

That-clauses and propositional anaphors

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This paper argues that *that*-clauses do not reference propositions because they are not intersubstitutable with other expressions that do reference propositions. In particular, *that*-clauses are shown to not be intersubstitutable with propositional anaphors like *so*. The substitution failures are further argued to support a semantics on which *that*-clauses are predicates.

1 Introduction

That-clauses are widely viewed as referential terms for propositions.¹ Schiffer (1972) goes so far as to call that view the FACE VALUE THEORY. But referential expressions have certain properties. Here is one. If a referential term \mathcal{R}_1 appears in a grammatical sentence, \mathcal{R}_1 can be substituted with a co-referring \mathcal{R}_2 without rendering that sentence ungrammatical.

SUBSTITUTIVITY SALVA CONGRUITATE (\mathcal{S}_{SC})

Grammaticality is preserved under the appropriate intersubstitutability of co-referential expressions (Wright, 1998; Dolby, 2009; Nebel, 2019).

We can therefore test whether *that*-clauses refer to propositions by checking whether substitution with different co-referring terms for propositions preserves the sentence's grammaticality.

(\mathcal{S}_{SC}) has the proviso that a substitution be appropriate. That proviso accommodates the fact that certain substitutions of co-referring expressions do not immediately preserve grammaticality. For example, *I* and the proper noun *Peter* that is my name co-refer. But substituting *Peter* for *I* in *I am the author* yields the ungrammatical *Peter am the author*. To make a substitution appropriate, minor adjustments often need to be made to the sentence before substitution. For example, changing the inflection on the verb from *am* to *is* will yield the grammatical *Peter is the author*.

Exactly what constitutes a minor adjustment is hard to identify.² I suspect there is no definition that applies to all referring expressions of every lexical

¹Throughout the paper, I use *refer* and cognate terms loosely. A reader bothered by my loose usage should feel free to read and hear *designate* in the sense of King (2002) instead. I also avoid framing the paper as being about whether *that*-clauses are singular terms. For reasons I give in van Elswyk (forthcoming), contemporary accounts of singular termhood are deficient in that they are not cross-categorical in their application.

²For relevant discussion, consult Dolby (2009), Trueman (2012, 2018), and Nebel (2019).

category in any natural language. I will not attempt a definition here. But that does not make a test for referentiality based in (\mathcal{S}_{SC}) useless. It just requires us to individually consider breakdowns in grammaticality. Often the adjustments needed are obvious as the example with *I* and *N* illustrates.

A now familiar strike against *that*-clauses being referential is that (\mathcal{S}_{SC}) is violated when a clause of the form *that S* is substituted with a description of the form *the proposition that S*. For example, (1) and (2) differ in grammaticality (Rundle, 1967).

(1) Aaron hopes that Giannis will be named MVP.

(2) # Aaron hopes the proposition that Giannis will be named MVP.

Four main responses have been adopted. First, regard the difference in grammaticality as evidence against *that*-clauses being referential (Moltmann, 2003). Second, maintain that (2) is ungrammatical for reasons local to the syntactic environment in which substitution fails. For example, King (2002) attributes the ungrammaticality of (2) to what kind(s) of complements an attitude verb like *hope* selects. Third, maintain that (2) violates the proviso in (\mathcal{S}_{SC}) that the substitution be appropriate. Fourth, for good measure, deny that proposition descriptions are referential like *that*-clauses are (Nebel, 2019).

I am sympathetic to the third response for substitutions with proposition descriptions. From the perspective of syntax, *that*-clauses are complementizer phrases (CPs) and proposition descriptions are determiner phrases (DPs). We should therefore expect minor adjustments to be made to a sentence before one phrase is substituted for the other. In this vein, Nebel (2019) suggests that verbs like *hope* obligatorily occur with the preposition *for*. That preposition is suppressed as a quirk of English when *hope* appears with a *that*-clause. But it must otherwise be overt with complements that are DPs. So an appropriate substitution of a proposition description for a *that*-clause requires *for* to follow *hope*. Then ungrammatical (2) gives way to (3).

