Helping others to understand. A normative account of the speech act of explanation

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Abstract

This paper offers a normative account of the speech act of explanation with understanding as its norm. The previous accounts of the speech act of explanation rely on the factive notion of understanding and maintain that proper explanations require knowledge. I argue, however, that such accounts are too demanding and do not reflect the everyday practice of explanation and the attribution of understanding. Instead, I argue that the non-factive, objectual attitude of understanding is sufficient for a proper explanation. On the normative level, explanations are governed by an audience-centred norm, i.e., they are sensitive to the epistemic position of the audience. According to the proposed account, an explanation is a communicative act in which one puts the audience in a position to understand the explained phenomenon. This proposal fits into the recent wave of applications of the normative account and makes space for the pluralism of illocutionary acts.

1. Introduction

We explain different things to each other all the time. But providing explanations can be hard. The challenge concerns not only *what* is explained, but also *to whom* an explanation is given. A generally shared intuition, that stands at the heart of the present proposal, is that a good explanation should be adjusted to its audience.

This is nicely illustrated in the popular video format in which an expert explains a subject at 5 levels of complexity to various audiences, i.e., starting with children, moving to teenagers, and ending with experts.[1] The question behind this format is: "Can everything be explained to everyone in terms they can understand?" Understanding, thus, is seen as the product of explanation. More on this soon. When explaining something to children, the experts resort to simplifications, pick a particular aspect of the subject that is easier to digest, and even use pieces of information believed to be false. This is what good explainers do, i.e., they use a language that their audience can comprehend. When experts move to more mature

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[1] https://www.wired.com/video/series/5-levels.

audiences, their explanations become more exact and complex. The underlying assumption is that on each level the experts explain the same phenomenon and that each audience gains at least some understanding. It seems natural to attribute understanding not only to those who possess full expertise in a subject but also to those who acquired only partial understanding. After all, if we would require possessing full understanding in order to attribute understanding, we would reserve this concept to at most a handful of experts.

The available accounts of the speech act of explanation (Achinstein 1983; Turri 2015), however, do not attribute understanding to the audiences at the first levels, i.e., to children or teenagers. They maintain that explanations always must be true. Additionally, these accounts predict that the experts in question do something improper by not fully explaining the subject matter at the first levels. Instead, I propose that a proper account of explanation should reflect the complexity of the everyday practice of explanation. The proper account should attribute understanding to audiences at all levels, even if it will be merely a partial understanding at the first level. Following the normative account of speech acts, I propose that understanding is the norm of explanation. More precisely, I argue that one makes a proper explanation only if one puts the audience in a position to understand the explained phenomenon. What distinguishes my account from the previous ones is that the gained understanding does not need to be true. I rely on a non-factive conception of understanding, according to which, it is possible to obtain genuine understanding that is false.

The link between explanation and understanding is widely recognized; explanations provide understanding (Lipton 2004; Grimm 2010). A well-established tradition treats understanding as involving or being reducible to an act of *grasping*.[2] Thus, we can think about understanding as "… grasping systematic connections among elements of a complex whole, or gaining insight into certain relations between items within a larger body of information" (Jäger 2016, 180). While there are various types of understanding, I focus on the so-called objectual type.[3] Objectual understanding concerns subject matters or domains of things (Kvanvig 2003); for instance, understanding poker, COVID-19 vaccines, the

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[2] See e.g. Kvanvig (2003); Elgin (2004, 2007, 2017); de Regt and Dieks (2005); Grimm (2006, 2016); de Regt (2009); Khalifa (2013); Strevens (2013); Kelp (2015); Hills (2016).
[3] Different types of understanding have been taken to be paradigmatic, for arguments in favour of the objectual type, see e.g. Kvanvig (2003); Wilkenfeld (2013); Kelp (2015); Baumberger and Brun (2017); for an overview see e.g. Baumberger et al. (2017). A widely accepted view in epistemology holds that objectual understanding is irreducible to propositional knowledge, see e.g., Zagzebski (2001); Kvanvig (2003); Riggs (2003); Elgin (2004, 2007, 2009, 2017); Greco (2014); de Regt (2017)—contrary to the so-called understanding-why that is generally considered to be factive, see e.g. Hills (2016). Moreover, some cases of the co-called propositional understanding can be reducible to objectual understanding, see e.g. Gordon (2012).

blockchain, etc.[4] For simplicity, I restrict attention to cases of understanding empirical phenomena, like understanding the phenomenon of evolution, climate change, the structure of the atom, etc. Objectual understanding can be directly attributed by saying, for instance, "Sheryl understands photosynthesis," or "Mark understands the structure of the solar system."

The plan is as follows. I start by introducing a standard case of explanation together with a discussion of the previous accounts (Section 2). The subsequent sections present my account. In Section 3, I show that an explanation in which the speaker lacks belief can nonetheless be a proper explanation. In Section 4, I argue for the norm of explanation and show that some explanations may be proper but false. Section 5 discusses a speech-act-theoretical level of explanation.

2. True explanations

This section presents an overview of the available accounts of the speech act of explanation and the basic tenets of this debate. Let me start with the following example:

> EVOLUTION Jane is an expert in the theory of evolution and teaches a seminar at a university. She knows that the theory of evolution is complicated and may be demanding to understand. However, she has the whole semester to teach, and her audience consists of biology students that are prepared to comprehend such material. During her classes, Jane explains the theory of evolution step by step. She does that by uttering many true statements about this theory, like saying that humans share a common ancestor with great apes. As a result, her students acquire an understanding of evolution.

This story makes certain assumptions that I will unpack in this section. They consider, on the one hand, the link between explanation and understanding, and, on the other hand, the roles of the speaker and the audience. I will discuss these issues in relation to the previous accounts of the speech act of explanation (Achinstein 1983; Turri 2015).

I take EVOLUTION to be an uncontroversial case of a proper explanation. We can see here how explanation and understanding fit together. It seems natural to assume that to

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[4] In the context of linguistic communication, Carter et al. (2021) argue that we can also talk about *objectual understanding of a proposition*, which, jointly with linguistic understanding, contributes to understanding of a thought communicated by a speaker.

explain something the speaker herself must understand the subject matter. Jane satisfies this requirement. Moreover, a good explanation takes the audience into consideration. Jane's audience can understand a complex subject since they have proper background knowledge and capabilities to comprehend the material. Finally, gathering, say, one hundred true propositions about evolution is not tantamount to understanding evolution since the latter requires grasping the connections between these pieces of information. Thus, by expressing her understanding, Jane wants to do more than assert some facts about evolution—she aims to show how these pieces of information hang together.

A crucial assumption in EVOLUTION is that Jane can produce an understanding in her audience. Until recently, the consensus stated that understanding, unlike knowledge, cannot be generated in the audience by the speaker's testimony (Zagzebski 2008; Hills 2009). Zagzebski argues that testimony can be only an indirect source of understanding that lays the ground for potential understanding. The contention is that understanding involves grasping that is non-transferable. Recently, however, this contention has been questioned. At least some kinds of understanding can be acquired directly from testimony (Boyd 2017; Malfatti 2019, 2020, 2021; Green 2019; Grimm 2019). This position can be motivated in the following ways. Firstly, even though understanding is standardly thought of as something difficult, oftentimes it is easy to transmit and acquire. Imagine that you ask me why I am late for work, and I tell you "Traffic." Grimm (2021) observes that in such cases it seems that I transmitted understanding directly and quite effortlessly. It does not involve more from me than transmitting a particular piece of knowledge, like asserting that the meeting starts at 11:00. Boyd (2017, 17) shows how easy it is to understand something depends on the audience, on their background knowledge, cognitive skills, and abilities, etc. For a physicist, understanding Schrödinger's cat thought experiment is relatively easy; for me—it is difficult. Some things are easy to grasp (like understanding why I was late for work), and some are more difficult and demanding. Assuming I would possess the necessary background knowledge, I can acquire an understanding of Schrödinger's cat thought experiment via the teacher's testimony.

