

The Contextual Quasi-Factivity of Objectual Understanding

Abstract: Recently, a debate has arisen regarding whether understanding is factive, quasi-factive, or not factive at all. This question is important to determining the connection between understanding and knowledge, on the presupposition that the latter is (mostly uncontroversially) factive. It is also of independent interest given that, for reasons defended by such epistemologists as Zabzebski (2001) and Kvanvig (2003), the nature of understanding has for too long been an under-explored area of epistemology. In this paper, we defend the view that objectual understanding—the sort of understanding for which questions of factivity most interestingly arise—is quasi-factive. That is, understanding is necessarily underwritten by true beliefs. We argue that examples that seem to indicate that it is not factive at all overlook the important role context plays in determining precisely the connection any given set of beliefs must have to the truth in order to constitute understanding.

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The structure of the paper is as follows. In the next section, we introduce some distinctions in types of understanding and knowledge, and put aside questions of the factivity of propositional understanding in favor of questions regarding the factivity of objectual understanding. In §3 we examine the intuitive force of two examples offered by Catherine Elgin to show that understanding is not factive at all, and argue that these examples are best accommodated by exploring the role of context in determining *how* our beliefs must be quasi-factive. We thus offer our positive proposal that attributions of understanding are context-sensitive. Specifically, genuine understanding of any sort always requires that some relevant beliefs be at least approximately true, but which beliefs are relevant is a highly contextual matter. We also argue that it is theoretically felicitous to treat understanding as constrained by a contextually determined quasi-factivity.ⁱ In §4 we examine how the picture we have painted of objectual understanding compares to objectual knowledge. We tentatively conclude that while understanding and knowledge attributions are both very context sensitive, the role of context is different for each.

§2 Types of Understanding, Knowledge, and Factivity

If one wants to examine whether understanding is factive or quasi-factive, we must be careful to distinguish different types of understanding. Some types of understanding are pretty uncontroversially factive, whereas others are trivially non-factive. In the middle though is a domain that can serve as the object of conceptual inquiry.

Let us begin with a distinction among different types of understanding. Jonathan Kvanvig (2003) distinguishes between objectual understanding, or understanding-of, and propositional understanding,

or understanding-that.ⁱⁱ The latter category is quite broad, including both understanding of simple states of affairs, such as “I understand that it is raining outside”, and the answers to complex why-questions, such as “I understand why it is raining.” Kvanvig (2003, p. 189) claims that understanding-that is sufficient to cover all cases of the latter kind, since “I understand why it was raining” can be reduced to the claim that “I understand that the reason it was raining was that X.”

For what sorts of understanding claims does the question of factivity arise? It seems not to arise for understanding-that. If it is not raining outside, then the statement “I understand that it is raining outside” is straightforwardly false. Thus, if Kvanvig is right about the possibility of reducing understanding-why to understanding-that, the question of whether understanding-why claims are factive is easily answered as well.ⁱⁱⁱ Moreover, as Kvanvig notes (2003, p. 191), the question of factivity cannot arise literally for objectual understanding. Factivity is a property of propositions, and most objects one might want to understand are not propositional. Nevertheless, Kvanvig contends that objectual understanding must be underwritten by true beliefs. We only understand *o* when at least our central beliefs about *o* are true. Understanding that is necessarily underwritten by true beliefs is said to be “quasi-factive.”

Catherine Elgin, in a series of recent papers (2006, 2009), has argued that understanding is not even quasi-factive in this sense. She offers two major examples in support of her view. First, she discusses (2007, p. 37) a second-grader’s understanding of evolution, which consists in large measure of his belief that humans descended from apes. This central belief is, of course, false. Nevertheless, Elgin argues that (we’ll call him) Chris’s view is epistemically superior to his classmate Hunter’s view that we descended from butterflies, in a way that should be of interest to epistemologists. Kvanvig (2009) concedes that the case is illustrative, but denies that it depicts a fully proper deployment of the term ‘understands’; rather, ‘understanding’ is in this case a pragmatically informed honorific. As a second

case, Elgin considers the Ideal Gas Law, which she claims (2009, p. 327) confers understanding despite its falsity (there are no ideal gases).

We now turn to a discussion of these examples and what they show.

