

E. E. Constance Jones on the Import and Significance of Categorical Sentences

Ben Caplan

That S is P asserts an Identity of Extension in Diversity of Intension seems to me to be on reflection self-evident.

— Jones 1911b, 17

1. Introduction

The British philosopher E. E. Constance Jones (1848–1922) was prominent in academic circles in her day and was a prolific scholar. Starting with a monograph in 1890 (and a translation in 1885), she published dozens of papers and half a dozen books over the course of her career at the University of Cambridge. Although her work was neglected after her death, it was rediscovered as part of the *History of Women Philosophers* project (Waithe and Cicero 1995), and she is now hailed as a “grandmother of analytic philosophy” (Janssen-Lauret 2024, 2025).

Jones had a lot to say about categorical sentences—roughly, sentences of the form S is P —in many of her many publications. She wrote about the subject in four monographs: *Elements of Logic as a Science of Propositions* (Jones 1890); *An Introduction to General Logic* (Jones 1892); both editions of *A Primer of Logic* (Jones 1905, 1913a); and *A New Law of Thought and Its Logical Bearings* (Jones 1911b). She also wrote about the subject in papers published in *Mind* in May 1893 and delivered to the Aristotelian Society on 4 December 1893 (Jones 1893, 1893–1894; see Proceedings of the Aristotelian Society 1893–1894, 166); a pair of notes published in *Mind* in October 1913 and January 1915 (Jones 1913b, 1915); and a paper and reply prepared for a symposium with Bernard Bosanquet and F. C. S. Schiller at a joint meeting of the Aristotelian Society, the British Psychological Society, and the Mind Association on 5 July 1915 (Jones 1914–1915; see Abstract of Minutes 1914–1915). The list just provided is *not* exhaustive.

In this chapter, I focus on Jones’s views about categorical sentences in three of her central works—*Elements*, *General Logic*, and *New Law*—and attribute to her a series of distinct but overlapping views. In Section 2, I provide an overview of her evolving terminology and views. In the two decades between *Elements* and *New Law*, her terminology shifted, sometimes—but not always—indicating a shift in her views. In Sections 3 and 4, I discuss her views both about what categorical sentences assert—what she calls their *import*—and about what may be called their *significance*: that is, what makes sentences of the form *A is B* significant in a way in which sentences of the form *A is A* aren’t. On the interpretation that I argue for, one distinctive feature of her views is that, on those views, import doesn’t explain significance. That is, although *A is A* and *A is B* assert different metalinguistic contents (roughly, *A is A* asserts that one name stands in a semantic relation to itself, whereas *A is B* asserts that two names stand in that semantic relation to each other), that difference isn’t what explains the difference in significance between those sentences. Rather, the difference in significance between *A is A* and *A is B* is explained more directly by a semantic difference between the names *A* and *B* themselves. In Sections 5 and 6, I compare her views with those of one of her contemporaries, Gottlob Frege. Much has been said about the relation between her views and his.¹ Here I make the novel suggestion that her views are in some ways closer to the metalinguistic view of identity sentences that Frege held in *Begriffsschrift* (1879) than to the view he later held in “Sense and Reference” (1892). In Section 7, I conclude by briefly situating Jones’s explanation of the significance of categorical sentences in relation to some more recent views in the philosophy of language.

A caveat before we begin: given the volume of Jones’s writings on the subject, there’s a non-negligible degree of exegetical wiggle-room to attribute other views to her; but the views that I attribute to her are those that I think, on the whole, are best supported by the texts and make the most philosophical sense.

¹ See Waithe and Cicero 1995, 36, 45; Ostertag 2020, §3.1; 2023, 49–52, 57–60, 64; 2025, 15–20, 35–36; Janssen-Lauret 2024, 213, 217–218, 224; 2025, 349–350, 352–353; Green 2023; Peijnenburg and Schaar 2025, 318–320.

2. Overview

2.1. Categorical sentences

What Jones calls “categorical propositions” are sentences of the form *S copula P*, where *S* is a subject-name and *P* is a predicate-name. Jones (1911b, 14, 59–60, 70–71) distinguishes sentences, on the one hand, from their contents (i.e., what they express or assert), on the other. And she uses ‘proposition’ for sentences rather than their contents (Jones 1890, 44; 1911b, 70). So what she calls “categorical propositions” are sentences. She divides sentences into three kinds: *categorical*, *inferential*, and *alternative* (Jones 1890, 44; 1892, 4). Alternative sentences are of the form *Either A or B*; inferential sentences are of the form *If A, then B*; and categorical sentences are of the form *S copula P* (Jones 1890, 46; 1892, 4–5). The copula can contain negation. So, in addition to *affirmative* categorical sentences of the form *S is P* (or, in the plural, *S are P*), there are *negative* categorical sentences of the form *S is (or are) not P* (Jones 1890, 51; 1892, 16–17; 1911b, 1).

Jones (1890, 52) intends her accounts of categorical sentences to be “absolutely general” (see also Jones 1911b, 46). A wide variety of expressions (including quantifier phrases, complex demonstratives, abstract nouns, and proper names) can occur as subject- and predicate-names. As a result, a wide variety of sentences count as categorical. In *Elements*, she discusses the following examples, where the subject- and predicate-names are underlined, and the copula is in boldface (Jones 1890, 46–48, 53):

- (1) All birds **are** animals.
- (2) Some vertebrates **are** quadrupeds.²
- (3) Some R **is not** Q.
- (4) Those men **are** my three brothers.
- (5) This musician **is** a painter.
- (6) Perseverance **is** admirable.

² This example is based on one from Jevons 1878, 309.

(7) Courage is valour.

(8) Tully is Cicero.³

Nowadays, we might symbolize each of (1)–(8) in its own way. For example, we might symbolize (1)–(8) as follows in second-order plural logic:⁴

(1*) $\forall xx(Bxx \rightarrow Axx)$

(2*) $\exists xx(Vxx \wedge Qxx)$

(3*) $\exists x(Rx \wedge \sim Qx)$

(4*) $mm = bb$

(5*) Fa

(6*) $A(P)$

(7*) $C = V$

(8*) $a = b$

But Jones would symbolize them all as *S copula P*.

2.2. Three views

Jones offers three related views about categorical sentences in *Elements*, *General Logic*, and *New Law*. Let's start with *General Logic*.

In *General Logic* Jones has a view about the *import* of categorical sentences. The import of a sentence is what it means or asserts (Jones 1892, 2; see also Jones 1890, 113, 198). On her view in *General Logic*, (8) asserts that the names 'Tully' and 'Cicero' apply to the same thing; and, conversely,

³ This example comes from Mill 1875, 101; Keynes 1887, 38, 38n3.

⁴ ' xx ' is a plural variable; ' mm ' and ' bb ' are plural names; and ' P ', ' C ', and ' V ' are (singular) names for attributes.