Secondly, and more relevantly for EVOLUTION, Jane is explaining the phenomenon of evolution via the theory of evolution. The latter plays the role of the so-called mediator, i.e., a representational device such as a theory or a model that allows for grasping a particular phenomenon (de Regt and Gijsbers 2017; de Regt 2017). Deploying such representational devices is a standard method used in science (more on this in the subsequent sections).

Now, the case of producing understanding via testimony can be translated into other speech acts. Recently, it has been argued that moral assertions (saying, for instance, that eating meat is wrong) can generate moral understanding (Simion 2018; Lewis 2019; Kelp 2020). Thus, just as ordinary assertions can generate knowledge in the audience, moral assertions can produce (moral) understanding in the audience. More generally, any assertoric speech act can be seen as testimony.[5] In this sense, I treat the speech act of explanation as testimony.

So far, there have been two attempts at capturing an explanation in speech act terms, i.e., Turri's (2015) and Achinstein's (1983). Before discussing them, I sketch the framework in which I will deliver my proposal.

According to the normative account, speech acts are social practices defined by norms (Austin 1962; Searle 1969; cf. Sbisà 2018). The view recently gained popularity thanks to Williamson's (1996) proposal that assertions are governed by the knowledge norm:[6]

KNA One must: assert that *p* only if one knows that *p*.

By saying that the speech act is proper I mean that it satisfies the constitutive norm—this is how the notion of propriety is used in the normative framework. For instance, according to KNA, my assertion that *p* is proper only if I know that *p*. Williamson's starting point is an analogy with games, i.e., just like games, speech acts are governed by certain norms constitutive for their performance.[7] The norms in question individuate a speech act. Thus, thanks to KNA, we can say that a particular illocution is an assertion and not, say, a guess or an order. (There are, of course, additional rules that contribute to a full characterisation of a speech act, like *sincerity* or *preparatory* conditions in Searle's (1969) view.)

Crucially, in this framework, the constitutive norms can be violated. As Williamson observes, "Constitutive rules do not lay down necessary conditions for performing the

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[5] For flat-out assertions, see Hinchman (2020); for hedged assertives, see van Elswyk (2022); for non-at-issue content, see Langton (2021).

[6] See e.g. Unger (1975); Slote (1979); Williamson (1996); DeRose (2002); Hawthorne (2003). A plethora of alternative norms have been proposed, for an overview see e.g. Pagin and Marsili (2021).

[7] The proper reading of the nature of Williamson's constitutive norm is a subject of discussion. The main critique comes from a theoretical assumption of Searle's (1969) constitutive vs. regulative distinction, where constitutive norms cannot be violated (see e.g. Marsili (2019) who, following this distinction, argues that Williamsonian norms are regulative). However, Williamson does not accept this distinction. Moreover, some argue that the constitutive norm of assertion delivers wrong intuitions concerning the question of when it can be violated; for a discussion, see e.g. Bräuer (2021). Some flagrant violations can result in no longer playing the game of assertion, see Kaluziński (2019) for a discussion of rules that have "game-termination potential." For a defence of Williamsonian understanding of constitutivity, see e.g. García-Carpintero (2022).

constituted act. When one breaks a rule of a game, one does not thereby cease to be playing that game" (1996, 240). Thus, a violation of the norm amounts to an Austinian abuse, not misfire (Austin 1962, 167-8). For instance, a false assertion is still an assertion and, in virtue of it, can be criticised qua assertion.[8]

Turri's (2015) account of explanation relies on his commitment to the knowledge norm of assertion. He proposes the so-called understanding norm of explanation, where understanding is treated as a special form of knowledge (Achinstein 1983; Lipton 2004; Grimm 2006; Kelp 2015), i.e., he assumes a *factive account of understanding*.[9] Factivism about understanding says that possessing understanding regarding p is incompatible with holding false beliefs regarding p, i.e., all parts of an explanation must be true.

If understanding is a special form of knowledge, the norm of explanation should mirror KNA. However, consider that p in KNA refers to a proposition, while the norm of explanation should refer to the phenomenon e that is explained (say, evolution) and to a proposition (or set of propositions) p that explains e (say, the theory of evolution that consists of a set of propositions). Here is a possible reading of Turri's view:[10]

> UN-T One must: explain e by communicating p only if one understands e by means of p.

Turri's norm, just as KNA, is *speaker-centred*, i.e., its sole focus is on the requirement that a speaker must satisfy. For example, Jane's explanation in EVOLUTION would be proper because Jane herself understands the phenomenon of evolution.

Understanding also lies in the centre of Achinstein's (1983, 2010) view. However, while Turri focuses on the role of the speaker, Achinstein looks at the audience. Explaining a certain phenomenon, for Achinstein (2010, 105), is about communicating it with the intention of rendering the phenomenon understandable, while making something understandable is to produce the relevant knowledge in the audience. Translating his view to normative terms, his

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[8] There are certain tests of assertion passing of which is a necessary condition of being an assertion, see e.g. Montminy (2020); Gaszczyk (2022).

[9] See e.g. Grimm (2006); Khalifa (2012); Strevens (2013); Greco (2014); Kelp (2015); for an overview, see e.g. Baumberger et al. (2017).

[10] Turri does not formulate an explicit norm of explanation, but he proposes that an explanation answers questions *why* or *how*. Thus, it seems that his preferred type of understanding would be understanding-why (Hills 2016) or understanding-how (Zagzebski 2008), not objectual understanding. For simplicity, I formulated UN-T in terms of the latter.

norm would be *audience-centred* since it specifies what an explanation is supposed to produce in the audience.[11] Here is his proposal:[12]

> UN-A One must: explain *e* by communicating *p* only if one intends to produce understanding regarding *e* by means of *p*.

Following UN-A, Jane's explanation is proper because she intends to produce an understanding of evolution in her audience.

In this section, I have shown that there is a general agreement that understanding is the norm of explanation. Both Turri and Achinstein assume a factive notion of understanding. Knowledge not only is something that the speaker must possess to make a proper explanation (UN-T), but is also the desired outcome of explanation (UN-A). In the rest of the paper, I argue that these conditions are too strong. In the next section (Section 3), I show that the speaker's knowledge is not necessary for making a proper explanation. In Section 4, I argue that a proper explanation does not need to generate knowledge.

3. Selfless explanations

Selfless assertions (Lackey 2007) are supposed to show that we can make proper assertions that we believe to be false.[13] It was already shown that a *selfless* speech act does not need to be an assertion.[14] I argue that some cases of selfless assertions can also be used as explanations. As a result, one can explain a phenomenon while lacking understanding of this phenomenon.

Lackey (1999, 2007) presents selfless assertions as working against the necessity thesis of the transmission of knowledge principle, which states that the hearer knows that *p* based on the speaker's testimony that *p* only if the speaker knows that *p* (1999, 473). Selfless assertions show that the speaker's knowledge is not necessary for the hearer's testimonial knowledge acquisition. Importantly, this argument was already extended to understanding,

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[11] For a discussion regarding speaker- and audience-centred norms, see e.g. García-Carpintero (2004); Willard-Kyle (2021).

[12] Achinstein's view is more complex but UN-A, I believe, represents the essence of it. He imposes the same condition on the speaker as Turri, but his focus is on the audience.

[13] More precisely, Lackey (2007, 599) formulates the following conditions:
An assertion that *p* is selfless if and only if:
1. a subject, for purely non-epistemic reasons, does not believe that *p*;
2. despite this lack of belief, the subject is aware that *p* is very well supported by all of the available evidence; and
3. because of this, the subject asserts that *p* without believing that *p*.

