

Know-wh does not reduce to know-that

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Forthcoming in *American Philosophical Quarterly*

Abstract: Know-wh (knowing what, where etc) ascriptions are ubiquitous in many languages. One standard analysis of know-wh is this: someone knows-wh just in case she knows that p , where p is an answer to the question included in the wh-clause. Additional conditions have also been proposed, but virtually all analyses assume that propositional knowledge of an answer is at least a necessary condition for knowledge-wh (even if it is not sufficient). This paper challenges this assumption, by arguing that there are cases where we have knowledge-wh without knowledge-that of an answer, for example in the cases familiar from arguments for the Extended Mind hypothesis.

1. Varieties of knowledge: know-that, know-how, know-wh

Many introductions to epistemology start with noting the different constructions we use when we talk about knowledge. It is often thought that, at least *prima facie*, the different constructions attribute different kinds of knowledge. Usually two or three such types are mentioned: “know that” constructions, expressing knowledge of facts; “know how” constructions, which usually concern some practical matter of performing certain kinds of actions or attaining certain kinds of goals; and occasionally a third one, “know someone or something”, expressing knowledge by acquaintance. Both the initial characterisation and the ultimate classification of these categories are subject to much controversy, but this isn't the topic of this paper. Rather, I would like to deal with a fourth kind of construction, which, though ubiquitous, is less often mentioned separately or analysed in detail: so-called “*know-wh*” constructions, where the verb “know” is followed by an interrogative clause, as for example someone knowing when, or where, or why something happened.

In recent years, there has been a growing interest in know-wh attributions, partly in connection to two debates: an argument for the reducibility of know-how to know-that, and the proposal that knowledge is contrast-relative. I briefly summarise these two issues in this section and the next, and identify an assumption shared among all parties to each debate: namely, that some sort of know-that is necessary for know-wh. The aim of this paper is to argue against this assumption.

One of the issues which brought know-wh into the focus of attention was an influential argument for the reducibility of “know-how” knowledge to propositional knowledge (Stanley and Williamson 2001). The argument proceeds through the following steps:

(KH1) Know-how is a species of know-wh

(KH2) Know-wh reduces to know-that

(KH3) Therefore know-how reduces to know-that

(KH2), the claim that know-wh reduces to know-that, is based on some version of the following plausible proposal: knowing-wh is a matter of knowing a proposition that answers the question included in the wh-clause. For example, *Ivan knows who founded Saint Petersburg* just in case Ivan knows that Peter the Great founded Saint Petersburg, and this is a correct answer to the question of who founded Saint Petersburg. More schematically:

(Reductionist) S knows-wh iff (there is a p such that) p is a correct answer to the question contained in the interrogative wh-clause, and S knows that p

If the above analysis is correct, then knowledge-wh reduces to knowledge-that in a straightforward way: knowing certain propositions, which happen to be answers to various questions, is both necessary and sufficient for the appropriate knowledge-wh.

The simple reductionist analysis has been criticised on the grounds that simply knowing a proposition that constitutes a proper answer is not always sufficient for knowledge-wh. One suggestion was that in addition to an answer being known, it also has to be known *as* an answer to that particular question. That is, the knowing subject somehow has to be aware of the specific question asked, and that the proposition known constitutes an answer to that question.

It should be noted that although this move somewhat complicates the reduction of know-wh to know-that, it's unclear whether it seriously undermines the argument for the reducibility of know-how to know-that in the above argument consisting of (KH1) – (KH3). Some of those who think that knowledge-how is genuinely different from knowledge-that emphasise the practical, procedural, ability-related nature of knowledge-how, as opposed to the theoretical, factual nature of know-that. Others argued that know-how is special because it is less susceptible to epistemic luck than knowledge-how (Carter and Pritchard 2013). Neither proposal seems to gain much support from a more complex analysis of know-wh. Even if a proposition has to be known as an answer to a question in order to qualify as know-wh, this doesn't seem to create a character that would support a sui generis knowledge-how, either in making it related to abilities, or making it less susceptible to epistemic luck. A more promising strategy to question the so-called “intellectualist” position expressed in (KH3) may therefore be to object to (KH1), that is, object to the claim that know-how is a species of know-wh. In fact, there is some reason to believe that (KH1) is not right, given that in many languages other than English, some of the paradigmatic cases of knowledge-how are expressed by a formula that is clearly quite different from know-wh constructions (see Rumfitt

2003; for a response by a defender of the intellectualist position, Stanley 2010). Be that as it may, this debate is not the focus of the current paper.

