Default reasoning and the law: A dialogue

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Abstract

Reasoning by default is a relevant aspect of everyday life that has traditionally attracted the attention of many fields of research, from psychology to the philosophy of logic, from economics to artificial intelligence. Also in the field of law, default reasoning is widely used by lawyers, judges and other legal decision-makers. In this paper, a philosopher of language (Carlo Penco) and a philosopher of law (Damiano Canale) attempt to explore some uses of default reasoning that are scarcely considered by legal theory. In particular, the dialogue dwells on the notion of literal meaning, witness testimony, and the problem of disagreement among experts in legal proceedings. The paper is intended as a sort of brain storming useful to identify new lines of research straddling philosophy of law, cognitive psychology and philosophy of language.

Index terms

Keywords: default reasoning, context, experts, evidence, stereotypes, legal interpretation, literal meaning

Editor's notes
This text is written as a dialogue between a philosopher of language (Carlo Penco, sections A.1–A.5) and a philosopher of law (Damiano Canale, sections B.1–B.4).

Full text

A.1 Philosopher of language

Since Marvin Minsky's 1974 seminal paper on concepts as stereotypes or frames, the debate on default reasoning spread across different fields of research, from philosophy to logic, to psychology, to economics (although in economics, the work of Herb Simon,

antedated the basic idea with the concept of bounded rationality). According to Minsky, we mostly reason with stereotypes that have default values. A birthday party has default assignments of this kind: Sunday dress; wrapped presents; cake, ice cream, and sodas are served; games like hide and seek are played; and so on. The term "stereotype" may be misleading. It was widely used in the 1970s due to the relevance given to the term by Hilary Putnam in his "Meaning, Reference, and Stereotypes" (1972 and 1975). We will use the term here in a very broad sense, as Putnam did, in his attempt to generalise some of Wittgenstein's ideas. Minsky himself was offering his proposal as an explanation and a development of Wittgenstein's ideas. In the 1980s, philosophers and linguists widely discussed the role of default reasoning. Given that there is no limit to the number of irrelevant inferences we can make on any subject, the question arose: what helps us avoid time-consuming thoughts? Kent Bach (1984: 46) suggested two rules, concerning, respectively, theoretical and practical reasoning:

(*a*) **TGR or *Take-for-granted rule*:** If it seems to me that *p*, then infer that *p*, provided that no reason to the contrary occurs to me.

(*b*) **NWC or *Not-worth-considering rule*:** If it occurs to me to do *A*, do *A* unless a thought occurs of a reason to the contrary or an alternative to *A*.

2   Default reasoning, which proceeds without doubt if there is nothing to the contrary, helps us quickly reach a conclusion, but at an increased risk of error. The tension between reliability and efficiency is partly resolved by the idea of "demons": the concept of a demon is a wonderful gift from the history of philosophy introduced in artificial intelligence by Oliver Selfridge in his "Pandemonium" system. The idea appears in the first pages of Milton's *Paradise Lost* (see Husbands 2008) and was later developed in a dissertation by Minsky's student, Eugene Charniak 1972 (36-42). What is the point? Socrates, in *Apology*, 31d, says:

> A sort of voice [δαιμον] sometimes comes to me. It never tells me what to do, but only dissuades me from doing what I am proposing to do.

3   In computer science, the 'demon' setting is a backup process for detecting when there are some infringements of the rule that compels us or suggests we *not* follow the default rules. From a psychological viewpoint, the contrast between default reasoning and demons is a forethought of Daniel Kahnemann (2011): when everything seems "normal" we think fast, by stereotypes or by default. However, when something unexpected happens, we need to reason about what is going on or about what to do or not to do. This difference works both in reasoning (TGR: rule (*a*)) and in decision making (NWC: rule (*b*)). I don't normally think while I am driving, but if I have to put the car into a difficult parking space, I need to reason on how to move the wheel. When I open a door to take something from my room, I don't even think about taking a few steps inside the room: by default, I assume I will walk the few steps to get what I need... unless something relevant happens. During the Second World War, my aunt opened the door of her room to take a copy of her dissertation, which she was in the process of completing and which she had placed in a drawer. However, after opening the door, she realized there were no walls. A bomb had split the house in two. An unexpected demon – the floor no longer being there – gave her a strong reason *not to do A,* that is, not to enter the room. She changed her decision to enter the room (she did eventually graduate in History, but she had to rewrite her thesis).

4   The distinction between defaults as reasons for belief and reasons for action defined by the two different rules presented above is consolidated in the literature, and we may take these two rules as an intuitive rendering of these two aspects of default reasoning (see also Benzi-Penco 2018). My first question is: when (and how) the topic of default reasoning entered the discussion in the field of Law?

B.1 Legal philosopher

5   In recent years, legal philosophers have also extensively focused their attention on default reasoning, even though this subject usually appears under the heading of "defeasibility" in the jurisprudential debate. The general idea is that legal rules, standards, and principles may admit implicit exceptions, and thus do not *per se* provide conclusive, all-things-considered reasons for action. This idea has been elaborated on in several areas of research in legal philosophy, such as deontic logic, legal reasoning, the theory of legal rules and legal systems, etc.[1] Yet, default reasoning seems to be involved in further theoretical controversies that are apparently unrelated to those just mentioned. Among them, it is worth mentioning the notion of literal meaning and the principle of non-discrimination. The philosophical inquiry into default reasoning could shed new light on these subjects and highlight some aspects of them that have traditionally been overlooked by legal scholars. But why can literal meaning and unequal treatment be looked at as instances of default reasoning? Let's try to provide an introductory answer to this question.

