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Contextualism and the Factivity of Knowledge¹

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Analytic epistemology in the post-Gettier era has mainly focused on the task of providing an analysis, perhaps a definition, of the “common” notion of knowledge. In the last two or three decades, this project has seen a major “linguistic turn” (Ludlow 2005), through the increased reliance, in contemporary debates, on syntactic, semantic and pragmatic “evidence” about usual (uses of) linguistic constructions in terms of *know*, the main working assumption being that the common notion of knowledge – that is, the way we (ought to) commonly think about knowledge – is best reflected in the way we commonly talk about knowledge. A consequence is that instead of trying to spell out directly the conditions for knowledge, the focus is on trying to spell out the conditions for the truth of knowledge attributions.

Constitutive of this “new linguistic turn” in epistemology is “contextualism”, the view that the reference of the verb *know* shifts with features of the context in which it is used. To criticize this view will be the main purpose of the present paper. More precisely, the project of the paper can be sketched as follows:

Standard contextualism about *know* comes in two versions. In the first, *know* is treated as an indexical. In the second, it is treated both as an indexical and as a context-shifter. In both versions, it is intended as a satisfactory theory about the ordinary meaning of *know*. But any satisfactory semantic theory about *know* must be able to account for the fact that *know* is a factive verb.

In this paper we argue that standard contextualists face an insolvable dilemma: they had better opt for the second version, but doing so would deprive *know* of its factivity. We conclude that standard contextualism is unable to deal with the factivity of knowledge and that for this reason, it cannot constitute a proper treatment of the ordinary meaning of *know*.

Section 1 introduces the factivity of knowledge, while section 2 describes the standard contextualist treatment of knowledge ascriptions. Sections 3 and 4 present what we call the “normal-indexical” and the “monster-indexical” versions of contextualism, and section 5 argues that contextualists ought to prefer the latter version. This version, in turn, is then shown to be unable to account for the factivity of knowledge. This is done in section 6.

1

Among attitude verb phrases, some take declarative complements, i.e. that-clauses. It is not the case with *wonder*, which takes only interrogative complements, i.e. wh-clauses (e.g. *Copernicus wondered whether Earth really was at the centre of the universe*). But it is the case

¹ The authors would like to thank the audience at the International Conference “Scientific Knowledge and Common Knowledge: The Big Divide?” held at the University of Economy of Bydgoszcz (Poland) on September the 5th and 6th, 2007.

with *believe*, which takes only that-clauses as complements (e.g. *Ptolemy believed that Earth was at the centre of the universe*), as well as with *know*, which takes both declarative and interrogative complements (e.g. *Galileo knew whether Earth was at the centre of the universe and that Copernicus was right on the matter*).

Among attitude verb phrases that do take declarative complements, some are “factive”. These carry with them the presupposition of the truth of any declarative complement they may take. As such, they satisfy the following two conditions (where *S* stands for a subject, *V* for a verb phrase, and φ for a proposition): (i) any true utterance of *S V-s that φ* entails that φ is true, and (ii) any true utterance of the negation of *S V-s that φ* also entails that φ is true. It is not the case with *believe*, for we may truly utter that one believes that φ without it being true that φ . But it is the case with the verb *know*, since whenever we say that one knows, or does not know, that something is the case, we thereby presuppose that thing to be the case. For instance, if we utter *Andrzej knows (/does not know) that the Everest is the highest summit in the world*, we thereby presuppose that the Everest is the highest summit in the world.

So any satisfactory analysis of the ordinary meaning of *know* must be able to account for the factivity of this verb, in particular for the fact that it satisfies the first condition – the “veridicality condition” as we may call it – for being a factive verb. It is this veridicality condition we will be most concerned with in this paper.

The kind of semantic analyses we will be interested in are truth-conditional analyses of knowledge sentences of the form *S knows that φ* , where truth is taken to be relative to a number of appropriate parameters against which such sentences are to be evaluated. But what are the relevant parameters? In the basic case, they will be “points” or “circumstances of evaluation” relative to which a sentence can be said to be true or false. Now, if for simplicity we let circumstances of evaluation be world-time pairs,² then what we will call the “standard semantic analysis of knowledge sentences” will look like this:

Standard semantic analysis of knowledge sentences:

S knows that φ is true at a circumstance $\langle w, t \rangle$ iff for all possible circumstances $\langle w', t' \rangle$ that are compatible with the overall information at *S*'s disposal in *w* at *t*, the proposition expressed by φ is true when evaluated at $\langle w', t' \rangle$.³

Following Unger (1984) who first made the distinction, this semantic analysis can be said to be “invariantist”, as opposed to “contextualist”, since it does not relativize the truth of knowledge sentences to contexts of use, but only to circumstances of evaluation. Satisfaction of the veridicality condition for factivity is gained by imposing the specific constraint that:

The reflexivity condition for epistemic alternativeness:

For any circumstance $\langle w, t \rangle$, $\langle w, t \rangle$ is compatible with *S*'s information in $\langle w, t \rangle$, for any subject *S*.

For then, *S knows that φ* will be true at a circumstance $\langle w, t \rangle$ only if φ is true at this same $\langle w, t \rangle$. So, the standard invariantist semantics can account for the factivity of knowledge through the above “reflexivity constraint” on the *being compatible with one's information* relation, also called a relation of “epistemic alternativeness”.

² The resulting system will thus allow for quantification over worlds and times. However, it will assume no world- nor time-variables as part of the expressions of the natural epistemic language, as such variables will not be needed for the purpose of the paper.

³ This way of putting the truth conditions for knowledge sentences is, of course, inherited from Hintikka (1962).

But “contextualists” claim to have a better semantics for *know* than invariantists, and must therefore themselves offer us an account of the factivity of knowledge.

2

Contextualism about *know*, which counts Cohen (1990, 1999), DeRose (1992, 1995, 1996) and Lewis (1996) among its main representatives, proceeds from a commonplace observation: an utterance of a knowledge sentence (i.e. a knowledge attribution) in a given context may be considered linguistically correct while an utterance of the same sentence in another context will be considered incorrect. According to contextualism, the best explanation for this observation is of a semantic order: if the *correctness* or *incorrectness* of an utterance of a knowledge sentence varies with the context in which it is made, it is because the *truth-value* of the knowledge sentence so varies, and if this is so, it is because the value, that is, the denotation of *know* itself varies with the context in which it is used. In the standard version of contextualism, as described in DeRose (1996), Schiffer (1996), Schaffer (2004) and Stanley (2004) for instance, this is explained by treating *know* as an indexical in a broad sense, that is, as an expression whose content at a context depends on, therefore varies with, certain aspects of the context.⁴

But what we need now is the details of a semantic analysis for standard contextualist *S knows that* ϕ . As we shall see, the way we specify it will have important bearings on the issue of factivity. Before we proceed, let us say that we will assume that the basic features of a context of use are the world, time and speaker of the context, and that whichever other features are pertinent when talking about knowledge are derived from these basic ones. According to Kaplan (1989), one of the roles of the context is to determine a default circumstance of evaluation, what he calls the “circumstance of the context”. For simplicity, we will assume as before that circumstances of evaluation are just world-time pairs, and as a consequence, that the “circumstance of a context” is just the pair formed by the world and the time of the context.⁵ This allows for a definition of “truth of an utterance” as truth at a context of utterance *and* at the circumstance of the context. More precisely:

Definition of utterance truth:

An utterance of a sentence ϕ in a context c is true iff the proposition expressed by ϕ in the context c is true when evaluated at the circumstance $\langle w_c, t_c \rangle$ of c .

Given this definition, we now have a clearer idea how to represent the factivity of knowledge in a contextualist framework:

⁴ This characterization of an indexical “in a broad sense” can be found, for instance, in MacFarlane (forthcoming).

⁵ As standard contextualism treats *know* as an indexical, we may, following MacFarlane (2005, forthcoming) and Brogaard (manuscript), speak of an “indexical” version of contextualism, to be contrasted with a “nonindexical” version of contextualism, according to which the value of *know* varies with the context of use because it varies not with features of the context, but with features of the *circumstance of the context*.

Nonindexical contextualism is a form of contextualism. For a variation with the circumstance of a context implies a variation with the context, in the sense that the “coordinates” (world, time, etc.) of the circumstances of the context are “coordinates” (world, time, etc. of the context). But nonindexical contextualism does not imply indexical contextualism for that, since the latter says that the value of *know* varies with the context because the content of *know* depends on the context, while the former says that the value of *know* varies with (the circumstance of) the context without the content of *know* depending on the context. The distinction can therefore in principle be drawn between an indexical and a nonindexical form of contextualism. The theoretical import of the distinction, however, is a further question that will not be addressed here.

