The Epistemology of Understanding. A contextualist approach

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Abstract

This paper aims to provide a unifying approach to the analysis of understanding coherencies (interrogative understanding, e.g. understanding why something is the case) and understanding subject matters (objectual understanding) by highlighting the contextualist nature of understanding. Inspired by the relevant alternatives contextualism about knowledge, I will argue that understanding (in the above mentioned sense) inherently has context-sensitive features and that a theory of understanding that highlights those features can incorporate our intuitions towards understanding as well as consolidate the different accounts of how to analyse understanding.

In developing a contextualist account of understanding, I will argue that an account of the features commonly taken to be central to understanding greatly benefits from a contextualist framework. Central to my analysis will be the claim that a person has to fulfil the function of a competent problem solver in order to qualify for the ascription of understanding. In addition to the theoretical elucidation of my contextualist approach to understanding, a demanding hypothetical scenario will be developed to function as a test case.

Keywords: *understanding, contextualism, explanation, knowledge, relevant alternatives*

Introduction

Recent debates in epistemology have displayed an increasing interest in the nature of understanding. While understanding, in the sense of grasping phenomena and/or facts,[1] is a central part of our making sense of the world, modern epistemology has primarily been concerned with the study of knowledge and the concepts it consists of. Some decades ago, philosophers like Linda Zagzebski, Catherine Elgin and Jonathan Kvanvig prominently voiced their growing discontent with this limitation

of epistemological interest and propagated a turn towards understanding.[2] They intended not only to show that understanding is an epistemic achievement worthy of philosophical consideration but that the study of understanding may lead to a deeper understanding of epistemology itself.[3]

Since then, many authors have pondered the questions of whether understanding is or is not a form of knowledge, what types of understanding there are, what features are central to understanding and why understanding is a valuable epistemic goal.[4] In the first section of this essay, this concept of understanding will be introduced by explaining how the metaphor of *emphgrasping* can be explicated, by clarifying how understanding builds on factivity and by elucidating the gradual character of understanding.

The second section will focus on the questions of why a theory of understanding is best developed within a contextualist framework and how such a framework should look like to capture our intuitions towards understanding as well as the theoretical findings of the ongoing debate. That our ordinary way of ascribing understanding favours such a contextualist treatment will be shown by referring to the context-sensitive character of the concept of explanation and by elucidating the role context plays in determining degrees of understanding. In the following presentation of my contextualist theory of understanding, I will link the contextualist framework that evolves around the concept of being a competent problem solver to an objective construal of the knowledge of facts and dependency relations, thus preserving the intuition that understanding is a demanding cognitive achievement that incorporates more than the mere knowledge of a fact. In the remainder of this section, I will discuss rival accounts that incorporate contextualist elements as well as the benefits a contextualist approach to understanding offers regarding the ongoing debate on understanding.

After confirming this contextualist account of understanding in the third section of this essay by discussing a demanding test scenario where one and the same person correctly ascribes understanding to herself in one context and refrains from ascribing the same understanding to herself in another context, I will look beyond the field of epistemology in the conclusion of this essay. It will be glimpsed at how a contextualist treatment of understanding may bridge the gap between the debate on understanding in epistemology and the respective debate in the philosophy of science.

1 Central Features of Understanding

Understanding is a term that is used to describe various cognitive achievements, among them the semantic and pragmatic understanding on which every stretch of communication is based as well as the emotional understanding natural human interaction relies on. However, the term *understanding* as it is meant in the scope of this essay will refer to neither of these concepts, but rather to the kind of understanding that enables you to grasp (relations between) facts (e.g. why your car broke down) and phenomena (e.g. quantum mechanics).

In this section, this schematic notion of understanding will be clarified by looking at its three primary features. Before that, however, a preliminary note regarding the different types of understanding is necessary. Understanding is commonly taken to be divided into three types: propositional understanding (S understands that p), objectual understanding (S understands P) and interrogative understanding (S understands why/how/... p). Propositional understanding will not be of interest in this essay, both because most authors argue that *understanding that p* is just *knowing that p* and because it is far from being a paradigmatic usage of "understanding".[5] In contrast, both objectual understanding and interrogative understanding are to be considered as paradigmatic and will thus be focused on. However, I will not differentiate between these types of understanding when presenting my theory, because it equally applies to both of them.[6] Thus, the question of what, if any, differences exist between these types of understanding is irrelevant in the course of this essay.[7]

The first feature to focus on when elucidating the concept of understanding is the metaphorical notion of *grasping*. *Grasping* is used to describe the cognitive operation we have to carry out in order to gain understanding. To gain understanding of some phenomenon, we need not only believe or have knowledge of the isolated facts belonging to that phenomenon, but also be able to relate these facts to one another. The act of joining the dots, of establishing relationships between facts is what *grasping* refers to. There are diverse accounts of how to analyse what grasping exactly consists of. For reasons of brevity, I will refer to the analysis of Stephen Grimm.

