On Frege’s Conception of Logic
Rareș Fogaș

‘‘May my book, then, even though it comes rather late, contribute to a revival of logic’’
(Grundgesetze der Arithmetik, 1893)

Abstract. This short essay offers a brief account of Frege’s conception of logic from two main points of view: the novelty of his view on logic and the normative status of logic in his writings. I analyze Frege’s position with regard to logic by comparing it to the views of Mill and Kant. I also argue against a normative reading of Frege’s writings on the nature of logic, a reading which is not uncommon in contemporary literature.

1. Introduction

During his lifetime, Frege’s works did not achieve the level of notoriety that they nowadays enjoy. He had important contacts with mathematicians, logicians and philosophers, such as Bertrand Russell, Edmund Husserl, Giuseppe Peano, David Hilbert, Ludwig Wittgenstein and Bruno Bauch, just to name a few, but his writings were not widely read and sold very poorly (for instance, he had to pay himself for the publication of the second volume of his Grundgesetze der Arithmetik). Given this situation, in a testamentary note of January 12th 1925 to his adoptive son, to whom he entrusts his manuscripts, Frege writes the following lines: ‘I believe that some of it [Frege’s handwritten material] will one day be held in much greater esteem than now’\(^1\).

Frege was certainly right about the fate of his posthumous writings and of his work in general. He entered English philosophical literature through an appendix to Bertrand Russell’s Principles of Mathematics (1903) and, given the numerous occasions Wittgenstein refers to him in the influential Tractatus Logico-Philosophicus (1921) his works attracted the interest of more and more philosophers before and after the Second World War. In 1950, the first English version of Grundlagen der Arithmetik (1884), translated by J. L. Austin was published and after two years Peter Geach and Max Black made available an anthology of translations from Frege’s philosophical works\(^2\). Michael Dummett’s 1973 Frege: Philosophy of Language is now a classic in a Fregean scholarship that continues to flourish up to present times, and which has already seen,
in 1997, the publication of *The Frege Reader*, edited by Michael Beaney, a single-volume collection of English translations of Frege’s seminal works, including some of his posthumous writings. Of course, numerous other works contribute to the literature on Frege. And not only that his works are now ‘held in much greater esteem’, but he is thought of as one of the founding fathers of analytic philosophy.

Given this status quo, one might be tempted to suppose that Frege’s writings are already exhaustively studied so that topics regarding his work are no longer controversial in any way. The editors of *Frege Synthesized* (1986), another classic of Fregean scholarship, recall that ‘[s]omeone - it was probably Burton Dreben - once said that the worst-known period in the history of philosophy is always the time fifty to a hundred years ago’. However, even if many of Frege’s writings are older than one hundred years, it is not uncommon to get across pieces of secondary literature that seem to hold opposite views. Some of these concern Frege’s conception of logic - and some of the texts that Frege wrote on logic are yet to reach the hundred year milestone.

For instance, Hartry Field writes the following in response to Gilbert Harman’s challenge regarding the normative status of logic:

> What is the connection between (deductive) logic and rationality? Answers to this vary markedly. At one extreme is the view that a law of deductive logic is a law of rational thought. Frege seems to have advocated this.

(Field 2009, p. 251)

In his response to Harman, Field seems to attribute to Frege the extreme view on the normativity of logic: ‘[t]he quotation may suggest that something is a law of logic if and only if it is a law of rational thought’ (Field 2009, *ibidem*; Field’s emphasis). On the other hand, Warren Goldfarb writes the following of Frege’s conception of logic:

> The business of pure logic is to arrive at such laws, just as the business of physics is to arrive at physical laws. Logical laws are as descriptive as physical laws, but they are more general.

(Goldfarb 2010, p. 68)
As descriptive and normative are usually opposite terms in philosophical discourse, this first glance at this matter’s treatment in secondary literature raises some questions: What is, in fact, Frege’s conception of logic? Did he view logic as a science, a body of truths with no special relation to reasoning? Or did he think that the business of logic is precisely to issue norms for human reasoning? One will perhaps be disappointed to hear that a research on the primary sources would not lead to a straightforward answer, however it is clear that secondary literature on this topic does not always do justice to the way the aforementioned questions should be approached, so a thorough investigation of Frege’s writings is mandatory for starting to formulate answers.

