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Orphans hosted by VP anaphora

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1. Introduction

Overt VP anaphors like *do so*, *do it* and *do the same* can host a following PP (Culicover & Jackendoff (2005:285–6), Huddleston & Pullum (2002:1533), Miller (2011:5–6), Sobin (2008:150, 155–157)):

(1) The House is set to take up the final version of the funding bill tomorrow. The Senate will do the same on Thursday. [COCA]

(2) You have jilted two previous fiances and I expect you would do the same to me. [COCA]

Using (1) to fix terminology, the ANAPHOR is *do the same*, the ANTECEDENT is *take up the final version of the funding bill*, the ORPHAN is *on Tuesday*, and the CORRELATE is *tomorrow*. Examples like (2) are of particular interest because the correlate (*two previous fiances*) is inside the antecedent and, consequently, the orphan and the antecedent must interact to produce the interpretation of the clause containing the anaphor. In order to arrive at the interpretation 'you would jilt me', the *me* of the orphan must take the place of *two previous fiances* inside the antecedent VP.

A superficially similar situation arises with remnants of ellipsis, including pseudogapping (3), sluicing (4), and fragment answers (5). In each case, the interpretation of the ellipsis clause combines part of the antecedent with all or part of the remnant.

(3) I wouldn't say that to my mother, but I would **to you**.

(4) I know he gave the dresser away, but I don't know **to who**.

(5) Q: Who did he give the dresser to?
A: **To me**.

Remnants have been argued to escape ellipsis by extraction (e.g. Jayaseelan (1990) for pseudogapping, Merchant (2001) for sluicing and Merchant (2004) for fragments), which prompts us to ask whether orphans hosted by overt VP anaphora, as in (2), can similarly be analyzed as extractees. Our answer is that they cannot. We show that orphans behave differently from remnants of ellipsis and argue that orphans are base-generated adjuncts to the anaphoric VP, as opposed to extracted from that VP. We further propose that the interpretation of VP anaphora with orphans involve lambda abstraction over

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the correlate, effectively creating a "slot" for the orphan in the meaning constructed for the anaphor. In support of this analysis we show that the position of the correlate is syntactically unconstrained, as expected if the correlate is only identified semantically as the target of lambda abstraction. On the other hand, not all orphans are possible with all antecedent VPs and we tentatively propose that this is due to a pragmatic requirement that an orphan can be interpreted as what the hosting clause is about (in the sense of Reinhart (1981)).

We end our paper with a comparison of our analysis to the constructional analysis of orphans offered by Culicover & Jackendoff (2005) and some implications of our claims for recent attempts to unify ellipsis and overt anaphora.

2. Orphans vs. remnants of ellipsis

Despite their surface similarity, there are two striking differences between orphans and remnants of ellipsis. The first difference concerns the range of syntactic categories allowed, the second the determination of the preposition used in a PP orphan or remnant.

As illustrated by the examples in (6)–(11), there is no inherent category restriction on remnants of ellipsis:

(6) I wouldn't say that to my mother, but I would **to you**. [PP]

(7) You might not believe me, but you will **Bob**. [DP]

(8) I know she's pretty tall, but I don't know **how tall**. [DegP]

(9) Q: Is he tired or just lazy?
A: **Tired**. [AP]

(10) Q: What did he say?
A: **That we should go ahead without him**. [CP]

(11) Robin will bet an entire fortune that the Mets will win the pennant, and Leslie will **that the Braves will win**. [CP, from Culicover & Jackendoff (2005:294)]

In contrast, orphans must be PPs:

(12) You have jilted two previous fiances and I expect you would do the same **to me**. [PP]

(13) *You have jilted two previous fiances and I expect you would do the same **me**. [DP]

(14) *He built a small box to keep his CDs in and I did the same **large**. [AP]

(15) *The guide came over and told me that I had to stay behind the red line and then the guard did the same **that I had to stop taking photos**. [CP]

In the first two examples the correlate is a DP, *two previous fiances*, and yet the orphan must be a PP (12), not a DP (13). An AP orphan is impossible in (14), despite the presence of an adjectival correlate (*small*). Similarly, a CP orphan is impossible in (15), despite the availability of a CP correlate in the antecedent.