[14] See selfless presentations (Milić 2017), selfless moral assertions (Simion 2018, Kelp 2020).

i.e., it has been argued that understanding can be generated in the audience even when the speaker lacks such understanding herself (Malfatti 2019; Simion 2018; Kelp 2020; cf. Gordon 2017). Malfatti proposes that the production of understanding can be successful when the speaker elicits understanding intentionally and understands the mediators, like the theory that explains the phenomenon.[15] For instance, one can understand the theory of evolution but fail to understand the phenomenon of evolution. Consider the following variation of EVOLUTION (cf. Lackey 2007, 599):

> EVOLUTION* Stella is an expert in the theory of evolution and teaches a seminar at a university. Simultaneously, she is a strong believer in creationism and thus believes that the theory of evolution is false. However, she recognizes her obligation as a teacher to explain the most accurate scientific theory. She knows that the theory of evolution is complicated and may be demanding to understand. However, she has the whole semester to teach, and her audience consists of biology students that are prepared to comprehend such material. During her classes, Stella explains the theory of evolution step by step. She does that by uttering many true statements about this theory, like saying that humans share a common ancestor with great apes. As a result, her students acquire an understanding of evolution.

The only difference with EVOLUTION is that in EVOLUTION* Stella, contrary to Jane in EVOLUTION, does not believe in what she says. We can stipulate that she has the same expertise as Jane and says exactly the same things. It has been extensively argued that Stella's assertions produce knowledge (Lackey 2007; Milić 2017; Kelp 2018). If we agree that understanding can be generated in the audience, as I argued in the last section, we can extend this argument to the present context.

How do Turri's and Achinstein's views deal with EVOLUTION*? Stella satisfies UN-A since she intends to produce understanding. However, she fails UN-T since she lacks an understanding of the phenomenon of evolution. Still, some could argue that all that she does is explaining the mediator, i.e., the theory of evolution, which she understands. As I will show, this proposal is unsatisfactory.

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[15] The generation of understanding is not necessarily an intentional process. Imagine a teacher who is just reading out loud a textbook without possessing any understanding of the subject. Even in such a context, the audience can acquire understanding. Arguably, the teacher is not making any illocutionary act since she does not have an illocutionary intention, i.e., an intention to make a particular speech act; she is merely making a locutionary act.

One thing is to argue that Stella's explanation is successful, i.e., it has the potential to generate understanding in the audience, but another is to claim that there is nothing inappropriate in her speech act. Here is one way of framing this intuition. Speech acts can be described in terms of *self-representation*. It has been argued that to assert that *p* is to represent oneself as believing or knowing that *p*.[16] Thus, by asserting that the meeting starts at 11:00, I represent myself as being in a certain position, i.e., as believing (or knowing) this proposition. Now, one can *misrepresent* oneself as being in a different position than one really is. For instance, asserting that the meeting starts at 11:00 while believing that it starts at 12:00. By misrepresenting oneself, one can be judged as being insincere. After all, one violates Grice's maxim of quality (Grice 1989, 27), i.e., one says something one believes to be false.

What about explanations? By explaining a particular phenomenon *e*, one represents oneself as understanding *e*. Jane does exactly that. Stella, on the other hand, misrepresents herself since she does not believe in evolution. Thus, she is insincere.

The claim that selfless assertions (or any other selfless speech acts) are insincere is not universally accepted, however.[17] One strategy holds that Stella's explanation is hedged. There are two variants of this strategy—covert hedging and overt hedging.[18] Following the first, Stella covertly hedges her explanation, i.e., when she says *p*, (for instance, "Humans share a common ancestor with great apes.") she means something like "According to the theory of evolution, *p*," "According to the textbook, *p*," or "According to the best scientific evidence, *p*" (Milić 2017; cf. Malfatti 2019). The idea is that Stella asserts only the hedged content. Consider that neither of these hedges contradicts Stella's beliefs, so she could say that she believes and knows these statements to be true. Interestingly, these statements are not selfless anymore because, by making them, Stella expresses her own beliefs. There are several problems with this proposal. Firstly, as I argue in Gaszczyk (2019), it is hard to determine when Stella asserts a hedged content and when she speaks for herself. For instance, during an open discussion, Stella could express certain judgments on the evolutionary theory

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[16] This view has a long philosophical tradition; classically formulated by Moore (1962); Slote (1979); Unger (1975); more recently defended by van Elswyk (2021, 2022); see McCammon (2014) for a discussion in relation to KNA.

[17] Various norms of assertion have been proposed that are supposed to accommodate selfless assertions as proper assertions, see e.g. Lackey (2007); Milić (2017). On the other hand, most of the recent definitions of lying classify selfless assertions as lies. This position is rarely argued for. The dominant way of defining lying is as asserting insincerely, no intention to deceive is necessary, see e.g. Saul (2012); Stokke (2018); Marsili (2020); Viebahn (2021). Because selfless assertions are insincere, they are automatically counted by these views as lies. For arguments against it, see e.g. Lackey (2013); Peet (2021).

[18] I am grateful to an anonymous reviewer and the editors for encouraging me to elaborate on this point.

that are not universally shared by the scientific community. It is unclear whether in such circumstances her claims are covertly hedged or whether she speaks for herself.

Secondly, even granting that she hedges her claims, we must face the following question: "How can we specify what kind of hedging she is supposed to make?" A simple option can be to propose that by saying *p*, she means "According to the theory of evolution, *p*." But there are multiple other options on the table. In his discussion of this case, Milić (2017, 2287) suggests that Stella commits to strong evidential hedging, i.e., "According to the best available evidence, *p*." However, this does not reflect what is going on in this case. Stella does not recognize the theory of evolution as providing "the best available evidence." She rather presents "the best scientific evidence," where scientific evidence is not considered by her to be the best available one. Finally, her hedge could be weaker—something like reporting or presenting what the textbook says about evolution. There is no criterion which type of hedging we are supposed to choose.

Thirdly, notice that asserting that *p* carries a stronger commitment than asserting a hedged *p*. This difference is standardly made explicit. Imagine, for instance, that Stella gives a lecture at the creationists' conference. During this lecture, she does not hedge her claims when talking about creationism, but she does when speaking about evolution. This clearly establishes her stance towards both views. If she would not hedge any of her claims, the audience would not know what she thinks about the topic.

Notice finally that cases such as EVOLUTION* have consequences beyond the speaker's misrepresenting their beliefs. Even if we would agree that Stella covertly asserts hedged content, her audience does not know that. Thus, the natural interpretation of her statements is that the audience takes her to believe in what she says. Her students cannot suspect that she violates the Gricean maxim of quality. One can still ask her "How do you know that?" or "What makes you believe that?" and, by doing this, justifiably presuppose that she believes in what she says. Thus, the idea that Stella covertly hedges her explanation does not seem promising.

The second option for Stella would be to hedge overtly. She could say, for instance, "According to the theory of evolution, *p*." Here Stella is explicit in her commitments and is not insincere. I agree that this may theoretically work in some contexts. But in general, this is not a viable option, i.e., we do not and cannot hedge each statement when we explain particular things. It would be confusing if Stella would constantly hedge her explanations. What is more, overtly hedging one's claims is inappropriate in some contexts, especially in the case of younger audiences (more on this soon). By overtly hedging her statement, Stella

would not be insincere but her explanation could elicit such questions as "Do you believe that?" or "What do *you* think about it?" In general, overt hedging changes or diminishes the speaker's responsibility for the stated claim.[19] Thus, when one hedges one's statement, one signals to the audience that one lacks belief in what one says. The audience recognizes this and adjusts their position towards the hedged claim—they commit to it less than in the case of an unhedged claim. This is not the desired outcome for Stella since she wants to provide an explanation to her audience and adding hedges is a distraction. To sum up, the most straightforward and natural option is to maintain that Stella is insincere in her explanation. Selfless explanations show that one can successfully generate understanding in the audience without possessing the understanding in question.

4. False explanations and the norm of explanation

So far, the analysed explanations were true. In this section, I go a step further and show that false explanations can be judged as proper. I propose a norm of explanation that accommodates such cases. To do this, I embrace a non-factive notion of understanding.