(3) Aaron hopes for the proposition that Giannis will be named MVP.

Accordingly, the ungrammaticality of (2) is no strike against *that*-clauses being referring terms for proposition. The substitution in (2) does not fulfill the appropriateness requirement of (\mathcal{S}_{SC}) .

But, as I argued in van Elswyk (2019), there are other referential terms for propositions to consider. *Yes*, *no*, and *so* are pronoun-like terms for propositions. They are PROPOSITIONAL ANAPHORS. In this paper, I briefly revisit the reasons why they are referential expressions for propositions (§3) and show that they are not substitutable with *that*-clauses in three distinct syntactic environments (§3). Unlike proposition descriptions, I will also argue that propositional anaphors do keep the proviso in (\mathcal{S}_{SC}) that substitutions be appropriate (§4). No minor grammatical adjustments like changing inflection or adding a preposition can

salvage grammaticality. From there, I show that a predicative view of *that*-clauses owed to Moulton (2009, 2015) can explain the substitution failures and why the clauses appear referential (§5). I conclude with some general reflections on how propositions are referenced in natural language (§6).

2 Propositional anaphors

The use of a declarative sentence in a context expresses a proposition. That proposition is then available for anaphoric reference by certain expressions.³ Propositional anaphors come in two kinds: RECRUITED and DEDICATED. Recruited anaphors are context-sensitive expressions like *that* or *it*. They are by no means limited to referencing propositions. But they have uses in which they refer to a previously expressed proposition. We see as much in the discourse below. The proposition that Giannis will be named MVP is expressed by (4A). It is thereby available for reference by *that* or *it*.

- (4) (A) Giannis will be named MVP.
 (B) Marc believes $\left\{ \begin{array}{l} \text{it} \\ \text{that} \end{array} \right\}$.

In contrast, dedicated anaphors are context-sensitive expressions that are limited to referencing propositions. Examples include *yes*, *no*, and *so*. In what follows, I focus on *so* because it has, and continues to be, the term most widely regarded as a propositional anaphor.⁴

The two-letter word is polysemous. It can be a degree modifier—e.g. *the game was so close*—and a pro-form for events—e.g. *Giannis played like an MVP and Harden also did so* (Needham, 2012). But it can also be used to anaphorically reference a proposition. In (5B), *so* refers to the proposition expressed by (5A) similar to the above.

- (5) (A) Giannis will be named MVP.
 (B) Marc believes *so*.

With only the discourses in (4) and (5) in view, there is no detectable semantic difference between the recruited propositional anaphors and *so*.⁵ The truth-conditions are the same. That *so* patterns with *that* and *it* confirms that it is a

³This is simplified characterization of how anaphora to propositions is licensed. I proceed simply because the central argument of this paper does not turn on any details of licensing. See Snider (2017) for the most detailed discussion to date.

⁴Among others, see Kiparsky and Kiparsky (1970), Cushing (1972), Cornish (1992), Needham (2012), Sailor (2012), Krifka (2013), Moulton (2015), Snider (2017), and van Elswyk (2019, forthcoming).

⁵A referee suggests that *so* being of a different semantic type than its antecedent is a reason to doubt that it references a proposition. But note the recruited anaphors also have to have a different semantic type than their antecedents. This difference is not limited to postverbal embeddings like (4B) either. A declaratives like *That / it is true* is also felicitous reply to (4A). These are referring instances of the pronouns, and what goes for the pronouns goes for *so*.

referring expression. Insofar as the demonstrative and the pronoun refer to a proposition, *so* refers to a proposition too.

