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All the truth?

Relevance and testimonial reliability

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Abstract

This paper argues for the importance of the relevance of testimony for its evidential value. When testimony is used as a source of knowledge, the primary expectation is that it is credible. Indeed, what matters first and foremost is whether the content of a testimony is true. However, this is not sufficient for testimony to serve as reliable evidence - that is, evidence on which one can build safely and efficiently in order to make progress in one's epistemic inquiry. By studying testimony within the framework of evidential reasoning under uncertainty - with a focus on the figure of the fact-finder in criminal investigations and trials - this paper explores the complexity and subtlety of the inferential processes that agents draw from information conveyed by others. Through an exploration of the notion of epistemic relevance, as inspired by common law scholarship on criminal evidence, it shows that the complexity inherent in uncertain evidential reasoning is multiplied by the pragmatic aspects of human communication. Detailed analysis of examples drawn from a fictional case highlights the many possible routes to genuine error that can arise from misunderstandings about the relevance of true and honest testimony - and thus opens up as many routes to intentional deception.

1. Introduction

Testimonial evidence is key to most of our life's decisions. From deciding whether to take our umbrella to voting on pesticide regulation policy or finding an accused guilty, we crucially rely on information provided by others. Clarifying the conditions of reliability for testimonial reports is thus a major epistemological task, to which this paper aims to contribute.

Epistemological reflections on the reliability of testimony usually focus on issues about the veracity of isolated statements: what entitles me to hold as true a given content on the basis of someone else's words (Coady 1973, Burge 1993)? Similarly, philosophical discussions on the norms of assertion (Williamson 1996, Lackey 2007) typically ask whether a speaker must know that p – or merely believe it – to legitimately assert it. Epistemic trustworthiness is therefore thought of in terms of sincerity and competence as norms for speaking truthfully – that is, telling the truth (Hawley 2019, chap. 3).

In this paper, I argue that testimonial reliability does not reduce to veracity or accuracy issues, but that the reports' relevance is as important as their credibility. To make this clear, I analyse the use of testimonial evidence in the context of judges' or jurors' fact-finding in criminal trials – which I take as exemplary of complex evidential reasoning. Evidential reasoning is a common, though potentially very complex, cognitive activity, which consists of using a set of evidential items to reach a conclusion regarding matters of fact, as a basis for action. As such, it involves combining, and drawing inferences between a whole series of propositions, rather than just deciding whether an isolated statement is true. Surely, truth matters; but the dynamics of evidential reasoning, as well as its decisional goal, does not reduce to accepting or rejecting isolated statements. It rather consists in putting them to work within a whole inferential network. And the success of such work depends as much on the relevance of evidence, as on its credibility. This paper explores the implications of the key role of relevance in evidential reasoning for testimonial reliability – and for the various possible sources of testimonial failure, both inside, and outside the courtroom.

Section 2 introduces the basic distinction between the credibility and the relevance of a piece of evidence, and shows that the probative force – or evidential value – of a testimonial report depends on both; although testimonial reliability *prima facie* seems to have to do with credibility, I therefore advocate a richer conception of reliability, whereby relevance is part of what makes a report reliable – and its source trustworthy¹. Section 3 further explores the notion of relevance, through (fictional) examples of courtroom testimony, displaying its protean aspects, and its dependence on the context and on the reasoner's perspective. Section 4 draws the consequences of such aspects of relevance for testimony as a communicational event, showing the various sources for testimonial misleadingness due to relevance issues specifically. Section 5 explores some consequences of those considerations for outside the court testimony – particularly the role of expert reports in informing decision-makers.

¹ I apply 'reliability' to the reports themselves, and 'trustworthiness' to people (the reports' sources). While this paper is concerned with reliability, it incidentally touches on trustworthiness.

2. Credibility and relevance of testimonial evidence

Courtroom witness reports are paradigmatic of formal testimony in the sense of Audi's (1997) distinction, where informal testimony corresponds to any situation of "saying or affirming something in an apparent attempt to convey (correct) information" (405). Such informal testimony in its most general form – namely when there are no specific, *prima facie*, reasons to doubt – is the main focus of the epistemological study of our warrants for trusting others' words (Coady 1973, Burge 1993, Fricker 1995). But, whatever the answer regarding basic, per default trust be, it is clear that in many real-life situations, we do have reasons to doubt the words of others. Courtroom testimony – as formal testimony *par excellence* – offers us a magnifying glass for studying what such reasons might be. Indeed, in this context, every possible reason *not to trust* the witness' words is to be scrutinised – typically through cross-examination.

In order to clarify what makes a testimonial report in court reliable, I first ask what it means for a fact-finder (judge or juror) in court to rely on a piece of testimony (2.1) before introducing the basic distinction between relevance and credibility (2.2). My main point is that the **reliability** of a piece of testimony does not reduce to credibility but somehow includes relevance.

2.1 Complex evidential reasoning: What does reliance on a piece of testimony imply?

Consider a witness in a murder case testifying that she saw the defendant at some restaurant, a few hours before the supposed time of the murder. Clearly, one major question the judge or juror must raise is whether the witness tells the truth – whether the reported event really took place. However, *relying* on a report within the fact-finding endeavour does not reduce to accepting its propositional content as true; taken in isolation and for itself, the fact that the witness actually saw the defendant in that restaurant at that time is not of much interest. Rather, judges and jurors have to combine this with other information about the case, so as to draw a series of inferences that lead to some conclusion about the major issue under examination, namely the defendant's guilt.

This is what evidential reasoning consists of: combining a whole set of evidential items so as to reach a conclusion about some hypothesis that may be more or less remotely, and indirectly, connected to each of those items. Whether the hypothesis is already well-defined, as it is in court ('Has Mrs X intentionally stabbed Mrs Y to death?'), or still to be formulated, as it is in the first stages of police inquiry ('What exactly happened, and who did this?'), the search for an answer to such questions provides the framework for the whole reasoning process. In the following, I will be focusing on cases where the hypothesis under examination is well-defined (like it is in court).

