness's account is erroneous, inconsistent, or misleading. Second, the lawyer will attempt to get the opposing party's witness to make statements that support his case. For instance, Jim Perdue (1993) lists the following goals that trial lawyers may aim to achieve when examining adverse witnesses. First, "to impeach the witness's credibility, knowledge, or recollection of the story by pointing out inconsistencies or lack of qualifications. In the case of lay witness, the two primary areas of impeachment are the witness's opportunity to observe or determine the ability to accurately recall the events described." (p. 2) Second, "to obtain helpful admissions or concessions from the witness." (*ivi.*)

Another way to distinguish the purpose of cross-examination is to focus on the specific aspect of the witness's testimony being challenged. In some cases, cross-examination targets the accuracy of the witness's account, that is, whether the details provided are correct. This often involves questioning the witness's sensory perception, such as pointing out that the observation took place under poor visibility conditions. In other instances, cross-examination may focus on the witness's negligence or reluctance to disclose information that is already known from other sources. Finally, cross-examination can challenge the witness's expertise, particularly when a witness provides statements on matters beyond their area of competence.[8]

Abstracting away from case-specific details, the epistemic role of cross-examination in a legal proceeding can be represented schematically, as shown in Figure 2. A witness is introduced by one party in the litigation as a source of evidence intended to influence the court's decision. Cross-examination seeks to challenge this evidence, typically by questioning the witness' credibility or the reliability of the evidence-gathering process.

[8]Other characterizations of the aims of cross-examination are possible. For example, in his classic "The Art of Winning Cases of Modern Advocacy", Henry Hardwicke (1864, p. 152) says that "[t]he objects of a cross-examination are three in number. The first is to elicit something in your favor, the second is to weaken the force of what the witness has said against you; and the third is to show that from his present demeanor or from his past life he is unworthy of belief, and thus weaken or destroy the effect of his testimony" (cited in Underwood, 1997, p. 119n).

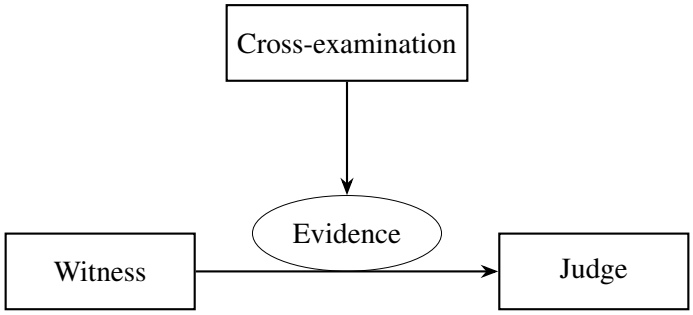

Figure 2: A simplified schema of cross-examination in legal proceedings.

Now that we have an intuitive picture of legal cross-examination and of its specific role in a legal proceeding, we can investigate the relationship between this specific epistemic practice and the ideas behind HOE and HOD we presented in Section 2. This will be the task of the next section.

4 Higher-order defeat as the central goal of cross-examination

As we saw in the last section, cross-examination is a legal practice that directly challenges the strength or reliability of a witness's evidential account, as well as the processes through which the witness formed beliefs or gathered evidence. In doing so, it aims at "defeating" both the evidential account provided by the witness and the belief that the account supports. For this reason, in this section, we will characterize cross-examination as an epistemic practice that has epistemic defeat as its main goal, and in particular, higher-order defeat. Specifically, we will first describe why the main goal of legal cross-examination can be seen as a kind of defeat that possesses all the distinctive features of higher-order defeat. Then, we will analyze how the different moves of cross-examination codified in this practice closely resemble the mechanisms of HOD proposed in the epistemological literature.

Let us look at a toy fictional example of cross-examination, first. Consider again the case of a witness who claims to have seen the defendant at the scene of a crime, and that this piece of evidence is crucial to establishing the defendant's guilt. Recall from Section 2 that higher-order defeat rests on the premise that it is rational for epistemic agents to revise their beliefs by taking into account the higher-order evidence available to them. Now, by focusing on the poor lighting at the time of the observation or the fact that the witness's description of the suspect was vague or inconsistent, the cross-examination aims to cast doubt on the reliability of the witness' first-order-evidence. That is, in the epistemological terms with which we have modeled this situation, the cross-examination goal is to defeat the evidence produced by the witness by attacking the reliability of its belief-forming processes. In other words, the main goal of this instance of cross-examination is nothing but what epistemologists have labeled higher-order-defeat.

