

## The Logic of the Liar from the Standpoint of the Aristotelian Syllogistic

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**Abstract** By developing the syntactical insights implicit in the Aristotelian syllogistic, we can show that two strengthened versions of the Megarian Liar paradoxes are sophisms committing the old fashioned *in dictione* fallacies of amphiboly and equivocation.

The Megarian Liar Paradox, developed in ancient times by critics of the Aristotelian theory of truth, comes in a number of variants. Two of its strengthened versions, however, are the most plausible. One, dubbed the Strengthened Epimenides, focuses on person *A*'s self-referential claim

- (1) Everything that *A* is now saying is not true.

Through the premise that *A* is now saying that (1), it argues that the assumption of the truth of (1) leads to a contradiction. Similarly, it argues that the assumption of the denial of the truth of (1) leads to a conclusion which, though not contradictory, should be rejected as false on empirical grounds (see Goldstein [9], p. 118, and Prior [14], pp. 70–71). A second Liar Paradox, the Strengthened Eubulides, is regarded as more powerful. It simply contends that from the separate assumptions of the truth and the denial of the truth of the self-referential claim

- (2) This statement is not true,

contradiction results.

I shall argue that both paradoxes are sophisms. As they play on structural and lexical ambiguities, they can easily be classified as committing the old fashioned Aristotelian *in dictione* fallacies of amphiboly and equivocation. No good reason has thus been given for denying that self-referential claims such as (1) and (2) are perfectly in order. Since the respective affirmations and denials of their truth do not result in absurdity, all efforts to theorize about the nature of language based on the presumed validity of these paradoxes must now be looked

upon as ill founded. This, of course, is not to deny that it is still logically possible to show that these paradoxes consist of valid arguments. Diagnoses of argument invalidity do not have the conclusiveness of proofs of argument validity (see Massey [11], p. 492). But, a new burden of proof must now be assumed by the Megarian proponent of the paradoxes: henceforth the paradoxes have to be constituted with a rigor sufficient to convince us that they are immune from those fatal ambiguities which we shall show underlie their intuitively appealing appearance.

*1 A term logician's syllogism* As our pathology of these Megarian Liars is Aristotelian, so must be our understanding of their argumentation. To prepare for this it is necessary to display the latent syllogistic character of reasoning which at first blush appears asylogistic. Adapting an example provided by Peter Geach ([7], p. 75) should be sufficient: it can be said that "Jones believes something that is not true" is validly inferred from "That the Earth is flat is not true" and "Jones believes that the Earth is flat". By placing the subjects of these statements in brackets, their predicates in parentheses, and their main syntactical or syncategorematic terms (which show the quantity and quality of the statements) in italics, we can lay out Argument [A]:

- [A]: (3) *That* [the Earth is flat] (is not true)  
 (4) (Jones believes) *that* [the Earth is flat]  


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 (5) [Jones believes] *something that* (is not true).

This inference can be construed as a third figure syllogism in either *Darapti*, *Disamis*, or *Datisi*. Statements (3) and (4) can each be interpreted as either universal or particular affirmative propositions: the syncategorematic '*that*' functions in this context as a '*some*' which is equivalent to an '*every*' (see Englebretsen [5], pp. 90–91). The rationale for this is captured by recalling that, following Leibniz, term logic can regard statements with proper name subjects ("Socrates is wise" for example) as having an implicit "wild" quantification, that is, as indifferently either universal or particular propositions. The uniqueness of the referent of their subjects renders "*Every* [Socrates] (is wise)" equivalent to "*Some* [Socrates] (is wise)". It is this indifference to quantification which makes the appearance of the syncategorematic quantifier term in the surface grammar of "Socrates is wise" unnecessary. It must, however, be depth grammatically operative in order to account for the validity of syllogisms containing propositions with proper name subjects (Sommers [15], pp. 25–48). By analogy, the proposition "The Earth is flat", as it expresses a single thought, can be treated as *like* a proper name. The result is *that* 'that' in its role as a syntactical device in [A] has a functional equivalence with both '*every*' and '*some*' insofar as these quantifiers operate on proper name subjects or on subjects functioning *like* proper names.<sup>1</sup>

The "wild" quantity which we are attributing to '*that*' can also be recognized by noting that (3) is logically equivalent to

- (3.1) *That* [the Earth is not flat] (is true).

The only way for Aristotelian logic to justify this obvious equivalence is first to construe (3) as of the form "*Every*[*S*] (not *P*)" with (3.1) as its partial inverse

of the particular affirmative form “*Some*[not *S*] (*P*)”. (3.1) can then be taken as of the form “*Every*[not *S*] (*P*)”. As such it in turn entails its partial inverse, (3), of the form “*Some* [*S*] (not *P*)”. Justification of the equivalence of (3) with (3.1) is thus dependent on viewing ‘*that*’ as functioning indifferently either as ‘*every*’ or as ‘*some*’.

With regard to the reading of parsed sentences in which the grammatical subject is not the logical subject, it is helpful to note that (4) should be construed as claiming: that the Earth is flat is such that Jones believes it;<sup>2</sup> the conclusion (5) asserts: something that is such that Jones believes it is not true. By conversion, (5) is equivalent to

(5.1) (Jones believes) *something that* [is not true],

the claim: something that is not true is such that Jones believes it.

