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Ayesha Rehman
City College of New York

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SOLVING FREGE'S SUBSTITUTION PUZZLE: ANALYZING IT IN LIGHT OF DESCRIPTIVISM AND DIRECT REFERENCE THEORY

Ayesha Rehman, City College of New York

Abstract

Although replacing one proper name with another that refers to the same person does not change the truth-value of a declarative statement, it affects the truth-value of propositional attitude reports, which are cognitive relations that people hold towards propositions. Frege's Substitution Puzzle about propositional attitude reports essentially asks an important question: if two proper names co-refer in a certain linguistic community, then why does their intersubstitutability produce propositional attitude reports (that contain those proper names) with opposite truth-values? This paper attempts to explain how Description Theory of Names and Direct Reference Theory, two theories of proper names, solve Frege's Substitution Puzzle. According to the Description Theory of Names, a proper name has both a sense and a reference. In other words, a proper name expresses its sense as a descriptive meaning and it designates a specific referent. Descriptivists solve the puzzle by rejecting the Principle of Intersubstitutability of names due to their reference shift in attitude contexts; because two proper names do not entail the same sense, they cannot co-refer in attitude context and therefore are not intersubstitutable in indirect discourse. Contrary to the Description Theory of Names, Direct Reference Theory argues that a proper name is a rigid designator without any connotative attributes. It simply picks out objects and living things in possible worlds. Direct Reference Theorists solve the puzzle by stating that the seeming contradiction in the truth-values of propositional attitude reports containing co-referential names occurs because of the differing truth-values of the pragmatically implicated statements. Furthermore, this essay concludes with an argument for why Direct Reference Theory is a stronger view than Description Theory of Names.

Solving Frege's Substitution Puzzle: Analyzing it in Light of Descriptivism and Direct Reference Theory

This paper examines an example of Gottlob Frege's Substitution Puzzle about propositional attitude reports in view of two theories of proper names. Both the Description

Theory of Names and Direct Reference Theory give us an explanation of the semantic value of a proper name. While Descriptivists such as Frege and John Searle assert that names have both a sense and a referent,⁴² Direct Reference Theorists such as Saul Kripke and John Stuart Mill state that proper names simply pick out individuals/objects in possible worlds.⁴³ First, I will explain Frege's Substitution Puzzle about belief reports using the Superman/Clark Kent example. Second, I will lay out both the Description Theory of Names and Direct Reference Theory, and will explain how each theory solves the puzzle. Third, I will argue that Direct Reference Theory is a stronger view than Descriptivism.

Frege's Substitution Puzzle about Belief Reports

In the fictional American city of Metropolis, Superman and Clark Kent are the same person. They have the same reference, which is such that the identity relation 'Superman = Clark Kent' holds. If Superman and Clark Kent are alternative names for the same individual in Metropolis, then replacing one proper name for the other should be *salva veritate*. This replacement should not affect the truth-value of a declarative statement that is relevant to the linguistic environment or context of Metropolis.⁴⁴ The principle that expresses this can be formulated as follows:

Principle of Intersubstitutability: If a and b are co-referential proper names in a language L , then any true statement S of L , that contains a , can be turned into a true statement S_1 of L by replacing a with b , and similarly, any true statement S_2 of L , that contains b , can be converted into a true statement S_3 of L by replacing b with a .⁴⁵ Consider the following sentences:

- (1) Superman can fly.
- (2) Clark Kent can fly.

If one can, according to the Principle of Intersubstitutability, replace 'Superman' with 'Clark Kent' in (1), then (2) should have the same truth-value. However, this is not always the case. In cases of indirect discourse, where phrases such as 'I said,' 'John believes,' 'Emma knows,' 'they imagine' etc. are employed in the beginning, replacing co-referential expressions yield contradictory propositions. Consider:

- (3) Lois Lane believes that Superman can fly.
- (4) Lois Lane believes that Clark Kent can fly.

In the world of Metropolis, (3) is true and (4) is false on an intuitive level. Frege noticed that in propositional attitude reports such as the ones given above, substitution of co-referential names does not result in sentences with the same truth-values.⁴⁶ In "Attitude Reports: Do You Mind the Gap?" Berit Brogaard defines propositional attitudes or attitude reports as reports

⁴² Sam Cumming, "Names," *Stanford Encyclopedia of Philosophy* (2008): 3.

⁴³ Cumming 2.

⁴⁴ Berit Brogaard, "Attitude Reports: Do You Mind the Gap?" *Philosophy Compass* (2008): 93.