According to Grimm, when we grasp something we exercise a "modal sense or ability" which involves "not just to register how things are, but also the ability to anticipate how certain elements of the system would behave, were other elements different in one way or another".[8] In other words, grasping requires one to exercise the ability to draw modal in-

ferences which in turn requires the ability to think up counterfactual conditionals. This process need not always be a conscious cognitive act. In many everyday cases, where the phenomenon we seek to understand does not pose much of a challenge to our cognitive abilities, the act of grasping happens within fragments of seconds without us consciously thinking about it. That grasping comes down to the described process of drawing modal inferences becomes obvious when we are much more challenged in trying to understand the respective phenomenon. In those cases, counterfactual conditionals are thought up in order to gain understanding, for instance by asking questions of the form "What would happen if. . . ?".[9] The second aspect central to the concept of understanding is its factivity. Similar to knowledge, understanding is a demanding cognitive achievement that builds on a factive basis. Whereas no agreement has yet been reached on how to spell out this factive basis,[10] it is almost undisputed that in order to gain understanding of a phenomenon the vast majority of the pieces of information we have regarding that phenomenon need to be true. Since one cannot gain understanding of a subject matter based on a body of false assumptions regarding that subject matter, understanding needs to be conceived as a factive notion.

The last feature to consider is the gradual character of understanding. Understanding exhibits graduality in two dimensions: breadth and depth. Those dimensions can best be explained by picturing the object of understanding as a layered structure, where each layer is made up by facts of the same level of technicality or detailedness. *Breadth* of understanding corresponds to how many facts of one and the same layer are known and how well these facts are related to one another without incorporating facts from other layers. Depths of understanding then corresponds to how much the understanding of the subject matter relies on connecting facts from different layers, i.e. on connecting facts that exhibit a different degree of technicality or complexity. Depending on context, both breadth and depth of understanding might function as the dominant factor or might be equally important in determining the overall degree of understanding. How the exact degree of understanding is determined is still the subject of an ongoing debate. While authors have tried to define graduality both as an enhancement of minimal understanding and as an approximation to maximal understanding, a direct account of graduality seems to be most promising.[11]

We have now reached a sufficiently rough characterisation of what the act of understanding is: the grasping of phenomena and/or facts that admits of degrees and builds on a factive basis. In the following

section, it will be shown why understanding should be embedded into a contextualist framework.

2 Understanding Contextualised

2.1 Why Understanding Should Be Contextualised

In motivating his contextualist treatment of knowledge ascriptions, Keith DeRose referred to ordinary talk as providing the "best grounds for accepting contextualism".[12] In a similar fashion, a contextualist approach to understanding can be justified by looking at two integral elements of our ordinary practice of ascribing understanding: its gradual character and its close connection to the concept of explanation.

In a recent essay, Christoph Baumberger emphasized that much closer attention should be paid to the fact that understanding admits of degrees, noticing that the gradual character of understanding is essential to the way we ordinarily ascribe understanding.[13] Whenever we evaluate whether to ascribe understanding to someone, the gradual nature of understanding comes into play as either one of two underlying questions. In the first case, we ask ourselves what *degree of understanding* we should ascribe to the person we are evaluating and are thus directly concerned with the graduality of understanding. In the second case, we ask ourselves whether the person qualifies for an ascription of *outright understanding*, i.e. of an understanding that need not be graduated. Each of these questions gives us strong reasons for believing that understanding is a context-sensitive concept. Beginning with the first case, every ascription of a degree of understanding happens relative to a contextually determined standard. What counts as a high understanding of the evolution in the course of a form nine biology lesson will not even count as a low understanding of the same phenomenon in the course of an appointment commission seeking to fill the vacant professorship of biology.[14] Between these two situations, neither the evaluated subject nor the object of understanding changes. The different evaluation of the student's understanding is solely caused by changing the person that is ascribing understanding: the teacher in the first case and the appointment commission in the other. What determines the standard for the ascription of understanding is therefore the *ascriber's context*. This context is constituted by the conversational situation the ascriber is in which in turn evolves around her interrogative interest (e.g. the alternatives she considers or her reasons for doubting the correctness of the subject's answer).[15]

Considering the second case, every ascription of outright understanding boils down to the question of whether the understanding of the evaluated person exceeds a certain threshold. Just like the standard of understanding, this threshold is contextually determined. Holding all other variables fixed, what the student has to understand about the evolution in order to correctly be ascribed the outright understanding of it by his teacher will be radically different from what the same student would have to understand about the evolution in order to qualify for having the respective outright understanding ascribed by the appointment commission. Once again, it is the ascriber's context that determines the threshold for the ascription of outright understanding.

Besides its graduality, the close connection of understanding to the concept of explanation also speaks in favour of a contextualist account of understanding. *Explanation* is, in a certain sense, a contextualist notion. While it is disputed whether contextual features should be taken into account when determining the *correctness* of an explanation, it is generally agreed upon that they come into play when determining whether or not an explanation succeeds in being *explanatory*.[16] The way we ordinarily talk about explanations confirms this verdict, since we keenly acknowledge that whatever suffices as a good explanation of some phenomenon for me does not necessarily need to be a good explanation of the same phenomenon for my students. We intuitively admit that a number of contextual factors determine whether an explanation is good: it has to be intelligible; it has to appropriately relate to the subject's background knowledge of the respective phenomenon; when necessary, it has to include examples; and so forth. Those factors are contextual in the sense that they relate to the addressee of the explanation, thus showing that an explanation is essentially a complex description of some subject matter tailored to the intellectual background of its addressee.[17] Assuming that understanding is the goal of explanation,[18] fundamentally different explanations of some subject matter invoke a different understanding of this subject matter. If what is understood about a subject matter then depends on how it is explained and if the explanations used in order to promote understanding significantly vary from context to context, in quantity as well as in quality, then the understanding promoted by those explanations also varies from context to context.

We can therefore conclude that both the gradual character of understanding as well as its close connection to the concept of explanation suggest a contextualist treatment of understanding.

2.2 Contextualist Account of Understanding

I propose the following contextualist account of understanding.