(9) Tully is not Cicero.

asserts that ‘Tully’ and ‘Cicero’ don’t apply to the same thing. Since ‘Tully’ and ‘Cicero’ apply to the same thing, (8) is true and (9) is false.

Jones also has a view in *General Logic* about the *significance* of categorical sentences. (8) is significant in a way in which

(10) Tully is Tully.

isn’t. Although (8) and (10) differ in import—they assert different things—this difference doesn’t explain the difference in significance. Rather, what makes (8) significant, and explains the difference in significance between (8) and (10), is that ‘Tully’ and ‘Cicero’ signify different attributes: ‘Tully’ signifies *being called ‘Tully’*, while ‘Cicero’ signifies *being called ‘Cicero’*.

Jones’s view in *Elements* is just like her view in *General Logic*, except in *Elements* she has a slightly different view about the import of categorical sentences. On her view in *Elements*, (8) asserts that ‘Tully’ and ‘Cicero’ have—and (9) asserts that ‘Tully’ and ‘Cicero’ don’t have—the same *denomination*, where (as we’ll see) the denomination of a name is an existence attribute that’s had by the thing or things that the name applies to.

And Jones’s view in *New Law* is just like her view in *General Logic*, except in *New Law* she has a slightly different view about the significance of categorical sentences. On her view in *New Law*, what makes (8) significant is that ‘Tully’ and ‘Cicero’ differ in *intension*, where (as we’ll see) the intension of a name includes more than just the attributes that it signifies.

2.3. Two slogans and some terminology

In *Elements*, *General Logic*, and *New Law*, Jones offers instances of the following slogans:

AFFIRMATIVE SLOGAN: Affirmative categorical sentences assert identity of something in diversity of something else.

NEGATIVE SLOGAN: Negative categorical sentences assert diversity of something in diversity of something else.

Let's say that the *first* part of the slogans is the “something”: that is, the thing such that, according to the affirmative slogan, affirmative categorical sentences assert identity of it and, according to the negative slogan, negative categorical sentences assert diversity of it. And let's say that the *second* part of the slogans is the “something else”: that is, the thing such that, according to the affirmative and negative slogans, categorical sentences assert identity or diversity of something in diversity of it.

Jones's terminology for the first and second parts of the slogans evolved from *Elements* to *General Logic* to *New Law*: in *Elements*, she uses ‘denomination’ and ‘determination’ for the first and second parts, respectively; in *General Logic*, ‘application’ and ‘signification’; and, in *New Law*, ‘denotation’ and ‘intension’. As we will see, sometimes she means the same thing with new terminology; sometimes she doesn't. I will argue that the switch from ‘denomination’ to ‘application’ marks a difference in her views about the first part of the slogans, but the switch from ‘application’ to ‘denotation’ doesn't; and, conversely, that the switch from ‘determination’ to ‘signification’ doesn't mark a difference in her views about the second part of the slogans, but the switch from ‘signification’ to ‘intension’ does.

Work	First part of the slogans	Second part of the slogans
<i>Elements</i>	Denomination	Determination = Signification
<i>General Logic</i>	Application =	
<i>New Law</i>	Denotation	Intension

Table 1. Jones's evolving views and terminology

2.4. *General Logic*

In *General Logic*, Jones puts the slogans as follows:

What a Categorical Proposition imports is complete Identity or complete Distinctness (Otherness) of Application, in Diversity of Signification. (1892, 29)⁵

The *application* of a name is the thing or things that it names or applies to (Jones 1892, 6). For example, the application of ‘Cicero’ is Cicero. By contrast, the *signification* of a name is one or more attributes that it implies or signifies, that are had by the thing or things that it applies to, and that play a role in explaining why it applies to what it does (Jones 1892, 21, 163). For example, the signification of ‘Cicero’ on Jones’s (1892, 6, 163) view includes the metalinguistic attribute *being called ‘Cicero’*, and the signification of ‘the famous Roman orator who denounced Catiline’ includes the attribute *being a famous Roman orator who denounced Catiline*.

2.5. *Elements*

In *Elements*, Jones puts the slogans as follows:

What a categorical proposition imports is complete Identity, or complete Difference (Non-Identity) of Denomination in Diversity of Determination. (1890, 198; see also 1890, 46, 96, 127)

What Jones calls ‘determination’ in *Elements* coincides with what she calls ‘signification’ in *General Logic*. The *determination* of a name is one or more attributes that are explicitly signified by that name (Jones 1890, 8). These attributes are had by the thing or things that the name applies to, and they play a role in explaining why the name applies to what it does (Jones 1890, 36). For example, the determination of ‘Cicero’ on Jones’s (1890, 8, 10) view includes *being called ‘Cicero’*, and the determination of ‘the famous Roman orator who denounced Catiline’ includes *being a famous Roman orator who denounced Catiline*.

⁵ The underlining here and subsequently is mine; see also Jones 1892, 23, 24, 28, 62, 63, 210.

What Jones calls ‘denomination’ in *Elements* is commonly taken to coincide with what she calls ‘application’ in *General Logic*.⁶ But, as I argue elsewhere, there are reasons for thinking that ‘denomination’ isn’t equivalent to ‘application’ and for thinking that, while the application of a name is the thing or things that it names, the *denomination* of a name is an existence attribute that is had by the thing or things that the name applies to (Caplan 2022, 6–7). One reason for thinking that this is what Jones means by ‘denomination’ is that she says that the denomination of a name that applies to a thing is what she calls the *quantitiveness* of that thing, and the quantitiveness of a thing is an existence attribute that it has (Jones 1890, 8). Similarly, in recapping her views, she speaks of “Denomination, corresponding to the *existence* of the thing named” (Jones 1890, 196–197). The denomination of ‘Cicero’, for example, would be an existence attribute that Cicero has (and, indeed, perhaps one that is unique to him). By contrast, the application of ‘Cicero’ is Cicero, who is a subject of attributes, but not an attribute himself.

Jones (1890, 47–48) says that names that have the same denomination have the same application (see also Jones 1890, 200). So it might be that what (8) asserts on the *Elements* view—namely, that ‘Tully’ and ‘Cicero’ have the same denomination—is true if and only if what it asserts on the *General Logic* view—namely, that ‘Tully’ and ‘Cicero’ have the same application—is true. She doesn’t say why in *Elements* she favors the view that an affirmative categorical sentence asserts identity of denomination rather than identity of application. In *Elements*, she says “The affirmative copula imports identity, and identity can only be identity of *existence*” (Jones 1890, 198). But the identity imported by the affirmative copula, and asserted by affirmative categorical sentences, doesn’t need to be identity of existence (or denomination); rather, as the *General Logic* view shows, it can be identity of application instead.

⁶ See Jourdain 1911–1912, 263n*; Waithe and Cicero 1995, 32; Ostertag 2023, 51n1; Janssen-Lauret 2024, 213; 2025, 349; Peijnenburg and Schaar 2025, 317.