Let me start with another version of EVOLUTION:

EVOLUTION** Bill is a biology teacher in a primary school. During one of the lessons, he teaches the theory of evolution. One of the main claims of the theory of evolution is that humans share a common ancestor with great apes. Bill is aware that the theory of evolution is very complicated and, agreeing with the curriculum, decides to teach his pupils a simplified version. He is a knowledgeable teacher so he could explain a more complicated and exact version of the theory. However, he presents a simplified version because he believes that at this level of education it is pedagogically better to explain the material that his students will be able to understand. During his lesson, he says that human beings descended from apes, even though he knows that this statement is false. As a result of his presentation, the pupils acquire some understanding of evolution.

Bill recognizes that he cannot assume a lot of background knowledge from his audience and, by giving a simplified explanation, aims to generate at least some understanding.

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[19] For a discussion, see e.g. Brown and Levinson (1987); Fraser (2010); van Elswyk (2022).

Although for different reasons than Stella in EVOLUTION**, Bill says something he believes to be false. Just as above, some could argue that he hedges his explanation. However, here too, his audience can naturally assume that when he says "*p*" he believes that *p* is true. Notice, moreover, even if one would be inclined to accept that Stella covertly hedged her explanation by meaning "According to the theory of evolution, *p*," this move would not be available here.[20] Stella believes that the statement "According to the theory of evolution, *p*" is true. However, Bill neither believes in the truth of the statement "Human beings descended from apes" nor "According to the theory of evolution, human beings descended from apes."

I argued above that overtly hedging one's explanation is not a viable option—it can result in reducing the commitment of both the speaker and the audience. In the context of explanations like EVOLUTION**, there are further reasons against overt hedges. Emphasising the falsity of taught theories may reduce the students' comprehension and prevent learning the theories in the first place. In such contexts, students may also struggle with cognitive dissonance (Bhakthavatsalam 2019). In the context of EVOLUTION**, hedging one's explanation, by saying something like "Remember that what I'm saying is merely a simplification and it's not true," may confuse the pupils. Finally, I will argue that Bill delivers genuine understanding and if so, hedging his explanation has no merit. Thus, Bill's explanation can be judged as insincere.[21]

Some may be reluctant to attribute understanding to Bill's students and think that his explanation is a significant departure from the theory of evolution. First of all, it is broadly acknowledged that this case provides the audience with genuine understanding (e.g. Elgin 2007, 2017). Nevertheless, other cases in which even central falsehoods are compatible with understanding can be multiplied (see e.g. Strevens 2017; de Regt and Gijsbers 2017; de Regt 2017). Consider a case where the explanation is model-based:

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[20] I am grateful to an anonymous reviewer for pointing this out to me.

[21] Those who think that Bill's explanation can be somehow hedged can imagine that he makes his explanation at a scientific camp for primary school students where he has freedom in deciding how deep into the topic he will dive. Intuitively, he still can explain a simplified version of the theory of evolution, but this time his explanation is not based on the textbook or the curriculum, so we cannot say that he covertly hedges his explanation. Gaszczyk and Krogulska (manuscript) tested experimentally various false explanations in such a context. Stories like EVOLUTION** and ATOM, which is introduced in the next paragraph, were juxtaposed with analogous explanations that differ only in the speaker's intention—one group read stories with a positive intention (e.g., the speaker gave a false explanation because she believed that this is pedagogically better) and one with a deceptive intention (e.g., the speaker gave a false explanation because she wanted to deceive the audience). Participants attributed lying to a significantly higher degree to the speakers with a deceptive intention, even though both explanations were the same.

ATOM Monica is a physics teacher in a primary school. One day, she teaches about the structure of an atom. She explains the Bohr model of an atom, according to which electrons travel in circular orbits around the nucleus. Monica knows that this is a simplification and a false depiction of an atom. She is aware that there are other, more exact but also much more complicated models of an atom. In her presentation of the Bohr model, she follows the curriculum. She also thinks that knowing this model is sufficient at this level of education and that explaining a more complicated model would only confuse her pupils. As a result of the presentation, her pupils acquire some understanding of the structure of an atom.

This case is analogous to EVOLUTION**. Monica chooses to explain a false theory to deliver some understanding. For the same reasons as Bill, she can be judged as insincere.

What do Turri and Achinstein say about such explanations? Bill fails UN-T since he explains something he believes to be false. UN-A is also not satisfied since Bill's explanation does not produce only true beliefs in the audience. ATOM gives the same results.

I argue that Bill's and Monica's explanations express and generate genuine understanding in their audiences. Here is the norm of explanation that I defend:[22]

UN One must: explain e by communicating p only if one puts the audience in a position to understand e by means of p.

UN is an audience-centred norm since it puts the epistemic position of the audience in the centre. The aim of UN is first and foremost to individuate explanations from other speech act types. Just as other constitutive norms, UN can be violated. A bad or incorrect explanation is still an explanation since the speaker's action is beholden to the same normative expectations as in the case of correct explanations. Thus, one can be criticised for explaining something

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[22] UN mirrors García-Carpintero's (2004) audience-centred norm of assertion, according to which, one's assertion that p is proper only if one's audience comes thereby to be in a position to know p; for other audience-centred norms of assertion, see Pelling (2013); Hinchman (2013); cf. Kelp and Simion (2021). Here is how Hinchman motivates the audience-centric perspective for the norm of assertion: "The core thought here is that there is an epistemic norm of assertion set by *the addressee's* circumstances: the normative aim of assertion is not simply to express knowledge but to give your addressee knowledge" (2020, 26, fn 12, emphasis in the original). My aim is to extend this perspective to the speech act of explanation. Importantly, audience-centred proposals subscribe to the view that assertive speech acts are fundamentally informative acts. Such views bring out the social and communicative aspects of language. Focusing on assertions, according to these views, a proper assertion that p is such that p is not already common knowledge, see e.g. Searle (1969, 66); Stalnaker (1978, 88-89 in 1999); Farkas (2022, 326). Similarly with explanations: a proper explanation is such that it is not yet commonly known, cf. fn 25.

badly or incorrectly qua explaining something. Of course, just as other speech acts, explanations are evaluated along many dimensions. Thus, an explanation can be epistemically proper but not, say, morally, or practically.

The norm has two gradable parts. The first part—*putting the audience in a position*—concerns the speaker. Explaining things is hard. Moreover, being an expert, i.e., possessing a high degree of understanding of a phenomenon, does not mean that one is good at explaining this phenomenon. A good explainer possesses certain skills that Croce (2019, 13) calls novice-oriented abilities. These are intellectual virtues that aim at improving laypeople's epistemic position, i.e., "sensitivity to the novice's needs, intellectual generosity, intellectual empathy, sensitivity to the novice's epistemic resources, and maieutic ability." All these abilities are directed toward the audience. A good explainer knows to whom the explanation will be given, i.e., knows what the background knowledge of the audience is, what their intellectual capabilities are, etc. On these grounds, one can adjust the explanation by using various techniques that facilitate understanding. If Bill satisfies these requirements, he can put his audience in a good position to acquire understanding. On the other hand, we can stipulate that Jane, although being an expert, is a bad explainer and lacks appropriate abilities. There are several ways in which Jane's explanation can be considered defective (cf. Croce 2019, 13). For instance, she may not know what the students do not understand and explain the wrong material, she may be unable to tailor the explanation to her audience (under- or overestimate them), or she may lack the ability to present the material in a digestible way. Because of that, her explanation may not put her audience in a good position to understand.

The second part—*to understand*—is also gradable. Gradability of understanding is broadly accepted (Kvanvig 2003; Elgin 2007; Hills 2016). The natural language reflects the complexity of our practice of attributing understanding. Just as we can say that Jane understands evolution *fully* or *completely*, we can hedge this attribution by saying that her students understand evolution *partially* or *barely*. Notice that both parts can go apart. Bill can put his audience in a good position but the understanding that he delivers is only partial. On the other hand, Stella's explanation is much more exact, but her delivery may impair or even prevent her students from acquiring understanding.[23] [24]

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[23] One can put the audience in a good position to understand, but does not generate understanding. This would be the case if, for instance, unbeknownst to Bill all the students would put on headphones during the lecture, and thus would not be able to acquire any understanding.