6   When interpreting statutory or constitutional law, courts often claim that literal or conventional meaning is the starting point of their interpretive work. If the letter of the law is plain - so it is frequently stated - no interpretive effort is needed. The law speaks for itself, providing an answer to the legal issue brought to court. However, it is highly disputed whether that is all true. According to some scholars, the literal meaning of legal texts is always under- or over-determined and courts must carry out interpretive work in all cases, even though judges are unaware of this. Other scholars claim that literal meaning corresponds to the minimal semantic content of the law, which in most cases is sufficient to reach a decision (cf. Scott Soames 2009). Only in hard cases does this minimal content need to be enriched or modulated, and interpretation is necessary for this purpose. As it may be, one could argue that literal meaning is usually considered by courts as the default linguistic content of legal texts.[2] Following the TGR rule, courts' reasoning proceeds more or less as follows: It is generally assumed that legal text (LT) has content C, so LT has content C provided that no reason to the contrary comes up in the courtroom.

7   The principle of non-discrimination is more clearly linked to default reasoning and stereotypes. We have seen that stereotypes are shortcuts in reasoning and decision-making that are based on generalizations. Based on the characteristics associated with some members of a class, we reach conclusions and make decisions about *all* the members of that class. So, if I believe that all knives are sharp, I do not need to test whether the knife in my kitchen is sharp to decide to handle it carefully - I do so by default. Similarly, if an employer believes that all women are unreliable, he will not allow Mary to be put forward for promotion based on the same kind of reasoning. In the latter case, however, the employer's conduct is discriminatory and, thus, against the law. It is so for two related reasons. First, the employer's belief is false because it is the outcome of a faulty generalization. What the employer believes is not justified by sufficient and unbiased evidence. Second, his action brings about a disadvantage to Mary that infringes upon the principle of equality. This is the reason why some scholars claim that stereotyping leads to various forms of cognitive and practical distortion. As William Blake once said, "to generalize is to be an idiot. To particularize is lone distinction of merit". On this point, justice is at odds with any form of default reasoning (cf. Onora O'Neill 1992). Others instead maintain that one should draw a distinction between those stereotypical generalizations that have no statistical or factual basis and those that do (Frederick Schauer 2006). After all, if the percentage of reckless drivers among young men is noticeably higher than the percentage of bad drivers in some comparison group (young women, for instance), a higher premium for the car insurance of young men is not discriminatory. Therefore, stereotypes and default moral values do not necessarily lead to faulty practical conclusions. In several cases, they turn out to be an inevitable and often desirable dimension of decision-making.

8   All this being said, it seems that literal meaning and the principle of non-discrimination admits different kinds of "demons", doesn't it?

A.2 Philosopher of language

9   Indeed. I like the idea of different kinds of "demons" that prevent us from making too easy and hasty generalizations in different fields. The two issues that you mention ((1) literal meaning and (2) the principle of discrimination) seem to be a source of big conflicts. On (1) there are defenders of the role of literal meaning as default linguistic contents against the claim the literal meaning is always under or overdetermined; on (2) some consider stereotypes as always leading to cognitive practical distortions, against the claim that there may be "good" stereotypes (with some statistical or factual basis) and, after all, we *need* stereotypes[3]. On both topics, there have been wide debates in the philosophy of language, and I propose we focus at least on (1): literal meaning.

10   Since a seminal paper by Francois Recanati (2003) appeared on "literalism and contextualism", the battle began between two fields: defenders of minimal literal content and theorists of a radical context-dependence of meaning, (for a summary see Penco and Vignolo 2020). In the philosophy of language, the debate took the form of a question: what is "what is said"? what is the content of an assertoric sentence, or its truth conditions? The problem arose with the distinction proposed by Paul Grice between what is (literally) said and what is implicated. In the beginning, the distinction seemed clear and simple: what is said is dependent on literal meaning, and what is implicated is dependent on context and either (a) derived by literal meaning but not asserted (conventional implicature) or (b) derived by context and by the use of conversational maxims (conversational implicatures). This is well known and, I assume, probably also used in the philosophy of law.

11   There is, however, a problem: it is not clear what we *really* mean with "what is said". First of all, as Grice was also well aware, if somebody says

"He offended me yesterday"

12   we need to know to whom "he" refers, and to which day "yesterday" refers. As Perry 2019 would put it, to understand what is said, it is not enough to know that the sentence is true if some male individual offended the speaker the day before the speaker uttered the sentence. These are what Perry calls "reflexive truth conditions" and they are of no use to a judge in proceeding to fine the offender, given that, in this case, the judge has no idea of who the offender is. On the contrary, to know *what is said* is to know the *actual* or *subject matter truth conditions* of a sentence: we need to know the referents of indexical expressions.

13   Recanati calls the process of interpreting the referents of indexical expressions (pronouns, adverbs of time, demonstratives) "saturation". Is saturation enough to understand what is said? Recanati says it is not. We often need more, we need a "modulation" of the meaning of the expressions to interpret an assertoric sentence. Most words reveal themselves to be as context-dependent as indexicals are. Take "the ham sandwich left without paying". The literal meaning of "the ham sandwich" is not enough to understand the sentence. We need to make some pragmatic operation – in this case, a "transfer" from the sandwich to the person who ordered the sandwich, and we need to rely on a lot of default reasoning of what we know about restaurants, food, and money. We rely on general knowledge of our lexicon, where in order "to pay" you need to be a "person", and so on (using a general default ontology implicit in our lexicon, as Nicholas Asher 2011 insists). The lexicon is full of polysemy, and this implies that most words have different meanings depending on the context (and this is Recanati's (2019) point, although Devitt (2021) proposes an alternative view linked more to conventions). Apparently, the problem of polysemy, which has been widely analysed by linguists, could be framed inside a general view of default reasoning: there

are inferences that our lexicon almost compels us to perform. We may think that some of them are less compelling, but there is always some general stereotype that helps us to find the best interpretation. According to Recanati, we always need different kinds of "modulation" (transfer, free enrichment, loosening…) of the so-called "literal" meaning. How "free" the enrichment can be is debatable.

