

## REALISM/ANTIREALISM DEBATE: A SELECTION OF THE MOST IMPORTANT ARGUMENTS OF THE DEBATE

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**ABSTRACT. Realism/Antirealism Debate: A Selection of the Most Important Arguments of the Debate.** The present article intends to explore features of the realism/antirealism dispute. The intention is to offer arguments in favor of both sides for a better understanding of the debate. The article wants to use both logical arguments and sociological or psychological ones.

**Keywords:** *realism, antirealism, debate, arguments, Dummett, Putnam*

### Introduction

The realism/antirealism debate (abbreviated in article as AR/R) is a classical one in philosophy, being almost ubiquitous in it. We discuss about an AR/R dispute in morals, religion, science, etc. The main idea is about the possibility of analysis of nature, i.e. the belief in the existence of concepts that are independent by human and by its knowledge. I give an example, we can believe in some moral values (e.g. the compassion) which we consider objective, independent by our attitude towards them (in a realist perspective), or we believe that these values are entirely created by culture, not existing in fact (in an anti-realist perspective). Some authors<sup>1</sup> suggest that anti-realism and realism do not describe global attitude towards world, rather towards some levels, e.g. someone can be a modal realist but in the same time a moral anti-realist; even in a scientific domain, someone can be realist towards some theories and anti-realist towards other.

Firstly, I will briefly present the historical perspective of the debate. Even though the term “antirealism”, which we use, established in the literature, has only about

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<sup>1</sup> e.g. Wright, 2003; Chakravartty, 2007; Dummett, 1996.

50 years old, being promoted by Michael Dummett in a series of articles<sup>2</sup>, many authors, and Dummett himself, consider that the debate is not so new. Even if the subject of the controversies differs, a common structure exists.<sup>3</sup> Hence we can observe a similar debate even in Medieval period, the one between the nominalists and realists.

Then the debate was focused on the existence of universals (some perfect, ideal qualities from which derive imperfectly the material world's qualities), realists (influenced by the Plato's philosophy) believed in this theory, while the nominalists considered that those were just names (from which the denomination of "nominalists"). Later, in the eighteen century, the idealism, being represented by George Berkeley or Immanuel Kant, was opposed to realism. In the field of the analytical philosophy, the debate tackled the existence of abstract objects of logic and mathematics. An example of important antirealist approach is the intuitionism, developed by Brouwer and Heyting, who denies the existence of actual infinity. Hence, there are series of operations which are considered to be false in this approach of mathematics and logic, e.g. the law of excluded middle on infinite sets.

From a historical point of view, there can be observed that the term of realism remained somehow stable, even though it was attached to it different qualities, depending on the discourse space (modal, scientific etc.), while what was opposed to it was changed: from nominalism to idealism, and then the critics to derive from different approaches like empiricism or social constructivism. So, we will present a few types of realism for a broader view on the subject, then the critics which derive from a number of currents that opposed to realism and stays under the umbrella term of anti-realism.

### **Types of realism**

We will present the definition of realism made by Michael Dummett (used by other authors, like Hilary Putnam): a realist argues that, regarding a theory or a given discourse, that the propositions of that theory or discourse are true or false, i.e. that what it makes them true or false are something external, namely out of mental structures, out of language etc. A similar definition, but formulated more specific about the scientific realism (focused on the scientific theory and discourse) is the follow: the perspective that "the characteristic product of successful scientific research involves knowledge of causal structures whose existence and proprieties

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<sup>2</sup> e.g. Dummett 1963, 1969, etc.

<sup>3</sup> Dummett, 1963.

are independent of the adoption of the theories and conceptual frameworks that describe them, and (against empiricism) that this remains true even when the causal structures in question would have to be unobservable".<sup>4</sup>

Dummett had observed that the given theories have a pattern, so he tried to abstract the debate AR/R. However, I want to present some approaches of realism. I will use an idea presented in Wang, which argues that the multitude of logic definitions is explained by the purpose of the investigation.<sup>5</sup> I consider that the same happens also in this case. There are a lot of typologies of realism, with differences between them. Hence we can talk about a structural realism (which comes from the observations made by Henri Poincaré which points out the existence of a pattern at the structural level of theories, even though historically the entities modify, a common structure of the theories remains, e.g. from the concept of atom to the concept of electron and proton etc., the structure of theories remains alike. Some authors consider that the scientific realism „depends on the observation that many apparently central features of scientific concepts and practices seem to involve reference to such theory, independent and unobservable structures".<sup>6</sup>

