

CHAPTER THREE

Denis Fisette

Erläuterungen: Logical Analysis vs. Phenomenological Descriptions

Die Bedeutungen von Urzeichen können durch Erläuterungen erklärt werden. Erläuterungen sind Sätze, welche die Urzeichen enthalten. Sie können also nur verstanden werden, wenn die Bedeutungen dieser Zeichen bereits bekannt sind.

L. Wittgenstein

Husserl, a trained mathematician, just like Frege and Bolzano, and student of two of the most notable scholars of that field, Kronecker and Weierstrass, had first-hand knowledge of his contemporaries' scientific work. Although his contribution to mathematics as such remains modest, one would be wrong to minimize the importance of formal and natural sciences within Husserl's philosophical itinerary. For instance, his project of a universal *mathesis* and the articulation of his doctrine of definite manifolds were Husserl's response to mathematical problems, namely, those of imaginary numbers, and are among the few ideas to which Husserl remained faithful until the end of his career. Yet, judging upon the work that he published during his life, his interest in the sciences, in particular natural science, is mainly philosophical. Husserl was not so much concerned with contributing to the actual progress of science as with spelling out his own relationship to the mainstream philosophical position of the time known

as naturalism. Inasmuch as Husserl is not interested in natural science *per se* but in the philosophical claims of those who practice it, it is precisely the latter concern which may be said to be at work when he criticizes the naturalistic beliefs in which the rising psychology, experimental psychology, and psychophysics in particular, were embedded. This form of naturalism is particularly radical. The attitude it adopts towards other philosophical positions is comparable to that of chemistry towards alchemy, that is, it relegates philosophical concepts drawn from common sense to the rank of chimera and fiction, and seeks to replace them with concepts authorized by science.¹ Naturalism is Husserl's target in many of his works, particularly in *Krisis* where it is held responsible for what he calls 'objectivism': a prejudice supposedly inherited from Galileo, which maintains that "the exact sciences of nature guarantee absolute metaphysical knowledge." If it is indeed the case that the natural science of psychology claims to form the scientific foundation for logic, the sciences of the mind, and even metaphysics itself, then naturalism is also Husserl's target in *Philosophy as a Rigorous Science*.² Furthermore, if we admit that the epistemological and metaphysical presuppositions of logical psychologism epitomize the very principles of philosophical naturalism, Husserl's critique of naturalism is perhaps not wholly unconnected to his critique of logical psychologism in *Prolegomena*. Psychologism would thus be an epistemological thesis that ascribes a foundational role to scientific psychology.

Husserl and Frege's arguments against logical psychologism are known, but what about alternatives? Any critique of this form of psychological naturalism is confronted by the following. One must either seek to dissociate logic from any epistemological considerations, or attempt to work out a theory of knowledge that will be sufficiently radical to elude anti-psychologistic objections and resume its foundational role. According to Dummett, whilst Frege, inasmuch as he substitutes a logical analysis of language for epistemology, belongs to the first group; Husserl, who is seeking to revive the theory of

knowledge through phenomenology, belongs to the second. This divergence emerges clearly from their opposition concerning the analysis of the concept of number and of primitive logical concepts. I will identify what is philosophically at stake in the disagreement between Husserl and Frege, and will assess the validity of their respective criticism of psychological naturalism.

1.

Let us start from what has been called the Fregean reading of phenomenology, which has two aims: 1) to show that Frege, Husserl's contemporary, could do for phenomenology what he had done for twentieth century analytical philosophy and 2) to turn Frege's work into the chief source of inspiration for Husserl's phenomenology. This approach to phenomenology has been dominant since the end of the 1960s and has proved to be extremely fruitful. It has made it possible to approach phenomenology from a new angle and to assess it in the light of contemporary problems. It has not exhausted all its weapons; on the contrary, just as any other venture of this type, this approach will remain effective only if its proponents recognize its limitations – in particular, that its scope does not stretch beyond certain aspects of the theory. Husserl himself clearly drew the limits in *Philosophy of Arithmetic*, in which he criticizes Frege's account of the origin of the concept of number. Despite many changes in Husserl's thought, the rationale of his critique of Frege's analyses and definitions is also what led him, some ten years later, to entrust this investigation to phenomenology.

The Fregean reading of phenomenology emphasizes three aspects of Husserl's relation to Frege. The first concerns the influence Frege's review of *Philosophy of Arithmetic* might have had on Husserl's pre-phenomenological antipsychologistic turn. There are no documents, no explicit testimony of Husserl, to corroborate this thesis, but we have grounds enough to believe

that Husserl could not remain impassive to Frege's otherwise constructive critique in his review of *Philosophy of Arithmetic*.³ The second aspect is that one of Frege's reproaches rests on the notorious *Sinn/Bedeutung* distinction, a distinction which will end up playing a significant role in Husserl's phenomenology in *Logical Investigations*. The fact that this distinction is also to be found in Bolzano, Lotze, Twardowski, and even Kerry (as the most ardent proponents of the first two theses have readily acknowledged), does not constitute an objection to the idea that Frege's astute analyses might have been very useful in the clarification of the corresponding distinction in Husserl.⁴ But this sole distinction, as the arguments of *Prolegomena* show, does not justify Husserl's antipsychologistic turn. The third aspect is that there is a family resemblance between Husserl's arguments in *Logical Investigations* and those we find scattered throughout Frege's work, particularly in his review of *Philosophy of Arithmetic* and the preface of the *Grundgesetze*. The argument, in a few words, concerns the ideal nature of laws, principles, and propositions of logic and of their incompatibility with the laws, principles, etc., of psychology conceived as an empirical science. Despite the interpretation of logical psychologism which has prevailed in the post-Fregean tradition, and in particular in Carnap, and according to which psychologism is the attempt to reduce a normative science to a descriptive one, I feel that the third thesis is hardly questionable, but I do not intend, at least for now, to enter this debate.⁵

In conjunction with this issue is the nature of the division between the analytic and continental philosophical traditions, which arose after Frege and Husserl and dominated twentieth century philosophy. An important thesis, put forth by Dummett, states that the respective philosophies of the two philosophers were at the time so alike that nothing in the philosophy of *Logical Investigations* hinted at such a division.⁶ The semantic theme Husserl favoured in *Logical Investigations* does indeed bring him remarkably near Frege and the tradition he inspired, from

Wittgenstein to Quine. According to Dummett, the division settled in soon after the publication of *Logical Investigations* and seemed to ensue from the philosophical status Husserl conferred on his phenomenology, a status that would bring him seriously close to Kantian idealism.