2. Know-that as a necessary condition for know-wh

According to the standard reductionist analysis of know-wh, S knows-wh iff S knows that p, where p is a correct answer to the question contained in the interrogative wh-clause. Those who deny the correctness of the straightforward reductionist analysis are sometimes called “anti-reductionists”, for example by Jonathan Schaffer (Schaffer 2007) who defends such a position. As Jesper Kallestrup points out (Kallestrup 2009), the simple reductionist claim has two components: the first is that knowledge-wh is a type of knowledge-that, and the second is that knowledge-that is a binary relation between a subject and a proposition. Schaffer denies the second claim: he defends the view that knowledge-that is a tertiary relation among a subject, a proposition and a set of relevant contrasts. This is the second debate I alluded to above which put knowledge-wh in the focus of interest. Note that although Schaffer denies the above simple reductionist claim, once we recognise that ordinary propositional knowledge involves a relation to something other than the subject and a proposition, it is possible to give an account of knowledge-wh as a type of knowledge-that. In fact, Schaffer's position could be characterised as a kind of reductionism too (the following are not meant to be steps of an argument, but rather claims that a defender of contrastive knowledge would be committed to):

(KContrast1) Know-wh claims are question/contrast relative

(KContrast2) Know-that claims are question/contrast relative

(KContrast3) Know-wh reduces to know-that

Whether the above is a fair representation of Schaffer's position or not, one thing is clear: both reductionists and “anti-reductionists” in Schaffer's sense accept that knowing a relevant proposition, one that answers the question in the wh-clause, is at least *a necessary condition* for knowledge-wh.

This is true of all the accounts of knowledge-wh I am familiar with. It is true even for a theory that denies that knowledge-wh attributions involve reference to a known proposition. Meghan Masto (2010) argues for such a position. She distinguishes between what is strictly speaking expressed in a know-wh attribution on the one hand, and the truth-conditions of such an attribution on the other. She holds that knowledge-wh attributions simply express that the subject stands in the knowledge-relation to a question – as opposed to, for example, attributions of

“wonder”, which state that a subject stands to a wondering-relation to a question – without referencing the proposition. Nonetheless, the *truth* of the attribution does require the appropriate knowledge-that:

While the anti-reductionist is right in recognizing that knowledge of the proposition that is the answer to the indirect question is necessary for the knowledge-wh ascription to be true, it is not clear why we should think that the knowledge-wh ascription references the answer or even quantifies over propositions that may be the answer. In other words, it is true that *there must be some proposition known* for a knowledge-wh ascription to be true, but the knowledge-wh ascription need not express that there is a proposition that is known. (Masto 2010, p. 398, emphasis added)

In summary, theories of knowledge tend to classify knowledge-wh as a type of knowledge-that (with possible additional conditions on the type of knowledge-that which qualifies for knowledge-wh). Perhaps this explains why know-wh constructions are seldom mentioned separately or discussed in detail among the different constructions by which we attribute knowledge. If knowledge-wh is not fundamentally different from knowledge-that, then there is no need for a separate treatment.

In this paper, I shall argue that contrary to the received opinion, *there are some cases of knowledge-wh where knowledge of a proposition that is most plausibly regarded as an answer to the question in the wh-clause is not necessary*. If my cases stand, then knowledge-wh fails to reduce to knowledge-that in a more radical sense than assumed hitherto. However, this lack of reducibility does not mean that all cases of irreducible knowledge-wh are fundamentally different from knowledge-that in the way sometimes knowledge-how is supposed to be different. Rather, as we shall see, some typical cases of irreducible knowledge-wh are better seen as extensions of the sort of factual knowledge that is usually associated with knowledge that. Propositional knowledge will turn out to be a specific case of this kind of factual knowledge.

I will introduce the idea in section 3 with the help of some ordinary cases where, I claim, it is natural to attribute knowledge-wh but not knowledge-that of the answer. Section 4 relates the issue of acquiring knowledge to the process of inquiry and answering questions. This leads to asking in section 5 why we have know-wh as well as know-that attributions. Some of the characteristic functions highlight the fact that when attributing knowledge-wh, we do not have to entertain the proposition that is the answer to the question. This, I argue, opens the possibility that the subject of attribution does not need to entertain the proposition – it is sufficient if she has

appropriate access to it. Sections 6 and 7 spell out what this “appropriate access” is, and explain that it has a functional and an epistemic component. Section 8 asks whether the cases in section 3 satisfy the conditions of appropriate access. Section 9 deals with the objection that the subjects in my examples don't have knowledge-wh, they only know how to find out the answer to a question. I argue that knowing how to find an answer is a relatively weak condition which doesn't do justice to the strong epistemic position of the protagonists of my examples. Achieving this strong epistemic position is a development made possible by technology, I argue in section 10.