2.6. *New Law*

In *New Law*, Jones puts the slogans as follows:

S is P asserts Identity of Denotation in Diversity of Intension.

S is not P asserts Difference of Denotation (Otherness) in Difference of Intension (Diversity). (1911b, 1; see also 1911b, 14, 28–29, 29–30, 51, 58, 60)

What Jones calls ‘denotation’ in *New Law* coincides with what she calls ‘application’ in *General Logic*. The *denotation* of a name is the thing or things that it names (Jones 1911b, 12). For example, the denotation of ‘Cicero’ is Cicero.

What Jones calls ‘intension’ in *New Law* is sometimes taken to coincide with what she calls ‘signification’ in *General Logic*.⁷ But there are reasons for thinking that ‘intension’ isn’t equivalent to ‘signification’. According to her explicit definition in *New Law*, the *intension* of a name is some “properties of the things to which the term applies”—more than just (a) the attributes that the name signifies and that play a role in explaining why it applies to what it does, but less than (b) all of the attributes of the thing or things that it applies to (Jones 1911b, 71). John Neville Keynes, who Jones studied Logic with at Cambridge, calls (a) and (b) ‘connotation’ and ‘comprehension’, respectively (Keynes 1887, 27; see also Keynes 1894, 24–25; 1906, 26). Jones (1911b, 12, 71) takes herself to be following Keynes in using ‘intension’ for something between (a) and (b).⁸ And (a) corresponds to what she calls ‘signification’ in *General Logic*. If (a) corresponds to ‘signification’, and she uses ‘intension’ for something other than (a), then ‘intension’ doesn’t correspond to ‘signification’.

Which attributes are included in the intension of a name is perhaps indeterminate. For example, the intension of ‘Cicero’ includes *being called* ‘Cicero’ (since this attribute is explicitly signified by the name) and might

⁷ See Janssen-Lauret 2024, 213; 2025, 349; Peijnenburg and Schaar 2025, 316. See also Waithe and Cicero 1995, 36; Peijnenburg and Schaar 2025, 324n5.

⁸ Jones quotes Keynes 1894, 20, 24; 1906, 23, 26. On the distinction between connotation and intension, see also Jones 1905, 173; 1908, 530, 531.

also include *being a Roman orator*, but it might not include every attribute that Cicero has. Jones (1911b, 13) mentions the following attributes as being in the intension of ‘gold’: *being yellow, being heavy, being malleable, and being soluble in aqua regia*.

Jones doesn’t say why in *New Law* she favors the view that the second part of the slogans has to do with intension rather than her earlier view, from *Elements* and *General Logic*, that it has to do with signification (or determination). One might think that a difference in intension might allow her to explain the difference in significance between ‘Ketchup is ketchup’ and ‘Ketchup is catsup’, if ‘ketchup’ and ‘catsup’ are synonyms (since one might think that, although the names have the same signification, speakers might associate different attributes with them, and those attributes might show up in their intensions). But on her view we don’t need to appeal to intension rather than signification here, since ‘ketchup’ and ‘catsup’ already differ in signification: ‘ketchup’ signifies *being called ‘ketchup’*, whereas ‘catsup’ signifies *being called ‘catsup’* (Jones 1890, 10; 1892, 163).

3. Import

3.1. Groucho’s pyjamas

The slogans—“An affirmative categorical sentence affirms identity of something in diversity of something else” and “A negative categorical sentence affirms diversity of something in diversity of something else”—are ambiguous. To see this, recall Groucho Marx’s quip from the 1930 film *Animal Crackers*: “One morning I shot an elephant in my pyjamas. How he got in my pyjamas I don’t know.” The quip trades on a structural ambiguity:

(11) I shot an elephant in my pyjamas.

is ambiguous between a reading on which Groucho is wearing his pyjamas

(11a) [I shot an elephant] [in my pyjamas]

and a reading on which the elephant is wearing his pyjamas

(11b) I shot [an elephant in my pyjamas].

On the (11b) reading, ‘in my pyjamas’ is in the scope of ‘shot’ and the pyjamas are part of (or at least worn by) what is shot; on the (11a) reading, by contrast, they’re not. (Instead, ‘in my pyjamas’ modifies Groucho or his shooting of the elephant.)

To be a bit more specific, consider the affirmative slogan from *General Logic*: “An affirmative categorical sentence asserts identity of application in diversity of signification.” Given the structural ambiguity, there are two readings.

WIDE READING: An affirmative categorical sentence asserts [identity of application in diversity of signification].

NARROW READING: [An affirmative categorical sentence asserts identity of application] [in diversity of signification].

On the wide reading, ‘in diversity of signification’ is in the scope of ‘assert’. On this reading,

(8) Tully is Cicero.

asserts, not only that ‘Tully’ and ‘Cicero’ have the same application, but *also* that they don’t have the same signification. On the narrow reading, by contrast, ‘in diversity of signification’ isn’t in the scope of ‘assert’; rather, it modifies ‘An affirmative categorical sentence asserts identity of application’. On this reading, (8) doesn’t assert that ‘Tully’ and ‘Cicero’ don’t have the same signification—although it’s *true* that ‘Tully’ and ‘Cicero’ don’t have the same signification, and their not having the same signification in some way modifies (8)’s asserting that ‘Tully’ and ‘Cicero’ have the same application.

Some interpreters favor the wide reading (Janssen-Lauret 2025, 350); others, the narrow reading (Ostertag 2025, 23). For reasons that I explain in the next two subsections, I favor the narrow reading. On the view that I attribute to Jones in *General Logic*, for example, ‘Tully’ and ‘Cicero’ differ in signification, but (8) doesn’t assert that. In other words, that ‘Tully’ and ‘Cicero’ differ in signification isn’t part of the import of (8).

3.2. Textual evidence

Jones sometimes says things that suggest the wide reading. For example, in *New Law*, she talks about an affirmative categorical sentence “asserting identity-in-diversity” (Jones 1911b, 54; see also Jones 1905, 17; 1913b, 531; 1914–1915, 362). But, in four respects, what she says about categorical sentences is weaker, or different, than what she would say if the wide reading were correct.

First, Jones doesn’t say that an affirmative categorical sentence asserts both identity of something *and* diversity of something else. Rather, she usually says merely that an affirmative categorical sentence asserts identity of something *in* diversity of something else (see, for example, the displayed quotations in Sections 2.4, 2.5, and 2.6 from Jones 1890, 198; 1892, 29; 1911b, 1).

Second, in saying what an affirmative categorical sentence asserts, Jones sometimes doesn’t mention diversity of intension (or determination, or signification) at all. For example, in *New Law*, she simply says “what *S is P* asserts, is that the denotation of *S*, whatever it is, is the denotation of *P*” (Jones 1911b, 64).

