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Commentary on "The Method of Relevant Variables, Objectivity, and Bias"

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1. The role of imagination and world knowledge

In his paper, professor Freeman uses L. J. Cohen's method of relevant variables as an approach to reaching objectivity and avoiding bias in the evaluation of the warrant of an inferential move. The central idea of this approach is that a warrant can be tested by considering one by one its potential defeaters. We reject a potential defeater by showing that, although *prima facie* relevant, it is in fact irrelevant to the inference. In that case, we obtain more backing for the warrant. Let us consider the method as applied to *a posteriori* claims. Suppose I make an inference:

> From: x is a member of a flock of chickens fed a diet of just polished rice.
> To: x develops polyneuritis and dies.

Now, suppose I am a biologist working on nutrition-related diseases in chicken. And suppose that I am not a very good biologist. In particular, I have a biased tendency to conclude on insufficient evidence that a disease is always caused by a nutrition-related factor. How can I overcome my biased tendency and be (more) objective in my reasoning? The method of relevant variables gives us an answer to this question. Consider all the *prima facie* relevant factors that might defeat the inference, and test them one by one. Some such factors are that the flock is genetically predisposed to develop polyneuritis, or that there is a toxic ingredient in the particular brand of polished rice used, which is responsible for the disease. We perform tests by varying the values of these variables: we give polished rice to chickens of a different genetic type, and see whether they develop polyneuritis and die. Then we use different brands of polished rice. Suppose in both cases they all develop polyneuritis and die. Our inference rule, according to Freeman's account, is now supported with weight 2/2. This is not meant to suggest that the inference is 100% warranted. It only says that we identified two possible defeaters, and both have been rejected after performing the tests.

Are we now free of bias and totally objective in asserting or believing the conclusion on the basis of this premise? No. In fact, we could have left out a third, fourth, fifth or more possible defeaters. This could be due to bias. As Freeman writes, "The only place for bias to enter into this process is in the selection or recognition of relevant variables." (Freeman, p. 6) Lack of objectivity, in the sense of failing to consider all relevant variables, may indeed be due to bias. But the method of relevant variables also helps us to see that the lack of objectivity can have other causes. For instance, it can be due to lack of imagination, insufficient familiarity with the

Bondy, P., & Benacquista, L. (Eds.). *Argumentation, Objectivity, and Bias: Proceedings of the 11th International Conference of the Ontario Society for the Study of Argumentation (OSSA), 18-21 May 2016*. Windsor, ON: OSSA, pp. 1-4.

issue under discussion, or lack of specific world-knowledge.[1] I might fail to consider a relevant variable because, although I recognize it as potentially relevant, I am biased against considering it seriously and testing it. But I might fail to consider it because I have no clue that such a variable is indeed relevant. For instance, it might be that polyneuritis is caused by a toxin present in the water the chickens drink, an element in the material used in building their shelters, or some yet undetected source of toxin. Considering more potentially relevant variables is primarily a matter of imagination. However, restricting the range of these variables is a matter of possessing the relevant world-knowledge. Once we learn that the causes of polyneuritis are "particularly metabolic and toxic,"[2] the class of *prima facie* relevant variables could be narrowed down. If scientifically informed, the narrowing down is epistemically justified, and it is not due to bias or ignorance.

2. Causation, correlation and sufficient reasons

In the case of the chicken disease discussed above, we identify a particular *causal* relation by testing the relevant variables: we ruled out potential and *prima facie* plausible causes, and conclude that the actual cause of polyneuritis is the diet. Indeed, Freeman refers to "causal factors" several times (see Freeman, pp. 2, 3), and asks: "are the chickens recovering from polyneuritis *because* rice husks have been reintroduced into their diet or *because* Mozart's music has made them resistant?" (Freeman, pp. 4-5, emphasis added). But the question whether we identify a causal relation or not seems to be different from the question whether the inferential move is warranted or not, even for *a posteriori* warrants. This point might be worth making, although I find nothing in Freeman's paper that suggests he disagrees with it.

There need not be any direct causal relation between the fact mentioned in the premise and the fact mentioned in the conclusion for the inference to be warranted. It is sufficient to find a strong correlation between the two facts for us to be able to reliably infer the presence of the second from the presence of the first. Many correlation relations are due to causation, but not all. Consider the following inference, an example usually given to illustrate the difference between correlation and causation:

> From: The indicator needle of the barometer is going down.
> To: It will start to rain soon.