Two observations concerning Dummett's historical approach are indispensable. First, his narrative does not go beyond this historical segment which was indeed dominated by post-Fregean philosophy, that is, by logical positivism and ordinary language philosophy. But what is there to say about the strong return of naturalism and of psychologism in the philosophy of the last thirty years, which has been dominated by the philosophy of mind and cognitive sciences? It makes sense to say that since Quine, the field of philosophical psychology has been restored and that the expedient of this restoration was a critique of the philosophy inherited from Frege. Moreover, this partiality of contemporary philosophy for consciousness and mental phenomena brings it nearer to phenomenology as practiced by the Brentano School and by the early phenomenologists than to Frege's philosophy. I will return to this.

Second, what about phenomenology itself, and above all, what about the phenomenology of *Logical Investigations*? Of course, one is justified in emphasizing the likeness between the two philosophers on issues as important as the theory of meaning and the arguments against psychologism, but the philosophical significance of the *Logical Investigations* goes far beyond that, and a one-sided Fregean reading of phenomenology is likely to obliterate other ideas which are present in this work and which we hold to be responsible for the orientation phenomenology will take soon after its publication. This interpretation of phenomenology is mistaken; however, a reflection on phenomenology that accounts for current philosophical debates, will inevitably encounter this question. Are phenomenologists better equipped than Frege and his followers to explain the nature of consciousness and phenomenal experience?⁷

2.

The first obstacle on which our investigation stumbles, which is also the reason why the above described perspective has largely been brushed aside by commentators, concerns the very sense of phenomenology, be it in *Logical Investigations* where it is conceived as descriptive psychology or in *Ideen I*, where it nurses transcendental philosophy. For now, I will focus on *Logical Investigations*. In other words, the first problem concerns the tension which exists in this work between *Prolegomena's* arguments against psychologism and the psychological theme which occupies as important a place in the subsequent investigations, namely in the Fifth *Logical Investigation* where the central topic is the intentionality of acts. Moreover, phenomenology, which investigates the origins of fundamental logical concepts and laws,⁸ depicts itself as descriptive psychology.⁹ An ill-disposed Fregean might read this as evidence that Husserl did not benefit from Frege's review, which condemns *Philosophy of Arithmetic's* confusion between 'Gedanken' and 'Vorstellungen,' that is, between the psychological act and its logical content or meaning. This confusion would also be at the source of Husserl's psychologizing the concept of numbers in his first book. According to Frege, this would obliterate the distinction between the objective and ideal features of numbers and their subjective representation, the latter being in nature private and falling under the "psychological laws of association."¹⁰

But one of the principles which has continually guided Frege's philosophy, namely the first principle in *Foundations of Arithmetic*, is that one must clearly distinguish what is psychological from what is logical, the subjective from the objective. There is much to say about the sense ascribed to psychology and subjective representations in this principle, but we may assume that it refers to introspective psychology. At any rate, Frege's apprehension towards psychology raises two important questions. First, do the studies of the second volume of *Logical Investigations* on psychological themes represent a relapse into the form of psychologism condemned in *Prolegomena*? Second, does Husserl's

conception of phenomenology as descriptive psychology differ from the type of psychology Frege is seeking to expel from the field of logic? I will briefly respond to the first question, since I treat it in detail elsewhere, before I concentrate on the second.

The phenomenological theme of *Logical Investigations* reveals an important difference with Frege. This difference concerns the philosophical relevance of the psychological field of investigation. As the principle of *Grundlagen* above mentioned clearly indicates, not only does Frege defend an antipsychologistic position with respect to all questions relative to the foundations of logic and mathematics, but he also believes that philosophy should expect nothing from psychology. The confusion between these two theses in the post-Fregean tradition is the source of a gap between philosophy and psychology. In contrast, while remaining faithful to a form of antipsychologism or another, phenomenology has always maintained ties with psychology, up until *Krisis* where (transcendental) phenomenology is clearly identified with phenomenological psychology, a novel version of descriptive psychology. Under these conditions, what can we say about the relation between logic and psychology in *Logical Investigations*? It seems to me that our answer must take into account the bilateral struggle Husserl is leading with his critique of logical psychologism and the double-sided motive which underlies *Logical Investigations*: on the one hand, the psychological motive which concerns the subjective dimension of the act of thinking and which is the object of the last two *Logical Investigations*; and, on the other hand, the logical motive, which concerns the objective and ideal nature of meaning and the reference to objects.¹¹ The logical motive criticizes the conception of logic as a prático-normative discipline and leads to the idea of a pure logic as sketched in the last chapter of *Prolegomena*. The psychological motive criticizes the foundational claims of physiological and experimental psychology; Husserl ascribes this foundational role to his own phenomenology. These two motives constitute the framework of *Logical Investigations* and account for the fact that Husserl's concern is not merely limited to sustaining the "objec-

tivity of the content and object of knowledge" as it is the case in Frege, but also and above all to accounting for its relation with "the subjectivity of the act of knowledge."¹² This is the first important difference between Husserl and Frege.

But here arises the second question, namely whether Husserl's conception of phenomenology as descriptive psychology eludes Frege's critique and differs from the psychology the latter is seeking to drive out of the field of logic and philosophy in general. As it is the case in Brentano from whom Husserl borrows the expression "descriptive psychology" and which refers, in *Psychology from an Empirical Standpoint*, to the "science of mental phenomena," it departs from explicative or inductive psychology inasmuch as the latter espouses the method of natural sciences. This divergence is essential to understanding the sense Husserl ascribes to his phenomenology as well as the actual target of his antipsychologism. As one of the passages of his review of Palágyi's book, *The Conflict of the Psychologists and Formalists in Modern Logic*,¹³ shows, the struggle against psychologism in *Prolegomena* is hardly a "struggle against the psychological foundation of logical methodology or against the elucidation, by descriptive psychology, of the origin of logical concepts, but merely a struggle against an epistemological point of view." It is clear that psychology is concerned only insofar as it serves a radical form of philosophical naturalism, a position which seems to be ascribable to Wilhelm Wundt as well as to John Stuart Mill. But what about descriptive psychology and its relation to phenomenology? Our hypothesis is the following: Husserl's interest in descriptive psychology applies less to psychology as such than to its status as a descriptive science. This is confirmed by Husserl in many texts, e.g. in his 1903 reviews of Palágyi's and Elsenhans's books, in the draft to a preface to the second edition of *Logical Investigations*, and in particular, in the second edition of the introduction to *Logical Investigations* where he reminds us that phenomenology is not descriptive psychology in the 'old' sense of the term.¹⁴ By 'old' we understand the 1874 Brentanian version, which refers to a method grounded in

introspection which Husserl criticizes in length in an appendix to the Sixth Logical Investigation. This critique is precisely about the sense Brentano ascribes to the notion of description.¹⁵

