



# *Semantic Ambiguity Explained in the Framework of Cognitive Economy*

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**Abstract:** In “Context and Communication” Stephen Neale argues that the referential use of descriptions differs from the attributive use only in the pragmatics, making referential descriptions applicable to Russellian analysis. Marga Reimer disagrees with Neale’s view and argues that the difference is in the semantics, making referential descriptions semantically ambiguous. In this paper, I argue that Neale’s Modified Occam’s Razor overlooks the behavioral data of how we actually use language. I attempt to accommodate the strength of both Neale’s and Reimer’s explanations, putting them in a framework governed by the principle of cognitive economy.

## Introduction

“When analyzing theories, finding a reason to reject them can be easy, but getting down into the some of the nitty-gritty aspects with the author and ‘seeing where they are coming from’ is not as easily done. This paper offers such sympathetic views towards opposing positions. It contextualizes them and shows how they both offer an important part of the picture, while presenting a creative way to describe what’s going on in the complete picture.”

- Kaley J. Rittichier  
Content Editor

“Smith’s murderer is insane,” sounds like an uncontroversial sentence that contains a definite description. Under Russellian analysis, the description can be taken to mean there exists only one person who murdered Smith, and this person is insane. When someone stumbles upon a murder scene, sees their beloved friend Smith lying in a pool of blood and utters such a sentence, Russell’s analysis makes perfect sense. However, it does not seem to apply in a different scenario. Suppose someone is at the courthouse watching a man named Jones being tried for murdering Smith. Because Jones is behaving crazily, they utter, “Smith’s murderer is insane.” Perhaps they are unsure whether Jones actually committed the crime or not, but Jones is the referent they have in mind. The description refers simply because they intend it to refer to Jones, regardless of whether there exists only one person who murdered Smith or whether Jones is the murderer.

These two scenarios, first devised by Keith Donnellan in his paper “Reference and Definite Descriptions,” depict the two different uses

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of descriptions. Donnellan argues that when used referentially, descriptions function like indexicals. For example, upon seeing Jones behave crazily in court, uttering “Smith’s murderer is insane” means the same as uttering “he is insane” when the description “Smith’s murderer” is intended to refer to Jones. This is not an appealing view to Russellians. Stephen Neale argues that Donnellan’s treatment of the referential use unnecessarily introduces referential content into the semantics, making descriptions semantically ambiguous. In Neale’s account, the Russellian theory still applies to these descriptions, and the referential aspects of these descriptions are inferred pragmatically afterward. The difference between the referential use and the attributive use is a pragmatic one as opposed to a semantic one. In this paper, I will call this account the pragmatic inference view. On the other hand, Marga Reimer supports the view that descriptions are semantically ambiguous. She argues that if a sentence is standardly used for referential purposes, then the referential content works like an indexical and is a part of the literal, semantic meaning of the sentence. Thus, descriptions in those sentences are semantically ambiguous. In this paper, I will call this account the semantic ambiguity view.

I am sympathetic to both views and find the disagreement rooted in the application of the Modified Occam’s Razor. My positive view attempts to accommodate both Neale’s and Reimer’s explanations, putting them in a framework where both explanations are accounted for. I introduce the principle of cognitive

economy to explain the instances where Neale’s or Reimer’s explanations apply. I also go one step beyond Reimer to argue that referential descriptions with quantifiers can also possibly function as names, albeit in very improbable cases.

## I. Proposition Expressed & Proposition Meant

In “Context and Communication,” Stephen Neale distinguishes three levels of meaning in a sentence: the linguistic meaning, the semantic value, and the meaning intended in a given context. Linguistic meaning is the function or the rule of the linguistic item. For example, indexicals such as “I” or “you,” although seeming to express different propositions dependent upon the person uttering them, serve the same linguistic function across different utterances. The linguistic meaning of “I” is the referent of the person uttering the sentence. It is identified with the function or the rule of referring. Semantic value, on the other hand, is the outcome of the linguistic function in an utterance. In the cases of “I” and “you,” the semantic value of these words would be the actual speaker and the listener in a conversation. Linguistic meaning and semantic value, as Neale puts it, are the proposition expressed.