For PP remnants, the identity of the preposition is determined by the antecedent. This is shown for pseudogapping in (16), where the antecedent verb *rely* selects for the preposition *on* and that is the only preposition allowed in the remnant. In (17) and (18) the antecedent verb *look* selects a PP headed by *at* and the sluice and fragment require *at* as well.

(16) I wouldn't rely **on** Harvey, but I would **on/*to/*with** Frank.

(17) She's looking **at** something, but I don't know **at/*to/*for** what.

(18) Q: What are you looking **at**?
A: **At/*To/*For** this little ant crawling over my cell phone.

In orphans, the preposition is not determined by the antecedent, but loosely restricted by the thematic relation of the orphan to the VP hosting it. As far as we can tell, only three prepositions are used to introduce orphans with VP-internal correlates: *for*, *to*, and *with*.

Benefactive orphans are typically introduced by *for*, as in (19), where Turkey would benefit from being given the prospect of membership, and (20), where Angola would benefit from peace brought on by Mandela magic.

(19) Why should we not give Ukraine the prospect of membership when we would do the same **for** Turkey. [EP]

(20) World powers are counting on the "Mandela magic" which helped bring peace to South Africa to do the same for civil war-torn Angola, . . . [GW]

Patient orphans are typically introduced by *to*, as noted by Huddleston & Pullum (2002:1533) and Culicover & Jackendoff (2005:285), and as illustrated in (21) and (22) below. In each of these, the event denoted by the anaphor involves a, rather dramatic, change of state in the referent of the orphan NP: a neck being snapped off in (21) and a person being blown up with plastic explosives in (22).

(21) Which of us on finding our car aerial snapped off by a vandal have not momentarily wanted to do the same **to** his neck? [BNC]

(22) Forget the plastic explosive; certainly it would blow a hole in those walls, but it would do the same **to** Ted. [COCA]

Finally, *with* is often used to introduce themes, as in (23) and (24), and as noted by Culicover & Jackendoff (2005:285) (see also Jackendoff (1990:161)):

(23) Robert Pelletreau, the assistant secretary of state for Near Eastern affairs, told a congressional panel that North Korea has sold medium- range SCUD missiles to Iran and Syria and that it could do the same **with** the Rodong. [GW]

(24) By penalising the pirating of Canal+ decoders, we effectively created a monopoly on reception. And some people would like to do the same **with** the Internet. [EP]

The nature and strength of these correlations between thematic role and preposition choice need to be investigated further. The important point for our argument is that the choice of preposition is not determined by the antecedent. The data above show this in two ways. In (19), (21) and (23), the antecedent doesn't provide a source for the orphan preposition, since the correlate is a bare DP. In examples (20), (22) and (24), the correlate is introduced by a preposition, but in each case that preposition differs from the one introducing the orphan: *to* vs. *for* in (20), *in* vs. *to* in (22), and *on* vs. *with* in (24). This is in stark contrast to the examples in (16)-(18), where the correlate and orphan prepositions must be identical.

Extraction analyses of remnants of ellipsis are schematized in (25)-(27):

(25) You might not believe me, but you will $[_{\mathrm{VP}}\ [_{\mathrm{VP}}\ \cancel{\text{believe } t_i}]\ \mathrm{Bob}_i]$ (Jayaseelan, 1990:65)

(26) I know she's pretty tall, but I don't know $[_{\mathrm{CP}}$ how tall$_i$ $[_{\mathrm{TP}}\ \cancel{\text{she is } t_i}]]$ (Merchant, 2004:665)

(27) Q: Is he tired or just lazy?