§3 Understanding and Context

§3.1 Understanding, Context, and Evolution

Beginning with the second grader's understanding of evolution, we argue that both Kvanvig and Elgin are partially correct but partially misdiagnose what is at issue. Like Elgin, we agree that understanding is properly attributed to the second grader, specifically in that there is more to be said for Chris's understanding than Hunter's. As Elgin points out, it is only by allowing for such falsity-ridden understanding that we can accommodate the intuition that Copernican astronomy marked an improvement in understanding over Ptolemaic. However, what Chris's view has going for it is not what it got wrong, but the fact that it got many things right. He thinks that human beings descended from other animals, and that belief is true. He thinks that humans are closely related to apes, and that belief is also true. It is thus open to Kvanvig to argue that, while Chris's belief about the ancestry of humans is false, nevertheless all of his *central* beliefs are true. The critical point is simple but, so far as we know, typically overlooked—what counts as central (among beliefs in a theory, or, for that matter, anything else) depends largely on the context. If Chris is trying to deploy his knowledge of evolution to explain how tiny variations between generations can add up in deep time, then he does understand (and not just honorifically). If he's doing a project on the ancestry of human beings in particular, he does not understand. His belief is superior to Hunter's because the set of contexts in which Hunter's beliefs would

constitute understanding are a proper subset of the set of contexts in which his own beliefs would constitute understanding.

The point about Chris's understanding might not be obvious, but we contend that is because, as evolution is a traditional academic subject, we rarely stop to ask what understanding of it is *for*. If we create a structurally analogous case in which the topic is clearly of practical interest, we contend it is clearer that context is a large determinant of whether someone does or does not count as understanding. Thus consider two scientists working on the same metal, who form the same beliefs about it—a set of true beliefs about its conductive properties and a false belief about its physical strength. However, scientist A is trying to use it to build a bridge, and scientist B is trying to use it to make a wire. We contend that, though they believe all the same things, we would and should attribute understanding to the latter but not the former.

The view we are defending is thus the following:

The Contextual Quasi-Factivity (CQF) of objectual understanding: one understands object *o* only if one's central beliefs about *o* are true, where a belief's centrality is pragmatically determined.

Before proceeding, we would like to note a few features of CQF. First, for reasons discussed above, we are restricting our focus to just objectual understanding.^{iv} Second, CQF provides only a necessary condition on understanding. Our hope is that it CQF, or a close analog of it, can be used to *supplement* existing theories of understanding, and thus provide part of a jointly sufficient condition. For example, on De Regt & Dieks's (2005) view that we understand a phenomenon when we can relate it to an intelligible theory, we would simply add: and in such a way as our beliefs are quasi-factive in contextually relevant way.^v Or on Wilkenfeld's (2013) view that we understand when we possess a useful representation, we would again add: and in such a way that our beliefs underlying that representation are quasi-factive in a contextually relevant way.^{vi} CQF is supposed to remain neutral

regarding the proper theory of understanding, but suggest a (usually additional) constraint on all of them. The third thing to note about CQF is that the view, as stated, underdetermines precisely the way in which pragmatics determine the centrality of beliefs—this is meant to remain intentionally neutral between the understanding-variants of contextualism and subject-sensitive invariantism.

The contention that CQF is a good constraint to place on understanding—that two scientists in possession of the same facts can differ in regard to their understanding on the basis of context, has two parts. First, as already indicated, we contend that it gets the intuitively correct results in the sorts of cases Elgin and others consider. More importantly, we will argue that treating understanding as contextually quasi-factive is theoretically fruitful. To the extent that ‘understanding’ is vague or ambiguous, we would do well to precisify it in a way that is sensitive to shifting contextual standards. Following Craig (1999) and Weinberg (2006) about knowledge, we presume that if a particular version of a concept is what would best suit the interests to which we employ that concept, that is reason to take that version up, regardless of its accordance with actual usage.

First, however, we would like to demonstrate how CQF handles some other objections to the quasi-factivity of understanding found in the literature. Riggs, for example, argues (2009, p. 335-6) that I can understand my wife, even if my central belief about the cause of her fear of water (I think it is the result of a boating accident, when in fact it is the result of an early childhood experience of parental negligence) is false. Yet whether or not we would attribute understanding of my wife seems to vary with context, exactly as predicted by CQF. In most contexts, the relevant fact is that she possesses a certain fear—since that belief is true, when it is central I can be rightly said to understand her. However, consider a context where I am attempting to cure her fear through psychoanalysis. In that context the source of the fear is clearly relevant, but in that very context my understanding seems decidedly lacking.

