

Names are Variables

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Abstract

MILLIANISM and DESCRIPTIVISM are without question the two most prominent views with respect to the semantics of proper names. However, debates between MILLIANS and DESCRIPTIVISTS have tended to focus on a fairly narrow set of linguistic data and an equally narrow set of problems, mainly how to solve with Frege's puzzle and how to guarantee rigidity. In this paper, I focus on a set of data that has been given less attention in these debates—namely so-called *predicative* uses, *bound* uses, and *shifted* uses of names. I first show that these data points seem to favor a DESCRIPTIVIST view over a MILLIAN view, but I then introduce an alternative view of names that not only provides a simple and elegant way of dealing with the data, but also retains rigidity without becoming subject to the problems raised by Frege's puzzle. This is the view that names are variables, also called VARIABILISM.

Keywords

proper names, descriptions, pronouns, variables, philosophy of language, semantics.

Introduction: A Familiar Debate

Millianism

The orthodox view in philosophy of language with respect to proper names is MILLIANISM. This is the view that the meaning of a name is exhausted by its reference and consequently that a name contributes only its reference to the truth conditions

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of a sentence. In a standard intensional semantics, the lexical entry for a name would therefore be the following.¹

$$\llbracket \text{Del Naja} \rrbracket^{c,g,i} = \text{Del Naja}$$

This simple analysis of names, owing to Mill (1843) but popularized by Kripke (1980), has a wide array of significant upshots, but one in particular is generally agreed to be especially important, namely that names are *rigid designators*. Rigid designation is defined as follows.

RIGID DESIGNATION

A term τ is a *rigid designator* iff for all worlds w and w' : $\llbracket \tau \rrbracket^{c,g,w} = \llbracket \tau \rrbracket^{c,g,w'}$

In other words, an expression τ is rigid iff its reference is constant across possible worlds and it is easy to see that names satisfy this constraint given a MILLIAN analysis. The extension of a name is insensitive to parameters of the index, so shifting parameters of the index will never result in shifting the extension of the name. Hence, the extension of any name remains constant across all possible worlds.

This upshot of the Millian view is significant, because it concurs with predominant judgments about the meaning of names in certain modal and counterfactual environments. For example, if the modal ‘might’ in (1) is used to make a claim about what is metaphysically possible (i.e. as an existential quantifier over metaphysically possible worlds), it is widely agreed that the sentence is false.

- (1) Del Naja might not have been Del Naja.

If names are rigid, the truth of (1) would require the existence of a metaphysically possible world where the law of identity fails. Since, presumably, such a world is *impossible*, the Millian analysis correctly predicts that (1) is false—indeed *necessarily* false.

The Millian analysis is, however, not without problems, the most famous being *Frege’s Puzzle*. This is the observation that co-extensional names may differ in what

¹I follow standard practice of using double brackets, $\llbracket \cdot \rrbracket$, as a function from expressions to semantic values, c as a context of utterance, g as a variable assignment (a function from natural numbers to individuals in the domain), and i as an index. In this paper, I will make the simplifying assumption that the index consists of only a possible world and therefore suppress i in favor of a simple *world*-parameter. Hence, $\llbracket \text{Del Naja} \rrbracket^{c,g,i}$ is a function from an expression, a context c , an assignment g , and a possible world w to the semantic value (the extension) of that expression at c , g , and w .

Frege referred to as *cognitive value* (1892, 151). To illustrate, suppose that the names ‘Del Naja’ and ‘Banksy’ are co-extensional. Given this, the MILLIAN analysis predicts that (2) and (3) have identical meanings.²

- (2) Del Naja is Del Naja.
- (3) Del Naja is Banksy.

The sentence in (2) is intuitively uninformative and knowable a priori; coming to know that the famous rapper and producer from Massive Attack, Robert Del Naja, is self-identical seems trivial as this follows straightforwardly from the law of identity. By contrast, the sentence in (3) is informative and knowable only *a posteriori*; coming to know that Del Naja is identical to the infamous street artist and political activist, Banksy, seems *highly* informative, especially as Banksy’s identity is generally unknown. Moreover, acquiring this information seems to require something beyond purely non-empirical reasoning. Accordingly, it would be natural to conclude that (2) and (3) must differ in meaning.

In an effort to resist this conclusion, one could argue that this alleged difference in cognitive value is irrelevant with respect to semantic analysis. After all, if ‘Del Naja’ and ‘Banksy’ really are co-referential, one might think that these sentences must have identical truth conditions. And since semantics plausibly deals in truth conditions and not *cognitive values* (whatever those are), one might argue that a difference in cognitive value need not be captured by the semantic analysis.

However, as is well known, there are cases where the substitution of co-extensional names do intuitively affect the truth conditions, for example when names occur within the scope of propositional attitude verbs. Consider (4) and (5).

- (4) Goldie believes that Del Naja is Del Naja.

²I should provide some background to this example: Robert Del Naja (also known as ‘3D’) is a British musician and member of the Bristol-based trio *Massive Attack*. Banksy is a street artist who is famous mainly for his political art, namely murals and installations that have appeared in major cities across Europe and the United States. Banksy’s identity is generally unknown, but some people believe that Del Naja is Banksy. One reason is that Banksy’s early work grew out of the underground graffiti scene in Bristol which is also where Del Naja started his career. Moreover, some people have noticed that Banksy’s murals have consistently appeared in places where Massive Attack were concurrently on tour, cf. <https://www.independent.co.uk/arts-entertainment/music/news/banksy-robert-del-naja-massive-attack-art-who-is-he-identity-real-name-graffiti-music-similarities-a7805741.html>. I have no firm opinion on the plausibility of this theory, but simply note that this makes for an excellent illustration of Frege’s puzzle.

(5) Goldie believes that Del Naja is Banksy.

It is relatively easy to imagine a context where (4) is intuitively true, but (5) is intuitively false. Given this, it seems natural to conclude that the truth conditions of these sentences must differ. However, if it is assumed that the meaning of a name is *exhausted* by its reference, then the content of (4) is ipso facto semantically identical to the content of (5), and so it is not clear that such a difference in truth conditions can be captured.³ Consequently, it seems that Frege's puzzle is a *prima facie* problem for MILLIANISM after all.

Much more could be said about the virtues and vices of MILLIANISM, but for now let's turn to the main opposing view.

Descriptivism

In philosophy of language, the term DESCRIPTIVISM refers to a family of broadly related views. What these views have in common is that names are analyzed as having some kind of fundamentally descriptive meaning. For the purposes of this paper, I will focus on one subclass of these views, namely so-called METALINGUISTIC DESCRIPTIVISM. Generally speaking, this is the view that the truth conditional contribution of a name is some kind of descriptive element involving a naming constraint.⁴ For example, the meaning of the name in 'Del Naja' (6) is sometimes argued to be equivalent to a definite description whose restrictor expresses one of the naming constraints in (6a)–(6d).⁵

³Some people deny that there is a truth conditional difference between (4) and (5), e.g. Salmon (1986), but I assume that the claim that there is an *intuitive* difference in truth conditions, i.e. that one can conceive of a possible state of affairs in which (4) is true while (5) is false, is generally accepted.

⁴This means that I am ignoring one particular brand of DESCRIPTIVISM championed by Frege (1892) and Russell (1905), sometimes referred to as *famous deeds descriptivism*, and various cluster-type variants of these views, e.g. Searle (1958). This is partly because I consider METALINGUISTIC views more plausible, but also for simplicity. The problems raised in this paper for METALINGUISTIC DESCRIPTIVISM apply equally to these views.

⁵I remain agnostic as regards the plausibility of these suggestions since it is irrelevant for the purposes of this paper. This is simply to emphasize that even within the subclass of METALINGUISTIC views, there is still disagreement regarding the formulation of the naming constraint.

- (6) Del Naja is a musician.
- a. The person called Del Naja is a musician. (Kneale, 1960)
 - b. The thing which is the bearer of ‘Del Naja’ is a musician. (Katz, 2001)
 - c. The /del Naja/ is a musician. (Matushansky, 2006)
 - d. The Del Naja is a musician. (Fara, 2015)

When names are analyzed as contributing some kind of descriptive content, this raises an immediate question about the extent to which this is reflected in the syntax. There are several positions that one may take with respect to this question. One option is what I will refer to simply as SEMANTIC DESCRIPTIVISM. This is the view that names are syntactically simple but have the semantics of a Fregean definite description. The lexical entry for the name ‘Del Naja’ would therefore look something like (7).⁶

$$(7) \llbracket \text{Del Naja} \rrbracket^{c,g,w} = \begin{cases} (\iota x. \text{Del Naja}(x) \text{ in } w) & \text{if } |\{x: \text{Del Naja}(x)\}| = 1 \text{ in } w \\ \text{undefined} & \text{if } |\{x: \text{Del Naja}(x)\}| \neq 1 \text{ in } w \end{cases}$$

On this view, there is a significant syntactic difference between names and definite descriptions; the logical form (LF) of the sentence in (8) is (8a) while the LF of the sentence in (9) is (9a). However, given the SEMANTIC DESCRIPTIVIST analysis of names, the meaning of (8) and (9), i.e. the truth conditional content of (8) and (9), is equivalent.

- (8) Del Naja is a musician.
- a. [_S [_{NP} Del Naja] [_{VP} is a musician]]
- (9) The person called Del Naja is a musician.
- a. [_S [_{DP} [_D the] [_{NP} person called Del Naja]] [_{VP} is a musician]]

Another option is what I refer to as SYNTACTIC DESCRIPTIVISM. This is the view that names only *appear* syntactically simple, but are in fact full-fledged definite descriptions at LF. So, for example, while the surface form of (8) might intuitively suggest a syntactic structure similar to (8a), it actually has a more complex syntactic structure, namely that given by (9a). In other words, according to SYNTACTIC DESCRIPTIVISM, names are syntactically complex. Note that this is a view solely about the *syntax*

⁶In this lexical entry ‘ $(\iota x. \text{Del Naja}(x) \text{ in } w)$ ’ is used as a name in the metalanguage for the unique individual called Del Naja in w .

of names, so it is neutral with respect to the semantics of definite descriptions. In particular, SYNTACTIC DESCRIPTIVISM is compatible with both a referential analysis and a (Russellian) quantificational analysis of definite descriptions.

Finally, there is PREDICATIVIST DESCRIPTIVISM or simply PREDICATIVISM. This is the view that names are *predicates* (or *count nouns* to be precise) with a corresponding predicative meaning, for example (10).

$$(10) \quad \llbracket \text{Del Naja} \rrbracket^{c,g,w} = [\lambda x. x \text{ is called Del Naja in } w]^7$$

This view may seem to face an immediate and obvious problem, namely that any *bare* occurrence of a count noun in argument position of a predicate is ungrammatical, cf. (11) and (12).

(11) *Tiger is a musician.

(12) *Carrot is a musician.

So, if names are count nouns, sentences such as (8) should be ungrammatical. However, the key PREDICATIVIST assumption is that if a name occurs in argument position of a predicate, as in e.g. (8), its immediate syntactic sister is a phonologically null definite determiner. The LF of (8) is therefore the same as that given by (9a) except that the definite determiner is unpronounced (indicated below using strikethrough), cf. (13) and (13a).

(13) Del Naja is a musician.

a. [_S [_{DP} [_D ~~the~~] [_{NP} person called Del Naja]] [_{VP} is a musician]]

This phonologically null determiner composes with the name (i.e. the predicate) to form a definite description, the content of which is then contributed to the truth conditions of the sentence. In other words, like SYNTACTIC DESCRIPTIVISM, PREDICATIVISM is committed to some non-trivial theoretical assumptions about the syntax of

⁷Just as there is disagreement among proponents of METALINGUISTIC DESCRIPTIVISM in general about the nature of the naming constraint, there is also disagreement internally among proponents of PREDICATIVISM about how to explicate the meaning of the predicate. For example, some proponents of PREDICATIVISM maintain that names should be individuated by phonology rather than orthography and that this has to be reflected in the semantics, cf. Matushansky (2006, 2008). Worries about vicious circularity have also been raised to this particular aspect of the view, cf. Gray (2012, 2014, 2017). As before, these issues are largely orthogonal to my main points, so I will ignore the issue here and simply assume the simple ‘*x* is called *N*’ formulation. For those worried that this formulation involves a use-mention confusion, see Fara (2011).

sentences containing names. However, it is important to notice that PREDICATIVISM is not committed to the assumption that names are syntactically complex. Names are mere count nouns according to this view. This may seem a fairly innocuous difference between PREDICATIVISM and SYNTACTIC DESCRIPTIVISM, but this is in fact an advantage for PREDICATIVISM. I discuss this issue in more detail later.⁸

One of the main virtues of DESCRIPTIVIST views in general, and indeed one of the features that originally motivated these views, is that the problem raised by Frege's Puzzle never arises. This is easily demonstrated. If the meanings of the names in (2) and (3) are equivalent to two definite descriptions, say 'the person called Del Naja' and 'the person called Banksy', it is obvious why (2) is uninformative and knowable a priori whereas (3) is informative and only knowable a posteriori. Relatedly, it is also easy to explain why someone might not believe that Del Naja is identical to Banksy despite believing that Del Naja is self-identical. For example, one might simply not be aware that the unique individual instantiating the property of being called Del Naja is identical to the unique individual instantiating the property of being called Banksy.

The technical explanation of these predictions is that co-extensional definite descriptions need not be co-intensional. What a definite description denotes depends on the extension of its descriptive predicate at the world of evaluation and given that extensions of predicates may vary across possible worlds, a description may therefore denote one individual at one world and denote a different individual at another world.

In conclusion, if names are analyzed as descriptions, the reference of a name may change across metaphysically possible worlds and this straightforwardly explains why (5) can be false while (4) is true and, plausibly, why (2) and (3) are judged to differ in *cognitive value*.

However, adopting a DESCRIPTIVIST analysis necessitates giving up rigidity since RIGID DESIGNATION entails that co-extensional names are also co-intensional. And as Kripke (1980) famously observed, this is a problem for DESCRIPTIVISM, because not only is (1) incorrectly predicted to have a true interpretation, it is also predicted to be synonymous with (14).

⁸As regards the syntax of names, the locus classicus for SYNTACTIC DESCRIPTIVISM is Russell (1905). For extensive arguments in favor of the syntactic assumptions underlying PREDICATIVISM, see Fara (2015).

(14) Del Naja might not have been the person called Del Naja.

Yet, standard judgments indicate that (1) and (14) are not synonymous as (1) is intuitively false, while (14) seems clearly true. Hence, while DESCRIPTIVISM avoids the problem raised by Frege's puzzle, this comes at a price, namely relinquishing the rigidity of names.

A New Pathway for Settling the Debate about Names

The reason I am here rehashing these already familiar and widely debated issues is to highlight a simple point, namely that the most debated strengths/weaknesses of the most prominent semantic theories of names are direct inverses. While MILLIANISM struggles with the problem raised by Frege's Puzzle, this is a consequence of the prediction that names are rigid designators. By contrast, while DESCRIPTIVISM avoids the problem raised by Frege's Puzzle, it does so at the cost of predicting that names are non-rigid.

Historically, the philosophical literature on the semantics of names has focused heavily on how these two theories might resolve their respective problems. Yet, given the interdependent nature of these problems, one might think that alternative data points should be considered in order to settle the debate. The aim of this paper is, first, to draw attention to a range of somewhat neglected data points that once analyzed suggest that DESCRIPTIVISM is empirically superior to MILLIANISM, and, second, to argue that there is an underexplored alternative to MILLIANISM that handles the additional data points with relative ease yet retains the prediction that names are rigid without being subject to the problems raised by Frege's puzzle! This is the view often referred to as VARIABILISM which most recently has been defended by [Cumming \(2008\)](#) and [Schoubye \(2017\)](#). If this is correct, this view would be empirically superior to both MILLIANISM and various versions of DESCRIPTIVISM and hence should be considered a serious contender in this debate.

In the next section, I detail a variety of uses of names that have received limited attention in the literature on the semantics of names. The purpose is to evaluate the extent to which the standard theories, i.e. MILLIANISM and DESCRIPTIVISM, can deal with this data.

Neglected Data Points

Predicative Uses of Names

A *predicative use* of a name is a use where it seems to function syntactically and semantically as a predicate as for example in (15)–(20).⁹

- (15) At least three Ottos attended the meeting.
- (16) There is more than one Aksel at the meeting.
- (17) Many Sarahs attended the meeting.
- (18) Every Louise attended the meeting.
- (19) The Michael who married a Louise attended the meeting.
- (20) Most Jespers do not attend meetings.

Syntactically, the names in these sentences are composed with a quantificational determiner ('more than one', 'at least three', 'many', 'every', 'most') and hence constituents of determiner phrases (DPs). Semantically the names appear to express properties, namely name-bearing properties. The most natural interpretation of, for example, (15) is that at least three people *called* Otto attended the meeting.

Predicative uses of names pose an immediate problem for MILLIANISM. These uses cannot plausibly be analyzed as referential terms as referential terms do not normally express properties nor function syntactically as immediate constituents of determiner phrases. In other words, predicative uses seem to directly contradict the Millian thesis that the meaning of a name is exhausted by its reference.¹⁰

As for DESCRIPTIVISM, predicative uses of names might seem less problematic as names on these views are assumed to express property-involving meanings—properties that happen to coincide with those expressed by the predicative uses of names in sentences such as (15)–(20). Yet, to what extent this data is friendly to

⁹Sloat (1969) and Burge (1973) were, to my knowledge, the first to seriously consider these uses, but their discussions were mostly ignored or dismissed. This seemed to change only about ten years ago when several proponents of PREDICATIVISM, mainly Elbourne (2005), Matushansky (2006, 2008), and Fara (2015), started emphasizing the importance of this data. When presenting this material, I find that these uses of names are sometimes dismissed as only marginally felicitous and/or extremely rare, but since it is easy to find multiple naturally occurring examples of these uses in both English and a wide variety of other languages, I am not aware of any convincing reason to accept those claims.

¹⁰Now, one frequent and fairly natural response to this *prima facie* problem is to argue that names are simply systematically ambiguous between referential and predicative types and that MILLIANISM is only intended to provide an analysis of the former. However, such an ambiguity view is problematic for a variety of reasons. I will discuss these reasons in detail in later sections.

DESCRIPTIVISM depends in large part on the syntactic and semantic assumptions underlying the particular views. For example, if one assumes that names are syntactically simple but have the semantics of definite descriptions, i.e. SEMANTIC DESCRIPTIVISM, then the cases in (15)–(20) are clearly problematic. Semantically, a definite description cannot compose with a quantificational determiner, so it is unclear how such a view would compositionally predict the right truth conditions. Alternatively, if it is assumed that names are syntactically complex, for example along the lines of SYNTACTIC DESCRIPTIVISM, then one should predict that the sentences in (15)–(20) are *ungrammatical* as in English a definite description cannot combine syntactically with various quantificational determiners. In short, it is not clear that predicative uses of names are more easily captured by DESCRIPTIVIST views in general. However, there is one DESCRIPTIVIST view that handles this data seamlessly, namely PREDICATIVISM. If names are analyzed as count nouns, the syntactic and semantic behavior of a name should presumably parallel the behavior of every other count noun. As a result, PREDICATIVISTS predict that names should be able to combine with quantificational determiners just like all other count nouns and this is exactly what the data suggests. So, it seems that with respect to predicative uses of names, PREDICATIVISM has a significant advantage over both MILLIANISM, but also various other DESCRIPTIVIST views.¹¹

Bound Names

A *bound* use of name is an occurrence of a name in argument position of a predicate where the meaning of the name intuitively co-varies with some antecedent, typically an indefinite determiner phrase. For example, consider the uses of the names in (21) and (22) below.

- (21) If a child is christened ‘Bambi’, Disney will sue Bambi’s parents.

(Geurts, 1997, 321)

¹¹As regards the distributional data concerning names and determiners, I am ignoring one particular complication, namely that names cannot in general occur with ‘the’, i.e. ‘The Del Naja is a musician’ is normally judged to be anomalous. Building on observations from Sloat (1969), Fara (2015) offers an elegant explanation of this fact that supports a general PREDICATIVIST view, but see Jeshion (2017) for a response. These are somewhat nitty gritty details that do not subtract from the general conclusion that PREDICATIVISM is significantly better positioned to account for predicative uses of names than both MILLIANISM and various other types of DESCRIPTIVIST views.

- (22) Every woman who has a husband called John and a lover called Gerontius takes only Gerontius to the Rare Names Convention. (Elbourne, 2005)

The names in these sentences do not intuitively refer to some specific individual. Rather, (21) seems to express a general claim about individuals named ‘Bambi’ (and what happens to their parents) and (22) seems to express a general claim about individuals named ‘Gerontius’ (and what conventions they get to attend). However, if it is assumed that the meaning of the above occurrences of ‘Bambi’ and ‘Gerontius’ is simply their respective referents, the co-varying interpretations cannot be captured. As a result, *bound* uses of names also appear to pose at least a prima facie problem for the MILLIAN thesis that the meaning of name is exhausted by its reference.

As for DESCRIPTIVISM, bound uses of names are to some extent expected. It is well known that definite descriptions have similar kinds of *bound* (or *co-varying*) interpretations, see e.g. (23) below.

- (23) In every philosophy department in the country, at least one student aced the exam in *Logic 1*.

(23) has a natural interpretation where the description ‘the exam in *Logic 1*’ co-varies with philosophy departments. In other words, this sentence has an interpretation where it is true if the students in question aced *different* exams. So, if the meaning of a name is equivalent to some definite description, one should expect that names too are susceptible to these kinds of bound interpretations.

How exactly bound interpretations of definite descriptions are best syntactically and semantically analyzed is, admittedly, a non-trivial issue and it seems likely that the best explanation of bound uses of names will vary depending on the type of DESCRIPTIVISM in question. For example, Elbourne (2005) who is a proponent of PREDICATIVISM, argues that definite descriptions contain a free individual variable that is either bound by a higher quantifier or saturated by the context. This assumption is then used to explain how the bound interpretation of ‘the exam in *Logic 1*’ arises for (23). Izumi (2013), another proponent of PREDICATIVISM, adopts a situation semantics where the description is associated with a bindable situation variable that gives rise to different denotations relative to different situations. However, notwithstanding the complexities of capturing bound interpretations of definite descriptions, the main point here is that if names are analyzed as definite descriptions and it is antecedently acknowledged that descriptions can have bound interpretations, sentences such as

(2) and (3) do not pose a problem for DESCRIPTIVIST views. Whatever theory best captures standard bound interpretations of definite descriptions will also suffice to capture bound interpretations of names.

In addition to the intra-sentential bound uses of names in (21) and (22), names also have *cross-sentential* bound uses, for example (24).

- (24) There is a gentleman in Hertfordshire by the name of ‘Ernest’. Ernest is engaged to two women. (Cumming, 2008, 526)

The proposition expressed by the second sentence of (24) is intuitively a general existential proposition rather than a singular proposition. That is, the truth of this sentence does not depend on a *specific* individual. It is intuitively true as long as *some Ernest or other* is engaged to two women.

Suppose, for instance, that I deduce [24] solely from onomastic and marital trends in the Home Counties. In that case, I have no particular Ernest in mind when I utter [24], and my claim must be a general, existential one.

(Cumming, 2008, 536)

So, as should be obvious, cross-sententially bound uses of names are equally problematic for the MILLIAN thesis that the meaning of a name is exhausted by its reference. And, once again, this result is to some extent anticipated by DESCRIPTIVISM since definite descriptions have essentially parallel uses, i.e. uses where the meaning of the description is intuitively anaphoric on an indefinite determiner phrase in an antecedent sentence, cf. (25).

- (25) There is a gentleman named Ernest in Hertfordshire. The gentleman named Ernest is engaged to two women.

As in (23), the proposition expressed by the second sentence of (25) is a general existential proposition and not an object-dependent proposition whose truth depends on the relational properties of some *specific* individual.

To conclude, it again seems that the data generally favors DESCRIPTIVISM over MILLIANISM.

Shifted Names

As mentioned above, the thesis that the meaning of a name is exhausted by its reference entails rigidity. Moreover, it entails that co-extensional names are co-intensional

and hence immune to operators whose function is to shift the parameter governing the world of evaluation, i.e. modal operators. This is a desirable result in certain cases, for example in (2) where the modal is used to quantify over metaphysically possible worlds. However, we have already seen cases where rigidity arguably fails, namely (4) and (5). In these cases, the names are embedded in the scope of propositional attitude verbs that are standardly analyzed as modals. Thus, in order to predict that (4) and (5) differ in truth value, it seems that one would have to assume that the names in (4) and (5) are not rigid.

However, since propositional attitude verbs are arguably some of the most semantically complex expressions in natural language, proponents of MILLIANISM might be inclined to think that cases such as (4) and (5) are problematic mainly because our present understanding of these expressions is too primitive.¹² Unfortunately, the same issue arises with simple *epistemic* modals. For example, given that Banksy's identity is currently unknown, an utterance of (26) is intuitively true if we have positive reasons to believe that Del Naja is the person responsible for Banksy's work.

(26) Del Naja might be Banksy.

If, unbeknownst to any of us, Del Naja is in fact not Banksy, the standard view predicts that (26) is false, but this seems contrary to standard judgments in these cases.¹³

As is the case for *predicative* uses and *bound* uses of names, MILLIANISM again appears to face a problem with respect to *shifted* uses. While the semantics of epistemic modals remains a controversial topic, the standard Kratzerian "contextualist" view, simplifying somewhat, is that an epistemic modal claim such as (26) is true if the prejacent, i.e. the sentence syntactically embedded under the modal, is true at some possible world compatible with the speaker's epistemic state.¹⁴ In other words, as long as it is compatible with the speaker's beliefs that Del Naja is the artist known as 'Banksy', the sentence is true.

¹²For example, Kripke (1979) appears to hold this view.

¹³As a piece of anecdotal evidence, I did come across one actual occurrence of (26) online: "Wait!? What?! Del Naja might be Banksy? Holy f!".
https://www.reddit.com/r/Music/comments/5n3vm8/on_mezzanine_massive_attack_tried_to_escape/. It seems quite clear that in this context both the speaker and the audience would take the sentence in (26) to be clearly true.

¹⁴See, for example, Kratzer (1977), Kratzer (1981), von Stechow and Gillies (2011).

The observations about shifted uses of names is just more grist to the general DESCRIPTIVIST mill. Remember, according to DESCRIPTIVISM, the names in (26) are descriptions with distinct intensions and, so, assuming a run-of-the-mill modal analysis of ‘might’, capturing the truth of (26) is straightforward. It is easy to imagine a possible world w' that is compatible with the speaker’s beliefs where the individual called Del Naja in the actual world is identical to the individual called Banksy in w' (where this individual is assumed to have a certain set of additional properties, namely being responsible for the work generally attributed to Banksy).

So, in conclusion, it again seems that the data favors DESCRIPTIVISM.

Scoreline

At this point, it would not be unreasonable to conclude that the benefits of MILLIANISM are outweighed by its drawbacks. MILLIANISM struggles not only with the problems raised by Frege’s puzzle, but also with capturing *predicative* uses, *bound* uses, and *shifted* uses of names. In addition, while MILLIANISM is typically hailed for its prediction that names are rigid, the existence of shifted uses of names suggests that this prediction is not always desirable.

By contrast, DESCRIPTIVISM seems to be doing noticeably better with respect to these data points and PREDICATIVISM in particular appears to struggle only with capturing the truth conditions of sentences containing names that are embedded under non-epistemic modals. For this reason, one might be tempted to conclude that PREDICATIVISM is the empirically superior view.

The aim of this paper is not to provide a defense of MILLIANISM nor to argue in favor of PREDICATIVISM. Rather, the aim is to introduce and carefully consider the merits of an alternative view, namely VARIABILISM. In the remainder of this paper, I will argue that VARIABILISM provides simple and elegant explanations of *predicative*, *bound*, and *shifted* uses of names and nevertheless manages to retain the most important virtue of MILLIANISM, namely predicting that names are rigid. Moreover, I will argue that VARIABILISM also has a way of avoiding the problems raised by Frege’s puzzle.

VARIABILISM is in many ways very similar to MILLIANISM, so proponents of MILLIANISM would not be giving up much by embracing the VARIABILIST analysis. Throughout this paper, I will therefore tend to focus on how VARIABILISM compares to MILLIANISM in an effort to explain why this different but closely related view has so much more explanatory potential. I will devote less time to a discussion of the problems with PREDICATIVISM. The reason for this is partly that I have already

discussed these problems in detail in Schoubye (2018), but I am also hoping that by the end of this paper it will be clear that VARIABILISM provides a significantly better account of the data than PREDICATIVISM..

Variabilism

On my preferred version of VARIABILISM, the analysis of names is analogous to the standard analysis of pronouns. Specifically, names are assumed to be assignment dependent singular terms with a presuppositional constraint where this constraint is semantically equivalent to a pronominal ϕ -feature.¹⁵ So, the semantics of the name ‘Del Naja’ is the following:¹⁶

$$(27) \quad \llbracket \text{Del Naja}_i \rrbracket^{c,g,w} = \begin{cases} g(i) & \text{if } g(i) \text{ is called Del Naja in } w_c \\ \text{undefined} & \text{otherwise} \end{cases}$$

In other words, the semantic value of a name N is a partial function that takes a variable assignment as input and returns an individual as output, namely the individual that is determined by the assignment and the name’s numerical index. This function is partial, because it is only defined for an argument g if the individual determined by g has the property of being called N . The partiality of the function represents a semantic presupposition that the intended referent of the name is called that name and if this presupposition is not satisfied, the function will then be undefined for that particular argument and yield no output. In short, if a name N is used to refer to an individual who is not called N , the presupposition associated with the name will be unsatisfied and hence the name will fail to semantically refer.

I should emphasize that VARIABILISM is proposed as an analysis of *referential* uses of names only, i.e. occurrences of names in argument position of a predicate. In other words, it is not intended to provide an immediate explanation of *predicative* uses of names. The general idea, however, is that a VARIABILIST analysis of referential uses of

¹⁵This particular version of VARIABILISM was first introduced and defended in Schoubye (2017). For earlier versions of VARIABILISM, see e.g. Yagisawa (1984), Recanati (1993), Haas-Spohn (1995), Dever (1998), and Cumming (2008). See also Heim (1998) and Lasersohn (2016).

¹⁶A less perspicuous lexical entry, but one that better captures that the meaning of a name relative to a variable assignment is a *partial function* could look like this:

$$\begin{aligned} \llbracket \text{Del Naja}_i \rrbracket^{c,g,w} &= [\lambda g' : g'(i) \text{ is called Del Naja in } w_c. g'(i)](g) \\ &= g(i) && \text{(if defined)} \end{aligned}$$

names provides a simple and elegant explanation of (a) the relation between referential and predicative uses and (b) why predicative uses are systematically available and widely cross-linguistically attested.

The similarities between a VARIABILIST analysis of names and the standard analysis of pronouns should be fairly obvious. Pronouns are also normally analyzed as variables, i.e. assignment dependent singular terms with presuppositional constraints. For example, a standard semantics for the pronoun ‘she’ looks something like (28).¹⁷

$$(28) \quad \llbracket \text{she}_i \rrbracket^{c,g,w} = \begin{cases} g(i) & \text{if } g(i) \text{ is female in } w_c \\ & g(i) \text{ is a singular individual in } w_c \\ & g(i) \text{ is not the speaker or the addressee in } w_c \\ \text{undefined} & \text{otherwise} \end{cases}$$

So, a pronoun triggers the presupposition that its referent satisfies its associated ϕ -features (i.e. person, number, and gender features). As a result, if the pronoun ‘she’ is used to refer to an individual who is not female (or perhaps does not identify as female), the pronoun fails to refer.

There is wide range of significant similarities between names and pronouns and I discuss several of these in subsequent sections. For now, however, it is important to emphasize that given my proposed analysis, names are predicted to be rigid designators. Since the semantic value of a name relative to an assignment is simply an individual, modal operators cannot shift its extension. Consequently, it is never going to be the case that the extension of name can shift simply as a result of shifting the world of evaluation. The same, of course, holds for pronouns. In short, with respect to rigidity, VARIABILISM is aligned with MILLIANISM. Given this, it might be difficult to understand how VARIABILISM could possibly be a significant improvement over MILLIANISM, but the crucial differences between these views lie in the details. The following sections are dedicated to spelling these out.

A Variabilist Account of the Data

Variabilism and Predicative Uses of Names

The only immediate way for the MILLIAN analysis to deal with predicative uses of names is to assume that names are *type*-ambiguous and, moreover, to maintain that

¹⁷cf. Heim and Kratzer (1998, 242-245).

the MILLIAN thesis is restricted to referential uses of names. However, one reason that predicative uses of names are still problematic for MILLIANISM is that there is no semantic link between predicative uses and referential uses.¹⁸ On the MILLIAN analysis, the truth conditional contribution of a name used referentially is nothing but the individual that the name refers to. Indeed, this is supposed to be a virtue of MILLIANISM, because if information about the name of the referent was part of its truth conditional content, this would give rise to various problems in modal contexts, e.g. counterfactual contexts where the referent has a different name. Despite this, it seems that *some* semantic information about the name of the referent is needed in order to explain certain phenomena, for example inferences such as (29) and (30).

(29) Otto is a linguist. So, at least one Otto is a linguist.

(30) No Aksel is a linguist. So, Aksel is *not* in a linguist.

These inferences are *indexically* valid. That is, the truth of the premise in some context c intuitively necessitates the truth of the conclusion in c . However, given a MILLIAN analysis of referential names, it is not clear how to account for these inferences. For example, in (29), the premise contains no truth conditional information about the name of the referent. For (29) to be true at a context c , all that is required is that the referent of ‘Otto’ is a linguist. In other words, it is technically possible for the premise to be true in c while the conclusion is false in c .¹⁹

Now, another natural response to this *prima facie* problem for MILLIANISM is to argue that names are not simply type-ambiguous, but rather polysemous and that the relation between referential and predicative uses therefore requires a metasemantic or pragmatic explanation. Leckie (2013), for example, takes this approach and offers a broadly pragmatic explanation of these inferences on behalf of the MILLIAN.

However, notice that there inferences that involve pronouns that seem analogous to the inferences involving names. For example, these inferences are also indexically

¹⁸The arguments in this section are abbreviated versions of arguments given by Schoubye (2017).

¹⁹Specifically, the MILLIAN semantics fails to rule out contexts where $\llbracket \text{Otto} \rrbracket^{c,w_c} \in \{x: x \text{ is a linguist in } w_c\}$, but $\llbracket \text{Otto} \rrbracket^{c,w_c} \notin \{x: x \text{ is called Otto in } w_c\}$, and in fact $\{x: x \text{ is called Otto in } w_c\} = \emptyset$. In this model, the premise is true, but the conclusion is false. As noted by a referee for this journal, it would be quite odd for there to be a context in which the name ‘Otto’ refers to someone who is not, in that context, called Otto. However, that is precisely the problem. The MILLIAN semantics does not provide resources to rule this out. Moreover, even if such contexts were subsequently ruled out by appealing to pragmatic factors, this would not change the fact that the inference is then predicted to be indexically invalid.

valid.

- (31) She is a linguist. So, at least one female individual is a linguist.
- (32) No female individual is a linguist. So, she is not a linguist.

Of course, one could argue that a metasemantic or pragmatic explanation is also needed to account for these types of inferences, but there is a simpler and more natural explanation that is consistent with the standard analysis of pronouns, namely that the pronoun ‘she’ triggers a presupposition that its reference is female. Hence, if the premise in (31) is true in some context *c*, the conclusion straightforwardly follows in *c*, because the pronoun ‘she’ only refers if its reference is female.

On the VARIABILIST analysis of names advocated here, the exact same kind of explanation applies. Since the name ‘Otto’ triggers a presupposition that its referent is called Otto, then if the sentence ‘Otto is a linguist’ is true in some context *c*, it immediately follows that ‘at least one individual called Otto is a linguist’ is also true in *c*. Moreover, note that although this presuppositional information is semantically encoded, it is not part of the truth conditional content. A presupposition merely constrains the domain of individuals which may be assigned as semantic values, so the contribution to the truth conditions is simply an individual.

This is, admittedly, not a knock down argument against MILLIANISM, but it does suggest that there is an important semantic link between predicative uses and referential uses and that the semantics of names should account for this link. Moreover, if it can be shown that names and pronouns are importantly similar, then it seems much less plausible to assume that the explanations of the apparent validity of the inferences in (29)-(30) and (31)-(32) must be fundamentally different. The fact that a VARIABILIST analysis provides a simple and elegant explanation of these inferences and that this explanation is analogous to the explanation of the equivalent inferences involving pronouns is a strong reason to favor the VARIABILIST analysis over the standard MILLIAN analysis.

As regards the similarities between names and pronouns, notice that pronouns *also* have predicative uses.²⁰ For example:

²⁰The distribution of predicative pronouns in English is, however, somewhat limited. For example, it seems doubtful that you can use pronouns with various English determiners, e.g. ‘*Every he has horns’ or ‘*Some shes hunt’, although I get conflicting responses to this question. That said, it is worth noting that these uses are acceptable in certain other languages, e.g. Danish: ‘Alle hanner har horn’ and ‘Nogle hunner jager’ are grammatical and felicitous. Interestingly, with respect to names, we see the opposite

- (33) a. She loves classical music.
 b. Oh, is your kitten *a she*?
- (34) a. To avoid fights over territory, there is only one male and one female in each park.
 b. I see. Is that *the she*?
- (35) a. I don't like him, but she's very cute.
 b. Both the kittens are *shes*.

This seems to suggest that pronouns are also ambiguous between referential and predicative uses (even if the distribution of predicative uses of pronouns is smaller than the distribution of predicative names).

Setting aside that postulating an ambiguity between referential and predicative names is not going to help the MILLIAN explain the validity of the inferences above, it is important to emphasize that this kind of stipulation is problematic for other reasons. First, predicative uses of names seem systematically available for names in English and are widely cross-linguistically attested. This makes it very implausible that this is a case of brute ambiguity. Second, it seems that *competence* with referential uses generally suffices for competence with predicative uses. For example, if a speaker is competent with referential uses of the name 'Otto', typically the speaker will then also be perfectly capable of understanding or inferring the meaning of a predicative use of this expression even if it is novel. Yet, if names are simply ambiguous, then it would be unclear why competence with one use would generally suffice for competence with the other. After all, being competent with one of the meanings of 'bank' is not generally sufficient for a speaker to be competent with its alternative meanings.

This means that if one stipulates that names are *type*-ambiguous between referential uses and predicative uses, one then needs an explanation of both the systematicity and cross-linguistic consistency of this apparent ambiguity as well as an explanation of the issue of competence.

One plausible explanation, that a proponent of VARIABILISM might appeal to, is that

pattern in Danish. Names cannot be pluralized, and hence cannot be used with the same range of determiners as in English. For example, the Danish equivalent of 'At least three Davids have worked on indexicals', viz. 'Mindst tre David-er har arbejdet på indeksikaler' is ungrammatical. If anything this suggests that the distribution of predicative names and pronouns is very language dependent. One other interesting point is that predicative uses of pronouns only seem capable of expressing the property associated with its gender feature. The same is the case in Danish. I do not have a good explanation for this.

predicative uses of names (and pronouns) are the result of so-called morphological zero-derivations. Consider the word 'bottles'. This is the plural form of the word 'bottle' and it is the result of adding the plural suffix in English '-s' to the word 'bottle'. In other words, 'bottles' is morphologically derived from the word 'bottle' and the plural suffix '-s'. A zero-derivation (also called a *conversion*) is a case where an expression is morphologically derived from another expression, but where there is no actual change in morphology. For example, the *verb* 'bottle' (as in 'please bottle the wine') is morphologically derived from the *noun* 'bottle' (as in 'this is a good bottle of wine'). So, the expression 'bottle' is (at least) two-way ambiguous in English as it could either be the noun or the verb.

There are two strong indicators of morphological derivations. First, that competence with one expression typically suffices for competence with the derived expression and, second, that there is some level of systematicity involved, i.e. that the derivational process is manifested in other structurally similar cases. For example, it is plausible that the plural noun 'bottles' is derived from its singular counterpart, because competence with the meaning of the singular generally suffices for competence with the plural and the derivation of a plural noun using the suffix '-s' is productive, i.e. there is a systematic pattern in English whereby nouns are pluralized by adding the suffix '-s'.²¹ By contrast, it is implausible that one of the meanings of 'bank' is morphologically zero-derived from the other because (a) competence with one meaning does not generally afford competence with the other and (b) there is no systematic pattern of nominal ambiguity of this sort in English. More generally, in order for a morphological zero-derivation to be plausible, there has to be *some kind* of tangible relation in meaning between the original expression and the derived expression and this is not the case with the meanings of 'bank'.

Now consider the proposed VARIABILIST analysis of names. Given this analy-

²¹I am not suggesting that in order for a lexical item to be the product of a zero-derivation, it *must* be the case that a speaker who is competent with the original expression is automatically capable of inferring the meaning of the derived expression. These processes are complex, context-dependent, and extra-linguistic factors often seem to play a role. I am told that in parts of Glasgow, Scotland, the word /bottle/ can be used both to describe the act of hitting someone with a bottle ('he bottled me on the head') and the property of being drunk ('he is completely bottled'). It is unlikely that a speaker who is only competent with the noun would be able to understand these uses simply by reflecting on its meaning. That said, it would be equally implausible to assume that these uses of /bottle/ are *conversions* of the noun if the meaning of the noun was completely absent in the derived expressions. Hitting someone on the head with a bottle clearly involves an object which would normally be aptly described using the noun 'bottle'.

sis, there are good reasons to think that predicative uses are morphological zero-derivations of referential uses. First, these two uses share an essential component of meaning. For example, a referential use of the name 'Otto' presupposes that its referent has a certain property, namely that its referent is called Otto. That is, the constraint that the referent of a referential use of 'Otto' must satisfy is simply to have the property of being called Otto and this is simply the meaning of 'Otto' when used predicatively. It is this relation in meaning that explains why competence with the referential use generally suffices for competence with the predicative use. Second, since predicative names are ubiquitous in English, this might suggest that there is a general productive mechanism that allows the derivation of predicative names from referential names. Finally, given that predicative uses of names are widely cross-linguistically attested, one might think that this is simply more evidence that this kind of mechanism is productive in other languages.

In conclusion, VARIABILISM provides a simple and elegant explanation for the existence of predicative uses of names and their relation to referential uses of names. By contrast, this kind of explanation is not available to the MILLIAM, because according to this view there is no information encoded in the semantics of a name that could ground the derivation of any relevant predicate. That is, if the Millian analysis is correct, there is nothing about the meaning of a referential name that is in any way similar to the meaning of its predicative counterpart. So, this means that not only must the inferences above be pragmatically explained, so must the issue of competence.

Alternative Predicative Uses of Names

There are a variety of other predicative uses of names that one might worry that the VARIABILIST semantics proposed above cannot account for. One example is the use of a name to express some kind of characteristic property. For example, the name 'Einstein' is often used to mean something like 'intellectual genius', cf. (36) below.

(36) Frank is real Einstein.

Similarly, the name 'Romanov' in (37) may simply refer to a specific kind of group membership, e.g. membership in the Romanov dynasty, rather than bearing the name 'Romanov'.

(37) Sue is a Romanov.

And ‘Picasso’ as used in (38) may refer to a product with a certain feature relating to Picasso, for example that it is a replica of a painting by Picasso or that it was physically signed by Picasso, and so on.²²

(38) Mary bought a Picasso.

I will refer to these predicative uses of names in general as ‘predicative *non-naming* uses’, but in my discussion below, I will focus mainly on characteristic property uses. The general points, however, apply to the other uses as well.

In my discussion of predicative uses, I considered several problems with a MILLIAN type-ambiguity view, namely the view that names are straightforwardly ambiguous between MILLIAN referential uses and predicative uses. These problems were mainly *competence*, *language internal consistency*, and *indexical validities*. I then argued that with a VARIABILIST analysis of referential uses, these problems are easily solved and hence that a type-ambiguity view is perfectly plausible. However, the main ingredient in this VARIABILIST solution is the presupposition associated with referential names, namely that the referent is called the relevant name. But, as the referee correctly notes, it seems that such an analysis will not have a semantic relation between referential names and predicative *non-naming* uses of names. The putative problem, therefore, is whether a VARIABILIST analysis can also solve these problems for predicative non-naming uses. This, however, assumes that predicative non-naming uses are subject to the same problems. My claim is that they are not.

First, regarding competence, in order to understand (or somehow infer) that the name ‘Einstein’ in (36) can mean ‘intellectual genius’, it is not sufficient that one is competent with the referential counterpart of ‘Einstein’. After all, one may even be competent with using the name ‘Einstein’ to refer to Albert Einstein and not have the slightest idea that he is world famous for his intellect. So, simply understanding the meaning of ‘Einstein’ as used referentially is not enough to then infer that the name is (sometimes) used to mean ‘intellectual genius’ when used predicatively. With less conventional predicates, this gets even more obvious. If you overhear someone saying ‘I consider myself a Carrie more than a Samantha’, then merely being competent with

²²This far from exhausts the list of possible predicative uses of names, see e.g. Jeshion (2015) for further examples and in-depth discussion. It is my impression that the conventionality of these expressions vary a great deal and that some predicative uses, given the right context, can be introduced on the fly. However, as should become clear in the following, I think that only predicative *naming* uses of names, i.e. uses where the name means ‘individual called *N*’, are particularly problematic for MILLIANISM.

referential uses of ‘Carrie’ and ‘Samantha’ is clearly not going to suffice for you to understand (or infer) what the speaker said.²³

This sharply contrasts the cases where a name *N* is used to mean ‘individual called *N*’. In such cases it seems that mere competence with the referential use of the name is generally sufficient for grasping or inferring the predicative use. In my view, this suggests that there is a relation in meaning between the referential use of a name and its predicative *naming* counterpart. And this relation could, as the VARIABILIST would have it, be a relation between a presupposition associated with the referential use and the meaning of the predicative use.

Second, regarding language internal consistency, in English every name appears to have a predicative naming use, i.e. a use where it expresses something like ‘individual called *N*’. This alone strongly suggests that there must be a generalized mechanism that facilitates the derivation of one from the other. Notice, also, that it is quite difficult to imagine that a referential name *N** could be introduced into English without then subsequently permitting the derivation of a corresponding predicative naming use, i.e. a predicative use where it would mean ‘individual called *N**’.

By contrast, it is not the case that every name in English can immediately be used to predicate a *non-naming* property and, comparatively, these uses are exceedingly rare. Consequently, there is no obvious reason to think that there is an important relation in meaning between the referential use of a name *N* and a predicative non-naming use of *N*. Nor is there any good reason to think that there is a generalized mechanism that allows the derivation of one from the other.²⁴

Finally, I argued earlier that the inferences in (29) and (30) are indexically valid and that this cannot be explained if one assumes that names are type-ambiguous while also accepting a standard MILLIAN analysis of referential names. However, a referee for this journal noted that a similar type of inference could be argued to hold between referential uses and non-naming uses of names, e.g. characteristic property uses. If this is correct, it would be a problem for both MILLIANISM and VARIABILISM.

²³On most occasions, you would instead need to be fairly familiar with the TV show ‘Sex in the City’.

²⁴That is, it may be a case of ambiguity that is not a problem for either MILLIANISM or VARIABILISM. However, this is of course not to suggest that it is a complete coincidence that the name ‘Einstein’ is used to mean ‘intellectual genius’ rather than, say, the name ‘Jones’ or ‘Smith’. This obviously has something to do with Albert Einstein. All I am arguing here is that there are no obvious reasons to think that the characteristic property use of ‘Einstein’ is somehow morphologically zero-derived from the referential expression ‘Einstein’.

The referee provided an example similar to (39).

- (39) There are no Einsteins [intellectual geniuses] in attendance. Hence, Albert Einstein is not in attendance.

However, the worry with this inference is that it is not indexically valid. To see why, simply imagine a context where a speaker truly asserts both ‘There are no Einsteins [intellectual geniuses] in attendance’ and ‘Albert Einstein is in attendance’. Such a context is clearly possible. It is a context where Albert Einstein is not an intellectual genius. There is nothing inherently inconsistent about such a context.

By contrast, a context where someone truly asserts both ‘There are no Einsteins [individuals called Einstein] in attendance’ and ‘Albert Einstein is in attendance’ *does* seem inconsistent. It is not possible for there to be no individuals called Einstein in attendance if the speaker, in that context, can truly assert ‘Albert Einstein is in attendance’. This, I think, again highlights an important difference between predicative naming uses of names and predicative non-naming uses of names. The former, but not the latter, has an important relation in meaning to referential uses of names that must be captured semantically.²⁵

Here is another way of illustrating this point.²⁶ Consider the sentence in (40).

- (40) Einstein is not an Einstein.

If the predicate in (40) is interpreted as meaning ‘individual called Einstein’, the sentence seems somehow anomalous. In particular, it appears that a speaker cannot assert this sentence without making some a linguistic mistake: If Einstein is not called Einstein, then it should not be possible to refer to Einstein using that name. But if it is possible, then the sentence is trivially false. By contrast, if the predicate is interpreted as a characteristic property (e.g. ‘an intellectual genius’) or group membership (e.g. ‘a member of the Einstein dynasty’) or a product (e.g. ‘a replica of a painting by Einstein’), then the sentence is perfectly acceptable.

In short, the predicative non-naming uses of names are quite different from the predicative naming uses. It thus seems very plausible that non-naming uses are just unproblematic cases of an ambiguity.

²⁵This leaves the question why (39) arguably seems like a good inference? My guess is that it is because the argument is very subtly enthymematic. It has a suppressed premise, namely that Albert Einstein is an intellectual genius, but this premise is already common ground.

²⁶Thanks to Brian Rabern, p.c.] for suggesting this way of illustrating the problem.

Variabilism and Bound Names

As regards bound uses of names, VARIABILISM has an immediate and obvious advantage over MILLIANISM. If one assumes that names are pronouns, then it should come as no surprise that names have bound uses as this is a hallmark of pronominal expressions. Specifically, if names are formally analyzed as variables, then one should expect names to be sensitive to operators whose explicit function is to shift variable assignments (e.g. nominal quantifiers). Since names *do* have bound uses (as demonstrated in previous sections), any view that makes this prediction has a *ceteris paribus* advantage over views that predict that bound uses should not be possible.

However, one potential problem for VARIABILISM is the relative infrequency of bound uses. If names are pronouns, one might expect names to have bound interpretations in more or less the same cases as pronouns as long as the requisite conditions for licensing binding are in place. In binding theory it is standardly assumed that a pronoun and its antecedent must be co-indexed and that the antecedent must *c-command* the pronoun in order to bind it. Moreover, the grammatical features of the pronoun must match the features of its antecedent—this is typically referred to as *feature matching*. Consider the example below.

- (41) [Every person called Del Naja]₁ thinks he_{1/2} is a genius.²⁷

The sentence in (41) has two possible interpretations. The DP ‘every person called Del Naja’ *c-commands* the pronoun ‘he’ and the features of the pronoun (singular, 3rd person, masculine) match the features of the DP, so when the pronoun is used anaphorically (represented by co-indexing), this yields a bound interpretation of the pronoun. However, if we substitute the name ‘Del Naja’ for the relevant pronoun, we then retain both the structural relation between the name and the DP as well as the feature matching. So, we should expect there to be a bound interpretation of the name in (42) as well.

- (42) [Every person called Del Naja]₁ thinks Del Naja_{1/2} is a genius.

The problem, of course, is that there does not seem to be a natural bound interpretation of the name in (42). This now raises a question for the VARIABILIST, namely

²⁷In Government and Binding theory, cf. Chomsky (1981), the standard explanation for the lack of a bound reading in (41) is that it is a violation of *Principle B*, but if VARIABILISM is correct, names should most likely not be classified as *R-expressions* and would therefore not be subject to *Principle B*.

what explains this *prima facie* surprising result. If names are bindable variables, then why is there no bound interpretation of a name even when its features match with a co-indexed DP that *c*-commands it?

Although this may seem problematic for the *VARIABILIST*, there is a compelling psycholinguistic explanation of this apparent discrepancy. Terms such as pronouns, demonstratives, names, and definite descriptions can all be used to refer to the same things. They can also all be used anaphorically. But, as noted by Gundel *et al.* (1993), these expressions appear to be governed by a so-called *givenness hierarchy*. That is, depending on the cognitive status of their intended referent or their intended anaphoric anchor, different expressions are generally preferred. Simplifying somewhat, Gundel *et al.* (1993) observes that when the intended referent or the intended anaphoric anchor is *activated*, for example when it can be retrieved from the immediate linguistic environment, the use of a pronoun is strongly preferred over uses of both names and descriptions. So, even though a speaker can express the same content using (43)–(45), for most speakers there is a clear preference for (43) over both (44) and (45).

- (43) Otto₁ loves his₁ mother.
- (44) ? Otto₁ loves Otto's₁ mother.
- (45) ? Otto₁ loves [the mother of Otto]₁.

The same pattern can be observed in cases not involving possessives.

- (46) Otto₁ thinks that he₁ is a genius.
- (47) ? Otto₁ thinks that Otto₁ is a genius.
- (48) ?/# Otto₁ thinks that [the person called Otto]₁ is a genius.

Given this observation, it is hardly surprising that occurrences of bound names are fairly rare, because whenever an expression is bound, there will always be a retrievable antecedent, namely a binder, from the immediate linguistic context. Consider again (42). If the speaker intended a bound interpretation of the name, i.e. an interpretation where the second occurrence of 'Del Naja' is co-indexed with the antecedent DP, then the speaker could have used a pronoun and given that pronouns are generally preferred in cases where the intended antecedent is activated, the fact that the speaker did *not* use a pronoun will suggest that the speaker is *not* intending an anaphoric interpretation. In other words, because the speaker did not use a pronoun, the sentence is more naturally processed as expressing a non-bound (i.e. not co-indexed) interpretation of the name and this explains why the bound interpretation of the

sentence is so difficult to access. Finally, notice that the observation here is completely general. In cases where a bound interpretation of a name should in principle be available, the name is almost always in competition with a pronoun that would yield the same interpretation. As a result, using a name rather than a pronoun will almost always result in a non-anaphoric, and hence unbound, interpretation of the name. So, this observation explains not only the lack of a bound interpretation of the name in (42), but also the lack of bound interpretations in a wide variety of other cases, for example cases which might have been thought ought to be paradigmatic examples of bound names, e.g. (49) and (50).

(49) ? One woman called Louise₁ loves Louise's₁ mother.

(50) ? Every woman called Louise₁ loves Louise's₁ mother.

If the explanation above is correct, i.e. if names are consistently in competition with pronouns and pronouns are generally preferred over names with respect to bound interpretations, this then raises a different question, namely why would a bound interpretation of a name ever be licensed? Here it is important to emphasize that the observations made by [Gundel et al. \(1993\)](#) concern processing preferences. While the givenness hierarchy is a descriptive generalization, the general hypothesis that is supposed to explain this generalization is that while descriptively impoverished expressions require a high degree of cognitive activation, they are preferred because they are easier to process. So, when an intended referent is highly activated, for example by being retrievable from the immediate linguistic environment, a pronoun is preferred over names and descriptions because they place less cognitive demands on processing. Given this, one might think that a bound use of a name could be licensed in cases where using a pronoun would be more demanding with respect to processing than using a name despite the referent being activated.

One salient candidate for a case of this kind is the example due to [Elbourne \(2005\)](#)—repeated below.

(22) Every woman who has a husband called John and a lover called Gerontius takes only **Gerontius** to the Rare Names Convention.

In this case, if the pronoun 'he' had been used instead of the name 'Gerontius', the pronoun would have *two* potential antecedents, namely 'a husband called John' and 'a lover called Gerontius'. In other words, the sentence would be ambiguous between two possible interpretations, cf. below.

- (51) Every woman who has [a husband called John]₁ and [a lover called Gerontius]₂ takes only **him**_{1?/2?/3} to the Rare Names Convention.

Since there is no information available in the immediate linguistic environment as regards which antecedent is intended, processing the sentence becomes difficult. By contrast, using a name instead of a pronoun serves as a disambiguation and therefore simplifies the processing of the sentence. Consequently, the use of a name here, even for the bound reading, is licensed. Another example from [Elbourne \(2005\)](#) supports this explanation:

- (52) If John insists on calling his next son Gerontius, then his wife will be annoyed and **Gerontius** will get made fun of because of his name.

([Elbourne, 2005](#))

Again, if the second occurrence of ‘Gerontius’ is replaced by a pronoun, there is more than one possible anaphoric resolution, and even though the speaker might be able to disambiguate based on simple world knowledge, the complexity of the processing of the sentence is plausibly increased. So, again, using a name is preferred.

The explanation above not only explains why bound uses of names are generally infrequent, but it also explains why in at least some cases bound uses of names are licensed. While it is not clear that this explanation will work for every occurrence of a bound name, e.g. the example in (21) from Geurts, I think this suffices to show that VARIABILISM has a significant advantage with respect to bound uses of names over e.g. MILLIANISM. There may be further psycholinguistic or generally pragmatic observations that will explain why a bound reading of the name in (21) is licensed, but I will not explore these here. Instead I will now turn to another potential problem for the VARIABILIST view.²⁸

²⁸A referee for this journal suggested the example in (R1) and reported a judgment that the reading where ‘Jane’ is bound is as natural as the reading where ‘she’ is bound in (R2).

- (R1) Every man who knows [a woman called Jane]_i thinks Jane_i is genius.
(R2) Every man who knows [a woman called Jane]_i thinks she_i is genius.

However, I must confess that I disagree with this judgment. To me, (R1) is slightly awkward and (R2) seems clearly more natural than (R1). That said, I do think the referee is correct that the sentence in (R1) is less awkward than e.g. (42) and I grant that this cannot be immediately explained by my proposal above about bound names serving to disambiguate. So, at present, I simply do not have a good explanation of this observation. I am inclined to think that this just shows that the explanation I have provided above is not exhaustive. I think I am right that many bound interpretations of names

An attentive reader might have noticed that both Geurts' and Elbourne's cases of bound names are *donkey* cases. A donkey case is a sentence where an expression, typically a pronoun, is bound, but where the standard structural constraints that are assumed to govern binding are violated. In short, in a standard donkey case, the bound expression is not c-commanded by its antecedent. This could be a potential embarrassment to the VARIABILIST who may have thought that simply analyzing names as variables would immediately solve the problem of bound interpretations of names. However, since the most prominent examples (and possibly the only examples) of bound names are donkey cases, an explanation of these cases relying on the standard account of variable binding is not going to work.

One natural response here is to argue that the problems raised by donkey cases show that the orthodox view of variable binding must be reconsidered. Indeed, there are other independent reasons for drawing this conclusion since cross-sententially bound pronouns (and names) also cannot be captured on the standard view. In other words, there are independent reasons for thinking that some kind of dynamic binding theory explicitly designed to handle donkey anaphora and cross-sentential binding, e.g. Discourse Representation Theory (Kamp and Reyle, 1993; Kamp *et al.*, 2011), File Change Semantics (Heim, 1982), or Dynamic Predicate Logic (Groenendijk and Stokhof, 1991), is needed regardless. And once dynamic binding theory is adopted, capturing donkey type cases involving names is not a problem.

However, it is important to emphasize that even if a dynamic theory is adopted, it is key to capturing bound uses of names that these are analyzed as variables, i.e. pronouns. If names are analyzed as constants, which effectively is the MILLIAN view, then adopting a dynamic binding theory will do nothing with respect to capturing bound uses of names.

At this stage, I suspect that proponents of DESCRIPTIVISM might be keen to emphasize that the observation that the cases above are donkey cases appears to count in favor of their view. After all, DESCRIPTIVISTS analyze names as descriptions and one fairly standard approach to donkey pronouns is to treat these as covert definite descriptions.²⁹ However, it is important to note that DESCRIPTIVISM faces the same problem as VARIABILISM when it comes to capturing the *lack* of bound readings

are licensed precisely because they serve a disambiguating purpose, but likely there are other cases in which bound interpretations of names are licensed for another reason. It remains to be seen what these reasons might be.

²⁹See e.g. Evans (1977, 1980), Cooper (1979), Heim (1990).

of names and occurrences of cross-sententially bound names. To my knowledge, simply adopting a descriptivist analysis of pronouns is not going to help solve those problems.

Shifted Names and Shifted Pronouns

In the section on shifted uses of names, I argued that bare epistemic modals can give rise to failures of rigidity and consequently that these types of cases pose a significant problem for MILLIANISM. Yet, I suspect that some MILLIANS might respond that this criticism is misguided since it was never assumed that names are rigid in epistemic contexts.

I would emphasize that there need be no *contradiction* in maintaining that names are *modally* rigid, and satisfy a substitutivity principle for modal contexts, while denying the substitutivity principle for belief contexts. The entire apparatus elaborated in ‘Naming and Necessity’ of the distinction between epistemic and metaphysical necessity, and of giving a meaning and fixing a reference, was meant to show, among other things, that a Millian substitutivity doctrine for modal contexts can be maintained **even if such a doctrine for epistemic contexts is rejected**. ‘Naming and Necessity’ never asserted a substitutivity principle for epistemic contexts. (Kripke, 1979, fn.10, my emphasis).

However, even if we grant this, it remains unclear how MILLIANISM is supposed to handle shifted uses of names, for example cases such as (26), since capturing the truth conditions of such sentences intuitively requires the reference of a name to *shift* from its actual reference. But if the meaning of the name is exhausted by its (actual) reference, then this simply should not be possible. So, even if it is maintained that RIGID DESIGNATION is a principle restricted to *non*-epistemic contexts, it is not obvious that this solves the problem for MILLIANISM. That names are rigid is a consequence of the semantic analysis of names as constants, and so if epistemic modals are quantifiers over possible worlds, it remains unclear how to make the right predictions in such cases.

By contrast, shifted uses of names in epistemic contexts is not a problem for DESCRIPTIVISM since, as mentioned above, one of the main benefits of a DESCRIPTIVIST analysis is that co-extensional names need not be co-intensional.

So, what happens if names are analyzed as variables instead of constants as the VARIABILIST would have it? Presumably not very much, because if the reference of a term is determined entirely by the variable assignment, it then follows that the term is

rigid, cf. RIGID DESIGNATION above. In other words, if names are analyzed as variables, they remain immune to shifting by modals. So, it might seem that VARIABILISM is in the same boat as MILLIANISM with respect to shifted uses.

However, there is an elegant and theoretically fruitful way for the VARIABILIST to address this problem that is not available to the MILLIAN. To see this, let's start by considering another important similarity between names and pronouns, namely that names and pronouns have the same kind of modal profile. Like names, pronouns are also unshiftable by metaphysical modals. To demonstrate, consider (53).

(53) He might not have been Del Naja.

If the demonstrative reference of 'he' is Del Naja, then on a metaphysical interpretation of the modal, this sentence is intuitively false. This is analogous to the case where the name 'Del Naja' is substituted for the pronoun.

But, like names, pronouns *can* be shifted by epistemic modals. For example, assume that the speaker has reasons to believe that Del Naja is the individual responsible for Banksy's work and that while pointing to Del Naja the speaker asserts (54).

(54) He might be Banksy.

Given that it is consistent with the speaker's information state that Del Naja is the individual responsible for Banksy's work, the speaker's assertion of (54) seems clearly true. Moreover, this is not limited to 3rd person pronouns. Even the 1st person singular pronoun—one of the so-called pure indexicals, cf. Kaplan (1989)—can be shifted in this way. Just imagine that Del Naja wakes up in a hospital bed with severe amnesia and that he is given a copy of an article detailing all the evidence that he is Banksy. Since Del Naja is aware that he is suffering from severe amnesia and thus may have completely forgotten what he has been doing for the past couple of years, it seems that he may truthfully assert (55).

(55) I might be Banksy.

In short, it seems that we face the same problem with pronouns that we face with names, namely accounting for their shifty behavior in epistemic modal contexts but non-shifty behavior in non-epistemic modal contexts. Given this similarity between names and pronouns, it seems natural to suppose that the explanation of this behavior must be uniform. Yet, if names and pronouns are analyzed as fundamentally different

expressions, i.e. as constants and variables, then it is difficult to imagine that there could be such a uniform explanation.

The issue of shifted uses of pronouns (focusing specifically on indexicals) is addressed in detail by [Santorio \(2012\)](#). Santorio argues that in order to account for shifted uses of indexicals, we should think of epistemic modals not simply as operators whose function is to shift the world-parameter, but rather as operators whose function is to shift both the world-parameter and the assignment-parameter.

On the standard view, informational modals are, in essence, quantifiers over possible worlds. On the view I'm advocating, they also encode in their meaning an apparatus that locates real-world individuals within the set of worlds quantified over. Thus on the new picture these modals manipulate a greater amount of information. The classical picture had them quantify over a set of worlds connected to the actual world via an accessibility relation; on the new picture, they quantify in addition over counterparts of actual individuals in each of the worlds in the set. ([Santorio, 2012](#), 15)

The general idea behind Santorio's proposal can, I think, be summed up in the following way: A variable assignment is a mapping from variables to individuals that is determined by the context and it is generally assumed to be a representation of the referential relations that obtain given a certain set of features of the context where these features are to some extent independent of the speaker. By contrast, epistemic modals (or *informational* modals) are expressions whose meaning depends on a body of information, for example the presuppositions of one or more agents—typically including the speaker. It thus seems plausible that when an expression whose semantic value is determined by a variable assignment (which is a representation of the operative referential relations given a certain context) is embedded in the scope of an epistemic modal, i.e. a modal that is sensitive to a restricted and contextually determined body of information presupposed by one or more agents, the relevant assignments are shifted to reflect this body of information, i.e. to reflect what the agents in question, given their information state, construe as the relevant referential relations. Or in other words, to reflect how the agents in question are thinking of certain objects and individuals. The function of an epistemic modal is therefore not merely to quantify over a set of possible worlds compatible with the epistemic state of some agent(s), but in addition to align the representation of the relevant referential relations with the information presupposed by the agent(s) in question. This seems quite plausible especially when considered in relation to cases where speakers are

considering possible identities. What identities are taken to be possible is clearly relative to the information that is presupposed by the relevant agents and the way in which the agents are thinking of the objects in question.

Santorio therefore assumes that one function of an epistemic modal is to determine a range of epistemic counterparts:

[...] a relation of counterparthood is simply a relation of similarity (see Lewis (1968) and (1983)): x is a counterpart of y under a certain respect just in case x and y are sufficiently similar in that respect. More specifically, epistemic counterparthood is a three-place relation of similarity (x is an epistemic counterpart of y for a subject S) which captures a way a subject thinks of a certain object. y, z, \dots are epistemic counterparts of x for S just in case (a) S has beliefs about x and (b) y, z, \dots possess all the properties that S attributes to x . Epistemic counterparts are generally used, within possible worlds theories of mental content, to ‘locate’ actual world individuals within belief worlds of subjects. (Santorio, 2012, 13)

So, in the context where Del Naja wakes up in a hospital bed with severe amnesia, Del Naja has limited knowledge about himself. Maybe Del Naja knows that his name is ‘Del Naja’, that he is a member of Massive Attack, etc. These are properties that he attributes to himself. In this context, an epistemic counterpart for Del Naja will be any individual that also has those properties. For this reason, it is compatible with Del Naja’s information state that there is a counterpart who has all these properties, but in addition also has the property of being called Banksy, having constructed the *Baloon Girl* painting, etc. In short, there is a counterpart of Del Naja that is Banksy.

With respect to semantics, Santorio therefore assumes that in addition to determining an assignment function g , i.e. a function from variables x_1, x_2, \dots, x_n to individuals, the context c also determines a sequence of counterpart functions $F = \langle f_1, f_2, \dots, f_n \rangle$. Formally a counterpart function is an individual concept, i.e. a function from worlds to individuals, and for each variable x_1, x_2, \dots, x_n , there is therefore a corresponding counterpart function that maps $g(x_1), g(x_2), \dots, g(x_n)$ to its epistemic counterpart at various other worlds. What epistemic relation is represented by the sequence of counterpart functions depends on the context, namely the information state of the subject and the way in which the subject is thinking of the relevant object. The semantics for epistemic ‘might’ and ‘must’ is then stated as follows:

$$(56) \quad \llbracket \text{might} \rrbracket^{c,g,w} = \lambda p. \text{ for some } \langle g', w' \rangle \text{ accessible from } \langle g, w \rangle, \llbracket p \rrbracket^{c,g',w'} = 1$$

$$(57) \quad \llbracket \text{must} \rrbracket^{c,g,w} = \lambda p. \text{ for every } \langle g', w' \rangle \text{ accessible from } \langle g, w \rangle, \llbracket p \rrbracket^{c,g',w'} = 1$$

As regards *accessibility*, a pair $\langle g', w' \rangle$ will be accessible from $\langle g, w \rangle$ if and only if:

- i. w' is consistent with the speaker's information state at w .
- ii. $f_1(w) = g(1) \wedge f_2(w) = g(2) \wedge f_3(w) = g(3)$, and so on.
- iii. $g' = \{ \langle 1, f_1(w') \rangle, \langle 2, f_2(w') \rangle, \dots, \langle n, f_n(w') \rangle \}$

Given this semantics, a sentence such as (55) is predicted to be true relative to a context c , an assignment g , and a world w as long as there is a possible world w' (that is consistent with Del Naja's information state at w) where a counterpart of Del Naja is such that he is the individual responsible for Banksy's work. And, as mentioned above, in the context of Del Naja suffering from amnesia, there *is* a possible world consistent with Del Naja's information state where his counterpart is the artist Banksy. Hence, the sentence is true.

The purpose of this somewhat cursory explication of Santorio's proposal is not to argue that this is clearly the best explanation of shifted uses of pronouns. Indeed, there are several alternatives to Santorio's proposal. For example, Cumming (2008) has defended a variabilist analysis of names on the grounds that this can solve certain puzzles concerning shifted uses of names in belief attributions when combined with an analysis of belief verbs where these are treated as quantifiers over both possible worlds and assignments. Cumming's analysis does not explicitly involve counterparts, but it does rely fundamentally on the assumption that epistemic verbs, e.g. belief verbs, are *assignment shifters*. More recently, Ninan (2012, 2013) has defended a slightly more sophisticated version of a counterpart semantics (but otherwise similar to Santorio's) that is intended to deal with a more general puzzle concerning epistemic modals and various referential terms.³⁰ In other words, the view that epistemic modals manipulate the assignment function in addition to manipulating the world-parameter is becoming increasingly common.³¹

³⁰For a discussion of the differences between these views, see Rabern (2018).

³¹According to the widely accepted analysis of modals due to Kratzer (1977, 1981), modals are context-sensitive quantifiers over possible worlds and the role of the context is to determine a relevant domain of quantification. For example, if the sentence 'must ϕ ' is used to make a nomological claim, the context determines a set of possible worlds that are consistent with the natural laws and this is the domain of quantification for the modal. By contrast, if that sentence is used to make a claim about metaphysical necessities, the context then determines a set of metaphysically possible worlds instead. Since modals

Now, as should be obvious, if names are analyzed as variables, then an analysis of epistemic modals where these are treated as assignment shifters will also work for shifted names.³² For example, in the context of (26), there is a possible world consistent with the speaker's epistemic state where a counterpart of Del Naja is the individual responsible for the murals and installations generally attributed to Banksy, i.e. there is a possible world where Del Naja *is* the artist Banksy. In other words, by analyzing names as variables, the VARIABILIST can not only account for both shifted uses of names and pronouns, but do this in a completely uniform way.

By contrast, a semantics for epistemic modals along the lines of Cumming, Santorio, or Ninan cannot be used by the MILLIAN to account for shifted uses of names since according to MILLIANISM, names are not expressions whose semantic value is determined by a variable assignment. Consequently, any operator whose function is to manipulate the assignment function is by definition incapable of shifting the reference of such an expression. Moreover, notice that while VARIABILISM has the resources to deal with shifted uses of names, it does this without the result that names now violate RIGID DESIGNATION. In the context of a metaphysical modal, i.e. an expression that only manipulates the world parameter, the reference of any name (and any pronoun) will remain constant across every possible world. In short, a VARIABILIST analysis of names provides exactly what we need. A way of capturing why names have shifted uses in epistemic contexts, but no shifted uses in non-epistemic contexts. By comparison, MILLIANISM has no obvious and certainly no straightforward way of capturing shifted uses of names in epistemic contexts.

such as 'must', 'may', 'might', etc. can be used to make a multitude of different kinds of modal claims in both English and a wide variety of other languages, an analysis that treats these expressions in a uniform way seems highly preferable to a simple ambiguity view. However, by assuming that 'must' and 'might' do not function as universal and existential quantifiers over possible worlds when used *epistemically*, but rather as universal and existential quantifiers over *assignment-world pairs*, this seems to suggest that 'must' and 'might' are lexically ambiguous. However, we are not forced to accept this conclusion. Instead, one could assume that *all* modals are (context-sensitive) quantifiers over assignment-world pairs, but that when a modal is used to make a non-epistemic claim, the relevant assignments remain constant. This amounts to assuming that when a modal is used to make a non-epistemic claim, the relevant counterpart relation is always identity. This, I think, would make perfect sense.

³²Indeed, the main motivation for Cumming's proposed semantics of epistemic verbs (where these are treated as assignment shifters) is to account for cases of shifted *names*. Moreover, while the primary focus of Santorio's paper is shifted indexicals, Santorio does point out that his semantics would work equally well for cases involving shifted names, cf. (Santorio, 2012, 27-29). I have no particular preference with respect to Cumming's, Santorio's or Ninan's proposals, and simply used Santorio's proposal for the purposes of illustrating the general idea.

As for DESCRIPTIVISM, the problem is the prediction that names are shiftable in e.g. metaphysical contexts. However, a referee for this journal suggested that there is a potential solution for DESCRIPTIVIST views that take names to denote individual concepts (so, not PREDICATIVISM but most other DESCRIPTIVIST views). As the referee put it, a DESCRIPTIVIST could hold that names denote individual concepts that are rigid across metaphysical possibilities, but non-rigid across epistemic possibilities.

The immediate worry with this suggestion is that it is not clear that it makes sense to simply *hold* or *maintain* that individual concepts have these properties. After all, individual concepts are functions, so in order to count as rigid with respect to some modal space, it will have to behave in a very specific way. In particular, it will have to output the same individual across every world in the relevant modal space. But the output of an individual concept is determined by properties of the input world, namely what individual falls under the relevant concept at the input world. So to ensure that such a function is rigid across metaphysical possibilities, one would have to assume that the same individual falls under the concept at every metaphysically possible world in the domain of the function. However, there is no plausible reason to assume this. For example, with respect to names N , different individuals can clearly fall under the concept ‘the unique individual called N ’ at various *metaphysically* possible worlds. Consequently, it seems that in order for this idea to work, one would have to simply stipulate a specific domain for certain individual concepts, but this is clearly not explanatory.³³

³³I wonder if what the referee really had in mind here was embracing a two-dimensional semantics along the lines of Chalmers (2011). I think this is a more promising idea, but it comes with various non-trivial commitments. First, in a two-dimensional semantics, expressions are assumed to have two intensions, namely so-called primary and secondary intensions. Extensions are therefore relativized to *pairs* of possible worlds $\langle v, w \rangle$, where v represents the epistemic dimension of meaning and w represents the metaphysical dimension of meaning. Second, in this framework, epistemic and metaphysical modals are assumed to shift different semantic parameters. Epistemic modals shift v , i.e. the domain of primary intensions, whereas metaphysical modals shift w , i.e. the domain of secondary intensions. Because epistemic and metaphysical dimensions of meaning are relegated to two distinct semantic parameters, it is fairly simple to ensure rigidity across a single dimension without rigidity across the other. For example, with regards to names, we could state the lexical entry as follows: $\llbracket N \rrbracket = [\lambda v. [\lambda w. \iota x. \text{is-called-}N(x) \text{ in } v]]$. The reference of this name depends on the extension of $\iota x. \text{is-called-}N(x)$ at v . Since this parameter is shiftable only by epistemic modals/verbs, the name will refer to the same individual across every metaphysical possibility, i.e. it will be rigid across metaphysical possibilities. By contrast, it will not be rigid across epistemic possibilities since it might refer to different individuals across different epistemic possibilities. In some ways, this two-dimensionalist strategy and the VARIABILIST strategy are quite similar. On both views, epistemically shifted uses are captured in terms of a semantic parameter separate from the parameter used to capture metaphysical modality.

Variabilism and Frege's Puzzle

Now, admittedly there may be potential problems or objections to the type of analysis of epistemic modals and epistemic verbs discussed above. But if we tentatively assume that this general idea could work then, as [Cumming \(2008\)](#) notes, this also promises a general solution to Frege's puzzle—specifically the problem with explaining how sentences such as (4) and (5) can have different truth conditions.

- (4) Goldie believes that Del Naja₁ is Del Naja₁.
- (5) Goldie believes that Del Naja₁ is Banksy₂.

If epistemic modals are assignment shifters given that they are expressions whose meaning depends on a body of information, it seems quite natural to think that epistemic verbs more generally, e.g. belief-verbs, are also assignment shifters. Assuming that true belief requires that truth at every assignment-world pair compatible with the subject's information state, then by using the semantic resources sketched in the previous section, it is easy to account for the truth conditional difference between (4) and (5). The sentence in (4) is trivially true since relative to every assignment-world pair $\langle g', w' \rangle$ compatible with Goldie's information state: $f_1(w') = f_1(w')$. By contrast, the sentence in (5) is not trivially true, since it need not be the case that relative to every assignment-world pair $\langle g', w' \rangle$ compatible with Goldie's information state: $f_1(w') = f_2(w')$.

As [Cumming \(2008\)](#) notes, the more general point is that in order to effectively solve the problems that arise with names in modal environments, we need a certain level of variability in *some* modal environments in order to capture the right truth conditions but *no* variability in other modal environments. The MILLIAN analysis provides no variability at all, so this renders it impossible to explain *epistemically* shifted interpretations of names. With a DESCRIPTIVIST analysis, we get variability in *all* modal context, but this leads to incorrect predictions with respect to metaphysical modals. What VARIABILISM provides is the intermediate option: A way of securing rigidity (invariability with respect to possible worlds), but variability with respect to assignments. Moreover, this analysis of names parallels the analysis of pronouns

This is not the place for a serious discussion of the advantages and disadvantages of two-dimensional semantics, but this view would clearly struggle with explaining a variety of the data points described earlier in this paper, e.g. various predicative uses of names, but also the relation between names and pronouns. Two-dimensional semantics has also been argued to have other difficulties, e.g. the nesting problem, see [Soames \(2005\)](#), [Dever \(2007\)](#), [Forbes \(2011\)](#). But see also [Chalmers and Rabern \(2014\)](#).

in general and given the similarity in their modal profiles, this seems very desirable. Finally, the analysis of names (and pronouns) does not parallel the analysis of definite descriptions which given the dissimilarity in the modal profile of names and descriptions again also seems highly desirable.

Conclusion

The general aim of this paper was to provide a short overview of the comprehensive explanatory potential of VARIABILISM. I have argued that this analysis provides a simple and elegant explanation of *predicative*, *bound*, and *shifted* uses of names. In addition, I have shown that VARIABILISM, alongside MILLIANISM, retains the desirable prediction that names are rigid which remains a significant problem for DESCRIPTIVIST theories.³⁴ Finally, VARIABILISM also provides a potential solution to Frege's puzzle along the lines proposed by Cumming (2008) which is still one of the main problems facing MILLIANISM.

Given the nature of this paper, I have kept my discussions of the data reasonably short. However, the issues under discussion are both nuanced and complex, so entire papers could have been devoted each. In other words, I do not pretend that this paper closes the book on the semantics of names and I happily concede that more needs to be said. There are also additional uses of names that I have not discussed in this paper, e.g. uses of names as verbs and *deferred* referential uses.³⁵ Since these uses have not been discussed much elsewhere, I have no reason to think that VARIABILISM is in a worse position than MILLIANISM or DESCRIPTIVISM as regards accounting for these uses, but I acknowledge that this remains an open question. Ultimately, I simply hope to have convinced you of the following: Given the striking syntactic and semantic similarities between names and pronouns and given the impressively wide range of data that VARIABILISM has the potential to explain, this is a view that should, at least, be considered alongside the standard theories.

³⁴See e.g. Schoubye (2018) for an extensive criticism of PREDICATIVISM with respect to rigidity

³⁵For the latter, see e.g. Hunter (2010) and Sæbo (2015).

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