In such a framework, any evidential item may help the fact-finder make some progress in her inquiry. However (except in the case of direct eyewitness testimony) no item taken in isolation provides an answer to the main question. Thus, reliance on a testimonial report has to be thought of very literally as *building on* evidential blocks – or rather as weaving an inferential network through forging ties between several evidential nodes. In such complex evidential reasoning contexts, the evidential value – or probative force² – of a piece of testimony does not reduce to its credibility: not only must a report be credible, but it must also allow for inferences that more or less directly

² I take the two phrases as equivalent.

impact the plausibility of the major hypothesis under examination. A piece of information that would undoubtedly be true but totally disconnected from the case would not count as evidence at all. Such “connection” to the case – that the fact finder has to establish through reasoning and argumentation – is what relevance amounts to.

2.2 Relevance and credibility – definitions

Relevance and credibility are key notions in the Common law of evidence. Typically, the evaluation of credibility is left to the jury, while relevance is supposed to be controlled beforehand by the judge.³ Building on the legal construal of these notions, David Schum (1994) has proposed a detailed structural analysis of evidential reasoning as centred on those two dimensions of evidential value. The following presentation is inspired by his views.

Relevance

Leaving aside the characterisation and implications of relevance in Common Law proceedings, I will focus on the epistemological⁴ definition of evidential relevance.⁵ A piece of testimony, as well as any piece of evidence, is relevant with regard to a given hypothesis if it is likely to impact on the appraisal of its plausibility. A witness’ testifying that the accused was seen at a great distance from the crime scene five minutes before the supposed time of the assault sounds highly relevant. On the other hand, the weather in London on the day of the Queen’s death is *prima facie* less obviously so. In brief, the relevance of a testimonial report corresponds to the inferential bearing of one’s knowledge (or acceptance) of the reported event for one’s appraisal of the hypothesis at stake.

Following David Schum, let me note ***E**** a given piece of testimony – part of a witness’ report. ***E**** itself is an event – a witness’ uttering some words (e.g. ‘I saw the defendant in the supermarket at 2pm on Saturday’) in a given context – or rather my (the recipient) own perception thereof. The relevance of ***E**** (the report), which is part of its value as evidence, depends on the inferential bearing of my acceptance of ***E*** (its propositional content – that the witness saw the defendant in the supermarket at 2pm on Saturday) for ***H*** (the guilt hypothesis). If knowing that ***E*** matters to evaluating whether ***H***, then ***E**** is relevant.

Credibility

However relevant it is, a testimonial report still has to be true to be reliable⁶. If wrong, the information that the defendant was seen in the supermarket should not count as evidence – it should not be attributed any probative value. Although ***E*** is either true or false, the fact-finder

³ The judge may exclude irrelevant evidence, as well as evidence whose relevance the jury may misinterpret (such as character, or criminal record evidence). Such “intrinsic exclusionary rules” (Damaška 1997) do not exist in continental law.

⁴ Common law definitions of relevance (as part of the criteria for evidence admissibility) are already epistemic – rather than legal – in character. As Roberts & Zuckerman (2010) summarise, “relevance is a function of what you want to know and why you want to know it” (99). Interestingly, in French law, the notion of relevance is strictly juridical.

⁵ Relevance is also a key notion in linguistic pragmatics (Sperber & Wilson 1986). While this notion of relevance is close to the one studied here, I suggest that then reader forgets it for some time, as my approach to it is epistemic rather than linguistic and may be confusing for someone with linguistic discussions in mind. Echoes of this distinction will be found in 4.2.

⁶ More rigorously, whatever the inferential bearing of my acceptance of ***E*** for my appraisal of the plausibility of ***H***, ***E*** needs to be true for ***E**** to be reliable.

cannot reach full certainty about it. Hence, he must assess the report's (E^*) credibility – namely the extent to which this report, as a testimonial event, provides good reasons to accept its propositional content (that the reported event took place). The credibility of E^* is a measure of whether, and how much E^* can be taken as a reason to believe, or accept⁷, E .

One major component of a report's credibility are the credentials of the source itself, which are traditionally construed in terms of her sincerity or good faith (her willingness to tell the truth) and her competence (her likeliness to know the truth) in the matter at stake. The testimony of an ill-intended person, or of someone unable to reliably account for reality (for instance, a deaf person reporting what she heard)⁸ is valueless, however relevant, simply because it is likely to be inaccurate. Source credibility is not the only component of a report's credibility, though. As Schum (1994) notes, the recipient's ability to properly perceive and understand the witness' words are also part of it. In this paper, I am primarily interested in the credibility (and more generally reliability) of reports themselves, as communicational events, than on source credibility (or trustworthiness), although my exploration raises issues regarding the definition of the latter's extension (more on this in section 4.2).

It is worth noting that the credibility of a report is only one element among others of the acceptability or believability of its content, which also depends, at least, on such content's plausibility.⁹ This is crucial for evidential reasoning – as very often, further information, through confirming or disconfirming a given E , may impact on one's evaluation of the credibility of a source reporting on E .

Let me sum up the relevance / credibility distinction. Relevance of E^* is a measure of the inferential bearing of (my acceptance or belief of) E for (my evaluation of the plausibility of) H . Credibility of E^* is a measure of the support of E^* for E . Both may be expressed in probabilistic terms, as a piece of testimony is (most of the time) more or less relevant, and more or less credible.