3. Some ordinary know-wh attributions

I started with the idea that, as the first step in building a theory of knowledge, it may be worth looking at the various constructions we use to claim or attribute knowledge. Let me now present some ordinary cases where it is natural to attribute know-wh knowledge.

A: I don't know Pierre's phone number, but you do, right?

B: I do.

A: Can you give it to me?

B: Of course (reaching for her smartphone).

(Attribution: *B* knows what Pierre's phone-number is.)

C: We have paid most of the money for the apartment, but there is one more installment. My lawyer knows when this last payment is due, can you call him and ask? (The lawyer checks the relevant document and gives the answer.)

(Attribution: *C*'s lawyer knows when the last payment for *C*'s apartment is due.)

E: Where can I find a dry cleaner in this shopping mall?

F: I don't know, but let's ask the information desk, I'm sure they do. (The person at the information desk checks the directory of services in the mall and gives the answer.)

(Attribution: The person at the information desk knows where one can find a dry cleaner in this shopping mall.)

Cases like this are the starting point for my proposal. What is common to these situations is this: knowledge-wh is attributed to various people, apparently based on their ability to answer accurately certain questions. However, the attributors do not assume that these people can answer the questions

from the top of their head or know the answers by heart: *B* has to consult her smartphone, *C*'s lawyer the relevant documents, the person at the information desk the directory of services in the mall. These latter circumstances may suggest that at the time of the attributions, the subjects lack knowledge-that. *B* doesn't know *that* Pierre's phone-number is 123456789 when she is reaching for her smartphone, *C*'s lawyer doesn't know *that* the last payment is due on 31 August when the above conversation takes place, and nor does the person at the information desk know at the time of attribution *that* there is a dry cleaner on the third floor next to the supermarket. If the attributions of know-wh are nonetheless correct, then we have here cases of knowledge-wh without knowledge-that of the (contextually relevant) answer.

This was of course very quick, so I would like to emphasise that the cases above merely constitute a starting point, and I do not think that the possibility of the above scenarios taking place is, in itself, sufficient to establish my conclusion. Nor would I want to insist at all cost that each of the three cases above are knowledge-wh without knowledge-that. It is possible that a further analysis of the general features where know-wh and know-that diverge reveals that the above cases are not, after all, suitable to illustrate my conclusion. Still, it's instructive to consider the apparent ease with which we attribute knowledge-wh in situations like the above. In the following sections, I will sketch a theoretical background that could serve as a basis of attributions of know-wh without knowledge-that.

4. Answering questions

Even if knowing how to find out answers to questions is not always sufficient for knowledge-wh, it is very plausible that the ability to answer questions is in an intimate relation to knowledge-wh. Several people linked the understanding of knowledge to understanding the process of inquiry, where inquiry involves – possibly among other things – formulating, asking and answering questions (see Lihoreau 2008 for a collection of papers on this topic).

Suppose a question is asked in a certain context. Questions have (proper) answers, which may not all be correct answers, as it is illustrated in the following exchanges. In the first, the addressee of the question doesn't answer the question (or doesn't give a proper answer – I will use these expressions to mean the same), in the second, she answers the question (properly) but incorrectly, in the third, she answers the question both properly and correctly.

K: What is the capital of Bolivia?

L: This morning.

M: What are the ingredients of pesto sauce?

N: Pesto sauce is made of cream cheese, brown sugar and a squeeze of lemon juice.

O: Who developed the first modern periodic table?

P: Mendeleev.

I will assume (though not much will turn on this) that all meaningful questions have (proper) answers, even if they don't always have correct answers. I will be noncommittal about the form of an answer – that, is, on the question of whether all answers are propositions or not, and on whether the above answers are elliptical for full propositions.

What it is to answer a question or what counts as an answer to a question is a complex issue, even without addressing the issue of knowledge. I mention but one problem about the context-sensitivity of answering questions. Suppose we meet Gustave, a cosmopolitan world traveller on the Trans-Siberian express, and someone asks where Gustave lives – to say he lives in Paris seems like a proper answer. If Gustave does live in Paris, then this is also a correct answer. However, suppose that we are visiting Paris and comparing living in different neighbourhoods and which of our acquaintances live where; replying to the question of where Gustave lives by saying that he lives in Paris does not seem like a proper answer (whether it's true or not).