Importantly, the traditional reasons for treating *that*-clauses as referential expressions for propositions apply *mutatis mutandis* to propositional anaphors like *so*. To see as much, let's consider two arguments. The first is what I dub the ARGUMENT FROM RELATIONAL ATTITUDES (Schiffer, 1972; Stalnaker, 1987). On a traditional analysis of attitudes, verbs like *hope* or *believe* are two-place relations between a subject and a proposition. Since a *that*-clause is the apparent complement to an attitude verb, it must reference a proposition. We can reason similarly about *so* because it can also be a complement to an attitude. It can even be the complement to the pesky verb *hope*.

- (6) (A) Aaron hopes that Giannis will be named MVP.
- (B) Marc also hopes so.

Insofar as we have reason to think the *that*-clause in (6A) refers to a proposition as the object of Aaron's hope, we have the same reason to think *so* refers to that same proposition as the object of Marc's hope.

Another reason for thinking *that*-clauses are referential expressions is based on what I will call the ARGUMENT FROM VALID INFERENCES (Schiffer, 1972; Bealer, 1998). Many maintain that regarding *that*-clauses as referential expressions allows us to explain a variety of valid inferences. The inferences in (7) and (8) are representative.

- (7) Aaron believes that Giannis will be named MVP.
Marc believes that Giannis will be named MVP.
There is something they both believe.
- (8) Aaron believes everything said by Marc about Giannis.
Marc said that Giannis will be named MVP.

Aaron believes that Giannis will be named MVP.

The anaphor *so* facilitates the same valid inferences. The discourses below mirror the previous discourses.

- (9) Aaron believes that Giannis will be named MVP.
Marc also believes so. There is something they both believe.
- (10) Aaron believes everything said by Marc about Giannis.
Wes said that Giannis will be named MVP. Marc also said so.
Aaron believes that Giannis will be named MVP.

The argument from valid inferences might be invalid (Bach, 1997; Hofweber, 2007; Rosefeldt, 2008). But the parity remains. Insofar as the argument is a reason to maintain that *that*-clauses refer to propositions, it is a reason to maintain the same of *so*.

3 Substitution failures

Violations of (S_{SC}) occur between *so* and *that*-clauses. An unappreciated fact about *that*-clauses is that they compose with almost every major lexical category. The familiar example is composition with an attitude verb like *believe*. The most unfamiliar example is presumably (11). As discussed by Carter and Altshuler (2017), the adverb *now* can compose with a *that*-clause to yield a temporal modifier that is non-indexical. In (12), the *that*-clause composes with the nouns *belief* / *idea* / *suspicion*.

(11) Now that Giannis will be named MVP, Giannis will be offered a supermax contract.

(12) Aaron has the $\left\{ \begin{array}{l} \text{belief} \\ \text{idea} \\ \text{suspicion} \end{array} \right\}$ that Giannis will be named MVP.

It has been previously observed that *so* cannot replace *that*-clauses in a postnominal position (Hallman, 2006; Moulton, 2015; Meijer, 2018). I have noted elsewhere that *so* cannot replace a clause in a postadverbial position (van Elswyk, 2019). Illustrations are below. (13) and (14) are each forbidden by the grammar.⁶

(13) # Now so, Giannis will be offered a supermax contract.

(14) # Aaron has the $\left\{ \begin{array}{l} \text{belief} \\ \text{idea} \\ \text{suspicion} \end{array} \right\}$ so.

The substitution failures do not stop there. A final example that has not been previously observed involves sentential subjects. Data like (15) is often presented as evidence for why *that*-clauses are referential expressions. In such examples, the clause appears to act as the subject of a sentence where it references a proposition that has properties predicated of it.