The factivity principle for contextualist knowledge:

An utterance of *S knows that ϕ* in a context *c* is true only if the proposition expressed by ϕ in the context *c* is true at the circumstance $\langle w_c, t_c \rangle$ of *c*.

It is this principle, we will assume, that any proposed contextualist semantics will have to make true in order to be said to have offered an account of the factivity of knowledge.

So let us now turn to the question how to precisely formulate the semantics of knowledge sentences in a contextualist setting and whether the resulting formulation can account for the factivity of knowledge (in accordance with the principle just mentioned).

3

What might a contextualist semantic analysis of knowledge sentences look like?

To answer this question, let us turn to Lewis' definition of knowledge, one of the most well-known in the contextualist literature:

S knows that P iff S 's evidence eliminates every possibility in which not- P – Psst! – except for those possibilities that we [knowledge attributors possibly distinct from S] are properly ignoring (Lewis 1996, p.123).

If for simplicity we identify Lewis' "possibilities" with possible circumstances, if in addition we identify "being eliminated" with "not being compatible with one's information", and if we associate the "possibilities that are not properly ignored" with a function that associates with every possible context the set of possible circumstances that count as "relevant alternatives" in it, we can straightforwardly turn the standard invariantist semantic analysis into a contextualist one, like the following:

Normal-indexical contextualist analysis of knowledge sentences:

S knows that ϕ is true at a context c and a circumstance $\langle w, t \rangle$ iff for all possible circumstances $\langle w', t' \rangle$ that are both relevant alternatives in c and compatible with S 's information in w at t , the proposition expressed by ϕ in c is true at $\langle w', t' \rangle$.

As can easily be seen, this analysis requires that the content of *know* in a context vary with features of the context, in other words, that *know* function as an indexical in a broad sense. Let us call that analysis the "normal-indexical" contextualist analysis, to contrast it with the "monster-indexical" contextualist analysis that will be introduced in the next section.

The normal-indexical contextualist analysis, as it stands, cannot account for the factivity of knowledge, since it offers no guarantee that whenever I truly say that one knows a proposition ϕ , the circumstance at which what I say is true will be both an epistemic *and* a relevant alternative. So, how do we guarantee the factivity, and more particularly the veridicality of *know* in a normal-indexical contextualist framework?

The answer is given in the following quote from Lewis:

The possibility that actually obtains is never properly ignored; actuality is always a relevant alternative; nothing false may properly be presupposed. It follows that only what is true is known (Lewis 1996, p.124).

In other words, factivity follows if we impose that actuality be automatically a relevant alternative in any context. This can be done by augmenting the aforementioned reflexivity constraint on epistemic alternativeness with the following reflexivity constraint on contextual relevance:

The reflexivity condition for contextual relevance:

For any context c , the circumstance $\langle w_c, t_c \rangle$ of c is a relevant alternative in c .

It is easy to see that the result of adding these two constraints to the normal-indexical contextualist analysis for knowledge sentences validates the factivity principle:

Suppose, indeed, that an utterance of *S knows that φ* in a context c is true. Then, the proposition expressed by *S knows that φ* in c must be true when evaluated at $\langle w_c, t_c \rangle$, the default circumstance determined by c .

Then, in virtue of the normal-indexical contextualist analysis of knowledge sentences, the proposition expressed by φ in c will be true at every possible circumstance that is both a relevant alternative in c and an epistemic alternative to $\langle w_c, t_c \rangle$ for S .

Now, the circumstance $\langle w_c, t_c \rangle$ of c itself will possess these features, for in virtue of the reflexivity constraint on epistemic alternativeness, it will be an epistemic alternative to itself for S , and in virtue of the reflexivity constraint on contextual relevance, it will also be a relevant alternative in c .

Therefore, the proposition expressed by φ in c will be true at $\langle w_c, t_c \rangle$.

We can thus, without reservation, conclude that normal-indexical contextualist knowledge *is* factive.

4

Despite the fact that the normal-indexical contextualist analysis has the resources to account for the factivity of knowledge, our conjecture is that contextualists ought to be more willing to accept an alternative analysis of knowledge sentences, namely, the following:

Monster-indexical contextualist analysis of knowledge sentences:

S knows that φ is true at a context c and a circumstance $\langle w, t \rangle$ iff for all possible circumstances $\langle w', t' \rangle$ that are both relevant alternatives in c and compatible with S 's information in w at t , the proposition expressed by φ in c_S is true at $\langle w', t' \rangle$.

where c_S is the context whose agent is S , instead of the initial context c .