These observations can be easily accommodated by the observation that centrality shifts between contexts.

Second, consider an objection by Brogaard to the effect that I can understand a theory even if that theory's central tenets are false (2005, p.12). In this case, we must be careful to be clear about what is being understood. If what is being understood is the phenomenon described by the theory, then the relevantly central beliefs will be that (e.g.) my fate is governed by my zodiac, which would be false. If, however, we are studying what the theory itself says, then it is at least *prima facie* plausible that the relevantly central beliefs will just *be that the theory says such and such*, which are, by stipulation, true.

These responses to Riggs and Brogaard are not meant to be decisive, but they do suggest the way in which the contextual element of CQF can be leveraged to explain away some otherwise troublesome objections to the quasi-factivity of understanding.

§3.2 The Point of *Understanding*

What is the concept *understanding* for? That is, what do we want our understanding attributions to do for us? Plausibly, we use understanding attributions as a way to confer entitlement—someone dubbed an understander is someone who should be heeded. This view finds theoretical defense in Jay Rosenberg (1981) and empirical defense in our work (citation omitted). Consider the infelicity of saying “Sheamus has understanding of topic q, but don’t you listen to him about it!” By contrast, “Sheamus has beliefs about topic q, but don’t you listen to him about it” sounds perfectly fine, and even “Sheamus has knowledge about topic q, but don’t you listen to him about it” might be felicitous in some contexts (consider a circumstance where Sheamus knows a lot of disjointed facts

about q , without any explanatory depth or knowledge of practical applications).^{vii} This suggests that *understanding* uniquely is marked by its use in denoting relevantly selected instructors.

Whether we should heed someone's advice depends not on whether the *beliefs we care about* are true, and this will vary with context. One counts as understanding when one has true, relevantly central beliefs. Thus, understanding is quasi-factive, but contextually so. Notice that a focus on whom should be heeded speaks in favor of both aspects of CQF—the contextual element and the quasi-factivity. It speaks in favor of the contextual element because which beliefs I care about will be contextually determined. But it also speaks in favor of the quasi-factivity because, given my interests, I really should care whether your beliefs are true. If I want to build a bridge, it does not just matter to me that you are an epistemically responsible agent who formed beliefs in a way responsive to evidence, as required by Elgin (2006)—it matters to me that you are correct that this material will actually keep my bridge up. If you are not, then I would do well not to listen to you, and you do not (in this context) understand the material in question.

§3.3 Understanding, Context, and the Ideal Gas Law

Once we notice the importance of CQF, we can also make sense of Elgin's point that idealizations are also understanding-conducive. Mastering an idealized theory like the Ideal Gas Law (her example) is genuine understanding in some contexts, but not in others. Specifically, it is genuine understanding when it would make accurate predictions in the contextually relevant cases. In such cases, one's true beliefs ("Gas G will behave in way X" or "Gases like G will generally X, more or less") will be central, whereas in other contexts one's false beliefs ("Gas H will behave in way Y" or "All gases will generally X") will be. In the former case one will understand, whereas in the latter one will not; this result is predicted by CQF, and is intuitively plausible.

The (broadly) contextualist picture painted above is similar to, but distinct from, the defense of the quasi-factivity of understanding put forward by Moti Mizrahi. Mizrahi (2012) rightly highlights the success of idealized theories within certain boundary conditions as the basis for them conferring understanding, but then suggests that a less idealized, more refined theory is always better. But this does not follow on our view, if the more refined theory would not be as useful in all the same contexts. Due to tractability concerns, such a failure of a more nuanced theory is a very real possibility. For a bridge-builder, the move from Newtonian mechanics to Einsteinian is not understanding-conferring—it is cognitively paralyzing. Another advantage of CQF over the sort of quasi-factivity defended by Mizrahi is that the former, but not the latter, can account for the way *adding* abstraction and generality can be directly conducive to understanding.