Since the ability to answer questions is crucial in understanding knowledge-wh, a complete theory of knowledge-wh will need an account of answering questions. I don't have the space to survey all the issues here, let alone resolve them in a satisfactory manner, and therefore I will assume that we have some or other theory of what counts as answering a question.

5. Functions of know-wh attributions

I mentioned the idea that understanding knowledge is connected to understanding the process of inquiry, where inquiry involves formulating, asking and answering questions. There are a number of verbs that take wh-clauses and can be used to characterise the process of enquiry: *G inquires who* left a half-eaten pastrami sandwich on the table; *H is wondering what* should be done with it; *J asks whether* it would be OK to throw it away. Typically, these verbs don't take that-clauses, or when they do, they have a somewhat different meaning. The verbs express some attitude to a question: usually something like the attitude of wanting to find out the answer. It is quite plausible to suggest that when we wonder, ask, inquire, or generally want to know the answer to a question, we have

some sort of implicit understanding of what would count as a proper answer to the question. (Though this doesn't mean grasping all the possible answers. That would seem to be far too difficult).

The inquirer can be understood as trying to select the correct one(s) from the range of possible answers. When a question is answered, the inquirer often (or at least sometimes) adopts a belief in (some of) the answers to the question. The verb “belief”, as it is well-known, takes that-clauses, and doesn't take wh-clauses (apart from the rather special “believe what” as in “I believe what I see”). Some of the beliefs we adopt also qualify as knowledge, and as we may expect, knowledge also takes a that-clause. So we may – somewhat metaphorically – conceive the process of inquiry as getting from a wh-clause to a that-clause. Inquiry words that take wh-clauses throw up questions which have a range of possible answers, none of which is selected at that point; when a question is answered, we narrowed down the range to one proposition which is then expressed by a that-clause.

In contrast to inquiry-words that tend to take only wh-clauses, and “belief” which takes only that-clauses, “know” takes both that-clauses and the whole range of wh-clauses. A know-that ascription is suitable to characterise the state of the person who not only adopted a belief, but has also done it in a knowledgable way. Knowledge, in its most paradigmatic form, is a state we are in at the end of the inquiry, when a question is answered and a proposition (an answer) is singled out. One then may wonder why we have, in addition to know-that ascriptions, also know-wh ascriptions. I do not have a complete answer to this question, but there are at least three things that we can achieve with know-wh ascriptions but not with know-that ascriptions. One is to characterise inquirers as *wanting to know* something, and hence linking the process of inquiry to the attainment of knowledge. When I want to know who developed the first periodic table, the question is still open, and hence I cannot single out a proposition that would be the object of my inquiry. (In this respect, “know-whether” is rather special among know-wh constructions, since it already settles on a proposition).

A second function of know-wh attributions is to characterise a subject who keeps track, in a knowledgeable way, of a changing subject-matter; for example, a detective who trails a suspect for a day. If we had only know-that attributions, we could say that for the whole period, the detective knew that the suspect was within a certain area. But this doesn't do justice to the fact that she can locate the suspect much more precisely within that area. Alternatively, we could use a different attribution every minute: at 12:01, the detective knows that the suspect is entering the cafe, at 12:02, she knows that the suspect is standing in the queue for coffee, and so on. This can be sidestepped by a know-wh attribution, because it does not require specifying the proposition: so we can say that for

a period of time, the detective knew exactly *where the suspect was*.

A third advantage of know-wh ascriptions is that we can attribute knowledge to people even if we ourselves are ignorant of the subject matter. Edward Craig (1990) proposed that the function of the concept knowledge is to flag reliable informants. Whether this observation is the key to understanding the entire nature of knowledge is a separate question, but it is indeed very plausible that knowledge attributions have this function. There are different kinds of situations where explicitly ascribing knowledge can serve to flag someone as a reliable informant. I can use a know-that construction to assure you that I know (as opposed to having a vague memory or merely guessing) that Mendeleev developed the first modern periodic table, so I can flag *myself* as a reliable informant on this particular point.

But what happens if I am ignorant on some matter, and want to direct to you to a more knowledgeable person? Here know-that ascriptions are not very useful at all. Since know-that ascriptions are factive, by asserting that *P* knows that Mendeleev constructed the first periodic table, I commit myself to the truth of the embedded proposition; moreover, if knowledge is the norm of assertion, then I also implicitly put forward myself as a knower. Maybe *P*'s knowledge adds some assurance to mine – and the attribution could serve some quite different purposes – but when it comes to directing listeners to further, better sources of reliable information, know-that ascriptions don't really help.