Notice that the only difference between this new analysis and the normal-indexical contextualist analysis mentioned in the previous section is that there is only one context, c , involved in the latter, while in the former two contexts are now involved: context c , whose agent is supposed to be the person who ascribes knowledge to the subject, and context c_S , whose agent is supposed to be the *subject* to whom knowledge is being ascribed.

This difference really makes a difference, for it amounts to making *know* a “monstrous” operator. Indeed, according to this new formulation of the contextualist analysis, *know* functions as an operator that manipulates contexts: the truth of *S knows that φ* at a context (and circumstance) depends on the truth of the embedded φ at *another* context – viz. subject S 's context – (and circumstance)⁶. In other words, according to the alternative contextualist analysis, *know* is to be treated not only as an indexical, but also as a context-shifting operator, what Kaplan (1989) would have considered a “monster”. So, let us call the form of contextualism that results from endorsing this alternative analysis “monster-indexical contextualism”.

⁶ We provide a possible formal embedding for such a “contextual operator” within the “contextual epistemic logic” we develop in Rebuschi & Lihoreau (forthcoming).

Now, Kaplan famously conjectured that natural language had no such devices as context-shifting operators or “monsters”. If he is right, then there can be no natural language counterpart for monster-indexical contextualist *know*. However, Schlenker (2003) and others have recently challenged Kaplan’s conjecture, notably by arguing (very convincingly) that natural language allows context-shifting to occur within propositional attitudes. Here is an example, borrowed from Brogaard (manuscript, p.19), which can be interpreted from a contextualist point of view as a case of context-shifting within a propositional attitude.

Suppose I utter the following sentence:

Jan believes I knew that my car was in the driveway back then.

Assuming that I actually was not in measure back then to meet the requirements of the epistemic standards in play at the context at which I utter this sentence, my utterance of it can still be true, and this can be so only if in all worlds compatible with what Jan believes, I was in measure to satisfy the standard in play at *Jan’s* context, not mine. It thus seems that *believe* can function as a context-shifting operator that operates on the content of the embedded sentence to have it considered at the context of the agent to whom the belief is being ascribed, not the context of the agent who is ascribing the belief.

Of course, the question of context-shifting within attitudes is far from having been settled for that specific kind of attitude reports formed by knowledge claims. Yet, one might conjecture that given the close connexion that seems to many to exist between knowledge and belief (cf. the number of epistemological analyses that make belief a necessary condition for knowledge), and given that *believe* seems to manipulate contexts in some cases, *know* too might function as a context-shifting operator. So, there is nothing *prima facie* linguistically implausible with this idea.

What is more, there are epistemological reasons to think that contextualists had better make *know* a doubly monstrous operator in the aforementioned sense.

5

The monster-indexical contextualist analysis makes knowledge attributions “subject-sensitive” in a certain measure. This shows in cases of embedded *know*. Consider, for instance, a second-order knowledge sentence of the form *A knows that B knows that φ*. According to the analysis, the truth of the proposition it expresses in an attributor’s context will require the proposition expressed by *B knows that φ* to be true when evaluated at circumstances that are relevant alternatives, not in the attributor’s context, but in subject *A’s* context. So, opting for monster-indexical contextualism would mean to concede that the epistemic standards in play at a subject’s context play a decisive role in deciding whether or not she counts as knowing.

It might seem to some that such a concession would amount to a betrayal of the contextualist spirit, for that would render contextualism too “subject-bound”. So, why would a contextualist opt for the monster-indexical contextualist analysis and thereby make a step towards a form of “subject-sensitivity”⁷?

First, because this is not such a big step to take for the contextualist. And indeed, some contextualists seem to have been ready to take it, like Lewis when he says:

⁷ Subject-sensitive invariantism, according to which the standards governing knowledge attributions are those of the subject, has recently been defended by Hawthorne (2004) and Stanley (2005).

If we are well-informed about S (or if we are considering a well-enough specified hypothetical case), then if S attends to a certain possibility, we attend to S 's attending to it. But to attend to S 's attending to it is *ipso facto* to attend to it ourselves. In that case [...], the possibilities we are properly ignoring must be among the possibilities that S himself ignores. We may ignore fewer possibilities than S does, but not more (Lewis 1996, p. 130).