In a few words, Husserl challenges Brentano's criterion for the distinction between mental and physical phenomena, i.e. the notion of evidence; the problem is that Brentano did not make the distinction, otherwise inevitable for a phenomenologist, between adequate and apodictic evidence. So the phenomenological purpose of evidence is not to be understood in terms of (clear and distinct) perception, but in terms of description. Under a description and, more precisely, under a descriptive criterion for the distinction between two types of phenomena, one must understand a negative criterion which implies "no supposition whatsoever from an epistemological standpoint," no "presuppositions with respects to metaphysical reality." The adjective "descriptive" is thus opposed to what is "oriented by the supposed data of the transcendent world" and the purely descriptive characterization of a phenomenon means oriented towards the true "*Gegebenheiten*" of phenomena.¹⁶ Hence, Husserl's main objection to Brentano is that the latter grounded his psychology on empirical descriptions which concern "the real states of animated beings and natural reality." It is otherwise with phenomenological descriptions:

Phenomenology, however, does not discuss states of animal organisms (not even as belonging to a possible nature as such), but perceptions, judgments, feelings *as such*, and what pertains to them *a priori* with unlimited generality, as *pure* instances of *pure* species, of what may be seen through a purely intuitive apprehension of essence, whether generic or specific.¹⁷

In the first instance, phenomenological descriptions do not concern the physical properties of worldly objects but the manner in which we experience them, what Husserl here calls experience in the strict sense, the experience as such or its meaning. In other words, phenomenology analyses the modes of givenness of things

and not the things that are given. This is analogous to Frege's analysis of *Sinn* in terms of *Gegebenheitsweise*, i.e. modes of givenness.

It is thus obvious that the double motive mentioned above corresponds to the notorious distinction presented in the last chapter of *Prolegomena* between ontological and nomological sciences. Pure logic, which Husserl conceives as Leibniz did – as a *mathesis universalis* – is just like geometry: a nomological science whose unity is ensured by its fundamental laws. The latter Husserl interprets, shortly after *Logical Investigations*, in Hilbert's sense, in terms of axiomatic system.¹⁸ On the other hand, regional sciences such as anatomy, natural history, or psychology, which are material sciences, owe their unity and their content not to laws but to their object or respective domain of objects. It is precisely the latter that Husserl characterizes as descriptive "since the unity of description is fixed by the empirical unity of the object or the class, and it is this descriptive unity which, in the sciences here involved, determines the science's unity."¹⁹ Now, as we have just seen, phenomenology is itself a descriptive science. Among the descriptive sciences we must distinguish between those (like Brentano's descriptive psychology) concerned with the objects belonging to the class of real events such as mental phenomena, and those (like phenomenology) which are philosophically neutral, that is, that bracket the presuppositions of the former regarding metaphysical reality. Although the field of study of phenomenology overlaps that of descriptive psychology, it is only interested in the modes of givenness. These may in return be understood in terms of essences, as is the case in *Logical Investigations*, or in terms of meaning or noematic sense, as in Husserl's later works. It is thus in this sense that phenomenology is not a descriptive psychology in the old sense of the term.

3.

But why should we give so much importance to psychologism in a work that understands itself as prolegomena to pure logic? In

other words, why should we not be content with the logical motive and the highlighting of a pure logic which, as we know, is a nomological science and, as such, autonomous or independent of any regional science such as psychology? Should we see it as self-criticism as Husserl suggests in the preface to *Logical Investigation's* first edition, in the last chapter of *Prolegomena*, and in many other texts? Is it a matter of better delineating the empiricist conception of logic, which prevailed at the time, and using it against the Kantians in the disputes that oppose Husserl to them? In fact, Husserl grants to psychologists that practico-normative logic requires technical prescription which is especially "adapted to human nature."²⁰ For instance, when dealing with methodological tools (abacus, telescope, etc.) it is necessary to take "mental processes" into account. But this is no exception since all logical concepts such as truth, judgment, inference, etc. have a "psychological origin" and thus refer to mental experiences.²¹ However, this psychological aspect of all concepts pertaining to the technology of logic does not exhaust their theoretical content. This is the implication of Husserl's critique of psychologism. Indeed, every logical concept, as for instance the concept of judgment, is essentially 'equivocal.' On the one hand, the latter denotes the act of judging, a conscious experience which Husserl understands in terms of "*Fürwahrhaltungen*," and which belongs to a class of concepts whose study pertains to psychology.²² On the other hand, 'judgment' refers to objective propositions, '*Sätze*,' ideal forms that belong to pure logic. This act/content distinction bears on both the question of the theoretical foundations of logic and the conditions of the possibility of a theory in general, with respect to which we may adopt one of two opposed standpoints. Either we adopt an objective or logical standpoint whereby these conditions are grounded in the 'content' of the theory as such, that is, in the laws, principles, axioms, etc., or we accept the noetic standpoint whereby these conditions are grounded in the knowing subject. The significance Husserl ascribes to the noetic standpoint clearly manifests itself in his critique of sceptical relativism and in his remarks on the theory of knowledge in the last chapter of *Prolegomena*. In it, Husserl

defends the thesis according to which the rational justification of a theory and thus the theoretical foundation of logic, rests on the evidence of the knowing subject (or apodictic and evident knowledge). One thus understands why this theory of knowledge plays such an important role in *Prolegomena*.

Hence it is important to situate this theory of knowledge in its relation to the *mathesis*. Husserl approaches this question through the idea of a division of labour with respect to the realization of the tasks of pure logic: the construction and edification of the *mathesis universalis* is taken over by the mathematician whom Husserl compares to a resourceful mechanic and technician. The *mathesis* is distinct from philosophical logic, which is to elucidate primitive logical concepts, their elementary forms of connections, and the laws that govern them (this task is accomplished in *Investigations* I, III, and IV). In contrast to Frege, Husserl understands the task of philosophy in *Prolegomena* not in terms of logical or linguistic analysis, but in terms of phenomenological analysis. However, this conceptual or eidetic analysis, inasmuch as it seeks "to achieve insight in regard to the sense and essence of his achievements as regards method and manner," belongs to the theory of knowledge.²³ In fact, the theory of knowledge serves as a "philosophical complement" to pure *mathesis* and Husserl assigns it a crucial role in *Prolegomena*. Its task is "to grasp perspicuously, from an objectively ideal standpoint, in what the possibility of perspicuous knowledge of the real consists, the possibility of science and of knowledge in general."²⁴ Since *Prolegomena* is rather expeditious as to the meaning of this theory of knowledge, I suggest a new distinction within this theory of knowledge. On the one hand is phenomenological analysis, which describes primitive logical concepts. On the other is the philosophical ideal of justification inherited from Descartes. This distinction is important for the purpose of showing the relative independence of phenomenology from the ideal of complete evidence and truth in itself, an ideal which Husserl will give up at the end of the 1920s. Apparently, the two merge in the very idea of justification and the following passage from *Prolegomena*

would seem to summarize Husserl's position: "Ultimately, therefore, all genuine, and, in particular, all scientific knowledge, rests on inner evidence: as far as such evidence extends, the concept of evidence extends also."²⁵ However, if evidence is understood in a properly phenomenological sense, that is, as consciousness of an original givenness *Gegebenheit* or as *Selbstgegebenheit*, we may say that phenomenology is subordinate to this philosophical ideal, but that it is nevertheless perfectly independent of it.²⁶

