Existential Quantifiers in the contemporary philosophy

T. Erfanifar

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Abstract

This paper delves into contemporary perspectives on existential quantifiers within the domain of logic. Existential quantifiers are fundamental components of formal logic, facilitating the expression of statements about the existence of objects or entities within a given domain. Through an exploration of recent developments and insights from various logical traditions and approaches, this paper examines the role and significance of existential quantifiers in logical reasoning and formal systems. It discusses how contemporary logicians understand and utilize existential quantifiers to address questions related to existence, inference, and the structure of logical arguments. Additionally, this paper considers the implications of recent advancements in logical theory and practice for the understanding and application of existential quantifiers in diverse logical contexts. By providing a comprehensive overview of contemporary perspectives, this paper contributes to a deeper understanding of the role of existential quantifiers in modern logical inquiry.

One of the most important issues in philosophy and fundamental questions that philosophers have been grappling with since its inception is the discussion and examination of the question: what things exist and what things can we assert their existence? Is the world limited to the objects that are perceptible to our senses through experience, or are there also objects that have existence distinct from these objects? Do numbers, which humans often refer to, exist?

Questions of this kind are part of the broader questions that are now addressed under the theory of ontology. These discussions lead to many philosophical arguments that revolve around the phrase "there exists," which plays a very important role in these arguments when placed in the subject position of a sentence. For example, one of the most famous proofs of the philosophy and theology is the ontological argument for the existence of God. Various interpretations of this argument have been presented by prominent philosophers. The core of this argument is that these philosophers claim that existence cannot be separated from the essence of a God who is perfect and absolute, just as the triangularity cannot be separated from a triangle.

This argument has faced various criticisms, and one of the most significant criticisms was raised by Kant. From a logical-philosophical perspective, Kant introduced a criticism to this argument by pointing out that existence cannot be placed in the category of other attributes. The problem arises from the fact that the placement of existence in the subject position has a fundamental difference from the placement of attributes such as red, cold, human, etc. Kant argued that existence is not a genuine predicate at all. When we say "x has the attribute P," our sentence carries informative content. But when we say "x exists," we do not state any informative content about x. (Kant, 1956 (A602/B630).

Aristotle also has a statement in the second analysis of the book "Organon" that indicates he, as a pioneer of the science of logic, acknowledges a fundamental difference between 'existence' or 'being' and other attributes. "That something exists is not like what nature it has... Existence is not a genus." (Analytica Posteriora II 7,92b13)"

The above statement implicitly clarifies that Aristotle also does not agree with placing existence as a logical predicate. Because what is allowed to be predicated in the Aristotelian system of logic are individuals and species. He explicitly does not consider existence as a genus

or category. Frege, as the founder of modern logic, also considers the predication of "exists" as meaningless and incorrect for objects based on the distinction between first-level and second-level concepts. (Only first-level concepts are predicable for objects. However, Frege does not consider the placement of "existence" as a second-level concept - predicate of concepts - problematic) (Hashemi, 2013, p 135).

The statements in which the predicate "exists" is applied, such as "Aristotle exists" and "Unicorns do not exist," may appear to be meaningful and true at first glance. In sentences of this kind, it seems that "existence" as a predicate does not pose a problem and finds everyday usage. However, one of the most important legacies left by Bertrand Russell was the distinction he made between grammatical form and logical form. Certainly, in sentences where existence is predicated, no grammatical error is observed in terms of grammatical form. But the question here is whether such sentences maintain their validity as meaningful sentences when examined logically. Consider the following two sentences:

1- This table is brown.

2- This table exists.

Grammatically, the two sentences above are equivalent. However, in terms of logical form, the second sentence "This table exists" refers to something in the external world and itself asserts the existence of something called a table. The precise logical form of the second sentence is: "This table, which exists, exists," which is a self-referential and uninformative statement. Peirce refers to such sentences as "referentially toutologious." Similarly, the sentence "This table does not exist" is a contradiction. Because its correct logical form is: this table, which exists, does not exist." Peirce refers to such sentences as "referentially contradictory." (GRAYLING,

1997, p. 90). Based on the considerations above, Peirce concludes that under the following conditions, it is not logically and properly possible to use "exists" as a logical predicate:

1. The subject of the sentence must refer to something, i.e., it must have a name or be named. If fictional or mythical names are used as the subject, we do not encounter referential self-reference or contradiction. For example, the statement "Rostam does not exist in the real world" is not referentially contradictory.

2. Attention must be paid to the tense of the sentence. The act of reference and the tense of the verb must be simultaneous. For example, the statement "Socrates does not exist now" is not referentially contradictory because two different tenses are involved.