Third, when Jones mentions diversity of determination (or signification, or intension) in saying what a categorical sentence asserts, she sometimes does so separately, outside the scope of ‘assert’. For example, discussing

(3) Some *R* is not *Q*.

in *Elements*, she says, “what is asserted is, that the denomination of *Some R* is wholly uncoincident with the denomination of *Q*” (Jones 1890, 48). Only in a separate sentence does she add, “The *determination* of *Some R* and of *Q* is, of course, different” (Jones 1890, 48).

And, fourth, Jones sometimes explicitly says that diversity of intension (or determination, or signification) isn’t part of what is asserted by a negative categorical sentence. For example, in *New Law*, she says, “The purpose of *S is not P* isn’t to assert that the intension of *S* is diverse from the intension of *P*—that goes without saying, and is essential to *S is P*” (Jones 1911b, 14).

If the wide reading were correct, Jones might say that an affirmative categorical sentence asserts identity of something *and* diversity of something else; in saying what an affirmative categorical sentence asserts, she would mention the diversity more often, and not merely as an aside; and she would say that the purpose of a negative categorical sentence is to deny that diversity. But she doesn't. That's the first reason I favor the narrow reading.

3.3. Negation

The second reason I favor the narrow reading comes from negation. If the wide reading were correct, then on Jones's view in *General Logic*, for example,

(8) Tully is Cicero.

would assert the conjunction of the following two affirmative claims:

(A1) 'Tully' and 'Cicero' have the same application.

(A2) 'Tully' and 'Cicero' don't have the same signification.

And

(9) Tully is not Cicero.

would assert the conjunction of the following two negative claims:

(N1) 'Tully' and 'Cicero' don't have the same application.

(N2) 'Tully' and 'Cicero' don't have the same signification.

(Recall that, on the negative slogan, a negative categorical sentence asserts diversity of something in diversity of something else.) But (A2) = (N2). So the same claim would be part of what's asserted both by a sentence and by its negation. But that suggests that something has gone wrong.

Consider

(12) Einar has stopped saying inappropriate things.

and

(13) Einar hasn't stopped saying inappropriate things.

The claim that Einar used to say inappropriate things is in some sense common to (12) and (13). But it isn't asserted by either of them; rather, it's presupposed. Similarly, if the claim that 'Tully' and 'Cicero' don't have the same signification is in some sense common to (8) and (9), then that's a reason for thinking that it isn't asserted by either of them.

Here's another way of making the same point. What's asserted by a sentence is denied by its negation. Or, as Jones puts it, "what is denied by negatives must be what is asserted by affirmatives" (1893–1894, 38). (9) is the negation of (8). So (9) should deny what (8) asserts. On the wide reading, (8) asserts both (A1) and (A2). But (9) doesn't deny both (A1) and (A2); rather, it denies only (A1). (It affirms (A2), i.e. (N2).) That only (A1) is denied by (9) is a reason for thinking that only (A1) is asserted by (8).

Jones suggests this argument in *New Law* when she says,

According to my analysis, propositions of the form *S is P* assert *identity of denotation (extension) in diversity of intension*; while correspondingly *S is not P* asserts *difference (or otherness) of denotation in intensional diversity*—i.e. it denies identity of denotation. (1911b, 14)⁹

In saying what *S is not P* denies, she mentions identity of denotation but not diversity of intension, which suggests that diversity of intension isn't part of what *S is P* asserts in the first place.

In the rest of this chapter, I assume that the narrow reading of the slogans is correct and that a claim about diversity isn't part of the import of affirmative categorical sentences.

4. Significance

Sentences of the forms *A is A* and *A is B* differ in *import*. For example,

⁹ Diagrams omitted.

(8) Tully is Cicero.

and

(10) Tully is Tully.

don't assert the same thing. Roughly speaking, (8) asserts that two names—namely, 'Tully' and 'Cicero'—have the same denomination, or application, or denotation; while (10) asserts that two occurrences of the same name—namely, 'Tully'—have the same denomination, or application, or denotation.

Sentences of the forms *A is A* and *A is B* also differ in *significance*. For example, on Jones's view, (8) is significant, but (10) isn't. Jones (1890, 118, 175; 1892, 27–28) acknowledges that sentences of the form *A is A*—for example,

(14) A man's a man.

(15) Love is love.

and

(16) Cards are cards.¹⁰

—can be used to convey information. But she thinks that whatever information utterances of (14)–(16) can be used to convey goes beyond the meaning or import of the sentences themselves, which are “formally tautological locutions” that lack “predicative force” (Jones 1890, 40, 51, 176–177; see also Jones 1890, 175).

Jones says that a sentence of the form *A is A* is “not entitled to be called a significant assertion,” since it's “strictly unmeaning” and “tells us nothing” (Jones 1890, 119, 129; 1892, ix; see also Jones 1892, 28, 64). But she could allow that such sentences have meaning and tell us something. On the *Elements* view, for example, (10) tells us that 'Tully' and 'Tully' have the same denomination. This isn't *very* informative—as she says, it “seems so evident as to be incapable of proof”—but it might still be *some*

¹⁰ This example is a saying associated with the fictional character Sarah Battle from Charles Lamb's “Mrs. Battle's Opinions on Whist”: “As she emphatically observed, cards were cards” (Lamb 1823, 74).

information (Jones 1890, 49). In any case, (10) tells us less than (8) does, and (8) is more significant than (10).

What explains the difference in significance between *A is A* and *A is B* isn't that they differ in import. In *Elements*, in defining a "significant" categorical sentence, Jones doesn't say that *A is B* asserts something different than *A is A* does, nor does she appeal to some feature (e.g. non-self-evidence) of what *A is B* asserts. Rather, she says that *A is B* asserts something "in diversity of determination" (Jones 1890, 46). Similarly, in *New Law*, in considering what makes *A is B* significant she doesn't say that it asserts something different than *A is A* does. Instead, she asks, "Is it not plain that ... for any significance to attach to the assertion, there must be a *diversity* of Connotation or Intension?" (Jones 1911b, 45). Both of these passages suggest that it's the diversity of determination or intension, rather than some feature of what is asserted, that explains the significance of *A is B*.

On 29 May 1911, Jones delivered a paper to the Aristotelian Society in which she replied to Bertrand Russell's (1910–1911) "Knowledge by Acquaintance and Knowledge by Description," which he had delivered to the Society on 6 March 1911 (Abstract of the Minutes 1910–1911).¹¹ The sentences

(17) Scott is Scott.

and

(18) Scott is the author of *Waverley*.

differ in significance: (17) is trivial; (18) isn't. What explains this difference isn't that (17) and (18) assert different things (although they do). Rather, Jones (1910–1911, 177) says, in the case of (17), "the 'triviality' is due to the circumstance that there is no difference of intension" between the two occurrences of 'Scott'; whereas, in the case of (18), "owing to diversity of intension, it may convey information." Here, what explains the significance

¹¹ Russell (1910–1911, 121–124) is responding to Jones 1910, 1911a; Jones (1910) was responding to Russell 1905.

of (18) is the diversity of intension between ‘Scott’ and ‘the author of *Waverley*’, even if that diversity isn’t part of what (18) asserts.