[24] Imagine that you ask me to explain evolution and I respond by saying that you should go watch a TED talk about evolution. Does it count as an explanation? Intuitively, it does not. By UN, to make an explanation, I must put the audience in a position to understand evolution by means of my answer. I do not provide any

Both Jane's and Stella's explanations satisfy UN since they put their audiences in a position to understand evolution. Stella, additionally, puts aside her religious convictions to deliver a scientifically accurate explanation. However, what would happen if she would explain creationism instead? In the present context, the question concerns an explanation of evolution. Creationism does not address this question in any meaningful way, i.e., it fails to give even a partial understanding of this phenomenon.[25] Understanding should be grounded in facts (Elgin 2007, 2017). Creationism does not answer to the facts. One way of grounding a theory in facts is arguing for factivity of understanding. Turri and Achinstein choose this path. Factivism, however, does not do justice to Bill's and Monica's explanations. Following factivism, we should say that their explanations, just as an explanation of creationism, are false and improper. This, however, seems wrong. In what follows, I will show that Bill's and Monica's explanations are compatible with the non-factive notion of understanding.[26] Crucially, non-factive understanding delivers an alternative way of grounding a theory in facts.

There are various motivations for employing non-factivism. First of all, science is better understood in non-factive terms. Elgin (2007, 2017) argues that factivism forces us to deny that contemporary science provides us with an understanding of the phenomena. Idealizations and mediators, like theories or models, have direct epistemic value and can provide genuine understanding, even though they involve believed-false pieces of information. Elgin (2007) calls them felicitous falsehoods. They are often employed in science and play a crucial role in scientific progress. Their usage is often considered essential to fostering understanding. Moreover, the contextual nature of understanding is naturally explicated in non-factive terms (De Regt and Dieks 2005; De Regt 2009, 2017; Khalifa 2013; Wilkenfeld 2013; De Regt and Gijsbers 2017). Finally, a speech-act-theoretic analysis of explanation is supposed to track the linguistic practice of ascribing understanding. The

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understanding here, rather I point you in a direction where you could find it. I am grateful to an anonymous reviewer for pushing me to clarify this.

[25] The recent empirical work indicates that scientists and laypeople alike consider a speech act to be an explanation when it provides an understanding to the audience (Waskan et al. 2014; Wilkenfeld and Lombrozo 2020). Wilkenfeld and Lombrozo (2020, 2590) conclude that "… there is strong reason to believe not only that explanations are judged by the extent to which they produce some mental state (namely understanding), but that understanding is sufficient to play this mental state role." Some may think that this conclusion goes against my proposal. However, Wilkenfeld (2014) shows that even though some explanations do not generate understanding, they are judged as explanations nevertheless (albeit can be judged as defective). UN delivers similar predictions. In the present context, explaining creationism does not produce understanding in the topic under discussion, i.e., understanding the phenomenon of evolution. Because of that, Stella could be criticised for giving an incorrect explanation since her speech act violates UN.

[26] See e.g. Zagzebski (2001); Elgin (2004, 2007, 2009, 2017); De Regt and Dieks (2005); De Regt (2009, 2017); De Regt and Gijsbers (2017); Potochnik (2017).

non-factive notion of understanding reflects this practice. It explains the gradability of understanding and the fact that one's understanding can be improved.

There are various ways of explicating how non-factive understanding can be grounded in facts. De Regt and Gijsbers (2017), for instance, propose the *effectiveness* condition on understanding that focuses on the explanatory success of a theory, not its factivity or empirical adequacy. The criteria for scientific effectiveness include making correct predictions, successful practical applications, and developing better science. Take, for instance, Newton's theory of gravity. Following factivism, we should say that Newton's theory does not provide an understanding of gravity because it postulates forces that we now believe do not exist (the concept of gravitational force has been abandoned nowadays). Thus, we should say that Newton did not understand gravity and that gravity cannot be understood on the basis of his theory. But this seems deeply wrong. It is widely accepted that Newton's theory of gravity delivers at least some genuine understanding of gravity, and because of that, it is a crucial part of high school and university physics education. Importantly, Newton's theory, albeit false, satisfies the criteria for scientific effectiveness. As de Regt and Gijsbers (2017, 69) argue, "Newton's theory of gravitation is very often more effective than GTR [Einstein's general theory of relativity] for the purpose of understanding gravitational phenomena on earth (and even for many astronomical and astrophysical purposes)."[27]

Going back to Bill and Monica, we are now equipped to say that their explanations provide at least some genuine understanding. Focusing on Bill, his explanation, contrary to an explanation of creationism, is grounded in facts. It includes the commitment to evolution and to the idea that humans and great apes are closely related. The falsehood that humans descended from apes allows Bill's students to grasp the relationship between pieces of information. Elgin (2009, 325) observes that "… the pattern exhibited in this case is endemic to scientific education. We typically begin with rough characterizations that properly orient us toward the phenomenon, and then refine the characterizations as our understanding of the science advances."[28] Thus, Bill lays the ground for expanding understanding of evolution in

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[27] The examples of false theories that provide genuine understanding can be multiplied, see e.g. Elgin (2007, 2017); de Regt and Gijsbers (2017); de Regt (2017).

[28] An anonymous reviewer raised the worry with EVOLUTION** such that it is difficult to show the difference between (1) 'humans descend from apes' and (2) 'humans descend from frogs.' Interestingly, Elgin (2007, 2009) gives a similar example to show the superiority of the non-factive conception of understanding over the factive one. The latter fails to distinguish between (1) and (2) since it classifies both as false and thus wrong. Here are three things that can be said by non-factivists to distinguish (1) and (2). Firstly, understanding is gradable and, with the same amount of information, (1) gives more understanding than (2). Thus, using (1) is preferable. Secondly, following the Gricean maxim of relation (1) is more relevant than (2). Thus, there arises the following question: "Why would one choose (2) over (1)?" If one is giving less information than one can on purpose, one is misleading and can be criticised for improper action. Finally, one of the criteria of the effectiveness condition

the future.[29] Finally, UN predicts that if Bill would explain the theory of evolution in the way Jane or Stella did, his explanation would be improper since it would not put his students in a position to understand evolution. In such a context, his students would not be able to grasp the complexity of the explanation. This observation strengthens the case that Bill's simplified explanation in EVOLUTION** is proper. Monica's explanation gives the same result—teaching the Bohr model is not only standard practice but a crucial stepping stone in understanding the structure of an atom. Thus, the non-factive notion of understanding allows us to show why, in certain contexts, explaining something false can be judged as a proper explanation.

5. The speech-act-level of explanation

I have been arguing that UN is the norm that individuates a particular speech act type. Consequently, explanations are distinct illocutionary acts. In this final part, I want to briefly motivate this claim.

Looking at the previous accounts, Turri (2015) proposes a reductionist view since explanations for him are reducible to assertions. His reasoning is as follows: if understanding is a form of knowledge and knowledge is the norm of assertion, knowledge is the norm of explanation; thus, explanations are species of assertions.[30] On the other hand, Achinstein (1983) argues for the distinctiveness of the speech act of explanation. For him, explanations are distinct because they are associated with a unique intention, namely, an intention to produce understanding.[31]

If Turri's UN-T is reducible to KNA, one could ask if UN is also not reducible to KNA. Because I argued that UN is compatible with non-factive understanding it cannot be reducible to a factive norm of assertion. However, accepting non-factivity of understanding does not mean that UN is just less demanding than, say, KNA. UN posits different

on understanding is giving correct predictions—(1) gives better predictions than (2), with the same amount of information.

[29] McKagan et al. (2008), based on their empirical research, show that teaching a false theory first may help later on in better understanding of more exact and complex theories. Their study concerns a similar case to ATOM. They show that teachers often select the Bohr model, even though they know that it is a false depiction of the atom, because more accurate models are much harder to understand.