Another type of realism is the modal one, sustained by David Lewis. He makes reference, as we can see from the denomination, to the modal logic and to the concept of possible world. He advocates for the idea that „our worlds is but one world among many"<sup>7</sup>, the belief of the existence of other possible worlds independent from the human mind. An interesting author is Hilary Putnam, who has a more nuanced view about this debate, because he can be labeled as a semantic realist but also as an ontological antirealist. Related to this view, i.e. the ontological antirealism together with the semantical realism, we no longer sustain the obligation of existence of the objects by these theories, but the truth of the sentences about those objects, hence "it is possible to be a realist with respect to mathematical discourse without committing oneself to the existence of 'mathematical objects'".<sup>8</sup> Another form of realism, which he rejects, is a form of ontological realism (the one about the existence of the entities), which he termed as "metaphysical realism". We will use his definition about this: "The metaphysical realist pictures the world as a totality of language-independent things, a totality which is fixed once and for all; and, at least in the case of an ideal language, one (and only one) reference relation connecting our words with that totality is supposed to be singled out by

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<sup>4</sup> Boyd, 1990, p. 171.

<sup>5</sup> Wang, 1962.

<sup>6</sup> Boyd, 1990, p. 171.

<sup>7</sup> Lewis, 2001.

<sup>8</sup> Putnam, 1975, p. 70.

the very way we understand our language".<sup>9</sup> This description wants to merge two characteristics of the traditional metaphysical realism: the insistence on a singular, unique correspondence (to a "fixed, mind-independent Reality") as the basis for assignment of truth or falsity, and the idea that there is just "One True Theory" of this "fixed mind-independent Reality". The third feature is the focus on the bivalent truth-theory. The main arguments against this type of realism, in the view of Putnam, tackle the fact that the truth is not a fixed thing, being vague, open ended.

The semantical realism, related to a theory or a discourse has two important features:<sup>10</sup> 1) The sentences of that theory or discourse are truth or false in a determined manner and 2) The truth or the falsity of those sentence is something exterior to human minds.

Hilary Putnam had many discussions on the realism and had changed his view along his career, but he offered one of the classical argument in favor to scientific realism, the no-miracle argument.<sup>11</sup> In the mature sciences (for this formulation, Putnam was accused for being too vague), the theories are usually true and their central terms have a real referent: the Niels Bohr's electron, Newton's mass, Mendel's gene, etc., while old terms like ether or phlogiston are concepts without real referent. The argument goes like this: if the science is just a simple game, the theories are just some social rules, then the predictive capacity of science would be a pure miracle. Hence a realist can argue that the success of theory (viewed pragmatically, by the advantages of the technology developed by that theory) is the match between the concepts with reality.

However, is interesting to note that different types can exclude one another. For example, we can discuss about a commonsense realism (which believes in the observable entities) and scientific realism (which is related with the existence of the observable and unobservable entities). Even if they had common places, a common sense realist may argues against scientific realism because he does not believe in the notion of electron (being unobservable), and a scientific realist may criticize common sense realism, being skeptical about this, because historically, a lot of common sense observations were rejected by the science (e.g. the Copernican's heliocentrism).<sup>12</sup>

### **Anti-realism arguments**

Before mentioning the comments of Michael Dummett and other analytical philosophers to antirealism, we will present some arguments that sustain this position.

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<sup>9</sup> Putnam, 1994.

<sup>10</sup> Putnam, 1975, p. 69-70.

<sup>11</sup> Putnam, 1978.

<sup>12</sup> Devitt, 2000.

Depending on the critics, we divided in three groups: hence, some arguments focused on the psychological characteristics of the researcher, other on the sociological features of the research and other on the research itself.

### **i) Psychological arguments**

If we could use a motto to resume those arguments, it is the ancient quote from Terence: “Homo sum, et humani nihil a me alienam puto” (“I am a human being; of that which is human, I think nothing estranged from me.”). Every research is made with scientists, so the research is influenced by peripherally aspects like emotions, beliefs, etc. An important critique is focused on the reasoning, the manner of obtaining the inferences (especially on the process of abductive reasoning).

The idea is that in philosophy there are considered three types of reasoning, two being more analyzed in psychological literature: deductive reasoning (based on a rule we infer about particular cases), inductive reasoning (based on the similarity between particular cases, we extract a general rule about them) and abductive reasoning (based on the analysis of particular cases we develop the „best explanation”, not necessary the correct one). While the deductive reasoning is a necessary one (from correct inferences we infer correct conclusion), the other two are not necessary (we are not totally sure about the conclusion), but add a new information to the stock of knowledge, developing more than what is contained in premises.

