

Article

What We Talk about When We Talk about Logic as Normative for Reasoning

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Abstract: In this paper, it is examined how, if at all, the logical laws can be normative for human reasoning, wherein the notion of normativity is analyzed primarily with respect to Wittgenstein's philosophy. During the ancient and the medieval periods, logic was being considered in terms of discourse and dialogical practice, but since Descartes and especially Kant, it has been treated as a system of laws with which the process of individual human reasoning has been compared. Therefore, normativity can be investigated in the private sphere (for thinking and reasoning) and in the public sphere (for dialogic practices in a community). Wittgenstein discussed both aspects of normativity: in his early philosophy, the focus is on the laws of logic that are primarily normative for the state of affairs in the world, while in his later works the emphasis is on a social aspect of normativity (which is closer to Aristotle's view), which is derived from the adopted rules that have been applied in a certain community. Taken that way, logic is certainly normative in the public sphere, but the more difficult issue is whether logic is normative for thinking, regarding the difference between the logical laws and those of thought.

Keywords: logical laws; normativity of logic; reasoning; thinking; Wittgenstein

1. Introduction

In this paper, the relation between logic, i.e., the logical laws, and human reasoning will be investigated. Further, it will be examined how, if at all, the logical laws can be normative for human reasoning. During the investigation, the notion of normativity will be analyzed primarily with respect to Wittgenstein's philosophy, but the contributions of some of his predecessors will be mentioned as well. As it is pointed by Debru [1], the notion of normativity is present in 20th-century philosophy, while the idea concerning normativity was developed in the 19th century in the works of Edmund Husserl. In the 'Vienna lecture' held in 1935 (published as *Philosophy and the Crisis of European Man*), Husserl considered normativity as a process of creating the world of ideas controlled by the norm of unconditional and objective truth [2].

In the 20th century, the idea of normativity also found its place in ethics, epistemology and the philosophy of language. For instance, Gaus connected inferential justification with moral norms, wherein his starting point was the analysis of reasoning as a process specific for individuals, and therefore a reasoner has her own system of reasons and beliefs [3]. Moreover, he claims that it is not possible to follow the rules privately (in accordance with Wittgenstein's later works), as there is no certainty that the rule has been followed correctly because of the lack of reaction of a community. In other words, it is not possible to compare the private rule following to anything, and therefore the individual reasoning must be inseparable from the social reasoning. Further, each reasoner develops her own system of reasons and beliefs according to the interactions with other members of the community. All members of the community do not need to have the same norms, but they must be

able to understand the ones that other members accept as justified and they can agree or disagree with them. Disagreement does not entail misunderstanding and it is not necessary that it leads to consensus.

As far as the normative role of logic is concerned, from Kant up to the present, logic has been dominantly treated as a system of laws with which the process of individual human reasoning has been compared. In this regard, it is questionable whether the laws of logic are normative and what exactly they are normative for, as individual differences in reasoning have been detected. Furthermore, many psychological experiments showed that naïve reasoners make many errors while performing logical tasks with syllogisms and conditionals. Also, there are many different logics, so it is not clear why only the classical logic should be taken as a norm for reasoning.

2. Logic as a Science of Correct Thinking

The system of natural deduction is often used as a starting point in forming reasoning norms. It contains rules of introduction and elimination of connectives and quantifiers as the only rules that are used in drawing conclusions. One of the main reasons why many authors, including Rips [4], chose this approach is that the natural deduction system is, according to the claims of its creator Gentzen, developed as a system which is very closely related to natural reasoning [5] (p. 68). However, various studies showed that some of them are very unintuitive (the most problematic are ones of disjunction and negation introduction) [4] (p. 62). In order to retain normativity to some extent, one possibility is to choose just one subset of those rules, but in that case, it is hard to determine the criterion of the selection.

Another possible solution is to discuss the definition of logic as a science of correct thinking and reasoning, as it was firstly determined by Descartes. Namely, during the long history of logic and philosophy, logic was considered in terms of discourse and dialogical practice for a long time, which is emphasized in the works of Catarina Dutilh Novaes [6]. In the contemporary philosophy, the later Wittgenstein could be considered a proponent of that approach.