⁷ Credibility is graded, as inference from E^* to E can only be expressed in probabilistic terms. Under a conception of belief as graded, E^* can only warrant an increase (or decrease) of one's degree of belief in E , rather than its outright acceptance. However, in criminal inquiry and proceedings as in any decisional context, judges and jurors may sometimes accept some propositions outright; in the end, the guilt hypothesis has to be accepted, in the sense that the jury has to act thereupon by convicting the defendant. See Vorms & Hahn 2019.

⁸ As this example suggests, there is no clear-cut boundary between benevolence and competence, but rather a whole spectrum from intentional lie to sincere error: a deaf person's testifying about what she heard may be considered incompetent, but also insincere, since she should not report scenes, she knows she may have misperceived. This is echoed in Schum's (1994, chap. 3) tripartition for the components of a source's credibility: observational sensitivity or accuracy (perceptual ability to access the reported scene), objectivity (ability to correctly interpret – and remember the perceived scene), and veracity or truthfulness (intention to accurately report it).

⁹ See Bovens & Hartman 2003 for Bayesian models of the effect of argument content on perceived source's credibility. See Hahn et al. 2009 for a psychological study of their interaction.

3. More on relevance – an example

In this section, I further explore the relevance of testimonial evidence, and show that it depends on the rest of the available evidence and on the reasoner himself; it has to be apprehended within an inferential network that is dynamical, as well as context- and agent-dependent. I will concentrate on a few examples that are freely inspired from the plot of Agatha Christie's *Witness for the prosecution*¹⁰.

3.1 *The plot*

Leonard Vole, a poor and handsome young man, is accused of murdering Miss French, an old, single and rich lady. Before her violent death (by stabbing), he had been visiting her frequently for a few weeks after their first meeting. Vole acknowledges those frequent visits to that lonely old lady who had befriended him after his rescuing her and her parcels in a crowded street. Crucially, a few days before the murder, she had changed her will, leaving her whole fortune to Vole. This is only one (crucial) piece of incriminating evidence among many others.

Janet McKenzie, the lady's maid, had her night out when her mistress was killed. She testifies in court that she however happened to return and fetch something before leaving again at 9:25pm. She reports having heard voices from the sitting-room on this occasion, and positively recognised her mistress' and the accused's voices – without entering the room. But Vole, who acknowledges having visited Miss French on that evening (precisely because, Janet being out, he thought the lady might feel lonely), claims that he left at nine o'clock and went back home before 9:25pm – as his loving wife shall testify.

3.2 *The relevance of Janet's words: 'I heard Vole's voice'*

Consider this part of the maid's testimony: "At 9:25pm, while passing by the door of the living room, I heard my mistress' as well as M. Vole's voices" (**E***). To what extent, and in what sense is this relevant to evaluate the plausibility of **H**, namely the hypothesis that Vole murdered Miss French?

Obviously, it is relevant because **E**, namely Janet's hearing Vole's voice, is a good reason to infer the physical presence of Vole at Miss French's (let me note it **F**). However, it is worth noting that **F** provides no conclusive evidence of his having murdered her (**H**). Actually, only direct evidence in the strictest sense may be conclusive by itself – provided it is credible. Direct evidence can be defined as any evidential item whose propositional content *is* the main hypothesis (**E** \Leftrightarrow **H**); strictly speaking, only confessions and eyewitness testimony can count as such. Assuming they are credible, they directly provide an answer to the main question; they are, so to speak, maximally relevant. On the other hand, Janet's utterance is circumstantial evidence: it bears on other facts than the murder itself. These facts can be more or less directly and remotely connected to that event, but to reach any conclusion about Vole's guilt, one needs to draw a series of inferences, each of which is uncertain and defeasible.

¹⁰ Christie's short story (1933) was adapted for the stage in 1953.

Furthermore, taken in isolation, Janet's report is not overwhelmingly incriminating. It is more so than exculpatory, as it provides 'opportunity' evidence, making possible for Vole to have murdered French, as opposed to alibi evidence that would rule out such possibility. But it is by no way sufficient in itself to conclude, even with relative confidence, that **H** is true. One must know more about the case, particularly about Vole's habits – if he used to often visit French in the evenings, Janet's utterance is less incriminating than if this visit was exceptionally late. Now, imagine further evidence would suggest that French was assaulted after 10:30 pm, and that Vole was back home at 10 pm; information about where he was at 9:30 pm would no longer be relevant – at least not in the way it originally seemed to be.

In the present case, Janet's report is highly relevant – and incriminating – for several reasons. Despite Vole's giving his own account of the reasons why he visited French on Janet's night out, the fact that he could not be in a position to anticipate Janet's brief return points towards a very plausible and coherent incriminating story. Even more crucially, Vole's whole defense rests on the claim that he left at 9 pm. Janet's testimony (if judged credible) therefore deprives him from his alibi – and, incidentally, suggests that Vole lies, thus lessening his overall credibility.

Even so, Janet's report is still compatible with Vole's innocence: it is possible that Vole lies, that he was present at French's at 9:25 pm, but that he nevertheless did not murder her. Imagine, for instance, he had other guilty or shameful plans he cannot mention. Or else imagine Vole, knowing that French was under threat due to some dirty business, had come to protect her against her assailants (hence his presence would be exculpatory!) but failed to do so and would be in danger himself if he told the truth. Of course, this fanciful scenario is not backed by any available evidence (and not proposed by the defense). But considering it helps highlighting a key aspect of the relevance of a piece of testimony, namely that it depends on the whole set of evidence items provided by the prosecution as well as by the defense, and cannot be assessed in isolation. Furthermore, it shows that the relevance of any item may dramatically change, both in force and in direction (incriminating evidence may turn into exculpatory evidence and vice-versa) through the introduction of new items, or even through mere reorganisation of the whole network within a different story.