3. There can be exceptions in cases where someone suffers from delusion. For example, when we look at a mirage and say, "There is no water," we are not experiencing referential contradiction. (Ibid, p. 91,)

Therefore, Peirce explicitly states that in cases where the personal limit is the subject of the sentence and the above conditions are met, "exists" as a predicate of the sentence leads to either self-reference or referential contradiction.

Before Peirce, Strawson had addressed this issue by introducing the concept of presupposition. According to Strawson, presupposition is a relationship between two sentences. Sentence q presupposes sentence p if and only if the truth or falsehood of q relies on the truth of p. For example, the sentence "Ali blows the whistle in the competition" is only meaningful (in terms of truth or falsehood) if we take the truth of the sentence "Ali is in the competition" as a presupposition. (Ibid, p. 92).

Moore, from another perspective, criticizes the logical status of "exists" as a predicate. Logical sentences are meaningful and clear, and various quantifiers can be applied to these sentences. However, Moore doubts the meaningfulness of quantified sentences in which "exists" is the predicate. Consider the following two sentences:

A. Some tigers do not roar.

B. Some tigers do not exist.

According to Moore, there is doubt regarding the meaningfulness of the second sentence. Alternatively, the term "exists" carries multiple meanings and ambiguity. However, Moore does not claim that "exists" leads to ambiguity or meaninglessness in all cases. The phrase "things that could have existed" is considered meaningful by Moore (Ibid, p. 93).

The problem that Moore raises is related to the theory of reference.[1] The philosophical attention is given to interpretations of propositions, especially existential propositions. There are two recognized interpretations of propositions. One more common and closer to the conventional understanding is the objectual interpretation. This interpretation appeals to the values of variables, meaning objects that are bound within the domain of variables. This interpretation, advocated notably by W. V. Quine, reads the existential proposition $(\exists x)Fx$ as follows: "There exists an x that has the property F." In this view, "exists" has been transferred to the logical scope limited to the domain of what exists.

"The most remarkable thing about the ontological problem is its simplicity. It can be put into a few words: 'What is there?' It can be answered, moreover, in a word—

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[1] See: Hashemi (2022).

'Everything.' Indeed, everyone will answer, 'Everything,' and be confident that he has thereby said something profound." (Quine, 1963, p. 1).

Stating that something does not exist or that something exists that does not is clearly a contradiction in terms. Therefore, (∀x)(x exists) must be true" (p. 150, 1979, Quine). Quine explicitly accepts that whatever exists, exists. Everything has existence.

(∀x) (x exists)

Assuming 'Sherlock Holmes = n', now by eliminating the universal quantifier from the above sentence, we can conclude that Sherlock Holmes exists. However, this conclusion is not acceptable to Quine. Furthermore, Quine's view regarding existence being equivalent to the values of variables implies that we are obliged to accept the ontological existence of anything that is bound by variable values. Therefore, introducing existential quantification over objects places them within the domain of our ontology. Now, with these explanations, are we allowed to include fictional beings such as Sherlock Holmes, and any name without a referent in our ontology?

It appears that the problem Quine faces is related to the presence of empty names in logic. Quine seeks a logical and semantic solution inspired by Russell. He introduces rules to restrict the logical commitments solely to variables, quantifiers, and predicates, thereby making logic void of specific names. His solution consists of two steps: first, singular terms are replaced with definite descriptions, and then definite descriptions are eliminated using quantifiers and variables. Alternatively, he employs fictional entities to avoid referring names. For example, "Socrates" can be defined as (ιx)Sx, meaning the unique x that is Socrates.

The second step involves using Russell's theory of descriptions to eliminate specific descriptions. Quine concludes that due to the fact that anything expressed by names can be expressed in a language void of names, it is the bound variables, not names, that have ontological commitment. If we consider the world as limited to a set of objects a, b, ..., h, we can extend existential quantifiers to conjunctions and universal quantifiers to disjunctions in an acceptable manner. $(\exists x)Fx$ and $(\forall x) Fx$ can be rewritten as follows:

$(\exists x) Fx$ becomes $Fa \lor Fb \lor ... \lor Fh$

$(\forall x) Fx$ becomes $Fa \land Fb \land ... \land Fh$

This extension allows us to express existential and universal statements in terms of conjunctions and disjunctions over the specific objects in the world. (Quine, 1952, p88). Quine's interpretation of quantifiers leads to the restriction of objects and the domain of logic to the existents of the world and material entities. The empty expression becomes a purely linguistic issue. Based on the discussions presented, it is observed that the substitutive interpretation of "exists" cannot be in the position of a predicate. However, what falls within the domain of quantifiers is considered to possess existence according to Quine. It should be noted that Quine's viewpoint regarding what can exist in the domain of quantifiers is answered in such a way that objects that exist—Quine's theory of relativized ontological commitment suggests a relativistic theory about the objects of a theory. He believes that the domain of objects can vary proportionally to the theory, and in fact, the variable is limited to the domain of the theory and accepts a kind of indeterminacy in the domain of reference.