The sense of the claim

(5.2) [Jones believes] *that* (is not true),

which is the plausible expression of the conclusion to be drawn in [A], is not that it is not true that Jones believes, but rather: *that* which is such that Jones believes it is not true. The ‘*that*’ here is not a Russellian logically proper name, but an ambiguous syntactical or syncategorematic term. It is a contraction either of ‘*everything that*’ or of ‘*something that*’. It is the structure of the inference itself which demands that (5.2) be explicitly enunciated as the particular proposition (5) or (5.1) rather than as a universal claim such as “[Jones believes] *everything that* (is not true)”.

**2 The Strengthened Epimenides** (a) *Exposition*. Presented with plausible parsings, this paradox can be laid out in a preliminary fashion as consisting basically of the conjunction of Arguments [B] and [C]:

[B]: (6) *That* [everything that *A* is now saying is not true] (is true) [Ass.]  
 (7) (*A* is now saying) *that* [everything that *A* is now saying is not true] [Pr.]  
 (8) *Everything that* [*A* is now saying] (is not true) [6]  
 (9) *Something that* [*A* is now saying] (is true) [6,7, *Darapti*]

The particular affirmative (9) contradicts (8) in that the latter is equivalent by obversion to the universal negative “*Nothing that* [*A* is now saying] (is true)”.

[C]: (10) *That* [everything that *A* is now saying is not true] (is not true) [Assump.]  
 (7) (*A* is now saying) *that* [everything that *A* is now saying is not true] [Pr.]  
 (11) *Something that* [*A* is now saying] (is true) [10]  
 (12) *Something that* [*A* is now saying] (is not true) [10,7, *Darapti*]

By obversion, the particular affirmative (12) is equivalent to the particular negative which we regiment as

(12.1) *Something that* [*A* is now saying] *not* (is true).<sup>3</sup>

As there is only a subcontrary opposition between (11) and (12) or (12.1), no contradiction has been deduced.<sup>4</sup> Proponents of an oddity thus focus on the fact that (11) is entailed by (10). They find it surprising that the *empirical* question of whether any statement other than (1) was made by *A* is settleable in the affirmative by pure logic on the basis of the assumption of (10) alone (Goldstein [9], p. 117; Prior [14], pp. 70–71).

(b) *Diagnosis*. We shall now argue that as the alleged entailment of (8) by (6) in Argument [B] can not be justified either as an enthymeme or as a species of immediate inference, it must thus be regarded as invalid. However, such an assessment will not block our appreciation of the argument's intuitive appeal; rather, it will enable us to discern its amphibolous character.

The deduction of (8) from (6) is not enthymematic. In order to avoid a fallacy of four terms, (8) must be presented as its negative obverse: "*Nothing that [A is now saying] (is true)*". This means that the resultant syllogisms containing the alleged necessarily true suppressed premise must be *either* AEE in the first or third figures *or* EAE in the third or fourth figures, all invalid inference forms. Furthermore, if in order to avoid the fallacy of four terms (6) is obverted to its negative equivalent and (8) is left in its affirmative form, we have a violation of the rule precluding a valid inference to an affirmative conclusion in a syllogism with one negative premise.

Assuming that the wild quantifier '*That*' in the affirmative proposition (6) is functioning as an 'every', what (6) does entail by immediate inference is its partial inverse

(13) *That* [something that *A* is now saying is true] (is not true),

which is equivalent by obversion to the full inverse regimented as

(13.1) *That* [something that *A* is now saying is true] *not* (is true).<sup>5</sup>

To affirm a proposition as true is only to deny truth to its contradictory opposite. Such an affirmation does not warrant by the known processes of immediate inference the bare assertion of the proposition itself as occurs in the inference to (8) from (6).

To see the amphiboly involved in the deduction of (8) from (6), one must first recognize that the unanalyzed "That everything that *A* is now saying is not true is true" can not only be parsed as (6) but also as

(6.1) (That *everything that [A is now saying] is not true is true*),

with the gapped "That \_\_\_ \*\*\* is not true is true" as predicate. (The '\_\_\_' represents the logical space occupied by the sometimes suppressed main syntactical device of a proposition and the '\*\*\*' the logical space occupied by the subject term quantified by this device.) In contrast to the composite *de dicto* (6) with (1) as its subject, (6.1) is a divided proposition having only the phrase "A is now saying" as its subject; it claims: everything that *A* is now saying is such that that it is not true is true.<sup>6</sup> (6.1) not only entails (8) but also is equivalent to it. The mutual entailment exhibiting the logical equivalence is demonstrated by devel-

oping two syllogisms in *Barbara* which employ the suitably parsed convertibly necessary truism

(14) That everything that is not true is not true is true.

The syllogisms are [D] and [E]:

[D]: (14.1) [That *everything that* (is not true) is not true is true]  
 (6.1) (That *everything that* [A is now saying] is not true is true)

(8) *Everything that* [A is now saying] (is not true).

[E]: (14.2) (That *everything that* [is not true] is not true is true)  
 (8) *Everything that* [A is now saying] (is not true)

(6.1) (That *everything that* [A is now saying] is not true is true).

(14.1) claims: everything that is such that that it is not true is true—is not true;  
 (14.2) insists: everything that is not true—is such that that it is not true is true.

