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discussion note

Proofs and Begging the Question

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Logicians utilize two distinct conceptions of proof. On the one hand, there is a formal or syntactic concept: given a formal theory T consisting of formulas, well-formed formulas (wfs), axioms and inference rules, a $proof_1$ in T is a sequence of wfs such that for each wf in the sequence either it is an axiom of T or it is a direct consequence of some of the preceding wfs by virtue of one of the inference rules. On the other hand, a distinct concept, often used in natural language contexts, is that an argument constitutes a $proof_2$ of the truth of its conclusion if it is valid, has true premises, and is not question-begging.

While the former concept is not controversial, "$proof_2$" is sometimes thought to be problematic. James Tomberlin considers the following substitution instances of disjunctive syllogism: (A_1): $\sim QvP, Q/P$ and (A_2): $\sim PvR, \sim R/\sim P$, where Q=New York is in the U.S.A., P=the mind-body identity theory is correct, R=Moscow is in the U.S.A.[1] Tomberlin asserts that neither argument begs a question since both are instances of disjunctive syllogism. The second premise of each argument is true. Furthermore, either the first premise of A_1 or the first premise of A_2 is true, since $((\sim QvP)v(\sim PvR))$ is a theorem of propositional logic. It follows that either A_1 or A_2 constitutes a $proof_2$ of its conclusion. Yet Tomberlin rightly notes that since the truth or falsity of the identity theory could not be decided by appeal to either argument, neither can be said to $prove_2$ its conclusion. He concludes that the analysis of "$proof_2$" in terms of validity, true premises and the absence of question-begging must be incorrect.

Tomberlin's rejection of the standard analysis of "$proof_2$" follows only if we accept the claim that neither A_1 nor A_2 begs the issue. He appears to have a formalist conception of begging the question, for his claim that A_1 and A_2 do not beg any questions rests on his claim that both are instances of disjunctive syllogism. But this overlooks the often voiced claim that question-begging is a non-formal fallacy. From the formal point of view an argument such as α/α is a perfectly acceptable $proof_1$ of its conclusion. However, even if α is true, from a non-formal, say, an epistemic, point of view, the premise could not be said to constitute a $proof_2$ of the conclusion, for to know the premise is true we must know that the conclusion is true, i.e., the argument begs the issue.

Let us say, then, that an argument begs the question if and only if in order to know that some member of its premise set is true we must know that its conclusion is true. On this conception of question-begging do A_1 and A_2 beg any questions? In either case we can know the second premise is true without knowing the conclusion is true. But, in considering the first premise, "knowing that (α or β) is true" is ambiguous. In some cases I may know that (α or β) is true and know which disjunct is true; in other cases I may know that (α or β) is true yet not know which disjunct is true, as with (S or $\sim$S) where S is any controversial proposition. If we consider A_1 in its actual epistemic context, we know that $\sim$Q is false. Hence, to know that ($\sim$Q or P) is true we must know that P is true. Since P is the conclusion to be established, A_1 begs the issue. If we consider A_2 in its actual epistemic context, then, since we know R is false, to know that ($\sim$P or R) is true we must know that $\sim$P is true. Since $\sim$P is the conclusion to be established, A_2 begs the issue. It follows that neither A_1 nor A_2 constitutes a "$proof_2$" of its conclusion, for both beg the question. As a result, Tomberlin's counterexample does not demonstrate the unacceptability of the standard analysis of "$proof_2$."

NOTE

[1]James E. Tomberlin, "On Proofs," International Logic Review, vol. VII, no. 2 (December, 1976), pp. 233-35.