DOWNLOAD PDF ON SENSE AND REFERENCE GOTTLOB FREGE

Chapter 1 : Notes on Sense and Reference â€“ The Royal Holloway Philosophy Society

In the philosophy of language, the distinction between sense and reference was an innovation of the German philosopher and mathematician Gottlob Frege in (in his paper "On Sense and Reference"; German: "Ãœber Sinn und Bedeutung"), reflecting the two ways he believed a singular term may have meaning.

Where proper names are concerned, both Frege and Russell are often described together as "descriptivists. According to Mill, "a proper name is but an unmeaning mark which we connect in our minds with the idea of the object, in order that whenever the mark meets our eyes or occurs to our thoughts, we may think of that individual object" , The function of proper names, Mill thought, is not to convey general information but rather "to enable individuals to be made the subject of discourse;" names are "attached to the objects themselves, and are not dependent on any attribute of the object" , All this is possible if using a name in thinking of or referring to an object is not a matter of representing it as having certain properties but, as Russell said, "merely to indicate what we are speaking about; [the name] is no part of the fact asserted: An obvious problem with this simple view is that if the role of names were simply to refer to their bearers, names without bearers would be meaningless. Yet names without bearers seem perfectly meaningful and sentences in which they occur seem to express propositions. Descriptivism is often referred to as the "Frege-Russell view. He held that ordinary proper names are really "abbreviated" or "disguised" definite descriptions. That is, the proposition expressed by a sentence in which a description occurs is the same whether the description has a denotation or not. So its denotation does not enter into that proposition. Russell makes allowances for the fact that the requisite description will vary for different people, or for the same person at different times the description in our minds will probably be some more or less vague mass of historical knowledge far more, in most cases, than is required to identify him , but so long as the object to which the name applies remains constant, the particular description involved usually makes no difference to the truth or falsehood of the proposition in which the name appears. That is, when we say anything about Bismarck, we should like, if we could, to make the judgment which Bismarck alone can make, namely, the judgment of which he himself is a constituent. What enables us to communicate in spite of the varying descriptions we employ is that we know there is a true proposition concerning the actual Bismarck and that, however we may vary the description as long as the description is correct , the proposition described is still the same. This proposition, which is described and is known to be true, is what interests us; but we are not acquainted with the proposition itself, and do not know it, though we know it is true. But this general proposition does not itself involve Bismarck, and would be thinkable even if Bismarck never existed. Frege is a descriptivist of a different sort than Russell. He claims not that proper names are disguised descriptions but that they have senses as well as references. The sense of a name is both the mode of presentation and the determinant of its referent it also functions for Frege as the "indirect" as opposed to "customary" reference when the name is embedded in a context of indirect quotation or propositional attitude ascription. Frege agrees with Russell, and with Mill for that matter, that words are ordinarily used to talk about things, not ideas: Even so, in so using them we must associate reference-determining properties with our words. Moreover, insofar as our words also express our thoughts, they must correspond to constituents of those thoughts. Thus, for Frege, the semantic and the cognitive significance of expressions are intimately related. Indeed, because an expression can have a sense without having a reference, Frege holds that the constituents of thoughts are senses, not references. Unlike Russell, he does not assimilate definite descriptions to quantificational phrases but treats them, like proper names properly so-called , as semantic units capable of having individuals as semantic values, determined by their senses. The sense of such an expression plays the semantic role of imposing a condition that an individual must satisfy in order to be the referent. A proper name, like a definite description, contributes its sense to that of a sentence in which it occurs regardless of which individual actually is its referent and even if it has no referent at all. This is because the condition imposed by sense, the determinant of reference, is independent of that which it determines. The same object can be presented in different ways, under different modes of presentation, but it is not essential to any mode of presentation that it actually present anything at all. His conception of sense