⁶ A referee notes that the pronoun *him* cannot replace *Giannis* in a postnominal position. For example, *The athlete Giannis* is grammatical whereas *the athlete him* is not. They suggest that this substitution failure does not count against names being referential. Accordingly, they wonder why postnominal substitutions failures with *that*-clauses should. First, I disagree that their substitution failures do not count against names being referential. At the very least, it is data to explain, and its explanation might require us to give up traditional assumptions about names and pronouns. For example, if names are predicates (Fara, 2015) and pronouns are determiners (Elbourne, 2005, 2013), the name/pronoun substitutions failures are explained. Second, the name/pronoun data is not sufficiently similar. The syntax of *The athlete Giannis* may be that of a close nominal appositive (Keizer, 2007). If it is, we should also consider variants like *Giannis the athlete*. But substitution with variants does preserve grammaticality. Suppose we are selecting teammates for a pick-up game of basketball. I might point to an interested person and say *I choose him the athlete*. What I have said is grammatical, especially if there is comma-intonation between the pronoun and description. The postnominal data with *that*-clauses cannot be similarly improved.

(15) That Giannis will be named MVP is $\left\{ \begin{array}{c} \text{believable} \\ \text{probable} \\ \text{true} \end{array} \right\}$.

(16) (A) Giannis will be named MVP.

(B) # So is $\left\{ \begin{array}{c} \text{believable} \\ \text{probable} \\ \text{true} \end{array} \right\}$.

But *so* designating the same proposition cannot be substituted in for the *that*-clause without producing ungrammaticality.

We have now seen failures of (\mathcal{S}_{SC}) in three environments. Some of the environments are ones where proposition descriptions are also not intersubstitutable. A definite like *The proposition that Giannis will be named MVP* cannot replace a *that*-clause after an adverb or noun. But not all of them are. A proposition description can replace a *that*-clause that is a sentential subject. Consequently, the failures I have presented are not just new in that we are substituting with a propositional anaphor as opposed to definite descriptions. They also involve environments that previously would have been regarded as unproblematic for the view that *that*-clauses reference propositions.

4 Being appropriate

The reader might wonder whether the substitutions failures in §3 meet the requirement of (\mathcal{S}_{SC}) that they be appropriate. I submit that they do. Reconsider the substitution failures with proposition descriptions. *That*-clauses are CPs and proposition descriptions are DPs. Though the two categories bear interesting similarities, CPs and DPs are very different from the perspective of syntax. So we should expect that substituting *that*-clauses with proposition descriptions requires minor adjustments to be made to the initial sentence. It would be surprising if adjustments were not needed.

No such expectation applies to *so* because it is also a CP. Forceful supporting evidence concerns what verbs it composes with. Consider *seems* in particular. It is limited to taking CPs as arguments (Alrenga, 2005; Lohndal, 2014; Moulton, 2015).

(17) It seems that Giannis will be named MVP.

(18) (A) Giannis will be named MVP.

(B) # It seems $\left\{ \begin{array}{c} \text{It} \\ \text{That} \end{array} \right\}$.

Moulton (2015) therefore concludes that *so* is a CP because it can be the argument to *seems*.

(19) (A) It seems that Giannis will be named MVP.

(B) It seems *so*.

We can see for ourselves in (19B) where *so* concerns the exact same proposition as the *that*-clause in (19A).

Let's entertain an objection.⁷ *So* appears to pattern after *seems* with epistemic adjectives like *believable* / *probable* / *true*. For illustration, compare (19B) above with (20) below. Since the epistemic adjectives are not CPs, it is tempting to conclude that *so* is not a CP either.

(20) It seems $\left\{ \begin{array}{l} \text{believable} \\ \text{probable} \\ \text{true} \end{array} \right\}$.

Importantly, the grammatical generalization that *seems* only takes CPs as arguments is limited to sentences where the subject is the expletive *it*. When the subject is not expletive, *seems* no longer accepts CPs as arguments and compose with adjectives. (21) and (22) provide the examples of how *seems* changes with a non-expletive subject.

(21) # Gianni seems that he is tall.

(22) Gianni he seems tall.

Accordingly, (20) is ambiguous. The *it* could be an expletive subject or a genuine pronoun. For the referee's data to be relevant to whether *so* is a CP, the *it* needs to be expletive in both (19B) and (20).