14   It seems to me that framing the problem of meaning in the form "what are the truth conditions of an assertion?" might be relevant for legal philosophy, given that in a trial we need evidence to ascertain the truth or falsity of a witness's claims. If we are not very clear on what the truth conditions are of what the witness says, then we cannot use her deposition as a source of evidence. But to understand the truth conditions of an assertion, to understand "what is said", literal meanings are insufficient. We need both saturation and modulation.

B.2 Legal philosopher

15   I find Recanati's observations illuminating with regard to legal interpretation and judicial reasoning too. As I noted above, literal meaning is considered by most legal scholars and legal practitioners as the a-contextual meaning that is sufficient to fix the linguistic content of statutes, constitutional provisions, and administrative regulations in easy cases. In this sense, literal meaning corresponds to the full meaning conventionally encoded in these legal texts by default, which should be used to rule on a case as long as some "legal demon" does not provide reasons to the contrary (yes, I believe that there are specific demons that typically operate in the law).

16   Along with Recanati, conversely, we might claim that literal meaning simply sets the "semantic potential" out of which the linguistic content must be constructed. The semantic potential is the output of an inductive inference (a generalization) through which the court abstracts the meaning of a word or a sentence "from the specific senses that it expresses, or seems to express, on the observed occasions of use" (Recanati 2004: 147). Starting from this generalization, however, the linguistic content needs to be modulated according to the context of use in which the law is applied, and this recontextualization takes place even though the court is not aware of it or claims that its ruling is only grounded on some sort of a-contextual meaning.

17   On this account, literal meaning is never *per se* sufficient to fix the linguistic content. It needs to be supplemented by other contextual information, which assumes the form of further interpretive arguments (the statutory structure, the intention of the lawmaker, the purpose of the law, the consequences of the regulation, etc.). In my view, all this has some interesting implications with regards to our subject. Literal meaning is an example of default reasoning, not in the sense that it corresponds to the default linguistic content of a legal text. Literal meaning is rather an abstract generalization that constitutes a possible (and, in most legal systems, desirable) starting point of the interpretive process. This process, however, necessarily includes a number of "demons" - under the form of further legal reasons - which help to modulate linguistic content with regard to the case being decided. Is this picture plausible in your opinion?

18   A famous and largely discussed example of this can be found in the case *Smith v. United States*.[4] Here, the U.S. Supreme Court was called upon to decide whether exchanging a firearm for cocaine is "using a firearm".[5] The starting argument against the defendant was that the expression 'use of a firearm' literally encompasses *any* use that facilitates the commission of a drug offence, including the use of a firearm as an item of barter. Against this literal argument, the defence and the dissenting opinion of Justice Scalia pointed out that, in this specific context, when we refer to the use of an artifact, we refer to the standard or intended use of it (the use the artifact was created for). Therefore, the relevant use of a firearm would be the use of it as a weapon, i.e., to threaten or offend other people. But the defendant didn't use his automatic gun in this way, for he tried to employ it as a means of payment. The Supreme Court held that literal meaning was sufficient to reach a conclusion and Smith's conviction was

confirmed. As a matter of fact, however, the Court did not only stick to literal meaning in its reasoning. The judges put forward an alternative recontextualization or modulation of the semantic potential of 'using a firearm'. Against the defendant, it was pointed out that the purpose of the regulation was to minimize the risk that the presence of drugs and firearms imposes on individuals and society. Drugs and guns are a dangerous combination and, so the argument went, any use of a firearm during and in relation to a drug-trafficking crime should be sanctioned to minimize that risk. Furthermore, according to the Court, the reading of the other sections of the regulation confirmed this statutory construction. Consequently, *Smith v. United States* cannot be seen as a battle between literal meaning as default linguistic content, on the one hand, and contextual meaning, on the other. Instead, two alternative modulations of literal meaning that were justified by different "legal demons", confronted each other in the courtroom. To put it another way, this was a case of competing "default" interpretations of the same legal text, one of which was prioritized over the other on the basis of further reasons.

A.3 Philosopher of language

19   You asked me whether I agree with intending literal meaning as a starting point of an interpretative process. This would be in favour of the work done by the US Supreme Court in the case *Smith v. United States*, that – as you say – applied "a modulation of the semantic potential of '*using a firearm*'". Although in general I like the idea of meaning as inferential potential, invented by Frege and developed by Robert Brandom, I may be less "contextualist" than it may appear from my previous intervention. I still see a contrast between *literal meaning as default* and *contextual meaning as modulation* of literal meaning. Default meaning is a robust background we should stand on. You claim that we have two modulations of the same literal meaning of "use of a firearm". I disagree. I agree with Justice Scalia's view that the literal meaning of "using a firearm" is the "intended" use, the use the artifact was built for: "use of a firearm" is the use of the weapon for "shooting" or "threatening", not for *any* use of a weapon. On the contrary, the U.S. Supreme Court's decision seems to be a starting point of an endless list of possible interpretations. The "expansion" interpretation according to which *any* use of a firearm is condemnable seems ridiculous: somebody might use a firearm as a vase for flowers (as happened with peaceful demonstrators who put flowers in the police's firearms: they have never been condemned for illegal "use of firearms"). Using a firearm as means of payment is not a good "interpretation" of the "literal" meaning of "use of a firearm".

20   You say we may accept exceptions. Indeed, this is the essence of default reasoning. However, can we accept *any* use as a *proper* application of the notion of "use of a firearm"? There are abnormal uses like using a firearm to hit somebody on the head, and this is an offensive use, and it may count as just as offensive as shooting. But not *everything* is acceptable. In its defence the Court suggested that scratching the head with a gun would *not* constitute a criminal offense because it would have been unrelated to the crime. But they refused to consider "uses of a firearm" as if it were tantamount to "uses of a weapon" (where "weapon" is a concept under which the concept of "firearm" stands). The Court justifies its awkward decision in this way:

> We are not persuaded that our construction of the phrase 'uses . . . a firearm' will produce anomalous applications . . . § 924 (c) (1) requires not only that the defendant 'use' the firearm but also that he use it 'during and in relation to' the drug trafficking crime.

