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# Essays on Logic and its Applications in Philosophy

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# 1. Introduction: Logic, Rhetoric and Hermeneutic in Philosophy

Let us begin with distinguishing argumentation and argument. Argumentation is an activity, which consists in providing reasons for a thesis. This activity is goal-governed, because the thesis in question may be defended, justified, confirmed, proposed, suspended, rejected, etc. It is one dimension of argumentation, clearly methodological one. On the other hand, argumentation is performed in order to convince someone to its thesis. It is more psychological or pragmatic direction. As it is commonly admitted, the pragmatic dimension comprises not only the person to whom argumentation is straightforwardly directed, but also a more or less numerous audience; sometimes the audience is more important (as in the case of public political debates) than the direct recipient of argumentation. This opens the room for rhetorical actions. Pragmatically speaking, argumentation may be persuasive or not, convincing or not, correct from this or that point of view, honest or not, effective or not, etc. Of course, both dimensions of argumentation are mutually related in many ways. An argumentation can be convincing, because logically correct, but also boring, because based on logical rules.

The term “argument” has two principal meanings. Firstly, argument is any statement used as a premise (that is, a sentence expressing a reason for the thesis argued) in a given argumentation. Secondly, argument is a result of argumentation. In the second meaning, argument is a sequence of sentences

$$(*) \quad \langle P_1, \dots, P_n, T \rangle,$$

where  $P_1, \dots, P_n$  are premises (arguments in the first meaning) and  $T$  is a thesis (a conclusion). If we consider arguments as structures of the type (\*), clearly we can ask for logical relations between premises and conclusions. The simplest and clearest situation is when  $T$  logically follows from  $P_1, \dots, P_n$ , that is,

$$(**) \quad \{P_1, \dots, P_n\} \vdash T,$$

holds. If the argument related to an argumentation falls under the scheme (\*\*), we say that it is deductive. Note that we have no distinction between correct and incorrect deduction (unless we say that deduction is incorrect, if it is too complicated and could be simpler, but I will neglect this understanding). If (\*\*) holds for an argumentation  $A$ , we say that it is formally correct. However,  $A$  can be formally correct and materially incorrect, that is, its premises are false. It follows that if  $A$  is formally and materially correct, its thesis must be true. It is due to the fundamental property of deduction (this property is called “soundness”):

$$(***) \quad \text{if } (**) \text{ holds and } P_1, \dots, P_n \text{ are true, } T \text{ is true as well.}$$

Most properties of deductive arguments have precise logical exposition. Accordingly, although several aspects of argumentation have no logical force, we

can reduce formal correctness of an argumentation to its deductive structure. Thus, the form of an argument, if deductive, that is, of the type (\*\*), decides whether the argumentation displayed by this form is formally correct or not. Yet one should remember that any argument can be developed to deduction, because it is always possible to enrich the set  $\{P_1, \dots, P_n\}$ , relatively to the given  $T$ , in a way that (\*\*) is satisfied. For example, the legal argumentation *a majori ad minus* (or *a minori ad majus*) can always be “deductivized” by adding an additional premise that something is *majus* (*minus*) with respect to something else.

Not all arguments are deductive. It is a fairly trivial statement, but it leads to non-trivial problems. In order to be more, specific let us consider inductive arguments, that is arguments falling under the scheme

$$(***) \quad \{P_1, \dots, P_n\} \vdash_i T,$$

where the index  $i$  expresses the fact that  $T$  is inductively yielded (I deliberately, do not use the word “entailed”) by  $\{P_1, \dots, P_n\}$  and provided that each  $P_n$  is deductively entailed by  $T$ . Now it is not clear what does it mean “inductively yielded”. Take simple or enumerative induction, that is, a concretization of (\*\*\*\*) as displayed by

$$(***) \quad \{P(a_1), \dots, P(a_n)\} \vdash_i \forall x(P(x)),$$

How to define inductive correctness? Is it so that if the increasing the index  $n$  automatically increases the inductive support for  $\forall x(P(x))$ ? What about the situation if this support is calculated as  $1/2$ ? These questions are well-known and extensively discussed in the last hundred years. Some authors propose the classification of arguments (and, accordingly, of argumentations too) into: (a) deductive; (b) reasonably inductive, that is, with  $i$  greater than  $1/2$ ; (c) logically worthless, that is, such that neither deductive nor inductive relation holds between premises and conclusions or  $i$  is smaller than  $1/2$ . However, one can argue that we should distinguish the situation in which no relation is present from that in which even small inductive support is available. Another observation suggests that (a)–(c) is not complete, because arguments from analogy are excluded for deduction does not hold in any direction. The same situation occurs in the case of statistical reasonings, although their theory is much advanced. In spite of these and other difficulties, fallible arguments, that is such that, truth of premises does not guarantees truth of the conclusion are widely employed in science, legal practise or daily life. Although, as I already mentioned, it is always possible to develop them to the deductive form, it is no solution of problems, because justification of added premises remains.

