

Descriptivism with World Pronouns*

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Abstract

This paper offers a descriptivist analysis of proper names under an empirical assumption that the syntax of proper names is complex. I argue that the logical form of the singular use of a proper name is [*the* [[*F w*] *C*]] where *w* is an object-language pronoun that denotes a possible world and *C* is a domain restriction variable. World-denoting pronouns and domain restriction variables account for the context-dependence of determiner phrases in general. Since proper names are determiner phrases, they can uniquely and rigidly designate objects via contextualization. The proposed descriptivist analysis avoids the standard objections to classical descriptivism because it treats proper names as contextually produced rigid designators.

Keywords: Proper Names; Descriptivism; Kripke

1 Introduction

In contrast to his own remarks in *Principles of Mathematics*, in “On Denoting”, Bertrand Russell emphasizes the syntactic form of what he calls a ‘denoting phrase’ (Russell, 1903, 1905). A definite description is one of those denoting phrases that are determined solely in virtue of their forms.¹ It remains common practice among philosophers to identify a definite description based on its characteristic syntactic structure. We normally consider a definite description to be a definite article (i.e., *the*) followed by a noun phrase (e.g., *present king of France*²) regardless of its semantic contribution. For example, although we often argue for or against the genuine referential interpretations of definite descriptions, no one argues that some ‘the ϕ ’ is *not* a definite description. Whether some occurrences of ‘the ϕ ’ are genuinely referential or not, we treat them as definite descriptions because of their syntactic forms.

Bearing this practice in mind, I want to point out that facts about proper names suggest that they may have the syntactic form of ‘the ϕ ’. According to the Determiner Phrase hypothesis (Abney, 1987), every nominal expression in an argument position is a determiner phrase, which at minimum has the structure of

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¹Russell does not mean that a phrase denotes an object in virtue of its form. He *calls* an expression a ‘denoting phrase’ in virtue of its form. See (Kaplan, 2005).

²I use *italics* for object-language expressions as well as for emphasis.

- (1) [determiner [noun phrase]]

where a quantifier or article (e.g., *every*, *the*) typically appears as the determiner.³ In this paper I assume that the Determiner Phrase hypothesis is correct for English, which entails that English proper names in argument positions must be treated as determiner phrases. Names in argument positions are covertly or overtly preceded by determiners. Thus, the syntactic form of the name *John* in *John left* can be represented as follows:

- (2) [DET [John]]

where DET is some kind of unpronounced determiners.

The syntactic assumption that a proper name used in an argument position takes a determiner has independent evidence (Longobardi, 1994; Geurts, 1997; Matushansky, 2008). For example, definite articles overtly precede proper names sometimes in English and Greek, and obligatorily in Dialectal German.

- (3) a. *(der) Hans (*Dialectal German*); (ho) Aristotle aphiketo (*Classical Greek*) (Heim, 1991; Larson and Segal, 1995)
b. the Economist; the Guggenheim; the late Wittgenstein

We can account for these facts by treating proper names as noun phrases that can be preceded by determiners such as articles and quantifiers just as other common nouns. Tyler Burge also argues that proper names are predicates based on their distributional facts. Proper names behave nearly in the same way as common nouns:

- (4) a. Every Tyler I know studied in Princeton.
b. A Tyler joined the club today.
c. George Wallace is a Napoleon
d. The Tyler who joined the club today studied in Princeton
e. Some Tylers are smart; some are not.
f. There are two Tylers in the department.
g. I know every Tyler in the department. (Burge, 1973)

Similarly, proper names just like common nouns allow noun-incorporation whereas genuine referential expressions such as demonstratives do not.

- (5) a. Stalin-hater, Reagan-bating
b. I'm going tree-chopping; He's a dog-lover.

³An argument position is where an argument of a predicate appears. 'Determiner' is the label of a class of expressions that modify noun phrases. In English, articles (i.e., *a(n)* and *the*) and quantifiers (e.g., *some*, *few*, etc.) are usually regarded as determiners. Introductory discussions of the Determiner Phrase hypothesis can be found in (Adger, 2003, Ch. 7) and (Haegeman and Guéron, 1999, Ch. 4). For more detailed surveys, see (Alexiadou et al., 2007).

- c. *I'm going that tree chopping; *I was it-chopping (Higginbotham, 1988)

If names in argument positions have the structure of (2), then we may, or rather should treat them as definite descriptions in virtue of their forms. This article is an investigation on the empirical assumption that names have the form of (2).

In what follows, assuming the Determiner Phrase Hypothesis, I propose that the singular use of a proper name is a covert definite description, whose descriptive content is composed out of the semantic values of the name and two other covert variables: a world pronoun and a domain restriction variable. To the first approximation, the proper name *Aristotle* used in an argument position signifies the unique contextually salient individual who is called 'Aristotle' in a certain world. A world pronoun is an object-language expression that every predicate, i.e., an adjective, noun, and verb takes as its argument. The semantic contribution of a predicate to the content of the whole sentence changes depending on the value of the cohabiting world pronoun. By anchoring the semantic contribution of a proper name to the value of a world pronoun, a definite description encodes modal properties. Domain restriction variables provide contextually salient objects, and help definite descriptions uniquely designate objects.

The structure of the paper goes as follows. Section 2 briefly reviews Alvin Plantinga's analysis of proper names and its difficulties. Plantinga's analysis provides an example of descriptivism that identifies proper names with rigidified definite descriptions. Section 3 introduces my own descriptivist analysis of proper names based on the notion of world pronouns. The proposal avoids the standard objections to classical descriptivism and the difficulties in Plantinga's analysis.

2 Plantinga 1978

Plantinga proposes a non-traditional form of descriptivism, according to which proper names express 'individual essences' that are possessed by the same objects in all possible worlds (Plantinga, 1978). A property is 'essential' to an object when it is impossible for the object to have its complement. In other words, a property is essential to an object if and only if there is no possible world in which the object exists but lacks the property. An individual essence (or simply 'essence') of an object is an essential property that the object uniquely possesses. That is, a property is an essence of an object if and only if the property is essential to the object and nothing else has it.

An essence of an object expressed by a proper name is not the unanalyzable, metaphysically peculiar attribute of that object, such as Quine's 'Pegasusness' (Quine, 1953, 8). We can transform mundane properties into the essences of objects by anchoring them to the actual world. Let me introduce Plantinga's terminology for ease of discussion. For any property F , we can think of the 'world-indexed' property ' F -in- w '. An object has F -in- w if and only if w includes the object's having F (Plantinga, 1978, 128). That is, an object has F -in- w if and only if it is not possible that w is actual and the object does not have F in w . Where α stands for the actual world, F -in- α is essential to an object if and only if it is F in α . Plantinga calls the actual-world-indexed

property (F -in- α) the ' α -transform of F ' or ' $F\alpha$ '. $F\alpha$ is an essence of an object when the object uniquely possesses F in the actual world.

Plantinga analyzes a proper name as 'the $F\alpha$ ' where F is either the Searle-type cluster of properties that the speaker associates with the name or the property of 'bearing a certain causal-historical naming relation to the name'. Plantinga claims that his analysis is thereby compatible with the anti-descriptivist view of names that Kripke and Donnellan argue for (Plantinga, 1978, 132). When an object uniquely possesses F in the actual world, the same object possesses $F\alpha$ in all possible worlds. So 'the $F\alpha$ ' designates the same object in all possible worlds. Therefore, 'the $F\alpha$ ' is a rigid designator. Plantinga's descriptivist analysis circumvents the modal and the epistemological arguments against descriptivism.⁴

One might immediately see many difficulties in Plantinga's analysis of proper names.⁵ Here I want to point out two problems for Plantinga's analysis. The first problem is the *ad-hoc*-ness of the proposed analysis. Plantinga offers no justification as to why and how speakers associate $F\alpha$ with a proper name. According to Plantinga, the name *Aristotle* is implicitly understood as 'the $F\alpha$ ', which accounts for why *Aristotle* is a rigid designator. However, the Millian theorists could respond that no such implicit understanding exists. For neither F nor α is superficially present in English, and competent speakers of English seem to have no intuition about the alleged form 'the $F\alpha$ '. Until Plantinga presents independent evidence for his analysis, the Millians can maintain the view that proper names are just like individual constants in quantificational logic, which also accounts for the rigidity of names. In the next section, as opposed to Plantinga, I will claim that the complex structure whose logical form is similar to 'the $F\alpha$ ' is explicitly present in the object-language. According to my proposal, some occurrence of *Aristotle* is not implicitly understood as 'the $F\alpha$ ', but explicitly has the logical form of [the [[*Aristotle* w] C]] where ' w ' performs the same function as Plantinga's ' α '. Therefore, some

⁴Following (Salmon, 1982) and (Soames, 2002), I assume that there are mainly three kinds of arguments against descriptivism in Kripke's *Naming and Necessity*. The modal argument depends on the observations that the modal properties of the sentences that contain proper names are different from the modal properties of those that contain definite descriptions. Although the sentence *Aristotle was a philosopher* expresses a contingent truth, *The last great philosopher of antiquity was a philosopher* expresses a necessary truth. According to descriptivism, however, the two sentences must mean the same thing.

The epistemological argument relies on the similar observations with respect to the epistemological properties of the sentences including names. The sentence *Aristotle was a philosopher* is knowable *a posteriori* whereas *The last great philosopher of antiquity was a philosopher* is knowable *a priori*. The descriptivists, again, would have to claim that the two sentences are epistemologically equivalent.

The semantical argument is designed to show that the descriptive content associated with a proper name by speakers sometimes fails to designate what the name is supposed to designate, i.e., its referent. Suppose that all competent speakers of English associate *the logician who proved the Incompleteness Theorem* with the name *Gödel*, and that an unknown logician, Schmidt, had in fact proved the Incompleteness Theorem. Then every sentence that contains the name *Gödel* uttered by a speaker of English would be about Schmidt because the descriptive content associated with the name picks out Schmidt rather than Gödel according to descriptivism. However, no one would even notice that the utterance is about Schmidt rather than Gödel.

On Plantinga's account, *Aristotle* picks out the same individual in all possible worlds. Thus, *Aristotle was a philosopher* indeed expresses a contingent truth according to Plantinga. Assuming that the essence expressed by *Aristotle* is the Kripkean naming relation, the sentence is also knowable *a posteriori*. Therefore, Plantinga's account avoids the modal and the epistemological arguments against descriptivism. Nonetheless, it is not easy for Plantinga to avoid the semantical argument. The descriptive content of a proper name might pick out an object that is different from what the speaker intends to refer to. Plantinga needs to assume that speakers always associate the correct essences with proper names.

⁵Scott Soames (2002) enumerates the objections to a similar form of descriptivism that involves the actuality operator. According to Soames, the main objection is that rigidified definite descriptions interact with propositional attitude verbs in undesirable ways (Soames, 2002, 43-4). Since Soames does not discuss Plantinga's work, it is not clear if his objections apply to Plantinga's analysis of names.

occurrences of *Aristotle* must be understood as rigidified definite descriptions.

The second problem is that the essences that proper names allegedly express are unavailable to fully competent users of names. The appeal to essences such as ‘having the causal-historical naming relation to the name’ disregards a fundamental aspect of descriptivism. One of the most attractive characteristics of the Theory of Description is that one does not need to grasp a singular proposition in order to understand a sentence that contains a definite description. Grasping a singular proposition can be cognitively more demanding than grasping a general proposition. The speaker and hearer of a sentence that contains a definite description may not directly stand in an appropriate epistemic relation to the object designated by the description. They can, however, understand the meaning of the sentence because the understanding of the sentence requires only the knowledge of the properties expressed by the constituents of the sentence. We should be able to say the same thing for the application of the Theory of Description to proper names, if we want to extend the Theory to proper names at all.

Plantinga suggests that the typical essences expressed by the proper name *Aristotle* are the cluster of properties and the Kripkean naming relation between the name and the philosopher Aristotle. Such essences are available to virtually no competent English speaker. No one except a few historians would be able to identify what constitutes the cluster of properties or the causal chain. To identify such essences seems to be cognitively very demanding. If Plantinga’s analysis were correct, then the most competent speakers would not be able to understand the sentences that contain *Aristotle* simply because they do not know the essences expressed by the name. Moreover, if these essences must be internalized or stored as lexical entries in the speaker’s mind in order to use the name *Aristotle*, then no competent speaker would be able to use it. We would have to conclude that no one can understand and use the proper name *Aristotle*.

In what follows I propose a descriptivist analysis of proper names that solves these two problems while answering Kripke’s objections to classical descriptivism. I will explicate how rigid definite descriptions can be constructed based on the processes that are available to every competent language user.

3 Descriptivism with World Pronouns

3.1 General Discussion

I propose that the singular use of a proper name is a definite description whose descriptive content picks out one and the same object across all possible worlds. This descriptivist proposal depends on two assumptions about the semantics of natural language. The first assumption is that possible worlds and times are represented by covert variables called ‘situation pronouns’ in the object-language. The second assumption is that a determiner phrase in general is a context-sensitive expression. Let me briefly describe each assumption in turn.

A situation pronoun is a covert object-language expression that is similar to a personal pronoun (Cresswell, 1990; Percus, 2000; Kusumoto, 2005; Keshet, 2008; Schwarz, 2009). A situation pronoun receives its semantic value from an assignment function, just as a personal pronoun does so. A situation pronoun denotes a pair of a

possible world and a time while a personal pronoun denotes an object. Furthermore, situation pronouns can be arguments of predicates just like personal pronouns. The semantic contribution of a predicate to the content of the entire sentence that includes the predicate shifts depending on the semantic value of a situation pronoun that the predicate takes as its argument. For example, if one thinks that the semantic value of *philosopher* is the set of all actual and possible philosophers in the past and the future, then the semantic contribution of the predicate with respect to the world-time pair (the actual world, now) would be the set of all existing philosophers in the actual world right now. When we ignore the element of time, the idea of shifting the meaning of a predicate depending on the value of a situation pronoun is equivalent to that of Plantinga's indexing a property with a certain possible world. For simplicity, I focus on the modal element, and call situation pronouns 'world pronouns'. Thus, a predicate takes a world pronoun as its argument and yields the meaning with respect to a given value of the coexisting world pronoun.⁶

The second assumption for my descriptivist analysis is that some mechanism realizes the context-sensitivity of a determiner phrase. Determiner phrases such as quantificational phrases seem to be context-sensitive. For example, consider

(6) Every philosopher agreed.

We would not usually utter (6) to convey that everything in the universe that satisfies the predicate *philosopher* also satisfies the predicate *agreed*. We would usually intend to talk about a restricted set of philosophers in a certain circumstance. For example, in one context of use, the utterance might be about all philosophers at a certain philosophy conference. In another context, the utterance might be concerned with all philosophers in a certain classroom. There must be a process that restricts the domain of a determiner phrase in some way or other.⁷

Here is my analysis of proper names based on the two assumptions. The singular use of a proper name is a covert definite description. The syntactic structure of the singular use of *Aristotle* can be represented as follows:

(7) [DET [[Aristotle *w*] *C*]]

where *w* is a world pronoun and *C* is a variable that introduces the domain restriction. I also claim that the determiner DET has the same semantic value as a definite article *the*. In what follows I will simply use *the* instead of DET. A proper name as a natural language expression is a predicate that is satisfied by a bearer of that

⁶For the motivations for situation pronouns, see (Cresswell, 1990; Percus, 2000; Keshet, 2008).

⁷This type of context-dependent phenomena is sometimes called 'quantifier domain restriction' in the literature. Largely there are two approaches to the problem of quantifier domain restriction: indexicalism and contextualism (Recanati, 2004, Ch.4). According to the indexicalist approach, the *mandatory* saturation of some hypothesized variables restrict the domains. By contrast, the contextualist approach hypothesizes an *optional* cognitive process that locally applies to the customary semantic content of an expression to create the contextually appropriate content. In this paper I adopt the indexicalist approach to the problem of quantifier domain restriction (von Stechow, 1994; Stanley and Szabó, 2000; Stanley, 2002, 2005; Martí, 2003; Giannakidou, 2004; Etxeberria and Giannakidou, 2008). However, I do not have to be committed to any specific account of the phenomena of quantifier domain restriction given the purpose of this paper. For a contextualist account of the on-the-fly content construction, see (Carston, 2002; Wilson and Carston, 2007).

name. Whatever that bears the name satisfies the predicate.⁸ For example, the name *Aristotle* is satisfied by a bearer of the phonological string 'Aristotle'. Everything that is called 'Aristotle' satisfies the predicate *Aristotle*. The philosopher Aristotle satisfies the predicate *Aristotle*, as well as all people, animals, places, etc. that share the same Greek name.⁹ Every predicate coexists with a world pronoun, and its semantic contribution depends on the value of the coexisting pronoun. So the semantic value of the predicate *Aristotle* is first combined with that of w as the structure (7) indicates. The pronoun w receives its value via an assignment of values to variables. The composed semantic content of the phrase [*Aristotle w*] determines the set of the objects that are called 'Aristotle' in a certain possible world, which is in turn combined with the content of the domain restriction variable C . The value of the domain restriction variable C determines the set of contextually salient objects. If the set determined by the value of C is small enough, then the composed descriptive content expressed by [[*Aristotle w*] C] would determine a singleton set. Therefore, the definite description (7) can uniquely designate an object.

Also notice that the description can be a rigid designator. Suppose that the world pronoun w in (7) receives the actual world as its value. Then, the semantic content expressed by [*Aristotle w*] would determine the same set of objects in any counterfactual circumstance because the content is always about those that are called 'Aristotle' in the actual world. If C provides a sufficiently restricted domain, then (7) would designate the same object across all possible worlds. Thus, *Aristotle* in *Aristotle was a philosopher* can rigidly designate the unique contextually salient individual who is called 'Aristotle' in the actual world. In an ancient philosophy class, the description (7) is most likely to designate the philosopher Aristotle because the speaker and hearers have ancient philosophers in their minds.

This analysis is a form of descriptivism because it assimilates the singular use of a proper name to a definite description [*the φ*] where $φ$ expresses a complex descriptive content. I hypothesize two steps that produce the complex descriptive content expressed by $φ$. First, the semantic content expressed by a proper name must be combined with the value of a world pronoun w , which is a possible world. The composition of the contents of the name and the world pronoun determines the set of the objects that have the same name in a certain world. Where w stands for the actual world, the semantic content of [*Aristotle w*] determines the set of all objects that bear the name 'Aristotle' in the actual world. Second, the semantic content of [*Aristotle w*] is combined with the value of C , which determines the set of contextually salient objects. We can regard the contextually salient objects as those to which the speaker and hearers are temporally paying attention during conversation. These two steps narrow down the meaning of the predicate *Aristotle* to a singleton set. That is, the descriptive content expressed by [[*Aristotle w*] C] picks out a unique object across all possible worlds.

Now I want to address the two problems of Plantinga's descriptivist analysis discussed in the last section.

⁸I do not have to presuppose any semantic framework given the purpose of this paper. I do not presuppose what the semantic value or the semantic content of an expression is. One can use one's favorite semantic theory to implement Burge's idea that names are one-place predicates, although Burge prefers a Davidsonian truth-theory. For example, one could say that a proper name expresses the property of being a bearer of that name. Whatever is called by the name possesses the property. Alternatively, as I will do so later, one could say that proper names as well as common nouns denote sets of objects relative to possible worlds.

⁹For the defense of the metalinguistic or the quotation theory of names, see (Katz, 1994, 2001; Bach, 2002).

The first problem is that Plantinga's analysis seems *ad hoc*. The proposed analysis does not suffer from this problem. Unlike Plantinga, I derive the logical form [the [[$F w$] C]] from the semantic structure of determiner phrases in general. The logical form is not invented to rescue descriptivism. World pronouns and domain restriction variables are motivated on independent grounds. Therefore, my analysis of proper names is not *ad hoc*.

The second problem is that Plantinga's essences are unavailable to competent users of proper names. The process of creating a descriptive content discussed in this section is, by contrast, available to every competent speaker. For the process depends on the general characteristics of determiner phrases and on the straightforward metalinguistic meaning of a name. In contrast to Plantinga and classical descriptivists, I do not think that each name is associated with a complicated descriptive content. The speaker and hearer can obtain a singleton set by contextualizing the simple metalinguistic meaning of a name. To learn the meaning of the name *Aristotle* is no more than to recognize that people use a certain sequence of sounds (or letters) as a name. Therefore, the proposed analysis solves the two problems of Plantinga's descriptivism.

3.2 A Formal System

For concreteness I sketch a fragment of a semantic theory for English that represents the descriptivist analysis presented above. The theory is within the referential or model theoretic framework in the sense of (Lewis, 1970). The notations and particular rules are based on (Heim and Kratzer, 1998) and (Keshet, 2008). Every predicate selects a world pronoun as its first argument. The semantic value of a predicate is a function from possible worlds to sets of objects in the possible worlds (or their characteristic functions). World pronouns explicitly exist in LF's.¹⁰ World pronouns bear indices and they receive values from assignment functions just as ordinary pronouns (e.g. *he*₃) do. Interpretation functions are parametrized to assignment functions and contexts. Following (Percus, 2000), I also posit an indexed operator Σ_i in LF's. The operator Σ_i plays the same role as Heim and Kratzer's numerical indices except that it is an abstractor for world pronouns. Σ_i binds a world pronoun with index i . One Σ_i exists at one sentential clause. For example, the syntactic structure of *Mary thought her husband was a burglar* would be expressed as follows:

$$(8) \quad \Sigma_1 [\text{Mary thought } \Sigma_2 [[\text{her husband } w_1] \text{ was } [\text{a burglar } w_2]]]$$

The meaning of $\Sigma_i \hat{\ } [\dots i \dots]$ is a function from possible worlds to truth-values (i.e., a proposition). Because of Σ_i , the world pronoun with index i becomes a variable over possible worlds.¹¹

I use the Fregean presuppositional analysis of definite articles (Heim, 1991; Elbourne, 2005) and a simplified version of Jason Stanley's nominal restriction theory (Stanley, 2002) to realize domain restriction. The nominal element in a definite description selects another $\langle e, t \rangle$ in addition to a world pronoun. Let ' C ' be the name

¹⁰LF is the level of syntactic representations that are produced by the language faculty (Chomsky, 1995). I assume that an LF representation receives semantic interpretations. Note that LF is different from the traditional notion of 'logical form' (Stanley, 2000; Pietroski, 2007)

¹¹For the details, see (Heim and Kratzer, 1998, 186, (4)).

of a syntactic item to which a context gives as its value the set of salient objects in the context. Predicate Modification applies to the value of C and the nominal content that is relativized to the value of a world pronoun, whose output will be the argument of a definite article. The lexical entries can be specified as follows:

- (9) a. $\llbracket \text{the/DET} \rrbracket = \lambda f_{\langle e,t \rangle} : \exists! x(f(x) = 1). \iota x(f(x) = 1)$
 b. $\llbracket \text{Aristotle} \rrbracket = \lambda w. \lambda x. x \text{ is called 'Aristotle' in } w$
 c. $\llbracket w_i \rrbracket^\sigma = \sigma(i)$
 d. $\llbracket C \rrbracket^c = \lambda x. x \in c_C (= \{x : x \text{ is a contextually salient object}\})$

Therefore, the singular use of proper names and definite descriptions share their syntactic and semantic structures:

- (10) $[\text{the} [[F w_i] C]]$

where *the* can be unpronounced in English.¹²

3.3 The Virtues of Descriptivism with World Pronouns

Now I want to show that the proposed form of descriptivism answers Kripke's arguments against classical descriptivism. First of all, consider the modal argument against descriptivism. Kripke claims that descriptivism makes an incorrect prediction that a contingent statement such as,

- (11) Aristotle is called 'Aristotle',

expresses a necessary truth. Since descriptivism analyzes a name as having a certain descriptive content, whatever it is, the predicate that has the same content makes a sentence necessarily true. This accusation does not apply to my analysis of proper names. Certainly, the sentence (11) contains two instances of the same predicate because I analyze the name *Aristotle* itself as a predicative expression. However, on the proposed semantics, every predicate coexists with a covert world pronoun. So the two instances of the same predicate in (11) may or may not have the coindexed world pronouns. (11) is thereby structurally ambiguous in, at least, two ways:

- (12) a. $\Sigma_1 \left[\text{the} [\text{Aristotle } w_0 C] [\text{is-called-'Aristotle'} w_1] \right]$ (contra-indexed)
 b. $\Sigma_1 \left[\text{the} [\text{Aristotle } w_1 C] [\text{is-called-'Aristotle'} w_1] \right]$ (co-indexed)

¹²On the Fregean analysis of definite descriptions, 'the ϕ ' designates the ϕ only if there is exactly one ϕ . If there is exactly one ϕ , 'the ϕ is ψ ' is true if and only if the unique ϕ is ψ . It is worth mentioning that the metalinguistic or the quotation theory of proper names, which I adopt in this paper, is compatible with the theory of direct reference. On the metalinguistic analysis of proper names, names themselves are not directly referential expressions. However, on the proposed system, the singular use of a proper name is a complex, context-sensitive directly referential phrase. For the defense of the Fregean analysis of definite descriptions, see (Elbourne, 2005, Ch.3) and (von Steup, 2004).

I suppose that there is no constraint on the distribution of world pronouns.¹³ In (12a) w_0 is free and an assignment function provides a possible world as its value. Suppose that the assignment function g assigns the actual world to w_0 . The LF (12a) yields a contingent proposition with respect to g : the one that is true with respect to any possible world w if and only if

- (13) the unique object x , such that x is called ‘Aristotle’ in the actual world and among the contextually salient objects, is called ‘Aristotle’ in w

The proposition (13) is true in some worlds and false in the others because something that is called ‘Aristotle’ in the actual world may not be called ‘Aristotle’ in a different world. Therefore, the sentence (11) can be contingent.

Also note that (12b) captures the *de dicto* reading of (11). There is a sense in which (11) is necessarily true. Someone whose name is ‘Aristotle’ must be called ‘Aristotle’. The proposition expressed by the LF representation (12b) is necessarily true because anything that is called in a certain way in a certain possible world is called in the same way in the same world. Therefore, my descriptivist analysis of names is flexible enough to produce such *de dicto* readings.

The solution to the epistemological argument has the same structure. The proposition (13) is not knowable *a priori*. To learn that someone who is called ‘Aristotle’ in the actual world is also called ‘Aristotle’ in a possible world w is significant and amplifies one’s knowledge.

Since C provides a restricted domain, descriptivism with world pronouns can also answer the semantical arguments. Kripke points out that some of the descriptive contents that classical descriptivism associates with names fail to pick out the referents of the names. For example, if speakers associate with the name *Feynman* the descriptive content ‘being a famous American physicist’, then the descriptive content would apply to a number of objects. And, hence, the descriptive content would fail to pick out the referent of the name, i.e., Feynman. However, the new analysis does not associate what classical descriptivism associates with the name. According to the proposed analysis, the descriptive content of *Feynman* used in an argument position is ‘being an object who is called ‘Feynman’ among the set of salient objects’. Therefore, the name *Feynman* can uniquely designate an individual, regardless of the speakers’ knowledge.

The proposed analysis is also applicable to the Gödel case.¹⁴ The singular proper name *Gödel* designates a unique conversationally salient person who is called ‘Gödel’. Schmidt is never called ‘Gödel’. Therefore, the name *Gödel* cannot pick out Schmidt in the standard Gödel case.

Plantinga speculated that the logical form of a proper name is [*the* [$F \alpha$]], which had no independent justification. The current understanding of natural language suggests a similar semantic structure for proper names. I proposed that the accurate logical form is [*the* [[$F w$] C]] where w can stand for the actual and possible worlds. The logical form also incorporates the process of domain restriction, which is in any case required to account for the context-sensitivity of determiner phrases. Since the complex predicate [[$F w$] C

¹³For possible constraints on the distribution, see (Percus, 2000; Keshet, 2008).

¹⁴See fn.4.

] can produce rigidity, proper names can be rigid designators. Through this paper I proposed a descriptivist analysis of proper names that can avoid Kripke's objections in a non-*ad hoc* manner.¹⁵

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¹⁵I discuss in my dissertation how the proposed analysis answers Soames's objections to descriptivism and retains the virtues of classical descriptivism (Izumi, 2010), where I also eliminate Stanley's domain restriction indices by reducing them into the theory of situation pronouns.

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