⁴⁵ Max Deutsch, "The Paderewski Puzzle And the Principle of Substitution," *Grazer Philosophische Studien* (2011): 123.

⁴⁶ Edward N. Zalta, "Gottlob Frege," *Stanford Encyclopedia of Philosophy* (1995): 18.

about peoples' states of mind.⁴⁷ In other words, propositional attitudes are cognitive relations that people hold towards propositions, which are truth-evaluable statements.⁴⁸ Propositional attitude verbs such as 'believe', 'know', 'think', 'fear', 'like' etc. are uttered before propositions or *that*-clauses. For instance, in sentence (3) or (4), Lois Lane's cognitive relation to the proposition 'Superman can fly' or 'Clark Kent can fly' respectively can be expressed by the propositional attitude verb *believes*. Frege's Substitution Puzzle therefore poses this important question: if two proper names co-refer in a certain environment, then why does their intersubstitutability produce propositional attitude reports (that contain those proper names) with opposite truth-values? The solution to this puzzle is important because it can help one understand the connection between thoughts and mental states, and language.

Descriptivism

In the article titled, "On Sense and Reference," Frege explains that a proper name (i.e. word, sign, sign combination, expression) such as 'the morning star' or 'the evening star' has both a sense and a reference. The proper name *expresses* its sense as a descriptive meaning, which is public and therefore can be understood by two or more people in the same way.⁴⁹ Furthermore, the name *designates* a specific referent, which is also not personal.⁵⁰ In the above example, the names 'Superman' and 'Clark Kent' have different senses in that both expressions give in a different mode of presentation, but they both refer to the same person.⁵¹ In other words, the cognitive significance that the names 'Superman' and 'Clark Kent' evoke is different. Frege asserts that every meaningful expression has a sense, but it is not necessary that it also have a reference. For instance, the sign 'Superman' has a sense, but no reference in the real world, considering fictional characters are not real in this world. Frege's theory on sense and reference is the basis for The Description Theory of Names. Also known as Descriptivism, this theory states that the semantic value of a name is some definite description 'the F'.⁵² For example, the name 'Superman' might have a semantic value of 'the superhero who can fly'. To fix the problem of not having a semantic value for people with no famous deeds or inanimate objects or imaginary beings, Descriptivism allows for a disjunction of a group of predicates; this is called Cluster Descriptivism.⁵³ As emphasized before, it is a two-element view, which asserts that names have both sense and referent. The meaning is a cluster of descriptions associated with the name while the referent is the object/living thing that satisfies all or most of the descriptions. In Kripke's excerpts from *Naming and Necessity*, Descriptivism is summed up in the following six theses:

⁴⁷ Brogaard 93.

⁴⁸ Thomas McKay, and Michael Nelson, "Propositional Attitude Reports," *The Stanford Encyclopedia of Philosophy* (2000): 1.

⁴⁹ Gottlob Frege, "On Sense and Reference," *The Philosophy of Language*, Eds. A.P. Martinich and David Sosa (2013): 36.

⁵⁰ Frege 37.

⁵¹ Frege 35.

⁵² Cumming 4.

⁵³ Cumming 5.

- i. To every name 'X', there corresponds a cluster of properties, the family of those properties F such that a speaker A believes 'FX'.
- ii. One of the properties, or some conjointly, are believed by A to pick out some individual uniquely.
- iii. If most, or a weighted most, of the F's are satisfied by a unique object y, then y is the referent of 'X'.
- iv. If the vote yields no unique object, 'X' does not refer.
- v. The 'If X exists, then X has most of the F's is known a priori to A.'
- vi. The statement that 'If X exists, then X has most of the F's expresses a necessary truth.'⁵⁴

To solve the Substitution Puzzle, Frege argues that in indirect discourse, 'Superman can fly' and 'Clark Kent can fly' refers to its customary sense (thought) rather than its reference (a truth-value). The sense of a name, which is fine-grained and is therefore able to convey more knowledge than the truth-value alone, is what determines its referent. In fact, if two names have the same sense, then they have the same referent. However, it is not necessary for a referent to have the same sense. The difference in the sense of 'Superman' and 'Clark Kent' explains the difference in the truth-values of (3) and (4), where the sense or way of presentation of 'Superman' is a superhero who flies and the sense of 'Clark Kent' is a bespectacled reporter for the "Daily Planet". Because the concepts of 'Superman' and 'Clark Kent' do not entail the same sense, they cannot co-refer in attitude context and therefore are not intersubstitutable in indirect discourse. In other words, in propositional attitude reports, one has to reject the Principle of Intersubstitutability of names due to their reference shift. This is how Frege solves the puzzle.