When the proposition is used by the speaker in a certain context, intending to communicate or imply something beyond the expressed proposition, the additional meaning is called the proposition meant. Neale takes Grice’s handwriting example to illustrate it:

You are writing a letter of recommendation for one of your students who has applied for a position teaching philosophy at another institution. You write: Jones has beautiful handwriting and is always very punctual. The people who read this letter will surely conclude that you do not rate Jones very highly as a philosopher.<sup>1</sup>

As Neale suggests, in this specific context, no one would understand this sentence simply by its literal meaning—that Jones writes well and is punctual. The sentence means more than that because the speaker seems to imply something beyond the literal meaning. Neale calls it the proposition meant, the pragmatic meaning of an utterance given by what the speaker intends to convey in its context.

## II. Example Supporting Modified Occam’s Razor

The handwriting case seems to be one where the meaning of the sentence is its proposition meant. However, in many other cases, the boundary between proposition expressed and proposition meant is not so clear. Consider the following case Neale uses regarding the meaning of “and”: (1) The moon goes around the earth and the earth goes around the sun; (2) Jack and Jill got married and Jill gave birth to twins.<sup>2</sup>

In (1), “and” is conjunctive. It connects two propositions in the

same sentence. However, “and” in (2) not only connects two propositions, it also suggests a causal connection between Jill’s marriage and the twins’ birth. Both uses of “and” serve the same grammatical function. Hence they have the same linguistic meaning. Do they have the same semantic value? That is the crux of the problem. On the one hand, if we say no, then we have to concede that “and” is semantically ambiguous—it can be sometimes understood as a mere conjunction and sometimes as a causal connection. On the other hand, if we say yes, then the causal meaning is implied by the context as the proposition meant. Neale takes the latter to be the correct explanation on the principle of Modified Occam’s Razor.

The principle of Modified Occam’s Razor states that senses should not be multiplied beyond necessity.<sup>3</sup> In the case of “and,” Neale does not deny the explanatory sufficiency of the former explanation, but the latter explanation is better for the following reason: propositions meant such as implicatures need pragmatic explanation anyway. Therefore, positing new semantic meaning whenever “and” appears in a new context is multiplying senses beyond necessity. Additionally, descriptions with quantifiers such as “some” and “every” require a Russellian analysis even when used referentially. The semantic ambiguity view fails to generalize to those descriptions.<sup>4</sup> Thus, there

1 Stephen Neale, “Context and Communication,” in *Definite Descriptions: A Reader*, ed. Gary Ostertag (Cambridge: MIT Press, 1998), 321.

2 Ibid., 327.

3 Ibid.

4 Ibid., 335.

is better economy and generality in treating the causal meaning of “and” as the proposition meant instead of proposition expressed. The same argument applies to the referential use of descriptions. The literal meaning of a referential description can be explained by the Russellian theory as the proposition expressed, and the referential aspect of the description can be explained pragmatically as the proposition meant. Donnellan’s analysis is rejected on the basis of Modified Occam’s Razor, because its explanation introduces unnecessary semantic meaning into the description.

### III. Example Against Modified Occam’s Razor

Marga Reimer in her paper “Donnellan’s Distinction/Kripke’s Test” offers an argument against Neale. She argues that a description, when used referentially, is communicated as a single proposition instead of being communicated separately into the proposition expressed and the proposition meant, according to Neale’s analysis. The referential aspect of the description should have the linguistic meaning akin to an indexical, as a referring expression. When used in the context of an utterance, the referential aspect picks out its referent and obtains its semantic value, as opposed to obtaining the pragmatic meaning by the implicature. Reimer does not reject Neale’s pragmatic inference view for referential descriptions, but she finds it insufficient to account for instances when the

referential use is the standard use of descriptions. She uses the example of the word “incensed” to further illustrate this:

The verb “incense” once had but one literal meaning: it meant (and still can mean) to make fragrant with incense. Originally, it was used metaphorically to mean to make very angry. But now the metaphor is dead: due to frequent use, its former metaphorical meaning has become one of its literal meanings. Mary’s utterance, literally interpreted, thus means that she was made very angry.<sup>5</sup>

Reimer’s example counters Neale’s “and” example. If Neale were to explain why “incense” means “to make very angry,” he would say that the proposition meant was derived pragmatically from the context, and that the “incense” still meant “to make fragrant with incense” as its proposition expressed, but this is absurd. Reimer points out that if the metaphorical meaning “angered” is so frequently used, it would be ridiculous to suppose one would have to go through the extra step to infer the implicature as Neale suggests. The meaning of “angered” can be grasped immediately without having to remember the old semantic meaning that we no longer use. Hence “angered” can be understood as the literal meaning of “incensed.” A similar argument applies to the referential descriptions. If a description is standardly used in the referential context, then the referential meaning of the description is a part of the semantic meaning.

### IV. Assessment of Modified Occam’s Razor

Modified Occam’s Razor, as Neale points out, is a way to rule out explanations on the basis of economy and generality. The pragmatic inference view achieves better economy because it explains not only the referential use, but also the general conversational implicature. On the contrary, appealing to the semantic ambiguity view for every case of referential description while the pragmatic inference view is perfectly sufficient makes the semantic ambiguity view a less economic explanation. As for generality, the pragmatic inference view is capable of explaining all of referential uses, while the semantic ambiguity view falls short of facing referential descriptions with quantifiers.

However, there is a difference between the most economic-general explanation and the right explanation. An explanation can be as economic and general as possible, but being economic and general does not guarantee that the explanation explains what actually goes on in the phenomenon. If the pragmatic inference view is to construct an efficient computer program that processes linguistic items and predicts the output of our linguistic comprehension, then the simpler explanation is beneficial for the exact reason of economy and generality. But here the question is how we understand natural language. Our concern is not only the prediction of the output, but also a correct understanding of how we process those linguistic items. The power of Reimer’s criticism is not that it is

possible for the semantic ambiguity view to explain the referential use, but rather that the semantic ambiguity view is the way we understand referential descriptions. Even though the pragmatic inference view provides simpler explanations for the output of our linguistic comprehension, it fails to account for all the behavioral data of how the output is derived. Reimer’s “incensed” example nicely illustrates a case where Modified Occam’s Razor favors a plausible explanation, but the explanation does not seem to mirror the actual behavior of how we use the word.

If our ultimate goal is to characterize not only the formal linguistic structure but also our use of the natural language, then Modified Occam’s Razor would not be a fair test. Nevertheless, as Neale’s arguments and examples show, a semantic ambiguity view does have a very limited explanatory scope, not even capable of explaining all cases of referential uses. So if one wants to advocate for a theory that characterizes the output of the linguistic comprehension as well as the behavioral data, a behavioral account must be also given to Neale’s theory, explaining why in certain cases the standard use is not employed. I will spend the next section portraying a new framework of explaining both the outputs of linguistic comprehension and the behavioral data of the linguistic process.

### V. Cognitive Load, Cognitive Capacity, & Cognitive Economy

Cognitive load is the amount of effort the working memory uses

5 Marga Reimer, “Donnellan’s Distinction/Kripke’s Test,” *Analysis* 58, no. 2 (April 1998): 97.

to process information at a given moment.<sup>6</sup> If many things are going on, many stimuli are to be processed, then the cognitive load is high. If very few things are going on, then the cognitive load is low.

Cognitive capacity is the total amount of information processing power the brain has for problem solving. When linguistic stimuli<sup>7</sup> come in, the brain has to allocate a part of the cognitive capacity to solve the task of comprehension.