In contrast, know-wh ascriptions can serve precisely this purpose. In the exchanges in section 2, the attributors of knowledge-wh lack the relevant propositional knowledge. *C* doesn't know that the last payment for his apartment is due on 31 August, but he is in the position to direct his listener to a better source of information, by stating that his lawyer knows when the payment is due. When making a know-wh ascription, it is not necessary that the attributor herself entertains or grasps the proposition (or a proposition) that answers the question included in the wh-clause.

Of course, by putting forward the attribution, the attributor claims that the subject of the attribution has an appropriate relationship to the answer. One way to accommodate this fact is to formulate the content of such ascriptions as existential statements: in saying that her accountant knows when the payment is due, *C* states that there is a *p* such that her accountant knows that *p* and *p* answers the questions of when the payment is due. This way the attributor need not herself represent the content of *p*; it is enough if she states *p*'s existence and appropriate relationship to the subject. On a somewhat different variant, we state that the accountant knows of a time *t*, *that t* is the time when the payment is due – but the attributor need not know what *t* is. (See Brogaard 2009; since this analysis also assumes that knowledge-that is necessary for know-wh, I will not treat this account separately).

Others go even further. In the article quoted above, Meghan Mastro argues that know-wh attributions don't even express that there is such a proposition: their literal content is simply that the subject can answer a question. Presumably, in the analysis of what it is to be able to answer a question, an appropriate relationship to the answers will come in; but this could be a matter of further analysis and not something that is literally expressed by the attributions. (I am not endorsing this view, only mentioning it as a possible position).

Knowledge-wh attributions don't require the attributor's explicit representation of the content of the answer. This, I want to argue now, opens the possibility of knowledge-wh where *the subject herself does not explicitly represent the content of the answer*. Knowing that *p*, where *p* is the (an) answer to the question is not necessary for knowing-wh; it is sufficient if the subject has *appropriate access* to the information that *p*. Knowing that *p* (and believing that *p*) are special cases of appropriate access. The following sections explain what this means.

6. Functional features of appropriate access

I propose that it is sufficient for knowledge-wh if the subject has appropriate access to the information which constitutes the (or a) correct answer to the question included in the wh-clause. What is “appropriate access”? It has at least two components: a functional and an epistemic one. The functional component can be approached by recalling the so-called “extended mind” cases. In an influential paper published in 1998, Andy Clark and David Chalmers discussed the imaginary case of Otto and Inga. Inga is an ordinary person, who plans her activities and carries out her actions in the usual way: for example, when she wants to go to the Museum of Modern Arts, she recalls from memory that the Museum of Modern Art is on 53d street, and she sets off accordingly. Otto suffers from serious long-term memory loss, and therefore enters all important information to a notebook that he carries with him all the time. Where Inga consults her memory, Otto consults the notebook. When Otto wants to go to the Museum of Modern Arts, he looks up the address in the notebook, and sets off towards 53d street accordingly.

If Inga can recall the whereabouts of the Museum of Modern Arts from memory, we normally attribute her the belief that MoMA is on 53d street even before the episode of accessing the information and acting upon it. Clark and Chalmers argue that we should do the same with Otto: we should attribute him the same belief, even prior to consulting his notebook. They base this argument on the claim that the information in Otto's notebook plays the same functional role in Otto's mental life and actions as the information stored in Inga's memory.

Many people have debated this claim by Clark and Chalmers, and the matter remains controversial. There are at least some good reasons to resist the conclusion that Otto has beliefs

with contents that are the same as the information stored in his notebook. I am not going to settle this debate here. For I want to argue that even putting aside the issue of whether Otto has the beliefs in question, it is plausible that we can attribute him knowledge, namely the knowledge of *where MoMA is*. He may not know *that* MoMA is on 53d street, but nonetheless he knows where it is.

Clark and Chalmers point out several important features in Otto's relationship to his notebook which Clark called “glue and trust” conditions in a later piece (Clark 2010): that Otto constantly relies on information in the notebook when answering questions or executing actions, the information is readily available, and is automatically endorsed upon retrieval. A fourth condition was that Otto consciously endorsed all information he entered in the notebook in the past, which is less obviously required in all cases – I will return to this issue in section 8. In any case, something like the glue and trust conditions capture well what I call “functional” conditions for having appropriate access to a piece of information that qualifies as know-wh. In the next section, I turn to the epistemic conditions that have to hold in order to have a case of knowledge-wh.