Direct Reference Theory, Millianism & Neo-Russellianism

Direct Reference Theory or Millianism proposes that a proper name has a referent only. Strictly speaking, it is a rigid designator. This means that a proper name picks out the same object or person in all possible worlds where that object or person exists. Direct Reference Theorists such as Kripke posit that the reference is established through a dubbing or creation event, where a name is given and which spreads by a causal chain of reference. Kripke elaborates the Casual Theory:

An initial 'baptism' takes place. Here the object may be named by ostension, or the reference of the name may be fixed by a description. When the name is 'passed from link to link', the receiver of the name must, I think, intend when he learns it to use it in the same reference as the man from whom he heard it. If I hear the name 'Napoleon' and decide it would be a nice name for my pet aardvark, I do not satisfy this condition.⁵⁵

⁵⁴ Saul Kripke, *Naming and Necessity*, (Cambridge, Mass.: Harvard University Press, 1980) 53.

⁵⁵ Kripke, *Naming and Necessity*, 63.

A speaker, using a name "NN" on a particular occasion is denoting or referring to some item 'x' if there is a causal chain of reference preserving links leading back from the speaker's use ultimately to the item 'x' itself being involved in a name-acquiring "baptism."

In the article titled, "Of Names," Mill defines proper names in a similar fashion. He states that proper names are not connotative, that is, they do not imply any attribute. Proper names only signify a specific subject. Mill writes, "Proper names are attached to objects themselves and are not dependent on the continuance of any attribute of the object...."⁵⁶ One can think of names as tags that do not provide any additional information. Mill goes on to say, "It may be said, indeed, that we must have had some reason for giving them those names rather than any others, and this is true, but the name, once again, is independent of the reason." Even if the dubbing event has a reason behind it, the name given to that individual does not carry attributes attached to that individual. This is consistent with Kripke's example of naming a pet after someone famous like Napoleon. If I name my pet cat 'Einstein,' because it behaves in a very clever way, it is not rational for me to begin connoting definite descriptions about superior intelligence with my cat's name. That would be silly!

Now that Direct Reference Theory has been laid out, one can see that both (3) and (4) are true. However, how does this theory explain that Lois Lane believes that Clark Kent can fly, even if she does not believe the sentence 'Clark Kent can fly'? Direct Reference Theory clarifies this by incorporating another area of the study of language: pragmatics. According to Martinich and Sosa, pragmatics is the study of what speakers do with language, that is, how speakers can perform actions with words and get across more than the words' literal meanings.⁵⁷ To solve the puzzle in the Superman/Clark Kent example, neo-Russellians make use of conversational implicatures. They explain that (3) pragmatically implicates a true statement that Lois Lane believes Superman can fly as a superhero whereas (4) pragmatically implicates a false statement that Lois Lane believes Superman can fly as a reporter.^{58, 59} Confounding pragmatics with semantics does not make (4) false. In fact, the implicature it generates is false. This is how Direct Reference Theorist or neo-Russellians explain the apparent contradiction due to intersubstitutability in attitude context.

Reasons for Upholding Direct Reference Theory

Note that, unlike Descriptivism, Direct Reference Theory does not get rid of the Principle of Intersubstitutability for solving Frege's puzzle, but rather makes use of the truth-value of implicatures to explain why a rational agent might appear to both assent and not assent to the same proposition simultaneously. Moreover, the Descriptivists' reason for rejecting the Principle of Intersubstitutability and thus solving Frege's Substitution Puzzle can be shown to be unconvincing when one looks at Kripke's Paderewski Puzzle. This is because the Paderewski Puzzle, which also involves propositional attitude reports, is not a Substitution Puzzle and therefore cannot be solved by denying Intersubstitutability.^{60, 61} Consider:

⁵⁶ John Stuart Mill, "Of Names," *The Philosophy of Language*, Eds. A.P. Martinich and David Sosa (2013): 32.

⁵⁷ A.P. Martinich, and David Sosa, "Introduction," *The Philosophy of Language* (2013): 2.

⁵⁸ McKay 9.

⁵⁹ Brogaard 97.

⁶⁰ Saul Kripke, "A Puzzle About Beliefs," *Meaning and Use* (1979): 449.

⁶¹ Brogaard 97.

- 5) Peter believes that Paderewski has musical talent.
- 6) Peter disbelieves that Paderewski has musical talent.