> **Contextualist Understanding**
> A speaker who utters the sentence "S understands why p" in context C is saying something true if and only if:
>
> (1) S knows a number of facts regarding p *and*
>
> (2) S knows some dependency relations regarding p *and*, *based on fulfilling* (1) *and* (2),
>
> (3) S is able to correctly solve all problems the speaker considers relevant in C in a way the speaker deems suitable in C.[19]

There are several things to note about this contextualist conception of understanding. Firstly, every ascription of understanding happens between three types of agents: an inquirer, an ascriber and a (putative) problem solver. The *inquirer* is the agent that raises the problems that the problem solver has to solve.[20] She either already has understanding of the respective subject matter and is thus just testing the problem solver or has no understanding of the subject matter and is genuinely looking for enlightenment. The *ascriber* is the agent who either ascribes understanding, refrains from ascribing understanding (in cases of an unclear judgement) or denies the ascription of understanding to the problem solver. The *problem solver* is the agent that either qualifies or fails to qualify for the ascription of understanding.[21] Note that these agents represent different *functional roles* and do not carry any implications regarding the number of persons involved in the ascription process. Furthermore, the given conception assumes that the speaker is both the ascriber and the inquirer. More about the relationship between agents and actual persons will be said in the third section of this essay.

Secondly, condition (1) of the given conception represents the background knowledge that is necessary for understanding. Exactly how many facts S has to know to fulfil condition (1) will be a matter of context. As a minimum requirement, at least those facts have to be known that enable the knowledge of the dependency relation as stated in condition (2).

Thirdly, condition (2) refers to the element of grasping.[22] Since the understanding of a phenomenon builds on grasping how the respective facts regarding that phenomenon hang together, S need not only possess the knowledge of these individual facts, but also the knowledge

of the *dependency relations* that exist between those facts.[23] As with condition (1), the extent of this knowledge will depend on the raised problems. Generally put, the ascription of a more comprehensive understanding builds on the subject being able to solve more demanding problems which in turn requires that the subject knows an increasing number of dependency relations. As a minimum requirement, at least one dependency relation will have to be known.

In conjunction with (1), condition (2) corresponds to the intuition that understanding is a demanding cognitive achievement. As such, one can only understand some subject matter if one possesses some knowledge regarding that subject matter. It is thereby inessential whether this knowledge is deemed relevant by the ascriber. An example helps to clarify that point. Picture that an ascriber seeks the solution of a pressing problem. Due to the urgency of the situation, she is only interested in her problem being solved and does not care what, if any, background knowledge the problem solver has of the respective problem. Assume that the problem solver provides a satisfying solution to the posed problem; a solution, however, that he only acquired via testimony and passed on without having grasped it. Think of him as a reciter who merely reproduced a series of words. Now, by construing (1) and (2) as *objective* conditions that do not include the question of whether the ascriber deems the knowledge leading up to understanding relevant, we can avoid that understanding is *correctly* ascribed in a case like this. Since her problem was solved, the ascriber may momentarily ascribe the respective understanding to the problem solver. However, she would certainly revoke this ascription and acknowledge that she incorrectly ascribed understanding to the problem solver as soon as she learns that he only passed on a solution without having grasped it. After all, he withheld the information that he acquired the respective solution by testimony and thus pretended to have an understanding of the subject matter that enables him to think up such a solution while actually lacking any relevant understanding.

Lastly, several parts of condition (3) require attention. Beginning with the term *problems*, this word is meant as a collective term of everything that could be unclear in the process of understanding some phenomenon, including mere conceptual ambiguities as well as complex technical problems. Considering next the phrase *in a suitable manner*, this qualification is included to guarantee that the solution of the posed problems is tailored to the exact needs of the inquirer. It relates to the cognitive skills of the problem solver and implies that she needs to put

her background knowledge of the subject matter differently to use in different contexts in order to promote the inquirer's understanding. In close connection to this, note that the posed solution needs to be *correct*. The need for correctness is included to shield the conception against the unwanted implication that understanding can be correctly ascribed to a problem solver who, deliberately or by mistake, postulates incorrect solutions or invokes false facts. Furthermore, it needs to be clarified what *problems* are *considered by the speaker*. Generally, the inquirer raises the set of problems that the problem solver has to solve. In the majority of cases, these exact problems will be considered by the ascriber as being in need of a solution. However, it could be that, according to the ascriber, the inquirer raises an inappropriate number of problems, maybe because she is being cheeky or altogether unaware of the problem solver's cognitive abilities. Therefore, out of all the problems raised by the inquirer, the problem solver only has to solve those problems that are actually considered by the ascriber. Finally, note that the solution of *all* relevant problems is demanded due to the proposal being a definition of outright, i.e. non-graduated, understanding. Ascriptions of a specific degree of understanding are compatible with some problems remaining unsolved.

2.3 Rival Accounts

Considering that the way we ordinarily ascribe understanding substantially involves contextual factors, it is surprising that the debate on understanding vastly neglected the issue of contextualism. So far, only two accounts have been developed that incorporate contextualist elements.[24] While they acknowledge that there is a contextual dimension to understanding, they fail to develop a comprehensive contextualist framework based on those contextual elements. As a result, both accounts may not only face internal inconsistencies, but also fall short of the advantages an extensive contextualist treatment of understanding offers.