A: $[_{\mathrm{FP}}\ \mathrm{Tired}_i\ [_{\mathrm{TP}}\ \cancel{\text{he is } t_i}]]$ (Merchant, 2004:675)

In pseudogapping (25) the remnant undergoes Heavy NP-shift (Jayaseelan, 1990) and thereby survives VP ellipsis. In sluicing (26) the remnant undergoes wh-movement and thereby escapes TP-ellipsis. Finally, in (27), the remnant undergoes focus fronting prior to clausal ellipsis. The particular movements that bring the remnant outside the scope of ellipsis are different in each case—and subject to some debate, especially in the case of pseudogapping—but the analyses are alike in assuming that the remnant starts out inside a syntactically articulated target of ellipsis (a VP in (25), a TP in (26) and (27)), and moves out

of that phrase prior to ellipsis. This type of analysis straightforwardly explains why there is no inherent category restriction on the remnant of ellipsis. Whatever restrictions are observed would be attributed to subcategorization and restrictions on the particular movement that brings the remnant outside the ellipsis site.

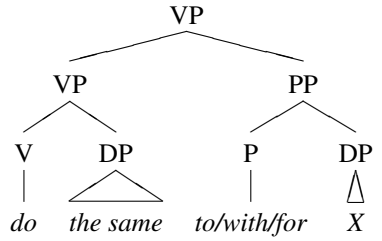
The fact that remnant PPs have their preposition determined by the antecedent also follows naturally from the extraction analysis. Consider the analysis in (28) of the pseudogapping example in (16) above:

(28) I wouldn't rely on Harvey, but I would [$_{\mathrm{VP}}$ [$_{\mathrm{VP}}$ ~~rely t_i~~] [on Frank]$_i$].

The remnant preposition is *on* because the remnant originates as the complement of *rely*, which selects for a PP headed by *on*. The identity requirement on ellipsis forces identical antecedent and target verbs, which in turn forces identical prepositions for PP orphans and correlates. In sum, the extraction analysis of remnants accounts for the lack of category restrictions on these and the fact that PP remnants use the same preposition as their correlate. Orphans differ from remnants in both respects (orphans are always PPs and orphans don't inherit their preposition from the antecedent) and we thus conclude that orphans are not extractees.

We propose, instead, that orphans are base-generated adjuncts to the anaphoric VP, as in (29).

(29)



Under this analysis, the requirement that the orphan be a PP falls under the general requirement of English syntax that adjuncts to VP be PPs.[1] Secondly, the orphan may use a different preposition than the correlate (as in (20), (22) and (24)) because the orphan is an adjunct and as such not selected for by a head which could impose restrictions on the choice of preposition.

Three additional observations support the adjunct analysis. First, the orphan is optional, which is a characteristic property of adjuncts:

(30) He folded up his jacket and sat on it. I did the same (with mine).

Secondly, the prepositions used to introduce orphans are all contentful prepositions and do not include the case-marker *of*, which is used widely in complement PPs (*the election of Barack Obama*, *the father of the bride*, *fond of chocolate*, *think of the possibilities*). Finally, orphans allow the same range of prepositions wherever they occur, including pseudoclefts (Jackendoff (1990:125) and (31) below), predicate questions (32), and *as*-clauses (the data in (33)–(35) come from Lee-Goldman (2011)):

(31) What she did **to/with/for** Harvey was edit his manuscript.

(32) What did you do **to/with/for** Harvey?

(33) She's not above ribbing someone, as she did **to** me in calling, "Nice face plant Larry. You might work on avoiding that next time."

(34) Or perhaps she got the name of the Chinese American Citizen's Alliance close, but not quite right, as she had **with** the Arizona Historical Society's library?

(35) Yes, just as Bruno claimed **for** an infinite universe, this finite model has "no center nor edge".

It is also worth noting that the adjunct analysis carries over to orphans with VP-external correlates like *on Thursday* in (1), repeated in (36) below. The difference between orphans with external correlates and orphans with internal correlates has to do with interpretation, not syntax.

[1] English does allows a fairly restricted set of DP adjuncts with temporal (*I saw him this morning.*) and manner (*Don't talk that way!*) interpretations. Adjunct clauses (... *because/when/if/even though he left.*) are adjoined above VP, so their syntactic category is irrelevant for our claim.