So, while (8) does not follow from (6), it follows from and is equivalent to (6.1). Admitting this, however, is not to concede that a contradiction has been generated: in Argument [B] the deduction of (9), the contradictory opposite of (8), depended upon (6) and (7), not upon (6.1) and (7).

What does follow from (6.1) and (7)? We can construct Argument [F] in *Barbara*:

[F]: (6.1) (That *everything that* [A is now saying] is not true is true)  
 (7) (A is now saying) *that* [everything that A is now saying is not true]

(15) (That *that* [everything that A is now saying is not true] is not true is true).

As (15) is not contradictorily opposed to (8), we can diagnose Argument [B] as an amphiboly. It generates a contradiction only by failing to notice the difference between the parsing of “That everything that A is now saying is not true is true” as (6) and as (6.1).

(6) and (6.1) are not the only plausible parsings for “That everything that A is now saying is not true is true”. Two others are

(6.2) (That *everything that* [A is now saying is not true] is true)

and the implicitly wildly quantified singular proposition

(6.3) (That everything that [A] is now saying is not true is true).<sup>7</sup>

It is obvious that (6.2) can not entail (8) or any other parsing of the string “everything that A is now saying is not true”. It is easy to show, however, the equivalence of this string parsed as the singular

(8.1) (Everything that [A] is now saying is not true)

with the singular proposition (6.3).<sup>8</sup> Yet, even the joint assertion of (6.3) with the appropriate reparsings in [B] of (7) (with ‘A’ as their wildly quantified proper name subject) entails, it can easily be seen, no incompatibility with (8.1). Again, a contradiction can only be deduced via an amphiboly.

Now, it might seem that while syllogistic has preserved some basic intuitions

by framing the logical equivalence of (6.1) and (8), it nevertheless has overlooked one rather obvious justification for the deduction of (8) from (6). Might one not simply appeal to the Alethic Principle:

(AP) *That* [ $p$ ] (is true)  $\vdash p$ ?

That such a principle cannot be regarded either as an enthymeme or as a species of immediate inference might only betoken a limitation of syllogistic logic. Here one can only observe that while term logicians can not accept (AP) or its equivalent

(AP<sub>1</sub>) (It is true) *that* [ $p$ ]  $\vdash p$ ,

they can note that as usually construed the Alethic Principle regards “It is true that” as a many-worded, proposition-forming operator on a proposition. The result is that propositional logic accepts

(AP<sub>2</sub>) It-is-true-that  $p \vdash p$ ,

wherein the predicative ‘is true’ and the syncategorematic ‘that’ of term logic have been conflated into a unary syntactical device. (AP<sub>2</sub>) thus requires that (6) be transformed into the non-Aristotelian

(6.01) It-is-true-that everything that  $A$  is now saying is not true

to yield (8). In fact, (6.01) and (8) are herein viewed as logically equivalent. But, again, as it is (6) and (7) in Argument [B], not (6.01) and (7), which entail (9), the deduction of a contradiction is due to an amphiboly rooted in neglect of the differences between Aristotelian and non-Aristotelian views on the function of ‘that’. The only Alethic Principle acceptable to term logic is, of course, the one implicitly used in Argument [D] in the deduction of (8) from (6.1), namely, the syllogistically justifiable enthymematic

(AP<sub>3</sub>) (That  $Q[S]P$  is true)  $\vdash Q[S](P)$ ,

where ‘ $Q$ ’ represents the main syntactical term of the respective propositions.<sup>9</sup> From the standpoint of the syllogistic, the use of term variables in the expression of the Alethic Principle is essential.

Turning to Argument [C], we can note that its striking difference with [B] is that the assumption is alleged to entail not a universal proposition but a particular one: (10) supposedly entails only the particular affirmative

(11) *Something that* [ $A$  is now saying] (is true),

whose assertion in this context is allegedly odd. Now we can rebut this allegation by insisting that the partial inverse of (10) is

(16) *That* [something that  $A$  is now saying is true] (is true)

with the main ‘*that*’ being interpreted as a particular quantifier. It seems that this aspect of the Strengthened Epimenides is confusing (11) with (16). As (11) simply is not herein deduced, it is not subject to being labelled an odd assertion.

Though this diagnosis is appropriate, perhaps what the Megarian could point up in defense of the Strengthened Epimenides is that

(17) ( $A$  is now saying) *that* [something that  $A$  is now saying is true],

with *‘that’* being construed as functioning universally, should be introduced and recognized as an analytically necessary truth. Its claim is: that something that *A* is now saying is true is such that *A* is now saying it. The expression of the meaning of the predicate is included in the subject. By *Disamis*, (16) and (17) entail (11).

However, if the deduction of (11) is so justified, the oddity claimed for it dissipates. “*Something that [A is now saying] (is true)*” is not derivable from (10) alone, but from (10) and *another* proposition, namely (17).