While in the case of induction we infer only based on the statistical arguments (looking at some repetitions and based on a convention, e.g. in psychological research on the statistical points .05, .01, .001,<sup>13</sup> we can develop a rule about some concepts), in the abductive reasoning we are not restrained to the statistical arguments. In the abduction we can make use of arguments that follow a common sense or other patterns that are correct in other theories (an example of this is the observation about the rising of sun, before the Copernican revolution, which by means of the inductive reasoning we infer that tomorrow the sun will rise, while by the abductive reasoning we try to give an explanation for this phenomenon). As it was sustained by other authors,<sup>14</sup> the mathematical reasoning is not entirely deductive. Even though the mathematics can be translated mostly into a logical language (as it was proved by Peano, Russell, Frege and other logicians), and even mechanized by the means of recursive operations (as it was showed by Alonzo Church and Alan Turing), being near of deductive inference, the mathematical capacity of reasoning goes beyond this type of reasoning. This is argued by Poincaré (the demonstration of

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<sup>13</sup> Popa, 2008.

<sup>14</sup> Poincaré, 1895.

every mathematical formula comes with a new information, adding a new idea, not being just a redundant reasoning; he presents his arguments in the rejection of Leibniz's proof that  $2+2=4$ ) or by Kurt Gödel (with his incompleteness theorems). Hence, in science we make use of not necessary reasoning, like the induction or abduction, so the scientific inferences are susceptible to error.

Another criticism is about the creation of scientific theories. Some authors, especially W. V. Quine, argue that we have the tendency to select the most clear, elegant and efficient theory (even though Quine himself appreciates these features at a theory) at the expenses of other theories, even though we cannot be sure that the Universe is not in fact chaotically, unclear etc. This idea is consistent along with principles of Gestalt theory, used after by the cognitive psychology,<sup>15</sup> like the law of Prägnanz (that we have the tendency to perceive the world as being structured, symmetrical etc.), tending to fill the "informational gaps" so that the information has an acknowledged structure even though the objects are not in reality like this.

Thus, we link the information for a better understanding, being comprehensible even though we avoid the non-consistent information. Another criticism from the psychology, is the influence of cognitive framework and its bias in interpreting reality, being dependent by the previous organized acquired knowledge.<sup>16</sup> Other arguments resides in the need for a good explanation, a logical structure, for believing a story.<sup>17</sup> The idea is the follow: a theory is like a story, it is explained the phenomenon and its causes; we may believe it because it sounds logical, rejecting the parts that may seem unclear or fuzzy, although the fuzzy concepts may explain better some part of theories.

## ii) Sociological arguments

Social constructivism considers that the learning is determined by the relation with the environment. So, when I enter in an institutional framework, e.g. a university, I will be guided to perceive a concept (e.g. the electricity) in the manner in which the professor teaches, or in the way the manual or handbook present the concept. So, I do not question the concept, and I will rather start to resolve puzzle problems,<sup>18</sup> for which I am prepared from the university or by the workplace. Only when the failures in explaining the phenomenon accumulate and develop into a crisis, the scientific community will search for a better paradigm to explain and to resolve different puzzle problems.

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<sup>15</sup> Miclea, 1999; Atkinson, 2005.

<sup>16</sup> see Atkinson, 2005.

<sup>17</sup> Sperber and Wilson, 1981; Sperber, 2010.

<sup>18</sup> Kuhn, 1962.

Meanwhile, a critique brought by the sociology of science is about the perspective of the science, viewed as a clear, progressive process. One of the main arguments represents the changes of the paradigm in theories. Historically, there were so many wrong conceptions towards science, explications that were magical, or come from domains that were based on questionable reasoning, a lot of them not having a real referent. The question is the follow, how those researchers have done science, lot of them with success, if were based on such concepts. Some authors consider that those are refutation of scientific realism based on historical arguments<sup>19</sup>. After, the author gives examples of theories which have real referent (in contemporary scientific opinion) but were unsuccessful: Proutian theory that the heavy objects are compound by atoms or Wenger's theory about the continent's movement etc.<sup>20</sup>

Another statement argues against the cumulative comprehension of science which is representative for scientific realism, i.e. „earlier and now-rejected theories actually referred to the same entities as our present ones do”.<sup>21</sup> The problem is the variation of entities, the best example is the concept of number and set, which one were modified after Cantor's theory.