How is it in philosophy? Consider the following, rather radical standpoint (F. Waismann, “How I See Philosophy?”, in F. Waismann, *How I See Philosophy*, Macmillan, London 1968, p. 1):

It is perhaps, easier to say what philosophy is not than what it is. The first thing, then, I should like to say is that philosophy, as it is practised, today, is very unlike science; and this in three respects: in philosophy there are no proofs; there are no theorems; and there are no questions which can be decided, Yes or Not. In saying that there are no proofs I do not mean that there are no arguments. Arguments certainly there are, and first-rate philosophers are recognized by the originality of their arguments; only these do not work in the sort of way they do in mathematics or in the science."

It is a puzzling passage. What is a proof of a formula  $A$ ? It is a sequence of formulas

(\*\*\*\*\*)  $\langle A_1, \dots, A_n \rangle$

such that  $A_n = A$  and for any  $n$ ,  $A_n$  is an axiom or  $A_n$  is derived from the former items in the sequence by deductive rules. Thus, proofs are simply deductive arguments of a sort, namely deductive arguments in which every element is deductively justified. Although truth of assumptions (including axioms) is not explicitly mentioned, it is tacitly presupposed; no mathematician will recognize a proof when its premises are considered to be false and this means that real proofs must be materially correct. This is a quite restrictive understanding of proof, because it equates proofs with deductive arguments. A wider concept of proof admits procedures which provide sufficient evidence for a given thesis; this understanding is important for civil or penal procedure before courts and also for empirical justification. "Sufficient" is of course a vague and imprecise qualification, but for reasons stated above, we cannot avoid proofs as procedures giving sufficient reasons. Yet I must confess that my own linguistic preferences go against this wider treatment of proofs. Thus, I will employ the term "proof" for deductive proof and "empirical justification" for reasonings used for providing good (whatever it means) or bad empirical support.

Waismann's view is that philosophical arguments, original or not, are neither proofs nor empirical justifications. Waismann is guided by the view, inherited by him from Wittgenstein, that philosophy is not a science (L. Wittgenstein, *Tractatus Logico-Philosophicus*, translated by D. F. Pears and B. F. McGuinness, Routledge and Kegan Paul 1961):

4.11 The totality of true propositions is the whole of natural science (or the whole corpus of the natural science).

4. 111 Philosophy is not one of the natural science. (The word "philosophy" must mean something whose place is above or below the natural science, not beside them)."

The fragment 4.11 defines science, the fragment 4.111 excludes philosophy from the natural science. Thus, it follows that statements made by philosophers are neither true nor false. If we adopt this view, it is clear why there are neither proofs nor empirical justifications (even bad) in philosophy. It is so, because philosophical utterances cannot be evaluated as true or false. We

cannot, then, check whether philosophical arguments, if any, are materially correct or not.

The last statement opens a room philosophical arguments, even in the situation that their premises and conclusions are true or false. It is important, because several philosophical arguments, for example, the Five Ways of Thomas Aquinas, the Third Man Argument (Plato) attempts to show that bivalence (plus causality) leads to radical determinism (Łukasiewicz) or against psychologism have definite, sometimes very impressive, deductive structure. I will not continue the exegesis of views of Wittgenstein and Waismann. I used then only to introduce the problem. In what follows, I will try to show how hermeneutic and rhetoric is involved into philosophical debates, argumentations and arguments. I will not focus on whether philosophical sentences are true, false or out of the true-or-false domain, but I simply assume that philosophers assert some statements as true or valid in order to pass to other statements.

As an analytical philosopher I prefer logical analysis. Even more, I prefer formal logical analysis. It would be too easy to find hermeneutic and rhetoric in Hegel or Heidegger, because there is almost nothing more in their argumentations. When the last says that the question concerning the Nothing invalidates formal logic, any formal control of arguments is denied, unless proposes new logic generating new tools enabling us to assess the correctness of inferences. Now consider Carnap's arguments against Heidegger's (H) "The Nothing nothings". Carnap observed that (H) looks as an atomic sentence of the form  $P(a)$ . Hence, we can derive (H1)  $\exists x P(x) \wedge (x = a)$ . On the other hand, since the constant  $a$  refers to the Nothing, its reference does not exist (by definition). Thus, Heidegger is not right. Carnap's conclusion was in fact stronger. He argued that (H) is meaningless. Leaving this qualification aside, let me describe the Heidegger–Carnap controversy in the following way. Carnap tried to understand (H) in terms of formal logic and he made a translation of this statement into a logically regimented language. Then, he derived a consequence, which was intended to show that (H) was not valid. However, this manoeuvre assumes a considerable portion of hermeneutic. Carnap's procedure is correct provided that (H) can be translated into  $P(a)$ . However, Heidegger denied this. His proclamation that the question about the Nothing invalidates formal logic is a rhetorical manoeuvre, perhaps *argumentum ad ignorantiam* (can you Mr. Carnap prove that we have no principles governing the new "logic"?). Thus, we have a conflict between two ways of hermeneutic, one logic-oriented (where "logic" means what is usually meant by this word) and second, let say H-oriented, that is, related to the special meaning of the thesis in question. The conflict in question concerns the problem how to clarify philosophical problems. Several illustrations of question are given in following essays (see, for example, "Psychologism and Metalogic" in this volume).