A Megarian acceptance of (17) as a necessary truth casts new light on our understanding of Argument [B]. We have already noticed that in [B] (6) did not entail (8) but its full inverse, the implicit particular negative

(13.1) *That [something that A is now saying is true] not (is true).*

By *Bocardo* (13.1) and

(17) (A is now saying) *that [something that A is now saying is true]*

do not entail the universal (8), but the regimented particular negative which we have already rendered as

(12.1) *Something that [A is now saying] not (is true).*

But, our bottom line diagnosis of [B] still holds as (12.1) and (9) stand only in a subcontrary opposition in which both propositions can be coherently accepted as jointly true. Similarly, even with its appeal to (17) in the deduction of (11), Argument [C] can also only legitimately claim the same nonparadoxical assertion of the joint truth of the subcontraries (12.1) and (11).

Argument [C] further parallels Argument [B] in that its assumption can also be parsed in three additional ways:

(10.1) (That *everything that [A is now saying] is not true is not true*)

(10.2) (That *everything that [A is now saying is not true] is not true*)

(10.3) (That *everything that [A] is now saying is not true is not true*).

Somewhat unexpectedly, however, (10.1) not only entails but is equivalent to “everything that *A* is now saying is true” provided the latter is parsed as the universal

(11.1) *everything that [A is now saying] (is true).*

The mutual entailment revealing equivalence is demonstrated by constructing two *Barbara* syllogisms, [G] and [H], which appeal to the properly parsed simply convertible necessarily true dictum

(18) That everything that is true is not true is not true:

[G]: (18.1) [That *everything that (is true) is not true is not true*]

(10.1) (That *everything that [A is now saying] is not true is not true*)

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(11.1) *Everything that [A is now saying] (is true).*

- [H]: (18.2) (That *everything that* [is true] is not true is not true)  
 (11.1) *Everything that* [A is now saying] (is true)  
 (10.1) (That *everything that* [A is now saying] is not true is not true).<sup>10</sup>

The deduction from (10.1) of (11.1) in a revised [C] does not generate a contradiction with (12) or (12.1). The reason for this is that (10.1) and (7) do not entail (12) or (12.1) as do (10) and (7). What (10.1) and (7) do entail by *Barbara* is: (That *that* [everything that A is now saying is not true] is not true is not true). This claim is clearly not the contradictory opposite of (11.1).

Further parallels with our diagnosis of Argument [B] can be developed by the reader. It is easily seen that (10.2) cannot entail “Everything that A is now saying is true” or even “Something that A is now saying is true” under any parsing. (10.3), however, can be demonstrated as logically equivalent to the singular proposition

- (11.2) (Everything that [A] is now saying is true).

But, again, the difference between (10.3) and (10) precludes the deduction of either (12) or (12.1) and the assertion of a contradiction.

There is thus a remarkable symmetry in the diagnoses given Arguments [B] and [C]. The common result is that only if

- (17) (A is now saying) *that* [something that A is now saying is true]

is regarded as a necessarily true dictum can even a mere nonparadoxical subcontrary opposition be recognized between (12.1), which has replaced (8), and (9) in [B] and between (11) and (12) or (12.1) in [C]. It is only via (17) that even the particular propositions (12.1) and (11) are respectively entailed by (6) and (10).

(c) *A problem for the diagnosis.* In this setting, however, what a Megarian might do is urge that (7) in Arguments [B] and [C] be revised to

- (7.1) [A is now saying] *that* (everything that A is now saying is not true),

with ‘*that*’ being construed as a universal quantifier. By *Barbara*, in such a revised [B], (6) and (7.1) now entail

- (9.1) *everything that* [A is now saying] (is true);

in such a revised [C], (10) and (7.1) entail

- (12.2) *everything that* [A is now saying] (is not true),

the equivalent obverse of “*Nothing that* [A is now saying] (is true)”. We seemingly now have a genuine antinomy in that (9.1) in the revised [B] is contradictorily opposed to (12.1) with (12.2) in the revised [C] being contradictory to (11).

This tack, however, is futile as its success depends on the acceptance of the joint assertion of the universal

- (7.1) [A is now saying] *that* (everything that A is now saying is not true)

and the wildly quantified

- (17) (A is now saying) *that* [something that A is now saying is true]



as premises. But (17) and (7.1) obviously entail self-contradictory assertions; this proposed revision of the Strengthened Epimenides is thus defeated in its very conception. Examination of another possible revision is best postponed until after we have investigated the Strengthened Eubulides.

### 3 The Strengthened Eubulides

(a) *Some diagnostic preliminaries.* To prepare for our understanding of the logic of this paradox, it is necessary to illustrate how our interpretation of syllogistic inference diverges from the view of it presented by neo-Aristotelian logicians such as John Stuart Mill. Apparently, in opposition to Alexander Bain, Mill ([12], pp. 108–112) would consider an inference such as

- [I]: (19) Socrates fought at Delium  
 (20) Socrates was the master of Plato  
 (21) The master of Plato fought at Delium

to be a valid third figure syllogism composed of three singular contingent propositions with the uniquely denoting connotative name, “the master of Plato”, the subject of the conclusion. According to our view, however, the implicit wild quantification of ‘Socrates’ in the premises along with the demands of parsing requires that the conclusion be particular and that the argument be interpreted as either *Darapti*, *Disamis*, or *Datisi*:

- [I\*]: (19.1) [Socrates] (fought at Delium)  
 (20.1) [Socrates] (was the master of Plato)  
 (21.1) *Someone who* [was the master of Plato] (fought at Delium).<sup>11</sup>

In [I\*] “the master of Plato” is not the subject of the conclusion but only part of the bracketed subject term. We view (20.1) as a contingent identity claim which can be construed as fixing the referent of ‘Socrates’. It is possible, however, to view the phrase “the master of Plato” as a many-worded name: “the-master-of-Plato”. So the claim “Socrates is the-master-of-Plato” would be of the same breed as “Tully is Cicero” or “Hesperus is Phosphorus” or “Hesperus is the-Evening-Star”. These are necessary identities, which Mill himself ([12], pp. 19–25, 70–71) would classify as merely verbal propositions and which his disciple Kripke ([10], pp. 97–105) would view as known *a posteriori*. As a necessary identity “Socrates is the-master-of-Plato” might be displayed as

- (20.2) Socrates = the-master-of-Plato.