Sociologically speaking, the arguments also tackle other aspects. One of them is the feminist one: along history had been favored some discourses, situated in a position, dominated by male, ignoring other types of discourses.<sup>22</sup> This can be observed in the small number of important scientist, e.g. in some of the most important psychologists of twentieth century, domain with an important number of women in practice, the first woman who appears is Elisabeth Loftus on the 58th position.<sup>23</sup> Hence, the argument of an independent rationality which chooses what is „correctly” methodological is questioned because of this bias. In the center of scientific domains, the influence is taken by people who want to keep this status quo and sustain only one position, leaving no room for other scientist to come and add new ideas, the minorities being the women, the scientist from outside west culture etc. Hence, scientific construction of ideas or constructs may be socially influenced and not created by a somehow independent rationality.

Another criticism focus on the following: it can be accepted that the scientific concepts and practices give a quantity of information (e.g. , we know that if we have an action over an object, we have a counter-reaction, after a systematical observation), but the interpretation of language and of scientific concepts by what these information

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<sup>19</sup> Laudan, 1984.

<sup>20</sup> Laudan, 1981.

<sup>21</sup> Carrier, 1991.

<sup>22</sup> Keller, 1982.

<sup>23</sup> Haggblom, 2002.

transform in knowledge is rather founded on language convention or social construction rather than knowing an unobservable phenomenon independent by theory.<sup>24</sup> Some author, like Rudolf Carnap, discuss about the fact that the unobservable concepts (e.g. the intelligence, which we consider it exists) is knowable only if it can be translated in a physical, visible language (by observation of some actions that are visible and are considered by convention to be representative for that concept. This translation rules, by which I assign to those concepts a physical, sensorial manifestation have to be considered as truth by convention.<sup>25</sup>

### iii) Methodological arguments

In every scientific domain, it exists a quantity of conventionalism, of arbitrary. When is engaged on the notation (e.g. Chlorine in Chemistry is abbreviated as Cl), this thing is not problematic. But the problem opens when we speak about *unexpected conventionality of laws or generalizations*,<sup>26</sup> cases where we find nominalist definitions, when a realist expects to find real ones. For example, we are sure that there are species and higher taxonomies, but the cladists insist that although the species are “real”, the higher taxonomies are not „real”, being mostly conventional.

Other criticism is concerned with the bivalent truth function. Putnam discusses it and states that the realists use it in their analysis of scientific sentences. For a realist thinker, a sentence S is true if and only there is a state of affairs which corresponds with the depiction given in S, while for the antirealist, S is true if and only if we have “effective criterion for showing that S holds”.<sup>27</sup> In a realist point of view, a sentence has to be true or false, but Putnam argues that in the case of quantum mechanics, we need to use a polyvalent logic (a trivalent one). He compares the trivalent logic with the non-Euclidean geometry, both viewed by the scientific community as technicality, without having a real use. Over time, there were discovered applications which proved not only their theoretical validity but also the ecological one. Hence, the trivalent logic could be put in some correspondence with a real state of fact (in this case, with the quantum mechanics one), rejecting the singularity of bivalent principle.<sup>28</sup>

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<sup>24</sup> Boyd, 1990.

<sup>25</sup> Boyd, 1990.

<sup>26</sup> Boyd, 1990.

<sup>27</sup> Oliveri, 1994, p. 94.

<sup>28</sup> Putnam, 1975.



## Michael Dummett

The shift made by Michael Dummett is about the view of the debate: if before, the dispute was over a class of objects, about which we argue if they exist or not, now the dispute focuses on a class of sentences, which he names the disputed class. For Dummett, the conditions for direct assertability of a sentence A are defined in an absolute and univocal manner, context-independent. In the antirealist position of Dummett, it will always be a group of object which will play the role of judge over the questions of significance, truth or conscience. Hence, the dispute focuses on the referential theory, by which the truth of a proposition is given by the existence or not of the objects which represents the linguistic referent of the sentence, and not the objects itself, and which assume the existence of a reality in correspondence with the sentence.<sup>29</sup>

In Dummett's view, to be a realist, is not sufficient only to take a bivalent perspective over the truth of the sentences of a given domain, the person has to have a conception about the manner in which this truth is determined.<sup>30</sup> One manner is „to base the two-valued semantics on a notion of reference, taking it that singular terms function to refer to objects and that predicate expressions have semantic values.<sup>31</sup> As an example, „John is student” is true only when „John” has the propriety or is under the extension of the predicate “to be student”. Hence, the conflict AR/R is over the meaning of the sentences from disputed class, i.e. the manner in which someone understands that sentence. The anti-realist understands a proposition in base of the manner in which someone can comprehends that proposition, the truth constitutes only in the existence of evidence.