In what follows, I will try to offer a sketch of Frege’s conception of logic from two main perspectives: firstly, I will analyze the novelty of Frege’s view in relation to some of his predecessors’ writings on this topic. Secondly, I will approach the matter of the normativity of logic in Frege’s view. Even if I will refer to secondary literature, I will mainly follow primary sources, concluding that Frege only views logic as normative in a secondary, derivative way.

2. The novelty of Frege’s conception of logic

Frege is often called the father of modern logic. His invention of propositional calculus (which features truth-functional definitions for the connectives) and quantification theory are among the most important contributions to this field since Aristotle. However, his writings did not reach the notoriety they deserved during Frege’s life, as it was mentioned. It is, then, no wonder that Frege regarded, apart from his scientific innovations, his conception of logic, too, as innovative. A look at the preface to the Grundgesetze offers important documents for this claim:

I myself can judge in a way what opposition my innovations will be met with because I have had to overcome something similar in myself (p. 142)

But that an oval drawn on paper with pen and ink should acquire by definition the property that, when it is added to one, one is the result, I can only regard as a scientific superstition. [...] To create zero is consequently impossible. I have already repeatedly explained this but, as it seems, without result (p. 145)
And that is how our thick books of logic came to be; they are puffed out with unhealthy psychological fat which conceals all finer forms. Thus a fruitful collaboration of mathematicians and logicians is made impossible. [...] He [the psychological logician] looks into his psychological peepshow and says to the mathematician: ‘I cannot see anything at all of what you are defining.’ And the mathematician can only reply: ‘No wonder, for it is not where you are looking for it. (pp. 146-7)

It seems to me that the tree planted by me would have to lift an enormous weight of stone in order to gain room and light for itself. Nevertheless I should not like to give up all hope that my book may later on help to overthrow psychological logic (p. 147)

It is, then, of interest to analyze Frege’s philosophy of logic in relation with the orthodoxy of his time. Probably the most attacked position in Frege’s works is the psychologist view on logic, advocated, among others, by John Stuart Mill in his *A System of Logic* (1843).

2.1 Logic as a branch of psychology

John Stuart Mill’s philosophy of logic is coherent with his anti-Platonist realism in philosophy of mathematics. For Mill, mathematical propositions such as ‘7 + 5 = 12’ are not propositions that have meaning in virtue of their referring to some abstract objects (specifically, natural numbers) and their properties or relations. There is no Platonic realm of mathematical entities that the mathematician talks about when he is doing mathematics. Propositions such as ‘7 + 5 = 12’ talk about concrete, physical objects. ‘7 + 5 = 12’ simply says that whenever you take 7 objects and you add 5 objects to them you will end up with 12 objects. These objects can be anything: apples, bottles, pancakes, etc. But they are objects of flesh and bone, not abstract entities that cannot causally interact with human minds. Thus, Mill is both a realist and an empiricist: mathematics is meaningful and true by reference to concrete objects.

Logic is in no way farther from concrete reality than mathematics. In short, logic is rather to be viewed as a branch of psychology. It gets its foundations from psychological investigation (that is, answers to the question of how human reasoning works) and tries to tell good reasoning from bad reasoning. It tells you which is the right way of thinking, after it has learned, from psychology, how thinking takes place.
There can be no talk of truth-preserving structures\textsuperscript{12} in such a context: logic deals with \textit{reasoning}. However, Mill states that even if logic investigates the \textit{laws}\textsuperscript{13} of thought, putting forward such laws in a scientific sense is strictly the business of psychology. The logician has to benefit from the theoretical background borrowed from psychology and to ‘advance the art of thinking by formulating clear rules of reasoning’ (Skorupski 1998, p. 49).

