FIFTH PART OF THE DEFINITION OF KNOWLEDGE

Adam Grobler[1]

ABSTRACT

In this paper, I raise a problem for the widely accepted view that knowledge is degettierized justified true belief. The problem is that one can acquire degettierized justified true beliefs even if one is unable to apply those beliefs in practice or use them in the formation of further justified beliefs. Such beliefs, even though degettierized, justified and true, hardly amount to knowledge. So a fifth part of the definition of knowledge is called for. As a solution, I suggest that beliefs count as knowledge only when they are structured in such a way that they can be employed in the process of belief- or knowledge-formation. This required structure can be explicated in terms of Wiśniewski's logic of questions. In order for a belief to count as knowledge, I will argue, it is necessary for it to be liable to figure in an erotetic argument.

1.   The insufficiency of degettierization

The so-called tripartite definition of knowledge:

> $K_a p$ iff
> 1. $B_a p$
> 2. $JB_a p$
> 3. p

is often said to require one more clause in order to avoid Gettier-like paradoxes. The long-lasting debate about this is far from being closed. Fortunately, for the present purpose there is no need to try to specify the required fourth part of the definition. Consequently, we can do with an abstract formulation

> p is degettierized[2].

This amendment, however, regardless of whether its specification is available or not, still leaves us with a few unsolved problems. In my (2001) I argued, that the truth requirement is to be relaxed in order to account for the difference between outdated knowledge and error or prejudice[3]. I suggested there that the truth requirement be replaced with

---

[2]   I owe this abstract approach to the Gettier problem to Pritchard (2006).

[3]   Hazlett (2010) lists a number of other intuitively acceptable uses of "knowledge" that are at odds with the truth-requirement. While he finds more reasons for revising the standard analysis of "knowledge", he rejects the truth-requirement altogether instead of modifying it. One merit of my (2001) proposal is that it offers in addition a rebuttal of the well-known skeptical argument that appeals to the brains-in-a-vat story and Epistemic Closure.

the non-falsity one, in the sense of the logic of presuppositions. A non-false proposition is one that either is true or presupposes non-true presuppositions. For example, Aristotle's law "heavy bodies fall down" falsely presupposes that the space is anisotropic and has a definite, absolute up-down direction. Therefore, his law, as well as its negation, "heavy bodies do not fall down", according to the logic of presuppositions, is neither true, nor false. In my proposal, since Aristotle was at the time justified in believing his law, he knew it, even if the presupposition of his law, as false, did not belong to his knowledge[4]. I will not expand upon this for the present argument does not depend on the result mentioned in this paragraph.

Here I will argue, in contrast, that the definition is to be strengthened by adding the fifth clause in order to satisfy some intuitions concerning knowledge attribution to persons. Let me give some examples that point to the intuitions I have in mind.

Virtually everybody knows that 2 + 2 = 4. It requires some sophistication in math to know that

$$\int_0^1 x^2 \mathrm{d}x = 1/3$$

Suppose that a student who is not sophisticated enough has found this formula in a textbook and memorizes it. When asked about the value of

---

[4]   One may object that the primary motivation of the above mentioned proposal is to clarify the uses of "knowledge" like "the (state of) knowledge of the time" that seem to apply to scientific rather than personal knowledge. Yet it is quite natural to attribute to Aristotle personal knowledge about the disposition of heavy bodies to fall down. What I want to put into doubt in the remainder is that it is not necessarily natural to attribute such knowledge to all of Aristotle's peers who have acquired the relevant reliable testimony.

the integral in question, s/he does not hesitate to give the right answer, even if s/he has no idea what an integral is, how it is calculated etc. Similarly, a student may memorize that the automorphisms of an object X form a group under composition of morphisms, even if s/he has not study advanced algebra. In both cases, the student would fail an examination, for s/he has no idea how to apply the piece of information s/he has acquired or how it coheres with what s/he actually knows or believes. Yet the propositions s/he has memorized satisfy the definition of knowledge. First, the student believes them, for they have learned them from a reliable source. For the same reason s/he is justified in believing them. The beliefs in question are true and degettierized insofar as they are not true by sheer chance.