The conception of logic as the science of reasoning had furthermore been developed in the logic of Port-Royal, and it was also present up to the seventieth and eightieth centuries, while it culminated during the Kantian period. According to Kant, logic exhibits “absolutely necessary rules of thought without which there can be no employment whatsoever of the understanding” [7] (A52/B76) and it can be said that, when considered that way, logic is normative. The transition from the public to the private sphere is also remarkable in the Kantian moral philosophy, and it is interesting to note that the notion of autonomy also shifts from the collective and the political to the individual level. This notion is firstly noted in the works of Cristian Wolff, in a sense of independency and self-determination of a state, as stated in [1] (p. 3), while Kant uses it while talking about autonomy as a rule of the will that finds universal laws in itself.

Like Kant, Frege considered logic a normative science in which laws universally define the way of correct thinking, with emphasis on the ambiguity of the word ‘law’ [8] (p. 15). On the one hand, this notion could refer to laws that people need to follow, but sometimes break, for instance, the laws of ethics or legal norms. On the other hand, there are laws that determine real occurrences in the world, for example, natural laws. At first glance, the logical laws could be seen as ambiguous, but they are the laws of truth and, therefore, completely different from the laws of real human reasoning. Also, they are valid without exception, and the fact that some individual, culture or mankind as a whole does not want or is not able to think with respect to those laws does not have any influence on them. However, when, regarding tasks with conditionals and syllogisms, the psychological experiments conducted in the 1960s and 1970s by, inter alia, Rips, Johnson-Laird and Wason showed that reasoners do not follow the classical logic rules of reasoning, it was very unexpected. Despite that, classical logic was still being treated as the norm for creating tasks and evaluating obtained results, while one possible better way of analyzing inferences that cannot be considered as absolutely certain would be taking into consideration an extension of deductive logic, i.e., inductive logic.

The expression ‘the laws of thinking’ should not lead to a belief that those laws govern thinking in the same way natural laws govern processes in the external world because if that were the case, they would be psychological laws, which is not acceptable to Frege’s anti-psychologistic standpoint. The normativity of logic, as reported by Kant and Frege, undoubtedly differs from normativity in Aristotle’s terms (despite the fact that Aristotle does not explicitly refer to that topic). Namely, in works of Aristotle, as well as during medieval philosophy, logic is conceived as the normative theory of specific dialogical practices (wherein a dialog includes two participants, but it can also be applied in scientific and thought experiments that include only one participant) [6] (p. 595). As a result, logic is normative for a dialog because, in order for a dialog to be possible, an agreement about the rules of reasoning between participants is necessary.

A very fruitful discussion of different aspects of normativity is offered in Wittgenstein’s philosophy. In his early stage, the concept of the normativity of logic as the science of correct thinking is taken into account, while later Wittgenstein is concentrated on the status of rules in the form of life, namely in the public sphere; therefore, the rest of this paper will be focused on Wittgenstein’s work, and his different approaches to normativity will be used in order to show that logic is normative in the public sphere.

3. Wittgenstein’s Approach to the Normativity of Logic

Let us begin with Wittgenstein’s approach to normativity in the public sphere, or, in Wittgenstein’s terms, the form of life, as described in *Philosophical investigations* [9]. People who share a certain way of behavior have a common form of life as they belong to the same community, which is determined by the language-games they play. Each language-game has its rules that should be followed by all its participants.

The rules are part of the grammar, and it should be understood in a wider sense that this is usually the case: it contains all the rules necessary for appropriate playing of a language-game and it is arbitrary [9] (372), but in terms of the community, not with respect to individual use. That is, there is nothing from the outside that prescribes their form, but the whole community accepts them by convention. As the community accepted them, they are normative for the community. In *Remarks on the Foundations of Mathematics*, Wittgenstein argues that the laws of inference in some sense compel us to infer in accordance with them, because, if one draws different conclusions than she ought to, she will get into a conflict, e.g., with the society and also with other practical consequences [10] (I 116).