leaves open the possibility of non-descriptive senses, such as percepts. He does not explicitly make the analogous point in regard to proper names, but nowhere does he explicitly assert that each proper name is equivalent to some definite description, and his overall theory of sense and reference does not require this equivalence. For Russell, any object that can be presented at all cannot be presented in different ways. He avoids having to appeal to senses to solve them. Constituents of propositions are individuals particulars and universals , and the Principle of Acquaintance requires that "every proposition which we can understand must be composed wholly of constituents with which we are acquainted" , For Frege modes of presentation are the constituents of thoughts, and the objects which modes of presentation present are not. Because the relation between subject to object is mediated by a sense, this relation is indirect, unlike Russellian acquaintance. They are, in their respective ways, descriptivists about singular thought as well as about proper names. Russell held that ordinary proper names are abbreviated definite descriptions, but he denied that definite descriptions or expressions of any other sort have two levels of semantic significance. This was the central point of "On Denoting" For Russell, what distinguishes both definite descriptions and ordinary proper names from genuine, "logically" proper names, like the individual constants of logic, is not that they do have senses but that they do not have references they do have denotations, but these are not their semantic values. For Frege there are two levels of semantic significance, sense and reference, and sense is primary. On both views, a proper name can play its primary semantic role whether or not it belongs to anything. But this is so for different reasons. For Russell, the reason is the semantic inertness of denotation; for Frege it is the independence of sense from reference. Oxford University Press, A System of Logic, definitive 8th edition. Longmans, Green and Company. George Allen and Unwin, Introduction to Mathematical Philosophy. George Allen and Unwin. Moreover, The denotation [of the description] is not a constituent of the proposition, except in the case of proper names, i. And I should hold further that, in this sense, there are only two words which are strictly proper names of particulars, namely "I" and "this. Thus Russell often calls definite descriptions "incomplete symbols," which "disappear upon logical analysis. Even so, it is not indirect in the sense of being mediated by a direct cognitive relation: Moreover, the sense-mediated relation of subject to object is not indirect in the way that for Russell knowledge by description is indirect. Knowledge of something by description always involves a direct cognitive relation to other items, namely objects of acquaintance, which can be sense-data and unanalyzable universals. When we know something by description, "we know that there is one object, and no more, having a certain property" ,

Chapter 2 : Philosophy J: Sense and Reference

On sense and reference GOTTLOB FREGE [As reprinted in A.W. Moore (ed.) Meaning and racedaydvl.com: Oxford University Press.] Equality [1] gives rise to challenging questions which are not altogether easy to answer.

Phosphorus Frege introduced the notion of "sense" German: Sinn to accommodate difficulties in his early theory of meaning. First, if the entire significance of a sentence consists of its truth value, it follows that the sentence will have the same significance if we replace a word of the sentence with one having an identical reference, as this will not change its truth value. If the evening star has the same reference as the morning star, it follows that the evening star is a body illuminated by the Sun has the same truth value as the morning star is a body illuminated by the Sun. But it is possible for someone to think that the first sentence is true while also thinking that the second is false. Therefore, the thought corresponding to each sentence cannot be its reference, but something else, which Frege called its sense. Second, sentences that contain proper names with no reference cannot have a truth value at all. Nor can a thought about Etna contain lumps of solidified lava. John McDowell supplies cognitive and reference-determining roles. Sense and description[edit] In his theory of descriptions , Bertrand Russell held the view that most proper names in ordinary language are in fact disguised definite descriptions. This is known as the descriptivist theory of names. Because Frege used definite descriptions in many of his examples, he is often taken to have endorsed the descriptivist theory. However, Saul Kripke argued compellingly against the descriptivist theory. According to Kripke, [15] proper names are rigid designators which designate the same object in every possible world. For example, someone other than Richard Nixon , e. Hubert Humphrey , might have been the President in Hence a description or cluster of descriptions cannot be a rigid designator, and thus a proper name cannot mean the same as a description. Evans further developed this line, arguing that a sense without a referent was not possible. And both point to the power that the sense-reference distinction does have i. Translation of Bedeutung[edit] As noted above, translators of Frege have rendered the German Bedeutung in various ways. But according to Frege, a common term does not refer to any individual white thing, but rather to an abstract Concept Begriff.

Chapter 3 : Gottlob Frege's On Sense and Reference

Gottlob Frege's On Sense and Reference. Gottlob Frege's On Sense and Reference (Ãœber Sinn und Bedeutung,) is concerned with the question of how the sense (or mode of presentation) of a sign is related to the meaning which is expressed by the sign.