21   This move is very "inventive". In saying "during and in relation to", they restrict the literal meaning of "to use" to make it apt to condemn the defendant. But the ploy does not work, because the defendant might have been using a computer for exchange. And, apparently, the "use of a computer" in this context does not count as a stereotypical

meaning of "using a computer". The Supreme Court insists that this hypothetical case (use of a computer in exchange for drugs) would not constitute a criminal offence. But what is the difference between selling a computer or selling a weapon (empty and without bullets)? The defendant did not use a firearm, he sold it.

22   A firearm *is* a weapon. Giving a firearm instead of money is equivalent to selling. The defendant did not "use" a firearm as a weapon, he "sold" a firearm for its market value. The Court is implying that "buying" is a kind of "use", but this inference reveals where the ploy is. If you are defining different kinds of uses, you should distinguish "uses for": a weapon can be used for different purposes, some that are coherent with the offensive purpose, some that are not. The use of a firearm for buying something (as means of exchange) seems to be a category quite distant from the default meaning of "use of a firearm", which is intended as an offensive use as is a firearm's proper function. Justice Scalia was unknowingly using the notion of "proper function" of an artifact and his interpretation was coherent with the contemporary debate on the ontology of artifacts. The U.S. Supreme Court, against Scalia's suggestions, seems to overstate the case with an interpretation that sounds artificial and beyond the most common (and default) language use. It might seem to some to be an excuse to condemn the defendant in absence of stronger evidence. Fascinated by the sirens of interpretations, the Court put on a forced "ad hoc" interpretation. The problem emerging from this discussion is the weak status of "literal meaning" or "literal interpretation".

23   This is the real danger of what we may call "free literal interpretation without constraints". Any literal interpretation needs to have some constraints. Stephen Neale (2007), discussing the Supreme Court's sentence, presents three ways of considering the problem of interpreting the concept of "use of a firearm": (1) in analogy with attributive uses of definite descriptions intended as an ellipsis. I interpret this as meaning that "the use of firearms" may be elliptical for "the use of firearms to offend", (2) in terms of "meaning underdetermination", following Relevance Theory, and (3) in terms of unarticulated constituents, following Perry's critical pragmatics. In particular, he reminds us of Perry's stance:

> It can't just rain, Perry might say; raining has to take place somewhere, somewhen. Similarly, you can't just *use* something; and you can't just use that something to do *something*, or just use it as something; you have to use it to do *something in particular* or use it as *something in particular*. The proposition we express by stating a regulation governing the use of firearms contains an unarticulated constituent [...] (Neale 2007: 8)

24   Speaking of an unarticulated constituent is not too dissimilar from treating the problem in terms of a "default meaning" given by the stereotypical use of the expression. It corresponds to a dictionary definition: a firearm is "a lethal barrelled weapon of any description from which any shot, bullet or other missile can be discharged". It is, therefore, *by definition*, a weapon. Frame semantics, at the slot "use" in connection with the meaning of "weapon", reads: "The type of activity that the weapon is generally involved in".[6] The type of activity that the weapon is *generally* involved in is not using it in exchange for goods. Buying or selling concerns *everything* and it cannot be defined as the use that a weapon is supposed to perform. The U.S. Supreme Court pretended to apply the "literal meaning" of "use", in its widest sense. In doing so, they avoided making explicit the specific category that was relevant: used for economic exchange. And you cannot consider a piece used for economic exchange as a "use of a weapon" that could figure under the category of the type of offence attributed to the use of a weapon. Literal meaning here has been a device for an incongruous interpretation and modulating of a "free enrichment" beyond any reasonable interpretation. This tendency may lead to interpreting any term in any way you want.

25   Language is a social affair, and the uses of expressions are given by shared habits. We may invent new uses and find different ways of interpreting a word in context, but there are strong conventional restrictions we should accept. The U.S. Supreme Court went too far in its interpretation. It forgot the strength of conventions.

26   That is why the well-known case of Bill Clinton and his claim that "I didn't have sex" is different. Clinton's impeachment trial in December 1998 was partly a consequence of his testimony about an improper relation he had with a White House intern. The testimony was defined as perjury by Counsel, Ken Starr. Clinton said: "I did things that were…inappropriate and wrong. But …they did not include any activity that was within the *definition* of sexual relations"7 (my emphasis). In his testimony we are faced with contrasting stereotypes. On the one hand, mainly in the South, "having sex" has the "default" meaning of having "proper" intercourse. On the other hand, for a puritan evangelical, the default meaning is probably intended as "having any kind of connection with sex". Therefore, there is a possibility of differing interpretations here, given the different stereotypes on the market. From the point of view of the first kind of stereotype of "having sex", it can be claimed that Clinton did not properly or intentionally "lie", but that he did lie from the point of view of the second. There is no similar socially recognized pair of standard definitions of "use of a firearm".

27   I realize now that we have discussed the problem of the meaning of terms in the interpretation of the law, and just hinted at the topic of the content of a deposition. Certainly, as epistemological contextualists insist, the context of a deposition has a different epistemological criteria of correctness than the context of everyday discourse (as shown in how Clinton used the term "having sex"). How do we interpret the defendant's assertions or testimony? And how is this connected with the meaning of legal terms?