More generally, let us analyze the main features of the kind of defeat that a successful cross-examination instantiates. First, the practice of cross-examination typically aims at defeating a certain (set of) belief(s) that a witness's evidence supports in a indirect way. That is, cross-examination does not typically present new evidence contrasting a certain belief, but rather attacks the belief-forming and evidence-gathering processes that, according to the witness and the accusation, supports a certain belief. This is not to say that rebutting defeats never occur in cross-examination. On the contrary, recognized treatises on cross-examination allow for the possibility of eliciting new evidence through careful questioning (Kassin et al., 1990; Perdue, 1993; Underwood, 1997; Wellman, 1997). Still, such instances are generally understood as secondary to the main purpose of undermining the reliability and strength of the witness's evidence. The type of defeat generated by a successful cross-examination more closely resembles the indirect defeat characteristic of undercutting and higher-order defeat, rather than that of straightforward rebuttal.

Secondly, just like higher-order defeat, cross-examination is fundamentally retrospective in nature. Indeed, in the structure of a legal proceeding, cross-examination takes place only after the witness's direct examination, that is, the initial questioning conducted by the party who called the witness to the stand. Moreover, when a cross-examination is successful, the higher-order evidence it produces casts *ipso facto* a shadow of irrationality to all the statements and evidence offered by a given witness. Third, also akin to HOD (and unlike lower-order cases of undercutting defeat), cross-examination may challenge the evidential connection between a piece of evidence reported by a witness and a corresponding belief, while nonetheless leaving that connection formally intact. Indeed, in the judge's final assessment, the defeating evidence elicited through cross-examination is compared and weighed against the initial testimony, rather than automatically nullified by it.

Fourth, the kind of defeat involved in legal cross-examination is focused on the subject who produced the evidence and the related belief that this evidence supports, rather than on the object of the belief itself. Legal cross-examination aims primarily at assessing the means, tools, and abilities that led to the production of a given piece of evidence, without focusing on what is the object of this belief. Take again our fictional toy case of a cross-examination that attacks an eye-witness report of a crime due to poor lightning conditions at the time of the observation. This kind of defeat is entirely object-independent, in the sense that, if the lighting was indeed poor, such evidence would undermine both a report supporting the defendant's guilt and a report supporting their innocence.

Taken together, these features show that the defeat brought about by a successful legal cross-examination shares all the hallmarks of HOD (cf. Christensen, 2010; DiPaolo, 2018; Feldman, 2005, 2009; Lasonen-Aarnio, 2014; Schechter, 2013; Worsnip, 2018): it is indirect, retrospective, preserves the original evidential connection, and is object-independent. In light of all these properties, we can identify the main epistemic goal of legal cross-examination in the HOD of the evidence produced by a witness's report and revise our abstract epistemological

model of a legal proceeding accordingly:

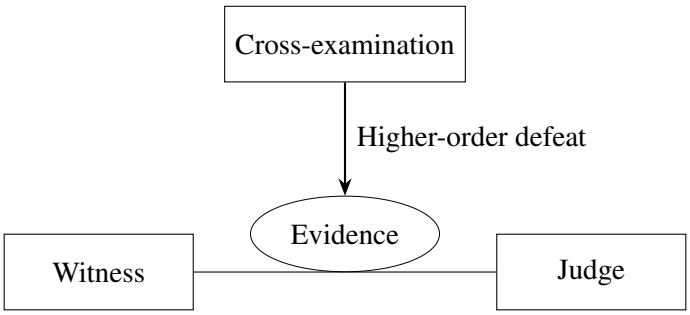

Figure 3: A simplified schema of cross-examination in legal proceedings, in which is highlighted the main goal of cross-examination, i.e., higher-order defeat.