3.3 A hierarchised and dynamical network of inferences

Marshaling evidence in fact-finding may be a highly complex task. Both from an epistemological and a practical perspective, it may be helpful to represent evidential reasoning as a network – whereby each node is a proposition between which the reasoner forges inferential ties. Each tie represents a more or less risky inferential step, which may be directly (linearly) orientated towards the main conclusion, or else just play the role of “ancillary” evidence (Schum 1994, chap. 3) - informing us about the credibility, or impacting the relevance, of another node.¹¹ For instance,

¹¹ There have been several attempts to design graphical methods to help and control evidential reasoning, in the line of Wigmore's (1937) charts. Whereas there is little hope to come up with more than idiosyncratic doodles, those may be useful. Representing networks of inference like Schum (1994, e.g. fig. 3.10, p. 113) with arrows between propositions is a useful way to make explicit every step. Alternatively, Dave Lagnado's (2022, chap. 10) “idiom-based approach” is an attempt to use qualitative Bayes nets to aid evidential reasoning while encapsulating conditional dependencies. While Schum's arrows represent inferences between propositions, Lagnado's arrows express conditional dependencies (and rather correspond to the causal direction). See Lagnado (2022, fig. 10.36, p. 256) for a complete Bayes net of the plot of *Witness for the prosecution*.

evidence that Janet hates Vole, and that she used to be French's unique beneficiary until she changed her will, does not constitute a node on a linear inferential route towards the main conclusion – rather, it is relevant evidence insofar as it lessens the credibility of Janet's report (as does the defense's exposing her deafness).

Moreover, such an inferential network is dynamical: introduction or removal of a piece of evidence, or forging of a new tie, may change the evidential value of any node. Consider another piece of Janet's report, where she says that her mistress informed her that she had told Vole of her intentions of changing her will in his favour. This is relevant insofar as it provides Vole with some motive (but there are several inferential steps from this to his guilt). Suppose that, during the hearing, Vole admits of his knowing of French's plans; the relevance of Janet's words would thence become irrelevant to the jury, as its inferential import would be redundant with Vole's claim.¹² Suppose now we learn that Miss French had not finally changed her will; Janet's report would thus become relevant for different reasons, suggesting that Miss French had obscure plans, and was a manipulative person. Such information would definitely be of some relevance to understanding what happened, and ultimately to assess the plausibility of Vole's having murdered French, but only through some complex inferential path. This shows that any piece of information is susceptible to lose or gain relevance, depending on the rest of the network – even London weather on the Queen's death may become key; this is why crime stories are so fascinating.

3.4 Implicit generalisations and the reasoner's perspective

Any testimonial report, although its relevance (as intended by the witness) may seem quite obvious, may also support a wealth of different inferences. Those depend on one's information on the case, perspective, prior beliefs, background knowledge and expertise.

Empirical generalisations and defeasible inferences

As mentioned before, each inferential link between two nodes is uncertain, and risky. Beside logical contradictions or tautologies, no inference is 100% wrong or right. As any inductive step, inference from evidence relies on implicit, empirical generalisations, which may be more or less conscious, explicit, and controversial. Whether they are drawn from common knowledge¹³ ('it is unlikely to rain when the sky is blue', 'an old lady cannot carry a heavy load'), statistically established regularities ('most blood crimes are perpetrated by victims' relatives'), personal experience ('it is unlikely that a tourist would stroll this murky area of my hometown'), or scientific knowledge, such generalisations provide the ground for a major part of evidential reasoning in court. Depending on the context – the stakes, as well as the overall plausibility of the conclusion –, questioning the implicit hypothesis warranting a given inference (e.g., from mobile phone geolocation to its proprietary' localisation) may appear as a mark of undue skepticism, or else as prudent, reasonable doubt.

The reasoner's perspective

¹² It may also happen that a piece of evidence's relevance is cancelled – or decreased – through explaining away (imagine Miss French had specifically invited Vole that evening: this would lessen the relevance of his choosing Janet's day out for visiting French).

¹³ "Our legal system supposes that we all have a stock of common-sense generalisations that we can apply in inferences from evidence given at trial" (Schum, 1994, 24).

Moreover, even though some generalizations are uncontroversially better warranted than others, there can be different views on what to draw from such or such piece of evidence. Depending on one's own personal experience, prior beliefs, as well as background knowledge and expertise, one may be able, or prone, to draw inferences – or to defeat them – differently from others.

Here is another example from Christie's play. Vole claims that he frequently visited French to help her with her business affairs. Janet, however, claims that French was an excellent business-woman and had no need of such help whatsoever. One may account for this situation in different ways, sending these two reports back-to-back, and either (moderately) lessening one's evaluation of the credibility of both, or taking one of them to be highly credible, thus dramatically lessening the credibility of the other¹⁴ (which indirectly reinforces the innocence or guilt hypothesis). In Christie's short story, Vole's lawyer takes a different stance. Being convinced of Vole's innocence, but also of Janet's sincerity, he conjectures that it was in fact Miss French who manipulated Vole:

He knew something of the mentality of elderly ladies. He saw Miss French, infatuated with the good-looking young man, hunting about for pretexts that would bring him to the house. What more likely than that she should plead ignorance of business; and beg him to help her with her money affairs? (Christie, 1933)

Both his prior beliefs on the case and his personal life experience, make him consider this as the best warranted organisation of the evidence.

These considerations do not amount to saying that there exists more than one right answer to the main question: it is either true or false that Vole murdered French. However, as evidential reasoning is uncertain, there is not one uniquely correct path towards the right answer. There are reasoning paths that are sounder – and there can be outright errors¹⁵ - but (beside logical rules), there are no hard, necessary rules for evidential reasoning, and any route is fallible. I will now explore the consequences of those aspects of relevance on testimonial reliability.