In her last published work on categorical sentences, Jones says,

In *S is P*, as I believe, the identity and diversity of Subject and Predicate are co-equal, and are both absolutely indispensable for significant assertion—one without the other is as futile as one blade by itself of a pair of scissors. (1915, 62)

On the *New Law* view, the identity part of *S is P* is the claim that *S* and *P* have the same denotation, and the diversity part is the claim that *S* and *P* don’t have the same intension. Both are essential to making *S is P* a significant assertion, but they’re essential in different ways: the identity part is what *S is P* asserts, while the diversity part is what explains why *S is P* is significant.

Thus understood, Jones’s view in *New Law*, for example, is that the fact that ‘Tully’ and ‘Cicero’ differ in intension is a separate fact—separate from what (8) asserts—that explains the significance of (8), just as the fact that (8) is a sentence of English is a separate fact that helps explain its intelligibility to English-speakers. (8) doesn’t need to assert that it’s a sentence of English for the fact that it’s a sentence of English to play various explanatory roles; so, too, for the fact that ‘Tully’ and ‘Cicero’ differ in intension.

5. Frege’s “Sense and Reference”

5.1. Jones and Frege

Jones knew of Frege’s views from Russell’s *Principles of Mathematics* (1903) and “On Denoting” (1905). She published a reply to “On Denoting” in *Mind* (Jones 1910). And, starting in 1911, she says that she learned that, in *Principles of Mathematics*, Russell had endorsed Frege’s views (Jones 1910–1911, 167; 1911a, 49; 1911b, 12; 1911c, 442). There’s evidence that she read Appendix A (“The Logical and Arithmetical Doctrines of Frege”) of *Principles of Mathematics*. In discussing her views about categorical sentences in connection with Frege’s, she uses an example—namely, ‘The

morning star is the evening star’—that Russell (1903, 502) uses in Appendix A but not in “On Denoting” (Jones 1911b, 11; 1914–1915, 358, 398; 1915, 61).

Jones exchanged letters with Frege between 29 October 1910 and 1 January 1911. The letters are now lost, but according to an archivist’s records they disagreed about whether they agreed: she thought that they agreed, whereas he didn’t (Frege 1976, 108; see Ostertag 2025, 35–37).

What I argue in this section and the next is, perhaps unsurprisingly, that there are respects in which Jones’s and Frege’s views are similar and respects in which their views are different; and, perhaps more surprisingly, that her view in *General Logic*, from 1892, is closer to his view in *Begriffsschrift*, from 1879, than it is to his view in “Sense and Reference,” from 1892. In saying that they agreed, Jones was perhaps *overstating* the similarity between their 1892 views; but, in saying that they disagreed, Frege was perhaps *understating* the similarity between her 1892 view and his 1879 view.

5.2. Sense and reference

Frege’s distinction between sense [*Sinn*] and reference [*Bedeutung*] appeared in the early 1890s in “Function and Concept” and “Sense and Reference” (Frege 1891, 1892). Let’s call this his *central distinction*. Jones makes a number of distinctions. Here I focus on the distinctions that figure in her slogans: namely, her distinction between determination and denomination, from *Elements*; between signification and application, from *General Logic*; and between intension and denotation, from *New Law*. Let’s call these her *central distinctions*. One question is whether any of her central distinctions corresponds to his. Some say that one of her central distinctions corresponds to—and indeed anticipates—his (Jourdain 1911–1912, 263n*; Waithe and Cicero 1995, 36, 45; Janssen-Lauret 2024, 213; 2025, 348, 349, 352–353). Others deny this (Green 2023; Ostertag 2025, 20, 31; Peijnenburg and Schaar 2025, 318–320). Jones herself sometimes says that one of her central distinctions corresponds to his (Jones 1911a, 41; 1911b, 46; 1915, 61).

Jones’s distinction between determination and denomination doesn’t correspond to Frege’s central distinction, because *denomination* isn’t *reference*. The referent of ‘Cicero’ is Cicero, but the denomination of ‘Cicero’ is an attribute that Cicero has.¹² And her distinction between intension and denotation doesn’t correspond to his central distinction either, because *intension* is broader than *sense*. The intension of ‘Cicero’ includes attributes that Cicero has that aren’t explicitly signified by the name, but the sense expressed by ‘Cicero’ is presumably limited to what the name explicitly signifies. (Jones (1911b, 46) speaks in passing of “intension (*Sinn*)” in *New Law*; but I think that, on her considered view, sense (or *Sinn*) is closer to connotation (or determination or signification), which she distinguishes from intension.)

That leaves Jones’s distinction between signification and application, which might correspond to Frege’s central distinction. For her, the signification of a name is one or more attributes, which are worldly (Jones 1890, 88). But, for Frege (1918–1919, 69), senses aren’t worldly in this way. Some conclude that her distinction between signification and application doesn’t correspond to his central distinction (Peijnenburg and Schaar 2025, 320). Others conclude instead that her distinction corresponds to his, although they disagree about what kind of entity the sense or signification of a name is (Janssen-Lauret 2025, 353). It can be hard to adjudicate between these two conclusions, and I don’t propose to do so here. Instead, I argue that, even if her distinction between signification and application corresponds to his central distinction, there are still important differences between their 1892 views about categorical sentences.

5.3. Jones 1892 and Frege 1892

Jones’s views about categorical sentences evolved from *Elements* to *General Logic* to *New Law*, and Frege’s views evolved from *Begriffsschrift* to “Sense

¹² Jones (1890, 5, 8) has the distinction between determination and application in *Elements*. But I’m not listing it as one of her central distinctions, since it doesn’t figure in the version of the slogan that she puts forward in *Elements*. And, in any case, I’m more interested in their views about categorical sentences, discussed below in the text.

and Reference.”¹³ A second question is whether any of her views about categorical sentences corresponds to his. She often says that her account of categorical sentences is the same as his (Jones 1911a, 49; 1911b, 12; 1911c, 442; 1915, 61; see also Jones 1910, 379n2; 1910–1911, 167; 1922, 72). I focus on her view from *General Logic*, since her central distinction there is most likely to correspond to his central distinction.

When it comes to categorical sentences, there’s a lot that Jones’s view in *General Logic* and Frege’s view in “Sense and Reference” agree on. Consider

(8) Tully is Tully.

and

(10) Tully is Cicero.

On Jones’s 1892 view, a trio of facts obtains:

SIGNIFICANCE: (8) and (10) differ in significance.

IMPORT: (8) and (10) assert different things.

NAME-SIGNIFICATION: ‘Tully’ and ‘Cicero’ differ in signification.

On Frege’s 1892 view (25, 26, 32, 32n5), a parallel trio of facts obtains:

COGNITIVE VALUE: (8) and (10) differ in *cognitive value*.

THOUGHT: (8) and (10) express different *thoughts*.