Now that we have seen how the main goal of cross-examination exhibits all the distinctive features of HOD, we can ask ourselves: how does such a defeat occur in the case of cross-examination? What is the mechanism by virtue of which a successful cross-examination defeats a certain belief? Does it bear some resemblance to the ones discussed by contemporary epistemologists, as outlined in Section 2? To understand this, we will look at some straightforward, codified examples of successful cross-examinations, referencing well-known legal cases across multiple jurisdictions. We will see that the epistemic mechanisms at play in these cases are close analogs of the mechanisms postulated by contemporary epistemology for understanding HOD, namely, bracketing, undercutting, outweighing, and evidence dispossessing. To structure our discussion, we will focus on one proposed mechanism of HOD at a time, beginning with bracketing.

BRACKETING. The mechanism of bracketing wants HOD to occur by setting aside some of the first-order evidence originally gathered by a certain agent (see Christensen, 2010). Can we find this bracketing mechanism at work in some instances of legal cross-examination? The answer seems to be clearly affirmative. Indeed, in some successful instances of cross-examination certain pieces of evidence got set aside in an extremely literal way. Think for instance of a (quite common) situation where a judge decides that a certain testimony cannot be counted as evidence in the trial, due to the fact that a successful cross-examination highlighted the extremely poor lighting in which the witness allegedly observed something. In this case, the judge is literally setting aside a certain piece of evidence, as a result of a cross-examination and the underlying HOD.

A notable real-world example of this mechanism is found in the English case *R v. Turnbull* (1977).[9] In this case, the defendant was accused of robbery based largely on the identification made by a witness who observed the suspect under dim streetlights. During cross-examination, the defense brought out that the witness's ability to identify the defendant was impaired by

[9] *Reg. v. Turnbull* [1977] Q.B. 224.

the poor lighting conditions at the scene of the crime, the brief duration of the observation, and the distance between the witness and the accused. The defense effectively argued that the identification was unreliable due to these factors. In response, the judge instructed the jury to treat the witness's testimony with caution, warning of the risks of mistaken identity. The judge emphasized that the conditions under which the identification was made cast serious doubt on its accuracy, effectively setting aside the weight of that piece of evidence. This case became a landmark in English criminal law, leading to the formulation of the so-called 'Turnbull guidelines,' which require careful judicial directions in cases relying on eyewitness identification (for further analysis on the case and its influence, see Roberts & Zuckerman, 2010; Robson, 2018).

UNDERCUTTING. The mechanism of undercutting frames HOD as a specific case of an undercutting defeat (see Feldman, 2005; Skipper, 2019). According to this view, HOE defeats first-order evidence by "cutting" the original evidential relation between this evidence and a given belief. It is not difficult to find examples of legal cross-examination that can be naturally described as instances of undercutting. For instance, take the (alas) many cases of cross-examination that exposed that seemingly genuine confessions were in fact coerced by law-enforcement authorities. In such instances, the higher-order evidence about the circumstances of the confession speaks against the belief (that the defendant is guilty) not by directly disproving it, but by undermining the evidential connection between that belief and the supporting evidence (i.e., the confession). Similarly, a belief in the defendant's guilt based on a witness's statement can be undermined during cross-examination if significant inconsistencies emerge in the testimony. In such cases, effective cross-examination weakens the evidential connection between the testimony and the resulting belief in guilt.

As an example to highlight the mechanism of undercutting defeat, we can consider the so-called "Colmenares case," one of the most famous murder mysteries to shake up Colombia and beyond in the past twenty years.[10] The Colmenares case revolves around the mysterious death of a university student, Luis Andrés Colmenares, in Bogotá, Colombia, on October 31, 2010. Colmenares was found dead under suspicious circumstances after attending a Halloween party. Initially reported as an accidental drowning in a park drain, the case took a crucial turn when new witnesses and forensic analysis on the body suggested possible homicide of Luis Colmenares.