B.3 Legal philosopher

28   You just have touched upon a very interesting subject. It is well known that witness testimony is an important form of evidence in law. In many cases, it is the main evidence upon which the decision of judges or jurors is based. However, witness testimony may be unreliable and prone to error. This is because the witness might be insincere, or what the witness intends to say does not correspond to what is communicated through her testimony, or that the content of the testimony is false even though the witness believes it to be true, or a combination of these factors. This is why the acquisition and evaluation of witness testimony can be accounted for as a form of default reasoning (Walton 2007). Recasting the TGR rule formulated at the outset, in legal proceedings it holds true that "if the witness claims '*p*', judges or jurors are justified in believing *p* unless no reason to the contrary occurs to them". Given the adversarial structure of the trial, in current legal systems many relevant defeaters of witness testimony are provided by the law, which also sets the procedure to be followed to test the reliability of testimony.

29   Testimony defeaters are mainly of two sorts: subjective and objective. Subjective testimony defeaters are related to the credibility of the speaker. What matters here is the witness' personality, her relationship with the defendant and the case to be decided, as well as the "moral character" of the speaker, for instance, the fact that the witness was convicted of a criminal offence.8 Objective testimony defeaters concern the way in which witness testimony is acquired and evaluated within the trial. So, for instance, oral and documental testimony recorded before the trial is not conclusive and shall be re-examined to be considered as evidence. Furthermore, so-called "leading questions" are not permitted during the witness examination stage: the party on behalf of which the witness testifies is not permitted to suggest to the witness the answer wanted, nor shall the witness be subjected to any form of psychological pressure in rendering testimony. Witness testimony is then the subject of cross-examination. This stage of the trial makes it possible to complete and correct the story told by the witness during the first examination, to test her accuracy and honesty, and allows the witness to bring out information that is favourable to the case of the party on whose behalf the cross-examination is being conducted. The acquisition and evaluation of witness testimony then depends on further factors: the burden of proof, the standard of proof adopted by

the legislature, and how well the testimony hangs together as part of a plausible account of what supposedly happened. All these considerations and procedural steps can be seen as potential defeaters of witness testimony. They may justify a judge or a juror in not believing that *p* even though the witness claims that *p* is the case, or to consider the information provided by the witness as irrelevant in determining the truth value of *p*.

30   Returning to our questions, it seems to me that the problem of contrasting stereotypes that characterizes Clinton's testimony case can be easily solved in the context of legal adjudication. In particular, cross examination makes it possible to address the problems of vagueness, ambiguity, contextual indeterminacy, and meaning shifting that may affect witness testimony. Within the legal context, testimony is not a one-shot communicative event. It is rather the result of an exchange of reasons governed by the law on the basis of a set of background assumptions regarding the content, the credibility, and reliability of witnesses' conveyed information.

31   However, your last reply points at a further issue that is worth considering in more detail. How is witness testimony connected to the meaning of legal terms? It seems to me that this question is particularly relevant if we look at the role of expert opinions and testimony in the law.

32   As current society increasingly depends on science and technology, more scientists, engineers, and physicians are called upon to testify in court on technical matters in their field of expertise. Think of all those cases dealing with disputed issues in DNA testing, toxicology, epidemiology, engineering, finance, and other technically complex subjects. It is commonly assumed that expert witnesses merely contribute to fact-finding. Imagine, for the sake of argument, that XYZ is a chemical formula used in the specialized language of chemistry, and that the legislature has enacted a legal provision declaring: "the marketing of XYZ is prohibited". Now, imagine that a judge is asked to decide whether the marketing of a certain chemical product *x* is prohibited. Thanks to the information provided by expert witnesses, the judge will ascertain whether *x* is XYZ, and thus if the marketing of *x* is prohibited. In a case like this, it is commonly stated, expert witnesses contribute to ascertaining the facts of the case (*x* is XYZ), but they do not determine the content of the legal provision in question. But are things really like that? As I have argued elsewhere (Canale 2021), there are cases in which expert opinions and testimony may determine the meaning of legal texts. In the example just mentioned, the experts actually *first* fix the semantic content of XYZ, which is unknown to the judge, and *then* use this content to determine whether *x* is XYZ, i.e., the truth value of a factual statement. In other words, deference to expert witnesses contributes here to determine the linguistic content of the law, to such an extent that the judge is not able to grasp the law that she applies, nor to evaluate its impact on other legal contents and reasons that may justify a different judicial outcome.[9] When all this occurs, it seems that legal defeaters take a step back, and expert testimony fixes the semantic content of legal texts by default, as long as the expert's opinion is considered reliable by the judge.

33   Does all this seem plausible to you?

A.4 Philosopher of language

34   Indeed. Testimony is a perfect example of default proof: a testimony is accepted *unless* some other testimony may falsify it. The more the testimony is certified, the more reliable it is. Reliability in scientific evidence requires a "ranking" in the authority of scientific testimonies (cf. Prakken-Sartor2004, Bex 2011; Haack 2014). Given that, it sounds good that scientific experts might, or even should, determine the meaning or semantic content of something that is at stake, fixing the truth-conditional content of the sentences in which the term appears.

     However, the problem of experts fixing the meaning is linked to the problem of deciding *which* expert has to be relied upon. I enjoyed reading Susan Haack's papers collected in *Evidence Matters,* where she discusses the definition of "scientific experts"

since the case of *Daubert v. Merrell Dow Pharmaceuticals* (in short "Daubert").[10] In this case, the criterion for defining scientific experts was a bit contradictory, as Haack insists, given that they say that "the criterion of the scientific status of a theory is its falsifiability, or refutability, or testability" (falsifiability is Popper's view and testability is Carnap's & Hempel's view, against which Popper was fighting). But, leaving aside this philosophical debate (on which I suggest Dalla Pozza and Negro 2017 book), the lawmaker's point was to distinguish between science and pseudo-science. As a consequence, after Daubert, the rejection of experts in a trial (when experts were "Daubered out") resulted in terrible damage to their image as scientists (see Lakoff 2005). After many debates, in 2000 and 2011 the Daubert Standard was reshaped in a more liberal way to evaluate experts, following the idea that there are experts in different fields and not only in science, apparently returning to the previous definition (according to the 1923 case of *Frye vs. the United States* evidence of testimony based on "general acceptance in the particular field in which it belongs"). The Federal Rule of Evidence (FRE) 702, restated in 2011, says:

> A witness who is qualified as an expert by knowledge, skill, experience, training, or education may testify in the form of an opinion or otherwise if: (a) The expert's scientific, technical, or other specialized knowledge will help the trier of fact to understand the evidence or to determine a fact in issue; (b) The testimony is based on sufficient facts or data;(c) The testimony is the product of reliable principles and methods; and (d) The expert has *reliably* applied the principles and methods to the facts of the case. (My emphasis.)