However, *it* is only expletive in (19B). A diagnostic for whether an *it* is expletive is *that*-replacement. Since the demonstrative *that* cannot be used as an expletive subject but is a neuter pronoun like *it*, replacing *it* with *that* will produce ungrammaticality if *it* was expletive.

(23) # That seems that Gianni will be named MVP.

(23) illustrates the ungrammaticality. In contrast, *that*-replacement preserves grammaticality when *it* is a pronoun. Applying this diagnostic to the *it* in (20), *that*-replacement preserves grammaticality. (24) is free from defect. The *it* is not therefore an expletive subject.

(24) That seems $\left\{ \begin{array}{l} \text{believable} \\ \text{probable} \\ \text{true} \end{array} \right\}$.

(25) # That seems so.

The same diagnostic confirms that the *it* appearing with *so* is an expletive subject. As (25) shows, *that*-replacement yields ungrammaticality.⁸ We can conclude that

⁷I am indebted to a referee for raising this objection.

⁸Corpus data provides further support. The Corpus of Contemporary American English (COCA) contains 72 instances of the fragment *That seems so* (Davies, 2008-present). The *so* is a degree modifier of an adjective like *scary* or *unnatural* in every instance.

the patterning of *so* with epistemic adjectives is superficial. A closer look confirms that *so* is a CP.

With *that*-clauses and *so* both belonging to the CP category, we should not expect any adjustments to be made to a sentence similar to how we should for proposition descriptions. We should expect the opposite unless the two have different meanings. Nor are there clear or obvious adjustments to make. When we substitute a proper noun \mathcal{N} for *I* in a sentence like *I am the author*, native speakers readily notice the need to alter the verb's inflection. Substitutions with *so* easily satisfy (\mathcal{S}_{SC})'s appropriateness proviso.

Perhaps the defender of *that*-clauses as referential expressions will want to blame the substitution failures on the syntactic environments as King (2002) did for *hope*. This response is the second of the four responses that I highlighted earlier as a response to the substitution failures involving proposition descriptions. However, casting blame on a local environment could only help with substitution failure involving *now*. The other substitution failures are importantly different. They involve substitution failure in a particular position as opposed to with a particular expression. Substitution always fails with *that*-clauses appearing as sentential subjects or after adverbs and nouns.

In this regard, the three substitution failures observed for *that*-clauses and *so* differ from other other embedding differences between the expressions. In particular, Kiparsky and Kiparsky (1970) observed awhile ago that factive verbs like *admit* do not accept anaphors like *so* as arguments but do readily compose with *that*-clauses.

(26) Harden admits that Giannis will be named MVP.

(27) # Harden admits so.

As a result, *that*-clauses cannot be substituted with *so* and preserve grammaticality. But the ungrammaticality is clearly owed to something about factive verbs, especially given that they are widely taken to have more argument structure than non-factives.⁹

5 Predicates

The conclusion I recommend is that propositional anaphors like *so* are referring expressions but *that*-clauses are not. However, more needs to be said to draw such a conclusion from what we have observed so far. In particular, it will help

⁹Though I will not develop substitution failures with factives as an additional strike against *that*-clauses being referential, it should be noted that extant explanations of the failures favor a predicativist semantics for *that*-clauses. For example, Kastner (2015) proposes that factives exclusively take DP complements. *That*-clauses after factives are then headed by covert determiners. As evidence for his proposal, Kastner (2015, 173) cites the contrast in grammaticality between sentences like (26) and (27). Given that *so* is a CP, his proposal predicts the infelicity of (27). Unlike a referential view, a predicativist semantics smoothly applies to *that*-clauses headed by determiners. See my treatment of sentential subjects below and Moulton (2017) for relevant discussion.

to consider what *that*-clauses are to illuminate two facts: (a) why the three substitution failures observed in §3 trace back to a non-referential semantics, and (b) why they appear to be referring expressions given the ARGUMENT FROM RELATIONAL ATTITUDES and ARGUMENT FROM VALID INFERENCES.