Consequently, the meaning of words should also be considered exclusively in terms of their use, and the conception of meaning as use is one of the main ideas that are connected to the later Wittgenstein. However, an indication of the same idea could also be found in his earlier work, i.e., in *Tractatus Logico-Philosophicus* [11] it is mentioned that the application shows what the sign conceals (3.262). Further, in [9], Wittgenstein emphasizes that there is no previous meaning of any conception outside of its use that could force us to accept that meaning. He claims that, in philosophy, we recently compare the use of words with games and calculi which have the strict rules, but we cannot say that one who uses language *must* be playing such a game¹ [9] (81). Further, in [9] (131) he highlights that “we can avoid ineptness or emptiness in our assertions only if we present the model as an object of comparison, i.e., as a measuring-rod, and not as a preconceived idea to which reality *must* correspond”.

In addition, if one does not follow a rule of a game played in her community (for instance, she does not use some words in the same meaning as the other members of her community), then she does not play their game. It is not possible to force her to play it, but if she does not follow the rules, then logic is normative to the extent to which it can determine (comparing with the rules followed by

¹ Although Wittgenstein’s term ‘language-game’ has several meanings, in this paper it will refer to the whole language practice of a community.

another member of the community) that she does not play the same game as the other members of the community.

Regarding the later Wittgenstein, a language (and, consequently, the language-games and the forms of life as well) belongs to the natural history of human beings [9] (415). In addition, it should be noted that it has many functions other than “the mere act of naming” that are not taken into account in his earlier philosophy—for example, making up a story, telling jokes, singing, etc. [9] (23). In those uses of language, the only normative aspect that can be presupposed is the acceptance of a community. Further, any kind of thinking and inferring is bounded for us because of the natural limits and the way our mind and body function, but it has nothing to do with normativity as those limits represent the only possible way of acting.

It can be said that language belongs to the natural history of human beings because having a language is a necessary condition for being human, but this idea is also present in Wittgenstein’s early philosophy. In [11], he argues that everyday language is part of the human organism and is no less complicated than it (4.002).

Nonetheless, the idea of social naturalism is often connected to Wittgenstein’s later philosophy. In the focus of that kind of naturalism is the concept of humans’ second nature introduced by Railton [12], according to which the normative aspects of our behavior are primitive. With respect to that account, we acquire a second nature through the process of socialization in certain language-games that are arranged by norms. Thus, socialization becomes a part of our nature and guides our behavior with respect to the shared standards and norms:

(. . .) A child has hurt himself and he cries; and then adults talk to him and teach him exclamations and, later, sentences. They teach the child new pain-behaviour [9] (244).

A similar case is present when learning logical rules. Wittgenstein argues that, in order to show one that an affirmative follows from a double negative, it is necessary to show her the process (for instance, a double inversion, two turns through 180° and similar things) which she takes as a picture of negation [10] (I 11). Note that this kind of acquisition of logical concepts presupposes that one learns a rule in context, i.e., connected to its content, and it can be abstracted from its content only afterward.

Described in such a way, the process of the language acquisition is actually the process of the acquisition of autonomy in normative practices. It could be concluded that norms and standards are consequently being applied to inner processes of thinking and reasoning. Wittgenstein highlights that “inner process stands in need of outward criteria” [9] (580) because without them it would not be possible to understand the grammar of those inner processes and states.

Moreover, he warns that the rules cannot be followed privately, and the absence of private language is only (according to Kripke’s interpretation [13]) a direct consequence of that impossibility, i.e., one in isolation cannot denominate anything. Languages are common in their essence and one is able to understand a language only if other members of a community are able to understand it, too. In other words, to assert the way one uses a word in a specific meaning, we firstly have to presuppose that the word has the same meaning for her as it has for the other members of a community, because, in any other condition, the understanding would not be possible. It is possible to conclude that the language acquired during the process of socialization becomes the language of our thoughts. However, there is still an open issue on the status of thoughts before language acquisition and, more interestingly for this topic, a question of whether thinking and/or reasoning that is not language-dependent is possible in any way. In Wittgensteinian terms, it seems that in the mentioned case it would not be possible to talk about the same concept of thinking and reasoning that we use here. Wittgenstein highlights that logical inference is the part of a language-game, and someone who carries out logical inferences in the language-game follows certain instructions which she was given in the actual learning of the language-game [10] (VII 30).