Two fellow students, Laura Moreno and Jessy Quintero, were accused of orchestrating his murder. Supporting the prosecution's theory were three witnesses (Wílmer Ayola, Jonathan Martínez, and Jesús Alberto Martínez) who testified that they had witnessed an assault on Luis

[10]Juzgados, Sentencia 11001600000201200141 (165303), Feb. 20/17. The trial attracted national attention due to its complexity, conflicting testimonies, and high media coverage. The case was turned into a Netflix Crime Diaries series, first released in May 2019. The final judgment in the Colmenares case has not yet been issued. In June 2024, the Colombian Supreme Court accepted the appeal against the acquittal of Laura Moreno and Jessy Quintero. This means the Court will review the 2021 decision of the Bogotá Superior Court, which had acquitted both women on the grounds of reasonable doubt, concluding that the prosecution had failed to prove either the murder or the defendants' liability.

that night. Ayola's report, in particular, claimed that Luis was attacked by a group of people, implicating Laura Moreno and Jessy Quintero as being involved in the incident. According to Ayola's account, Luis's death was not an accident but the result of violence, casting suspicion on those who had been with him that night. Ayola even detailed how Carlos Cárdenas (Laura Moreno's ex-boyfriend) allegedly hit Colmenares in the head with a glass bottle. This was one of the theories the Prosecutor's Office used to pursue charges against the three young university students.

During cross-examination, the defense heavily undermined Ayola's credibility and pointed out the lack of direct evidence tying their clients to an assault. They portrayed Laura and Jessy as innocent witnesses unfairly implicated in the case, maintaining that Luis's death was accidental. For example, the defendants' lawyer presented evidence that Ayola worked as a security guard in a building complex far from the site of the events, and that records proved he was on duty there that night. The defense also revealed contradictions between his account and independent sources, such as CCTV footage and forensic reports.

Wílmer Ayola's testimony offers a vivid illustration of how higher-order evidence can disrupt the evidential connection between first-order evidence (FOE) and a belief in the suspects' guilt. Initially, Ayola's detailed witness statement appeared to lend strong support to the prosecution's theory that Colmenares had been murdered by his fellow students. His observational account functioned as compelling FOE pointing toward guilt. However, this connection began to unravel during cross-examination, when significant inconsistencies in Ayola's timeline, memory, and motivations were exposed. These discrepancies acted as HOE, casting doubt on Ayola's credibility and, in turn, "cutting" the evidential connection between his testimony and the belief it initially supported. In this way, successfull cross-examination can undercut the epistemic force of the original FOE.

OUTWEIGHING. The mechanism of outweighing want HOD to occur when the reasons produced by the HOE for the epistemic disvalue of a given belief outweigh, in a reasoner's mind, the reasons that FOE produced in favor of the same belief (see DiPaolo, 2018). According to this view, then, HOE acts as an independent reasons-giving factor in the relevant decisional process. Indeed, judges seem to sometimes treat the evidence produced by cross-examination exactly like an independent source of reasons in the proceeding. In fact, in the judge's final statement, we can often find traces of the decision process through which the judge was brought by a successful cross-examination to change their mind on the defendant's guilt. These traces reveal that judges sometimes describe this change of mind as a result of the bigger weight of the reasons given by the cross-examination in comparison to the reasons produced by the original witness's report. In this way, some instances of cross-examination defeat arguably exemplify an outweigh mechanism in which HOE-induced reasons defeat the reasons produced by FOE.

One of the most emblematic examples of higher-order defeat by outweighing occurred dur-

ing the 1995 trial of O.J. Simpson, particularly in the cross-examination of Detective Mark Fuhrman.[11] Fuhrman had been a central figure for the prosecution: he discovered the infamous bloody glove on Simpson's estate, a piece of evidence that directly connected Simpson to the scene. Initially, the first-order evidence was straightforward and incriminating – a glove with Simpson's blood, Nicole Brown's blood, and Ron Goldman's blood. Yet, the defense team strategically attacked not the glove itself but the credibility of its discoverer. During cross-examination, Fuhrman was asked repeatedly whether he had ever used racial slurs, specifically the N-word. He categorically denied it under oath. However, the defense had tapes in which Fuhrman used exactly that language, repeatedly and hatefully, in contexts suggesting deep racial animus. This contradiction not only undermined Fuhrman's personal credibility but also introduced higher-order evidence, which carried greater epistemic weight than the reasons supporting his original testimony. In the jury's mind, the reasons to doubt the integrity of the evidence (via HOE) outweighed the original reasons to believe in its probative value (via FOE). This is a clear-cut case of HOD through outweighing, where the judge or jury does not necessarily disbelieve the content of a testimony or evidence, but rather assigns more epistemic weight to the reasons to distrust it.