By way of an example from humanities, consider the belief that "according to structural theory in anthropology and social anthropology, meaning is produced and reproduced within a culture through various practices, phenomena and activities which serve as systems of signification"[5]. Again, one can memorize it without coherently including it in one's system of knowledge or beliefs, and yet believe it, be justified in believing it, and one's believe is true and degettierized because it is not true by sheer chance.

These are clear examples of acquiring a piece of reliable information without being able to use it because of a lack of understanding. There may be less extreme cases in which the subject understands to some extent the information in question, still s/he cannot make use of it, as it is required in the context. Suppose, for example, that one is going to buy a new car and learns of what power the engine of a particular model is. S/he has learned some physics and, consequently,

---

[5] The quotation is borrowed from <http://en.wikipedia.org/wiki/Structuralism>. Later I found a few other web resources containing precisely this phrase. A mantra?

understands the concept of power and is able to link it with other physical concepts. Still, s/he cannot make a decision before s/he learns how the power of engine affects the behavior of the car on a motorway. And this s/he may learn, possibly, only by taking a trial run. Just figures may not be enough to judge what amount of money is worth spending for this kind of power, acceleration etc. I am suggesting, then, that the numerical data alone does not provide a non-expert buyer with knowledge or at least with a kind of knowledge s/he wants in the context.

Before offering the fifth part of the definition of knowledge, let me spell out some intuitions behind it. First, to my mind, justification interplays with knowledge. Conventionally, it is assumed that knowledge is a noble kind of belief and its nobility is conferred, among other things, by justification. Add a suitable kind of justification to a true belief and you get knowledge. This conception suggests that justification is something prior to knowledge. It is plain, however, that what counts as justification heavily depends on the state of knowledge of the time. People justifiably believed in the efficacy of some medicines before the discovery of the placebo effect changed the standards of medical research. This is not to suggest that justificatory procedures are entirely determined by a body of knowledge, say, the best available knowledge at the time[6]. On the contrary, I am inclined to admit the role of unjustified assumptions, whether implicit or explicit, as well as of pragmatic factors. The former consists of all kinds of default beliefs and presuppositions like Aristotle's one about the anisotropy of space. The latter includes

---

[6] What is "the best available knowledge at the time" is often under dispute or relative to a paradigm or culture. Therefore the question of relativism or contextualism about knowledge and justification arises. I address briefly this question in the concluding paragraph of the present paper.

such considerations like the level of accuracy or confidence required in the context[7].

Even though our justificatory practice does not depend on knowledge alone, still a belief that is irrelevant for that practice hardly deserves the name of knowledge. Therefore, facts memorized by the student from our examples do not count as knowledge for they contribute nothing to the student's ability to justify any other claim. Figures learned by the customer, unless s/he has not much personal experience or expertise in the field, do not count as knowledge for they are not sufficient to justify the choice between different models of car[8].

Second, knowledge produces knowledge. If the growth of knowledge affects the standards of justification, then it affects the subsequent acquisition of knowledge. This does justice not only to the idea that knowledge is a self-correcting enterprise, but also to the idea that it is, to some extent, a self-driven enterprise. (In case of personal knowledge this is, of course, an idealization: some people do not care about correcting or developing their knowledge). Even if much of our knowledge were arrived at under the pressure of practical interests, this would hardly be possible without some prior knowledge.

---

[7] For a discussion of the question of confidence required in the context cf. e.g. DeRose (2009: 190-3).

[8] One may object that the justification of a choice or action is not the same thing as the justification of a belief. Even if this is right, the idea that knowledge is relevant for both is still viable as long as there is some family resemblance between the two notions of justification. Moreover, in many cases the justification of choice or action is often equivalent to that of the belief to the effect that the choice in question best serves the agent's purposes. Lastly, if there is more than one notion of justification, there is also more than two. To justify a mathematical claim is to offer its proof or perform a suitable calculation, and this is quite different thing than to justify a belief of another kind.