So, even if it would be ‘wrong to accuse Mill of psychologism about logic’ (Skorupski 1998, p. 49), logic nevertheless is tied with human minds and thinking in Mill’s eyes, and given his empiricist position on this matter, the truth of ‘logical thoughts’ is a relation of such thoughts to ‘Phaenomena’. (Skorupski 1998, p. 49). Logic is in no way special from this point of view: it is true as long as it corresponds with the facts (though not in the ontological sense of the word, such as in Russell’s or Wittgenstein’s writings). To paraphrase Skorupski (\textit{ibidem}) how could we know our thoughts, including the logical or the geometrical ones, are true, other than by inductive evidence that they correspond with phenomena?

There are two main points\textsuperscript{14} in Frege’s writings that go against this Millian account of logic.

Firstly, if logical laws would be true by their relation to some corresponding phenomena, they would turn out to be laws about some concrete reality. Take $\neg(A \& B) \leftrightarrow \neg A \lor \neg B$ as a logical law. If it would be true by virtue of the correspondence with facts, we would have to paraphrase it into something along the following lines: The facts are such that $\neg(A \& B) \leftrightarrow \neg A \lor \neg B$ is true. Or, in Frege’s own words, following an arithmetical example:

‘It has been observed that with many people certain ideas form themselves in association with the sentence ‘2+3=5’. So far as we have observed hitherto these formations are always true; we may therefore make the provisional statement ‘Going by the observations made hitherto, the sense of the sentence ‘2+3=5’ is true’.’ But it is obvious that this explanation would not work at all. And it would leave us where we were, for the sense of the sentence ‘It has been observed that with many people certain ideas form themselves etc.’ would of course be a formation of ideas too and the whole thing would begin over again.

(Frege 1897, p. 134)

The paragraph quoted above is part of a critique of psychologism. Frege deals primarily with a conception of logic in which meanings are mental entities, thoughts are ideas (\textit{Vorstellungen}) and judgements are relations between these mental entities. Although this is not
Mill’s case, Frege’s criticism applies to the Millian position according to which logic is not a priori, but true in virtue of some facts obtaining, of something’s being the case. Such a view would compel us to rephrase our logical laws. However, it seems like the result would not satisfy us, or, at least, Frege: he takes logical laws to feature a kind of necessity which is not grounded in facts. Rather, logic, like mathematics, is a priori. Would there have never been no phenomena at all in the world, the laws of logic would not cease to be true - in this sense, they are independent of facts.

Secondly, the Millian account does not take into consideration what Frege sees as a key feature of logic: its timelessness. On the Millian picture, we have to rephrase the laws of logic in such a way that the formulation takes into consideration they’re correspondence to facts. But there is, of course, the possibility of a) a difference between states of affairs at different moments of time and b) a modification in our being affected by phenomena, which would lead to our reporting the wrong facts. Both a) and b) would then lead either to a modification of the laws of logic or to false laws of logic, which is unacceptable from Frege’s point of view.

2.2 A third realm has to be recognized

Frege’s conception of logic is, in this sense, anti-empiricist, since laws of logic are independent of any phenomena. Also, it is anti-psychologist, since the reasoning with which logic could be said to have a relation with is not the subjective, inner chain of inferences proper to each individual. The novelty of his philosophy of logic is closely linked with his recognition of ‘a third realm’.

An important part of Frege’s work in philosophy of language has to do with the clarification of the concept of ‘thought’ (Gedanke). In short, ‘thought’ closely resembles what we would nowadays call ‘proposition’ or ‘propositional content’. It is what a sentence expresses. ‘Pierre believes that London is pretty’ and ‘Pierre croit que Londres est jolie’ are different sentences (they belong to different languages, they involve different signs etc.), nevertheless they express the same the same propositional content. That Pierre likes London. So there is this underlying content for which the sentence functions like a medium. It is this content that matters in communication, when we seriously take care of what we are expressing, when what we are interested in is truth, as Frege believes we do in science. And this content, the thought, is the one which can properly be said to be true or false, according to Frege.
But what is the nature of the thought?