A semantics on which *that*-clauses are predicates is what I favor. A variety of syntactic and semantic considerations motivate this departure from philosophical orthodoxy.¹⁰ One common consideration, for example, is that *that*-clauses behave like relative clauses and relative clauses are predicative. I will not discuss such orthogonal issues here. Curious readers are encouraged to follow the citation rabbit trail. Instead, I will show how viewing *so* as referential and *that*-clauses as predicative explains the data of the last two sections.

A predicativist semantics is best understood by considering *that*-clauses attached to nouns like *belief* in (28).

(28) Aaron has the belief that Giannis will be named MVP.

Nouns do not take arguments (Stowell, 1981; Grimshaw, 1990). Nor is it clear how an allegedly name-like term would directly compose with a noun in a definite description.¹¹ The referential view of *that*-clauses faces obstacles. However, a predicativist semantics does not. The meaning of a noun is standardly treated as a set of individuals. Accordingly, nouns like *belief* can be analyzed as a set of individuals with propositional content. *That*-clauses as predicates specify what that content is. So definite descriptions like *the belief*, which would otherwise be infelicitous in sentences like *Aaron has the belief* where the uniqueness presupposition is not satisfied, are felicitous because the predicate specifies a unique belief according to its propositional content.

What about attitude verbs? With verbs, *that*-clauses are not bonafide arguments as usually insisted. On the proposal owed to Moulton (2015), they are predicates of an empty argument slot that ultimately gets plugged with a variable after a series of complex movements. That variable then gets existentially closed to produce the kind of entity that can be the argument to an attitude verb. For a sentence like *Aaron believes that Giannis will be named MVP*, the resultant truth-conditions are that there exists an *x* such that *x* is believed by Aaron and which has the content that Giannis will be named MVP. In contrast, *so* directly occupies the slot in argument structure. It is a genuine argument to an attitude verb.

The substitution failures observed in §3 are now explainable. Since *that*-clauses are predicates, they can combine with nouns like *belief* to specify propositional content. Anaphors like *so* cannot because they are referring expressions

¹⁰See Kratzer (2006), Arsenijevic (2009), Moulton (2009, 2015, 2017), and Moltmann (2018).

¹¹de Cuba (2017) tackles this problem by analyzing postnominal *that*-clauses as close nominal appositives. I suspect such an approach is the most promising for those wanting to extend the referential view of *that*-clauses to postnominal clauses. Nevertheless, the inability to be inter-substitutable with *so* is still a problem for a referentialist view of *that*-clauses. See fn.7 for related discussion.

for propositions. When it comes to *now*, a predicative semantics is again illuminating. Though I do not take the detour to combine the compositional semantics for *now* offered by Carter and Altshuler (2017) with a Moulton-style semantics for *that*-clauses, the basics are easy to see. *Now* specifies that the event \mathcal{E}_1 described by the main clause occurs after another event \mathcal{E}_2 . To illustrate, consider an anaphoric use of *now* like (29).

- (29) Giannis will be named MVP. Now Giannis will be offered a supermax contract.

It specifies that the event \mathcal{E}_1 in which Giannis is offered a supermax contract happens after \mathcal{E}_2 where it was settled that Giannis will be named MVP. The *that*-clause in (11) does something similar.

- (11) Now that Giannis will be named MVP, Giannis will be offered a supermax contract.

It contributes a predicate which \mathcal{E}_2 satisfies. As a result, (11) states that the event \mathcal{E}_1 in which Giannis is offered a supermax contract happens after \mathcal{E}_2 , the event satisfying the *that*-clause.