Third, a piece of knowledge is the correct[9], according to some specific standards, answer to a question[10]. Knowledge, whether arisen from practical or purely theoretical interest, arises from questions that express practical or theoretical problems[11]. Even if we sometimes learn something without first explicitly asking a question, the subject must be able to put a question about what s/he learns. If we had no problems, nobody would care about knowledge. Further, insofar as the contents of knowledge form resources of justification and affect its standards, knowledge is also a tool of answering questions and thereby a tool of producing new knowledge. Again, facts memorized by the student from our examples do not count as knowledge for the student has not asked and even has not been able to ask any questions about them and is not able to invoke them in an attempt to answer any further questions. Learning the power of a car does not provide the customer with knowledge as long as s/he does not find this helpful in answering the question s/he actually asks about the convenience of overtaking other cars on a motorway and, because s/he does find this helpful, s/he does not ask a question about the power of a car even if s/he has a basic grasp of the concept of power.

---

[9] Note that "correct" in the present context is not synonymous with "true".

[10] There are numerous sources of this idea. Exercised in the philosophy of science notably by K.R. Popper, T.S. Kuhn, and L. Laudan, it inspired the whole business of the logic of questions, including i.a. early works of S. Bromberger and later developments of J. Hintikka and A. Wiśniewski.

[11] Schaffer (2007) calls it "the received view" that "knowledge-*wh* reduces to knowledge that *p*, where *p* happens to be the answer to the question *Q* denoted by the *wh*-clause". Next, he extends this view to knowledge-*that* to conclude that "knowledge is a question-relative state". Unfortunately, J. Schaffer ignores A. Wiśniewski work I invoke in what follows.

2.   Some varieties of erotetic inplication

All these ideas find a nice explication in terms of Andrzej Wiśniewski's logic of questions[12]. Let me start from invoking his concept of erotetic implication.

> A question *Q* implies a question *Q** relative to a set of declarative sentences *X*, symbolically, Im(*Q, X, Q**), iff
>
> 1. each direct answer *A* to the implying question *Q,* together with the sentences of *X,* entails the alternative of all direct answers to the implied question *Q**;
> 2. each direct answer *B* to the implied question *Q**, together with the sentences of *X,* entails the alternative of direct answers of some proper subset of the set of all direct answers to the implying question *Q*[13].

A direct answer to a question is a possible and just-sufficient answer. Direct answers are to be contrasted to corrective answers that say that there is no true direct answer to the question under consideration, i.e. say that the question is ill-posed. For example, the question "What is the velocity of Earth relative to ether?" has direct answers of the form "The velocity is *x*", while "There is no ether" is a corrective answer.

---

[12]   For a brief exposition see, e.g., Wiśniewski (2001).

[13]   The definition of erotetic implication is more precisely put in terms of T.J. Smiley's multiply-conclusion entailment, see A. Wiśniewski, *op. cit.* The simplification I use here for the sake of brevity will do for the present purposes.

The first clause of the definition guarantees that if the implying question Q is sound, i.e. it has a true direct answer and all the sentences of X are true then the implied question Q^* is sound. The second clause says that answering the implied question Q^*, again assuming that all the sentences of X are true, narrows down the class of candidates for the correct direct answer to the implying question Q. Thus the concept of erotetic implication is useful for modeling processes of investigation in which the correct answer to a difficult question is sought by answering a number of auxiliary questions and assuming some background knowledge.

Consider a simple example:

Q = "Did Adam go to Warsaw or to Opole?"
X =   "Adam went to Warsaw iff he went by train";
         "Adam went to Opole iff he went by car";
         "If Adam went by train, his car is here".
         "If Adam went by car, his car is not here".
Q^* = "Is Adam's car here?"