36   There are at least two features that make this definition interesting. On the one hand, while open to the acceptance of "specialized knowledge", the definition may induce people to think that science is no more important than any other expertise. On the other hand, it provides relevant space to the topic of *reliability* ("reliable principles and methods"), which opens a fundamental problem. Reliability comes in degrees, and in a trial we should check different levels of reliability. On this issue, we may rely on the checks and balances of different testimonies in the adversarial system that governs law: testimony is checked by two sides that try to find not only the flaws in the testimony, but also which testimonies are more reliable according to scientific standards. And the most reliable should also fix the meaning of some legal terminology. But who are the most reliable scientists?

37   Looking at the adversarial system of law, I was shocked to realize the difference between the search for truth in the system of science and the search for truth (= compromise) in adversarial systems. In adversarial systems, the *main* aim is not the truth but a practical matter, reaching a verdict of liability or guilt in a reasonable amount of time. FRE 702 says: "Scientific conclusions are subject to perpetual revision. Law, on the other hand, must resolve disputes finally and quickly." In principle, I am fascinated by the scientific aspects of advocacy. From an abstract point of view, it sounds not so different from a scientific discussion: the plaintiff presents the evidence and the defendant tries to present a piece of counterevidence, and both try to find flaws in the reasoning of the other side until a verdict is reached. Therefore, in principle, the idea of checking the reliability of testimonies and relying on scientific standards should help. But, assuming judges are honest, a basic problem remains: how to choose "the right" definition when experts don't agree. I see at least four great concerns about the role of scientific experts in trials that I think might also result in problems in using scientific experts to define legal terms.

38   (1) The adversarial system runs the risk of comparing two very different scientific testimonies with respect to their shared scientific agreement as though they were on the same level. The typical examples are the trials for or against the role of tobacco in causing cancer. Most, if not all scientists, were persuaded of the risk of tobacco, but a few "experts", paid by tobacco companies, were able to defend the "scientific doubts" of the causal connection (see the well-written *Merchants of Doubt*). The question of scientific assessment of the risk of tobacco smoke is now history, but we still have

contrasts between theories held by very few scientists against the consolidated "standard" scientific view: theories of human-driven global warming are still presented in a supposedly "fair" comparison with theories that deny that climate change depends on human actions or the use of fossil fuels. There is still a resurgence of comparison between creationism (or intelligent design) and evolutionism, notwithstanding the famous 1982 verdict in *McLean vs. Arkansas Board of Education* that includes a detailed discussion and definition of "science", according to which creation science simply is not science. Facing these uncertainties, how can a judge decide when the time is ripe to reject some experts as "fake"?

39 (2) It is not always clear (a) what is more reliable within a scientific field and even (b) what counts as a "scientific field". Subtleties of the peer review system make it difficult to decide a scale or a ranking of experts. Having published in a peer-review journal is more than having submitted to a peer-review journal, but other problems are at stake: the difference among journals, the links between the writer and the editors, the number of quotations in other relevant journals, the different values of the h-index in different fields, general acceptance, standard applications, and so on (I admit, in retrospect, I am mimicking the Daubert criteria!). A judge seldom knows what kinds of journals are ranked higher in these fields, nor which kinds of scientific fields are considered mainstream science. How can judges be aware of different scientific fields and their relevance to the matter in question? Should they rely more on psychiatrists or on neurologists in cases where the inability to understand and have free will are to be determined?

40 (3) The checks and balances of different testimonies are effective if the two sides have the same level of capability, but the winner is more often the side who is better at finding (possibly biased) expert testimony. Big companies are better suited to find experts to help them win a trial. In these cases, we have a problem of knowledge asymmetry, which makes a trial unfair for a party that has no access to relevant information.

41 (4) This last problem takes us to a dark side in the increasingly frequent cases where scientific testimony is presented through artificial intelligence systems based on huge databases. These systems give "expert" definitions that depend on previous basic choices that are often "blind" to the judge and the other party. A typical case is the definition of risk assessment, which often raises objections of unfairness given that algorithms are "hidden", and a judge has no way of checking its reliability. As Quattroccolo (2020: 91) says: "digital data risks being considered unflappably reliable, due to a quite common and misplaced sense of innate reliability: this will impact on the admission of it, facilitating the party presenting this piece of evidence." But there is almost no way to challenge their accuracy and actual reliability. The background definitions of the algorithms and their implementations hide choices that may distort the social reality, as abundantly shown by the challenging book *Weapons of Math Destruction*.

42 These four features may enforce the judgment given by Charles S. Peirce on scientific advocacy while contrasting it with scientific inquiry: "it is no longer the reasoning which determines what the conclusion shall be, but the conclusion which determines what the reasoning shall be" (quoted by Haack 2014: 33). It seems to me that the case of the U.S. Supreme Court we discussed in the previous section reflects this attitude. The Court wanted a landmark conviction of the drug dealer and used the "literal meaning" of "use of a firearm" in a very "inventive" and non-standard way: having decided on a conclusion, they found reasoning that could support it.

43 Is it possible to overcome these four worries linked to the definition of a scientific testimony? Besides the general problem of knowledge asymmetry, all these points are common both to logic, philosophy, and law: what is *relevance* and what is *reliability*. We cannot ask judges to understand the subtleties of sciences, but they do need to have a basic understanding of the notion of relevance and reliability in science. Both Susan Haack and Serena Quattrocolo offer some suggestions, albeit in different ways. But I

have already gone beyond the space agreed on for our short discussion and I leave some final comments to you.