¹⁴ Such belief change patterns would easily be accounted for in Bayesian terms.

¹⁵ Such errors can range from plain logical contradiction to less obvious mistakes, such as double counting (two reports on the same incriminating event may reinforce its plausibility, but if they are merely redundant, this should not be counted as 'more' incriminating overall), or maintaining a proposition while its source has been discredited. This shows the interest of graphically representing reasoning (at least for oneself).

4. Relevance and testimonial misleadingness

Relevance, as we have just seen, is highly context- and agent-dependent. **This is true of the relevance of any piece of evidence – be it testimonial or not.** Testimony however is specific insofar it consists in a communicational act between two intentional agents.¹⁶ Human communication does not reduce to information transmission; as philosophers of language know well (Grice 1989), a speaker both conveys a propositional content and expresses a communicative intention. This has several implications for the reasoner's appraisal of the relevance of testimonial evidence. As we will now see, there are several routes for a testimonial report to be misleading – hence unreliable in the richest sense advocated here – while being entirely accurate. After clarifying my terminology and taking stock of the main points previously made, I will explore three different such routes.

4.1 Reliability, trustworthiness, misleadingness, and accountability

One major claim so far (section 2) is that a report's reliability in complex evidential reasoning situation does not reduce to its credibility, but somehow involves its relevance. Put negatively, a true report may be misleading for (ir)relevance reasons. Since relevance itself is labile and has to be apprehended within a complex, dynamical, and agent-dependent inferential network, such misleadingness may take various routes. Most of the present section is aimed at exploring those.

Note however that reliability and misleadingness so conceived (in the richest sense) are properties of a report, as a testimonial event. Such reliability obviously rests, for an important part, on some properties of its source (the witness). For such properties – which make a witness a likely source of reliable reports – I speak of 'trustworthiness', the latter word conveying some moral dimension reflecting the commitment, and accountability, of the speaker – and the legitimate expectations from the recipient (Hawley 2019). But, just like reliability, trustworthiness should include, at least to some extent, some relevance component. In other words, it seems that we may legitimately expect from a witness that she provides relevant evidence, and blame her for not doing so.¹⁷ However, things get tough when we acknowledge how much agent-dependent relevance is. How responsibility of relevance assessment is distributed among speaker and recipient is part of the difficult questions raised here. However, my main focus is on the various ways for a testimonial event to be misleading – whether this failure is attributable to the witness (intentionally or not) or to some other aspects of the communicational context. In fact, one main conclusion is that such boundaries are highly contextual – and far from clear-cut.

4.2 The relevance of testimony as an event: Romaine's testimony – spoiler alert!

For readers who know Christie's play – or the movie Billy Wilder drew from it (in 1957) –, my focus on Janet's testimony might have resulted disappointing. Indeed, the main trick of the plot relies on the character of Vole's wife Romaine – Christine (Marlene Dietrich) in the movie. Her

¹⁶ One could argue that any piece of evidence in court is testimonial in some way, as it is always presented as evidence of something (its "propositional content" – what it attests to).

¹⁷ This concerns any testimony-giver generally – not specifically sworn witnesses. Indeed, when witnesses take an oath, trustworthiness merges into legal accountability, which has to be very narrowly defined, as it provides criteria for characterising perjury. More on this below.

part masterfully exemplifies the complexity of the inferential dynamics of evidential reasoning, as she manipulates the jury through skillfully playing with relevance and credibility. Quite notably, she manages to severely mislead the jury while telling the truth. I will say a quick word of it – mostly as a way to make more precise the rest of my argument in the next sections. The reader who does not want to learn about the story’s outcome may directly jump to 4.2.

Vole’s wife, realising that the testimony of a loving wife is of little weight to exculpate her husband, chooses a different strategy: during the hearing, she is called as a witness for the prosecution – provoking a genuine *coup de théâtre*. Her report is overwhelmingly incriminating: she says that Vole came back late with bloody hands, proclaiming having just killed French. However, Romaine manoeuvres (outside of the court, under a false identity, she provides the defense lawyer with letters supposedly written by Romaine to her lover, revealing her Machiavellian plans) so as to discredit her own testimony, thus appearing as a terribly ill-intended, unfaithful woman, finally leading the jury to exculpate Vole. One savoursome aspect of the plot is that Romaine does not commit perjury: she tells the truth in the witness box (Vole is indeed guilty and she actually wrote the letters!). This is a great example of a highly misleading testimony with true reported content.

In Schum’s notation, E^* being Romaine’s testimony in the witness box, E (namely the propositional content of E^*) is true, as the corresponding events actually happened. If the credibility of E^* is defined as the support that E^* provides to E , the credibility of Romaine’s first report is very high: she was designated by Vole as a loving wife who would support his story. Her telling the exact opposite thereof makes, quite understandably, a strong effect on the jury, who holds E true at Romaine’s first appearance in the box. However, in a second time, when her testimony is itself discredited, the ‘swing of the pendulum’ is so strong that this trumps any other consideration. Indeed, what happens then is not primarily the input of new evidence showing the falsity of E , since nothing in the letters explicitly says that she lied in the witness box. Rather, it is E^* itself, as an ill-intended, unfaithful woman’s testimony, which acquires new relevance: true, E^* being discredited, the jury thinks E is wrong. But what primarily makes the strength – and the success – of Romaine’s strategy is that E^* itself – her incriminating testimony as an event – becomes a highly relevant piece of evidence. It earns the status of a node in the network, not as a support for E , but as an event that is of interest by itself – an event within the “story of the trial” (Lagnado and Gerstenberg 2017), by contrast with the story of the crime (to which E belongs). Discovering that the person whom the accused trusted most was in fact fooling him prompts the jurors to (unwarrantedly)¹⁸ reorganise their whole stance on the case. More generally, what this example forcefully shows is that a witness’ reporting a given content (e.g., lies) may itself, as an event, be relevant, beyond the reported content (especially if it is wrong). For more on this, and how these fascinating subtleties may be captured within Bayes nets, see (Lagnado, 2022, chap. 10). My focus on the following is rather on cases where it is the relevance of the content itself (E) that is at stake in evaluating the reliability – or misleadingness – of the report.