Here the answer "…to Warsaw" to Q, together with X, entails the answer "Yes" to Q^* and *vice versa*, the answer "…to Opole" to Q, together with X, entails the answer "No" to Q^* and *vice versa*. In cases in which there are more than two direct answers to Q, a single direct answer to Q^* need not (together with X) entail a single direct answer to the implying question Q, but must entail an alternative of members of some proper subset of the set of direct answers to it and thereby narrow down the class of candidates for the correct answer to the implying question Q.

It is possible to consider some variations of the concept of erotetic implication, depending on what requirements one wants to impose on the processes of investigation under analysis. For example, instead of entailing the alternative of direct answers of some proper subset of the set of all direct answers to the implying question Q, one can postulate in the second clause entailing the negation of a direct answer to the implying

question *Q*. This represents another way, call it Baconian, of narrowing down the class of candidates for the correct answer to the implying question *Q*. For example:

> *Q* = "Did Adam go to Warsaw or to Opole?"
> *X'* = "If Adam went to Warsaw, he went by train";
>   "If Adam went to Opole, he went by car";
>   "If Adam went by train, his car is here".
>   "If Adam went by car, his car is not here".
> *Q** = "Is Adam's car here?"

Here the answer "Yes" to *Q**, together with *X'*, implies the answer "Adam did not go to Opole" to *Q*, while the answer "No" to *Q**, together with *X'*, implies the answer "Adam did not go to Warsaw" to *Q*. Baconian erotetic implication reduces to usual erotetic implication if we add the presupposition to *Q*, "Adam went to Warsaw or to Opole", to the set *X'*. However, as far as the analysis of knowledge is concerned, I am reluctant to automatically include the presuppositions of knowledge-seeking questions to the set *X'* that is intended to represent background knowledge. Instead, I am inclined to admit that a particular investigation may involve, if only implicitly, some propositions that do not count as knowledge. Among them there are the presuppositions of some knowledge-candidates.

A further possibility, which I find especially attractive, is to weaken the second clause replacing the general quantifier at the beginning with the existential one, that is:

> 2'.   some direct answer *B* to the implied question *Q**,
>   together with the sentences of *X,* entails the negation of a
>   direct answer to the implying question *Q*.

Example:

Q = "Did Adam go to Warsaw or to Opole?"
X" = "If Adam went to Warsaw, he went by train";
  "If Adam went to Opole, he went by car";
  "If Adam went by car, his car is not here".
Q^* = "Is Adam's car here?"

Here the answer "Yes" to Q^*, together with X", implies the answer "Adam did not go to Opole" to Q but the answer "No" to Q^*, taken together with X", appears irrelevant to Q. Still (at least) one possible answer helps in narrowing down the class of candidates for the correct answer to Q. This is quite enough to take seriously into account the erotetic relation defined with clauses 1. and 2'. in the analysis of the process of knowledge-formation.

In my (2006), I called this relation the falsificationist erotetic implication, symbolically: $\text{Imf}(Q, X, Q^*)$, and found it very useful for the analysis of scientific knowledge. Consider, for example, the question Q of the form "is the hypothesis H correct?", the set of declarative sentences X that represents background knowledge, including operational rules of experimentation, plausible idealizations and *ceteris paribus* clause. Now, the investigator can take into account a number of questions Q_i^* of the form "what is the result of the experiment E_i?", $i = 1, \ldots, n$, that stand with Q and X in the relation $\text{Imf}(Q, X, Q^*)$. Performing any of the experiments E_i, $i = 1, \ldots, n$, the scientist has a chance to decide the hypothesis H, even if some of its possible results are irrelevant for the purpose.