In Wittgenstein’s early as well as later philosophy, there is an idea that language disguises thought and “it is impossible to infer the form of the thought beneath it, because the outward form of the

clothing is not designed to reveal the form of the body, but for entirely different purposes" [11] (4.002). What is meant by being designed for "entirely different purposes"? In *Tractatus*, this may be connected to a necessary feature of language, that it ought to map the state of affairs in the world, but in the extension of the same paragraph, it is argued that tacit conventions on which the understanding of everyday language depends are enormously complicated. Therefore, it can be concluded that the thought must be clothed in accordance with the rules and the conventions accepted in a community.

As far as the reasoning is concerned, it is important to note that 'logic inference' should also be treated as a transformation of our expression. Wittgenstein offers an example of translation of one measure into another, i.e., from inches to centimeters, according to some rule of translation, so there is a correct way of translating which is based on certain conventional rules (1 inch = 2.54 centimetres), but there is no such thing as the correct way of expressing size except the convention and the practical requirements [10] (I 9).

However, the question that arises is to which extent, if at all, the thinking and the reasoning can be private, at least as inner processes. Apparently Wittgenstein does not exclude that possibility, but this question is not relevant for him because if one said that reasoning is an inner process for her, we would act the same as if she said that playing chess is an inner process for her: if we want to know whether one is able to play chess, we are not interested in anything that goes on inside her, but just in her behavior during the chess game [9] (p. 181).

It could be presupposed that the situation in *Tractatus* is somehow different and that the early Wittgenstein's claims regarding the normativity of logic for reasoning are even more radical than those of Kant or Frege, because in several places in *Tractatus* it is asserted that it is not possible to imagine or represent in language anything that would be in contradiction with the logical laws:

Thought can never be of anything illogical, since, if it were, we should have to think illogically [11] (3.03).

It used to be said that God could create anything except what would be contrary to the laws of logic. The truth is that we could not say what an 'illogical' world would look like [11] (3.031).

It is as impossible to represent in language anything that 'contradicts logic' as it is in geometry to represent by its coordinates a figure that contradicts the laws of space, or to give the co-ordinates of a point that does not exist [11] (3.032).

With respect to the previous quotes, it can be questioned if it is possible to talk about logic as normative for reasoning at all, because, according to the early Wittgenstein, no thinking other than logical is possible. Moreover, if deviations from logical thinking are not imaginable, then there is nothing to apply norms to because every attempt at thinking has already been in agreement with the norms. In [11] (3.03), Wittgenstein, unlike Frege, does not talk about the difference between the laws of logic and the laws of thinking, but it seems that he refers to the same laws of logic that are valid in the world, so any other world is not conceivable at all, and in that sense it is not possible to think anything that would be in contradiction with the laws of logic which are in the foundation of the world we are familiar with. It is characteristic of Wittgenstein (both early and late) to stress that one can only say that something is true if it is possibly false, therefore "ought to" must also imply "cannot," for without "cannot", "can" makes no sense.

Similarly, in [10] (VII 30) he argues that we can conceive the rules of inference as giving meaning to the signs because they regulate the use of these signs so that the rules of inference are involved in the determination of the signs' meaning. In this sense, the rules of inference cannot be right or wrong. However, that does not exclude the possibility that our thinking and reasoning are error-prone and that the deviations from the norms are possible.

Nonetheless, although it is true that there is no sense in speaking about the normativity of something that can only be one way, such as language or logic, in order to map the state of affairs in

the world, the mapping is not the only function that language should fulfill. Hence, it is possible to say that, in order to fulfill this particular function of mapping the state of affairs, the language must have a specific form and features. If it is used for any other purpose, then meeting this requirement is not necessary (imagine, for example, some primitive language-game such as those of the builder and his assistant Wittgenstein mentioned in [9] (2) or the language of poetry). Therefore, there is a normative condition for the language when it should fulfill its particular function of mapping the state of affairs, and not when its other possible functions are taken into account.

In [10], a certain connection between different aspects of normativity can be found. He argues that mathematical sentences in general, not only axioms, are used normatively, as the rules of a language. According to Friederich, this normativity consists of the fact that the axioms, when used as implicit definitions, provide the standard for using the concepts of which they are formulated [14] (5).

Also, mathematical language has a normative role in the application of mathematics to systems of non-mathematical objects; for instance, the language of arithmetic can be seen as providing norms for the counting of objects. Therefore, mathematics is normative in two ways. Firstly, it is normative for the state of affairs in the world, because, for instance, if two objects are added to another two objects, there are always four objects. Secondly, all members of the community have to follow the same mathematical rules (for example, the language of arithmetic) in order to play the same language-game (imagine, for example, a situation where a seller does not follow the same arithmetic rules as a buyer).