The method of the relevant variables might be fruitfully applied here too. One relevant variable to test is the hypothesis that the barometer is broken making the indicator to be always down, coinciding with a long period of rainy weather. We test this hypothesis and suppose we reach the conclusion that the barometer works well. In that case the indicator needle of the barometer responds causally to low pressure, and low pressure is also the cause of the rainy weather. The two facts have a common cause, and so correlation does not coincide here with causation. So, we have obtained backing for the warrant of the inference with the method of relevant variables, although the facts mentioned in the premise and conclusion are not related as cause and effect.

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[1] In his plenary lecture at the European Conference on Argumentation (9-12 June 2015, Lisbon, Portugal), John Searle emphasized the role that imagination plays in rational decision-making.

[2] polyneuritis. (n.d.) Farlex Partner Medical Dictionary. (2012). Retrieved May 7 2016 from http://medical-dictionary.thefreedictionary.com/polyneuritis

Actually, for an inference to be warranted, we need not even establish the existence of a correlation. It is sufficient to determine that the presence of a fact F1 is always accompanied by the presence of fact F2, but not that F2 is always accompanied by F1. A good argument gives sufficient reasons for the conclusion, but these need not be necessary conditions for the conclusion to obtain. Imagine, for instance, a possible world in which it rains always when the indicator needle of the barometer is going down, but it might also rain when it is up. The above inference would be warranted in such a world as well.

3. Adler's proposal

In a paper called "Alternatives, Writing, and the Formulation of a Thesis," Jonathan Adler argues that when formulating a thesis and defending it we should always consider what are the intended alternatives:

> An alternative to a thesis will refer to any other statement that cannot be simultaneously true with it. Among these, it is worthwhile to distinguish the contradiction from the contraries… The contraries imply not just a denial of the original claim but a positive claim that itself must be established. (Adler, p. 71)

Adler suggests that by formulating alternatives we are clarifying the thesis we are making or evaluating:

> Unless we locate [theses] with respect to the alternatives that they actually are intended to oppose, we do not have a grasp on which aspects of these theses or hypotheses are intended as presuppositions or assumptions, and which are meant as the main points requiring defense. (Adler, p. 74)

My suggestion is that the method of relevant variables could benefit from guidance of this kind. Suppose A infers:

> From: x is a member of a flock of chickens fed a diet of just polished rice.
> To: x develops polyneuritis and dies.

Also suppose B infers:

> From: x is a member of a flock of chickens genetically predisposed to develop polyneuritis.
> To: x develops polyneuritis and dies.

We have here two different inferential claims. Is A's claim a real alternative to B's claim? In other words, are the two claims contrary or contradictory? The answer is obvious: they are neither. While it is improbable that diet and genetic predisposition correlate independently with the presence of the disease, this is not impossible. We should not *assume* that there could be only one cause for polyneuritis. There might be multiple independent and individually sufficient causes, or other facts that correlate independently with the presence of the disease. However, when considering the potential defeaters of A's inference (in the first section, and in Freeman's

paper) we did assume this. We took them to be *alternatives* (in Adler's sense), to the effect that only one of them correlates with the presence of the disease. That is why we treated the fact that B mentions (i.e., genetic predisposition) as a potential defeater of the inferential move that A makes. I am not suggesting that there is no reason for treating it this way, only that this assumption could be challenged. An objective reasoner must always consider the option that a *prima facie* relevant variable is not a defeater at all, not because it *fails* to correlate with the fact in the conclusion, but because it establishes an *independent* correlation. For instance, the presence of low pressure correlates with rain, and so does the indicator needle of the barometer going down. Both of them are good bases for inferring rainy weather. But none of them is a defeater of the other respective inference. When evaluating the inferences it would be a mistake to take the other fact as a potential defeater. Adler's suggestion might be helpful in this respect, as it stresses the importance of considering whether two claims are actually contraries or not. Only if they are contraries they are real alternatives. Otherwise they might not be, and in that case they should not be treated by default as alternatives.

References

Adler, Jonathan E. (1987). Alternatives, writing, and the formulation of a thesis. *Informal Logic* 9 (2).