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Author(s): Nathan Salmon

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*How to Become a Millian Heir**

NATHAN SALMON

UNIVERSITY OF CALIFORNIA, SANTA BARBARA

In Salmon, 1986 I defended a Millian theory of the information contents of sentences involving proper names or other simple (non-compound) singular terms. The central thesis is that ordinary proper names, demonstratives, other single-word indexicals or pronouns (such as ‘he’), and other simple singular terms are, in a given possible context of use, Russellian “genuine names in the strict logical sense.”¹ Put more fully, I maintain the following anti-Fregean doctrine: that the contribution made by an ordinary proper name or other simple singular term, to securing the information content of, or the proposition expressed by, declarative sentences (with respect to a given possible context of use) in which the term occurs (outside of the scope of nonextensional operators, such as quotation marks) is just the referent of the term, or the bearer of the name (with respect to that context of use). In the terminology of *Frege’s Puzzle*, I maintain that the *information value* of an ordinary proper name is just its referent.²

Here I will elaborate and expand on certain aspects of my earlier defence of Millian theory, and present some new arguments favoring Millianism. It is commonly held that Millianism runs afoul of common-sense belief attributions, and other propositional-attitude attributions, in declaring intuitively true attributions false and intuitively false attributions true. Ironically, the main argument I shall propose here essentially relies on common-sense belief attributions and the semantics of the English phrase ‘believes that’. I shall argue, in sharp contrast to established opinion, that the seemingly decisive evidence against Millianism from the realm of propositional-attitude

attributions is no evidence at all, and is in fact evidentially irrelevant and immaterial. If I am correct, common-sense propositional-attitude attributions, insofar as they provide any evidence at all, strongly support Millianism without providing even the slightest counter-evidence (in the way that is commonly supposed).

I

What evidence is there in favor of the Millian theory? One extremely important consideration comes by way of the paradigms of nondescriptive singular terms: individual variables. A related consideration involves pronouns. Consider the following so-called *de re* (as opposed to *de dicto*), or *relational* (as opposed to *notional*), propositional-attitude attribution, expressed in the formal mode by way of quantification into the nonextensional context created by the nonextensional operator ‘that’:

- (1) $(\exists x) [x = \text{the planet Venus} \ \& \ \text{Jones believes that } x \text{ is a star}]$.

Such a *de re* locution might be expressed less formally in colloquial English as:

- (2) Jones believes of the planet Venus that it is a star.

What is characteristic of these *de re* locutions is that they do not specify how Jones conceives of the planet Venus in believing it to be a star. It is left open whether he is thinking of Venus as the first heavenly body visible at dusk, or as the last heavenly body visible at dawn, or instead as the heavenly body he sees at time *t*, or none of the above. The Fregean (or “neo-Fregean”) theorist contends that this lack of specificity is precisely a result of the fact that the (allegedly sense-bearing) name ‘Venus’ is positioned outside of the scope of the oblique context created by the nonextensional operator ‘believes that’, where it is open to substitution of co-referential singular terms and to existential generalization. What is more significant, however, is that another, non-sense-bearing singular term is positioned within the scope of the nonextensional context: the last bound occurrence of the variable ‘*x*’ in (1), the pronoun ‘it’ in (2). Consider first the quasi-formal sentence (1). It follows by the principles of conventional formal semantics that (1) is true if and only if its component open sentence

- (3) Jones believes that *x* is a star

is true under the assignment of the planet Venus as value for the variable ‘*x*’—or in the terminology of Tarski, if and only if Venus *satisfies* (3). Similarly, (2) is true if and only if its component sentence

(4) Jones believes that it is a star

is true under the anaphoric assignment of Venus as referent for the pronoun 'it'. The open sentence (3) is true under the assignment of Venus as value of ' x ' if and only if Jones believes the proposition that is the information content of the complement open sentence

(5) x is a star

under the same assignment of Venus as the value of ' x '. Likewise, sentence (4) is true under the assignment of Venus as the referent of 'it' if and only if Jones believes the information content of

(6) It is a star

under this same assignment. Now, the fundamental semantic characteristic of a variable with an assigned value, or of a pronoun with a particular referent, is precisely that its information value is just its referent. The referent-assignment provides nothing else for the term to contribute to the information content of sentences like (5) or (6) in which it figures. In fact, this is precisely the point of using a variable or a pronoun rather than a definite description (like 'the first heavenly body visible at dusk') within the scope of an attitude verb in a *de re* attribution. A variable with an assigned value, or a pronoun with a particular referent, has not been given, in addition to its referent, a Fregean sense—a conceptual representation that it contributes to semantic content. If it had, (5) and (6) would semantically contain specific propositions, under the relevant referent-assignments, and (3) and (4) would thus be *de dicto* rather than *de re*, notional rather than relational. If (4), used with reference to Venus, is to be relational, the content of (6) under the assignment of Venus to 'it' can only be the singular proposition about Venus that it is a star—the sort of proposition postulated by the Millian theory—and this means that the information value of the pronoun must be its referent.