EVIDENCE DISPOSSESSING The mechanism of evidence dispossession wants HOD to happen by determining a loss of epistemic competence in an agent (see González de Prado, 2020; Greco, 2019). Specifically, according to this view, upon receiving disconfirming HOE, an agent is not able anymore to treat a given piece of evidence as evidence in favor of a given belief. Even for this fourth alleged mechanism of HOD, we can find some instances of legal cross-examination that arguably exemplify it. Take for instance the case in which a cross-examination exposes the fact that a witness was very drunk or heavily intoxicated at the time of his reported observation. In such a case, the HOE produced by cross-examination strips, in the eyes of fact-finders, the witness of any epistemic competence in recollecting a certain scene or in judging whether and when they met a given person at a given place. Analogously, a paradigmatic guideline of cross-examination pushes lawyers to expose all the time in which witnesses' reports involve claims outside a witness's expertise, such as for instance claims about how mechanical things work or speculations about a person's feelings or mind-status at a given time. In all these cases, cross-examination defeats seem to work as a dispossessing defeat.

The so-called "Port Hope 8 case" involved eight members of the outlaw motorcycle club, Satan's Choice, who were charged in connection with the murder of William Matiyek in 1978 at a bar in Port Hope, Ontario.[12] The prosecution's theory was that the killing was planned and executed by several members of the club, making it a case of first-degree murder. Much

[11] *The People of the State of California v. Orenthal James Simpson* No. BA097211 (Cal. Super. Ct. Oct 3, 1995).

[12] Our account of the case is based on Lowe (2013).

of the prosecution's case hinged on testimonial evidence rather than physical proof. A central piece of this testimonial evidence came from David Gillispie, a witness who claimed to have overheard one of the accused making an incriminating statement shortly before the shooting. Specifically, he testified that he heard someone say: "Are we going to do it to this fat fucker now or what?" – a line that suggested clear premeditation.

During cross-examination, Gillispie's credibility was severely undermined. The defense revealed that Gillispie had been very drunk on the night of 18 October 1978, the night of the incident. Gillispie admitted that his memory of the night was hazy and clouded by alcohol, which explained why his statements had changed over time. Under questioning, he admitted to being heavily intoxicated, which he said impaired his ability to remember the events clearly. Furthermore, his initial statement to the police, made shortly after the incident, did not include the incriminating quote. This line only appeared in his later testimony, months after the fact. When asked why he had not mentioned it earlier, Gillispie attributed the omission and inconsistency to the effects of alcohol on his memory.

This seems to be a straightforward example of higher-order evidence-dispossessing defeat. The cross-examination produced evidence to doubt Gillispie's epistemic competence, namely, his ability to accurately observe and recall events on the basis of his alcohol intoxication. The HOE (produced by the cross-examination) casted doubt on his capacity to reliably report anything at all from that night. In the eyes of the court, this stripped his testimony of much of its probative value, and weakened the prosecution's narrative of premeditation.

Our brief analysis of whether and how the different characterizations of HOD proposed by epistemologists can describe cross-examination defeat has shown the variety of ways in which a successful cross-examination can defeat the first-order evidence provided by a witness's report. In particular, we saw that cross-examination defeat can function as a bracketing defeater, an undercutting defeater, an outweighing defeater, and also as a dispossessing defeater.