Developed by Christoph Baumberger and Christoph Kelp, both accounts differ in how they incorporate contextualist elements. Central to Kelp's approach is that he postulates a context-independent maximal understanding of a phenomenon that consists of the "fully comprehensive and maximally well-connected knowledge" of that phenomenon.[25] Outright understanding as well as the degrees of understanding are then determined as a contextually defined distance to this maximal understanding, as the following definition shows:[26]

> Outright Understanding (Out-U)
> "A understands P" is true in context c if and only if A approximates fully comprehensive and maximally well-connected knowledge of P closely enough to be such that A would (be sufficiently likely to) successfully perform any task concerning P determined by c, if, in addition, A were to have the skills needed to do so and to exercise them in suitably favourable conditions.

In contrast, Baumberger struggles with a context-independent construal of maximal understanding that functions as a reference point for the degrees of understanding and instead opts for a direct explication of the degrees of understanding:[27]

> An epistemic agent A understands a subject matter S by means of a theory T only if A commits herself sufficiently to T of S, and to the degree that
>
> (1) A grasps T,
>
> (2) T answers to the facts, and
>
> (3) A's commitment to T of S is justified.

This definition then functions as the basis for a contextual determination of outright understanding:[28]

> It depends on the context how well the four conditions need to be met for an outright attribution of understanding to come out true. [...] Individually necessary and collectively sufficient conditions for outright understanding in a given context can be arrived at by defining a context-specific threshold for each of the four conditions [...].

Although it would be worthwhile to discuss the details of both accounts, such as the problems a context-independent construal of maximal understanding is facing, only a shared deficit can be looked at in the scope of this essay. Kelp and Baumberger at no point clarify what context they are exactly talking about when binding the ascription of understanding to a specific context. It is left to their readers to figure out whether they take the ascriber's, the inquirer's or the problem solver's context as guiding the ascription of understanding. One would guess that what they refer to is the ascriber's context, but by not making this reference explicit their accounts lack clarity, provoke misconceptions and may face inconsistencies.

An example will suffice to show that the omission of perspectival considerations, especially the *omission of an ascriber's perspective*, may impair their account's consistency. In presenting the mentioned school case, Kelp writes that "*we* may be happy to attribute outright understanding [...] to an eight-year-old in a context of a primary school teacher's discussion of pupil performance [...]" (my emphasis).[29] Although I do not think that Kelp intended the scenario to be read this way, the inattentive reader could easily conclude that, when ascribing understanding, the performance of an alleged problem solver is judged from an *external perspective*. After all, '*we*' refers to no one in the presented scenario. However, that is not how we ordinarily ascribe understanding. We do not take over the role of an external ascriber who is able to regard every factor about a subject's performance when judging whether or not this subject qualifies for an ascription of understanding. Instead, whenever we ascribe understanding, we are an internal part of the ascription process and are thus subject to our own personal perspective. We can thus only consider those factors about the respective subject that we can assess out of our context of ascription.[30] These implications of the ascriber's perspective are an integral element of any context-sensitive concept and are the main reason why ascribers can come to mutually inconsistent and yet individually correct evaluations of, say, a subject's understanding.

Any theory that involves contextualist elements therefore seems to require the inclusion of perspectival considerations. 'Context' cannot merely be included in a given definition to serve as a universal remedy without specifying the underlying conditions of the referred context. Since Kelp and Baumberger are opting for an account of understanding that incorporates context-sensitivity, they need to further specify what context they are exactly referring to in order to avoid ambiguities and inconsistencies. Those problems can be avoided by embracing a contextualist treatment of understanding and by specifying all the underlying conditions of such a contextualist framework, primarily by including the necessary perspectival considerations. It is for that reason that an extensive contextualist treatment of understanding fares better than its rival accounts that only incorporate contextualist elements.

2.4 Implications for the Current Debate on Understanding

A contextualist approach to understanding benefits the current debate on understanding in a number of ways. One major advantage such an ac-

count has is that it offers a straightforward way of dealing with the graduality of understanding. In the school case, we have already seen that contextual factors come into play when determining the degree of understanding a subject has of a specific phenomenon. The given account can then function as the basis for a direct explication of the degrees of understanding by constituting conditions (1) to (3) as a dynamic function by means of which the specific degree of understanding is determined. The rough idea would be that the better the subject fulfils conditions (1) to (3), *as weighed by the ascriber*, the better her understanding of the respective phenomenon. Exactly to what extent (1) to (3) need to be fulfilled to constitute what specific degree of understanding is contextually determined and cannot be generalised. In some contexts, the ascriber might value the problem solver's background knowledge higher than her ability to solve a wide range of problems, whereas in other contexts the problem solver's background knowledge might be not as or just as important as her ability to solve specific problems.[31]

The second benefit a contextualist account of understanding offers is that it provides a way of settling a number of yet unresolved disputes regarding understanding. Baumberger recently emphasized that the current debate on understanding is at risk of running idle unless accounts are developed that take the graduality of understanding seriously and, in doing this, make the majority of questions regarding the features of understanding less of a pressing matter.[32] Considering that the presented account acknowledges that what understanding exactly consists of may not only vary relative to the specific degree of understanding but also relative to the context of ascription, these questions seem even less pressing.

We can now conclude that a contextualist treatment of understanding offers significant theoretical advantages over rival accounts, benefits the ongoing debate on understanding and mirrors our ordinary way of ascribing understanding. In the following section, this conclusion will be backed up by the help of a test case. Additionally, an ascription schema of understanding will be developed.