The final failure occurs with sentential subjects. Sentential subjects are widely thought to be a part of a complex DP as opposed to standalone CPs (Davies and Dubinsky, 2010; Lohndal, 2014). There are general and particular reasons for this hypothesis. The general reason is that it enables a syntax on which all subjects are DPs (Chomsky, 1981; Lasnik, 1999). The particular reasons vary. I highlight one that again involves *seems*. As noted in §4, it only takes arguments that are CPs. A prediction of the DP hypothesis is therefore that *seems* cannot have a sentential subject. Alrenga (2005) observes that the prediction is vindicated.

- (30) (A) It sucks that Giannis will be named MVP.
 (B) That Giannis will be named MVP sucks.
- (31) (A) It seems that Giannis will be named MVP.
 (B) # That Giannis will be named MVP seems.

Compare (30B) and (31B). In contrast to a verb like *sucks*, which does take both CPs and DPs as arguments, *seems* cannot. That is why (31B) is ungrammatical whereas (31A) is perfectly grammatical.

The hypothesis that sentential subjects are part of a complex DP might strike some readers as outlandish. But sentential subjects obligatorily occur with a determiner in languages like Greek, Spanish, and Norwegian. (32) is an example from Roussou (1991) in Greek where a *that*-clause (or *oti*-clause) occurs with the definite determiner *to*.

- (32) To oti lei psemata ine fanero.
 (The that she tells lies is obvious.)

So it is natural to treat English as a language in which the DP shell is null to explain data like the ungrammaticality of (30B).

Popping open the hood, two options are available for how the DP shell is structured in English. Either there is a null determiner along with a null noun such that the *that*-clause composes with the noun, or there is not a null noun and the clause directly composes with the null determiner. In the former option, sentential subjects are explained identically to DPs like *the belief that Giannis will be named MVP*. In the second option, we have an unusual situation like Greek where the *that*-clause composes directly with the null determiner. But either option helps to explain substitution failure with *so*. The anaphor cannot modify a noun or restrict the individual introduced by a definite determiner because the anaphor is a referring term for a proposition as opposed to a predicate of individuals with propositional content like a *that*-clause.¹²

What I have canvassed about sentential subjects also points potentially to a deeper problem for a referential view that is handled smoothly by a predicative semantics. Consider the first option for how the DP is structured. As mentioned, the referential view of *that*-clauses faces obstacles with postnominal clauses whereas a predicativist has no trouble. Now consider the second. It is not clear how such data can be accommodated whatsoever if *that*-clauses are referential. In contrast, Moulton (2017, 295) notes that a predicative semantics properly predicts that, if determiners can directly compose with a *that*-clause, the DP references an individual with content. Both versions of the null DP hypothesis therefore present an obstacle to the referential view.

Turn now to the two arguments discussed in §2. The ARGUMENT FROM RELATIONAL ATTITUDES concluded that *that*-clauses reference proposition because attitude verbs are relations between a subject and a proposition. Given a predicativist semantics like Moulton's, the argument is enthymemic. What follows is either that *that*-clauses are referential as the argument to the attitude or that they are predicates paired with an existentially closed variable that is the argument. A similar point can be made about the ARGUMENT FROM VALID INFERENCES. Let's reconsider each of the inferences. The first is recast below given a rough paraphrase reflecting Moulton's truth-conditions.

- (33) There is something such that Aaron believes it and it is that Giannis will be named MVP.
There is something such that Marc believes it and it is that Giannis will be named MVP.

There is something they both believe.

¹²The explanation just provided also resolves a tension a referee noted between the proposal of Nebel (2019) that *hope* occurs with *for* and *so* being an anaphor. Evidence for Nebel's proposal is that *hopes for* appears with *that*-clauses in rearranged sentences like *That Giannis will be named MVP is what Aaron hopes for*. However, *so* is ungrammatical in the rearranged sentence as *So is what Aaron hopes for* shows. Therein lies the tension. But the *that*-clause in the rearranged sentence is a sentential subject. *So* cannot therefore appear with *hopes for* because it is a referring term as opposed to a predicate that can attached to a covert DP.