The world is full of stimuli, and if we do not process the incoming information strategically, we will end up in scenarios of high cognitive load. Being in these scenarios often lowers our ability to solve simple tasks because of the lack of cognitive capacity.<sup>8</sup> In order to avoid that, our brains try to gain fluency in processing familiar stimuli so that processing those stimuli becomes an automatic process without taking too much conscious processing power out of the cognitive capacity. Therefore, if the automatic processing of one task takes less effort but still yields successful results, over time, we prefer to process similar tasks with automatic processing over conscious processing. This tendency for cognitive processes

to minimize processing effort and resources is the principle of cognitive economy.<sup>9</sup> It regulates the way the information processing should be done. If there are two (or more) processes that can both guarantee the success of the outcome, then whichever is less effortful should be taken to process the information.

When this applies to solving linguistic problems—processing meanings of the linguistic stimuli—cognitive economy brings a framework to explain instances in which the pragmatic inference view applies and those in which the semantic ambiguity view applies. Having the past experience that the conscious processing is needed to guarantee the successful comprehension, or without having encountered a particular referential use of a description, one has to consciously process the description exactly the way the pragmatic inference view characterizes.<sup>10</sup> If one has encountered this particular referential use of a description frequently enough, then they will instantaneously bypass the conscious step of inferring the proposition meant and derive the referential content as the proposition expressed because of the past experience and their fluency with

this linguistic stimulus. Cognitive economy shows why the pragmatic inference view works so well with Neale's examples and why the semantic ambiguity view works so well with Reimer's examples. It is not a matter of whether the pragmatic inference view is correct or the semantic ambiguity view is correct. It is a matter of the conditions where the view can account for the linguistic behavior better. In Neale's examples, the intended meaning of the phrases heavily depends on the context. The careful processing of the pragmatic meaning is necessary to guarantee a successful communication. On the other hand, Reimer's example shows phrases in which the pragmatic meaning has become the most frequently intended meaning. Therefore, conscious effort is not necessary to guarantee a successful communication.

## VI. Descriptions with Quantifiers

One question a Nealean might ask is whether the bypassing of the conscious processing is just a form of doing the pragmatic inference blazingly fast or if the bypassing of the conscious processing skips the rules altogether. I think it is possible either way, and the factors determining one way or another depend on how frequent one is exposed to the linguistic stimuli.

Consider Neale's example of referential descriptions with quantifiers:

Suppose it is common knowledge that Smith is the only person taking Jones's seminar. One evening,

Jones throws a party and Smith is the only person who turns up. A despondent Jones, when asked the next morning whether his party was well attended, says, "Well, everyone taking my seminar turned up," fully intending to inform me that only Smith attended.<sup>11</sup>

Clearly, "everyone taking my seminar" intends to pick out Smith as the referent in this scenario. But according to Neale, it would be ridiculous to treat "everyone taking my seminar" as an indexical, positing it as a semantically ambiguous phrase. The intuition is, how on earth can someone equivocate the semantic meaning of "everyone taking my seminar" with "Smith"? Neale thinks quantifiers in descriptions, when used referentially, still have to retain the distinct semantic value as the function of the quantifier before undergoing the pragmatic inference to derive its referential meaning. Therefore, for descriptions with quantifiers, even when one has acquired fluency in processing them, neither the semantic value step nor the pragmatic inference step can be bypassed. The fluent listener simply processes through these steps very fast and efficiently.

I admit that Neale's explanation shows how in some cases the processing of referential descriptions with quantifiers cannot be bypassed, but it cannot be generalized to all cases. In the following example, I will show that it is also possible for referential descriptions with quantifiers to be

6 Roxana Moreno and Babette Park, "Cognitive Load Theory: Historical Development and Relation to Other Theories," in *Cognitive Load Theory*, ed. Jan L. Plass et al. (New York: Cambridge University Press, 2010), 10.

7 Because cognitive load, cognitive capacity, and cognitive economy apply to all kinds of stimuli, I use "linguistic stimuli" to refer to the subset of those stimuli, notably definite descriptions in this discussion.