I called $\text{Imf}(Q, X, Q^*)$ falsificationist because usually some experimental results can falsify, against a body of background knowledge, a hypothesis under investigation. Sometimes, however, if background knowledge contains a suitable hypothesis of higher level of generality, an experimental result (or plain observation) may verify the hypothesis under test. By way of example, consider the time-worn hypothesis "All ravens are black". Suppose, then, that X contains, among other sentences, the factual statement "Alphie is a raven", idealizations

like "there are no albino ravens", *ceteris paribus* clause "there are no environmental factors that may affect the color of ravens' coat", and the hypothesis "Each species of birds has its characteristic pattern of coat". Let Q be the question "Are all ravens black?" and Q^* the question "Is Alphie black?". On these assumptions we have Imf(Q, X, Q^*). This time the answer "Yes" to the implied question Q^* entails, together with the sentences of X, the answer "Yes" to the implying question Q. In these circumstances observing a singular fact verifies a general hypothesis and in addition to Imf(Q, X, Q^*) the stronger relation Im(Q, X, Q^*) holds. Imf(Q, X, Q^*), however, represents a plausibly weaker standard of justification of general hypotheses than that of the verificationist. Namely, the falsificationist standard is that the hypothesis is justified when it has passed a number of serious tests and it has no serious rival at the moment[14].

3.   The fifth part and its support

At this point I am in a position to formulate the fifth part of the definition of knowledge. In the concluding paragraphs of the previous section, the process of the acquisition of scientific knowledge is described in terms of a sequence of moves that can be made by a single scientist, either in person or borrowing some moves from other scientists on the basis of testimony. Conceived this way, scientific knowledge is just a variation of

---

[14]   One may object that K.R. Popper explicitly rejects the idea of justification and for this reason I. Lakatos in his (1970) calls falsificationism a brand of non-justificationism. Still, both Popper and Lakatos consider some criteria of preference among rival hypotheses, which can be said to provide us with a weak or tentative form of justification.

personal knowledge shared by a number of individuals[15]. Conversely, personal knowledge-formation can be modeled on the pattern of scientific inquiry[16]. With these clarifications the fifth clause is as follows:

> 5. an agent a knows p if, in addition to the four previous requirements, a is (in principle) able to find a triple Q, X, Q^* such that $\mathrm{Imf}(Q, X, Q^*)$ and p is either a direct answer to Q^* or such a member of X that $\mathrm{Imf}(Q, X, Q^*)$ holds while $\mathrm{Imf}(Q, X-\{p\}, Q^*)$ does not hold[17].

For the sake of brevity, such p will be called indispensable. In the case of scientific knowledge one has to take a scientific community as the agent[18]. The "in principle" clause is meant to indicate that the requirement under consideration is idealized. In order to know anything an agent need not be a competent erotetic logician. It is sufficient for an agent to know p that s/he is able to use p, whether s/he actually uses it or not, to handle a question Q s/he may have in a way that is subject for reconstructing it in terms of clause 5.

Let us check whether the three intuitions introduced earlier are satisfied. I shall discuss them in reverse order. First, justification

---

[15] Such a construal of scientific knowledge is by no means uncontroversial. I adopt it as a sort of idealization that enables us to run the analysis uniformly for both everyday and more sophisticated kinds of knowledge.

[16] Here the idealization consists in neglecting the difference in the level of sophistication.

[17] Contrary to the suggestion in the concluding paragraphs of the previous section, it does not matter whether Q is a question with or without a quantifier.

[18] Or an agent who has unlimited access to the testimonies of his/her peers. Again, as there are disagreements in science, the question of relativism or contextualism arises, which is addressed briefly in the concluding paragraph of the present paper.