Husserl ascribes to the phenomenology of *Logical Investigations* a double task. It must analyse and describe, in essential generality, conscious experiences "treated as real classes of real events in the natural context of zoological reality, receive a scientific probing at the hands of empirical psychology."²⁷ The second task concerns the analysis and description of fundamental concepts and ideal logical laws. Our interest is focused on the latter task. The phenomenologist's first concern is to elucidate scientifically the primitive concepts that make "the interconnected web of knowledge as seen objectively, and particularly the web of theory."²⁸ More precisely, he has to elucidate the elementary patterns (conjunctive, disjunctive, or hypothetical) according to which propositions may be connected to form new propositions as well as the concepts of object, state of affairs, number, relation, and the meaning categories, etc. This explanatory *Aufklärung* undertaking, which is essential to the theory of knowledge, does not proceed from explications *Erklärung* as is the case in the empirical sciences. Husserl, the student of Brentano, espouses the idea that the explication of a phenomenon in psychology, as well as the use of a concept in logic, depends directly on the description which is made of it. This description that proposes to account for the intelligibility of logical or psychological concepts is nothing else than *Aufklärung*:

This 'clearing up' *Aufklärung* takes place in the framework of knowledge, a phenomenology oriented, as we saw, to the essential structures of pure experiences and to the structures of sense *Sinnbestände* that belong to these.²⁹

This 'clearing up' thus consists of investigating the origins of these concepts. But we now know that this investigation of the origins should not be understood as, for instance, the psychological genesis of the conceptual representations, but rather as the investigation of the *Einsicht in das Wesen* of these concepts. These preliminary tasks are taken up in the six *Logical Investigations* and represent indeed the main difficulties of the work.

4.

We now see that a Fregean reading of the phenomenology of *Logical Investigations* is justified as long as we confine ourselves to meaning and to what we called the logical motive, i.e. to the analysis of the constituents of the act in which ideal meaning and reference to an object consist. But what about the psychological motive – by which we should now understand to be the phenomenological motive – and the subjective dimension of the act to which the analysis of fundamental logical concepts takes us and which, as mentioned above, makes up the greatest part of the work? Frege rejected the division labour between mathematics and philosophy and maintained towards phenomenology the attitude he held in his review of Husserl's first book. One reason for this rejection is mentioned in Frege's often-quoted passage that speaks of a gap dividing mathematicians from psychologist logicians and of the latter's marked interest in the sense of acts and of representation in general.³⁰ This reason concerns the very meaning of the analysis of logical concept in terms of definition. Frege's remark echoes the critique Husserl makes of him in *Philosophie der Arithmetik* regarding the analysis of number. This apparently technical and isolated disagreement on the analysis of primitive logical concepts gains in philosophical significance when one considers that what is ultimately at stake in this dispute is no less than phenomenology's claim to situate the origins of these concepts in experience. In other words, what is at stake is the philosophical relevance of the psychological motive which

first appears in *Philosophy of Arithmetic* and continues throughout Husserl's subsequent works. The present section will identify the object of the dispute. The two subsequent sections will reconstruct the essence of Frege's position on this question at different places in his work.

First, let us recall that the chief aim of *Philosophy of Arithmetic* was to ground arithmetic in the concept of cardinal number and that the analysis of the concept, as Husserl already had mentioned in his 1887 dissertation, intrinsically belongs to psychology.³¹ At the very beginning of the chapter on the formation of the concept of quantity, Husserl opposes psychological analyses to analysis in terms of logical definitions and clearly points out that:

wir es nicht auf eine *Definition* des Begriffes Vielheit, sondern auf eine psychologische Charakteristik der Phänomene abgesehen haben, auf welchen die Abstraktion dieses Begriffes beruht.³²

It is this very opposition between logical analysis and psychological analysis which leads him, in one of the appendices to chapter six, to assess Frege's position in *Foundations of Arithmetic*. According to Husserl, the logical foundations Frege is seeking for arithmetic in this work amounts to conceiving it as "eine Folge formaler Definitionen, aus welchen die sämtlichen Lehrsätze dieser Wissenschaft rein syllogistisch gefolgert werden können."³³ Whence the passage in *Foundations of Arithmetic* that Husserl quotes and where Frege claims that mathematics "jede Beihilfe von der Psychologie verbitten muss" and turns itself toward logic.

The comments that directly follow this passage are particularly interesting. They concern Husserl's objection to Frege's conception of logical analysis as definition. "Definieren kann man doch nur das logisch Zusammengesetzte. Sobald wir auf die letzten, elementaren Begriffe stoßen, hat alles Definieren ein Ende."³⁴ In dealing with elementary concepts, examples of which are all the concepts enumerated in the previous section as well as

those of 'equality,' 'whole,' 'parts,' 'quality,' 'place,' 'time,' etc., it is recognized that these are not logically and formally definable concepts. When faced with simple and primitive concepts, it is often helpful to resort to language and use 'periphrasis': our objective each time is to provide a description of the concept which makes the understanding of its meaning possible. In such cases, one can also, according to Husserl "die konkreten Phänomene aufwei[sen], aus oder an denen sie abstrahiert sind, und die Art dieses Abstraktionsvorganges klarleg[en]."³⁵ Whether this process be understood from psychology, as is the case in this work, or in the sense of a doctrine of essence, as the passages of *Logical Investigations* quoted above imply, analysis is in both cases directed towards the phenomena from which these concepts are abstracted.

This is precisely what Frege, who replies directly to Husserl's objection that primitive mathematical terms are undefinable, disputes in his review. This reply appears to be unsatisfactory since it is content with bypassing the objection and with insisting instead on the disparity which opposes the psychologist's interests, who is concerned with the meaning of concepts which he moreover confuses with representations, and those of the logician who is concerned with the extension of concepts.³⁶ Nevertheless, in many texts which will be examined in the following section, Frege acknowledges the validity of this objection and grants it the highest significance, as is evident in his December 1899 letter to Hilbert. This letter is particularly interesting since Husserl comments on it in an appendix to his text *Das Imaginär in der Mathematik*.³⁷ Husserl starts with Frege's division of mathematical propositions into definitions and other propositions. In particular, he insists on the distinction made between definitions and what Frege calls *Erläuterungen*, that is, propositions or commentaries aiming at explaining or elucidating the meaning of the elementary concepts by means of which we define *definiens*. Husserl then quotes a long passage of this correspondence in which Frege explains in which context such definitions are required and how to use them. Frege writes about these *Erläuterungen*:

Auch sie enthalten also etwas, dessen Bedeutung wenigsten nicht als vollständig und unzweifelhaft bekannt vorausgesetzt werden kann, weil es etwas in der Sprache des Lebens schwankend oder vieldeutig gebraucht wird. Wenn in einem solchen Falle die beizulegende Bedeutung logisch einfach ist, so kann man keine eigentliche Definition geben, sondern muss sich darauf beschränken, die im Sprachgebrauch vorkommenden, aber nicht gewollten Bedeutungen abzuwehren und auf die gewollte hinzuweisen, wobei man freilich immer auf ein entgegenkommendes erratendes Verständnis rechnen muss. Solche Erläuterungssätze können bei den Beweisen nicht gleich den Definitionen gebraucht werden, weil ihnen die dazu nötige Genauigkeit fehlt, weshalb ich sie, wie gesagt, in den Vorhof verweisen möchte.³⁸

Frege adds that these clarifications or explanatory propositions do not, properly speaking, belong to mathematics and this is why he consigns them "in the vestibule of mathematics" and relegates them to the role of "propedeutic." Husserl then reproduces some excerpts from this correspondence without, however, commenting on them. Nevertheless, Husserl's selection of passages and his introduction of the theory of definite manifolds (which he introduces in *Das Imaginär in der Mathematik* to which the commentary on the correspondence is annexed) testify to his inclination for Hilbert's axiomatic.

5.

Apparently, both the chief goal Frege ascribed to philosophy, that is, the investigation of the laws of truth, and the method he developed to achieve this goal – logical analysis – significantly increases the distance from phenomenology, even that of *Logical Investigations*. As previously suggested, any investigation directed towards the subjective dimension of acts and experiences would in all probability appear suspicious. Frege would readily recognize that *Logical Investigations* cannot be charged with the psychologism that he attributed to *Philosophy of Arithmetic*, namely, the confusion of the number with its subjective representation.

His distrust of phenomenology was motivated by the universal status he ascribed to logic and by the restrictions imposed on him by logical analysis. This is at least what emerges from his remarks on negation in his 1919 article "*Die Verneinung*."³⁹ As we know, negation features in two of the fundamental principles of Fregean logic, namely in that of the excluded middle and in the principle of non-contradiction. Negation and implication are the primitives of Frege's propositional calculus, from which all other operators may be derived – although this special status is not logically justified. It is unimportant from a strictly logical point of view, that such and such connector be the *definiens* and the other the *definiendum*. The philosophical question which is of interest to Frege in "*Die Verneinung*" relates to the problem of finding an interpretation of this concept which would concur with his conception of the thought and of the proposition through which it is expressed.⁴⁰ Hence, let us consider negation and other primitive logical concepts of Frege's logic.

Beginning with the proposition, one must mention one of the chief contributions of the *Begriffsschrift*, namely, the substitution of the traditional conception of proposition (subject/copula/predicate) by an analysis in terms of function and argument. Thus understood, the elements of a proposition are not, contrary to what was assumed traditionally, the result of the synthesis operated on two substantives (for which the subject and the predicate would stand) but of a process of completion *Ergänzen* between a saturating part of the proposition (the object) and its unsaturated part (the function). This process of completion (of an element) would account for all cases of composition of parts into a whole: "And it is natural to suppose that, for logic in general, combination into a whole always comes about by the saturation of something unsaturated."⁴¹ One may illustrate this need of completion by the expression "the negation of" or by the German genitive: "*Die Verneinung des Satzes des Gedanken A.*" In the propositions "a is not equal to b" and "a is equal to b," for instance, one will simply say that the thought that "a is not equal to b" is the negation of "a is equal to b."

At any rate, this does not imply that there are two types of judgments, one negative the other affirmative, as is the case in Aristotle's logic for instance. We should not understand Frege's idea that "what I have just been designating as the polar opposite of judging I will now regard as a second way of judging" in the sense of there being a second type of *judgment*, but in the sense in which any assertive proposition, be it subject to negation or not, is an *affirmation*.⁴² Hence, in order to reply negatively to a question one will say "It is false that," assuming that these words have both assertive force and an affirmative character.⁴³ In Peter Geach's words, to negate is to assert or affirm the negation of a proposition.

This distinction is clearly illustrated in the notation of the *Begriffsschrift* where the symbol of negation always follows that of assertion ($| -$). The notation for the negation of $| - P$ is thus: $| + P$ where the vertical stroke in the centre indicates that the negation pertains to the content of the assertion (the horizontal stroke '-') and that it does not modify the assertive force which is indicated by the first vertical stroke '|'.⁴⁴ The letter P stands for a proposition which is understood as the expression of a *Gedanke* or thought, properly speaking, what can be said to be either true or false. One needs to distinguish propositions, thus understood, from judgments as well as from the act of thinking. Judgments are what allow us to go from the meaning or thought to the *Bedeutung* (reference), in this case, to the truth value of a proposition. It is a mere 'judgment of recognition' since it consists precisely in recognizing such or such proposition as true or false.⁴⁵ In the *Begriffsschrift*, the judgment is designated through the symbol '|-' and the occurrence of this symbol indicates that the sign which follows it is used in an assertive manner or with *Behauptungskraft*.⁴⁶ On the other hand, the act of thinking corresponds to what Frege calls "to grasp a thought" *Fassen eines Gedanken* and to think, according to him, means nothing else than to grasp a thought.⁴⁷ But there is a difference between grasping and representing a thought. Frege concedes that something in consciousness must be directed towards *hinzielen* this thought,

but this something pertains to subjective representation and must be distinguished from the thought as such which does not require any bearer. Frege compares grasping of thought to holding an object in one's hand:

What I hold in my hand can certainly be regarded as the content of my hand; but all the same it is the content of my hand in quite another and a more extraneous way than are the bones and muscles of which the hand consists or again the tensions these undergo.⁴⁸

Of course, one must concede that the way in which the content of the hand is articulated is different from the way in which the hand itself is articulated. Must we not, however, presuppose that thought (in the subjective sense) is constituted in a certain manner in order to be able to grasp (objective) thoughts? Must we not, using an Aristotelian metaphor most opportune in a context which builds on the manipulation of *pragmata*, conceive thought or *noema* not as the object which is grasped, even less as that through which we grasp, but as a structure which, like the joints of the hand, is necessary to its being grasped? One seeks, in vain, in Frege's work, an answer to this question. The meaning of the idea of grasping a thought, which is an essential feature of his theory of judgment and which points to Husserl's doctrine of acts, is left undetermined. I would like to suggest that we are not dealing here with mere negligence on Frege's part, nor with a prejudice against psychology, but with one of the consequences of the application of one of the leading principles of his philosophy.

6.