4.3 Reconsidering the boundary between credibility and relevance: what is the content of a report?

¹⁸ Per se, the fact that his wife was fooling him does not prove his innocence. See Lagnado and Harvey (2008) on the psychological impact of discredited evidence.

Prima facie, the boundary between credibility and relevance seems clear-cut. Credibility measures how much a report *E** warrants acceptance of its content *E*, while relevance measures how much acceptance of *E* may affect the evaluation of *H*'s plausibility. Both are defined by reference of the report's content (*E*). However, what is a report's content?

As philosophers of language know well, the content of an utterance is hard to capture without reference to the utterance's context. Let me borrow an example from Jennifer Saul's (2012). Imagine a hospital nurse, Fred, who hates Dave, a patient who vitally needs a certain dose of heart medicine. His colleague Ed, showing the bottle of heart medicine, asks Fred: "Has Dave had enough?", to which Fred replies "Dave's had enough". Since nothing in Fred's utterance explicitly designates the medicine, should we consider that he *says* that Dave has had enough of his medicine (in which case he is lying), or that he does not literally say so, and is merely misleading his colleague Ed – thus reserving the possibility to deny that he was referring to the medicine? I won't engage into such philosophy of language debate, but will draw a few remarks from this example.

As a preliminary, although Fred's intentional misleading is arguably¹⁹ as morally reprehensible as mere lying, it is worth acknowledging that courtroom testimony is not a 'normal' communication situation. They are expected to speak as precisely and explicitly as possible – and the very duty of judges, as well as lawyers (both for the prosecution and defense), involves "making sure that all responses are complete and appropriate, and fully disambiguated and recorded" (Saul, 2012, p. 96, herself drawing on Solan and Tiersma 2005). Such "division of responsibilities in the courtroom", according to Saul, is a good reason to endorse, for courtrooms specifically, McIntyre's (1994) view of a speaker's accountability, according to which "[her] duty is to assert only what is true and the mistaken inferences which others may draw from what [she] say[s] or what [she] do[es] are, in some cases at least, not [her] responsibility, but theirs" (MacIntyre 1994, 337, quoted in Saul, *ibid.*).²⁰ Moreover, following Saul as well as Solan and Tiersma, it leads to endorse a view of the literal content utterances – of which sworn witnesses are to be legally (as opposed to morally) held accountable – as narrow as possible.

While fully endorsing such a conception, I would like to make a distinction between different types of 'inferences' the audience may draw from a speaker's words. Fred's report *E** ("Dave's had enough") has a content *E* that needs specification, explication, but once this is done, this content *E* is either that Dave had enough of his heart medicine or that he has had enough of something else – that has to be specified. That he had enough of his heart medicine is not merely made more plausible (partially supported) by *E**; it is not a conclusion that may be inductively inferred from *E*. It is either the very content of *E* or not. *E** either ascertains it or not.²¹ Once the content is made explicit, it is the credibility of the speaker which is at stake in whether it is true or not – if this content is wrong, she actually breaches her oath (imagining her as a sworn witness).

¹⁹ This is Saul's (2012) position.

²⁰ Beside such division of responsibility, there are interesting issues here about linguistic inequalities. Consider this example drawn from a real hearing I've attended to. A witness of low socio-cultural background for whom publicly speaking was obviously painstaking uttered "he was not unrecognisable", while the context made clear that he meant "he was unrecognisable". Everyone understood without even then need for explicit clarification (I even suspect I may be the only one in the audience to have noticed).

²¹ If some inference is needed to interpret the sentence's precise meaning, it is an inference on what Fred says, rather than an inference about the events, which may be supported by Fred's assertion.

Now, contrast this with Janet's statement "I've heard Vole's voice". What is the content of such utterance? It is not that Vole was present. Janet merely says that she heard his voice. While this brings some (strong) support to the former proposition, there may be situations where, Vole absent, Janet's words would however be true – e.g., if his voice came from a radio station, or from a phone's loudspeaker. Janet does not rule out this possibility through her uttering that she's heard his voice. Her credibility *stricto sensu* would be intact in the case he is absent but she heard the voice. While the nurse's utterance "Dave's had enough", once disambiguated, ascertains that Dave has had enough of his medicine – or of something else, Janet's utterance by no means ascertains Vole's presence; it merely gives some (strong) reasons to believe it.

Undoubtedly indeed, her report supports the inference to Vole's presence.²² And this is obviously the reason why she mentions her hearing Vole, which is specifically relevant insofar as it supports Vole's presence (let's note it *F*), the latter bringing strong support to *H* (Vole's guilt). Crucially indeed, a witness in the box does not only ascertain what she (literally) says, but also suggests that this is relevant. So, depending on the inquiry context, the inferences supported by the report might vary.²³ Here, there is no real ambiguity, and it would sound highly unfaithful on her part, if she elsewhere knew that he was absent and talking on the radio broadcast, to report that she heard his voice without specifying the rest. This would definitely be a misleading report, but still an accurate one. Such misleading suggestion of relevance (whether intentional or not) would clearly jeopardise her trustworthiness as a witness – if not her credibility *stricto sensu*.²⁴

To sum up, a report may be misleading – hence unreliable in the richest sense – while being entirely accurate. Since Janet's intentions when reporting her hearing Vole's voice are unambiguous, my distinction between the nurse's and Janet's misleadingness (supposing Vole's absence) may sound a byzantine one. But there may be subtler situations, where it becomes significant.