[30] An anonymous reviewer notices that from Turri's reasoning it does not follow that explanations are species of assertions, but rather that both speech acts belong to a similar kind of speech acts.

[31] From all major taxonomies, only Austin (1962, 160-1) includes *explain* as a distinct speech act (on his list of *expositives)*.

requirements than any norm of assertion. Even though explanations can be false, they are demanding speech acts to make. One can utter many assertions without explaining anything.[32]

Still, oftentimes assertions and explanations go hand-in-hand, i.e., both speech acts can be performed simultaneously. This is consistent with the so-called illocutionary pluralism, i.e., the idea that we can and often do perform a plurality of speech acts through one utterance (Lewiński 2021a, cf. Clark and Carlson 1982). UN is compatible with KNA, i.e., one utterance can satisfy both norms. However, explanations and assertions do not always go together. When we lack knowledge, we can hedge our assertions or make weaker assertoric speech acts. Similarly with explanations. We can explain things that we are uncertain about or deliver partial explanations.

Assertions and explanations belong to the class of assertoric speech acts that are often thought along the alethic dimension, i.e., as speech acts that aim at truth and differ in the strength of the commitment to truth (Searle 1969; cf. Marsili 2018). Thus, we can say that when I am guessing, my commitment to the truth is weaker than in conjecturing, while in conjecturing it is weaker than in asserting, in asserting it is weaker than in guaranteeing, etc. Crucially, in each case, I aim at saying something true and my speech act is evaluated along this dimension. Thus, my conjecture can satisfy the norm of conjecturing (whatever it is), but when it is false, it can be criticised for being such. However, if my proposal is on the right track, the speech act of explanation does not naturally fit into this pattern. I have argued that an explanation can be proper albeit false. This is what UN predicts. Now, we can add to this the aim of explanation, which I propose is generating understanding (cf. Achinstein 1983; Wilkenfeld 2014). Since understanding can be non-factive, an explanation does not aim at

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[32] One could object and argue that explanations are not distinct speech act types, but rather are either (i) indirect, or (ii) second-order speech acts. Against (i), consider that standard cases of indirect speech acts involve sentences whose default use is to make a sentence with a different force, often in a different grammatical mood. A paradigmatic case are rhetorical questions which are questions that are used to make assertions, see e.g. Reimer (2020). Explanations do not fit into this schema; they are broadly construed as assertive speech acts, just as assertions. The reasoning against (ii) is less straightforward. Here some may see a strong analogy between the speech act of argumentation and explanation. Argumentation is often seen as a complex speech act that consists of many sentences, these sentences have forces of two (or more) speech acts (e.g., by arguing that *p*, we assert that *p*), and these sentences are inferentially connected to each other, see e.g. van Eemeren and Grootendorst (1984); cf. Lewiński (2021b). As a result, argumentations are seen as second-order speech acts built on first-order speech acts, notably assertions. Explanations typically share the listed features of argumentations, especially since the inferential connections between sentences are part of the grasping requirement on understanding. Nevertheless, it does not follow that explanations are second-order speech acts. Assertions are widely-regarded as knowledge-generating speech acts and, by extension, as second-order speech acts, this concerns argumentations too. On the other hand, according to my proposal, explanations do not necessarily satisfy this condition. A comprehensive comparison between explanation and argumentation goes beyond the scope of this paper. On the interactions and differences between explanations and argumentations in dialogical contexts, see e.g. Bex and Walton (2016). I am grateful to an anonymous reviewer and the editors for raising this objection.

truth. Consider Bill. The falsity of his explanation is not a mistake. He aims at producing genuine, although non-factive, understanding in his audience. Nevertheless, truth can still be an aim of explanation, but it does not need to be its primary one—it can be considered as a secondary or a long-term aim of explanation. What is crucial is that such explanations as EVLUTION** and ATOM satisfy both the norm and primary aim of explanation. Looking more broadly, there can be more assertoric speech acts for which truth is not the primary aim. However, more work must be done to motivate this observation.

6. Conclusions

In this paper, I offered a normative account of the speech act of explanation with understanding as its norm. The account puts the audience in the centre, i.e., UN, as the constitutive norm of explanation, is focused on the epistemic position of the audience. The speech act of explanation is laborious both for the speaker and the audience, but in its process, we can acquire something as valuable as understanding. Building on the previous work, I proposed treating understanding as a cognitive achievement that is gradable, transferrable, and non-factive. While my goal was not to deliver a full-fledged account of understanding, I wanted to provide an account that can do justice to our everyday practice of attributing understanding.

The difference between speaker- and audience-centred norms is not insignificant. To this point, the debate has been focused mainly on assertion. The discussion was concentrated on the question concerning the content of its constitutive norm, i.e., whether it is knowledge, truth, justification, or something else. More recently, the question regarding the nature of the norms has been debated, i.e., whether the norm should be focused on the speaker, the hearer or both. However, the findings regarding the nature of the norm of assertion can in principle be translated into other speech acts. As I was trying to show, arguing that understanding is the norm of explanation is not enough. There is a significant difference in propriety judgements between speaker- and audience-centred norms. More work needs to be done to explicate the division of labour between the speaker and the audience in the speech act production.

References

Achinstein, P. (1983). *The nature of explanation*. Oxford University Press.

Achinstein, P. (2010). *Evidence, Explanation, and Realism: Essays in the Philosophy of Science*. Oxford University Press.

Austin, J. L. (1962). *How to Do Things with Words*. Clarendon Press.

Baumberger, C., Beisbart, C., & Brun, G. (2017). What is understanding? An overview of recent debates in epistemology and philosophy of science. In S. R. Grimm, C. Baumberger, & S. Ammon (Eds.), *Explaining Understanding: New Perspectives from Epistemology and Philosophy of Science* (pp. 1–34). Routledge. https://doi.org/10.4324/9781315686110

Baumberger, C., & Brun, G. (2017). Dimensions of Objectual Understanding. In S. R. Grimm, C. Baumberger, & S. Ammon (Eds.), *Explaining Understanding: New Perspectives from Epistemology and Philosophy of Science* (pp. 165–189). Routledge. https://doi.org/10.4324/9781315686110

Bex, F., & Walton, D. (2016). Combining explanation and argumentation in dialogue. *Argument & Computation*, *7*(1), 55–68. https://doi.org/10.3233/AAC-160001

Bhakthavatsalam, S. (2019). The Value of False Theories in Science Education. *Science & Education*, *28*(1–2), 5–23. https://doi.org/10.1007/s11191-019-00028-2

Boyd, K. (2017). Testifying understanding. *Episteme*, *14*(1), 103–127. https://doi.org/10.1017/epi.2015.53

Bräuer, F. (2021). Assertion: The Constitutive Rule Account and the Engagement Condition Objection. *Erkenntnis*. https://doi.org/10.1007/s10670-021-00451-4

Brown, P., & Levinson, S. C. (1987). *Politeness: Some universals in language usage* (pp. xiv, 345). Cambridge University Press.

Carter, J. A., Gordon, E. C., & Grodniewicz, J. P. (2021). Understanding a communicated thought. *Synthese*, *198*(12), 12137–12151. https://doi.org/10.1007/s11229-020-02854-2

Clark, H. H., & Carlson, T. B. (1982). Hearers and Speech Acts. *Language*, *58*(2), 332–373. https://doi.org/10.2307/414102

Croce, M. (2019). On What It Takes to Be an Expert. *Philosophical Quarterly*, *69*(274), 1–21. https://doi.org/10.1093/pq/pqy044

De Regt, H. W. (2009). Understanding and scientific explanation. In H. W. De Regt, S. Leonelli, & K. Eigner (Eds.), *Scientific Understanding: Philosophical Perspectives* (pp. 21–42). Pittsburgh University Press.

De Regt, H. W. (2017). *Understanding scientific understanding*. Oxford University Press.