Important Secondary Works 1. His full christened name was Friedrich Ludwig Gottlob Frege. Little is known about his youth. Both were also principals of the school at various points: Karl held the position until his death , when Auguste took over until her death in Frege probably lived in Wismar until ; in the years from he is known to have studied at the Gymnasium in Wismar. In Spring , Frege began studies at the University of Jena. In , with the recommendation of Ernst Abbe, Frege received a lectureship at the University of Jena, where he stayed the rest of his intellectual life. His position was unsalaried during his first five years, and he was supported by his mother. Frege had a heavy teaching load during his first few years at Jena. However, he still had time to work on his first major work in logic, which was published in under the title Begriffsschrift, eine der arithmetischen nachgebildete Formelsprache des reinen Denkens "Concept-Script: Therein, Frege presented for the first time his invention of a new method for the construction of a logical language. Upon the publication of the Begriffsschrift, he was promoted to ausserordentlicher Professor, his first salaried position. Sometime after the publication of the Begriffsschrift, Frege was married to Margaret Lieseburg They had at least two children, who unfortunately died young. Years later they adopted a son, Alfred. Frege had aimed to use the logical language of the Begriffsschrift to carry out his logicist program of attempting to show that all of the basic truths of arithmetic could be derived from purely logical axioms. However, on the advice of Carl Stumpf, and given the poor reception of the Begriffsschrift, Frege decided to write a work in which he would describe his logicist views informally in ordinary language, and argue against rival views. Soon thereafter, Frege began working on his attempt to derive the basic laws of arithmetic within his logical language. However, his work was interrupted by changes to his views. In the late s and early s Frege developed new and interesting theories regarding the nature of language, functions and concepts, and philosophical logic, including a novel theory of meaning based on the distinction between sense and reference. However, in , Frege finally finished a revised volume, employing a slightly revised logical system. In the first volume, Frege presented his new logical language, and proceeded to use it to define the natural numbers and their properties. His aim was to make this the first of a three volume work; in the second and third, he would move on to the definition of real numbers, and the demonstration of their properties. Nevertheless, he was promoted once again in , now to the position of Honorary Ordinary Professor. It is likely that Frege was offered a position as full Professor, but turned it down to avoid taking on additional administrative duties. His new position was unsalaried, but he was able to support himself and his family with a stipend from the Carl Zeiss Stiftung, a foundation that gave money to the University of Jena, and with which Ernst Abbe was intimately involved. Because of the unfavorable reception of his earlier works, Frege was forced to arrange to have volume II of the Grundgesetze published at his own expense. It was not until that Frege was able to make such arrangements. However, while the volume was already in the publication process, Frege received a letter from Bertrand Russell, informing him that it was possible to prove a contradiction in the logical system of the first volume of the Grundgesetze, which included a naive calculus for classes. Frege was, in his own words, "thunderstruck". He was forced to quickly prepare an appendix in response. For the next couple years, he continued to do important work. He produced very little work between and his retirement in However, he continued to influence others during this period. Russell had included an appendix on Frege in his Principles of Mathematics. It is from this that Frege came be to be a bit wider known, including to an Austrian student studying engineering in Manchester, England, named Ludwig Wittgenstein. Frege invited him to Jena to discuss his views. Wittgenstein did so in late The two engaged in a philosophical debate, and while Wittgenstein reported that Frege "wiped the floor" with him, Frege was sufficiently impressed with Wittgenstein that he suggested that he go to Cambridge to study with Russell--a suggestion that had profound importance for the history of philosophy. However, these were not wholly new works, but later drafts of works

he had initiated in the s. In , a year before his death, Frege finally returned to the attempt to understand the foundations of arithmetic. However, by this time, he had completely given up on his logicism, concluding that the paradoxes of class or set theory made it impossible. He instead attempted to develop a new theory of the nature of arithmetic based on Kantian pure intuitions of space. However, he was not able to write much or publish anything about his new theory. Frege died on July 26, at the age of He did not live to see the profound impact he would have on the emergence of analytic philosophy, nor to see his brand of logic--due to the championship of Russell--virtually wholly supersede earlier forms of logic. However, in bequeathing his unpublished work to his adopted son, Alfred, he wrote prophetically, "I believe there are things here which will one day be prized much more highly than they are now. Take care that nothing gets lost. Unfortunately, however, they were destroyed in an Allied bombing raid on March 25, Although he was a fierce, sometimes even satirical, polemicist, Frege himself was a quiet, reserved man. He was right-wing in his political views, and like many conservatives of his generation in Germany, he is known to have been distrustful of foreigners and rather anti-semitic. Himself Lutheran, Frege seems to have wanted to see all Jews expelled from Germany, or at least deprived of certain political rights. Early in his career, Frege became convinced that the truths of arithmetic are logical, analytic truths, agreeing with Leibniz , and disagreeing with Kant , who thought that arithmetical knowledge was grounded in "pure intuition", as well as more empiricist thinkers such as J. Mill , who thought that arithmetic was grounded in observation. In other words, Frege subscribed to logicism. His logicism was modest in one sense, but very ambitious in others. Indeed, Frege himself set out to demonstrate all of the basic laws of arithmetic within his own system of logic. Frege concurred with Leibniz that natural language was unsuited to such a task. Thus, Frege sought to create a language that would combine the tasks of what Leibniz called a "calculus ratiocinator" and "lingua characterica", that is, a logically perspicuous language in which logical relations and possible inferences would be clear and unambiguous. Although there had been attempts to fashion at least the core of such a language made by Boole and others working in the Leibnizian tradition, Frege found their work unsuitable for a number of reasons. Frege found this unacceptable for a language which was to be used to demonstrate mathematical truths, because the signs would be ambiguous. It was divided into a "primary logic" and "secondary logic", bifurcating its propositional and categorical elements, and could not deal adequately with multiple generalities. It analyzed propositions in terms of subject and predicate concepts, which Frege found to be imprecise and antiquated. Frege saw the formulae of mathematics as the paradigm of clear, unambiguous writing. In order to make his logical language suitable for purposes other than arithmetic, Frege expanded the notion of function to allow arguments and values other than numbers. He defined a concept Begriff as a function that has a truth-value, either of the abstract objects the True or the False, as its value for any object as argument. The concept being human is understood as a function that has the True as value for any argument that is human, and the False as value for anything else. Suppose that "H " stands for this concept, and "a" is a constant for Aristotle, and "b" is a constant for the city of Boston. Then "H a " stands for the True, while "H b " stands for the False. The values of such concepts could then be used as arguments to other functions. In his own logical systems, Frege introduced signs standing for the negation and conditional functions. His own logical notation was two-dimensional. Conjunction and disjunction signs could then be defined from the negation and conditional signs. Frege also introduced an identity sign, standing for a function whose value is the True if the two arguments are the same object, and the False otherwise, and a sign, which he called "the horizontal," namely "â€”", that stands for a function that has the True as value for the True as argument, and has the False as value for any other argument. Variables and quantifiers are used to express generalities. Frege understands quantifiers as "second-level concepts". The distinction between levels of functions involves what kind of arguments the functions take. But different sorts of functions require different sorts of arguments. Functions that take first-level functions as argument are called second-level functions. Frege is often credited with having founded predicate logic. As we have seen, a sign such as "H " is a sign for a function in the strictest sense, as are the conditional and negation connectives. Rather, it flanks terms for truth-values to form a term for a truth-value. In addition to quantifiers ranging over objects, it also contained quantifiers ranging over first-level functions. In fact, Frege was the first to take a fully axiomatic approach to logic, and the first even