It surely is not of physical nature. Thoughts are not grasped through sensory stimuli. You cannot see or hear them. ‘That the sun is rising’, for instance, is not to be perceived by the senses. It is for sure common to say that ‘you can see that the sun is rising’. However, as Frege observes, the word ‘see’ has, in this context, a different meaning than when it is used to refer to a visual experience. It rather means ‘it is obvious that the sun is rising’. Sure it is, since establishing whether it is true or false that the sun is rising only requires a glimpse through the window. But the visual experience that I have as a subject is not the thought that the sun is rising. The visual stimuli that I receive are neither true, nor false, but thoughts are either true or false. In Frege’s words, ‘Newton did not discover the law of gravitation because his senses were especially acute’ (Frege 1897, p. 138). Moreover, what I see can be beautiful, humbling, boring, etc. but these are not characteristic to thoughts, that is, to those contents of sentences that are properly said to be true or false. Then again, I can only see for a finite amount of time that the sun is rising. On the other hand, the thought (the truth-bearer) is independent of time. Time does not affect its truth-value and its existence is not limited. Since thoughts are eternally true and eternally false, they have to be eternally existent.

Thoughts are no more mental than physical, they are not ideas or ‘formations of ideas’. For instance, the thought that all triangles have three sides is not in any way formed by the coming together of an individual’s mental representations, since every individual has different mental representations. Mental content, whatever it may be, is regarded as purely subjective. Ideas are, therefore, not enough to secure objectivity, may it be in colloquial or scientific discourse. Still, it is clear that there is such a thing as objectivity: when two different people assert the Pythagorean theorem, it is the same propositional content or thought that is asserted. If, in turn, it was the same idea which was asserted, that would mean that the same idea belongs inwardly to two different individuals, which is absurd, according to this meaning of idea. Moreover, thoughts are independent of thinking. They cannot be regarded as the results of the process of thinking, or constituted by thinking. If that was so, a thought such as the law of inertia would have to be grounded in what grounds the entire process of thinking, starting from our receiving certain sensory stimuli, which is purely contingent (could change over time), whereas the law of inertia, if it is a law, is (eternally) true. So the justification for a physical law would have to be found in psychology, which would become the most general and basic framework for science. ‘And still
less does the brain secrete thoughts, as the liver does gall’ (Frege 1897, p. 137). From Frege’s point of view,

The metaphors that underlie the expressions we use when we speak of grasping a thought, of conceiving, laying hold of, seizing, understanding, of capere, percipere, comprehendere, intelligere put the matter in essentially the right perspective. What is grasped, taken hold of, \textit{is already there and all we do is take possession of it}

(Frege 1897, p. 137; my emphasis)

But if thoughts are to be found neither in the physical world, nor in our minds, then where are they? ‘A third realm must be recognized’ (Frege 1918, 1956 p. 302). Thoughts are abstract objects, non-spatial and timeless. They are not produced by thinking, but rather discovered, \textit{grasped} by human minds. Mathematical truths are of this kind: eternally true thoughts, not created in any way but rather discovered, offering to the mathematician a privileged perspective on immortality. In G. H. Hardy’s words,

Archimedes will be remembered when Aeschylus is forgotten, because languages die and mathematical ideas not. ‘Immortality’ may be a silly word, but probably a mathematician has the best chance of whatever it may mean

(Hardy 1940, p. 12)

The short exposition of Frege’s doctrine of thoughts brings us to the third section of this essay, dealing with the normative status of logic. A question that, if answered, would shed light on the debate on Frege’s conception of logic is whether laws of logic are thoughts themselves.

3. Like ethics, logic can also be called a normative science

There were several attempts of Frege’s writing a logic textbook. Even if he never got to publish any such material in a definite form, his \textit{Nachlass} includes such manuscripts. The ‘Logic’ of 1897 is one of them, and it is the source from which the title of this section was taken.

More specifically, the sentence figures on the first page of the text, where Frege is trying to offer a provisional definition of the science he was about to expose: ‘When entering upon the
study of a science, we need to have some idea, if only a provisional one, of its nature. We want to have in sight a goal to strive towards; we want some point to aim at that will guide that will guide our steps in the right direction’ (Frege 1897, p. 128). So it’s clear that the sentence I quoted is not enough for establishing Frege’s conception of logic. It was only intended to give a hint of what logic was about to readers of an introduction to a logic textbook.