De Regt, H. W., & Dieks, D. (2005). A Contextual Approach to Scientific Understanding. *Synthese*, *144*(1), 137–170. https://doi.org/10.1007/s11229-005-5000-4

De Regt, H. W., & Gijsbers, V. (2017). How False Theories Can Yield Genuine Understanding. In S. R. Grimm, C. Baumberger, & S. Ammon (Eds.), *Explaining Understanding: New Perspectives from Epistemology and Philosophy of Science* (pp. 50–75). Routledge. https://doi.org/10.4324/9781315686110

DeRose, K. (2002). Assertion, Knowledge, and Context. *Philosophical Review*, *111*(2), 167–203. https://doi.org/10.1215/00318108-111-2-167

Elgin, C. Z. (2004). True Enough. *Philosophical Issues*, *14*(1), 113–131. https://doi.org/10.1111/j.1533-6077.2004.00023.x

Elgin, C. Z. (2007). Understanding and the facts. *Philosophical Studies*, *132*(1), 33–42. https://doi.org/10.1007/s11098-006-9054-z

Elgin, C. Z. (2009). Is Understanding Factive? In A. Haddock, A. Millar, & D. Pritchard (Eds.), *Epistemic Value* (pp. 322–330). Oxford: Oxford University Press.

Elgin, C. Z. (2017). *True Enough*. MIT Press.

Farkas, D. (2022). Non-Intrusive Questions as a Special Type of Non-Canonical Questions. *Journal of Semantics*, *39*, 295–337. https://doi.org/10.1093/jos/ffac001

Fraser, B. (2010). Pragmatic Competence: The Case of Hedging. In G. Kaltenböck, W. Mihatsch, & S. Schneider (Eds.), *New Approaches to Hedging* (pp. 15–34). Emerald.

García-Carpintero, M. (2004). Assertion and the Semantics of Force-Makers. In C. Bianchi (Ed.), *The Semantics/Pragmatics Distinction* (pp. 133–166). Stanford: CSLI Lecture Notes, 155.

García-Carpintero, M. (2022). How to Understand Rule-Constituted Kinds. *Review of Philosophy and Psychology*, *13*(1), 7–27. https://doi.org/10.1007/s13164-021-00576-z

Gaszczyk, G. (2019). Are Selfless Assertions Hedged? *Rivista Italiana Di Filosofia Del Linguaggio*, *13*(1), 47–54. https://doi.org/10.4396/09201909

Gaszczyk, G. (2022). Norms of Constatives. *Acta Analytica*. https://doi.org/10.1007/s12136-022-00531-2

Gaszczyk, G., & Krogulska, A. (manuscript). *Lying by explaining: Experimental data*.

Gordon, E. C. (2012). Is There Propositional Understanding? *Logos and Episteme*, *3*(2), 181–192. https://doi.org/10.5840/logos-episteme20123234

Gordon, E. C. (2017). Social Epistemology and the Acquisition of Understanding. In S. R. Grimm, C. Baumberger, & S. Ammon (Eds.), *Explaining Understanding: New*

Perspectives from Epistemology and Philosophy of Science (pp. 293–317). Routledge. https://doi.org/10.4324/9781315686110

Greco, J. (2014). Episteme: Knowledge and Understanding. In K. Timpe & C. A. Boyd (Eds.), *Virtues and Their Vices* (pp. 285–301). Oxford University Press.

Green, A. (2019). The Transmission of Understanding. *Res Philosophica*, *96*(1), 43–61. https://doi.org/10.11612/resphil.1743

Grice, H. P. (1989). *Studies in the Way of Words*. Cambridge: Harvard University Press.

Grimm, S. R. (2006). Is Understanding a Species of Knowledge? *The British Journal for the Philosophy of Science*, *57*(3), 515–535.

Grimm, S. R. (2010). The goal of explanation. *Studies in History and Philosophy of Science Part A*, *41*(4), 337–344. https://doi.org/10.1016/j.shpsa.2010.10.006

Grimm, S. R. (2016). How Understanding People Differs from Understanding the Natural World. *Philosophical Issues*, *26*(1), 209–225. https://doi.org/10.1111/phis.12068

Grimm, S. R. (2019). Transmitting Understanding and Know-How. In S. Hetherington & N. D. Smith (Eds.), *What the Ancients Offer to Contemporary Epistemology* (pp. 124–139). Routledge. https://doi.org/10.4324/9780429344138

Grimm, S. R. (2021). Understanding. In E. N. Zalta (Ed.), *The Stanford Encyclopedia of Philosophy* (Summer 2021). https://plato.stanford.edu/archives/sum2021/entries/understanding/

Hawthorne, J. (2003). *Knowledge and Lotteries*. Oxford University Press.

Hills, A. (2009). Moral Testimony and Moral Epistemology. *Ethics*, *120*(1), 94–127. https://doi.org/10.1086/648610

Hills, A. (2016). Understanding Why: Understanding Why. *Noûs*, *50*(4), 661–688. https://doi.org/10.1111/nous.12092

Hinchman, E. S. (2013). Assertion, Sincerity, and Knowledge. *Noûs*, *47*(4), 613–646. https://doi.org/10.1111/nous.12045

Hinchman, E. S. (2020). Assertion and Testimony. In S. Goldberg (Ed.), *The Oxford Handbook of Assertion* (pp. 553–579). Oxford University Press. https://doi.org/10.1093/oxfordhb/9780190675233.013.23

Jäger, C. (2016). Epistemic Authority, Preemptive Reasons, and Understanding. *Episteme*, *13*(2), 167–185. https://doi.org/10.1017/epi.2015.38

Kaluziński, B. (2019). Rules and Games. *Philosophia*, *47*(4), 1165–1176. https://doi.org/10.1007/s11406-018-0050-2

Kelp, C. (2015). Understanding phenomena. *Synthese*, *192*(12), 3799–3816. https://doi.org/10.1007/s11229-014-0616-x

Kelp, C. (2018). Assertion: A Function First Account: Assertion: A Function First Account. *Noûs*, *52*(2), 411–442. https://doi.org/10.1111/nous.12153

Kelp, C. (2020). Moral Assertion. *Ethical Theory and Moral Practice*, *23*(3–4), 639–649. https://doi.org/10.1007/s10677-020-10107-x

Kelp, C., & Simion, M. (2021). *Sharing Knowledge: A Functionalist Account of Assertion*. Cambridge University Press. https://doi.org/10.1017/9781009036818

Khalifa, K. (2012). Inaugurating Understanding or Repackaging Explanation? *Philosophy of Science*, *79*(1), 15–37. https://doi.org/10.1086/663235

Khalifa, K. (2013). Understanding, Grasping, and Luck. *Episteme*, *10*(1), 1–17. https://doi.org/10.1017/epi.2013.6

Kvanvig, J. L. (2003). *The Value of Knowledge and the Pursuit of Understanding*. Cambridge University Press. https://doi.org/10.1017/CBO9780511498909

Lackey, J. (1999). Testimonial Knowledge and Transmission. *The Philosophical Quarterly*, *49*(197), 471–490. https://doi.org/10.1111/1467-9213.00154

Lackey, J. (2007). Norms of Assertion. *Noûs*, *41*(4), 594–626. https://doi.org/10.1111/j.1468-0068.2007.00664.x

Lackey, J. (2013). Lies and deception: An unhappy divorce. *Analysis*, *73*(2), 236–248. https://doi.org/10.1093/analys/ant006

Langton, R. (2021). Lies and back-door lies. *Mind*, *130*(517), 251–258. https://doi.org/10.1093/mind/fzaa040

Lewiński, M. (2021a). Illocutionary pluralism. *Synthese*, *199*(3–4), 6687–6714. https://doi.org/10.1007/s11229-021-03087-7

Lewiński, M. (2021b). Speech Act Pluralism in Argumentative Polylogues. *Informal Logic*, *41*(3), 421–451. https://doi.org/10.22329/il.v41i3.6855