This is clearly an acknowledgement that the subject's context is (at least minimally) relevant when it comes to deciding whether or not she qualifies for knowledge.

Second, because it might well be a necessary step to take for the contextualist. There are indeed clear cases about which normal-indexical contextualism yields counterintuitive results, precisely because it is unable to take the relevance of the subject's context into account, while they are easily handled by monster-indexical contextualism, which has a minimal form of subject-boundedness built into it.

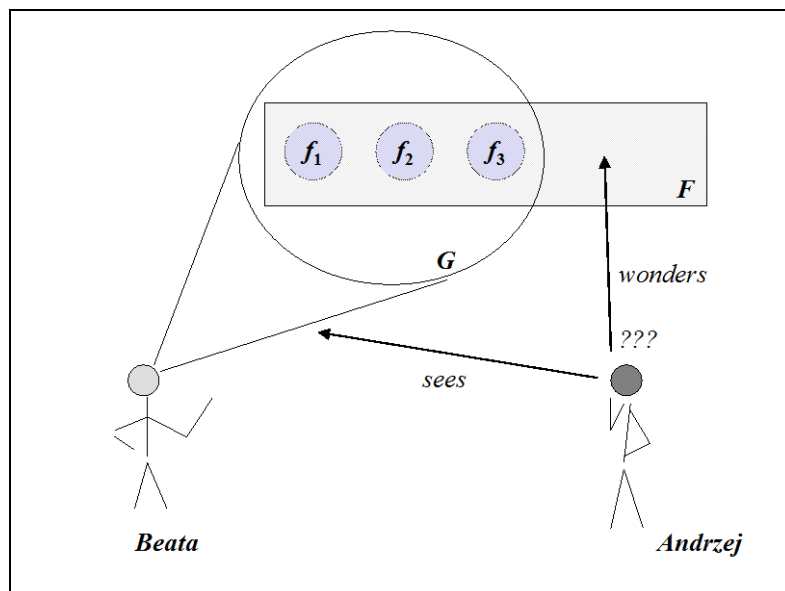
To illustrate, we will give just one example⁸:

Suppose that $f_1, f_2,$ and f_3 are all the F s there are.

Beata has been presented with $f_1, f_2,$ and f_3 and has observed that they were all G s.

Andrzej knows very well that Beata has made this observation, but what he does not know is whether $f_1, f_2,$ and f_3 are indeed all the F s there are; and he is very anxious about the possibility that there might be an F beyond those that Beata has observed.

But this possibility is not relevant at all in *my* context, say, because I already know that $f_1, f_2,$ and f_3 are all the F s there are. In fact, the only possibility that is relevant in my context is that Beata might not know of each of them that they are G s.



Would it then be correct for me to utter *Andrzej knows that Beata knows that all F s are G s*?

⁸ The example is freely inspired by a couple of remarks in Sorensen (2002).

(Very) intuitively, the answer is ‘no’, were it only for the reason that Andrzej cannot rule out a possibility in which Beata does not know that all *Fs* are *Gs* – namely the possibility that there might be an *F* to which Beata did not have access –, and that such a possibility is *prima facie* very relevant when it comes to deciding whether or not the knowledge in question ought to be attributed to Andrzej. We take this intuition to be fairly uncontroversial, and believe that any serious contextualist proposal must be able to take it into account.

The normal-indexical contextualist, on the contrary, would have to answer “yes”. Indeed, suppose that I do utter *Andrzej knows that Beata knows that all Fs are Gs*. Since Andrzej is well-informed that Beata has observed *f*₁, *f*₂, and *f*₃ to be all *Gs*, Andrzej’s information rules out the possibility that Beata might not know of each of these *Fs* that they are *Gs*. But remember that this is the only possibility that is relevant in my context. Thus, all the possibilities that are both relevant in my context and compatible with Andrzej’s information are possibilities in which Beata knows that all *Fs* are *Gs*. But in virtue of the normal-indexical contextualist analysis, this is enough for my possible utterance of *Andrzej knows that Beata knows that all Fs are Gs* to be true, therefore correct.

This result, we think, is highly counterintuitive.