8 John Sweller, "Cognitive Load During Problem Solving: Effects on Learning," *Cognitive Science* 12, no. 2 (1988): 260.

9 Andrew M. Colman, *A Dictionary of Psychology*, 2nd ed. (New York: Oxford University Press, 2006), 145.

10 Usually everyone is familiar enough with the language to bypass the processing of the linguistic rules and the contextualizing the semantic value, so what is concerned here is only the pragmatic inference one has to consciously process.

11 Neale, "Context and Communication," 335.

taken as singular units, functioning as names, when such descriptions are used frequently enough.

Imagine a case where Smith turns out to be a feverish devotee of Jones's philosophical view, and he decides to take Jones's seminar for the next fifty years, even though no one else finds Jones's view attractive enough to take his course. Also unfortunately, Jones's social skills radically decline as he gets older. Each year when Jones holds his party, no one attends but Smith. Over the years, "everyone taking my seminar" slowly becomes an inside joke among a group of American philosophers, and people start to use it to refer to Smith.

In this totally improbable but hypothetically possible case, I show that it is possible for the descriptions with quantifiers to function as names, bypassing any kind of conscious processing of the quantifier. Thus, it is possible to bypass the processing of both the semantic value and the pragmatic inference if the listener is sufficiently fluent with those descriptions. The remaining questions to be answered are the behavioral ones—at what instances do we automatically process the rules, and at what instances do we bypass the rules and treat them as names?

Let us return to the principle of cognitive economy and see how it helps explain instances of our linguistic processing behaviors. Suppose Harry, one of the philosophers who likes to use "everyone taking my seminar" to make fun of Smith, flies to Australia for a philosophical conference, meanwhile hoping to catch

his old friend Dave's birthday party. However, because of the unwelcoming weather, Harry's flight is delayed, and he misses the party. Harry meets Dave the next morning and asks how the party went. Dave responds "everyone taking my seminar showed up."

How does Harry comprehend "everyone taking my seminar showed up"? Intuition tells us that he will be immediately reminded of "Smith," and he would probably giggle inside, amused by how coincidental it was that Dave stumbled upon an inside joke of which he clearly had no knowledge. Knowing that Dave surely did not intend to evoke the inside joke, Harry would then process the phrase in the Nealean fashion and derive the correct meaning of "everyone taking my seminar."

What I try to illustrate with this case is, even given a completely different context and a completely different linguistic community, when the utterance "everyone taking my seminar" shows up, it can still be taken as the name before it is taken as a description with a quantifier. The reason it goes in this order as opposed to the other way around is underpinned by the principle of cognitive economy. If there are two or more processes that can both guarantee the success of the outcome, then whichever is less effortful should be taken to process the information. In this case, "everyone taking my seminar" is first processed as a name for two reasons. First, in the past, Harry always had success processing it this way. Second, bypassing the conscious processing takes less effort. In this Harry and

Dave case, Harry first takes the shortcut and fails to process the intended meaning, but it is only the unsuccessful attempt that triggers the need to go through the conscious processing, deriving the correct meaning eventually. The upshot is cognitive economy helps explain why, in some cases, we process the linguistic stimuli the way we do, even in cases where we make failed attempts.

## Conclusion

To settle the debate on how to explain the referential use, Modified Occam's Razor is an unfair test that solely focuses on the explanation itself rather than the behavioral data of the language's use. My positive account uses the framework of cognitive economy to accommodate both Neale's and Reimer's explanations, giving the conditions where their explanations apply. I argue that Neale's pragmatic inference view holds when the description is an unfamiliar one, or one that requires conscious processing given by past experiences. Reimer's semantic ambiguity view holds when the description has achieved fluency and has always guaranteed successful communication in the past. Cognitive economy helps explain our behavioral tendency to understand descriptions one way or another. It is determined by the effort it costs and the success we have had with it in the past. When there are two or more processes that can both guarantee the success of the outcome, whichever is less effortful will be taken to process the information.



***About Lixing Mida Chu***

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