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Commentary on Vassiliev

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In Response To: Lev Vassiliev's *The functional nature of argument revisited*

Professor Vassiliev holds the view that some of our systems of formal logic, in particular, the syllogistic, the propositional calculus, and the predicate calculus, are the appropriate tools for constructing and evaluating scientific and everyday argumentation. There are some features of these systems, and of our argumentation that make them less useful than they may seem.

The main problem is that much argumentation produced by human beings is logically satisfactory but tests out as defective using these systems. This is because they can only detect formal validity and invalidity, but arguers are not attempting to produce formally valid inferences. They are instead trying to provide sufficient evidence for their conclusions.

For example, people hardly ever cast their reasoning in syllogistic form, even when they can. Instead, they support their conclusion by giving only what counts as the minor premiss of the syllogism. (Example: "Elvis was a man, so Elvis was mortal.") Such arguments only have the potential for being valid if we impute the appropriate major premiss to the arguer, but it is surely a serious deficiency in an evaluation procedure if additional claims have to be imputed to the arguer before the evaluation can begin.

The propositional calculus also has practical deficiencies as an evaluation tool. One arises from the fact that it, and the predicate calculus too, is a proof procedure, not a decision procedure. We can identify formally valid inferences with it, but not invalid ones. A failure to construct a proof for a conclusion using the stated premisses does not guarantee that the inference is invalid. It may only be that we were not clever enough to discover a proof. (Symbolic logic texts implicitly admit this deficiency when they furnish only valid patterns for evaluation.)

Another practical limitation of propositional logic is one not frequently noted by those who advocate its use in evaluating arguments in everyday language. An argument can only be valid in this system if it contains at least one conditional or one disjunction. Now if you scan the editorial and opinion pages of reputable newspapers, for example, you will find surprisingly few conditionals and disjunctions, but many arguments. This means it is pointless to test most such arguments for formal validity using propositional logic, since almost all of them are invalid, and we know this in advance.

Informal research of the above kind is sufficient to show what the main drawback is in using formal logic tests for everyday argument: almost all such argument is based on the concept of evidence. A good argument has premisses that make its conclusion probable enough to warrant regarding it as true. What counts as enough evidence depends on the content of the conclusion, so it is not possible to formulate broad criteria for evaluating

everyday inferences. Nevertheless, there are a limited number of kinds of claims (obligation, evaluative, empirical, etc.) so that some standards can be identified for inferring them.

A second topic of interest in Professor Vassiliev's paper is found in his comments on how we acquire the logical competence needed to reliably judge the soundness of inferences. He states quite correctly that an evaluator "needs to know the rules of inference", but I think he takes this to involve learning the three logic systems already discussed.

There is no doubt that a fully competent evaluator and reasoner will know enough to identify and avoid committing the more common formal fallacies. A person who cannot distinguish the basic valid and invalid patterns involving conditionals does not have an adequate concept of a conditional, which is a powerful thinking tool. However, as those who teach critical thinking can attest, one does not need to learn propositional logic to master the concept. (Indeed, the technical concept is so different from the everyday one that learning it can undermine one's grasp of the latter.) Similarly, one does not need to learn predicate calculus to be able to detect fallacies of division and conversion. These too can be learned ad hoc.

Since most reasoning is evidential, one must acquire competence by learning what counts as good evidence for the kinds of claims one is interested in arguing for. The process is not unlike (because related to) language learning, or learning a new sport. For example, very few soccer players can recite all the rules governing the playing of their game. They learn to play in accordance with the rules by imitating others who play, and getting feedback on their deviations. (Example: the goalkeeper says "That's not a goal, you were offside!") Because the rules are normative, we try to correct our errors on future occasions. Something like this happens in learning to construct arguments. People tell us on occasion that we haven't given enough evidence, or that we have made a logical error. In general, then, people can learn enough logic to get by in the course of trying to persuade others. Mastery of the formal systems will undoubtedly help us avoid formal errors better, but to my mind the effort needed to keep up one's competence bars this approach for most people. And of course these systems do not help us in doing evidential reasoning, the most common kind.

If formal systems are not efficient tools for evaluating everyday argument and scientific reasoning, how should we proceed? For it is important that we do such evaluation.

The first step is to be able to depict the logical structure of an argument. In informal logic circles, the depiction device favored for monological cases is a diagram that links the propositions that constitute the argument. Letters stand for propositions, and arrows connect propositions to those for which they are evidence. In the course of constructing a diagram, one needs to identify the role of each proposition and here Toulmin's model is the best resource, as Professor Vassilev recognizes, although one can do pretty well just by looking

for what is evidence for what.

Once we have the argument correctly depicted, we begin with the conclusion that is most logically remote from the final/main conclusion and determine how probable it is as a result of the premisses furnished to prove it. This is the product of the probability of the conclusion given the truth of its premisses and the joint probability of the premisses. The final judgment is the probability of the final/main conclusion given the argument.

For dialogical scenarios, additional concepts are needed to classify the propositions, and Professor Vassiliev provides us with a set consisting of "elements", "steps", and "moves". Perhaps he can work through an example for us during the discussion period.