3 Test Scenario: Ascriptions of Understanding in 1st Person Cases

The main class of cases where the contextual nature of understanding can be observed are the so-called third-person cases: cases in which two ascribers judge contrastingly but individually correct whether or

not to ascribe understanding to a subject, where this subject itself is not actively participating in the conversation.[33] Just like the above mentioned school example, the vast majority of our everyday ascriptions of understanding fall into this class of cases. It should be clear by now that these cases heavily speak in favour of a contextualist treatment of understanding, not just because of the arguments brought forward in this essay, but also because it is a common scenario that two ascribers disagree about whether or not to ascribe understanding to a subject merely by having different expectations towards this subject. Thus, a thorough analysis of a third-person case, while undoubtedly supporting my proposed theory, would barely offer any additional insights.

It is for this reason that a much more unusual case will be analysed in this section: the ascription of understanding out of a first-person's perspective. To do this, a twofold scenario will be developed, where one and the same person first ascribes the understanding of a subject matter to himself and later denies the ascription of the same understanding to himself. If the contextualist character of understanding can be conclusively argued for on the basis of such a demanding scenario, there is good reason for believing that understanding should generally be conceived as a contextualist notion. To additionally increase the persuasiveness of the following scenario, I refrained from using the term 'explanation' as well as any gradual ascriptions of understanding. If the scenario remains to present a convincing case for the contextualist character of understanding, even with being deprived of these naturally contextualist concepts, a more decisive conclusion can be arrived at. The following *tide case* will be the basis of this section's analysis:

> (LOW) Last summer, I, Martin, walked down a beach by the North Sea with my daughter Paula. We were on a family holiday in Northern Germany. Noticing that it's low tide, my daughter uttered the following sentences: "We learned at school that it's called the tides when the sea comes and goes. But I don't understand why it happens. Do you?" After having answered her question with "Yes, I do, I can tell you all about the tides", I began to comprehensively describe how the moon causes the tides. I told her how the moon's gravity pulls the water on earth into a tidal bulge on the side facing the moon and into another bulge on the opposite side of the earth. Continuing my elaboration, I described how the tidal bulges travel over the earth's surface due to the earth's rotation and stated that those bulges are greatest on coasts

> that open up to an ocean, which is why it's easier to observe the tides at the North Sea than at the Baltic Sea. Satisfied with my answer, my daughter concludingly said: "Thanks daddy, now I understand the tides."
>
> (HIGH) Later that day, I met Hank, a friend of mine who happens to be a physicist, at a local pub. Still thinking of the great afternoon I had spent with my daughter, I proudly told Hank how I had helped my daughter to understand the tides. Although valuing my efforts, Hank critically remarked that I didn't mention a number of aspects that are central features of the tides. Firstly, I hadn't told my daughter that the sun influences the tides, although both neap and spring tides are only possible because of the sun. He also criticised that I had analysed the varying perceptibility of the tides only in terms of whether or not the specific coast opens up to an ocean. A much easier and, in fact, more accurate way to describe this phenomenon would have been to refer to the varying masses of water in the different seas, a description that could have easily been backed up by reminding my daughter that much higher waves can be made in a bath tub than in a bowl of soup. Sparked with scientific fascination, he lastly remarked that the tidal forces even influence the earth's land masses and are strong enough to marginally slow down the earth's rotation. Since I hadn't known any of those aspects of the tides prior to Hank's little talk, I gloomily said: "I don't understand the tides after all."

This twofold scenario presents two individually correct but mutually contradictory understanding claims. By affirming Paula's question in LOW, Martin implicitly expresses the following positive understanding claim:

(1A) I understand the tides.

Whereas the "I do" would only amount to the interrogative understanding of *what causes* the tides, the unrestricted "I can tell you all about the tides" amounts to the objectual understanding of the tides. Such an unrestricted claim is not unusual when uttered by parents speaking to their (young) children. Adults are commonly not inclined to graduate their claim to understand a phenomenon as long as they consider themselves able to thoroughly explain that phenomenon. It is thereby

not essential how elaborate their understanding actually is as long as the respective understanding surpasses a specific threshold. In general, this threshold is contextually determined by presupposing what problems will most likely be raised by the inquirer and what explanations are necessary to solve these problems in a suitable manner. In LOW, Martin thus presupposes what questions his daughter might raise regarding the tides and whether he is able to answer all of these questions in a way that satisfies his daughter's curiosity. If he cannot think of a single question that he would not be able to answer thoroughly, there is no reason for him to mitigate his outright claim to understand the tides.

As long as there is a sufficiently high difference between the understanding the inquirer and the problem solver possess of a specific subject matter, outright understanding is commonly ascribed in that way. Whether you think of a primary school child asking her mother why the moon does not always look the same or of a maths teacher seeking the help of his fellow ethics teacher in trying to understand Kant's categorical imperative: if the problem solver can rationally consider herself able to solve all of the problems possibly raised by the inquirer, there is no reason for her not to claim the outright understanding of the respective subject matter in that context. However, the situation significantly changes when the problem solver and the inquirer are much closer to each other in their understanding of the subject matter. Picture that two physics students of the same semester are discussing specific details of the theory of relativity and that one of them is asking the other if she understood them and can thus explain them to her. In such a case, an outright answer would seem vastly overconfident, rendering an answer along the lines of "I understood parts of those details" or "I can try my best explaining them to you" much more likely and natural. As soon as the problem solver is speaking to an inquirer who possesses a higher, a similar or perhaps at least an elemental understanding of the respective subject matter, she cannot rule out that a much more demanding problem will be raised whose solution might exceed both her background knowledge of the subject matter and her problem-solving abilities, thus rendering an outright claim to understanding presumptuous und unnatural.

It is therefore not surprising that Martin utters the following negative understanding claim in HIGH:

(1B) I don't understand the tides.