What is good for the individual variable (or the pronoun) under an assigned referent is good for the individual constant. Indeed, the only difference between a variable and a constant is that the variable varies where the constant stands fast. The semantics for a given language fixes the reference of its individual constants. It happens that some particularly useful operators, included in the usual mathematical languages, operate simultaneously on a certain kind of simple singular term and a formula, by surveying the various truth-values that the operand formula takes on when the operand singular term is assigned different referents (and the rest of the

sentence remains fixed), and then assigning an appropriate extensional value to the whole formed from the operator and its two operands. If a given language includes operators of this sort, it is natural for it to include also special singular terms that are not coupled with a particular referent to which they remain faithful, and that are instead allowed to take on any value from a particular domain of discourse as temporary referent. These special singular terms are the individual variables, and the operators that induce their presence are the variable-binding operators. Individual variables are singular terms that would be individual constants but for their promiscuity. Conversely, then, individual constants are singular terms that would be variables but for their monogamy. The variability of a variable has nothing whatsoever to do with the separate feature that the variable's information value, under an assignment of a referent, is just the assigned referent. It is the simplicity of the variable that gives it the latter feature; the variability only guarantees that the information value also varies. Once the variable is assigned a particular value, the variable becomes, for all intents and purposes pertaining to that assignment, a constant. Hence, if the open sentence (5), under the assignment of Venus as the value of 'x', semantically contains the singular proposition about Venus that it is a star, then the closed sentence

a is a star,

where '*a*' is an individual constant that refers to Venus, semantically contains this same proposition. Assuming that the individual constants of natural language are the proper names, single-word indexical singular terms, and other (closed) simple singular terms, the considerations raised here support the Millian theory.³

There is an alternative way of looking at the same result. All of us are accustomed to using special variables or pronouns that have a restricted domain over which they range. In ordinary English, the pronoun 'he' often ranges only over males, the pronoun 'she' only over females. Among special-purpose technical languages, some variables range only over numbers, some only over sets, some only over times. The domain over which a variable ranges (at least typically) must be non-empty, but it can be quite small in size. In standard extensional second-order logic, for example, the range of the second-order variables '*p*', '*q*', and '*r*' is the pair set consisting of (representatives of) the two truth-values. Could there be variables whose range is a unit set? Of course there could. Why not? Except that it would be odd to call such terms 'variables'. Their range is too restrictive to allow for genuine *variation*, in an ordinary sense;

they are maximally restricted. Let us not call them ‘variables’, then. What should we call them? We could call them ‘invariable variables’. (This has the advantage that it emphasizes the exact analogy with the less restrictive variables.) Alternatively, we could call them ‘constants’. In fact, we do. The proper names and demonstratives of ordinary language are nothing other than the hypothesized “invariable variables.” Proper names and unrestricted variables are the opposite limiting cases of a single phenomenon.

II

This sort of consideration favoring the sort of account I advocate is complemented by a new application of a general form of argument that has been suggested, and usefully exploited, by Saul Kripke.⁴

What compelling evidence is there that the proper names of ordinary language are not simply the hypothesized invariable variables? What is perhaps the standard argument against Millian theory derives from the apparent failures of substitutivity in propositional-attitude attributions. Consider the familiar story of Jones and his ignorance concerning the planet Venus. Jones sees a bright star in the dusk sky, before any other heavenly body is visible, and is told that its name is ‘Hesperus’. Subsequently he sees another bright star in the dawn sky, later than any other heavenly body is visible, and is told that its name is ‘Phosphorus’. What Jones is not told is that these are one and the very same heavenly body, the planet Venus. Although Jones believes the proposition that Hesperus is Hesperus, he seems not to believe (and indeed to disbelieve) the proposition that Hesperus is Phosphorus. That is, upon substitution of ‘Phosphorus’ for the second occurrence of ‘Hesperus’ in the true sentence

(7) Jones believes that Hesperus is Hesperus

we obtain the evidently false sentence

(8) Jones believes that Hesperus is Phosphorus.

The apparent failure of substitutivity in propositional-attitude attributions is generally taken by philosophers to constitute a decisive refutation of the sort of account I advocate. I contend that, despite strong and nearly universal intuitions to the contrary, such instances of substitutivity are indeed valid and (8) is indeed true (in this example).⁵ It is important to notice that the very phenomena that appear to show that substitutivity fails would arise even if Millian theory were absolutely correct (for standard English) and substitutiv-

ity of co-referential proper names in propositional-attitude attributions were uniformly valid. In particular, the same feeling of invalidity in connection with substitution in such attributions as (7) would arise even in a language for which it was stipulated—say, by an authoritative linguistic committee that legislates the grammar and semantics of the language, and to which all speakers of the language give their cooperation and consent—that the theory of *Frege's Puzzle* is correct.

Suppose, for example, that such a committee decreed that there are to be two new individual constants, 'Schmesperus' and 'Schmosphorus'. (I am deliberately following the genius as closely as possible.) It is decreed that these two words are to function exactly like the mathematician's variables ' x ', ' y ', and ' z ' as regards information value, except that they are to remain constant (with whatever other differences this key difference requires)—the constant value of the first being the first heavenly body visible at dusk and the constant value of the second being the last heavenly body visible at dawn. Suppose further that some English speakers—for example, the astronomers—are aware that these two new constants are co-referential, and hence synonymous. Nevertheless, even if our character Jones were fully aware of the legislative decree in connection with 'Schmesperus' and 'Schmosphorus', he would remain ignorant of their co-reference. Jones would dissent from such queries as 'Is Schmesperus the same heavenly body as Schmosphorus?'

Would those who are in the know—the astronomers—automatically regard the new constants as completely interchangeable, even in propositional-attitude attributions? Almost certainly not. This might be demonstrated through consideration of an analogous situation involving straightforward (strict) synonyms for which it is uncontroversial that information value is exactly preserved. Suppose that foreign-born Sasha learns the words 'ketchup' and 'catsup' not by being taught that they are perfect synonyms, but by actually consuming the condiment and reading the labels on the bottles. Suppose further that, in Sasha's idiosyncratic experience, people typically have the condiment called 'catsup' with their eggs and hash browns at breakfast, whereas they routinely have the condiment called 'ketchup' with their hamburgers at lunch. This naturally leads Sasha to conclude, erroneously, that ketchup and catsup are different condiments that happen to share a similar taste, color, consistency, and name. He thinks to himself, "Ketchup is a sandwich condiment, but no one in his right mind would eat a sandwich condiment with eggs at breakfast; so catsup is not a sandwich condiment." Whereas the sentence 'Ketchup is ketchup' is uninformative for Sasha, the

sentence ‘Catsup is ketchup’ is every bit as informative as ‘Hesperus is Phosphorus’. Applying the general strategy invoked in Frege’s classic argument against Millianism, we would conclude that the terms ‘catsup’ and ‘ketchup’ differ in information value for Sasha. But this is clearly wrong. The terms ‘ketchup’ and ‘catsup’ are perfect synonyms in English.⁶ Some would argue that they are merely two different spellings of the very same English word. Most of us who have learned these words (or these spellings of the single word) probably learned one of them in an ostensive definition of some sort, and the other as a strict synonym (or as an alternative spelling) of the first. Some of us learned ‘ketchup’ first and ‘catsup’ second; for others the order was the reverse. Obviously, it does not matter which is learned first and which second. Either word (spelling) may be learned by ostensive definition. If either may be learned by ostensive definition, then both may be. Indeed, Sasha has learned both words (spellings) in much the same way that nearly everyone else has learned at least one of them: by means of a sort of ostensive definition. This manner of acquiring the two words (spellings) is unusual, but not impossible. Sasha’s acquisition of these words (spellings) prevented him from learning at the outset that they are perfect synonyms, but the claim that he therefore has not learned both is highly implausible. Each word (spelling) was learned by Sasha in much the same way that some of us learned it. Even in Sasha’s idiolect, then, the two words (spellings) are perfectly synonymous, and therefore share the same information value.

English speakers who use ‘ketchup’ and ‘catsup’ as exact synonyms but who do not reflect philosophically on the matter—and even some who do reflect philosophically—may be inclined to assent to the sentence ‘Sasha believes that ketchup is a sandwich condiment, but he does not believe that catsup is’.⁷ On reflection, however, it emerges that this sentence expresses a logical impossibility, since the proposition that catsup is a sandwich condiment just is the proposition that ketchup is a sandwich condiment. Similarly, speakers who agree to abide by the legislative committee’s decree about ‘Schmesperus’ and ‘Schmosphorus’ and who recognize that these two terms are co-referential—especially if these speakers do not reflect philosophically on the implications of the decree in connection with such *de re* constructions as (1)—might for independent pragmatic reasons be led to utter or to assent to such sentences as ‘Jones believes that Schmesperus appears in the evening, but he does not believe that Schmosphorus does’ and ‘Jones believes that Schmesperus is Schmesperus, but he does not believe that Schmesperus is Schmosphorus’. The astronomers may be led to utter the latter

sentence, for example, in order to convey (without knowing it) the complex fact about Jones that he agrees to the proposition about Venus that it is it taking it in the way he would were it presented to him by the sentence ‘Schmesperus is Schmesperus’ but not taking it in the way he would were it presented to him by the sentence ‘Schmesperus is Schmosphorus’. The astronomers would thus unknowingly speak in a way that conflicts with the usage to which they have agreed. This, in turn, would lead to their judging such belief attributions as ‘Jones believes that Schmesperus is Schmosphorus’ not only inappropriate but literally false, and to the unmistakable feeling that substitution of ‘Schmosphorus’ for (some occurrences of) ‘Schmesperus’ in such attributions as ‘Jones believes that Schmesperus is Schmesperus’ is logically invalid. Insofar as the same phenomena that give rise to the appearance of substitutivity failure would arise even in a language for which the theory advanced in *Frege’s Puzzle* was true by fiat and unanimous consent (and do in fact arise with respect to such straightforward strict synonyms as ‘ketchup’ and ‘catsup’), these phenomena cannot be taken as evidence against the theory.⁸

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NOTES

*The present essay is largely excerpted from Salmon, forthcoming. The paper has benefited from discussions with Mark Richard and Stephen Schiffer, from comments by Graeme Forbes and Timothy Williamson, and from discussions at Birkbeck College, London and Oxford University, where portions of the longer essay were presented as talks in May 1988.

¹See Russell, 1911 and Russell, 1956.

²Throughout this essay, I use the term 'Millian' broadly to cover any theory that includes this doctrine. (The term derives from Kripke, 1979.) I do not use the term in the more restricted sense of a theory that includes the (apparently stronger) thesis that the reference of a simple singular term completely exhausts the "linguistic function" of the term (whatever that means). John Stuart Mill himself was almost certainly not a Millian, strictly speaking, but his philosophical view of proper names is very much in the spirit of Millianism—enough so for genuine Millians, such as myself, to be counted his heirs.

Another thesis maintained in Salmon, 1986—and which both Frege and Russell more or less accepted—is that the proposition that is the information content of a declarative sentence (with respect to a given context) is structured in a certain way, and that its structure and constituents mirror, and are in some way readable from, the structure and constituents of the sentence containing that proposition. By and large, a simple (noncompound) expression contributes a single entity, taken as a simple (noncomplex) unit, to the information content of a sentence in which the expression occurs, whereas the contribution of a compound expression (such as a phrase or sentential component) is a complex entity composed of the contributions of the simple components. Hence, the contents of beliefs formulatable using ordinary proper names, demonstratives, or other simple singular terms, are on my view so-called *singular propositions* (David Kaplan), i.e., structured propositions directly about some individual, which occurs directly as a constituent of the proposition. This thesis (together with certain relatively uncontroversial assumptions) yields the consequence that *de re* belief (or *belief of*) is simply a special case of *de dicto* belief (*belief that*). To believe *of* an individual *x*, *de re*, that it (he, she) is *F* is to believe *de dicto* the singular proposition about (containing) *x* that it (he, she) is *F*, a proposition that can be expressed using an ordinary proper name for *x*. Similarly for the other propositional attitudes.