By contrast, opting for monster-indexical contextualism will respect the intuition. For then, for an utterance of *Andrzej knows that Beata knows that all Fs are Gs* in my context to be true, the proposition expressed by *Beata knows that all Fs are Gs* will have to be true in every possibility that is a relevant alternative in *my* context, of course; but for this, it will have to be true that all *Fs* are *Gs* in every possibility that is a relevant alternative in *Andrzej’s* context this time, not mine. But remember that the possibility that there might be an *F* that is not-*G* beyond those Beata has observed is a relevant alternative in Andrzej’s context. And it is one that Beata’s information cannot rule out. So, were I to utter *Andrzej knows that Beata knows that all Fs are Gs*, my utterance would then be false. This result does match the verdict of intuition.

Thus, monster-indexical contextualism is in a better position than normal-indexical contextualism to take subject-boundedness seriously.

6

It thus seems that contextualists had better opt for a monster-indexical analysis rather than a normal-indexical analysis of knowledge sentences. But then, they will have to face an important problem: if we do make *know* the doubly monstrous operator which monster-indexical contextualists require it to be, we can no longer wish to provide a satisfactory account of the factivity of knowledge.

Establishing this result can be more or less trivial.

It seems fairly trivial if we consider knowledge sentences of the form *S knows that φ* in which the embedded *φ* is an indexical sentence, i.e. one that contains indexical expressions. For if monster-indexical contextualism is right and *know* does function as a context-shifting operator, then, given the content of *know* in a context, the content of the indexical sentence *φ* on which it operates can be different at the shifted context. And the fact that indexicals are so widespread in natural language makes it easy to build appropriate counterexamples to the factivity of *know*.

In the following example, the relevant indexical is *here*⁹:

⁹ For the purpose at hand, we will assume that the lexical entry for *here* is at least this:

Suppose that Andrzej is in Warsaw and Beata is in Krakow, and that Andrzej utters *Beata knows it is raining here*. Then, (very) intuitively, Andrzej's utterance is true only if it is raining in Warsaw where Andrzej himself is, not in Krakow where Beata is.

However, the monster-indexical contextualist analysis of *know* yields a counter-intuitive results in this case. For according to it, for Andrzej's utterance of *Beata knows that it is raining here* to be true, what must be true at every circumstance both compatible with Beata's information and relevant in Andrzej's context, and in particular at the world and time of Andrzej's utterance, is the proposition expressed by *It is raining here* in Beata's context, not Andrzej's context. In other words, what must be true is not that it is raining in Warsaw where Andrzej is, but that it is raining in Krakow where Beata is!

This goes against what was intuitively expected in terms of factivity, or else we are speaking of factivity in a new sense.

It is not difficult to figure out how other cases of this sort can be constructed with other indexicals, like *I* for instance:

Suppose that talking about Andrzej, I utter *He knows I like lychees*; then, according to the monster-indexical contextualist analysis, for my utterance to be true, what must be true at every circumstance compatible with Andrzej's information and relevant in my context, and in particular at the world and time of my utterance, is not that *I* like lychees, but that *he* likes lychees!

And the furthest the monster-indexical contextualist could go on the road to factivity would then be to make an utterance of *He knows I like lychees* by me turn out true only if *He likes lychees* expresses a true proposition in my context.

But that is just no factivity at all! At least not in the way we want to speak of factivity, for of course we do not want to make someone's knowledge of *my* likes and dislikes a matter of *her* likes and dislikes.

We are thus allowed to conclude that monster-indexical contextualism cannot account for the factivity of *know*.

But are we, really?

Earlier, we said that establishing this result might seem trivial in the case of constructions in which *know* takes indexical sentences, and that the reason for this lied in the semantics that monster-indexical contextualists postulate for *know*, and more precisely in *know* being conceived of as a context-shifting operator.

But relying precisely on this observation, one might reply that:

The problem this argument points out is not so much with *know* being a context-shifting operator as with the fact that there are indexical expressions on which it can operate in natural language; as a consequence, the argument is not conclu-

For any context of utterance c and circumstance of evaluation $\langle w, t \rangle$, *here* denotes the place that the agent of c occupies in the world of c at the time of c ,

leaving aside the question how the proper spatial extent of the relevant place is determined. Nothing crucial turns on this question.

sive: the concern it raises about factivity has nothing to do with the semantics that monster-indexical contextualists postulate for *know*.