This argument is valid. Both premises entail that there is something believed by Aaron and Marc and that something is specified by the *that*-clause to be an individual with propositional content. Let's consider the second inference recast in predicative truth-conditions.

- (34) Aaron believes everything said by Marc about Giannis.
There is something such that Marc said it and it is that Giannis will be named MVP.

There is something such that Aaron believes it and it is that Giannis will be named MVP.

Again, the argument is valid and nothing about its validity requires a view of *that*-clauses on which they are referential. Altogether, we find a natural explanation for why *that*-clauses seem referential but are not if we adopt the view that they are predicates.

6 Conclusion

So where is the advocate of the referential view left? They do not have standing to argue that *so* is ineligible for substitution because it is not referential. *So* patterns with other referential expressions like *it* and *that*. The standard arguments for *that*-clauses being referential also apply to *so*. The defender further does not have cause to chalk up the substitution failure to a grammatical quirk. *That*-clauses and *so* are both CPs. Most of the failures from §3 occur in a particular position as opposed to with a particular expression too. The substitution failures with *so* therefore provide the most serious substitution-based objection yet for the referential view.

But the referential view is even more worse off. It was argued in §5 that a predicative semantics like Moulton (2009, 2015) is positioned to explain why the substitution failures happen and why *that*-clauses seem referential. Accordingly, the substitution failures are motivation for analyzing *that*-clauses as predicates.

In philosophical corners, denying that *that*-clauses refer to propositions is often a prelude to denying there are propositions. My aim is not to advance a metaphysical agenda. I think there are propositions and that anaphors like *so* refer to them (van Elswyk, 2019). But in denying that *that*-clauses refer to propositions, an atypical perspective does emerge. Though we regularly reference propositions in conversation, it follows that we rarely reference them non-anaphorically. There are some exceptions. Names like *Logicism* and proposition descriptions plausibly reference propositions without relying on anaphora. But our reference is otherwise anaphoric.

In one respect, this perspective is unsurprising. Propositions are rarely the subject or topic of our conversations. We are mostly interested in individuals and their properties. Natural language accommodates this interest by giving us many ways to reference individuals but fewer ways to reference propositions.

But propositions are still an essential part of linguistic communication (van Elswyk, forthcoming). They are or are determined by the meanings of declarative sentences in a context and what we offer to each other through illocutionary acts like assertion. As a result, some proposition is always prominent at a given point in a conversation. That proposition is then available for anaphoric reference.

But the perspective is also somewhat surprising in another respect. When it comes to individuals, anaphoric reference is often licensed by non-anaphoric reference. The paradigm case is a name licensing a pronoun as long as we are assuming a traditional view of names. Propositional anaphora is rarely like the paradigm.¹³ *Logicism* might license *it*, but dedicated anaphors like *so* are not licensed by prior non-anaphoric reference to propositions. Accordingly, the licensing of propositional anaphora is akin to the phenomenon for pronominal anaphora known as BRIDGING or ASSOCIATIVE ANAPHORA (Clark, 1975; Cosse, 1996). With associative anaphora, an entity is referenced but that entity only became prominent because it is associated with prior linguistic material. The prior material is not a proper antecedent that initiates reference. The following examples are from Geurts (2012).

(35) When the doorbell rang, I thought it was Vernon.

(36) John bled so much that it soaked through his bandage and stained his shirt.

In (35), *it* refers to the cause of the ringing even though there is no prior reference to the cause. The cause of the ring is just made prominent by the phrase *when the doorbell rang*. Likewise, the *it* in (36) refers to John's blood because the subject and verb *John bled* ensure its prominence. In this paper, we have seen propositional anaphors be licensed by matrix and subordinate declaratives that similarly do not refer to propositions but still render them prominent. We can conclude that the process by which propositional anaphors have their meanings determined in a context—their metasemantics—is peculiar. But this is not a strike against their authenticity as referring terms for propositions. It is just further illustration why propositional anaphors deserve greater study, especially if they are our main way of referencing propositions.¹⁴

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