Why exactly Frege's theory lacks an analysis of the notion of grasping a thought – as it also lacks an analysis of the notion of negation which, as a simple element of the system, is indefinable – may be understood in the light of his account of a particular mistake of the philosophical tradition. It concerns, Frege

explains in "The Negation," the need we have to define the concepts we use:

It is certainly praiseworthy to try to make clear to oneself as far as possible the sense one associates with a word. But here we must not forget that not everything can be defined. If we insist at any price on defining what is essentially undefinable, we really fasten upon inessential accessories, and thus start the inquiry on a wrong track at the very outset.⁴⁹

This is the case of the notion of judgment to which Frege alludes in this passage, but it holds *a fortiori* for all fundamental philosophical concepts in his theory, namely: the truth of objects,⁵⁰ concepts,⁵¹ and functions.⁵² In each case we are dealing with logically simple elements and consequently with concepts which cannot be logically defined or analysed. The mistake to which Frege alludes in this passage clearly arises when we attempt to define the term 'concept,' which is of a predicative nature or in logical terms a monadic function. To define it, we must transform it into the object of a new predication. But this transformation violates *Grundlagen's* third principle, which states that concepts and objects must be separated. Whence paradoxes such as "the concept horse is not a concept" or "the function $f(x)$ is not a function," paradoxes which may be ascribed to the objectifying nature of language. For, Frege explains, we use a nominal turn of phrase and we intend a concept. This is why we cannot talk about the sense of a non-saturated expression without turning it into a proper name and, in the case of concept, without obliterating the predicative nature of this expression.⁵³ Faced with this apparent limitation of logical analysis and with the absence of definition for simple logical elements, Wittgenstein employed the well-known distinction between saying and showing, a distinction which analytical philosophy's orthodoxy has termed mystifying.⁵⁴ But we could show, as Wittgenstein did in his *Tractatus*, that this distinction significantly affects the distinction between *Sinn* and *Bedeutung*. If the logically simple elements

cannot be defined, it is because a definition sets out what the *reference* of expression should be, but not its *sense*. However, in saying what the reference should be and in choosing a particular way of doing it, it shows what the sense should be.⁵⁵

But must we not assume, as Wittgenstein also suggests in the passage in *Tractatus* we have drawn out, a minimal and perhaps implicit knowledge of the meaning of, for instance, the notions of negation, concept, object, or function, knowledge which only definitions seem to be able to provide? Frege agrees and asserts that in the absence of a definition of these simple elements, we must replace them, temporarily of course, by an explanatory commentary *Erläuterung*.⁵⁶ This *Erläuterung*, as we recall, does not, properly speaking, pertain to logic, and its purpose is to show by means of examples taken from ordinary language what cannot be said from within the system, that is, the meaning of terms which must be known even before we use them. For logic, according to Frege, is *lingua characteristic*a and not *calculus ratiocinator* as Boole and Schröder believed, and as such, it must be learned. Explanatory commentaries, which are not necessary for the 'isolated scholar' thus fulfill a practical aim which consists in granting to the scientific community cognitive access to these meanings. It uses the figurative character of expression, as we have done when elucidating the idea of grasping a thought using the metaphor of the hand. But resorting to metaphors becomes problematic when we know Frege's distrust of ordinary language. I will not insist on this point although I believe that it is an important one in the actual context. One needs merely mention that explanatory commentary stops at the very moment when we grasp the meaning of these notions and that we must be satisfied with it.

The question is, of course, why should we bind the analysis of these concepts to the metaphors and periphrases of an explanatory commentary? Why not entrust the task to phenomenological investigations, for instance? A straightforward answer to this question is to be found in one of the dogmas of classical analytical philosophy and more precisely in logical positivism. It

consists in subordinating all philosophical questions to logic. Although this postulate is rarely made explicit by Frege, it imposes major constraint on all of his philosophical moves, both at the ontological and at the methodological level. At the ontological level, Frege's universe is essentially composed of concepts and functions and this universe is not arbitrary since it entirely exhausts our ontology. At the methodological level, the universal character of logic implies, as van Heijenoort has shown, that nothing can be said from outside the system.⁵⁷ This might explain why Frege does not ask metalogical questions (consistence, completeness, independence of axioms, etc.) and that he would reject any solution to this problem which would go in the sense of "semantic ascension" (substitution of the language about objects by a language about expressions, or of the material language by a formal metalanguage). For whatever the language used and whatever the level of the hierarchy, it necessarily presupposes the distinction between concepts and objects (saturated/non saturated) which, as we have said above, is the touchstone of the system.

FINAL REMARKS

Frege's standpoint would reject the phenomenological call to return to the things themselves in terms of evidence. Was it not precisely the sense of Frege's criticism of Husserl and the psychologists in his 1894 review where he claims that the difference between logic and psychology supervenes on the difference between, on the one hand, the logician's marked interest for *Bedeutung*, i.e. truth, and on the other hand, the psychologist's poet-like interest for the *Sinn* or meaning? If this is truly the case, antipsychologism is a necessary but not a sufficient condition to escape Frege's critique. Yet, is this critique really legitimate? Does not denying to psychology the status of first philosophy and entrusting this role to logic expose one to objections which contemporary philosophy recognizes as largely compelling? Let us

keep in mind that those are precisely the presuppositions which Quine has condemned in order to rehabilitate the philosophical status of the field of study Husserl seeks to open with his phenomenology in *Logical Investigations*. Quine has indeed shown that Frege's, Wittgenstein's, and the Logical Positivists' idea that logical analysis consists in an *a priori* exercise entirely separated from sensible experience presupposes the analytic/synthetic distinction. Yet, as Quine has shown in "Two Dogmas of Empiricism," the latter is not well-founded.⁵⁸ In particular, Quine disputes the dichotomy between statements that pertain to logic (analytic) and those that pertain to empirical sciences (synthetic), and proposes a form of semantic holism according to which the difference between these two types of statements is one of degree. One is aware of the influence this critique has exerted on contemporary philosophy and, as we have already noticed, it has largely contributed to rehabilitate the philosophy of mind. But, in Quine, this rehabilitation goes hand in hand with a return in strength of philosophical naturalism, which has a family resemblance to the psychologism Husserl and Frege criticized. Quine believes that epistemological questions as well as all those questions that traditionally pertain to philosophy can be replaced by questions that pertain to psychology and, in particular, to stimuli/response behaviourist psychology. But this radical naturalism also has its share of problems, namely with the *qualia* or what is also called phenomenal experience. The descriptive framework which it borrows either from neurology, biology, or from behaviourist psychology does not, according to many, have at its disposal the necessary resources for the description and explanation of this fundamental dimension of human experience. In this respect, phenomenology, whose philosophical focus is based precisely on this dimension, might be of great assistance. And for this purpose, phenomenology has developed a conceptual framework whose purpose might be compared to Frege's use of *Erläuterungen* in the elucidation of primitive (logical) notions.⁵⁹