I guess that logical analysis of philosophical problems exhibits their hermeneutical elements. However, I do not claim that controversies (all interesting

questions in philosophy are controversial) can be conclusively solved by formal logical analysis. Take the psychologism/antipsychologism debate considered by metalogical tools. Strictly speaking, metalogic deals with logical systems and their various properties. In order to do logic and metalogic, at least by contemporary standards, we do not worry whether logic as such involves psychic acts, their contents, etc. If we engage logic into a traditional philosophical business, we propose an interpretation. In fact, we embed a traditional philosophical problem into a professional scientific language. This means that we put a philosophical understanding into a language, which is not philosophical. I call this procedure “literalization” of a given philosophical problem. Using this word I suggest that philosophical language is a very complicated semantic mixture, in which not all expressions have a clear literal meaning. But since every philosophical argumentation must attribute to expressions a literal meaning, literalizations are indispensable.

Literalization is a hermeneutic process and, as such, is not subjected to general rules. Thus, literalization depends on many factors, historical, personal, etc. Much more rational is to describe concrete examples of literalization than to try build its general theory. I offered an example of literalization via logic and metalogic. The same was made in Carnap’s critique of Heidegger. Another example is given by attempts to derive indeterminism from the uncertainty principle. What does the formula  $(U) \Delta p_1 \cdot \Delta p \geq h$  says? Only that the uncertainty of the position of a particle multiplied by the uncertainty of the momentum of this particle is at least equal to the Planck constant  $h$ . Since the terms “determinism” and „indeterminism” do not occur in (U), it does not lead to any consequence concerning determinism or indeterminism. In order to do this, one must undertake a hermeneutic interpretation, which brings philosophical contents into (U), for example, that, according to traditional indeterministic intuitions, impossibility of exact prediction is a sign of indeterminism. This open a room for a derivation of indeterminism from (U). I call consequences of such derivations “interpretative consequences”, that is, consequences modulo a hermeneutic interpretation.

A formal assessment of interpretative consequences is simple, in fact, the same as in any other case of deduction. The main problem concerns how to argue for interpretations. Once again, I do not see any general prescription. Perhaps it is important to note that arguing for interpretation involves several rhetorical moves, sometimes honest sometimes not, for example, obscurity, clarity, belief, leading to fatal consequences (Husserl on psychologism), etc. The repertoire of sources of hermeneutic interpretation in philosophy is practically unlimited. Logic, science, humanities, religion, art, common sense, law, morality, politics or ideology can be mentioned in this contexts. Also we cannot give an a priori account of arguments stemming from various sources or involved in them. An inductive metaphysician can, for example, build his or her concept of substance on inductive arguments. The conception of Man as *imago Dei* is based on analogies. There are also

specific philosophical modes, like transcendental arguments, phenomenological reduction or deconstruction.

If I am right, philosophical arguments, although are formally similar to scientific, or commonsensical, materially recur to metaphilosophy, hermeneutic and rhetoric. Since the chances to find consensus in these domains, the fate of philosophy is as it is. However, contrary to most critics of philosophy I see nothing dramatically wrong in this situation. Although Waismann is right that there are no proofs in philosophy and philosophers do not consider questions, which can be solved Yes or Not, philosophical debates are not pointless. It is rather clear that philosophical argumentations and arguments should use devices understandable to contemporary situation. If one discusses determinism and indeterminism, it is of course possible to base arguments on Aristotle, but this style of considering this questions has small chances for a wider recognition. In other words, philosophy, intended to be scientific, has to follow science in its latest shape. In this case, any contemporary discussion about determinism and indeterminism cannot be successfully conducted in isolation from quantum mechanics. Similarly, any discussion about philosophical foundations of logic isolated from the results of metalogic, is too obsolete to attract the present-day audience. However, one can observe that this diagnosis ignores various attempts toward philosophy as *mathesis universalis* independent of science. Husserl's project of phenomenology, in particular, as transcendental egology belongs to this kind of doing philosophy. My answer is radically negative with respect to such projects. Philosophy cannot achieve any literalization by itself, because the hermeneutic circle, if can be broken at all, requires some help from the outside. This makes discussions with Husserl, Heidegger or postmodernists almost impossible. At least for analytic philosophers.