B.4 Legal philosopher

44   The reliability of expert testimony is definitely a knotty issue that is becoming increasingly crucial in judicial decision-making. Legal scholars have mulled over this topic at length, but the questions you mention have not yet found a convincing answer.

45   From the philosophical point of view, an even more interesting problem is that of expert disagreement. How are jurors or judges, depending on the legal system, to evaluate expert opinion and testimony when experts are in an equally good epistemic position with respect to a certain proposition p, but they disagree on the truth value of p? Suppose, for instance, that expert E1 testifies that a person contracted mesothelioma as a consequence of exposure to asbestos in the workplace, whereas expert E2 testifies that this is not the case: the mesothelioma was first triggered by other pathogenic factors. And suppose, for the sake of argument, that E1 and E2 are equally reliable according to the Daubert rule. When confronted with a situation like this, which conclusion should the judge or the jurors draw with regards to the facts of the case? Which one of the two experts should the forensic factfinder trust most? We could translate all this into the vocabulary of default reasoning. According to the *Take-for-granted rule*, if E1 tells me that p, then it is reasonable to infer that p unless a relevant reason to the contrary occurs to me. But if, at the same time, E2 tells me that not p, what should I infer? There seems to be no demon that could help me make a choice.

46   It is well known that the problem just outlined allows for different solutions. According to some, expert opinions and testimony are never equally reliable (cf. Peter van Inwagen 1996; Sinan Dogramici and Sophie Horowitz 2016). As a matter of fact, experts have different cognitive abilities, background knowledge, past experiences, attentiveness to the case in question, and actual or potential biases. So, a genuine peer disagreement never takes place in a courtroom, as the expertise of one expert is always different from that of another. Jurors and judges should be put in a position where they can weigh experts' competences, experiences, and biases, to determine whether E1's testimony is more reliable than E2's, or vice versa. Conversely, others believe that a genuine peer disagreement in expert testimony is not only possible but also quite frequent. After all, the Daubert rule allows factfinders to base a defendant's conviction on defeasible forensic testimony, i.e., on testimony that is not fully supported by scientific consensus. In this way, scientific disagreement may easily enter the courtroom, as indeed happens when the facts to be proved require, for instance, expertise in psychiatry, epidemiology, or statistics. In cases like these, the reasons to believe in E1 may be as strong as the reasons to believe in E2, even though they conflict. It follows that the reason to discount one expert's opinion must be independent of their characteristics and the disagreement itself, but judges and jurors do not have the epistemic resources needed to make a choice of this kind. Therefore, so the argument goes, they should suspend their judgment with regard to p (cf. Richard Feldman 2006). In other words, in the event of disagreement between E1 and E2, it is neither proved that p nor that not p.

47   Which of these two approaches[11] to peer disagreement has to be preferred in the law? I think that one should distinguish between different kinds of disagreement in legal proceedings, which admit different demons. As a matter of fact, experts disagree on different things, which should be considered in more detail.

48   *Explicative disagreements*. — First, forensic experts may disagree on whether a certain event took place, or on the causal chain that explains such an event, or on the effects that it is likely to bring about in the future. This typically occurs in the case of disagreement between the experts appointed by the opposing parties, who are supposed to uphold the conflicting standpoints of the prosecutor and the defendant in adversarial legal proceedings. This kind of disagreement, which we might call *explicative*, is

physiological in adversarial legal proceedings and beneficial from an epistemic point of view (Kirk Lougheed 2020). The conflicting expert opinions contribute to proving that *p*, or not *p*, since they allow the judicial factfinders to confirm their hypothesis about the facts of the case, to falsify their hypothesis in the light of new evidence, or to revise their hypothesis altogether. In the case of explicative disagreement, therefore, it is up to the factfinder to determine, through cross-examination and in the light of the sum of the evidence, which expert's testimony is more reliable. Here the demon is given by the characteristics of the experts, their cross-examination, and the further available evidence brought to the attention of the court.

49   *Theoretical disagreements.* — Second, forensic experts may disagree with regards to the generalization, or "covering laws", that are employed by forensic factfinders to test a hypothesis about the facts of the case. This kind of disagreement does not concern what the experts claim, but rather the scientific theories on which their testimony is based, which are usually elaTGRorated by other experts. Theoretical disagreements may occur because the same event, for instance, the fact that Tom contracted mesothelioma, can be theorized in different ways that are equally accepted by the scientific community.[12] In cases like these, each generalization can be regarded as a default scientific standpoint that sheds light on a *different* aspect of the *same* phenomenon. But which scientific theory should be preferred in the courtroom? My idea is that theoretical disagreements are less problematic than we usually assume. If concurring scientific theories are equally accepted, alternative expert opinions based on them are *prima facie* equally correct. It will be up to the jurors or the judge to choose the generalization that explains the aspects of the phenomenon that are relevant to the individual case, and salient with regards to its legal qualification. A choice like this depends on legal reasons, not on scientific ones.