The italics that I used in the title of this section are mine. I chose to use them to put an emphasis on this definition’s character of a hint. It is then not normativity which touches the core of logical inquiry, but something else.

First of all, logic is the most general science of all, in the sense that it does not treat limited ‘levels of reality’. While physics studies the physical reality and its laws apply to it, geometry studies geometrical reality and its laws apply to it, etc. logic is not affected by such constraints. But rather ‘ […] the task we assign to logic is only that of saying what holds with the utmost generality for all thinking, whatever its subject-matter’ (Frege 1897, p. 128).

But what grants logic this supreme level of generality? On this point, Frege once again holds a different position than one of his predecessors, Immanuel Kant. For Kant, logic is also the most general doctrine of all, but this generality is explained in terms of its formality. Take, for example, the sentence ‘Some cats are black’. The mark of logic is its abstraction from any content in this sentence. Logic does not deal with the meaning of the terms ‘cats’ or ‘black’, but is only interested in the form of the sentence: some Xs are Ys is such a form, whatever the Xs and the Ys may be – it is only the relation between the terms employed in the judgement that is relevant for logic.

The logic Frege refers to, however, is such that can describe properties of abstract objects (this is the basic idea of Logicism). So it is clear that Logic cannot be thought of as purely formal. Moreover, he takes logic to have its proper notions and relations, which secure its proper content – if logic was formal simpliciter,

then it would be without content. Just as the concept point belongs to geometry, so logic, too, has its own concepts and relations; and it is only in virtue of this that it can have a content. Toward what is thus proper to it, its relation is not at all formal. No science is completely formal; but even gravitational mechanics is formal to a certain degree, in so far as optical and chemical properties are all the same to
it... To logic, for example, there belong the following: negation, identity, subsumption, subordination of concepts.

(Frege 1906, p. 428; quoted in Macfarlane 2002, p. 29)

So it is true that logic is characterized by supreme generality, but ‘not in being about nothing in particular (about forms), but in using topic-universal vocabulary to state truths about everything’ (Goldfarb 2010, p. 68).

So logic has content indeed, for Frege. Its generality is not a mark of its normativity, but actually of the laws’ being about everything. Also, on Frege’s view, it is trivial that the laws of logic are always true. It is important to recall what the Fregean truth-bearers are, namely thoughts, propositional contents. If laws of logic are always (eternally) true, then they always have to be fit for being true. They must express true, eternal, independent-of-thinking thoughts. If laws of logic are thoughts, then prescribing norms for human reasoning is not essential to logic, but only secondary.

Some pieces of primary literature on this topic can be helpful in this context:

To discover truths is the task of all sciences; it falls to logic to discern the laws of truth. The word “law” is used in two sense. When we speak of laws of morals or the state we mean regulations which ought not to be obeyed but with which actual happenings are not always in conformity. Laws of nature are the generalization of natural occurrences with which the occurrences are always in accordance. It is rather in this sense that I speak of laws of truth. This is, to be sure, not a matter of what happens so much as of what is. Rules for asserting, thinking, judging, inferring, follow from the laws of truth. And thus one can very well speak of laws of thought too

(Frege 1918, 1956 p. 289; my emphasis)

The distinction between laws of truth and laws of thought is of crucial importance when discussing the normative status of logic in Frege. According to the paragraph from ‘Der Gedanke’ quoted above, the business of logic is to discern the laws of truth, which closely resemble the laws of natural science. In the case of logic, it is not a matter of what happens. Logic does not report the way that the laws of truth happen to be as well as they do not report on how a number of individuals happen to think. In Frege’s words, it is a matter of what is. This seems to suggest a transcendental view on logic, in the sense that the laws of logic are independent of any subject or
moment of time. They might very well be inhabitants of the third realm. The *laws of thought*, which prescribe how one ought to think, do only *follow from* the laws of truth, which is why the normative status of logic is only secondary. Regulating reasoning is not strictly speaking a part of logic. It is only us as subjects who ‘grasp’ the laws of logic and use them, interpret them as norms for reasoning. But, was there never any reasoner, or reasoning itself possible, the laws of logic would not be affected by such a status-quo.