to suggest that inference rules ought to be explicitly formulated and distinguished from axioms. He began with a limited number of fixed axioms, introduced explicit inference rules, and aimed to derive all other logical truths including, for him, the truths of arithmetic from them. It represented the first axiomatization of logic, and was complete in its treatment of both propositional logic and first-order quantified logic. It has since been proven impossible to devise a system for higher-order logic with a finite number of axioms that is both complete and consistent. In order to make deduction easier, in the logical system of the Grundgesetze, Frege used fewer axioms and more inference rules: In the case of concepts, their value-ranges were identified with their extensions. While Frege did sometimes also refer to the extensions of concepts as "classes", he did not conceive of such classes as aggregates or collections. They were simply understood as objects corresponding to the complete argument-value mappings generated by concepts considered as functions. Frege then introduced two axioms dealing with these value-ranges. Most infamous was his Basic Law V, which asserts that the truth-value of the value-range of function F being identical to the value-range of function G is the same as the truth-value of F and G having the same value for every argument. If one conceives of value-ranges as argument-value mappings, then this certainly seems to be a plausible hypothesis. However, from it, it is possible to prove a strong theorem of class membership: Given that value-ranges themselves are taken to be objects, if the concept in question is that of being a extension of a concept not included in itself, one can conclude that the extension of this concept is in itself just in case it is not. However, the core of the system of the Grundgesetze, that is, the system minus the axioms governing value-ranges, is consistent and, like the system of the Begriffsschrift, is complete in its treatment of propositional logic and first-order predicate logic. Given the extent to which it is taken granted today, it can be difficult to fully appreciate the truly innovative and radical approach Frege took to logic.

Chapter 4 : Frege's Theory of Sense and Reference: Its Origin and Scope - Wolfgang Carl - Google Books

Friedrich Ludwig Gottlob Frege (b. , d.) was a German mathematician, logician, and philosopher who worked at the University of Jena. Frege essentially reconceived the discipline of logic by constructing a formal system which, in effect, constituted the first 'predicate calculus'.

Is it that which refers to the essence of a thing? If so, how is it being referred? Two signs can be used to reference the same object, so at least in this way their basic function is the same. Before moving on, it might be useful to have some terms: Sign Name, combination of words, combination of letters, image, etc. Sense Object The thing being referred too. In regards to an object, the thing we refer to for Frege does not actually have to exist. What we tend to do however is presuppose a referent. Whenever this be the moon or the aether which exists between stars and planets. Similarly, while characters in fiction, such as Odysseus have a sense and sign, it is doubtful whenever they have a referent that had an objective and grounded existence. We can often substitute different sentences with different senses and signs without any harm being done to the truth. However, Frege points out that the referent of a sentence may not always be the truth-value of a sentence. Though both the morning star and evening star have the same referent i. Venus, we would be wrong to say that we see the evening star in the morning, and the morning star in the afternoon. The truth here then, has nothing to do with Venus. Frege argues that in regards to people, though we might use the name x to refer to a person, our sense in which we express and comprehend the sign is different. If I like x, I may think or portray a positive depiction of x when I speak of the person. If I dislike x, then I will do the opposite. Similarly, sense differs from language to language. The sense of an object may for example, have gender connotations either being feminine or masculine in one language, but be gender neutral in another. Sometimes the exact sense of a sentence cannot be established due to ambiguity. Advertisements This is the Label text. It is used to get you to spread our propoganda to your friends, Families and associates. Feel free to share or something.