Suppose Peter comes to know 'Paderewski' as the famous Polish pianist, so obviously, he assents to the statement 'Paderewski has musical talent.' In another context, Peter learns of 'Paderewski' who was the Polish Nationalist leader and prime minister, so after identifying 'Paderewski' as the Polish politician, Peter assents to the sentence 'Paderewski has no musical talent'. According to Kripke, (6) and (7) may be both true under different circumstances because Peter fails to realize that Paderewski, the pianist, is the same person as Paderewski, the politician (who Peter believes cannot have musical talents by virtue of his statesmanship).⁶² Kripke notes that rejecting Intersubstitutability would not solve this puzzle because there is no replacement of co-referential terms! Instead, some other way has to be devised. Because Descriptivists deny Intersubstitutability in propositional attitude reports, Kripke asserts that they must present a serious argument as to why Intersubstitutability has to be rejected. This is not to imply that a solution cannot reject Intersubstitutability, but rather that this move would not be helpful for Kripke's Paderewski Puzzle.⁶³

Besides providing a better solution to the Substitution Puzzle, I also think that Direct Reference Theory provides a better view of the semantic value of proper names than Descriptivism. According to Kripke's modal argument, proper names are rigid designators while definite descriptions are not. If that is the case, names cannot have the same meaning as definite description(s) associated with it.⁶⁴

In addition to that, one might not know any descriptions associated with a proper name. However, that does not mean that proper names have no meaning. Even if one can identify descriptions for a proper name, one cannot be certain which description picks out a unique object/person. For instance, the description for 'Aristotle' could be arbitrary descriptions such as 'the author of *Nicomachean Ethics*' or 'the greatest student of Plato' etc. There is no way to identify a single description or a cluster that actually assigns meaning to 'Aristotle'. Furthermore, people often hold wrong descriptions for a proper name. For example, some people believe that 'Einstein' is 'the creator of atomic bomb.' Despite the fact that this definite description is incorrect, people are pinpointing a unique individual in history. Yet, according to Descriptivism, the referent 'the creator of atomic bomb' should be Oppenheimer.

Although Direct Reference Theory blurs the demarcation line between semantics and pragmatics by bringing up implicatures, one has to realize that that distinction has been difficult to pinpoint. The principal semantic notions are truth and reference, but including an analysis of pragmatics provides a full picture.⁶⁵

Descriptivism seems to make the leap that the Fregean sense transfers information upon its utterance without a clear justification. Direct Reference theorists recognize the fact that the dubbing event of a proper name might be motivated by a reason, but are prudent not

⁶² Kripke, "A Puzzle About Beliefs," 449.

⁶³ Brogaard 97.

⁶⁴ Cumming 6.

⁶⁵ Martinich 2.

to conclude that some sort of knowledge is embedded within the name itself as a result of the dubbing.

It seems that Kripke is applying David Lewis' view of convention of truthfulness and trust for the Casual Theory. In Lewis' view, being truthful roughly translates to saying things that one thinks are true and being trusting means that one believes others' utterances to be true. According to Lewis, the following six conditions must be satisfied for a convention of truthfulness/trust in L to prevail:

- i. Everyone conforms to a convention of truthfulness/trust in L.
- ii. Everyone believes that the others conform to truthfulness/trust in L.
- iii. The belief that others conform to truthfulness/trust in L gives everyone a good and decisive reason to conform to truthfulness/trust in L themselves.
- iv. There is a preference for general conformity to truthfulness/trust in L rather than slightly-less-than general conformity to truthfulness/trust in L.
- v. There is at least one alternative regularity, truthfulness/trust in L', such that condition 3 and 4 hold for L', and such that there is no way to conform to truthfulness/trust in L and L' at the same time.
- vi. Conditions 1-5 are common knowledge in a population P.⁶⁶

Assuming that Kripke agrees with this definition of coordination convention being used in the chain of reference, then it adequately addresses reference shift examples (e.g. about Madagascar once being known as a portion of mainland Africa, but then undergoing a reference shift after Marco Polo took it to refer to the great African island), brought up by Gareth Evans in "The Casual Theory of Names".⁶⁷ This is because the conformity in use of a proper name for a unique person/object would not allow for reference shift. Suppose Kripke's Casual Theory does not depend on coordination convention, then his insistence on counting speaker intention and audience recognition and execution of that intention while using proper names will be enough to counter reference shift examples. In view of the above reasons, Direct Reference Theory overrides Descriptivism.

⁶⁶ David Lewis, "Languages and Language," *The Philosophy of Language*, Eds. A.P. Martinich and David Sosa (2013): 684-686.

⁶⁷ Gareth Evans, "The Casual Theory of Names," *The Philosophy of Language*, Eds. A.P. Martinich and David Sosa (2013): 79.

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