Due to a significant disparity between Martin's mundane and Hank's scientifically elaborate understanding of the tides, (1B) seems to be a

correct and relatively natural assertion in that context. Two aspects of the situation lead up to Martin's conclusion. Firstly, the features of the tides that are brought forward by Hank are structurally quite similar to the features of the tides that Martin already understood. What Martin learns from Hank is no professional knowledge only a physicist could possess, but rather something he, being an interested amateur, could have known. Martin thus realises that his assumed understanding of the tides is nothing more than elemental. Secondly, Hank lectures Martin without any preparation and without needing to pause for thought, thereby indicating that what he is explaining, although being of value to Martin, does not even come close to a comprehensive physical analysis of the tides. Taken together with the first observation, this gives Martin every reason to assume that he would not be able to answer *any question* raised by Hank *in a suitable manner*, which translates to the conclusion that Martin's understanding of the tides falls short of the threshold underlying the demanding context of Martin's and Hank's conversation.

The presented scenario only speaks in favour of the contextualist character of understanding if, in hindsight, Martin considers both of his claims, (1A) and (1B), correct. Considering (1A), while his conversation with Hank certainly forced Martin to reassess his understanding of the tides, it did not deprive him of his ability to function as a competent problem solver *for his daughter*. After all, Martin only learned that his understanding of the tides is limited and not that it consists of false assumptions. He correctly estimated his daughter's understanding of the tides and was able to satisfactorily explain the tides to her. Furthermore, as long as his daughter's expertise in physics does not increase significantly and as long as she asks him about phenomena that he understands at least as good as he understood the tides, Martin does not need to refrain from uttering outright understanding claims in the future. However, he would need to utter a gradual understanding claim as soon as he presupposes that his daughter will raise a problem that he cannot solve appropriately. Considering (1B), it is similarly obvious that Martin was correct in uttering his negative understanding claim in an outright fashion. In such a demanding context, even claiming to understand *something* about the tides would seem presumptuous, since his layman's understanding of the tides is far from being suited for a discussion with a professional physicist. Even worse, he might provoke Hank to test his understanding of the tides; a test he would certainly fail, since he would not be able to satisfactorily solve any problem raised by Hank.

The presented case therefore speaks in favour of the contextualist nature of understanding by presenting a pair of individually correct and yet mutually inconsistent understanding claims regarding the same subject matter and uttered by the same person. Those claims contrast with each other due to the subject being able to fulfil his role as a competent problem solver in one of the scenarios while failing to fulfil this role in the other. Specific presuppositions are central to determining whether this role is fulfilled by the putative problem solver. Those presuppositions regard the relevant background knowledge of the putative problem solver, her ability to put this knowledge to use as well as the problems that will most likely be raised by the inquirer. The following schema summarises the process of ascribing understanding:

Ascription Schema of Understanding

(I) The ascriber presupposes what problems regarding the phenomenon in question will most likely be raised by the inquirer.

(II) The ascriber estimates whether the inquirer will presumably raise any (appropriate) problems that the putative problem solver cannot solve in such a way that the inquirer will be satisfied. To do that, the ascriber evaluates both the putative problem solver's knowledge of the respective phenomenon as well as her ability to put this knowledge to use.

(III) When (II) yields a negative result (i.e. when there are no problems raised by the inquirer that the putative problem solver cannot satisfactorily solve), the understanding of the specific phenomenon is ascribed to the putative problem solver by the ascriber; when it yields a positive result, the respective understanding is not ascribed. The putative problem solver thus either qualifies or fails to qualify as a competent problem solver.

This schema can be applied to all possible combinations of ascriber, inquirer and problem solver, up to the extreme case where all roles are taken over by one and the same person who is on her own pondering about a problem. Furthermore, the schema can incorporate cases of "blindly" ascribing understanding where the inquirer merely supposes that there might be a problem that the putative problem solver cannot solve without having a clear conception of what this problem might

be. It can also incorporate gradual ascriptions of understanding as well as retrospective ascriptions of understanding. In the latter case the ascriber, instead of presupposing the possibly raised problems and the utilised solutions, simply evaluates to what degree the problem solver fulfilled the invoked criteria.

4 Conclusion

The arguments and case scenarios brought forward in this essay challenge the way the concept of understanding has been discussed so far by strongly favouring a contextualist treatment of understanding. It has been shown that a contextualist approach can be motivated by acknowledging that two aspects of our ordinary way of ascribing understanding are naturally context-sensitive: the concept of explanation and the gradual character of understanding. The proposed account then incorporates the contextualist nature of understanding by proposing that, in order to be correctly ascribed understanding, a subject has to satisfactorily solve all problems an ascriber considers. To prevent that understanding is too easily achieved, two objective conditions have been included into the account, stating that the respective subject has to know a number of facts and dependency relations regarding the subject matter she claims to understand. The discussion of the proposed account has yielded the result that a contextualist treatment of understanding not only fares better than its rival accounts in incorporating the way understanding is ordinarily ascribed, but also consolidates a number of questions still discussed in the epistemological debate on understanding.

Assuming that there is some truth in what I have proposed in this essay, I want to hint at another advantage a contextualist treatment of understanding may offer: it may bridge the gap between the debates on understanding in epistemology and in philosophy of science.[34] In their *Contextual Approach to Scientific Understanding*, de Regt and Dieks acknowledge that whether or not scientific practices lead to a better understanding of some phenomenon depends on the context in which those scientific practices are carried out.[35] This context is, for instance, constituted by the scientist's background knowledge of the respective phenomenon, by her ability to put this knowledge to use and by specific virtues of the theories and models used in trying to understand that phenomenon. The central difference between de Regt's and Dieks's account and the approach I have proposed thus seems to be that they incorporate models and theories in a much more explicit way. It therefore seems

that the debates could be unified by conceiving our ordinary process of understanding as involving elements of theory formation. After all, when we try to understand some subject matter, we connect facts in a way that enables us to give a coherent explanation of that subject matter, even though we rarely begin with formulating a theory.