interplays with knowledge. Consider a series of triples (Q, X_i, Q_i^*) such that (i) $\text{Imf}(Q, X_i, Q_i^*)$, $i = 1, \ldots, n$, (ii) there are the direct answers B_i to Q_i^* that most of them count as knowledge and so does most of the members of any X_i, $i = 1, \ldots, n$, (iii) those of the items just mentioned that do not count as knowledge are assumptions that are plausible in the lights of the knowledge of the time, (iv) the class of candidate direct answers to Q is narrowed down to a singleton $\{A\}$ by the inferences based on $\text{Imf}(Q, X_i, Q_i^*)$, $i = 1, \ldots, n$. Clearly, all the items mentioned in (ii) contribute to the justification of A. Here knowledge plays just a role of a stock of premises in inferences that jointly justify their final conclusion. On the present proposal, however, the conclusion so justified, even if true and somehow degettierized, does not count as knowledge unless it is used as a part of justification of another belief. Thus knowledge is not only necessarily justified but also necessarily justifying. On the other hand, not all items used in justification must count as knowledge. For example, both in everyday and scientific reasoning we cannot dispense with implicit or explicit default assumptions like idealizations and *ceteris paribus* clause.

Moreover, justification is not given once and for all. Suppose there is an inference based on some $\text{Imf}(Q, X_{n+1}, Q_{n+1}^*)$ satisfying the requirements (i) and (ii) which further narrows down the class of candidate direct answers to Q to $\varnothing$. This leads to the conclusion that either (i) Q is ill-posed, or (ii) not all the members of X_i, $i = 1, \ldots, n$, are true, or else (iii) not all B_i, $i = 1, ..., n$, are true. Consequently, some revisions appear necessary. Those of them that involve the rejection of a presupposition of Q may have deep conceptual nature, like that of the Aristotle's presupposition that there is the absolute up-down direction. Anyway, on such occasions some justifications cease to be justifications and some new justifications may enter the stage. Again, knowledge appears intertwined with justification and neither can be said to come first.

Second, knowledge produces knowledge. Assume that p is a non-false, justified direct answer to some question Q^* or a non-false, justified, indispensable member of some X that stand in relation $\text{Imf}(Q, X, Q^*)$ with some question Q. The idea that underlies the concept of erotetic implication and its derivatives like that of falsificationist erotetic implication, is that Q is a knowledge-seeking question. This is quite obvious in the context of scientific inquiry, when Q is the question of the form $?H = $ "Is the hypothesis H correct?". The so described p contributes to narrowing down the class of candidates for the correct, according to the standards of the time, direct answer to the implying question Q. With further inferences of this sort one can, if one is lucky enough, to establish the correct answer A to Q. Still, as it was mentioned above, A does not count as knowledge unless it is used as a (non-false and justified) direct answer to the implied question $Q^{*'}$ or an indispensable (non-false and justified) member of X' in another (falsificationist) erotetic implication $\text{Imf}(Q', X', Q^{*'})$. In the case of $Q = ?H$ this amounts to the requirement that the hypothesis H can be used to form a prediction that is independent of the initial evidence in its favor, that is, the hypothesis H is not *ad hoc*. With this addendum, knowledge produces knowledge.

Third, knowledge is an answer to a question. In the last two paragraphs it was suggested how a direct answer to an implying question in some (falsificationist) erotetic implication(s) becomes knowledge. It is hardly imaginable that one is able to acquire any knowledge without first asking a knowledge-seeking question. On the other hand, as I have suggested earlier, presuppositions of knowledge-seeking questions may not count as knowledge at all. To my mind, one reason for this is that one may learn an answer to a question without asking for its presupposition. For example, Aristotle had an answer to the question about the direction of natural movement, in particular, the fall of heavy bodies, without asking the question about anisotropy of space. In contrast, once the question about an/isotropy of space was posed, it paved the way to acquire knowledge about this.

One may object that on the present proposal not only knowledge produces knowledge but also knowledge is produced by knowledge, possibly supplemented with some assumptions that are plausible in the lights of knowledge of the time. If this is so, the question arises where the process of knowledge acquisition starts from. There are at least three strategies to cope with this problem.

First, one can dismiss it as the illegitimate Cartesian problem. This line has been taken by Popper in his conception of objective knowledge. According to him, epistemology deals with the question of how knowledge grows rather than where it arises from. This is so because the beginnings of the growth of knowledge are so remote that they are inaccessible to analysis. The same attitude can be taken towards personal knowledge that buds in obscurity of early childhood. Some, however, will find this too easy.