Notes

- 1 Edmund Husserl, *Aufsätze und Vorträge*, Husserliana Band XXV (den Haag: Martinus Nijhoff, 1970), 298.
- 2 Husserl, *Aufsätze und Vorträge*, 298.
- 3 See D. Fiset, *Lecture frégéenne de la phénoménologie* (Paris: Éclat, 1994).
- 4 At any rate, it is to Frege that Husserl refers at §15 of the first *Logical Investigation*, when he introduces the distinction.
- 5 Useful information on what is at stake in these debates can be found in Martin Kusch, *Psychologism* (London: Routledge, 1995). I have examined the difference between normative antipsychologism and antipsychologism that resorts to the ideality of logical laws. See D. Fiset, « L'antipsychologisme de la phénoménologie et la psychologie », in *Frege: logique et philosophie*, ed. M. Marion (Paris: l'Harmattan, 1998).
- 6 Michael Dummett, *Origins of Analytical Philosophy* (Cambridge: Harvard University Press, 1993).
- 7 Pierre Poirier and Denis Fiset, eds., *Problèmes de conscience* (Paris: l'Harmattan, 2001).
- 8 Husserl, *Logische Untersuchungen: Untersuchungen zur Phänomenologie und Theorie der Erkenntnis*, Husserliana Band XIX/1, tr. J.N. Findlay, *Logical Investigations*, 2 vols. (London: Routledge and Kegan Paul, 1970), 7.
- 9 On the problem of the relation between intentional psychology and phenomenology in Husserl as well as on Husserl's conception of the task of the former, see his 1925 lectures, *Phänomenologische Psychologie: Vorlesungen Sommersemester*, Husserliana, Band IX (1962).
- 10 Gottlob Frege, *Collected Papers* (London: Blackwell, 1984), 198.
- 11 Husserl, "Entwurf einer 'Vorrede' zu den 'Logischen Untersuchungen,'" *Tijdschrift voor Filosofie* 1 (1939): 112–13.
- 12 Husserl, *Logische Untersuchungen: Prolegomena zur reinen Logik*, Husserliana Band XVIII, 7 (tr. Findlay, 12).
- 13 Husserl, "Review of Melchior Palágyi's "Der Streit der Psychologen und Formalisten in der modernen Logik," *Zeitschrift für Psychologie und Physiologie der Sinnesorgane*, (1903), 31: 287–294. English translation: "Early Writings in the Philosophy of Logic and Mathematics," in *Edmund Husserl Collected Works*, tr. and ed. Dallas Willard (Boston: Kluwer, 1994), 5: 197–206.
- 14 Husserl, *Logische Untersuchungen: Untersuchungen zur Phänomenologie und Theorie der Erkenntnis*, 23 (tr. Findlay, 28).

- 15 In *Prolegomena*, the use of "descriptive science" refers clearly to what von Kries called ontological sciences (geography, natural sciences, anatomy) and are opposed to properly nomological sciences which Husserl characterizes as explicative sciences. *Prolegomena zur reinen Logik*, 237 (tr. Findlay, 240).
- 16 Husserl, *Logische Untersuchungen: Elemente einer phänomenologischen Aufklärung der Erkenntnis*, Husserliana, Band XIX, 756 (tr. Findlay, 760).
- 17 Husserl, *Logische Untersuchungen: Untersuchungen zur Phänomenologie und Theorie der Erkenntnis*, 23 (tr. Findlay, 28).
- 18 See Husserl's 1901 lecture "Das Imaginär in der Mathematik." Husserliana XII.
- 19 Husserl, *Logische Untersuchungen: Prolegomena zur reinen Logik*, 23 (tr. Findlay, 28).
- 20 Husserl, *Logische Untersuchungen: Prolegomena zur reinen Logik*, 162 (tr. Findlay, 169).
- 21 Husserl, *Logische Untersuchungen: Prolegomena zur reinen Logik*, 176 (tr. Findlay, 181).
- 22 Husserl, *Logische Untersuchungen: Prolegomena zur reinen Logik*, 178 (tr. Findlay, 182).
- 23 Husserl, *Logische Untersuchungen: Prolegomena zur reinen Logik*, 255 (tr. Findlay, 245).
- 24 Husserl, *Logische Untersuchungen: Prolegomena zur reinen Logik*, 209 (tr. Findlay, 207).
- 25 Husserl, *Logische Untersuchungen: Prolegomena zur reinen Logik*, 25 (tr. Findlay, 61).
- 26 Husserl, *Logische Untersuchungen: Prolegomena zur reinen Logik*, 193 (tr. Findlay, 198).
- 27 Husserl, *Logische Untersuchungen: Untersuchungen zur Phänomenologie und Theorie der Erkenntnis*, 7 (tr. Findlay, 249).
- 28 Husserl, *Logische Untersuchungen: Prolegomena zur reinen Logik*, 244 (tr. Findlay, 236).
- 29 Husserl, *Logische Untersuchungen: Untersuchungen zur Phänomenologie und Theorie der Erkenntnis*, 27 (tr. Findlay, 265).
- 30 Frege, *Collected Papers*, 200.
- 31 Husserl, *Philosophie der Arithmetik*, Husserliana Band XII, 1970, traduction française, J. English, *Philosophie de l'arithmétique* (Paris: PUF, 1972).
- 32 Husserl, *Philosophie der Arithmetik*, 20 (English translation, 25).
- 33 Husserl, *Philosophie der Arithmetik*, 118 (English translation, 145).
- 34 Husserl, *Philosophie der Arithmetik*, 119 (English translation, 146).
- 35 Husserl, *Philosophie der Arithmetik*, 119 (English translation, 146).

- 36 Frege replies to this objection in his review, *Collected Papers*, 200. He takes as example two definitions of a cone and asserts that, for a mathematician, the choice of one of these definitions is motivated by "reasons of convenience."
- 37 Husserl, "*Das Imaginär in der Mathematik.*"
- 38 Husserl, "*Das Imaginär in der Mathematik,*" 9.
- 39 This article is the second of a series of three texts titled *Logische Untersuchungen*, the first being "Thoughts" and the third "Compound Thoughts." The significance Frege ascribes to this investigation emerges from a passage of his "Kurze Übersicht über meiner logischen Lehren," *Collected Papers*, 214, where he claims that one of his chief contributions to logic consists precisely in having succeeded in liberating the concept of negation from the traditional conception of judgment, the Kantian in particular, which according to him was reducing it to an activity merely parallel to assertion. There are other reasons for favoring the question of negation in the present context. Apart from the fact that the elucidation of this concept represents one of the tasks assigned to phenomenology by Husserl in *Logical Investigations*, the interpretation of negation is an important topic in the few letters Husserl and Frege exchanged in 1906. In particular, Frege's letter of 1 November 1906, in which he confirms the receipt of Husserl's five reviews which Husserl published in 1904 in *Archiv für systematische Philosophie* No. 10, of works that appeared in Germany in the years 1895–1899. The fifth review (of Anton Marty's "Über subjektlose Sätze und das Verhältnis der Grammatik zur Logik und Psychologie") discusses negation. Frege's letter shows that he indeed agreed with Husserl's critique of Marty.
- 40 In fact, a good deal of this article is an assessment of the implication of the interpretation for the traditional conception of propositions and judgments where negation is understood as an act opposed and parallel to that of judgment. "Even Kant does it." Frege, *Collected Papers*, 380. According to this conception, "the judging subject sets up the connection or order of the parts." *Collected Papers*, 381. Moreover, the negation of a thought would be the "dissolution of the thought into its component parts." *Collected Papers*, 377. One argument against this conception of negation emphasizes the fact that there are no criteria, grammatical or of another nature, which would make possible a clear distinction between a negative and a positive judgment. Hence, in "Concepts and Objects," *Collected Papers*, 187, Frege resorts to negation in order to demonstrate that the terms "all," "none," and "some" which are considered to be grammatical subjects, always appear in