But, term logicians (see Englebretsen [5], pp. 120–136) have been rightfully suspicious of the introduction of a special two place ‘is’ of identity relation. As we understand it, (20.2) is not a proposition, but a shorthand device for indicating that the two-name necessary *a posteriori* claim

- (20.3) [Socrates] (the-master-of-Plato),

with its suppressed wild quantifier, is logically equivalent by conversion to the implicitly wildly quantified necessary *a posteriori* claim

- (20.31) [The-master-of-Plato] (Socrates).<sup>12</sup>

Such parsings (*pace* Aristotle and Frege)<sup>13</sup> allow proper names as genuine predicates though not exactly in the way Mill envisioned. As such, they enable us to revise Argument [I] to [I']. We can now validly draw in the third figure the rather natural conclusion that Mill wanted without confusing necessary and contingent identities the way that Mill did:

[I']: (19.1) [Socrates] (fought at Delium)  
 (20.3) [Socrates] (the-master-of-Plato)  
 -----  
 (21.2) [The-master-of-Plato] (fought at Delium).<sup>14</sup>

(b) *Exposition of the Strengthened Eubulides.* As the logic of the alleged generation of a contradiction from the affirmation of the truth of

(2) This statement is not true

is the same as the alleged deduction of a contradiction from the denial of the truth of (2), we can focus on the reasoning in the former. Let us parse

(22) That this statement is not true is true

as

(22.1) *That* [this-statement is not true] (is true),

with “this-statement” as a two-worded proper name. This means that to deduce via *Darapti*

(23) [This-statement] (is true),

there must be an appeal to the *presumed* necessary identity

(24) This-statement = this-statement is not true

parsed as the implicitly wildly quantified

(24.1) (This-statement) [This-statement is not true].

The contradiction with (23) arises when it is also urged that

(25) [This-statement] (is not true),

equivalent by obversion to the regimented negative “[This-statement] *not* (is true)”, follows immediately from (22.1).

(c) *Diagnosis.* The argument commits an amphiboly based on an equivocation between names and statements. In order for (24) or (24.1) to be accepted as a suppressed necessarily true premise both “This-statement” and “This-statement is not true” must be construed as logically indivisible many-worded names. Otherwise, only a contingent identity, which cannot be functioning in a strict enthymematic entailment, would be expressed. This means that (24) must be revised as

(24.2) This-statement = This-statement-is-not-true,

with the expressions flanking '=' both *fully hyphenated* to indicate their unbreakable logical unity as names. (24.1) thus becomes the implicitly wildly quantified and simply convertible

(24.3) (This-statement) [This-statement-is-not-true].

This means that (22.1) must be revised to

(22.2) *That* [this-statement-is-not-true] (is true).

By *Darapti*, (22.2) and (24.3) entail the desired

(23) [This-statement] (is true).

It should now be clear that with (22.1) revised to (22.2), and with the latter containing a many-worded proper name as subject, there can be no entailment of

(25) [This-statement] (is not true),

the claim needed for a contradiction. In fact, our diagnosis of the Strengthened Epimenides clearly implies that not even the full inverse of (22.1) entails (25). However, if (22) is parsed as the singular

(22.3) (That [this-statement] is not true is true),

it can easily be shown in *Barbara* to entail (25).<sup>15</sup> The syllogism is [K] which utilizes the necessary truth, "everything that is such that that it is not true is true — is not true", as the major premise:

[K]:	(26)	[That <i>everything that</i> (is not true) is not true is true]	
	(22.3)	(That [this-statement] is not true is true)	
	(25)	[This-statement] (is not true).	

Now, it is evident in (22.3) that the string "This-statement is not true" is not functioning as the indivisible logical unit of (22.2).<sup>16</sup> In so conflating (22.2) and (22.3), the Strengthened Eubulides once again commits an amphiboly the root of which is its equivocal use of a phrase both as a many-worded name and as an incomplete symbol.

The Megarian could revise the Strengthened Eubulides by assuming (22.1) and by appealing to the contingent identity claim

(27) (This-statement is) *that* [this-statement is not true]

as a premise. The Argument yielding the implicit contradiction is [L]:

[L]:	(22.1)	<i>That</i> [this-statement is not true] (is true)	[Assump.]
	(27)	(This-statement is) <i>that</i> [this-statement is not true]	[Pr.]
	(23)	[This-statement] (is true)	[22.1, 27, <i>Darapti</i> ]
	(25)	[This-statement] (is not true).	[22.1]

But, it should now be obvious that [L] is fallacious. For what (22.1) and (27) entail by *Darapti* is not (23), but

(23.1) [This-statement is] *something that* (is true).