Moreover, it is quite unlikely that monster-indexical contextualists will propose to account for the context-shifting character of *know* by saying that *know* shifts all the parameters of a context at once. Those who more generally admit of context-shifters in natural language usually contend that they shift only a few relevant parameters. In the case of *know*, the relevant contextual parameter would be an additional *contextually salient subject* parameter and a context would no longer be conceived of as a triple but as a world-time salient subject-speaker quadruple. The default salient subject of a context would be the speaker of the context and *know* would be allowed to shift the salient subject parameter and only this parameter. The aforementioned cases would then be handled in a straightforward way. For instance, when I say *Andrzej knows I like lychees*, *know* will shift only the contextually salient subject parameter from the speaker of the context, viz. me, to Andrzej, but the speaker parameter will remain untouched so that the reference of *I* in the embedded sentence will still be me. My utterance of *Andrzej knows I like lychees* would then be true only if I like lychees, as intuitively expected.

This reply will not do, though. Monster-indexical contextualism is an indexicalist version of contextualism, and as such, it views *know* as being an indexical itself. Therefore, we may expect the above argument to apply *mutatis mutandis* in the case of knowledge sentences of the form *S knows that φ* in which the embedded *φ* is a knowledge sentence itself; and in this case the aforementioned device, although efficient at dealing with the case where the embedded *φ* is obviously indexical, will be of no help at all.

To give only one such case, consider the following sentence: *Kamil knows that his wife knows that the bank will be open on Saturday morning*.

Suppose that I utter this sentence in the actual world on Friday evening and that my utterance is true. According to the monster-indexical contextualist analysis of knowledge sentences, this implies that the proposition expressed by the embedded sentence *Kamil's wife knows that the bank will be open on Saturday morning* in Kamil's context is true at all possible circumstances that are both relevant in my context and compatible with the overall information at Kamil's disposal in the actual world on Friday evening.

Now suppose that the actual world and Friday evening form the only circumstance having these features. Then, for my utterance to be true, the proposition expressed by *Kamil's wife knows that the bank will be open on Saturday morning* in Kamil's context must be true in the actual world on Friday evening.

But this is perfectly compatible with the proposition expressed by that sentence in my context being false (or the negation of it being true) in that world on that evening. This would be the case, for instance, if we made the additional suppositions that a possible circumstance at which the bank is not open on Saturday morning is both relevant in my context and compatible with the overall information at Kamil's wife's disposal in the actual world on Friday evening. The proposition expressed by *Kamil's wife knows that the bank will be open on Saturday morning* in my context would then be false and, on the contrary, it is the negation of this sentence that would be true in the actual world on Friday evening.

In such a case, in the same context, that is, my context, both *Kamil knows that his wife knows that the bank will be open on Saturday morning* and *Kamil's wife does not know that the bank will be open on Saturday morning* would express true propositions at the circumstance of that context. Were I to utter the conjunctive sentence *Kamil knows that his wife knows that the bank will be open on Saturday morning and Kamil's wife does not know that the bank will be open on Saturday morning*, this utterance would be true.

Again, this goes against the principle that knowledge is factive, and the trick of augmenting contexts with a salient subject parameter will be of no help here since it is precisely because the set of relevant alternatives is allowed to vary from the speaker's context to the subject's context that knowledge fails to be factive in the case at hand.

Therefore, the problem raised above against monster-indexical contextualism is not with there being more generally indexical expressions in natural language, but really is with the semantics that monster-indexical contextualists postulate for *know*.

Conclusion

Let us sum up what has been argued for so far.

Two versions of standard contextualism about *know* must be distinguished: what we have called "normal-indexical" contextualism, and what we have called "monster-indexical" contextualism. The latter treats *know* both as an indexical and as a context-shifter, while the former treats *know* only as an indexical.

Normal-indexical contextualism has the resources required to account for the factivity of knowledge. However, it is unable to take the relevance of the "subject's context" (as opposed to the "attributor's context") into account. This is why there are cases about which it delivers highly counterintuitive results.

Monster-indexical contextualism, on the contrary, has the resources required to account for the "subject-boundedness" in such cases. It is therefore to be preferred to the normal-indexical version. The problem, however, is that precisely because of its context-shifting character, monster-indexical contextualist *know* cannot be factive.

We conclude that standard contextualism is just unable to account for the factivity of knowledge, and that for this reason, it cannot constitute a proper treatment of the ordinary meaning of *know*.

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