7. Positive epistemic features of entry-forming processes

Clark and Chalmers's original story does not address Otto's epistemic standing in relation to entries in his notebook. For all we know, Otto enters information in his notebook in a whimsical and careless fashion, he does not try to make sure that his information comes from a reliable source, he does nothing to keep entries up-to-date. If this were the case, it would be certainly wrong to say that Otto knows where MoMA is. However, the case could also be different: managing the notebook gives Otto an opportunity to exhibit all sorts of epistemically positive features.

Positive epistemic features are often formulated in terms of how a subject forms and sustains beliefs. In the current case, I want to remain neutral on the issue whether Otto has beliefs concerning the subject-matter of the notebook entries.¹ So we will have to modify the formulation of positive epistemic features, so that it relates not to forming and upholding beliefs, but to the *acquisition and storage of information*. In fact, this is quite straightforward in many cases. For example, it has been suggested that the reliability of a belief-forming process (that is, the measure of the proportion of true beliefs produced by a certain type of process) is a positive epistemic feature, one that is necessary for knowledge. Similarly, we can define reliability for an entry-producing process as the measure of the proportion of correct entries produced by that process. This will largely depend on Otto's practices of entering and keeping information to the notebook. Part of this practice involves forming judgements before an entry is made, and the reliability of this process will be the familiar reliability of the judgement-forming process. A further aspect of the practice will concern keeping the entries up-to-date and consistent.

Further examples of positive epistemic features are the “sensitivity” and “safety” of beliefs. A belief is sensitive if the following counterfactual statement holds: if the proposition believed weren't true, the subject would not believe it. It is easy to modify this for stored information: an entry in the notebook is sensitive just in case if the information in the entry were not correct, it would not be in the notebook. Whether an entry is sensitive or not largely depends on Otto's epistemically relevant practices. Drawing information from reliable sources, making sure that entries are up-to-date and coordinated with each other result in entries that track the truth. The so-called “safety condition” for stored information can be formulated in a similar way: an entry is safe if the information it contains could not easily be wrong, given the way Otto handles the entries in the notebook.

Yet another example can be offered by drawing on Duncan Pritchard's discussion of a subject's epistemic situation in extended mind cases (Pritchard 2010). Pritchard works with the hypothesis that knowledge is true belief that is due to cognitive ability. The production of a belief is due to a cognitive ability if a “reliable belief-forming process is *integrated* within, and therefore a part of, the cognitive character of the agent” (Pritchard 2010, p. 136). Pritchard notes that Otto showed considerable epistemic virtue in the first place when he realised that his memory was failing and decided to keep information in the notebook. And in his further engagement of the notebook, he can integrate the production and storage of information in the notebook to his cognitive character. We can thus agree with Pritchard that Otto can have knowledge – even if we dispense with the idea that Otto had beliefs with contents stored in the notebook. (Pritchard actually engages with the Otto case under the description of “extended cognition”, rather than “extended mind”, so he need not be committed on the issue of Otto's beliefs). In any case, on this proposal, Otto has knowledge because his cognitive success is due to his cognitive ability, since he relies on a reliable entry-forming process that is integrated with his cognitive character.

Philosophers disagree about the proper analysis of knowledge – beginning with the question of what form the analysis should take. Some hope to give an analysis in the form of individually necessary and jointly sufficient conditions, others believe that we can work out separate necessary and sufficient conditions, yet others are sceptical about a reductionist analysis of knowledge and offer an illuminating account not in terms of conditions, but rather by characterising the function of knowledge, or the semantic behaviour of epistemic terms. I cannot settle these debates in this paper, but the point of this section is to show that there are a number of directions we can pursue if we want to make sense of Otto's situation as a knower.

I am not claiming that just about any theory of knowledge can be modified to apply to Otto's case – some, typically those which work with an internalist conception of justification, will resist

such a move. If the reader is a passionate defender of one of these theories, I have little chance to succeed in convincing her that Otto has knowledge. So the account I am offering is based on some basic assumptions about knowledge, one being that an externalist analysis of knowledge or justification is along the right lines. But given these assumptions, we can attribute to Otto positive epistemic features which parallel some plausible accounts of knowledge. I myself am particularly sympathetic to the account defended by Pritchard, because it offers a uniform account of the functional and epistemic conditions for appropriate access: an entry-forming process that is both functionally and epistemically integrated with the cognitive character of the agent.