NAME-SENSE: ‘Tully’ and ‘Cicero’ differ in *sense*.

Jones’s 1892 view and Frege’s 1892 view also agree that there’s an explanatory connection between the first and third facts in each trio. Jones would say that, because the names ‘Tully’ and ‘Cicero’ differ in signification,

¹³ I’m here assuming a standard interpretation of Frege’s views, on which Frege held a metalinguistic view of identity sentences in 1879 but rejected it in 1892 (Heck 2003; Dickie 2008). I set aside a non-standard interpretation on which Frege didn’t reject the metalinguistic view in 1892 (Thau and Caplan 2001; Pardey and Wehmeier 2025). The non-standard interpretation makes Frege’s 1892 view closer to Jones’s. On the relation between Frege’s 1879 and 1892 views, see also Bar-Elli 2006.

the sentences (8) and (10) differ in significance. Similarly, Frege would say that, because ‘Tully’ and ‘Cicero’ differ in sense, (8) and (10) differ in cognitive value.

But Jones’s 1892 view and Frege’s 1892 view disagree about the role of the second fact in each trio.

On Frege’s 1892 view, there’s an explanatory connection between THOUGHT and COGNITIVE VALUE: (8) and (10) differ in cognitive value because they express different thoughts. In the closing paragraph of “Sense and Reference,” he says,

If we found “ $a=a$ ” and “ $a=b$ ” to have different cognitive values, the explanation is that [*so erklärt sich das dadurch, daß*] for the purpose of knowledge, the sense of the sentence, viz., the thought expressed by it, is no less relevant than its referent, i.e., its truth value. (1892, 50)

In this passage, Frege is explicitly endorsing an explanatory connection.

And, on Frege’s 1892 view, there’s an explanatory connection between NAME-SENSE and THOUGHT: (8) and (10) express different thoughts because ‘Tully’ and ‘Cicero’ differ in sense. In the closing paragraph, he says, “the sense of ‘ b ’ may differ from that of ‘ a ’, and thereby [*und mithin auch*] the sense expressed in ‘ $a=b$ ’ differs from that of ‘ $a=a$ ’” (1892, 50). (The sense expressed in, or by, a sentence like (8) or (10) is a thought.)

But Jones’s 1892 view denies these additional explanatory connections. On her 1892 view, SIGNIFICANCE obtains because of NAME-SIGNIFICATION, but it’s not because of IMPORT that SIGNIFICANCE obtains, nor is it because of NAME-SIGNIFICATION that IMPORT obtains. That is, on her view the import of a categorical sentence—namely, what it asserts—isn’t what explains its significance; rather, its significance is explained more directly by a semantic fact about the names that occur in that sentence (specifically, that they differ in signification). This is a critical feature of her views that, I think, can be found in *Elements*, *General Logic*, and *New Law*.

6. Frege's *Begriffsschrift*

6.1. Mode of determination and content

In 1879, Frege distinguishes between the *mode of determination* [*Bestimmungsweise*] and *content* [*Inhalt*] of a name. This distinction might correspond to Jones's distinction between signification and application (and Frege's later distinction between sense and reference).

What Frege calls 'content' in *Begriffsschrift* coincides with what Jones calls 'application' in *General Logic*. For example, if '*B*' is the name of a point, then the *content* of '*B*' is that point itself (Frege 1879, 14). Similarly, for Jones, the point itself is what '*B*' applies to.

What Frege calls 'mode of determination' in *Begriffsschrift* might coincide with what Jones calls 'signification' in *General Logic* (and 'determination' in *Elements*). In some cases the mode of determination associated with a name is an attribute of the thing named. In Frege's example, the content of '*B*' is determined by a complex geometrical attribute: "as the point *B* when the line is perpendicular to the diameter" (1879, 14). But sometimes the content of a name is determined "immediately through intuition" (1879, 14). For Jones, by contrast, the signification of a name is always one or more attributes. It might be that Frege's 1879 distinction between mode of determination and content doesn't correspond to Jones's 1892 distinction between signification and application; or it might be instead that his distinction corresponds to hers, although they disagree about whether the mode of determination associated with a name, or the signification of that name, must always be one or more attributes.

6.2. Metalinguistic views

Frege holds a metalinguistic view about identity sentences in Section 8 of the *Begriffsschrift*. Near the beginning of that section, he says that an identity sentence "signifies the circumstances that two names have the same content" (1879, 14). And he concludes that section by saying that a sentence of the form *A is B* "is therefore to mean: *the symbol A and the symbol B have the same conceptual content*" (1879, 15).

On this view,

(8) Tully is Cicero.

means that ‘Tully’ and ‘Cicero’ have the same content, and

(10) Tully is Tully.

means that ‘Tully’ and ‘Tully’ have the same content. This view about what identity sentences mean is *very* close, if not identical, to Jones’s 1892 view about what categorical sentences assert, on which (8) asserts that ‘Tully’ and ‘Cicero’ have the same application, and (10) asserts that ‘Tully’ and ‘Tully’ have the same application.

6.3. No intermediaries

We can read Frege as holding a trio of claims in 1879.

HEART OF THE MATTER: (8) touches the heart of the matter, but (10) doesn’t.

MEANING: (8) and (10) mean different things.

MODE OF DETERMINATION: ‘Tully’ and ‘Cicero’ differ in mode of determination.

We have already seen MEANING: (8) means that ‘Tully’ and ‘Cicero’ have the same content, whereas (10) means that ‘Tully’ and ‘Tully’ have the same content. As for MODE OF DETERMINATION, ‘Tully’ and ‘Cicero’ might have the same object (or person) as their content but determine that content in different ways. That leaves HEART OF THE MATTER.

Frege says, “different names for the same content are not always merely a trivial matter of formulation, but touch the very heart of the matter” (1879, 15). He is here talking about names rather than the sentences that they occur in; but, if ‘Tully’ and ‘Cicero’ in (8) touch the heart of the matter, then it might not be too much of a stretch to say that (8) itself does, too, in a way in which the trivial (10) doesn’t.

It could be that, on Frege's 1879 view, MODE OF DETERMINATION explains HEART OF THE MATTER via MEANING. Perhaps the difference in mode of determination between 'Tully' and 'Cicero' is part of the meaning of (8), and perhaps that's why (8) touches the heart of the matter and (10) doesn't. In the middle of Section 8, Frege does say, "that, in a particular case, *the same content* is actually given by *two modes of determination* is the content of a *judgement*" (1879, 14).

But there's also a way of reading Frege on which MODE OF DETERMINATION explains HEART OF THE MATTER, but not via MEANING. If his official view of the meaning of (8) is what he says near the beginning and at the end of Section 8—namely, that (8) signifies or means that 'Tully' and 'Cicero' have the same content, but that what (8) signifies or means is silent about their modes of determination—then MEANING would not figure in the explanation of HEART OF THE MATTER. What would explain HEART OF THE MATTER instead is MODE OF DETERMINATION more directly, and this would be what Frege means when he says that two names (or a sentence they occur in) can touch the heart of the matter "if they are connected with different modes of determination" (1879, 14).