Undoubtedly, a number of questions need to be answered for such a unifying proposal to be fruitful, such as whether it is correct to assume that scientific understanding is a higher-order ordinary understanding without being substantially different in kind. Similarly, much more work needs to be done to conclusively argue for the contextual framework itself: clarifying the relation between objectual and interrogative understanding; learning more about how the agents involved in the ascription process relate to one another; and so forth. However, one should not be repelled by these open questions from acknowledging the merits a contextualist approach to understanding offers.

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Notes

1 Unless otherwise stated, "understanding" is meant in this sense. This notion presupposes that the agents in question understand the words they are using on a semantic level. In denoting the general object of understanding, I refrain from using the common phrase "body of information", since information can also function as the vehicle of understanding. In contrast, "phenomena and/or facts" seem to be a suitable description of the various objects of understanding (presupposing that "phenomena" is conceived in a broad sense).

2 The very first essays that included aspects still prevalent in the ongoing debate were [24], [15], [16], [5] and [6]. However, these publications did not attract as much attention as they deserve, which is why [11], [23] and [28] should be considered the starting point of the current debate.

3 See [28, p. 249].

4 A comprehensive overview of the recent debate on understanding is given in [3].

5 Among others, [1], [4], [12] and [17] argue that propositional understanding reduces to propositional knowledge, with [17] additionally stating that propositional understanding may also describe cases of hedging and may thus be epistemically irrelevant. The opposite view can be found in [23].

6 For reasons of simplicity, this section's analysis will be based on objectual understanding.

7 As to be found in [3], several authors have considered a reductionist account of understanding, with most of them concluding that such an account is not possible. However, they only considered a reduction of objectual understanding to *explanatory understanding*, a sub-type of interrogative understanding that focuses exclusively on explanatory dependency relations. By embedding other types of dependency relations, a reductionist account should be possible.

8 See [19, p. 89]. Grimm further builds on this first analysis in [20] and [21].

9 Giving explanations is another scenario which indicates that grasping can be analysed in the presented way. Questions of the kind "What would happen if. . . ?" are commonly used to assess how much of a given explanation has already been understood.

10 Some authors challenge the strict factivity of understanding by arguing that models and representations are often used to invoke understanding, while at the same time abstracting how things are in reality. An early representative of this view is [25]; its most prominent advocate is Catherine Elgin, see [11], [12] and [13]. Two accounts that defend the strict factivity of understanding are [18] and [22].

11 Degrees of understanding are analysed as an approximation of maximal understanding in [22], as an enhancement of minimal understanding in [21] and as a direct explication in [2].

12 See [10, p. 47].

13 See [2].

14 I owe this example to [22].

15 More about the ascriber's context can be found in the debate on epistemic contextualism. Note that contextualism implies that two ascriptions can seem mutually inconsistent and yet be individually correct, due to the fact that each ascription is relativised to a specific context constituted by the respective ascriber's interrogative interest. While, in the given example, the teacher and the appointment commission come to contrasting evaluations of the student's understanding, each of those evaluations is correct relative to the context it was made out of.

16 See [26, chpt. 4.4].

17 In labelling explanation as a complex description I follow van Camp, see [27, p. 106].

18 Note that in order to achieve understanding, the respective explanation needs to be good *and* correct. See [27].

19 An anonymous reviewer pointed out that the given conception presupposes that there is some sort of direct contact between the ascriber and the problem solver and thus cannot incorporate ascriptions based on testimony. Unfortunately, such cases are neither addressed in the debate on contextualism nor is this essay the place to do so. However, I'm confident that a contextualist account of understanding can incorporate cases like these.

20 While the definition may not reveal it, my comments on condition (3) will show how the inquirer comes into play.

21 I owe this term to Zagzebski, whereas the concept it expresses is based on Ernst's notion of a competent informant. Regarding Zagzebski, see [28, p. 245]; regarding Ernst, see [14] as well as Craig's comments in [7, p. 11].

22 This condition can also be regarded as belonging to the subject's background knowledge.

23 The relation between grasping and the knowledge of dependency relations was introduced by Grimm [20, p. 341]. Note that dependency *relations* should be conceived in the broadest possible way of including all relations that can exist between facts (logical, causal, mereological, etc.). See, for instance, [20] and [27].

24 Outside epistemology, DeRegt and Dieks developed a contextualist account of understanding.

25 See [22, p. 252].

26 See [22, pp. 252-254].

27 See [2, p. 10].

28 See [2, pp. 10-11].

29 See [22, p. 254].

30 Note that the ascriber's context is not sufficiently defined by the situational context of the scenario (e.g. the classroom in the school case), because we can easily imagine cases where two ascribers share one situational context and yet differ in their ascriptions.

31 As a result, a subject's gradual understanding of a phenomenon, her outright understanding of a phenomenon as well as the possible maximal understanding of a phenomenon can all only be determined by reference to the context of an ascriber.

32 See [2, pp. 3-4].

33 See [10, chpt. 2.7]. When considering the underlying mechanics of ascribing understanding, the essential characteristic of these cases is that the ascriber is not herself the problem solver, i.e. that it is no self-ascription of understanding. Since ascriptions of understanding out of a second-person's perspective share this characteristic, they do not need to be analysed separately, although the subject understanding is ascribed to takes part in the conversation.