Chapter 5 : Gottlob Frege (Stanford Encyclopedia of Philosophy)

On Sense and Reference by Gottlob Frege, sense, and reference in particular cases is to be correctly understood. The reference and sense of a sign are.

No one at the time, howeverâ€”philosopher or mathematicianâ€”comprehended clearly what Frege had done, and when, some decades later, the subject began to get under way, his ideas reached others mostly as filtered through the minds of other men, such as Peano ; in his lifetime there were very fewâ€”one was Bertrand Russell â€”to give Frege the credit due to him. He was not yet too downcast by the failure of the learned world to appreciate the Begriffsschrift, which, after all, discourages the reader by the use of a complex and unfamiliar symbolism to express unfamiliar ideas. He resolved, however, to compose his next book without the use of any symbols at all. There followed a period of intensive work on the philosophy of logic and of mathematics, embodied initially in his first book, Die Grundlagen der Arithmetik ; The Foundations of Arithmetic. The Grundlagen was a work that must on any count stand as a masterpiece of philosophical writing. Wounded by the reception of his second book, Frege nevertheless devoted the next decade to producing a series of brilliant philosophical articles in which he elaborated his philosophy of logic. These articles contain many deep insights, although, as Frege systematized his theories, there appeared a certain hardening into a kind of scholasticism. There followed a return to the philosophy of mathematics with the first volume of Grundgesetze der Arithmetik ; partial Eng. This, too, received only a single review by Peano. Seldom has criticism of previous writers been more deadly than in his Grundlagen; but it is expressed with a lightness of touch and is never unfair. In volume 2 of the Grundgesetze , however, the attacks became heavyhanded and abusiveâ€”a means of getting back at the world that had ignored him. A worse disaster than neglect, however, was in store for him. The two exchanged many letters; and, before the book was published, Frege had devised a modification of one of his axioms intended to restore consistency to the system. This he explained in an appendix to the book. Probably Frege never discovered this. Even a brief inspection, however, of the proofs of the theorems in volume 1 would have revealed that several crucial proofs would no longer go through, and this Frege must have found out. He never published the projected third volume of the Grundgesetze, and he took no part in the development of the subject, mathematical logic, that he had founded, though it had progressed considerably by the time of his death. He published a few polemical pieces; but, with the exception of three essays in the philosophy of logic produced after the end of the war, he did no further creative work. In he declined, in terms expressing deep depression, an invitation by Russell to address a mathematical congress in Cambridge. Up to an advanced age, Frege hiked every summer in Mecklenburg, his native region. By means of this notation he solved the problem that had baffled the logicians of the Middle Ages and prevented the further advance of logic ever since, viz. In him there also appeared the first clear separation between the formal characterization of logical laws and their semantic justification. His philosophical work is of an importance far more general than the area to which he principally applied it, the philosophy of mathematics: Whereas Descartes had made epistemology the starting point for all philosophy, Frege gave this place to the theory of meaning or the philosophy of language. His work has been influential because he made the restricted part of philosophy in which he worked basic to all the rest. The effect was imparted in the first place, however, through the work of others, particularly that of Wittgenstein , who visited him in and who revered him.

Chapter 6 : Frege, Gottlob | Internet Encyclopedia of Philosophy

An explanation of Gottlob Frege's solutions to Frege's Puzzle and the problem of propositional attitude reports using Frege's theory of Sense and Reference.