50   *Epistemological disagreements.* — A third kind of disagreement, that might be called *epistemological*, is related to the epistemic standards adopted by forensic experts to identify the sources and methods of knowledge that justify their beliefs. These epistemic standards typically include the rules of logic plus the procedural rules that govern the scientific method: 1) the formulation of a conjecture regarding the explanation of a phenomenon; 2) the prediction of the consequences that would result if this conjecture were true; 3) the degree of confirmation of that prediction guaranteed by the sum of the evidence (Carl Hempel 1966). Now, it is well known that epistemic standards are general principles that may be specified in different ways depending on the research field and the purpose of scientific research (Haack 2005). Therefore, it is not surprising that experts may disagree on them. Yet, when disagreement occurs, expert testimony should lose any probative value in legal proceedings. If E1's testimony is based on epistemic standards that are accepted by the scientific community, whereas E2's is not, E1's testimony must be clearly preferred to E2's. What E2 claims turns out to be junk science. If, rather, both E1 and E2 ground their testimony on epistemic standards that are equally recognized by their epistemic peers, but these standards are incompatible with each other, then neither E1's nor E2's testimony should be given probative value in legal proceedings. In the latter case, what we can infer from the experts' disagreement is that science is groping in the dark with regards to the issue under scrutiny, and the experts' testimonies are of no help in deciding a legal case. When an epistemological disagreement takes place, our demon is eventually given by what we think that knowledge and scientific enterprise amount to.

51   So, once again, default reasoning is crucial even in expert forensic testimony. The important thing is to identify the appropriate demon that tells us when an exception is needed in what we believe or do by default.

A.5 Philosopher of language

I find the distinction of different kinds of disagreement very interesting. We have seen epistemological and theoretical disagreements emerging after the second impeachment

of the former U.S. President. Was his invitation to his followers to "fight like hell" an incitement of insurrection against the government or was it an expression of free speech? The answer depends on the theory used. The lawyers defending the former president presented a series of videos in which the phrase "fight like hell" was also used by many democrats in their speeches. Therefore, the conclusion was that the phrase was to be taken as an innocent metaphor that many politicians use. The other side remarked that the different kinds of contexts gave that phrase different roles, and that in the context of the speech inviting his followers to go to the Palace of Congress, it was an incitement to insurrection. We have here two different theories: (a) a "literalist" theory according to which a sentence's meaning is its literal or metaphorical meaning *by itself*, independent of the context, and therefore its utterance constitutes freedom of expression, and (b) a "contextualist" theory according to which the meaning of a sentence depends *on the context* in which it is uttered, and therefore is to be evaluated on the consequences it has. This contrast also reveals an epistemological disagreement. We have different conjectures regarding the explanation of the phenomenon (the attack on the Capitol) with different epistemic standards. According to Trump's supporters, the attack was explained by the free will of the attackers who occupied the palace of their own initiative. For the other side – although not explicitly – the explanation of the phenomenon required a counterfactual causal theory: if the former president *had not said* those words, there *would have not been* any attack on the U.S. Congress. Assuming the truth of the counterfactual, we should conclude that there is a causal relationship between the speech and the attack.

53   But what to do now? Shall we (a philosopher of language and a legal philosopher) continue our discussion? We decided to arrive at an end at some point, and now seems a good one. We started with the idea of default reasoning and the problem it may pose to different aspects of legal reasoning and decision making. Default reasoning lies at the core of legal decision making. We didn't speak of the idea of "beyond any reasonable doubt", which seems to be another expression of a default argument: you have to reach a decision in a limited amount of time, often without complete information. You may have some "demons" or objections that cast doubt on a previously reached conclusion, but you cannot advance doubts without a "reason" (or without a reasonable demon). The need to reach a decision helps in understanding how to solve controversies, and the idea of distinguishing different disagreements is a good step towards a clarification of the issue of how to reach a decision. For the debate about the impeachment, we had Peirce's already quoted sceptical view on the law ("it is no longer the reasoning which determines what the conclusion shall be, but the conclusion which determines what the reasoning shall be"): the majority of Republicans wanted a certain conclusion and they found an argument to that effect. But we hope that the law will not always work in this way.

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Notes

1 See, e.g., Dworkin 1978; Schauer 1991; Ferrer and Ratti 2012; Duarte d'Almeida 2016; Prakken and Sartor 2004; Sartor 2018.

2 Hrafn Asgeirsson has called this standpoint the "pro tanto content view". See Asgeirsson 2020.

3 See again the classical Putnam 1975 and the shorter Putnam 1973; on the difference between stereotypes and prototypes see Marconi 1997.

4 Smith v. United States, 508 U.S. 223 (1993). For a discussion of this decision from the point of view of the philosophy of language see Neale 2007, Soames 2009; 251-393.

5 Title 18 U.S.C. 924(c)(1) required the imposition of specified penalties if the defendant, "during and in relation to" a drug trafficking crime, "uses a firearm".

6 See Berkeley FrameNet II database at https://framenet2.icsi.berkeley.edu/fnReports/data/frameIndex.xml?frame=Weapon.

7 Federal News Service (1998, September 21) *From the Starr Referral: Clinton's Grand Jury Testimony, Part 7.* Washington Post. https://www.washingtonpost.com/wp-srv/politics/special/clinton/stories/bctest092198_7.htm

8 Note here that the credibility of a testimony has two dimensions: it is related to both what the witness and what the judge or the jury thinks of him

9 Put another way, one could claim that in the case just outlined, the judge, thanks to expert testimony, is able to fix the reference of 'XYZ' even though she does not have the inferential competence to use 'XYZ'. On the distinction between inferential competence and referential competence, see Marconi 1997: 74.

10 According to the Daubert standard, the factors to be considered by the court in evaluating a scientific methodology are: (1) whether the theory or technique in question has been tested; (2) whether it has been subjected to peer review and publication; (3) whether its potential error rate is known; (4) the existence and maintenance of standards controlling its operation; and (5) whether it maintains widespread acceptance within the relevant scientific community. Cf. Daubert v. Merrell Dow Pharmaceuticals Inc., 509 U.S. 579 (1993).

11 See also the traditional contrast between credulous vs. skeptical arguments in solving conflicts in argumentation theory, as discussed for instance by Doutre-Mengin 2004

12 By "equally accepted" I mean that two competing scientific theories satisfy the epistemic criteria conventionally applied by the scientific community, not that such theories are adopted by the same number of research groups or are vindicated in scientific publications that have received approximately the same number of citations. This expression is to be interpreted in a qualitative rather than a quantitative sense.

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