connection with a conceptual term although they relate to the whole proposition (in Frege's sense). But we may also show that a singular term cannot bear negation. That is what the negation of the following proposition shows: 1) "All mammals live on Earth." If the words "All mammals" were the subject of the predicate "live on Earth," in order to negate the whole, we would have to negate the predicate "do not live on Earth." But, it is clear that the negation or the thought opposite to 1) is not: 2) "All mammals do not live on Earth," rather: 3) "No mammals live on Earth." It is thus advisable to put the negation before "all." Whence the thesis according to which "all" belongs logically to the predicate to which the negation applies and never to the grammatical subject. Nevertheless, the occurrence of "do not" in the predicate should not make us forget that negation, which is a component of meaning, relates to the whole proposition.

41 Frege, *Collected Papers*, 390.

42 Frege, *Collected Papers*, 383.

43 As Frege writes in "Logik": "Die Behauptung liegt dabei wie sonst in der Form des Indikativ und ist nicht notwendig mit dem Worte nicht verbunden" *Collected Papers*, 70.

44 As Frege points out in this text, the primary upshot of the rejection of the traditional conception is of an economical nature. By dissociating negation from judgment and turning it into an element of meaning, there remains only affirmation and a term designating negation. This obviates the need for an extra inference principle. If we permitted two types of judgment, affirmative and negative, we would also require two types of inference:

$$\begin{array}{lcl} \neg P \rightarrow \neg Q & \text{and} & S \rightarrow \neg Q \\ \underline{\neg P} & & \underline{S} \\ \neg Q & & \neg Q \end{array}$$

But it is clear that, in both cases, we are dealing with *modus ponens*. On this question, see *Logical Investigations* 380 and 384-5.

45 On this theory of judgment and for useful remarks on the notation of the *Begriffsschrift* see D. Bell, *Frege's Theory of Judgment* (Oxford: Clarendon Press, 1979), 83ff.

46 One must however note that the scope of negation extends beyond the domain of assertive propositions to interrogative propositions, optative propositions, imperative propositions, etc. Hence, the scope of assertive force is much narrower than that of negation since it does not apply to questions, to a nominal phrase "that P" to "¬P" or to any other proposition that is involved in a conditional or a disjunction. The latter can be ex-

plained by the fact that assertive force cannot be ascribed to a false statement, but a conditional or disjunctive statement may be true although one of its members is false. It is otherwise with conjunction, where all members must be true in order for the whole thought to be true. Any statement involving a connector loses its assertive force since its meaning becomes indirect and must be completed. *Collected Papers*, 404.

- 47 Frege, *Collected Papers*, 368.
- 48 Frege, *Collected Papers*, 368.
- 49 Frege, *Collected Papers*, 381.
- 50 In "Funktion und Begriff," *Collected Papers*, 18, Frege claims that once we have conceded that objects are arguments and values of functions, the question arises as to what we should understand by 'object.' He answers: "Eine schulgemässe Definition halte ich für unmöglich, weil wir hier etwas haben, was wegen seiner Einfachheit eine logische Zerlegung nicht zulässt. Es ist nur möglich, auf das hinzudeuten, was gemeint ist. Hier kann nur kurz gesagt werden: Gegenstand ist alles, was nicht Funktion ist, dessen Ausdruck also keine leere Stelle mit sich führt."
- 51 The same remark is to be found in "Über Begriff und Gegenstand" with respect to the definition of 'concept.' "Was einfach ist, kann nicht zerlegt werden, und was logisch einfach ist, kann nicht eigentlich definiert werden," *Collected Papers*, 193.
- 52 In "Was ist eine Funktion?" we find the same comment as well as in many other passages of "*Logik in der Mathematik*" such as the following: "Durch eine Definition ist es nicht möglich anzugeben, was eine Funktion ist, weil es sich hier um etwas Einfaches und Unzerlegbares handelt. Es ist nur möglich, auf das Gemeinte hinzuführen, und es durch Anknüpfung an Bekanntes deutlicher zu machen. An die Stelle einer Definition muß eine Erläuterung treten, die freilich auf ein entgegenkommendes Verständnis rechnen muß." *Collected Papers*, 142.
- 53 And if this were the case, we might want to ask whether explanatory commentary leads anywhere since it brings us back to ordinary language whose inexactness we know. It is interesting to note that, according to Frege, the major problem with ordinary language is its tendency to produce proper names to which no referent corresponds. If these expressions are essential to poetry – let us not forget that Frege understands herewith all the sciences, including sciences of the mind, which show an interest for meaning – they are also at the source of some paradoxes or logical antinomies. Indeed, Frege believes that Russell's antinomy in the set theory is an upshot of the attempt to provide a logical foundation for numbers, that is,

- of conceiving them as sets. Frege, *Nachgelassene Schriften* (Hamburg: Meiner, 1969), 1: 288–289. In saying for instance “the extension of concept *a*” or “the concept of fixed star,” neither expression has an object. The definite article which is the mark of a logical proper name seems to indicate that this expression denotes a concept while it denotes nothing. Frege will thus say that, in this case, we are dealing with a pseudo-proper name.
- 54 Dummett, *The Interpretation of Frege’s Philosophy* (Cambridge: Harvard University Press, 1981). Dummett holds this point of view in the chapter on definitions.
- 55 See Dummett’s article “Frege and Wittgenstein,” in *Perspectives on the Philosophy of Wittgenstein*, ed. E. Block (Cambridge: Harvard University Press, 1981), 33.
- 56 On that question, see Peter Geach’s interesting paper “Saying and Showing in Frege and Wittgenstein,” *Acta Philosophica Fennica* 28 (1976): 54–70.
- 57 Van Heijenoort, “Logic as Language and Logic as Calculus,” *Boston Studies in Philosophy of Science* (1967), 3: 3.
- 58 W.V.O. Quine, “Two Dogmas of Empiricism,” in *From a Logical Point of View* (Cambridge: Harvard University Press, 1953), 20–46.
- 59 On Quine’s critique of the logicist tradition and on the significance of Quine’s naturalism for the expansion of cognitive sciences and the philosophy of mind since the end of the 1950s, I refer the reader to Pierre Poirier and Denis Fiset, *La philosophie de l’esprit : état des lieux* (Paris: Vrin, 2000).