3. Interpreting orphans

Interpretation of orphans with VP-external correlates, as in (36), is straightforward: the anaphor takes its meaning from the antecedent VP and that meaning is combined with the temporal meaning of the orphan PP in the normal way to produce the interpretation 'take up the final version of the funding bill on Thursday'.

(36) The House is set to [$_{\text{VP}}$take up the final version of the funding bill] tomorrow. The Senate will do the same on Thursday.

Orphans with VP-internal correlates present an interesting challenge for the semantic interpretation of the VP anaphor and its orphan: part of the meaning comes from the antecedent, but, crucially, part of the meaning of the antecedent must be kept out to make room for the orphan. We propose that the presence of the orphan adjunct forces abstraction over the correlate in the antecedent, creating a "slot" for the orphan in the meaning reconstructed for the anaphor. This follows the general approach of Dalrymple et al. (1991), in which one or more parallel elements are determined, and then each parallel element is lambda abstracted over. Our analysis makes use of three well-established semantic mechanisms: lambda abstraction, semantic reconstruction and functional application. Later in this section we consider, and reject, syntactic movement as an alternative to lambda abstraction, but first we illustrate our proposal by analyzing (37), which is a modified version of (23) above:

(37) North Korea could sell SCUD missiles to Iran and it could do the same with the Rodong.

The antecedent is *sell SCUD missiles to Iran*, the correlate is *SCUD missiles*, and the orphan is *the Rodong* (another type of missile). The interpretation of (37) involves three steps. First, lambda abstraction replaces the correlate with a variable:

(38) $\lambda x.$ x sell SCUD missiles to Iran $\Rightarrow \lambda y.\lambda x.$ x sell y to Iran

Second, semantic reconstruction (Dalrymple et al. (1991), Jacobson (1992), Hardt (1993)) copies the new antecedent into an ellipsis site, E, hosted by the anaphor:[2]

(39) do the same (as) E $\Rightarrow$ do the same (as) [$\lambda y.\lambda x$.x sell y to Iran]

Finally, the reconstructed material applies to the orphan NP, yielding the correct VP meaning for the second clause of (37):

(40) [$\lambda y.\lambda x$.x sell y to Iran] (the Rodong) $\Rightarrow \lambda x$.x sell the Rodong to Iran

We see no real alternatives to the last two steps of this derivation, but one could consider syntactic movement as an alternative to lambda abstraction. It would have to be LF-movement, since the correlate appears in situ in all examples, but as long as the movement applies before the antecedent is reconstructed into the anaphor, it would have the same semantic effect as lambda abstraction, namely creation of a slot for the orphan in the meaning reconstructed for the anaphor.

Abstraction by syntactic movement is problematic, however, because the correlate can be inside islands. In (41), the correlate is the possessor *our*, which occupies a left branch and should therefore be unable to move. Compare (41) to the ungrammatical constituent question in (42a) with overt movement of a possessor:

(41) You have written off all **our** supplementary questions as statements and you did the same to Mr Marinos. [EP]

(42) a. *Whose$_i$ have you written off __$_i$ supplementary questions as statements?

b. [Whose supplementary questions]$_i$ have you written off __$_i$ as statements?

[2]This is a simplifying assumption that we adopt to make our proposal as concrete as possible without providing a fully specified semantic analysis.

Pied-piping of the possessee avoids the island violation, as (42b) shows, but pied-piping the possessee in (41) would result in the wrong meaning for the second clause, namely that the addressee had written off Mr. Marinos as a statement.

In (43) the correlate (in bold) is inside a relative clause and movement of the correlate out of the antecedent VP would thus violate the Complex NP Constraint.