Second, one can adopt another Popperian approach that locates the beginnings of knowledge in reflexes acquired through evolutionary experience of the species. The idea can be further developed by extending the analysis to cover the pragmatic dimension of knowledge acquisition and consider the evolutionary success of patterns of behavior as a sort of justification of beliefs embodied in those patterns. In the case of personal knowledge, the habits acquired in the course of successful socialization can also be taken into account. This move, however, takes us beyond the scope of propositional knowledge and thereby the scope of logical analysis.

Third, one can assume that knowledge arises from beliefs that are not knowledge. The above analysis strongly suggests that what is necessary for a belief to be justified, let alone earn the name of knowledge, is that it be a member of quite a substantial body of beliefs and questions related inferentially in many ways, in particular by the relation of (falsificationist) erotetic implication. In particular, the beliefs acquired by the unfortunate student in our examples may grow into knowledge once s/he learns more portions of the textbook s/he has

consulted. Similarly, the customer may acquire more experience to transform figures about the power of a car engine into knowledge sufficient to justify the choice of a model of car. Such a view seems to be a version of coherentism, possibly except for that it makes room in the justifying body of beliefs for assumptions – default beliefs and presuppositions – from outside of its core that forms knowledge, provided that they are plausible in the lights of this core.

Attractive as this may be, the idea of a sufficiently developed body of beliefs seems too complex to be liable to detailed analysis. At the moment, I am not even in the position to illustrate it with a suitable example. Therefore, I am inclined to combine the third option with the first one, on which the beginnings of knowledge are inaccessible to knowledge, possibly because of the presence of intractable pragmatic dimension mentioned in the second option. In conclusion, my option, at least for the time being, is a sort of combination of those three. Perhaps further investigation will shed more light on this question.

Another question to be pursued is to make it precise what kind of contextualism the present account implies. As I suggested at the very beginning of this paper, outdated knowledge is still (a kind of) knowledge even if at a later stage of inquiry it is replaced with some better knowledge. A scientific controversy may reflect a multiform process of the development of science, i.e. a process that may progress quicker in one scientific community than in another, or may temporarily bifurcate to be united later. The same, I believe, applies to subsequent revisions of one's personal knowledge and disagreements between knowledge-states of persons. Thus knowledge is context-dependent in this sense. By the same token, justification is knowledge-relative and depends, both in science and in everyday belief-formation, on idealizations and *ceteris paribus* clauses. Still, I believe that all this does not commit me to relativism. As I suggested in the foregoing, the change of knowledge does not consist in rejecting some beliefs as considered simply false and replacing them with their negations. Rather, the rejection of a belief

consists in falsifying its presupposition(s), discard its idealizations or rebut *ceteris paribus* clauses. Such moves seem irreversible. This claim, however, would require further discussion that goes beyond the scope of the present paper.

Opole University

Email: Adam_Grobler@interia.pl

REFERENCES

DeRose, K. (2009) *The Case for Contextualism*, Oxford University Press.

Hazlett, A. (2010) 'The Myth of Factive Verbs', *Philosophy and Phenomenological Research* **80** (3), 497-522.

Grobler, A. (2001) 'Knowledge, Truth and Presupposition', *Logique et Analyse* **173-174-175**, 291-305.

Grobler, A. (2006) *Metodologia nauk*, Kraków: Aureus-Znak.

Lakatos, I. (1970) 'Falsification and the Methodology of Scientific Research Programmes' in Lakatos, I. and A. Musgrave (eds.) *Criticism and the Growth of Knowledge*, Cambridge University Press, 91-196.

Pritchard, D. (2006) *What Is This Thing Called Knowledge*, Routledge.

Schaffer, J. (2007) 'Knowing the Answers', *Philosophy and Phenomenological Research* **75** (2), 383-403.

Wiśniewski, A. (2001) 'Questions and Inferences', *Logique et Analyse* **173-174-175**, 5-43.