However, objectual interpretation is not the only interpretation proposed for quantifiers. Another interpretation, known as the substitutional interpretation, has been put forward by

prominent logicians such as Ruth Barcan Marcus, Saul Kripke, Hintikka, and others. This interpretation focuses on the substitution instances of variables.

(∀x)Fx is interpreted as "All substitution instances of 'F' are true."

(∃x)Fx is interpreted as "At least one substitution instance of 'F' is true."

In this interpretation, considering the unlimited domain of variables, even empty names can exist within the domain of quantifiers. However, the quantifier does not commit to the existence of objects within its domain, and "exists" can also be treated as a predicate. In the unlimited interpretation, the concept of existence is not dependent on the domain of quantifiers, and it is not the logical task to determine the domain of ontological existence - it is not relevant to logic to determine what exists and what does not exist.

While in the objectual interpretation the placement of "exists" as a negated predicate is possible, in the substitutional interpretation or the unlimited interpretation of quantifiers, it is possible to argue for the position of "exists" as a predicate. In the interpretation where the domain of quantifiers is unlimited - an interpretation attributed to Leśniewski, a Polish logician - the following sentence is logically valid:

$$(\exists x) \ (x \ exists)$$

Therefore, contrary to Quine's view, the statement (∀x)(x exists) is false. Under the unlimited interpretation of quantifiers, any meaningful nominal compound, whether the referent of that noun exists in the external world or not, is logically formulable. Lejewski argues that those like Quine, who adhere to the objectual and limited interpretation theory, have blended logic with metaphysics and ontology, which has caused many philosophical issues. However, the unlimited interpretation resolves such problems because logic is fundamentally distinct from

ontology, and logic should not impose existential commitments on us. (Lejewski, 2002, pp. 150-152).

A new approach:

Peter Frederick Strawson, as one of the prominent philosophers of the Oxford school, considers the elimination of the predicate of existence through logical tools and semantic ascent, as an artificial construction of language that deviates from everyday usage. In his article titled "Is Existence Never a Predicate?", he attempts to outline conditions under which the predicate "exists" can be taken as a logical predicate. Strawson believes that if the grammatical subject of a sentence is introduced with quantifiers such as "all," "some," "most," "few," "none," "at least one," etc., then the subject of the sentence becomes a logical subject, and any predicate carried by that subject is also logical. He argues that in many cases, "exists" can be accepted as a genuine logical predicate, and provides an example to illustrate this situation. Consider a classical reference culture in which many names of historical figures like Socrates, Napoleon, Russell, etc., and mythical figures like Rostam, Sherlock Holmes, Hamlet, etc., are listed. Given this assumed set, the following sentence is meaningful and true: "Some of those listed in this culture are mythical, but most of them exist." Or, in other words, "Napoleon existed," "Rostam did not exist." In the above sentences, "existence" appears as a first-order predicate, and the expressions are considered meaningful in ordinary language (Strawson, 2008, pp. 215-216).

Strawson's attempt is to demonstrate that in certain cases, "existence" assumes the role of a genuine and logical predicate, without the need for rewriting. However, Strawson's proposal is fraught with ambiguity and inconsistency with what he initially defends as a presupposition. In the above example, the presupposition is employed in a very broad sense. Generally, when a presupposition is raised, it does not limit the domain to mythical and fictional entities. Extending

the presupposition to include fictional and mythical cases, based on what was explained earlier with reference to Strawson, is not easily accepted. Another criticism raised by Grice against Strawson is that what he presents is inconsistent with his previous perspective.[2]

Conclusion

In this article, an attempt has been made to briefly examine the views of some contemporary logicians on the predicative nature of "existence". As mentioned, according to Susan Haack, the domain of logic is distinct from metaphysics, and it is not expected that the domain of ontology be confined within the realm of logic or vice versa. Therefore, it seems that when encountering the logical issue of delivering existence to terms or interpreting objects, it leads to the intertwining of illogical and metaphysical elements, thereby compromising the independence of logic.

Strawson's perspective in the article "Is Existence Never a Predicate?" as well as many of his other works highlights the fact that everyday language cannot be easily confined within the narrow boundaries of artificial limited logic. There are always meaningful expressions that do not lend themselves to logical formulation, and if we translate them into artificial language, we distance them from their common meanings.

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[2] Strawson argued in his early works that the statement "x exists" is not a subject-predicate sentence because assuming the existence of x in the expression "x exists" is meaningless. In his initial perspective, Strawson agrees with Quine's deal regarding expressions in which existence appears as a predicate. However, his viewpoint in the discussed article contradicts this stance (GRAYLING, 1997, p 102).

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