The trio of claims above that Frege holds in 1879 parallels the trio of claims that Jones holds in 1892 (namely, SIGNIFICATION, IMPORT, and NAME-SIGNIFICATION). On the reading suggested here, Frege's 1879 view is like Jones's 1892 view insofar as, on both views, the third claim—about the semantic features of names—explains the first claim directly, without the intermediary of a claim about what the sentences mean or assert.

There are of course other differences between Jones's 1892 view and Frege's 1879 view. To see some of these, let us return to our starting point. Jones (1890, 46–48, 53) takes her views of categorical sentences to apply, not just to (8), but also to (1)–(7) (as listed in section 2.1). Frege, by contrast, would treat at least (1)–(3), (5), and (6) differently than (4), (7), and (8), since the former sentences contain generality, negation, and functions (1879, 10–13, 15–18, 19–22). Frege might see this differential

treatment as a mark of logical sophistication; Jones, however, might see it as a lack of generality (in a different sense of ‘generality’).¹⁴

7. Conclusion

Consider again

(8) Tully is Cicero.

and

(10) Tully is Tully.

(8) and (10) differ, or at least appear to differ, in significance (or cognitive value). Different views explain this difference (or appearance) in different ways. Some views appeal to *speakers*: perhaps speakers who utter (8) assert, or communicate, something different than do speakers who utter (10) (Soames 2002, 66–68); or perhaps speakers grasp what (8) asserts (or expresses) in a different way than they grasp what (10) does (Salmón 1986, 113; Braun 2002, 68–69). Other views appeal to *semantics*. Views that locate the explanation on the semantic side tend to point to a difference in what the sentences assert. This is Frege’s 1892 view, for example. But there’s room to locate the explanation on the semantic side without pointing to a difference in what the sentences assert. We can see this in Kaplan’s (1989, 533) explanation of the difference in cognitive value between

(19) His pants are on fire! [said while pointing at a reflection in a window]

and

(20) My pants are on fire! [said while frantically attempting to extinguish the flames]

¹⁴ Before we dismiss Jones entirely for lack of logical sophistication here, let’s not forget that, when it comes to sentences like (4), she has plural application (or reference, or denotation), but Frege doesn’t. See Jones 1890, 5; 1892, 9; 1911b, 29. On Frege on plural denotation, see Oliver and Smiley 2016, 20–22.

On Kaplan's view, (19) and (20) assert the same thing in the relevant contexts; but they differ in significance because of a semantic difference—a difference in what he calls *character*—between 'his' and 'my' (1989, 505, 529–533).

Speaking very generally, something similar is going on with Frege's 1879 view and Jones's views in *Elements*, *General Logic*, and *New Law*: the explanation of the difference in significance between (8) and (10) falls on the semantic side, but the explanation doesn't have to do with a difference in what the sentences assert; rather, it has to do with a semantic difference—a difference in what Frege calls *mode of determination* and what Jones variously calls *determination*, *signification*, and *intension*—between 'Tully' and 'Cicero'. One thing that distinguishes Frege's 1879 view and Jones's views from Kaplan's view here (aside from a difference between his notion of character and their notions of mode of determination, signification, etc.) is that on their views there *is* a difference in what (8) and (10) assert; it's just that this difference isn't what makes (8) significant in a way in which (10) isn't. Still, all these views are united in holding that, when it comes to explaining significance, import might not be all that important, or significant, after all.

Works Cited

- Abstract of the Minutes of the Proceedings of the Aristotelian Society for the Thirty-Second Session. 1910–1911. *Proceedings of the Aristotelian Society* 11:221–222.
- Abstract of Minutes of the Joint Session of the Aristotelian Society, the British Psychological Society, and the Mind Association. 1914–1915. *Proceedings of the Aristotelian Society* 15:431.
- Bar-Elli, Gilead. 2006. Identity in Frege's *Begriffsschrift*: Where Both Thau-Caplan and Heck Are Wrong. *Canadian Journal of Philosophy* 36:355–370.
- Braun, David. 2002. Cognitive Significance, Attitude Ascriptions, and Ways of Believing Propositions. *Philosophical Studies* 108:65–81.

- Caplan, Ben. 2022. E. E. Constance Jones on Unique Existence. *Asian Journal of Philosophy* 1, Article 20.
- Dickie, Imogen. 2008. Informative Identities in the *Begriffsschrift* and “On Sense and Reference.” *Canadian Journal of Philosophy* 38:269–287.
- Frege, Gottlob. 1879. *Begriffsschrift, eine der arithmetischen nachgebildete Formelsprache des reinen Denkens*. Halle: Nebert. Excerpts translated by Michael Beaney as “Begriffsschrift: A Formula Language of Pure Thought Modelled on That of Arithmetic” in *The Frege Reader*, edited by Michael Beaney, 47–78. Oxford: Blackwell, 1997.
- Frege, Gottlob. 1891. *Function und Begriff: Vortrag, gehalten in der Sitzung vom 9. Januar 1891 der Jenaischen Gesellschaft für Medizin und Naturwissenschaft*. Jena: Pohle. Translated by P. T. Geach as “Function and Concept” in *Translations from the Philosophical Writings of Gottlob Frege*, edited by Peter T. Geach and Max Black, 1952, 3rd ed., 2–41. Oxford: Blackwell, 1980.
- Frege, Gottlob. 1892. Über Sinn und Bedeutung. *Zeitschrift für Philosophie und philosophische Kritik* 100:25–50. Translated by Max Black as “Sense and Reference” in *Philosophical Review* 57:209–230.
- Frege, Gottlob. 1918–1919. Der Gedanke. *Beiträge zur Philosophie des deutschen Idealismus* 1:58–77. Translated by Peter Geach and R. H. Stoothoff as “Thoughts” in Gottlob Frege, *Collected Papers on Mathematics, Logic, and Philosophy*, edited by Brian McGuinness, 351–372. Oxford: Blackwell, 1984.
- Frege, Gottlob. 1976. *Nachgelassene Schriften und Wissenschaftlicher Briefwechsel*. Vol. 2 (*Wissenschaftlicher Briefwechsel*). Edited by Gottfried Gabriel et al. Hamburg: Meiner.
- Green, Karen. 2023. On E. E. Constance Jones’s Account of Categorical Propositions and Her Defence of Frege. *Australasian Journal of Philosophy* 101:863–875.
- Heck, Richard Kimberly. 2003. Frege on Identity and Identity-Statements: A Reply to Thau and Caplan. *Canadian Journal of Philosophy* 33:83–102. (Published under the name ‘Richard G. Heck, Jr.’)