Sense and Reference General Information Our goal in the course is to read two recent papers proposing a somewhat new idea about how to deal with so-called "Frege cases". Most of our time will be spent developing the background that is necessary to see why such a radical approach might seem like a good idea. As it happens, our focus will be more on philosophy of mind than on philosophy of language, but this kind of issue tends to straddle that border. Meetings are held Wednesday, The instructor is Richard Heck. Office hours are Monday and Friday Readings There are no required books. All the readings are available via the links on this website. Where possible, links are to publicly available sources, but some are available only to enrolled students and require a username and password. Because DjVu is a file format specifically designed for scanned text: The DjVu encoder produces files that are typically much smaller than the corresponding PDFs, typically about one tenth the size, when dealing with scanned text. To read the DjVu files, you will need a DjVu reader. There is also a dedicated DjVu reader for Linux that can usually be installed via the djvulibre package. A list of other DjVu resources is maintained at djvu. For iOS the most popular of these seems to be Stanza , though I do not use iOS and so have no relevant knowledge myself. Among other things, it will split "two per page" landscape pages into single pages and automatically crop to the text area thus maximizing font size , just to start. Unfortunately, this has now become closed-source, though it is still free to use free as in beer, but not as in speech. When printing these files, make sure you print them in the correct mode: In particular, two-to-a-page scanned pages should be printed in landscape mode, so that they come out the way they were photocopied. You will get very small text and a lot of blank paper if you print them portrait. Basil Blackwell, , pp. We will discuss only pp. Enrolled students should use the DjVu link if possible. Hartry Field, "Mental Representation", Erkenntnis 13 , pp. The Language of Thought Revisited. Those of you who have some prior experience with this material should read further into the paper. If you have not previously encountered the notion of a natural kind, have a look at the Wikipedia entry on the topic for a quick summary. Or check out the Stanford Encyclopedia article for more detail. MIT Press, , pp. But it is possible to find copies of this paper on the web. Try searching for it. Oxford University Press, , pp. I very much doubt that we will get beyond section III, and sections IV and V are not so relevant to our concerns, anyway. So feel free just to read pp. Merrill, eds, Contents of Thoughts Tuscon: University of Arizona Press, , pp. Jessica Benjamin, "An Outline of Intersubjectivity: The Development of Recognition", Psychoanalytic Psychology, sup vol 7 , pp. You can skip or skim this section. The underlying point is that this has to be wrong, since the beliefs we so express do not have the content that H2O is wet. This part of the paper is also optional. Fodor gives a different answer to the same question in the other paper of his we are reading for this session and even other answers elsewhere. So you do not need to read that bit. Those of you who were in may wish to read it, though. The crucial point, which I will try to bring out in class, is that there is an issue about the relative priority of "broad" and "narrow" content, as Fodor conceives it. A Response to Egan", Mind and Language 14 , pp.

Chapter 7 : Philosophical Connections: Frege

Gottlob Frege's Ãœber Sinn und Bedeutung (`On Sense and Reference'), has come to be seen, in the century since its publication in , as one of the seminal texts of analytic philosophy. It, along with the rest of Frege's writings on logic and mathematics, came to mark out a whole new domain of inquiry.

He was largely neglected by the academic world apart from Russell and Wittgenstein on both of whom he was a major influence ; and the significance of his pioneering work was not fully appreciated until the nineteen fifties. These are the questions that initially interested Frege. And he disagreed with the claim that arithmetical truths are synthetic a pnon judgments although he considered that geometrical truths were [a]. Each of the above three theories fails in one of these respects. Arithmetic, Frege argued, must be in some sense objective and certain, and must of course be applicable to the world. His solution was to regard numbers as applicable to concepts, that is, "objects of reason", which are subject to a criterion of identity [b]. This can be understood by means of an example. How then is number defined? Suppose we have two concepts A and B, and that the objects covered by one concept correspond one-to-one to the things covered by the other. In this way he was led to the view that the definitions and laws of arithmetic could be derived solely from the laws of logic. Synthetic truths, by contrast, are not truths of logic [c]. His development of formal logic showed further that the grammar of ordinary language on which traditional Aristotelian logic was based is seriously misleading [a]. He is not concerned with philosophy as involving just ad hoc or piecemeal clarification and elimination of errors. His approach can be seen from his analysis of predication, proper names, and meaning in later articles. A predicative expression is like this. The proper name relates to a concept. Names cannot be used as predicates. Again I am asserting an identity though this was not known to ancient astronomers. There is a problem here given the view he held in earlier work [see Concept Script], namely, that identity is a relation between the signs or names themselves, whereas we generally think of identity statements as saying something about the world. The two names, though differing in sense, have the same reference or denotative meaning ; they pick out the same object. They too, Frege says, must have both a sense and a reference. It is the Thought which constitutes the sense of the whole sentence. And Frege considers the judgement as a functional unity, and not just a linking of logically prior and separable terms. What then of the reference? A reference is required if the sentence as a whole is to be considered as being true or false. This thus belongs to the content or object of the sentence or proposition not to any mental act of judging [g]. The sense, or thought of the sentence can then be further identified with the conditions which make it true. To understand a sentence, to know what it means, is therefore to know what its truth-conditions are [h]. To the extent that propositions are expressed by sentences he also seems to consider them as composite names [i]. In the case of sentences containing names or definite descriptions which do not refer to any entity the sentence as a whole is said to have no truth-value. For a name or definite description to be taken as having a reference, a denotatum must be presupposed as existing [j]. We can say it is meaningful in so far as when we communicate we assert it to be true. Sentences thus variously used are then said to have a different force. Having rejected the psychologism of Mill and probably early Husserl he sought to ground mathematics in logic albeit unsuccessfully as it later turned out. But more importantly he revolutionized modern logic, offering a new account of predication and quantification. He has also been a major influence on the philosophy of language. Central in his writings are his distinction between sense and reference and his treatment of problems arising out of identity and predication. These and other issues have, however, engendered a great deal of controversial discussion in recent years. Do we need sense as well as reference? Is meaning to be determined by truth conditions? Does this commit us to some form of realism? These matters continue to be much debated. Begriffschrift Concept Script or Notation trans. A useful collection is M. An Introduction to His Philosophy. Collections of essays E. Ricketts, Cambridge Companion to Frege, Cambridge:

Chapter 8 : Comparing Frege and Russell

Frege was born on November 8, in the coastal city of Wismar in Northern Germany. His full christened name was Friedrich Ludwig Gottlob Frege. Little is known about his youth. His father, Karl Alexander Frege, and his mother, Auguste (Bialloblotzsky) Frege, both worked at a girl's private school.

Here again, Frege uses the identity sign to help state the material equivalence of two concepts. This means it allows quantification over functions as well as quantification over objects; i. In particular, we adopt the following conventions. In traditional Aristotelian logic, the subject of a sentence and the direct object of a verb are not on a logical par. The rules governing the inferences between statements with different but related subject terms are different from the rules governing the inferences between statements with different but related verb complements. The rule governing the first inference is a rule which applies only to subject terms whereas the rule governing the second inference governs reasoning within the predicate, and thus applies only to the transitive verb complements i. In Aristotelian logic, these inferences have nothing in common. In effect, Frege treated these quantified expressions as variable-binding operators. Thus, Frege analyzed the above inferences in the following general way: Therefore, some x is such that x loves Mary. Therefore, some x is such that John loves x. Both inferences are instances of a single valid inference rule. To see this more clearly, here are the formal representations of the above informal arguments: This logical axiom tells us that from a simple predication involving an n-place relation, one can existentially generalize on any argument, and validly derive a existential statement. Indeed, this axiom can be made even more general. He suggested that existence is not a concept under which objects fall but rather a second-level concept under which first-level concepts fall. A concept F falls under this second-level concept just in case F maps at least one object to The True. The latter consisted of a set of logical axioms statements considered to be truths of logic and a set of rules of inference that lay out the conditions under which certain statements of the language may be correctly inferred from others. Frege made a point of showing how every step in a proof of a proposition was justified either in terms of one of the axioms or in terms of one of the rules of inference or justified by a theorem or derived rule that had already been proved. In essence, he defined a proof to be any finite sequence of statements such that each statement in the sequence either is an axiom or follows from previous members by a valid rule of inference. These are essentially the definitions that logicians still use today. He developed powerful and insightful criticisms of mathematical work which did not meet his standards for clarity. For example, he criticized mathematicians who defined a variable to be a number that varies rather than an expression of language which can vary as to which determinate number it may take as a value. More importantly, however, Frege was the first to claim that a properly formed definition had to have two important metatheoretical properties. Let us call the new, defined symbol introduced in a definition the definiendum, and the term that is used to define the new term the definiens. Then Frege was the first to suggest that proper definitions have to be both eliminable a definendum must always be replaceable by its definiens in any formula in which the former occurs and conservative a definition should not make it possible to prove new relationships among formulas that were formerly unprovable. We can do without the notation introduced by this sentence, and hence without the sentence itself as its definition; nothing follows from the sentence that could not also be inferred without it. Our sole purpose in introducing such definitions is to bring about an extrinsic simplificationby stipulating an abbreviation. In the Grundgesetze der Arithmetik, II , Sections 56â€”67 Frege criticized the practice of defining a concept on a given range of objects and later redefining the concept on a wider, more inclusive range of objects. In that same work , Sections â€” , Frege criticized the mathematical practice of introducing notation to name unique entities without first proving that there exist unique such entities. Creative definitions fail to be conservative, as this was explained above. This distinguishes them from objects. The course-of-values of a function is a record of the value of the function for each argument. Using this notation, Frege formally represented Basic Law V in his system as: Frege called the course-of-values of a concept F its extension. The extension of a concept F records just those objects which F maps to The True. Thus Basic Law V applies equally well to the extensions of concepts. For example, the number 3 is an element