(22.1) does not entail (25), but its partial inverse

(28) *That* [this-statement is true] (is not true).

No contradiction has been deduced. Further revisions will prove similarly incapable of producing a contradiction without resorting to amphiboly or to equivocation. Similar results are attained when the assumption asserts the denial of the truth of (2).

**4 The Strengthened Epimenides revised** It is possible to revise (7) of Argument [B] so as to regard it as a necessarily true proposition stating the identity of two many-worded names:

(7.2) *A-is-now-saying* = Everything-that-*A-is-now-saying-is-not-true*.

With the syncategorematic '=' proxy for the wild quantifier '*that*', (7.2) is simply claiming that

(7.3) [*A-is-now-saying*] *that* (everything-that-*A-is-now-saying-is-not-true*)

is an affirmative proposition in which the proper name subject and predicate can be validly transposed. Can such a revision of (7) to (7.3) result in the production of a genuine antinomy? That the response must be negative can be seen by presenting Argument [B\*]:

[B\*]: (6.4) *That* [everything-that-*A-is-now-saying-is-not-true*] (is true) [Ass.]

(7.3) [*A-is-now-saying*] *that* (everything-that-*A-is-now-saying-is-not-true*) [Pr.]

(29) *Everything that* [*A-is-now-saying*] (is true). [6.4,7.3,Barbara]

It is simply incorrect, however, to regard (29) as even implicitly incompatible with (6.4). Even the unwarranted (and unintelligible) assertion of the name "everything-that-*A-is-now-saying-is-not-true*" is not incompatible with (29). (6.4) does, of course, entail its partial inverse

(6.41) *That* [Not everything-that-*A-is-now-saying-is-not-true*] (is not true).

The latter combined with the premise

(30) (*A-is-now-saying*) *that* [Not everything-that-*A-is-now saying-is-not-true*]

yields by *Darapti*

(31) *Something that* [*A-is-now-saying*] (is not true),

which is implicitly contradictory to (29). However, this argument depends upon acceptance of the joint assertion of the necessary *premises* (7.3) and (30), claims of the form 'B = C' and 'B = not C', where 'B' and 'C' represent proper names.<sup>17</sup> The argument is thus nugatory.

Similar results will obtain if Argument [C] of the Strengthened Epimenides is probed. The bottom line is that both these Strengthened Liars exhibit the same logical form and are equally powerless. One must suspect that treatment of the

other semantical paradoxes will also yield similar conclusions. Furthermore, the crucial recognition by term logicians of the distinctive syntactical role of ‘that’ might also provide the basis for developing a different and rewarding perspective on Russellian and Fregean worries about the nature of inferences involving belief sentences and sentences with other attitudinal expressions.

## NOTES

1. We shall argue below that the success of the Liar is sometimes due to equivocating between the molecular proposition expressing a single thought and the many-worded proper name uniquely referring to an object.
2. Of course, it can easily be shown that (4) is logically equivalent to the less contrived

(4.1) *That* [the Earth is flat] (is believed by Jones)

by appeal to the suitably parsed, directly convertible necessary truth “Jones believes everything that is believed by Jones”. However, even with (4) construed as equivalent to

(4.2) *That* [the Earth is flat] (is such that Jones believes it),

doubt is obviously not cast on the term logicians’ thesis that every sentence is, logically, composed of a syntactical device expressing its quality and quantity, a subject term, and a predicate term. In (4.2), ‘it’ functions not as a variable, but as a cross-referring pronoun. Subject to suppressed wild quantification, ‘it’ unpacked as “*every/some* [it]” cross references to “*That* [the Earth is flat]”, what some term logicians would call the *subject* of (4.2) as distinguished from its bracketed *subject term*.

Whereas (4), (4.1), and (4.2) are all logically equivalent to one another, it should be understood that “Jones believes that the Earth is flat” might also be parsed as

(4.3) ([Jones] believes that the Earth is flat)

and as

(4.4) (Jones believes that [the Earth] is flat).

Each bracketed term in this latter pair (‘the Earth’ is a two-worded proper name) is implicitly wildly quantified; neither proposition, however, is logically equivalent to the other nor to (4), (4.1), and (4.2). (4.3) is logically equivalent to

(4.31) [Jones] (is such that he believes that the Earth is flat)

and to

(4.32) (That the Earth is flat is believed by) [Jones],

while (4.4) is logically equivalent to

(4.41) [The Earth] (is such that Jones believes that it is flat)

and to

(4.42) [The Earth] (is believed by Jones to be flat).

Recognition of this diversity of equivalent and non-equivalent parsings for sentences containing attitudinal expressions is essential for accepting the structural ambiguities we shall point up in our diagnoses of the two Liar Paradoxes in Sections 2 through 4.