When he speaks of laws of truth, Frege writes

*We can also think of these*[^21] *as prescriptions for making judgements; we must comply with them in our judgements if we are not to fail of the truth.*

*So if we call them laws of thought or, better, laws of judgement, we must not forget we are concerned here with laws which, like the principles of morals or the laws of the state, prescribe how we are to act, and do not, like the laws of nature, define the actual course of events. [...] I therefore think it better to avoid the expression ‘laws of thought’ altogether in logic, because it always misleads us into thinking of laws of thought as laws of nature. If that is what they were we should have to assign them to psychology.*

(Frege 1897, p. 145; my emphasis)

So we ‘can also think of’ the laws of truth as prescriptive, however it does not reflect the proper business of logic. We could even drop the expression ‘laws of thought’, since it misleads us into believing logic is a branch of psychology. However, there is no text (at least, none that I know of) in which Frege advises us to drop the expression ‘laws of truth’ when discussing the aim of logic.

### 4. Concluding remarks

We have seen that although Frege’s works have been thoroughly studied, there are still topics which scholars fail to reach an agreement upon, as it is not unusual in the history of philosophy. Frege’s conception of logic was indeed innovative, and we have compared it briefly to the views of Mill and Kant. Then, we have reached a conclusion regarding the normative status of logic in Frege.
Even if nowadays logic(s) has/have developed greatly since his time and even if his Logicism failed in the end, it is nevertheless essential to the history and philosophy of logic to understand the impact of Frege’s words:

May my book then, even though it comes rather late, contribute to a revival of logic (p. 147)

Notes

1 See Michael Beaney’s Introduction to The Frege Reader, p. 9
2 Wittgenstein also contributed to the selection of papers to be translated. For instance, he had the opinion that Frege’s ‘Der Gedanke’ (1918) should not be included in the book. For more on this topic, see Reck 2002, p. 27.
3 Michael Dummett is the promoter of Frege’s image as the founding father of analytic philosophy, in his Origins of Analytical Philosophy (1994). Dummett emphasizes Frege’s role as primarily a philosopher of language. For a critique of this image, see Sluga 1996. For an alternative account of the history of analytic philosophy, see Michael Friedman’s A Parting of the Ways. Carnap, Cassirer and Heidegger (2000).
5 See Harman 1984, Harman 1986
6 For example, Field quotes from a very well-known paragraph in the preface to the Grundgesetze. He uses a translation by M. Furth, published by University of California Press (1964) and in Field 2009 he refers to a second printing edition of 1967. At p. 251 of his 2009, Field quotes Frege in the following way: ‘Laws of logic… are the most general laws, which prescribe universally the way in which one ought to think if one is to think at all’ (my italics). Fields indicates p. 12 of Furth’s translation as the source. However, if one were to check Field’s reference, he would see that this way of quoting is misleading, since it does not cover an important distinction between what Frege calls laws of logic and what he calls laws of thought. The entire portion of the paragraph (the one which bears relevance to the topic) quoted from the same source, goes like this: ‘Our conception of the laws of logic is necessarily decisive for our treatment of the science of logic, and that conception in turn is connected with our understanding of the word ‘true’. It will be granted by all at the outset that the laws of logic ought to be guiding principles for thought in the attainment of truth, yet this is only too easily forgotten, and here what is fatal is the double meaning of the word ‘law’. In one sense a law asserts what is; in the other it prescribes what ought to be. Only in the latter sense can the laws of logic be called ‘laws of thought’: so far as they stipulate the way in which one ought to think.
Any law asserting what is, can be conceived as prescribing that one ought to think in conformity with it, and is thus in that sense a law of thought. This holds for laws of geometry and physics no less than for laws of logic. The latter have a special title to the name “laws of thought” only if we mean to assert that they are the most general laws, which prescribe universally the way in which one ought to think if one is to think at all. But the expression “law of thought” seduces us into supposing that these laws govern thinking in the same way as laws of nature govern events in the external world. In that case they can be nothing but laws of psychology’’ (my italics). I cited this paragraph in its entirety not only because it shows that Field’s citation is misleading, but also because it, in conjunction with some introductory remarks in Frege’s ‘Der Gedanke’ (1918) will prove to be important for the third section of this essay. Anyway, Field’s case is not an isolated one. But I also have to mention that his paper is not a piece of Fregean exegesis, but actually plays a part in a discussion of contemporary concern in philosophy of logic.