of the extension of the concept odd number greater than 2 if and only if this concept maps 3 to The True. Unfortunately, Basic Law V implies a contradiction, and this was pointed out to Frege by Bertrand Russell just as the second volume of the Grundgesetze was going to press. Russell recognized that some extensions are elements of themselves and some are not; the extension of the concept extension is an element of itself, since that concept would map its own extension to The True. But now what about the concept extension which is not an element of itself? Let E represent this concept and let e name the extension of E. Is e an element of itself? But E maps e to The True if and only if e is an extension which is not an element of itself, i. Few philosophers today believe that mathematics can be reduced to logic in the way Frege had in mind. Mathematical theories such as set theory seem to require some non-logical concepts such as set membership which cannot be defined in terms of logical concepts, at least when axiomatized by certain powerful non-logical axioms such as the proper axioms of Zermelo-Fraenkel set theory. Despite the fact that a contradiction invalidated a part of his system, the intricate theoretical web of definitions and proofs developed in the Grundgesetze nevertheless offered philosophical logicians an intriguing conceptual framework. Though the discussion will involve the notion of an extension, we shall not require Basic Law V; thus, we can use our informal understanding of the notion. Philosophers today still find that work insightful. Thus, one and the same physical entity might be conceptualized as consisting of 1 army, 5 divisions, 20 regiments, companies, etc. In the second case, the second level claim asserts that the first-level concept being an author of Principia Mathematica falls under the second-level concept being a concept under which two objects fall. This sounds circular, since it looks like we have analyzed There are two authors of Principia Mathematica, which involves the concept two, as The concept being an author of Principia Mathematica falls under the concept being a concept under which two objects fall, which also involves the concept two. But despite appearances, there is no circularity, since Frege analyzes the second-order concept being a concept under which two objects fall without appealing to the concept two. There are distinct things x and y that fall under the concept F and anything else that falls under the concept F is identical to either x or y. In the notation of the modern predicate calculus, this is formalized as: Frege then took his analysis one step further.

Chapter 9 : Gottlob Frege > Notes (Stanford Encyclopedia of Philosophy)

Gottlob Frege ON SENSE AND REFERENCE The Reference and Sense of a sign is to be distinguished from the idea [Vorstellung] associated with it. If the Reference of.

Childhood â€”69 [edit] Frege was born in in Wismar , Mecklenburg-Schwerin today part of Mecklenburg-Vorpommern. Hinstorff, , the first section of which dealt with the structure and logic of language. Frege studied at a gymnasium in Wismar and graduated in In the four semesters of his studies he attended approximately twenty courses of lectures, most of them on mathematics and physics. His most important teacher was Ernst Karl Abbe â€"; physicist, mathematician, and inventor. Abbe gave lectures on theory of gravity, galvanism and electrodynamics, complex analysis theory of functions of a complex variable, applications of physics, selected divisions of mechanics, and mechanics of solids. Abbe was more than a teacher to Frege: His other notable university teachers were Christian Philipp Karl Snell â€"86; subjects: Work as a logician[edit] Main article: His Begriffsschrift , eine der arithmetischen nachgebildete Formelsprache des reinen Denkens [Concept-Script: Verlag von Louis Nebert, marked a turning point in the history of logic. The Begriffsschrift broke new ground, including a rigorous treatment of the ideas of functions and variables. Title page to Begriffsschrift In effect, Frege invented axiomatic predicate logic , in large part thanks to his invention of quantified variables , which eventually became ubiquitous in mathematics and logic, and which solved the problem of multiple generality. Previous logic had dealt with the logical constants and, or, if If there was an intuitive element, it was to be isolated and represented separately as an axiom: Already in the Begriffsschrift important preliminary theorems, for example a generalized form of law of trichotomy , were derived within what Frege understood to be pure logic. This idea was formulated in non-symbolic terms in his The Foundations of Arithmetic Later, in his Basic Laws of Arithmetic vol. Most of these axioms were carried over from his Begriffsschrift , though not without some significant changes. The one truly new principle was one he called the Basic Law V: The crucial case of the law may be formulated in modern notation as follows. The case is special because what is here being called the extension of a predicate, or a set, is only one type of "value-range" of a function. In a famous episode, Bertrand Russell wrote to Frege, just as Vol. The system of the Grundgesetze entails that the set thus characterised both is and is not a member of itself, and is thus inconsistent. Frege wrote a hasty, last-minute Appendix to Vol. Frege opened the Appendix with the exceptionally honest comment: This was the position I was placed in by a letter of Mr. Bertrand Russell, just when the printing of this volume was nearing its completion. Basic Law V can be weakened in other ways. The best-known way is due to philosopher and mathematical logician George Boolos â€" , who was an expert on the work of Frege. A "concept" F is "small" if the objects falling under F cannot be put into one-to-one correspondence with the universe of discourse, that is, unless: This principle, too, is consistent if second-order arithmetic is, and suffices to prove the axioms of second-order arithmetic. Predicative second-order logic plus Basic Law V is provably consistent by finitistic or constructive methods, but it can interpret only very weak fragments of arithmetic. The diagrammatic notation that Frege used had no antecedents and has had no imitators since. Philosopher[edit] Frege is one of the founders of analytic philosophy , whose work on logic and language gave rise to the linguistic turn in philosophy. His contributions to the philosophy of language include: