

What Do Proper Names Refer to?

The Simple Sentence Puzzle and Identity Statements

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Abstract. The purpose of this paper is to solve the simple sentence puzzle about proper names. (1) Superman leaps more tall buildings than Clark Kent. (2) Superman = Clark Kent. (3) Superman leaps more tall buildings than Superman. Even when (1) and (2) are true, (3) is false. It will be shown that this is not a real puzzle, because (i) (1) and (3) do not express singular propositions, and (ii) the identity statement in (2) only concerns singular propositions. In (1) and (3), the proper names refer to aspects of an individual at the level of explication, while identity statements of the form $X = Y$ mean that Y can be substituted for X *salva veritate*, only in singular propositions about X/Y . Given this difference in reference between (1)/(3) and (2), the conjunction of (1) and (2) does not entail (3), in accordance with our intuition.

Keywords: Simple sentence puzzle · Identity statement · Substitution · Singular proposition · Proposition about aspects

1 The Simple Sentence Puzzle

Even when (1) and (2) are true, (3) seems to be false.

- (1) Superman leaps more tall buildings than Clark Kent.
- (2) Superman = Clark Kent
- (3) Superman leaps more tall buildings than Superman.

Since (2) is true, (1) and (3) should have the same truth value. Intuitively, however, this is not the case. A similar point can be made for (4)–(6). The truth of (4) and (5) does not seem to entail that of (6).

- (4) Clark Kent went into a phone booth, and Superman came out.
- (5) Superman = Clark Kent
- (6) Clark Kent went into a phone booth, and Clark Kent came out.

It is well known that such substitution failure can occur in intensional or opaque contexts, containing verbs of belief like *believe* or modal verbs like *want*.¹ Yet, in the above examples, there are no such problematic expressions; they constitute genuine

¹ Even if (i) and (ii) are true, (iii) can be false. (i) John believes that Cicero was a great orator. (ii) Cicero = Tully (iii) John believes that Tully was a great orator. Similarly, the truth of (ii) and (iv) does not entail that of (v). (iv) John wants to meet Cicero. (v) John wants to meet Tully.

extensional contexts. This is called the simple sentence puzzle about proper names [25–27].

In this paper, it will be shown that the simple sentence puzzle is not a real puzzle, because (i) the sentences in (1) and (4) do not express propositions about individuals i.e. singular propositions, but propositions about aspects of an individual, and (ii) identity statements of the form $X = Y$ such as (2)/(4) only concern singular propositions.²

2 Basic Assumption

The semantics of proper names is an extremely controversial issue in the philosophy of language. In this paper, assuming that descriptivism as defended by Russell [20] has definitively been rejected, I will stick to the Millian view, the simplest view on proper names:

[...] whenever the names given to objects convey any information, that is, whenever they have properly any meaning, the meaning resides not in what they denote, but in what they connote. The only names of objects which connote nothing are proper names; and these have, strictly speaking, no signification. ([15]: 42–43)

A proper name is but an unmeaning mark which we connect in our minds with the idea of the object, in order that whenever the mark meets our eyes or occurs to our thoughts, we may think of that individual object. ([15]: 43)

According to the Millian view, proper names do not carry any “Sinn” in Frege’s sense [8], nor are they disguised descriptions as claimed by Russell [20]; they only have “Bedeutung”.³ This view can be summarized as in the following textbook descriptions [14].

[Names] have their meanings simply by designating the particular things they designate, and introducing those designata into discourse. (Let us call such an expression Millian name, since John Stuart Mill (1843/1973) seemed to defend the view that proper names are merely labels for individual persons or objects and contribute no more than those individuals themselves to the meanings of sentences in which they occur.) ([14]: 31–32)

3 Four Solutions

So far, four solutions have been proposed for the simple sentence puzzle: semantic solution [11], implicature-based solution [1], mistaken evaluation solution [3] and explicature-based solution [9, 16, 17]. All these solutions are compatible with the Millian view assumed here.

² “Aspects” are also called “(temporal) phases” or “modes of personification”.

³ This is consistent with Wittgenstein’s remark ([28]: 3.3): “Nur der Satz hat Sinn: nur im Zusammenhange des Satzes hat ein Name Bedeutung.” (Only propositions have sense. Only in the nexus of a proposition does a name have sense.) This view sharply contrasts with descriptivism whereby the name *Romulus*, for example, is interpreted as a truncated description such as “a person who did such-and-such things, who killed Remus, and founded Rome” ([21]: 79).

3.1 Semantic Solution

In the semantic solution, it is assumed that such names as *Superman* or *Clark Kent* are ambiguous co-referential names [11]. By disambiguating them, we get different truth-conditions for sentences containing these names, depending on the meaning of the names chosen in context (Fig. 1).

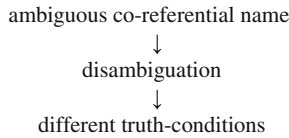


Fig. 1. Semantic solution

Koyama and Nakayama give the following definitions ([11]: 32).

- (7) a. “A” and “B” are ambiguous co-referential names when there are weak names and standard co-referential names for A and B such that in some contexts it is appropriate to interpret $A = A(-)$ or $B = B(-)$, and in some contexts it is appropriate to interpret $A = A(+)$ or $B = B(+)$, where “ $A(-)$ ” and “ $B(-)$ ” are weak names and “ $A(+)$ ” and “ $B(+)$ ” are standard names.
 b. A name is a standard name if and only if it stands for an individual and not for its temporal phase.
 c. A name is a weak name for an individual object if and only if the name stands not for the object but for one of its temporal phases.

Given the definitions, *Superman* and *Clark Kent* are ambiguous co-referential names to the extent they are standard names in some contexts and weak names in others. Thus, in (1) and in (4), they are used as weak names as in “*Superman* (–) leaps more tall buildings than *Clark Kent* (–)” or “*Clark Kent* (–) went into a phone booth, and *Superman* (–) came out”, whereas in (2)/(5), they are used as standard names as in “*Superman* (+) = *Clark Kent* (+)”. Since the meanings of the names are not the same in (1)/(4) and (2)/(5), substituting *Clark Kent* for *Superman* or vice versa in these sentences leads to a fallacy of equivocation.

The semantic solution is at odds with the Modified Occam’s Razor ([10]: 47), according to which senses are not to be multiplied beyond necessity [9]. Each time we encounter a puzzle like (1)–(3) or (4)–(6), the semantic solution posits ambiguous lexical items. However, the phenomena cannot be attributed to the idiosyncrasy of certain names, because, in principle, any name can exhibit the alleged ambiguity. Other things being equal, the phenomena should be accounted for by a general theory of proper names, rather than by the idiosyncrasy of certain words.

3.2 Implicature-Based Solution

The implicature-based approach assumes that (1) and (3) are both false and that (4) and (6) cannot differ in truth-condition, contrary to our intuition [1]. What differentiates (1)/(4) from (3)/(6) is their pragmatic implicature (Fig. 2).

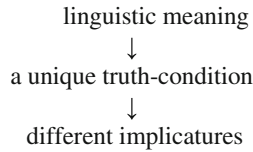


Fig. 2. Implicature-based solution

This solution goes against the Scope Principle ([19]: 271), according to which “[a] pragmatically determined aspect of meaning is part of what is said (and, therefore, not a conversational implicature) if -and, perhaps, only if - it falls within the scope of logical operators such as negation and conditionals” [9]. The differences between (1)/(4) and (3)/(6) fall within the scope of a conditional or a negation, as illustrated by (8)–(9).

- (8) If Superman leaps more building than {Clark Kent /# Superman}, Lois will be happy.
- (9) What happened was not that Clark Kent went into a phone booth, and Clark Kent came out, but that Clark Kent went into a phone booth, and Superman came out.

This suggests that the differences in questions should be accounted for at the level of explicature rather than at the level of implicature.

Before discussing the explicature-based solution, let us take a look at the mistaken evaluation solution.

3.3 Mistaken Evaluation Solution

The mistaken evaluation solution assumes, with the implicature-based solution, that (1) and (3) are both false and that (4) and (6) cannot differ in truth-value [3]. It denies, as against the implicature-based solution, that the intuitions come from the implicatures of the utterances. According to this position, our evaluations of those propositions for truth-value, and possible differences in truth-value, are mistaken. It explicitly denies what is called the Matching Proposition Principle, generally accepted in the literature, explicitly or implicitly.

- (10) (MP) The Matching Proposition Principle:
 Suppose that a competent, rational, relevantly well-informed speaker hears and understands an utterance *U* of a sentence, and judges *U* to have a (possible) truthvalue *T*. Then there is some proposition *P* such that:
 - (a) *U* either semantically expresses *P* or conversationally implicates *P*; and
 - (b) *P* has (possible) truth-value *T*.” ([3]: 18)

Here are some of Braun and Saul's comments on their striking position.

If you had entertained [(2)], and considered its logical relations with (1) and [(3)], you might have realized that you made a mistake. But, for the reasons discussed above [= because you (quite reasonably) don't usually do so when you entertain sentences containing 'Superman' or 'Clark'], you didn't. ([3]: 27)

[...] you did not consider the fact that Superman is Clark, which might have given you pause." ([3]: 28)

[...] you may not have considered the consequences of combining (1) and [(3)] with the identity [= (2)], simply because you were already confident of your answer. Similar points could hold for [(4)] and [(6)]. We do not think that this would have been irrational on your part. We simply cannot take the time to draw out many of the logical consequences of the propositions we believe and entertain before judging whether an English sentence is true. Since in most other cases you quite reasonably do not make the identity substitutions, you quite reasonably failed to do so in this case. ([3]: 29)

To those who are not convinced by their argument, they go so far as to say:

Some ordinary speakers, however, might refuse to alter their initial judgments. They might persist in thinking that (1) is true and [(3)] is false. [...] Do such stubborn ordinary speakers lend any support to the semantic or implicature explanations? We think not. These stubborn ordinary speakers claim that they "meant" something about aspects when they uttered '(1) is true and [(3)] is false'. So they are making claims about their own utterances. (Braun & Saul 2002 ([3]: 26), emphases in the original).

Furthermore, such after-the-fact claims about what one "meant" by past utterances are often unreliable (as are many after-the-fact judgments about one's states of mind). So, we should not take for granted that these speakers' claims about their utterances are correct. ([3]: 34)

The problem with this approach is that it has only theory-internal grounds for calling certain speakers "stubborn ordinary speakers". Having discarded MP, Braun and Saul could equally call those who judge (11) or (12) to be true "stubborn ordinary speakers". But they don't. They only say that those who judge (1) above to be true are "stubborn ordinary speakers".

(11) The earth is round.

(12) The capital of Japan is Tokyo.

This is presumably because they just want the assumption that the conjunction of (1) and (2) entails (3) to be preserved. The adequacy of this assumption, however, should first be examined carefully. Otherwise, they would be forced to make "after-the-fact claims" on their part. The solution that we will examine in the next section questions the very assumption.

3.4 Explicature-Based Solution

In the explicature-based solution, it is assumed that proper names sometimes undergo a metonymic meaning shift and refer to aspects of an individual [9, 16, 17] (Fig. 3).

The metonymic meaning shift is a free pragmatic process [19, 20], and it affects the truth-condition of the utterance, even though the lexical meanings of the nouns remain constant.

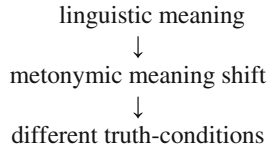


Fig. 3. Explicature-based solution

Under this perspective, (1) and (4) express propositions about aspects of Superman/Clark as in (13) and (14) respectively.

- (13) Clark/Superman's Superman-aspect leaps more tall buildings than Clark/Superman's Clark-aspect.
- (14) Clark/Superman's Clark aspect went into the phone booth and his Superman-aspect came out.

Note that the meaning shift is an optional process. This makes it possible for the proper names in question to literally refer to individuals in some contexts.⁴ For example, (15) and (16) constitute such contexts.⁵

- (15) Superman is identical with Clark Kent.
- (16) Wow, so sometimes Clark Kent wears a cape and leaps tall buildings.

Braun and Saul contend that the explicature solution raises a problem in connection with the distinction between enlightened and unenlightened contexts in which (1) and (4) are uttered, illustrated in Table 1 [3].

Given this distinction, it is predicted that an utterance of (1) semantically expresses a proposition about aspects only if (a) the speaker is enlightened and (b) the speaker is thinking about aspects. Yet, this prediction is clearly not borne out. Even unenlightened speakers who are not thinking about aspects can fully entertain the propositions expressed by (1) and (4).⁶

⁴ This is an application of the Optionality Criterion given by Recanati (2004: 101): "Whenever a contextual ingredient of content is provided through a pragmatic process of the optional variety, we can imagine another possible context of utterance in which no such ingredient is provided yet the utterance expresses a complete proposition."

⁵ The semantic approach we have seen in 3.1 above interprets *Superman* and *Clark Kent* in (15–16) as standard names, that is, as Superman (+) and Clark Kent (+).

⁶ Yoshiki Nishimura (University of Tokyo) and Sayaka Hasegawa (Seikei University) object to this observation by saying that (1) and (4) express different propositions depending on whether the interpreters are enlightened or not, to the extent that unenlightened people's construal of *Superman* is different from enlightened people's (p.c., 2015). Here the term 'construal' is taken from Cognitive Linguistics [12]. This view, however, is incompatible with the Millian view on proper names as assumed in this paper, because it forces us to consider that the truth-conditional meaning of a proper name consists of an individual as well as its construal. If, on the contrary, the construal is taken to be external to the truth-condition of the proposition in which the name occurs, enlightened and unenlightened speakers can, as against Nishimura and Hasegawa's claim, fully entertain one and the same proposition, no matter how different their construal of the name may be.

Table 1. Enlightened context and unenlightened context

| Enlightened context | Unenlightened context |
|--|--|
| The conversational participants are aware of the relevant double lives. | The conversational participants are not aware of such facts. |
| The conversational participants are in a position to make reference to aspects or modes of personification, and if their focus is on these rather than individuals, the propositions expressed by their utterances will involve aspects or modes of personification. | The conversational participants do not know that reference to aspects or modes of personification might be called for, and so utterances of the names refer only to individuals. |

In what follows, we will propose another explicature-based approach by solving the problem raised by the enlightened and unenlightened distinction.

4 Yet Another Solution to the Puzzle

In this section, it will be shown that the simple sentence puzzle about proper names is not a real puzzle, because (i) the sentences in (1) and (4) do not express singular propositions (=propositions about an individual/individuals) but propositions about aspects of an individual as claimed by the explicature-based approach, and (ii) identity statements of the form $X = Y$ such as (2)/(4) only concern singular propositions. Let us begin by identity statements.

4.1 Identity Statements

The semantics of identity statements can be defined as in (17)⁷.

- (17) $X = Y$ (X is Y , X is identical with Y): In singular propositions about X/Y , Y can be substituted for X and vice versa *salva veritate*.

According to (17), identity statements speak about a relation between the two names X and Y , rather than about the individuals they denote. This kind of metalinguistic characterization goes back to Frege [7] and Wittgenstein ([28]: 6.24). Frege [8] rejected the meta-linguistic analysis of $X = Y$ that he had once advocated [7] in favor of the well-known sense/reference analysis. Frege thought that the metalinguistic analysis could not account for the cognitive significance exhibited by $X = Y$.

⁷ Wittgenstein summarizes the nature of the puzzle raised by identity statements as follows ([28]: 5.5303, emphases in the original): “Beiläufig gesprochen: Von *zwei* Dingen zu sagen, sie seien identisch, ist ein Unsinn, und von *Einem* zu sagen, es sei identisch mit sich selbst, sagt gar nichts.” (Roughly speaking, to say of *two* things that they are identical is nonsense, and to say of *one* thing that it is identical with itself is to say nothing at all.) As will be shown below, the definition given in (17) enables us to solve the puzzle.

Is it [= equality] a relation? a relation between objects? or between names or signs for objects? I had assumed the latter in my *Begriffsschrift*. [...] What one wants to say by $a = b$ seems to be that the signs or names “a” and “b” mean the same, so that one would be talking precisely about those signs, and asserting a relation between them. Thus a sentence $a = b$ would no longer concern the issue itself, but only our way of using signs; we would not express any proper knowledge with it. However, in many cases that is precisely what we want to do. ([8]: 25–26)

Contrary to what Frege thought, however, $X = Y$ does not have to express any proper knowledge on its own. It just serves as a generator of knowledge, rather than as a bearer of knowledge [22]. Thus, given $X = Y$ as defined in (17), you know $F(Y)$ if you know $F(X)$, you know $G(Y)$ if you know $G(X)$, and so on, insofar as all these propositions are interpreted as singular propositions. A generation of knowledge of this kind can be seen in (16) above, uttered by Lois Lane.

What should be noted about (17) is that it restricts the substitutivity to singular propositions. Y can be substituted for X only when X refers to an individual, and not an aspect of that individual. Suppose that (2) is true. Then, we can get (3) from (1) only when *Superman* in (1) refers to an individual, and not an aspect of that individual. As the explicature-based approach claims [16, 17], however, *Superman* in (1) does not refer to any individual. This is exactly the reason why the substitution fails in (1) and (3), even if (2) is true.

4.2 Primary Reference to Aspects

The restriction of substitutivity to singular propositions indicated in (17) is a natural consequence of the fact that X and Y are names of the same individual. Without the notion of individual, identity statements of the form $X = Y$ would be totally meaningless. This does not imply, however, that the primary reference of a proper name is an individual. As Evans says, “[a]ny producer can introduce another person into the name-using practice as a producer by an introduction (‘This is NN’)” ([4]: 376). It should be emphasized here that there is no *a priori* reason to restrict the reference of “this” to an individual, given the fact that the use of the name of an object is triggered by a particular interest in that object ([2]: Chap. 5, [4]: 379, [13]: Book 3, Ch.III, [18, 24]). It can then happen that you are interested only in certain aspects of an individual. This is the origin of the names given to aspects such as *Superman* or *Clark Kent*.

The notion of aspect is extensively discussed by Wittgenstein [29], especially in connection with the duck- rabbit figure below (Fig. 4).

Wittgenstein introduces the notion of aspect in the following passage.

I contemplate a face, and then suddenly notice its likeliness to another. I see that it has not changed; and yet I see it differently. I call this experience “noticing of an aspect.” ([29]: II, xi; emphasis in the original)

In the duck-rabbit figure, seeing a duck constitutes a process of “noticing an aspect” different from seeing a rabbit. Accordingly, we can give each of these aspects a different name as in (18).

- (18) a. I name the duck John.
b. I name the rabbit Mary.

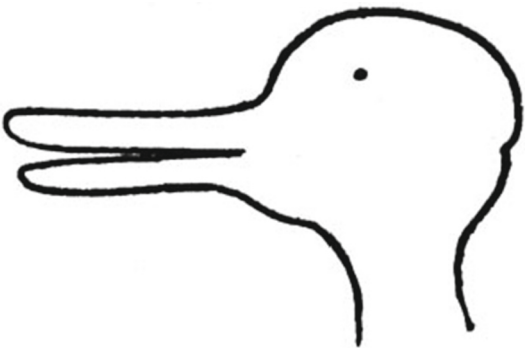


Fig. 4. Duck-rabbit Figure

When I have performed the speech acts in (18), I can have the following intuitions.

- (19) a. John is {OK a duck /# a rabbit /# a figure}.
- b. Mary is {# a duck /OK a rabbit /# a figure}.

What is crucial here is that the recognition of (20), or the relation illustrated in Table 2, does not affect the intuitions.

Table 2. The relation of the duck-rabbit figure, John and Mary

| | |
|--------------------|------|
| Duck-rabbit Figure | John |
| | Mary |

(20) John = Mary

This suggests that it is not the case that first we refer to a neutral figure and then refer to a duck or a rabbit; we rather refer to a duck or a rabbit directly, without passing through a neutral figure. There is no metonymic meaning shift involved here; *John* and *Mary* refer directly to aspects of the figure.

This leads to a slight but important modification of the relation between Recanati’s two levels of identification [19].

An object is first identified – or rather localized – as a space-occupier, and then identified as a certain type of object. To think of an object, and to dub it, only the first level of identification is required. Thus if we associate the proper name ‘Bozo’ with the temporary file corresponding to the first level of identification, we may discover that Bozo was not a plane, after all, but a bird. ([19]: 171–172)

Recanati’s observation is basically correct. It is equally true, however, that to think of an object, and to dub it, only the second level of identification is required, as shown by the example of the duck-rabbit figure. Looking at a bird, you can as well say “This is not Bozo”. In the use of proper names, reference to aspects of an individual is a rule rather than an exception. We can freely associate a name with anything, an individual or an aspect, following our own interest.

We sometimes even reinterpret a name of an individual as a name of an aspect of that individual as in (21), or reinterpret a name of an aspect A as a name of another aspect B as in (22).

- (21) In short, Ichiro is not Ichiro, and it's fair to argue that his age has caught up with him, meaning little hope of a significant rebound.

<http://m.espn.com/wireless/story?storyId=6850373&wjb=&pg=2&lang=ES>

- (22) An essential part of Superman is hope. Without hope, Superman is not Superman. He is the ideal we aspire to, the man we should all strive to be, and he shows us the way. (http://coolaman4.rssing.com/chan-3588963/all_p114.html)

In (21), the speakers stops associating the name *Ichiro* to the individual in question and reinterpret the name as a name of an aspect of that individual [23]. In (22), the speaker stops associating the name *Superman* with an aspect of an individual and reinterpret the name as a name of another aspect (an aspect that has a hope) of that individual. If a proper name *N* were always associated with an individual or an aspect, utterances of the form *N is not N* would never be possible.⁸

4.3 Braun and Saul's Mistake

We can now return to the problem on the enlightened/unenlightened distinction addressed by Braun and Saul [3]. Contrary to their claim, the fact that the conversational participants are not aware of the relevant double lives does not entail that the conversational participants do not know that reference to aspects or modes of personification might be called for. In Table 3 below, we can refer directly to A or B, without recognizing that A and B are names of the same individual C, that is, without applying any metonymic meaning shift as assumed by the explicature-based approach.

Table 3. Direct reference to Superman/Clark Kent

| Individual C | Aspect A = Superman |
|--------------|-----------------------|
| | Aspect B = Clark Kent |

Braun & Saul believe that the recognition of (2) is required for competent speakers to entertain the propositions about aspects in (1) and (4). This is not the case, however. Competent speakers can perfectly entertain (1) and (4) without recognizing (2). The recognition of (2) is rather required for speakers to interpret (1) and (4) as singular propositions.

⁸ In the approach defended here, sentences of the form *X is Y* as in (2) and sentences of the form *X is (not) X* as in (21–22) receive different interpretations. While the latter present the speakers' subjective view on extra-linguistic states of affairs, the former correspond to metalinguistic comments on the substitutivity of the terms *X* and *Y* as articulated in (17).

5 Conclusion

Since the conjunction of (1) and (2) / (4) and (5) does not entail (3) / (6), there is no puzzle about intuitions.

- (1) Superman leaps more tall buildings than Clark Kent.
- (2) Superman = Clark Kent
- (3) Superman leaps more tall buildings than Superman.
- (4) Clark Kent went into a phone booth, and Superman came
- (5) Superman = Clark Kent
- (6) Clark Kent went into a phone booth, and Clark Kent came out.

Presumably, confusion of the linguistic and social factors has complicated the issue on the reference of proper names. From a linguistic point of view, reference to aspects of an individual is a rule rather than an exception in the uses of proper names. This is what Braun and Saul overlooked when they criticized the explicature-based solution [3]. The preference for singular reference is only supported by the social convention whereby proper names are supposed to refer to individuals. Linguistically, however, a proper name can refer to anything, depending on the interest of its user. The only constraint is that *X* and *Y* be interpreted as names of individuals in identity statements of the form *X* = *Y*, which presuppose the notion of individual and hence of singular propositions. Only in social contexts can identity statements be interpreted properly, to the extent that the notion of individual is highly social by nature.

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References

1. Barbar, A.: A pragmatic treatment of simple sentences. *Analysis* **60**, 300–308 (2000)
2. Bloom, P.: *How Children Learn the Meanings of Words*. The MIT Press, Cambridge (2000)
3. Braun, D., Saul, J.: Simple sentences, substitutions, and mistaken evaluation. *Philos. Stud.* **111**, 1–41 (2002)
4. Evans, G.: *The Varieties of Reference*. Oxford University Press, Oxford (1982)
5. Forbes, G.: How much substitutivity? *Analysis* **57**, 109–113 (1997)
6. Forbes, G.: Enlightened semantics for simple sentences. *Analysis* **59**, 86–91 (1999)
7. Frege, G.: *Begriffsschrift*. Nebert, Halle (1879)
8. Frege, G.: *Über Sinn und Bedeutung*. *Zeitschrift für Philosophische Kritik* **100**, 25–50 (1892)
9. Fujikawa, N.: *Namae ni Nan no Imi ga Arunoka (What's in a Name?: Philosophy of Proper Names)*. Keisoushobou (in Japanese) (2014)
10. Grice, P.: *Studies in the Way of Words*. Harvard University Press, Cambridge (1989)
11. Koyama, T., Nakayama, Y.: The simple sentence puzzle and ambiguous co-referential names. *Ann. Jpn. Assoc. Philos. Sci.* **10**(3), 127–138 (2001)

12. Langacker, R.W.: *Cognitive Grammar*. Oxford University Press, Oxford (2008)
13. Locke, J.: *An Essay Concerning Human Understanding*. Penguin Classics (1997 [1689])
14. Lycan, W.G.: *Philosophy of Language: A Contemporary Introduction*, 2nd edn. Routledge, New York (2000)
15. Mill, J.S.: *A System of Logic*. Longmans, London (1843)
16. Moore, J.: Saving substitutivity in simple sentences. *Analysis* **59**, 91–105 (1999)
17. Moore, J.: Did clinton lie? *Analysis* **60**, 250–254 (2000)
18. Noya, S.: *Katarienu Mono Wo Kataru (Speaking the Unspeakable)*. Koudansha (in Japanese) (2011)
19. Recanati, F.: *Direct Reference: From Language to Thought*. Blackwell Publishers, Oxford (1993)
20. Recanati, F.: *Literal Meaning*. Cambridge University Press, Cambridge (2004)
21. Russell, B.: *The Philosophy of Logical Atomism and Other Essays 1914–19* (The collected papers of Bertrand Russell 8). Allen & Unwin Ltd, London (1956)
22. Sakai, T.: L'énigme des énoncés d'identité de type « $a = b$ » : Une solution grammaticale. *Langue et littérature françaises* **101**, 23–37 (2012)
23. Sakai, T.: Contextualizing tautologies: from radical pragmatics to meaning eliminativism. *Engl. Linguist.* **29–1**, 38–68 (2012)
24. Sato, N.: *Retorikku No Kigouron (Semiotics of Rhetoric)*. Koudansha (in Japanese) (1993)
25. Saul, J.: Substitutions and simple sentences. *Analysis* **57**, 102–108 (1997)
26. Saul, J.: Substitution, simple sentence, and sex scandals. *Analysis* **59**, 106–112 (1999)
27. Saul, J.: *Simple Sentences, Substitution, and Intuitions*. Oxford University Press, Oxford (2007)
28. Wittgenstein, L.: *Tractatus Logico-Philosophicus*. Routledge & Kegan Paul, Side-by-side-by side edition at <https://people.umass.edu/klement/tlp/> (1922)
29. Wittgenstein, L.: *Philosophische Untersuchungen*. In: Anscombe, G.E.M. (ed.) *Philosophical Investigations*. Basil Blackwell, Oxford (1953)

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