- Janssen-Lauret, Frederique. 2024. Grandmothers and Founding Mothers of Analytic Philosophy: Constance Jones, Bertrand Russell, and Susan Stebbing on Complete and Incomplete Symbols. In *Bertrand Russell, Feminism, and Women Philosophers in His Circle*, edited by Landon D. C. Elkind and Alexander Mugar Klein, 207–239. London: Palgrave Macmillan.
- Janssen-Lauret, Frederique. 2025. Constance Jones, Christine Ladd-Franklin, and Victoria Welby: Grandmothers of Analytic Philosophy in *Mind*. In *The Early Years of Mind: Making Contemporary Philosophy and Psychology*, edited by Lukas M. Verburgt, 347–369. Oxford: Oxford University Press.
- Jevons, W. Stanley. 1878. *Elementary Lessons in Logic: Deductive and Inductive, with Copious Questions and Examples, and a Vocabulary of Logical Terms*. 1870. 7th ed. London: Macmillan.
- Jones, E. E. Constance. 1890. *Elements of Logic as a Science of Propositions*. Edinburgh: Clark.
- Jones, E. E. Constance. 1892. *An Introduction to General Logic*. London: Longmans, Green.
- Jones, E. E. Constance. 1893. The Import of Categorical Propositions. *Mind* 2:219–222.
- Jones, E. E. Constance. 1893–1894. Import of Categorical Propositions. *Proceedings of the Aristotelian Society for the Systematic Study of Philosophy* (original series) 2:35–45.
- Jones, E. E. Constance. 1905. *A Primer of Logic*. London: Murray.
- Jones, E. E. Constance. 1908. Import of Propositions and Inference. *Mind* 17:527–534.
- Jones, E. E. Constance. 1910. Mr. Russell’s Objections to Frege’s Analysis of Propositions. *Mind* 19:379–386.
- Jones, E. E. Constance. 1910–1911. A New Law of Thought. *Proceedings of the Aristotelian Society* 11:166–186.

- Jones, E. E. Constance. 1911a. A New ‘Law of Thought’ and Its Implications. *Mind* 20:41–53.
- Jones, E. E. Constance. 1911b. *A New Law of Thought and Its Logical Bearings*. Cambridge: Cambridge University Press.
- Jones, E. E. Constance. 1911c. A New “Law of Thought” and Its Logical Implications. *Atti del IV Congresso Internazionale di Filosofia* 2:440–443.
- Jones, E. E. Constance. 1913a. *A Primer of Logic*. 2nd ed. London: Murray.
- Jones, E. E. Constance. 1913b. Analysis of Categorical Propositions. *Mind* 22:526–531.
- Jones, E. E. Constance. 1914–1915. Symposium—The Import of Propositions. *Proceedings of the Aristotelian Society* 15:353–374, 397–412.
- Jones, E. E. Constance. 1915. Analysis of Categorical Propositions. *Mind* 24:60–64.
- Jones, E. E. Constance. 1922. *As I Remember: An Autobiographical Ramble*. London: Black.
- Jourdain, Philip E. B. 1911–1912. The Development of the Theories of Mathematical Logic and the Principles of Mathematics. *Quarterly Journal of Pure and Applied Mathematics* 43:219–314.
- Kaplan, David. 1989. Demonstratives: An Essay on the Semantics, Logic, Metaphysics, and Epistemology of Demonstratives and Other Indexicals. In *Themes from Kaplan*, edited by Joseph Almog, John Perry, and Howard Wettstein, 481–563. New York: Oxford University Press.
- Keynes, John Neville. 1887. *Studies and Exercises in Formal Logic: Including a Generalization of Logical Processes in the Application to Complex Inferences*. 1884. 2nd ed. London: Macmillan.

- Keynes, John Neville. 1894. *Studies and Exercises in Formal Logic: Including a Generalization of Logical Processes in the Application to Complex Inferences*. 1884. 3rd ed. London: Macmillan.
- Keynes, John Neville. 1906. *Studies and Exercises in Formal Logic: Including a Generalization of Logical Processes in the Application to Complex Inferences*. 1884. 4th ed. London: Macmillan.
- Lamb, Charles. 1823. *Elia: Essays Which Have Appeared Under that Signature in The London Magazine*. London: Taylor and Hessey.
- Mill, John Stuart. 1875. *A System of Logic: Ratiocinative and Inductive, Being a Connected View of the Principles of Evidence and the Methods of Scientific Inquiry*. 1843. 2 vols. 9th ed. London: Longmans, Green, Reader, and Dyer.
- Oliver, Alex and Timothy Smiley. 2016. *Plural Logic*. 2nd ed. Oxford: Oxford University Press.
- Ostertag, Gary. 2020. Emily Elizabeth Constance Jones. In *Stanford Encyclopedia of Philosophy*, edited by Edward N. Zalta.
- <https://plato.stanford.edu/archives/fall2020/entries/emily-elizabeth-constance-jones/>.
- Ostertag, Gary. 2023. E. E. Constance Jones on Identity and Predication. In *Women in the History of Analytic Philosophy: Selected Papers of the Tilburg–Groningen Conference*, edited by Jeanne Peijnenburg and Sander Verhaegh, 49–66. Cham: Springer.
- Ostertag, Gary. 2025. *E. E. Constance Jones*. Cambridge: Cambridge University Press.
- Pardey, Ulrich and Kai F. Wehmeier. 2025. *Frege: Identity Challenges Reflection; A Revisionist View*. Oxford: Oxford University Press.
- Peijnenburg, Jeanne and Maria van der Schaar. 2025. E. E. Constance Jones and the Law of Significant Assertion. In *The Oxford Handbook of American and British Women Philosophers in the Nineteenth Century*, edited by Lydia Moland and Alison Stone, 313–327. Oxford: Oxford University Press.

- Proceedings of the Aristotelian Society for the Fifteenth Session. 1893–1894. *Proceedings of the Aristotelian Society for the Systematic Study of Philosophy* (original series) 2:166–168.
- Russell, Bertrand. 1903. *The Principles of Mathematics*. Cambridge: Cambridge University Press.
- Russell, Bertrand. 1905. On Denoting. *Mind* 14:479–493.
- Russell, Bertrand. 1910–1911. Knowledge by Acquaintance and Knowledge by Description. *Proceedings of the Aristotelian Society* 11:108–128.
- Salmón, Nathan. 1986. *Frege's Puzzle*. Atascadero: Ridgeview. (Published under the name 'Nathan Salmon'.)
- Soames, Scott. 2002. *Beyond Rigidity: The Unfinished Semantic Agenda of Naming and Necessity*. Oxford: Oxford University Press.
- Thau, Mike and Ben Caplan. 2001. What's Puzzling Gottlob Frege? *Canadian Journal of Philosophy* 31:159–200.
- Waithe, Mary Ellen and Samantha Cicero. 1995. E. E. Constance Jones (1848–1922). In *A History of Women Philosophers*, edited by Mary Ellen Waithe, Vol. 4 (*Contemporary Women Philosophers, 1900–Today*), 25–49. Dordrecht: Kluwer.