Our proposal thus splits the difference between Mizrahi and Elgin. We agree with Elgin where she suggests that idealizations can be a source of understanding insofar as they are useful, rejecting Mizrahi's contention that idealizations are necessarily improved by bringing them more in line with reality. However, we agree with Mizrahi (and Kvanvig) insofar as we contend that one can only possess objectual understanding when one's central beliefs about the understood are true, and moreover that knowing the limits of idealizations' applicability is in many contexts a crucial basis for their constituting understanding. The basis for these contentions is that what beliefs count as central for understanding are contextually variable, even for understanding of the "same" object.

§4 Understanding, Knowledge, and Context

If what has been said so far is correct, what is the relation between objectual understanding and objectual knowledge? This question depends crucially on one's theory of knowledge, the production of which is beyond the scope of this paper. We will not, therefore, launch a forceful defense of the claim that objectual understanding is distinct from objectual knowledge—if what we have said about the importance of the context determining central truths applies to objectual knowledge in addition to objectual understanding, then we have learned that much more. Nevertheless, we do think there are some intuitive differences between objectual understanding and objectual knowledge that mitigate against applying the lessons of the former to the latter.

The first intuitive difference stems from the different way understanding and knowledge relate to the hills and valleys of actual human cognition. We might call understanding a *cognitive* achievement—its success depends wholly on how real human cognizers interact with the world (for a more thorough defense of this claim, see Wilkenfeld (2013)). Knowledge, by contrast, is an *epistemic* achievement, characterized by a relation to abstracta such as propositions. (This is why it makes sense to talk of knowledge being stored in libraries, but not so for understanding.^{viii}) If this is on the right track, we would expect understanding to potentially be enhanced by felicitous falsehoods, so long as (in accordance with CQF) all of the beliefs whose centrality is contextually established are true. The possibility of felicitous falsehoods is implied by the intuitive plausibility of the examples Elgin offers against quasi-factivity (we merely suggest that such falsehoods are cordoned in the contextually delineated periphery). Similarly, Weiskopf (2011) argues that falsifications are compatible with and sometimes enhancing of mechanistic understanding.^{ix} Understanding of *o* then can thus be increased by learning some false things about *o*. By contrast, while it is easy to imagine that objectual knowledge is *compatible* with some peripheral falsehoods, it is harder to see how such falsehoods could ever actually *enhance* such knowledge. To reiterate, we are not here arguing that it is impossible that there is a deep

understanding/knowledge symmetry—we merely take the present points to provide some reason for skepticism.

A second potential distinction between objectual knowledge and understanding is that, while objectual knowledge is quasi-factive, and context plays a vital role in the evaluation of knowledge claims, objectual knowledge and objectual understanding are nevertheless contextually quasi-factive in different ways. More precisely (if, for the moment, more cryptically) while objectual knowledge is contextual and quasi-factive, objectual understanding is objectually quasi-factive.

How does context factor into the truth of objectual knowledge ascriptions? This is a question that has not garnered much attention, either conceptually or empirically. However, we can make some educated guesses on the basis of the role of context in other knowledge-attributions. Primarily, context is important to propositional knowledge in that it is context that picks out how much warrant is required before one meets the threshold of knowing. (This is true whether the threshold enters into the calculus in determining which knowledge relation is being picked out by an utterance, as per contextualism, or whether there is one knowledge relation whose conditions of application vary with context, as in subject-sensitive invariance—see Stanley (2005) for more on this distinction.) Clearly, this is a very different role for context than we claim adhered to objectual understanding.

While an examination of propositional knowledge does not tell us exactly how context plays a role in objectual knowledge, it is suggestive. Specifically, it suggests that Kvanvig was correct that what we care about when engaged in knowledge ascriptions is picking out those people who are non-accidentally connected to the truth.^x Our interests are relevant to the extent that stakes dictate how non-accidental the link must be.