4.4 How relevance can affect reliability: what is the relevant truth?

As mentioned before, a witness is not a tape recorder. Despite her oath, by which she commits to stating "all the truth, and nothing but the truth", it is obvious that a witness should not tell all the truth – provided this was a realisable objective. Among the several things she knows and witnessed, she must select the ones that seem relevant to the case – she must tell all the *relevant* truth. When making a report, the witness both ascertains its truth, and suggests its relevance.

In the voice example, the report's relevance is without ambiguity. Only in incredibly bad faith could Janet deny her intending to suggest that one could reasonably infer Vole's presence. But, as we have seen in section 3, the relevance of a piece of evidence may dramatically vary from agent to agent. Hence, there can in principle be genuine (unintentional) misunderstanding about the relevance of a piece of testimony.

Consider for instance another part of Janet's testimony in the play, whereby she mentions that Miss French enjoyed reading books on the life of Benjamin Disraeli. The reason she says so is

²² But this is not an inference about the meaning of her words; rather, it is an inference about the events. At most is it an inference about what she wants us to infer about the events.

²³ Imagine a context where she wants to suggest she suffers from auditory delusions.

²⁴ The above-mentioned division of responsibilities clearly extends to the assessment of relevance (a lawyer may ask Janet "Do you suggest Vole was present?").

made explicit by the prosecutor's questions – about whether Miss French knew that Vole was a married man or was fooled by him into contemplating marrying him (whose relevance to the guilt hypothesis itself has to be argued for). Indeed, Disraeli notably had a very happy marriage with an elder woman. But, beside the fact that “it is possible for a woman to read the life of Disraeli without contemplating marriage with a man younger than herself”²⁵, Disraeli was famous for several other reasons: he was a major political figure and played a determinant role in the history of the modern UK Tory party as well as in UK foreign and colonial policy. Notably too, he was raised under the Anglican faith without ever disavowing his Jewish origins and he openly wrote about his admiration for the Jewish people. If we suppose, for the sake of the argument, that the implications of Janet's sentence were not made explicit, many different inferences could be drawn from learning that French was a fan of Disraeli. I leave it to the reader to imagine the several routes one could engage in, about French's obscure relations to the Tory Party, or some interest in the history of English Jews (maybe revealing her own – hidden – Jewish ancestry?). The jury could also interpret this as expressing Janet's antisemitism (since she sounds judgmental when reporting on her mistress' readings).

One may object that this has nothing to do with the reliability of the report: after all, if the report is true, there is nothing necessarily wrong in drawing something different from it than what the witness intended. Witnesses are not allowed to attend the rest of the hearing, and it is possible (and fine) that a witness brings pieces that gain unsuspected (to her) relevance in the light of other pieces of evidence the witness knows nothing of. For instance, if anything suggesting Vole's commitment to some political plans had come to discussion during the rest of the hearing (of which Janet could have no idea), her report may offer some clue. Hence, there may seem to be no reason why misunderstanding on relevance should affect the report's reliability.

Fair enough. But this is without taking into account that the witness' choice to bring some piece of evidence to the light by itself suggests that she finds this relevant – which is not without impact. The jury does not only draw inferences from the report's content, but also reasons about why the witness says so. She may thus (intentionally or not) mislead the jurors by prompting them to try figure out why she mentioned such a *prima facie* irrelevant information – thus generating new hypotheses they would never have thought of otherwise.²⁶ Furthermore, if they don't share the same background knowledge as the witness, jurors may misinterpret the relevance she attributed to the report, and therefore draw erroneous conclusions. Imagine for instance Janet had witnessed something in Vole's demeanour suggesting some links to Judaism, which would shed some light on the relevance of French's readings. If the jury interprets Janet's reports on those readings as showing some antisemitic tendencies, they would expect Janet to report on anything else that would be related to this topic. But in fact, Janet has no idea of Disraeli's Jewish origins and knows only of his life's romantic part; she has no antisemitic tendency whatsoever – and she didn't pay much attention to Vole's 'Jewish' demeanour. Since she didn't find this relevant, she did not mention it. But the jury wrongly assumes (due to their

²⁵ As Christie's judge warns the jury, refusing to admit this evidence.

²⁶ This echoes the idea that the so-called “dilution effect”, whereby providing irrelevant information mitigates the impact of relevant information on judgment and decision-making (Nisbett et al., 1981) may have a conversational basis (Igou and Bless, 2005).

misunderstanding of the relevance she attributes to French's reading) that, had she noticed anything of this sort, she would mention it; hence they wrongly conclude from her silence that nothing of this sort was the case. This erroneous conclusion emanates from a misunderstanding on the purported relevance of her report – not from Janet's intentional omission.

Despite the far-fetched aspect of such a scenario, this example shows that there are several routes for misunderstanding, which may lead to plainly wrong conclusions – even assuming credibility, good faith, and cooperative intention from the witness. (Of course, this opens as many routes for intentional misleading.) **Telling all the relevant truth is not more possible than telling all the truth – because relevance is so much agent-dependent.**

Furthermore, this raises the question of the right division of responsibility on interpreting relevance – as a mirror to the division of responsibility in interpreting the content. After all, it may be part of the jury's job to be able to assess the cultural and educational level of Janet and suspect that she may know only of the romantic part of Disraeli's life.²⁷ On the other hand, the witness herself has arguably some responsibility in selecting the evidence – even though she cannot be held legally responsible for suggesting Vole's presence, she would sound highly insincere if she denied having suggested it. Mentioning important information that would shed new light on some evidence she gave sounds like something she should do – this arguably is part of her trustworthiness as a witness (again, not as a sworn witness though). Finally, there appears the same dichotomy between competence and good faith as in the analysis of credibility. A witness may intentionally suggest misleading inferences; she may also do so unintentionally, not being 'competent' regarding the relevance of what she says – or rather, regarding how the jury may interpret her relevance suggestion.