Two general implications for the epistemology of higher-order evidence can be drawn from this analysis. First, our analysis of legal cross-examination through the lenses of HOE gives us a new, independent argument for the reality and significance of higher-order evidence and higher-order defeat as epistemic phenomena. Regardless in fact of any theoretical, formal or informal reasons one might have for denying the existence of HOE and HOD, the fact that an established legal practice like cross-examination arguably has HOD as its primary epistemic goal provides an independent justification for recognizing the reality and significance of this phenomenon. This justification is, of course, not an indefeasible one, as our characterization of HOD as the main goal of legal cross-examination is a philosophical one and, we are sure, will not by itself suffice to convince the skeptics of HOE. Nevertheless, our analysis puts pressure on deniers of the reality of higher-order evidence and higher-order defeat to come up with an appropriate explanation of why an established legal practice such as cross-examination seems so aptly described as centered around the higher-order defeat of a witness's testimony.

The second implication for epistemological discussions over HOE that can be drawn from our analysis is a *prima facie* case for a pluralistic understanding of the mechanisms behind HOD. In fact, all four mechanisms that can be found in contemporary epistemological literature seem to aptly describe some paradigmatic cases of successful legal cross-examination. More precisely, different instances of cross-examination seem more appropriately described by different mechanisms.

The fact that each of the proposed HOD mechanism can describe only a proper subset of cases of legal cross-examination, and the related pluralistic understanding of the working of HOD that these findings prompt, can be considered either a real epistemic phenomenon or just a temporary byproduct of the lack of a very good theory of higher-order defeat. In the former case, which we can call *real pluralism*, one can interpret these findings as evidence for the existence of an actual plurality of independent mechanisms by virtue of which higher-order evidence is able to defeat first-order. From this perspective, the variety of mechanisms that instances of cross-examination seem to exhibit is a real feature of higher-order defeat as an epistemic phenomenon. Alternatively, enthusiasts of a one-size-fits-all theory of higher-order defeat can interpret this apparent plurality of HOD mechanisms in a different way, which we can call *apparent pluralism*. According to this latter view, such an alleged variety of mechanisms of HOD exhibited by instances of cross-examination should be considered evidence against the tenability of any of the four mechanisms available in the epistemological literature, which are evidently not general enough in character. From this perspective, then, this pluralism of mechanisms is only an apparent one, since it does not represent an actual feature of higher-order defeat as an epistemic phenomenon, but rather a byproduct of our poor present understanding of the mechanisms behind this phenomenon. Whichever interpretation of the implications of our analysis one favors, the analysis of cases of legal cross-examination represents a natural testing ground for theories of higher-order defeat, both present and future ones.

5 Conclusion

Let us recap the main steps of this paper. We started by presenting the contemporary epistemological discussion over higher-order evidence. In particular, we recalled the distinctive features that higher-order defeat arguably possesses and four possible mechanisms behind this epistemic phenomenon. Then, we took a detour in legal epistemology, where we analyzed the specific role that the practice of legal cross-examination plays in legal proceedings, i.e., the tentative undermining of witness testimony. Finally, in Section 4, we presented our positive proposal of understanding the main aim of legal cross-examination as a case of higher-order defeat. Specifically, we first showed that the kind of defeat that a successful cross-examination exemplifies possesses all the distinctive features of higher-order defeat. Moreover, we demonstrated how all four possible mechanisms of higher-order defeat discussed in the epistemological literature

can be applied to bear on specific cases of legal cross-examination.

Our characterization of legal cross-examination as an epistemic practice centered around higher-order evidence and higher-order defeat shows the significance of higher-order evidence as an epistemic phenomenon and opens a whole new world of possible applications and case studies for epistemologists. It also makes a case for a pluralist understanding of the functioning of higher-order defeat, showing how different mechanisms seem apt to describe different examples of cross-examination. More generally, our analysis highlights one more time why legal proceedings represent an excellent testing ground for epistemological theories. The nature and scope of legal proceedings, in fact, presents us with an epistemological situation in which the main components for belief-formation are externalized and divided between the many different parties and moments of legal proceedings. As such, this externalization and division of a belief-forming process allows a more fine-grained analysis of the different components and phenomena that compose the process of forming (and defeating) a belief, as we have seen in this paper.

Naturally, much more work has to be done to understand the nature and scope of higher-order evidence and all the implications that accepting the existence of higher-order defeat might have on our received epistemological views. We are confident that the study of legal cross-examination can offer much help in advancing our understanding of these topics.

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