3. This regimented way of speaking arises from our view that the particular affirmative form “*Some*[*S*] (*not P*)”, wherein the negated predicate term is affirmed of the subject, is equivalent by obversion to the particular negative form “*Some*[*S*] *not*(*P*)”, wherein the predicate is denied of the subject. Strictly speaking, (12) is more perspicuously presented from the logical viewpoint as “*Something that* [*A* is now saying] (*not is true*)”. More casually, one might render (12) as “*Something that A* is now saying is *not-true*” (“*Some S* is *not-P*”) and (12.1) as “*Something that A* is now saying is *not true*” (“*Some S* isn’t *P*”).
4. We have at this point expressed the *prima facie* rationality of the position of John Buridan who maintained that as only the assumption of the truth of (1) leads to a contradiction, (1) must just be considered as not true. There is no antinomy (see Buridan [3], pp. 2, 58). We shall argue, *pace* Buridan, that Argument [B] is fallacious; we shall argue that [C] is also fallacious.
5. The full inverse of the simple universal affirmative form “*Every*[*S*] (*P*)” is the particular negative form “*Some*[*not S*] *not*(*P*)”; the partial inverse is the particular affirmative form “*Some*[*not S*] (*not P*)” (Mourant [13], pp. 96–105). We are implicitly parsing the subject of (6) as the universal affirmative “*Everything that* [*A* is now saying] (*is not true*)” and regarding it as equivalent to its universal negative obverse “*Nothing that* [*A* is now saying] (*is true*)”. The ‘*not S*’ in the inverses (13) and (13.1) is instantiated as the particular affirmative, “*Something that* [*A* is now saying] (*is true*)”, the contradictory opposite of the universal negative obverse.
6. This construal of (6.1), following the pattern described in Note 2, should be parsed as

(6.11) *Everything that* [*A* is now saying] (*is such that that it is not true is true*).

In accordance with the basic thrust of contemporary term logicians (cf. Englebretsen [5], pp. 85–92, and Sommers [15], pp. 9–11, 172–173), the complex predicate can also be parsed as composed of a syntactical device, a subject term, and a predicate term: “(*is such*) *that* [*that it is not true is true*]”. With ‘*such*’ construed as an implicitly wildly quantified pronoun, the predicate of the predicate can also be treated as triadically structured {“(is) *every/some* [*such*]”} as can the subject of the predicate {“*that* [*it is not true*] (*is true*)”}. This latter in turn can have its subject parsed and regimented as “*every/some* [*it*] (*not is true*)”.

We construe the ‘*is*’ in “*is such*” as of the same type used in the classificatory “*is an animal*”, while the ‘*is*’ of “*is true*” is of the same type used in such temporally sensitive phrases as “*is healthy*” and “*is white*”. We differ from many term logicians in not regarding ‘*is*’ as an explicit copulative syntactical device expressive of a proposition’s quality; for us the quantifier in affirmations also performs the role of *showing* that the predicate is being latched on to the subject term. It should also be noted that ‘*that*’ in both (6.1) and (6.11), though not the main syntactical device it is in (6), still retains its function as a wild quantifier showing that a predicate is being latched on to a subject term.

7. It is easily seen that the composite (6) and the divided (6.1), though strictly speaking both are *de dicto*, cannot be established as equivalent claims without committing the fallacy of four terms. For the same reason each is not equivalent to the divided *de re* (6.3). Analysis would reveal that the meaningfulness of (6.2) requires that its bracketed subject term be unpacked as “*that A* is now saying is *not true*”. Helpful for capturing the irreducibility of such claims and for seeing that the *de dicto/de re* distinction is not the same as that between propositions in the composite and divided senses is Chisholm [4], pp. 209–219.

8. The reasoning here is interesting in that it must appeal to the seemingly unwieldy string “That everything that everything that *whoever* is now saying is not true is true is now saying is not true” as a suppressed, convertibly necessary, major premise. The two parsings are “[That everything that (everything that *whoever* is now saying is not true is true) is now saying is not true)” and its simple converse “(That everything that [everything that *whoever* is now saying is not true is true] is now saying is not true)”. The subject of the former is “That everything that \*\*\* \_\_\_ is now saying is not true is true” while its predicate is “everything that \_\_\_ \*\*\* is now saying is not true”. This necessarily true claim is thus paraphrased as: whoever is such that that everything that (s)he is now saying is not true is true—is such that everything that (s)he is now saying is not true”. The parsing and paraphrasing of the simple converse are now easily developed.
9. Though we are taking the gapped “That \_\_\_ \*\*\* *P* is true” as representative of a predicate in (AP<sub>3</sub>), such an expression can be read as “That it *Ps* is true” and fully parsed as “*That* [every/some[it] (*P*)] (is true)”. More directly, the parsing would be: “*That* [\_\_\_ [\*\*\*] (*P*)] (is true)”.
10. (18.1) claims: everything that is such that that it is not true is not true—is true. (18.2) claims: everything that is true—is such that that it is not true is not true.
11. For understanding [I\*], it is necessary to recognize that in the premises the suppressed wild quantifier functions both to quantify the subject term and attach the predicate to it. It accounts both for the quantity and quality of the proposition. Contrary to Mill, ‘was’ is not to be regarded as a syntactical device expressive of the quality of the proposition but as the implicit predicate of the minor term: “(was) *the* [master of Plato]”.