8. Actual cases of know-wh without know-that

The suggestion is then the following: Otto knows where the Museum of Modern Art is, because he has appropriate access to the information that the Museum of Modern Art is on 53d street, and this is the correct answer to the question included in the wh-clause. This, in turn, means that this information is stored in a database on which Otto relies when answering questions or executing actions, the information is readily available, automatically endorsed by Otto upon retrieval, and was entered and stored in the data-base through a reliable entry-forming process that is integrated with Otto's cognitive character.

Part of the extended mind debate concerns the question of how close Otto's case is to any real life situation. In the original debate, the issue arises for those who agree that in the imaginary story, Otto has the appropriate beliefs: the further question is whether there are any *actual* cases of extended minds. In this paper, I do not discuss the question of Otto's beliefs, but would like to argue that he has knowledge-wh. And just like in the original debate, the question arises: if Otto has knowledge-wh, are there any real life examples that exhibit a sufficiently similar structure? For example, are the three cases I mentioned in section 2 sufficiently like Otto's case so that they qualify as knowledge?

The smart phone holder comes closest to satisfying the glue and trust conditions: we can assume that she carries her phone everywhere, and so whenever the issue of Pierre's phone number arises, she will have access to the information. The few occasions where her phone's battery dies or she leaves the phone home will be parallel to the occasional memory lapse or intoxication that prevents someone who knows the number by heart from accessing the information. If we think that such occasional lapses are compatible with knowledge, then the smart phone holder's case won't be more problematic than the case of someone who know the number by heart.

However, the cases of the lawyer and the person at the information desk are different: they

do not carry the devices that store the information with them all the time. A plausible modification of the original conditions would be to require access to the information only in the specific circumstances in which knowledge is needed. The lawyer and the person at the desk both figure as knowers in a kind of institutional setting, in their official capacity as sources of certain information. So perhaps it is sufficient if they have access to the information only when they are serving in this capacity. Another question concerns the fourth conditions mentioned in the original Otto case: the requirement of conscious endorsement in the past. The lawyer satisfies this condition, but the person at the information desk may not. The question is whether this requirement can also be relaxed in a certain direction.

The best candidates for real-life knowledge-wh are cases of knowledge based on access to some sort of regimented data-base with a uniform nature or structure. The phone numbers in my phone, the dates of the completion of contracts and the location of shops in the mall arguably exhibit such a structure. What is no doubt very important for knowledge-wh through access to information is that the subject has a proper understanding of the nature of the information, once accessed, and also a proper understanding of how the information answers the question in the wh-claus. It is relatively easy to satisfy these conditions with respect to regimented data-bases.

9. Knowing the answer and knowing how to find the answer

I now turn to an objection that may have occurred to the reader already. According to this objection, Otto doesn't know where MoMA is, and *B* doesn't know what Pierre's phone number is; they merely know *how to find out the answer* to certain questions, or know *that* they find the answer in a certain place. It could even be knowledge-wh, but a different one: Otto may know where he can find information concerning the whereabouts of MoMA, but not where MoMA is. These possible knowledge attributions explain the positive epistemic features we can attribute to Otto and *B*, because there is some knowledge here – but it's not the specific knowledge-wh that was defended in the previous sections, according to the objection.

The problem with this proposal that the conditions that allegedly explain the positive epistemic features seem to be too weak. There are many cases where we know how to find out the answer to a question, or we know that a certain method is suitable for finding out the answer, and yet there is not even a remote temptation to attribute know-wh. For example, I know that by looking up my comprehensive world history volume I will find the answer to many historical questions, that other questions can be answered by consulting dictionaries or appropriate internet resources, interviewing people, checking the opening times on the sign on the door of the supermarket on the

corner, and so on. But that doesn't mean I know who succeeded Bela IV on the Hungarian throne, what "tulip" is in Spanish, where my brother was this morning, when the supermarket closes tonight, and so on. The same distinction can be made in our earlier examples. In the first scenario, *A* probably knows that she can find out Pierre's phone number by asking *B*, yet she denies knowing what the phone-number is. In the last scenario, *F* knows how to find out the answer to *E*'s questions: she knows that asking the information desk will reveal where the dry cleaner is. Yet she denies knowing where the dry cleaner is.

This suggests that we cannot simply treat the above cases as people knowing how to find out answers to questions, or knowing a relevant fact about the whereabouts of the relevant information: their epistemic position appears to be stronger than that. As I already mentioned, the ability to answer questions seems to be intimately related to knowledge-wh. A first shot at analysing knowledge-wh is naturally formulated in terms of knowing answers. For example, Jason Stanley suggests that initial reflection on the intuitive meaning of know-wh attributions results in the following: "Hannah knows why Obama won" "seems true if and only if Hannah knows the answer to the question, 'Why did Obama win?'" (Stanley 2010, p. 161). But this initial observation needs further work (supplied in great detail for example in Stanley's book). Knowing the answer is the same as knowing what the answer is, so we have another wh-attribution in need of analysis. Yet I mention this locution, because I want to point out that there is a difference between *knowing the answer* (or knowing what the answer is) on the one hand, and *knowing how to find the answer* on the other.