What other role might context play in fixing a mental state? Whereas context mostly affects propositional knowledge ascriptions by determining the appropriate level of warrant, it has a more

robust role in determining the very object of propositional understanding. Grimm (2008), who focuses on what we have been calling propositional understanding, argues that one important aspect is the contrastive foil against which something is being understood. To borrow Grimm's example, one's understanding of why a brick shattered a window will be substantively very different depending on whether one expects the world to operate according to Newtonian mechanics or Harry Potter's rules of wizardry. In the case of propositional understanding then, unlike propositional knowledge, context not only selects the appropriate threshold for attribution (though we assume it does this as well), but also picks out what sorts of possibilities must be considered relevant. Extrapolating from the propositional case, the natural hypothesis is that context will shape objectual knowledge at least primarily by establishing thresholds for appropriate attribution, whereas it will shape objectual understanding by focusing our attention on particular aspects of a situation (i.e. the central beliefs) that are constitutive of understanding in that context.

(It should be noted that there is one account of knowledge on which elements of context help fix precisely what kinds of evidence are relevant, which is the contrastivist theory of Schaeffer and Knobe (2012). It seems possible that this brand of contextualism about propositional knowledge might scale up to a view of objectual knowledge on which context plays a role in determining which beliefs need be true, as we argue it does for understanding. This is no objection to our view; it would draw out one potentially interesting implication of a controversial position in experimental epistemology.)

§5 Conclusion

In this paper, we have argued in favor of the view, defended by Kvanvig and Mizrahi, that understanding is quasi-factive. We do find a hefty intuitive pull to Elgin's putative counterexamples, but argue that these, along with others presented by Brogaard and Riggs, can be handled without jettisoning quasi-factivity. The important point such examples bring out is the way in which context informs which beliefs must be true in order for a corresponding objectual understanding claim to be true. We conclude with a brief and speculative section exploring the connection between objectual understanding as described, and the sort of objectual knowledge that traditional contextualist and invariantist approaches suggest to propositional knowledge

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ⁱ And, in passing, that this constraint can shore up potential weaknesses in extant accounts of understanding—see n. vi.

ⁱⁱ This distinction roughly maps onto that between “holistic understanding” and “atomistic understanding”, as found in Pritchard (2009).

ⁱⁱⁱ We actually argue against this reduction elsewhere, both on the grounds that understanding-why sometimes requires abilities in addition to understanding-that (citation omitted for purpose of blind review) and on the grounds that understanding-why sometimes does not even require belief (citation omitted). The former point does not matter for present purposes—if understanding-why requires understanding-that among other things, then the former will be factive if the latter is. By contrast, if understanding-why did not even require belief, that would

undermine factivity, but only in a relatively trivial way—those instances of understanding-why that did not involve belief would be trivially non-factive. So on neither way of rejecting the reduction of understanding-why to understanding-that does the question arise of whether understanding-why is factive.

^{iv} This is closely analogous to what Pritchard (2009) calls “holistic understanding”, though we not committing to the mapping being perfect.

^v Their own requirement that the explanation that connects the phenomenon to the theory satisfy empirical constraints already prefigures the requirements of CQF—we do not claim CQF will always require a radical reconfiguration of the views it is intended to supplement. If it does not, so much the better.

^{vi} While exploring the issue is beyond the scope of this paper, we would actually contend that employing the notion of Contextual Quasi-Factivity alleviates a concern about Wilkenfeld’s view wherein, if it is a manipulable representation that yields (for whatever reason) counterfactually reliable predictions, Wilkenfeld might have to concede that Ptolemaic astronomers understood the solar system. Since the beliefs that would be central in contexts where we’re concerned with the nature of the solar system would be false on a Ptolemaic worldview, requiring CQF fixes this problem.

^{vii} For a further examination of the relation between different epistemic aims, depth of beliefs, and the connection to knowledge and understanding, see our [CITATION OMITTED].

^{viii} We owe this point to [reference omitted], who also drew our attention to a quote attributed to Russian physicist Peter Lebedev: “my bookcase knows more [about physics] than I do, but it’s not a physicist. I’m the physicist”.

^{ix} Weiskopf’s article is actually about non-mechanistic explanation, but a natural gloss of his point is that there are practices in cognitive modeling that do not meet the individuating criteria put forward for mechanistic explanation by Carl Craver that nevertheless do provide scientific understanding. Weiskopf even uses the language of understanding at points, saying for example that “Finally an ideally complete model omits nothing, or nothing relevant to *understanding* the mechanism and its operations in the present context...” (Weiskopf 2011, p. 316, emphasis added)

^x However, for a discussion of objectual knowledge and Gettier cases with a rather different upshot, see our (citation omitted).