The rendering of (21.1) will be less disconcerting to some if the syntactical device “*someone who*” is taken as a mere stylistic variant of the “*something that*” used in such propositions as (5), (9), (11), and (12). That the equivalent converse of (21.1) must be

(21.11) *Someone who* [fought at Delium] (was the master of Plato)

confirms “*someone who*” as a unified syntactical string. We share the misgivings raised (see Geach [8], pp. 170ff.) about a parsing such as

(21.12) *Some* [one who was the master of Plato] (fought at Delium)

and do not think that our analysis entails its acceptance. The rule that a simple syllogism should consist of three and only three categorematic terms, each appearing twice, is rigorously obeyed in [I\*] and throughout this paper.

12. Acceptance of the well-formedness of (20.3) and (20.31) is helped by recalling that the copula can be omitted in Latin and in Greek. It should also be recalled that we are interpreting all propositions as of the form ‘*Q*[*S*](*P*)’ with the syntactical ‘*Q*’ being used to show how the predicate latches on to or is denied of the subject which it quantifies. Geach ([8], pp. 201–202, 209) treats this medieval view with respect but neither endorses nor rejects it. The contingent identity claim, “[The-master-of-Plato] (is the master of Plato)”, in which the unhyphenated “the master of Plato” is not the whole predicate is now clearly distinguished from the necessary *a priori* identity claim, “[The-master-of-Plato](the-master-of-Plato)”. The contingent identity is of the form “*every/some* [*S*] ((is) *the*[*P*])”, the necessary *a priori* identity of the form “*every/some*[*S*](*S*)”, and the necessary *a posteriori* identities (20.3) and (20.31) of the forms “*every/some* [*R*](*S*)” and “*every/some* [*S*](*R*)”. It is also important to recognize “[Tully] (is Cicero)” as a necessary *a posteriori* identity of the form “*every/*

*some[S] ((is)every/some[P])*”, wherein the ‘is’ again is not a two-place relation, but the same monadic predicate of the predicate term occurring in such common predicate expressions as “is an animal”. (See note 6, above.)

13. However, Sommers ([15], pp. 125–127) argues persuasively that Aristotle never impugned the well-formedness of propositions with proper name predicates. See below, note 17, for a way to keep the Fregean absolute distinction between names and verbs while also allowing a name, whether proper or general, to serve as the complete predicate of a proposition.
14. In propositions with proper name subjects and with predicates which are either proper names or general (natural kind) names, the wild quantifier tacitly operates to affirm or deny the predicate of the subject. In this way “*Every* [man] (is mortal)” and “[Socrates] (man)” are easily seen to entail “[Socrates] (is mortal)”. Thus, for example, in the minor premise the suppressed syntactical device shows that ‘man’ is being predicated of Socrates.

If what we are suggesting is correct, a Millian syllogistic analysis of the inference from “The number of the planets is 9” and “9 is necessarily greater than 7” to “The number of the planets is necessarily greater than 7” would deem it valid in the first or third figure. It would be displayed in the first figure as

[J]: 9 is necessarily greater than 7  
 The number of the planets is 9  
 -----  
 The number of the planets is necessarily greater than 7

with the uniquely referring connotative name “the number of the planets” as the subject of the conclusion. Our own assessment is that this Millian syllogism fails to notice an ambiguity in the minor premise: “The number of the planets is 9”. Interpreting it as a contingent identity claim means that the phrase “the number of the planets” is not to be taken as a many-worded name. Accordingly, we have the following inference in *Darapti* with the proper name ‘9’ assumed as subject to wild quantification:

[J\*]: (The number of the planets is) [9]  
 [9] (is necessarily greater than 7)  
 -----  
 (The number of the planets is) *something that* [is necessarily greater than 7].

The conclusion in [J\*] has none of the paradox associated with the Millian conclusion. However, it is also possible to interpret the minor premise, “The number of the planets is 9”, as having the necessity Millians attach to “Tully is Cicero”. In this context “the number of the planets” can be treated as a many-worded name. Accordingly, we have the syllogism:

[J’]: (The-number-of-the-planets) [9]  
 [9] (is necessarily greater than 7)  
 -----  
 [The-number-of-the-planets] (is necessarily greater than 7).

Here the subject of the conclusion is assumed to rigidly designate the number 9, that is, to be another name for it. Consequently, *de re* necessity is predicated in the conclusion without paradox.

15. The equivalence of (25) and (22.3) can also be shown.
16. There is a parallel here to Geach’s ([6], pp. 59–60) argument that if we may pass from the premise “The Mayor of Cambridge is honest” to the conclusion “Cam-



bridge is a place whose Mayor is honest”, “The Mayor of Cambridge” is not functioning in this context as a many-worded name. In “The Duke of Cambridge sells good beer”, however, “The Duke of Cambridge” is correctly construed to be serving as a many-worded name.

17. Following Aristotle ([2], 16a29–31, 19b5–20b11), we believe it is possible simply to negate names and thus meaningfully generate infinite or indefinite “names” such as “not Socrates” and “not man”. In contrast to temporally sensitive verbal adjectives such as “is moral” which can not only have a simple indefinite negation (“is not moral”) but also a privative negation (“is amoral”) and a contrary negation (“is immoral”), proper and common (natural kind) names can only have a simple indefinite negation. In his commentary on Aristotle’s *De Interpretatione*, Thomas Aquinas ([1], p. 41) perspicaciously, though obscurely, observes that an infinite or indefinite name is imposed from a simple negation and not from a privation. Thus, a clear distinction between names and verbs is preserved by noting their different potentialities for being negated.

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