I don't think this is controversial, and I expect that a defender of the traditional analysis will agree with this distinction, and also agree that the first is sufficient for know-wh, the second isn't. We both think that simply knowing of an effective method of coming to know an answer to a question is not sufficient for know-wh. It is a condition that is fairly easy to satisfy, as the above examples to show: there are a vast number of questions I know how to find the answer to. But there are a lot fewer questions that I can answer on the basis of having easy, readily available access to information which is automatically endorsed by me upon retrieval, and which was produced and stored through a reliable entry-forming process that is integrated with my cognitive character. I propose that these latter cases are sufficient to grant an attribution of knowledge.

Let me illustrate this difference with a further example. I have been having what looks like a bad case of cold for a few days. What medication should I take? I know how to find out the answer: I ask my doctor, he will know. I go and see the doctor, he asks about my symptoms, and thinks that a new kind of antibiotics will just do the trick. He has a book with the names of all medications currently dispensed in the pharmacies; he looks up the name, writes the prescription. He has

displayed a significant amount of expertise and knowledge during this process, much more than I did, even though we both knew how to find out the answer to a question. More specifically, I suggest, my doctor knew what medication I should take (even though he doesn't know the name by heart).

10. Changing knowledge

I see the current proposal as a response to certain – especially technological – developments concerning our use of, and access to, information. Electronic information storage, efficient search methods and reliable access to the internet can change the way we relate to knowledge production, knowledge transfer and the assessment of knowledge. It seems that we need to store less and less in our head in order to acquire expertise in a certain field.

In discussions about the effect that the growing use of computers and the internet has on human thinking, people often quote a passage from Plato's *Phaedrus*, where Socrates, through the words of the Egyptian king Thamus, explains the damaging effects of learning to write:

it will introduce forgetfulness into the soul of those who learn it: they will not practice using their memory because they will put their trust in writing, which is external and depends on signs that belong to others, instead of trying to remember from the inside, completely on their own. You have not discovered a potion for remembering, but for reminding; you provide your students with the appearance of wisdom, not with its reality. Your invention will enable them to hear many things without being properly taught, and they will imagine that they have come to know much while for the most part they will know nothing. (Plato, *Phaedrus*, 275a-b, pp. 551-552)

In hindsight this may appear somewhat shortsighted, given the extent to which the development of science, culture and technology relied essentially on the written symbol. We recognise that people can “come to know much” even if they trust signs that belong to others “instead of trying to remember from the inside, completely on their own”. I propose that the same is true of trusting smartphones for phone numbers. I am not advocating the thesis that the introduction of writing or digital computers somehow changes the inner mechanism of cognition (although that may be true too). But I am suggesting that we should rethink again how much “remembering from the inside” is required for knowledge. The case of the doctor above is a good example. There is no need for a general practitioner to keep in mind the ever changing brand names of all medications. If he can quickly and reliably find the appropriate names in the book (something which I certainly cannot

do), then this should be good enough for us counting him as knowing the names.

Knowledge is produced and transferred in the context of a community of people who need knowledge themselves and need knowledgeable individuals to help them in various matters of life. My proposal is that in the current context, where we have easy and reliable access to data-bases, we should factor this in our calculations about who has knowledge. Know-wh attributions, unlike know-that attributions, do not include a known proposition in their content. This enables us to do various things: we can attribute knowledge over a changing subject-matter, we can attribute knowledge to people more knowledgeable than ourselves, and, I want to propose further, we can attribute knowledge to ourselves, even if the proposition is not explicitly represented.

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Notes

Acknowledgments. Versions of this paper were presented at a conference on Perspectives on Intentionality in Fefor, Norway; at the University of Lingnan and at the University of Bayreuth. I am very grateful to the audiences of these talks for comments and questions. I would also like to thank an anonymous referee for comments.

1 Elsewhere (Farkas 2015) I argued that this may be a case of knowledge without belief, by pointing out that a number of objections against attributing beliefs to Otto will not work against attributing him knowledge, and by making a prima facie case for treating Otto as a knower (without addressing the issue whether this is know-that or know-wh). This section draws on the discussion in Farkas 2015.

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