Consequently, mathematics is part of grammar and mathematical propositions should be considered as the rules of grammar [10] (VII 16). Of course, there are different natural languages, but the differences between them should be present only on the surface, and they should have the same deep structure as all of them have the same main function, i.e., correctly mapping the state of affairs in the world. The idea of a common deep structure that belongs to all languages is often associated with Noam Chomsky's theory of generative grammar. This theory experienced many critiques because it has been shown that the syntactic structure of languages is so different that it is almost impossible to find common elements, even on a deep level. However, we are not talking about the same syntactic structure, but the same logical structure that is necessary if a language is used to map the world. In that case, each language provides one possible expression of the same structure. However, what if there was a contradiction in arithmetic? Wittgenstein explains that it would only prove that arithmetic with such a contradiction in it could still be very useful for our purposes [10] (VII 35). To sum up, Wittgenstein, in *Tractatus* and *Philosophical Investigations*, actually considers different aspects of normativity. In *Tractatus*, the focus is on the laws of logic that are primarily normative for the state of affairs in the world (for example, it is not possible that A and not-A are the case at the same time), and, therefore, thinking cannot be in contradiction with the state of affairs in the world. On the other hand, in *Philosophical Investigations*, there is an emphasis is on the social aspect of normativity, which is derived from the adopted rules that have been applied in a certain community. Although it is not possible to force individual reasoners to follow them, their practice is compared with those rules and, if they do not follow them, they do not play the same language-game that is played in the community.

It should also be noted that those two kinds of normativity are not in any kind of contradiction, because they do not refer to the same thing; therefore, when talking about normativity (as well as about differences between Wittgenstein's early and later philosophy), it is necessary to precisely determine what is being talked about, i.e., to determine the scope of each concept used.

4. Conclusions

In this paper, we have discussed the issue of the sense in which logic as normative for thinking and reasoning can be spoken about. During the analysis, we have shown that another very important issue to solve is the conceptual confusion regarding the change of the conception of logic—from Aristotle's logic as dialogical practice to logic as the science of correct thinking and reasoning in the works of Kant and Frege. The later Wittgenstein's conception of logic and, therefore, normativity as

well is more closely connected to Aristotle's. Another reason for the conceptual confusion is that the laws of logic sometimes are not distinguished clearly from the laws of thought. Furthermore, we tried to show that, at least as far as normativity is concerned, Wittgenstein's early and later philosophies are closely connected and it can be said that they form a sequence; therefore, there is no room for strictly separating or contrasting them, as is often the case in the literature. It is important to recognize that the early Wittgenstein refers to the laws of logic that are valid in the world, which are for him also the laws of thinking and reasoning; therefore, it is not possible to think anything that would be in contradiction with the laws of logic and, consequently, there is no room for normativity. However, the later Wittgenstein considers normativity in the public sphere, which is based on the convention of the community.

When concepts are clearly defined, it is possible to say that logic is certainly normative in the public sphere, as it is necessary for all the members of a community to follow the same rules of reasoning in order to make their interaction possible. The more difficult issue is whether logic is normative for thinking, with regard to the already mentioned difference between the laws of logic and those of thought, but logic can also be treated as normative in that sphere in terms of defining a standard that the real processes of thinking could be compared with, so it could be said that they do or do not correspond to the standard. Taken that way, logic could be understood as a tool for regulating the laws of thought. As far as reasoning is concerned, the adopted rules of reasoning have a normative role, and those rules can but do not have to correspond to the laws of logic. Finally, the question is do we consider exclusively classical logic, and if the answer is affirmative, then we should ask ourselves why not take into account some other logics as well, for instance, dialogical logic, inspired by Wittgenstein's idea of meaning as use, or inductive logic.

We can go a step further and say that normativity is not necessary, because of the real reasoning, although compared with logical laws is full of errors, it undoubtedly gives results and has its own methods that we are often not completely aware of. However, the role of logic needs to not be minimized, because it gives us a very useful method to form and direct our thoughts precisely and make valid inferences, which is especially important in any kind of scientific work.

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