On the other hand, for the realist, is more important the notion of truth to determine the significance of proposition. If I know what make this proposition true, then I know the meaning of proposition: we can derive what makes that proposition true by learning what is considered as an evidence for its truth, but we make such that, we have a conception of a sentence being true even though it has an evidence.<sup>32</sup> If we take an example, outside of mathematical logic, is the psychoanalytical concept of id (the unconscious of a person, in which the impulses develops). An antirealist will deal with the sentence: “John has an id” on the base of observations made over the behavior of John which could be explained as id, while in the lack of evidence (as a cognitivist psychologist may consider) he will comment that to say about John that he has an id is meaningless.

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<sup>29</sup> Naibo, 2016.

<sup>30</sup> Dummett, 1996.

<sup>31</sup> Weiss, 2002, p. 52.

<sup>32</sup> Dummett, 1963.

On the other hand, for a realist (in this case a psychoanalyst), the meaning should be taken by what makes this sentence true (the existence of id by definition). Even if we do not observe in John's behavior something that can be explained by the id (for example, because the control of super ego), we still consider that John may have an id.

Unlike Putnam, Dummett has a stronger antirealist position, being both a semantical and ontological antirealist. A semantical realist position adopts a truth notion that applies on every sentences of that theory, i.e. say about every sentence if is true of false. In other words, we can decide if that sentence is false or not, even if only in abstract (as in an example presented by Putnam about the number of stars in the Universe). For Dummett, a truth notion is realist if does not make the truth of sentences dependent by the evidence that we have for them.<sup>33</sup> Here appears the major differences AR/R about the truth notion, the verificationism. An realist would consider that a notion may be explained by its structure and its reference, without mentioning the evidences, while the anti-realist (going on the line of logical positivism by Vienna Circle) takes a sentence as being true only if he can establish its truth.<sup>34</sup>

Michael Dummett uses in its argumentation, for rejection of semantical realism the undecidable propositions developed by Kurt Gödel (i.e. in every consistent and  $\omega$ -consistent system will be an undecidable proposition). The truth of these propositions is found in intuitive manner, so this proposition is true and undecidable. Unlike the subjective content, like the personal experience of "red", content which cannot be communicated (using the idea of Schlick),<sup>35</sup> the theorem of Godel presents in a formal expressible manner the idea of undecidability, hence the person cannot assign to some propositions a truth value on the base of a evidence.

Dummett's reasoning is the following:<sup>36</sup>

1. The meaning of a statement must be such that it makes sense to speak about a person knowing the meaning;
2. Knowledge of meaning must in the end be implicit. In particular, there are undecidable sentences whose meaning can be known only implicitly. Such implicit knowledge can be sensibly ascribed to a person, only if it is fully manifestable;
3. Knowledge of truth-conditions for undecidable sentences cannot be fully manifestable when truth is understood classically.

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<sup>33</sup> Devitt, 2000.

<sup>34</sup> Devitt, 2000.

<sup>35</sup> Schlick, 2003.

<sup>36</sup> Prawitz, 1994, p. 80.

Hence the conclusion: the meaning of some undecidable sentences cannot be given by some truth conditions when the truth is understood classically (by this rejecting the realist semantic).

Dummett argues using the example the natural number, a concept whose existence is intuitively for us, but which cannot be expressed totally, leaving place for the undecidable sentence, inherent to every system complex enough. The discussion about natural numbers is a sophisticated one, given the dual aspect of the numbers: they can be treated as real objects, but not physical or space-temporal (mathematical Platonism), but then how can it be acquainted these strange, causal isolated objects? On the other hand, the constructivism (intuitionism) cannot explain how, if we built mathematics just like a simple game like chess or go, is so indispensable for the investigation of world.<sup>37</sup> So, Dummett proposes that the dispute between Platonism and intuitionism to be treated as a metaphorical version of the dispute towards the demonstrability conditions in mathematics, hence making a dispute over these conditions from mathematics.<sup>38</sup>

### **Critics at Dummett's position**

An important critic to Dummett's work is Michael Devitt. Devitt argues that the debate was placed by Dummett in a semantic position.<sup>39</sup> He argues that Dummett overlaps the meaning of a proposition with the verifiability principle.

In addition to this, he argues that the switch of the argument for the number, which seems plausible because of the special character of the concept, to the common sense realism is fallacious. Devitt argues that the dispute of realism cannot be transformed into a language problem and cannot be identified with that.

### **Conclusion**

In this article, I wanted to present a part of the complexity toward this debate, showing some pros and cons. At the same time, I wish to emphasize that this dispute is still open, although Dummett's arguments are interesting and offer new perspectives towards the language theory and meaning theory, the dispute is far from being closed.

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<sup>37</sup> Devitt, 2000.

<sup>38</sup> Devitt, 2000.

<sup>39</sup> Devitt, 1983.

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