I have focused on the **courtroom as a magnifying glass**, where every reason to doubt either the credibility or the relevance of a report is scrutinised. For this reason, however, there remains in principle little ambiguity, and all the scenarios considered above are unlikely to have any equivalent in real courts. Outside the court though, in more informal contexts, where speech is less controlled – freer –, and many things are left implicit, problems of this sort may pop up. I wish now to turn to very briefly suggesting some routes of reflection for testimony in such contexts – leaving developments to further studies.

5. A few steps outside the courtroom

What can we draw from the above considerations for testimonial trustworthiness outside the courtroom? In this last section, I wish to draw a few, schematic, lines of reflection, particularly for consideration of the role of experts reports in informing decision-makers outside the courtroom²⁸.

5.1 Fake news: plainly false or irrelevant?

²⁷ See note 20.

²⁸ There is a whole spectrum, from constrained experts reports in court to spontaneous, free decision to speak out in the media – a middle term being experts reports such as the IPCC. Here, I mostly consider the freest situations – but contexts need to be specified for a thorough analysis.

Before turning to scientists' discourse in the public sphere, I wish to suggest how relevance offers a new way to look at fake news. Those are generally defined as news whose content is plainly false. I suspect, though, that many purported fake news rather consist in accurate, but (misleadingly) irrelevant information. A political candidate mentioning that his rival's economical program is grounded on an annual $x\%$ increase of a given tax suggests that this is a remarkably high increase. But imagine it turns out that this has been the exact increase rate for years. By mentioning such a true but irrelevant information, he suggests that this is specific to this program, and hence a good reason to voting against his rival.

5.2 'Merchants of doubt': intentional scientific misleading

A closely related case of misleading based on scientifically validated scientific results is the so-called "merchants of doubt" (Oreskes and Conway, 2010) strategy, which consists in highlighting accurate, but inopportune facts, such as the benefits of smoking, or alternative, environmental, causes for cancer²⁹, so as to minimise the relative importance of the danger of smoking.³⁰ Approaching these subtle issues, case by case, through the lens of the credibility / relevance dichotomy sounds fruitful.

5.3 To what extent is relevance evaluation part of the experts' responsibility?

It is notably difficult, for experts' asked to advice decision-makers on high stakes issues where uncertainty reigns, to clarify the limits of their remit, and to provide a useful (hence outright and intelligible), neutral, and accurate³¹ answer: discussions on inductive risk question both the desirability and feasibility of value-free science (e.g., Douglas 2000, Betz 2013, John 2015). I suggest that it may be possible for an expert to (intentionally or not) mislead its audience by stating something that is entirely accurate, but (relatively) irrelevant. Consider the beginning of the covid-19 crisis, where uncertainty and ignorance were pervasive, stakes very high, and decisions urgent, with the need of scientific expertise from several disciplines. Consider that, for a given problem (e.g., masks wearing), the most relevant data were epidemiological; imagine a virologist gets questioned on this issue. While it is clear that she should not answer on epidemiological issues – that would count as 'ultracrepidarianism' (namely giving opinion outside one's expertise) and lessen her overall credibility –, should she give her opinion as a virologist on a virological issue, if the weight, so to speak, of such virological information for the decision at stake should be non-significant as compared to epidemiological considerations? Is she responsible of the relevance of her reports³²? Is she even competent to draw the boundaries of such relevance in a complex, and novel problem?³³

5.3 Values and relevance

²⁹ Note that a reprehensible goal here led to important discoveries.

³⁰ Publication bias may be described at yielding a close (though unintentional) misleading effect: not publicizing negative results may suggest there are none.

³¹ See (John 2017).

³² These questions extend to scientists who spontaneously decide to publicly express their views; 'relevance-ultracrepidarianism' may actually happen – as the Covid-19 crisis showed.

³³ This also incidentally raises the question of what experts in court should know of the rest of the case.

As mentioned before, one major argument against the possibility of value-free science was drawn from inductive risk, and uncertainty considerations. I suggest that the relevance misunderstanding problems raised so far may also teach us something about the role of values. Imagine the following situation. You tell me about your considering going for a walk this afternoon. As an answer, I inform you that it will probably be raining, because I believe this is relevant to your plans. I know of further reasons not to go for a walk, but I do not find useful to mention them, because I suppose they are less relevant than the raining information. However, I am wrong in my assessment of this information's relevance for you; indeed, you love rain, and this actually boosts your desire to go for a walk. On the other hand, if you knew of the other information (e.g., about works that currently deprive pedestrians from any access to your favourite streets in the city – the ones you're dying to see under the rain), you may definitely change your plans. There clearly is a value (or preference) importance in selecting the relevant information (that leads, in this case, to unintentional misleading and wrong decision), which may not be thought of in terms of uncertainty and confirmation threshold. And this I suspect may translate into real scientific situations, where uncertainty reigns, and knowledge evolves in parallel to political priorities. Consider again the issue of children's contagiousness. While this information was highly relevant to deciding whether or not to close schools, it became much less so when France government, learning from mental health experts (among other things) the impact of the first lockdown, changed its priorities regarding schools and took as one major goal to keep schools open.

Conclusion

I have argued that the evidential value of testimony is as much a matter of relevance as of credibility. Relevance being highly agent-dependent, this opens several possibilities for reports' misleadingness, despite veracity. Furthermore, such misleadingness may be intentional or not. Depending on the context, the division of responsibilities for assessing relevance may vary. This opens up routes of reflection on the proper responsibility, and remit, of scientific experts speaking in the public sphere.

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