³The foregoing argument is closely related to a somewhat different argument advanced in Salmon, 1986 (at pp. 3-7) for the conclusion that so-called *de re* propositional-attitude attributions, such as (1) and (2), attribute attitudes toward singular propositions. The latter argument was derived from a similar argument of David Kaplan's involving modality in place of propositional attitudes. The new argument is an argument by analogy: Individual constants are relevantly analogous to individual variables and pronouns, differing only in their constancy; hence, so-called *de dicto* propositional-attitude attributions involving proper names also attribute attitudes toward singular propositions. This argument by analogy to variables and pronouns occurred to me sometime in late 1980, and although it is not proffered in Salmon, 1986, it was this argument more than any other that actually convinced me of the highly contentious thesis that the information value of a proper name, or other closed simple singular term, is simply its referent and nothing more. The argument of the following section in the text occurred to me immediately thereafter. (Cf. Salmon, 1986, p. ix.) A version of the latter of these is proffered in Salmon, 1986, at pp. 84-85, 114-118, and *passim*.

⁴Cf. Kripke, 1972, at p. 108. Kripke's general methodological observation is given in more detail in Kripke, 1977. (See especially p. 16.) Kripke does not explicitly consider applying the general strategy specifically to substitutivity-failure objections to Millianism. Whereas he clearly regards such objections as inconclusive at best (see Kripke, 1979), I am not certain that he would endorse this particular application of the "schmididentity" strategy to showing the substitutivity phenomena evidentially irrelevant. (I hope that he would.)

⁵I do not deny the initial intuitive force of the contention that (8) is false; I argue that the contention is nevertheless erroneous, and I propose an explanation for its initial pull. My claim that (8) is true is by no means a standard position among Millians. A more common Millian reaction is to concede that (8) is false, and to challenge instead the common and extremely plausible assumption that if 'Hesperus' has the same information value as 'Phosphorus' (as Millianism requires), then (7) is true if and only if (8) is. (The assumption

has been challenged merely on the grounds that the Millian is not compelled to accept it. Such a reaction misjudges the force of the anti-Millian argument: the assumption is independently compelling, and taken in conjunction with the argument's other premises, it precludes Millianism. The Millian is under the gun to reject either this premise or one of the others as untrue, and to motivate his or her rejection of the offending premise.) It has been argued, for example, that whereas (8) attributes belief of a proposition, it does not attribute belief of the very content of 'Hesperus is Phosphorus' (i.e. the singular proposition about Venus that it is it). This merely evades the general problem. Consider instead the parallel assumption that if 'Hesperus is Phosphorus' has the same information (proposition) content as 'Hesperus is Hesperus', then the former correctly gives the content of one of Jones's beliefs if and only if the latter does. This assumption is virtually as certain as Leibniz's Law. Yet common sense dictates that 'Hesperus is Hesperus' does, and 'Hesperus is Phosphorus' does not, correctly give the content of one of Jones's beliefs (since Jones sincerely and reflectively assents to the first while dissenting from the second, etc.). Cf. Salmon, 1986, pp. 5-6, 87-92, and *passim*.

⁶The argument given thusfar involving the terms 'ketchup' and 'catsup' is related to Kripke's 'proof' of substitutivity using two Hebrew words for Germany, and to his argument involving 'furze' and 'gorse', in the conclusion section of Kripke, 1979. All of these arguments are closely related to Alonzo Church's famous arguments from translation. See especially Church, 1954. For further discussion of the relation between the position taken in Kripke's article on belief and the position defended here see Salmon, 1986, pp. 129-132, and Salmon, 1989.

The example of Sasha demonstrates that the difficulty involved in Frege's puzzle about the informativeness of 'Hesperus is Phosphorus' is more general than it appears, arising not only on my own theory of information value but equally on a very wide range of theories, including various Fregean theories. This is not peculiar to Frege's puzzle. Although I cannot argue the case here, a great many criticisms that have been levelled against the sort of account I advocate—perhaps most—are based on some difficulty or other that is more general in nature than it first appears, and that equally arises on virtually any substantive theory of information value in connection with the example of Sasha's understanding of the synonyms 'ketchup' and 'catsup'. (Cf. Salmon, 1989 and Salmon, forthcoming.) Perhaps I will elaborate on this matter in later work.

⁷For similar claims, see for example Burge, 1978. Burge explicitly disagrees with my contention that such claims express logical impossibilities.

⁸Whereas I maintain that the intuition that (8) is false cannot be regarded as decisive—or even evidentially relevant—regarding the question of the actual truth value of (8) (since for some reason, the intuition of falsity would arise in any case), I also recognize that there are compelling reasons for deeming (8) false. (See note 5 above.) Moreover, the intuition of falsity should be addressed and explained. A full reply to the objection from the apparent failure of substitutivity involves greater complexities. See Salmon, 1986, especially pp. 80-118, for some of the details.