7 See van Heijenoort 1967, p. 324 for a summary of Frege’s most notable achievements with regard to logic.

8 References are made to P. Geach, M. Black (eds.) – Translations form the Philosophical and Foundational Work of Gottlob Frege. Oxford: Basil Blackwell. 1952

9 It is true that labelling Mill’s conception of logic as psychological is not so easy to justify. See, for instance, Skorupski 1998, especially p. 49. In this essay, I will use the term ‘psychological’ with regard to Mill’s philosophy of logic in a loose sense, to be uncovered in the paragraphs that follow.

10 Such a label was used to describe Mill’s physicalism in philosophy of mathematics in Balaguer 2007

11 It should then not come as a surprise that Mill is one of the major targets of Frege’s arguments against empiricism in Grundlagen der Arithmetik.

12 A discussion in such terms would also be anachronistic.

13 In numerous occasions, Frege also discusses the ambiguity of the word ‘law’ in connection to what he calls ‘laws of truth’ or to what he calls ‘laws of thought’, etc.

14 Frege’s rejection of the correspondence theory of truth (for instance, in Frege 1918/1956) could also have been mentioned, but I chose not to do so since it does not touch the heart of a Fregean criticism in this context.

15 On this point, see Skorupski 1998, p. 51

16 This surely is not free of difficulties. If thoughts are abstract ‘residents’ of this third realm (which is, of course, not a place), how do we come to know them? Abstract objects cannot causally interact with minds or brains. This also plays a part in contemporary philosophy of mathematics (Frege also takes numbers to be abstract objects), known as Benacerraf’s dilemma: If numbers exist, we don’t know them and if we know numbers, they don’t exist (see Benacerraf 1973). Frege acknowledges this difficulty: ‘But still the grasping of this law is a mental process! Yes, indeed, but it is a process which takes place on the very confines of the mental and which for that reason cannot be completely understood from a purely psychological
standpoint. For in grasping the law something comes into view whose nature is no longer mental in the proper sense, namely the thought; and this process is perhaps the most mysterious of all. But just because it is mental in character we do not need to concern ourselves with it in logic. It is enough for us that we can grasp thoughts and recognize them to be true; how this takes place is a question in its own right’ (Frege 1897, p. 145; my emphasis). He adds the following lines in a footnote to the cited paragraph: ‘I should say that this question is still far from being grasped in all its difficulty. People are usually quite content to smuggle thinking in through a back door in the imagination, so that they don’t themselves know how it really got in.’ (Frege 1897, p. 145).

17 Even if Florian Steinberger cites from the same source as I do, he omits the expression ‘can also be called’ in favor of a misleading ‘is’. However, his paper offers arguments against a normative reading of Frege’s works on logic, such as that which Field 2009 (quoted above) suggests. See Steinberger 2017.

18 ‘thinking’ does not refer here to a mental process, but rather to scientific inquiry in general. This will become clear in the following paragraphs.

19 There is, first of all, the difference between the Aristotelian logic that Kant took into consideration and Frege’s propositional calculus with quantification theory.

20 See MacFarlane 2002

21 Yet another example of Frege’s heuristic method.

References
13. Geach, Peter and Black, Max (eds.) (1952) – *Translations from the Philosophical Writings of Gottlob Frege*. Oxford: Blackwell. 1952
19. Mill, John Stuart (1843) – *A System of Logic, Ratiocinative and Inductive*. John W. Parker, West Strand. 1843