The JTB+S definition of knowledge: solving Gettier's problem

Marcoen J.T.F. Cabbolet

*Department of Philosophy, Vrije Universiteit Brussel**

Abstract — The JTB definition of knowledge has been shown by Gettier to be incomplete: its three conditions are necessary for knowledge, but not sufficient. We argue that the JTB definition can be completed with a very simple fourth condition, namely that the justification for the belief in p must be sufficient to exclude $\neg p$. It is shown that the resulting JTB+S definition solves the Gettier problem.

The definition of knowledge as justified true belief traces back to Plato's *Theaetetus*, written ±386 BC [1]. This JTB definition can be formulated as follows: S knows that p if and only if

(i) S believes p;

(ii) p is true;

(iii) S has a justification for his belief in p.

Gettier famously showed that this JTB definition doesn't always hold up [2]. The consensus ever since is that the three conditions laid down in the JTB definition are necessary for knowledge, but not sufficient.

Analyzing, what Gettier's problem lays bare is that *anything goes* as a justification in the JTB definition: the two cases discussed by Gettier show that if anything counts as a justification, even those cases in which we can barely speak of a justification, then we end up with cases in which the three conditions of the JTB definition are satisfied, while we cannot speak of knowledge. The solution is therefore to eliminate these weak cases, and to add as a fourth condition that the justification must be sufficient to exclude $\neg p$. The resulting JTB+S definition can be formulated as follows: S knows that p if and only if

(i) S believes p;

(ii) p is true;

(iii) S has a justification for his belief in p;

(iv) S's justification is sufficient to exclude $\neg p$.

From this perspective, knowledge is *strongly justified true belief.* Of course we may phrase the fourth condition differently; the crux is that a different formulation is fine as long as the idea behind the new formulation remains the same.

*email: marcoen.cabbolet@vub.be

Now let's demonstrate that this additional condition solves Gettier's problem by looking at the two cases discussed by Gettier. In what Gettier called 'case I', Smith and Jones apply for a job, and Smith is justified to believe that Jones gets the job and has ten coins in his pockets. Ergo, Smith is justified to believe that the man who gets the job has ten coins in his pockets. But as it turns out, Smith gets the job and he accidentally also has ten coins in his pocket: ergo, Smith didn't *know* that the man who gets the job has ten coins in his pockets, even though (i) it is true, (ii) Smith believed it, and (iii) Smith had a justification for his belief. The problem here is that Smith's belief that Jones gets the job has too weak a justification: it doesn't satisfy the fourth condition of the JTB+S definition of knowledge. In Gettier's case I, Smith's justification for the belief that Jones gets the job is that the president of the company assured him that Jones gets the job: this justification is not enough to exclude $\neg p$—the president may change his mind, or the decision on who gets the job may not depend solely on the president. Ergo, from the perspective of the JTB+S definition of knowledge, in Gettier's Case I Smith never knew that the man who gets the job has ten coins in his pockets.

In what Gettier called 'case II', Smith is justified to believe that Jones owns a Ford: he thinks it's true. Smith has another friend, Brown, but he doesn't know where Brown is. Nevertheless, he is justified to believe that Jones owns a Ford *and/or* Brown is in Barcelona. As it turns out, Jones doesn't own Ford but Brown accidentally happens to be in Barcelona: ergo, Smith didn't *know* that Jones owns a Ford and/or Brown is in Barcelona, even though (i) it is true, (ii) Smith believed it, and (iii) Smith had a justification for his belief. Again, the problem here is that Smith's belief that Jones owns a Ford is too weak a justification: it doesn't satisfy the fourth condition of the JTB+S definition of knowledge. In Gettier's case II, Smith's justification for the belief that Jones owns a Ford is that Jones always owned a Ford in the past and just now Jones offered Smith a ride in a Ford: this justification is not enough to exclude $\neg p$—Smith should have asked for the vehicle registration card excluding that Jones is not the owner of the Ford he was driving. Ergo, from the perspective of the JTB+S definition of knowledge, in Gettier's Case II Smith doesn't know that Jones owns a Ford and/or Brown is in Barcelona.

This demonstrates that the JTB+S definition solves the Gettier problem. We may ask then whether the opposite problem can occur: can there be instances of knowledge, where not all four conditions of the JTB+S definition of knowledge are satisfied? To answer that question, let's assume that S knows that p. Then in any case, it must be evident that the truth condition of knowledge is satisfied. But from the perspective of the JTB+S definition of knowledge, this must be evident from the justification: if the conditions (i), (iii), and (iv) of the JTB+S definition are satisfied, then the truth condition (ii) is automatically satisfied. If, on the other hand, S believes that p but S's justification is not strong enough to exclude $\neg p$—that is, S's justification does not satisfy condition (iv)—then it is not evident that the truth condition holds: then S doesn't know that p, contrary to what has been assumed. In such a case, we can only speak of a justified belief. For example, one may think that we can acquire knowledge through induction (or, more generally, through ampliative reasoning). But the justification is then not strong enough to exclude $\neg p$: ergo, we can only develop a justified belief this way. (Note that we get the same outcome from the perspective of the standard JTB definition: in these cases it is not evident that the truth condition holds.) So, there can be no instances of 'S knows that p' without all four conditions of the JTB+S definition of knowledge being satisfied.

Concluding, the JTB+S definition of knowledge solves the Gettier problem without the risk of creating the opposite problem. Other extensions of the JTB definition with a fourth condition have been suggested in the literature, e.g. [3, 4, 5], but none of these have been generally accepted. An extensive review of the relation of the present JTB+S definition with past fourth-condition approaches is left as a topic for further research. But in comparison to other JTB+X approaches, an argument in favor of the present JTB+S definition is its sheer simplicity.

References

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