34 Although the concept of understanding has fuelled a large number of publications in both disciplines, no serious attempts were made in bringing these debates together. See [3, p. 2].

35 See [8]. De Regt further builds on this idea in an essay he published together with Gijsbers, [9].

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References

[1] Christoph Baumberger. "Understanding and its Relation to Knowledge". In: *Epistemology*: *Contexts*, *Values*, *Disagreement*. *Papers of the 34th International Wittgenstein Symposium*. Ed. by Christoph Jäger and Winnfried Löffler. 2011, pp. 16-18.

[2] Christoph Baumberger. "Explicating Objectual Understanding: Taking Degrees Seriously". In: *Journal for General Philosophy of Science*. Forthcoming.

[3] Christoph Baumberger, Claus Beisbart, Georg Brun. "What is Understanding? An Overview of Recent Debates in Epistemology and Philosophy of Science". In: *Explaining Understanding. New Perspectives from Epistemology and Philosophy of Science*. Ed. by Stephen R. Grimm, Christoph Baumberger and Sabine Ammon. 2017, pp. 1-34.

[4] Berit Brogaard. "I Know. Therefore, I Understand". Unpublished manuscript.

[5] Neil Cooper. "The Epistemology of Understanding". In: *Inquiry* 38 (1994), pp. 205-225.

[6] Neil Cooper. "Understanding". In: *Proceedings of the Aristotelian Society Supplementary Volume* 68 (1994), pp. 1-26.

[7] Edward Craig. *Knowledge and the State of Nature. An Essay in Conceptual Synthesis*. Oxford: Clarendon Press, 1999.

[8] Henk W. de Regt and Dennis Dieks. "A Contextual Approach to Scientific Understanding". In: *Synthese* 144 (2005), pp. 137-170.

[9] Henk W. de Regt and Victor Gijsbers. "How False Theories Can Yield Genuine Understanding". In: *Explaining Understanding. New Perspectives from Epistemology and Philosophy of Science*. Ed. by Stephen R. Grimm, Christoph Baumberger and Sabine Ammon. 2017, pp. 50-75.

[10] Keith DeRose. *The Case for Contextualism*. Oxford: Clarendon Press, 2011.

[11] Catherine Elgin. "True Enough". In: *Philosophical Issues* 14 (2004), pp. 113-131.

[12] Catherine Elgin. "Understanding and the Facts". In: *Philosophical Studies* 132 (2007), pp. 33-42.

[13] Catherine Elgin. "Is Understanding Factive?". In: *Epistemic Value*. Ed. by Stephen Hetherington. 2009, pp. 322-330.

[14] Gerhard Ernst. "Radikaler Kontextualismus". In: *Zeitschrift für Philosophische Forschung* 59.2 (2005), pp. 159-178.

[15] Richard L. Franklin. "Knowledge, Belief and Understanding". In: *The Philosophical Quarterly* 31 (1981), pp. 193-208.

[16] Richard L. Franklin. "On Understanding". In: *Philosophy and Phenomenological Research* 43 (1983), pp. 307-328.

[17] Emma C. Gordon. "Is There Propositional Understanding?". In: *Logos & Episteme* III.2 (2012), pp. 181-192.

[18] John Greco. "Episteme: Knowledge and Understanding". In: *Virtues and Their Vices*. Ed. by Kevin Timpe and Craig A. Boyd. 2014, pp. 285-301.

[19] Stephen R. Grimm. "Understanding". In: *The Routledge Companion to Epistemology*. Ed. by Sven Bernecker and Duncan Pritchard. 2011, pp. 84-94.

[20] Stephen R. Grimm. "Understanding as Knowledge of Causes". In: *Virtue Epistemology Naturalized*: *Bridges Between Virtue Epistemology and Philosophy of Science*. Ed. by Abrol Fairweather. 2014, pp. 329-346.

[21] Stephen R. Grimm. "Understanding and Transparency". In: *Explaining Understanding. New Perspectives from Epistemology and Philosophy of Science*. Ed. by Stephen R. Grimm, Christoph Baumberger and Sabine Ammon. 2017, pp. 212-229.

[22] Christoph Kelp. "Towards a Knowledge-Based Account of Understanding". In: *Explaining Understanding. New Perspectives from Epistemology and Philosophy of Science*. Ed. by Stephen R. Grimm, Christoph Baumberger and Sabine Ammon. 2017, pp. 251-271.

[23] Jonathan L. Kvanvig. *The Value of Knowledge and the Pursuit of Understanding*. New York: Cambridge University Press, 2003.

[24] Julius M. Moravcsik. “Understanding”. In: *Dialectica* 33 (1979), pp. 201-216.

[25] Wayne D. Riggs. “Understanding ‘Virtue’ and the Virtue of Understanding”. In: *Intellectual Virtue*: *Perspectives from Ethics and Epistemology*. Ed. by Michael DePaul and Linda Zagzebski. 2003, pp. 203-226.

[26] Wesley C. Salmon. *Four Decades of Scientific Explanation*. Pittsburgh: University of Pittsburgh Press, 2006.

[27] Wesley van Camp. “Explaining Understanding (or Understanding Explanation)”. In: *European Journal for Philosophy of Science* 4 (2014), pp. 95-114.

[28] Linda Zagzebski. “Recovering Understanding”. In: *Knowledge, Truth and Duty*. Ed. by Matthias Steup. 2001, pp. 235-251.