Lewis, M. (2019). The Norm of Moral Assertion: A Reply to Simion. *Ethical Theory and Moral Practice*, *22*(4), 1043–1049. https://doi.org/10.1007/s10677-019-10033-7

Lipton, P. (2004). *Inference to the Best Explanation* (2nd ed.). Routledge. https://www.routledge.com/Inference-to-the-Best-Explanation/Lipton/p/book/97804 15242035

Malfatti, F. I. (2019). Can Testimony Generate Understanding? *Social Epistemology*, *33*(6), 477–490. https://doi.org/10.1080/02691728.2019.1628319

Malfatti, F. I. (2020). Can Testimony Transmit Understanding? *Theoria*, *86*(1), 54–72. https://doi.org/10.1111/theo.12220

Malfatti, F. I. (2021). On Understanding and Testimony. *Erkenntnis*, *86*(6), 1345–1365. https://doi.org/10.1007/s10670-019-00157-8

Marsili, N. (2018). Truth and Assertion: Rules vs Aims. *Analysis*, *78*(4), 638–648. https://doi.org/10.1093/analys/any008

Marsili, N. (2019). The norm of assertion: A 'constitutive' rule? *Inquiry*, 1–22. https://doi.org/10.1080/0020174X.2019.1667868

Marsili, N. (2020). Lying, speech acts, and commitment. *Synthese*, *199*(1–2), 3245–3269. https://doi.org/10.1007/s11229-020-02933-4

McCammon, C. (2014). Representing Yourself as Knowing. *American Philosophical Quarterly*, *51*(2), 133–144.

McKagan, S. B., Perkins, K. K., & Wieman, C. E. (2008). Why we should teach the Bohr model and how to teach it effectively. *Physical Review Special Topics - Physics Education Research*, *4*(1), 010103. https://doi.org/10.1103/PhysRevSTPER.4.010103

Milić, I. (2017). Against selfless assertions. *Philosophical Studies*, *174*(9), 2277–2295. https://doi.org/10.1007/s11098-016-0798-9

Montminy, M. (2020). Testing for Assertion. In S. C. Goldberg (Ed.), *The Oxford Handbook of Assertion* (pp. 371–389). Oxford University Press. https://doi.org/10.1093/oxfordhb/9780190675233.013.14

Moore, G. E. (1962). *Commonplace Book, 1919-1953*. New York: Routledge.

Pagin, P., & Marsili, N. (2021). Assertion. In E. N. Zalta (Ed.), *The Stanford Encyclopedia of Philosophy* (Winter 2021). Metaphysics Research Lab, Stanford University. https://plato.stanford.edu/archives/win2021/entries/assertion/

Peet, A. (2021). Testimonial worth. *Synthese*, *198*(3), 2391–2411. https://doi.org/10.1007/s11229-019-02219-4

Pelling, C. (2013). Assertion and The Provision of Knowledge. *The Philosophical Quarterly*, *63*(251), 293–312. https://doi.org/10.1111/1467-9213.12013

Potochnik, A. (2017). *Idealization and the Aims of Science*. University of Chicago Press. https://press.uchicago.edu/ucp/books/book/chicago/I/bo27128726.html

Reimer, M. (2020). Rhetorical Questions as Indirect Assertions. In S. Goldberg (Ed.), *The Oxford Handbook of Assertion* (pp. 219–243). Oxford University Press. https://doi.org/10.1093/oxfordhb/9780190675233.013.16

Riggs, W. D. (2003). Understanding 'Virtue' and the Virtue of Understanding. In M. DePaul & L. Zagzebski (Eds.), *Intellectual Virtue: Perspectives from Ethics and Epistemology* (pp. 203–226). Oxford University Press. https://doi.org/10.1093/acprof:oso/9780199252732.003.0010

Saul, J. M. (2012). *Lying, misleading, and what is said: An exploration in philosophy of language and in ethics*. Oxford University Press. 10.1093/acprof:oso/9780199603688.001.0001

Sbisà, M. (2018). Varieties of Speech Act Norms. In M. Witek & I. Witczak-Pilsiecka (Eds.), *Normativity and Variety of Speech Actions* (pp. 23–50). Brill. doi.org/10.1163/9789004366527_003

Searle, J. R. (1969). *Speech Acts: An Essay in the Philosophy of Language*. Cambridge University Press. https://doi.org/10.1017/CBO9781139173438

Simion, M. (2018). The Explanation Proffering Norm of Moral Assertion. *Ethical Theory and Moral Practice*, *21*(3), 477–488. https://doi.org/10.1007/s10677-018-9922-6

Slote, M. (1979). Assertion and Belief. In J. Dancy (Ed.), *Papers on Language and Logic* (pp. 177–190). Keele University Press.

Stalnaker, R. (1978). Assertion. In P. Cole (Ed.), *Syntax and semantics* (Vol. 9). Academic Press; (References are to the reprint in R. Stalnaker, Context and content. Oxford University Press. 1999. pp. 78–95.).

Stokke, A. (2018). *Lying and Insincerity*. Oxford University Press. 10.1093/oso/9780198825968.001.0001

Strevens, M. (2013). No understanding without explanation. *Studies in History and Philosophy of Science Part A*, *44*(3), 510–515. https://doi.org/10.1016/j.shpsa.2012.12.005

Turri, J. (2015). Understanding and the Norm of Explanation. *Philosophia*, *43*(4), 1171–1175. https://doi.org/10.1007/s11406-015-9655-x

Unger, P. (1975). *Ignorance: A Case for Scepticism*. Oxford University Press.

van Eemeren, F. H., & Grootendorst, R. (1984). *Speech acts in argumentative discussions. A theoretical model for the analysis of discussions directed towards solving conflicts of opinion.* Berlin/DordrechtDe Gruyter/Foris. https://dare.uva.nl/search?identifier=f70591ac-692d-4188-b5a0-fa8cb6b6fe88

van Elswyk, P. (2021). Representing Knowledge. *The Philosophical Review*, *130*(1), 97–143. https://doi.org/10.1215/00318108-8699695

van Elswyk, P. (2022). Hedged Testimony. *Noûs,* 1-29. https://doi.org/10.1111/nous.12411

Viebahn, E. (2021). The Lying-Misleading Distinction: A Commitment-Based Approach. *The Journal of Philosophy*, *118*(6), 289–319. https://doi.org/10.5840/jphil2021118621

Waskan, J., Harmon, I., Horne, Z., Spino, J., & Clevenger, J. (2014). Explanatory anti-psychologism overturned by lay and scientific case classifications. *Synthese*, *191*(5), 1013–1035. https://doi.org/10.1007/s11229-013-0304-2

Wilkenfeld, D. A. (2013). Understanding as representation manipulability. *Synthese*, *190*(6), 997–1016. https://doi.org/10.1007/s11229-011-0055-x

Wilkenfeld, D. A. (2014). Functional explaining: A new approach to the philosophy of explanation. *Synthese*, *191*(14), 3367–3391. https://doi.org/10.1007/s11229-014-0452-z

Wilkenfeld, D. A., & Lombrozo, T. (2020). Explanation Classification Depends on Understanding: Extending the Epistemic Side-Effect Effect. *Synthese*, *197*(6), 2565–2592. https://doi.org/10.1007/s11229-018-1835-3

Willard-Kyle, C. (2021). P, but you don't know that P. *Synthese*, *199*(5–6), 14667–14690. https://doi.org/10.1007/s11229-021-03438-4

Williamson, T. (1996). Knowing and Asserting. *The Philosophical Review*, *105*(4), 489–523. https://doi.org/10.2307/2998423

Zagzebski, L. (2001). Recovering Understanding. In M. Steup (Ed.), *Knowledge, Truth, and Duty* (pp. 235–252). Oxford University Press. https://doi.org/10.1093/0195128923.003.0015

Zagzebski, L. (2008). *On Epistemology*. Wadsworth.