(43) I convened a seminar at the beginning of June to which **all the management authorities throughout the European Union in charge of objective 1 appropriations** were invited. 500 administrators attended, from all the management authorities, from the whole of Europe. And I shall do likewise, in the autumn, with the objective 2 management authorities. [EP]

We see two possible responses to this objection to the movement analysis. First, it has been argued that ellipsis can repair island violations (e.g. Lasnik (2001), Merchant (2001), Merchant (2004), Merchant (2008)) and one could try to extend that analysis to the kind of overt anaphora that we are dealing with here. However, the island violating movement occurs in the antecedent clause, not in the anaphoric clause, so the two cases are not in fact comparable and appeal to island repair by ellipsis does not provide an account of (41) and (43). Secondly, one could appeal to the island-violating movement being covert, as opposed to overt movement. But that line of analysis must then contend with the large body of work that argues that covert movement does obey islands (e.g. Breuning & Tran (2006) and references cited there). We conclude that abstraction over VP-internal correlates does not have the profile of syntactic movement and that syntactically free lambda abstraction is the mechanism at work in this case.

4. A pragmatic restriction

If lambda abstraction is free, as we propose, any observed restrictions on possible correlates must come from elsewhere, and there do seem to be some restrictions on correlates, as suggested by the degradedness of the examples in (44)–(46). (Correlates are in bold.)

(44) ??I took my mother **to the beach** and Frank did the same for/with/to the fair.

(45) ??Abby said she was going to stop smoking by **Christmas** and Beth did the same for/with/to New Year.

(46) ??One of the duelists decided on **a traditional pistol**, though the other did the same for/with/too a rifle.

In (44) the correlate is a locative argument, in (45) it's a temporal expression, and in (46) a complement of a governed preposition. Note, however, that there is not a categorical ban against correlates of these types. Thus (47) is better than (44), (48) is better than (45) and (49) is better than (46).

(47) He put salt **in the rice** and afterwards he did the same with the ratatouille.

(48) ?Abby always says that she's going to stop smoking by **Christmas** and Beth does the same with New Year.

(49) Commissioner, you have now suddenly decided to look again at **the old alliances**, and to do the same to the new ones, . . . [EP]

We tentatively propose that these differences in acceptability follow from the pragmatic restriction on orphans in (50) (see Reinhart (1981) on aboutness).

(50) An orphan is felicitous only if it can be interpreted as what the clause is about.

The cooking example in (47) is better than the excursion example in (44) because saying that someone put salt in the ratatouille can naturally be construed as being about the ratatouille, whereas it is difficult to construe a description of Frank taking his mother to the fair as being about the fair. A more natural construal is that it is about Frank's mother. Given that observation and the restriction in (50), we explain why (51) is also better than (44).

(51) I took my mother to the beach and Frank did the same for/with/to his mother.

The subtly different meanings conveyed by the choice of orphan preposition supports the claim we made in section 2 that orphan prepositions express the thematic relation between the orphan and the anaphoric VP.

Three additional observations support (50). First, the orphans in (47)–(49) and (51) fare better in Reinhart's "as for X" test for aboutness, than the orphans in (44)–(46), as illustrated for (46) and (49) below:

(52) ??As for a rifle, the other duelist decided on it.

(53) As for the old alliances, we're going to look at them.

Secondly, the kinds of NPs that Reinhart (1981) and others identify as unable to function as aboutness topics also make for poor orphans. The data below show this for the negative quantifier *noone* (55), for a non-specific indefinite NP (56), a focused NP (57), and an interrogative NP (58).[3]

(55) ??The Greek demonstrators attacked the prime minister on the street, but the Spanish demonstrators have done the same to no one.

(56) ??The Greek demonstrators attacked the prime minister on Monday, and they did the same with/to someone else on Tuesday.

(57) ??The Greek demonstrators attacked the prime minister and it is our prime minister that we should do the same with/to.

(58) ??The protesters attacked the Finance Ministry on Monday but what did they do the same to on Tuesday?

Finally, sentence types that have been argued to lack a sentence topic, such as thetic sentence, don't support orphans:

(59) ??They attacked the prime minister on Monday, but there are no one else they did the same with/to.

More work is needed to establish whether (50) is the right way to account for examples like (44)–(46), but the logic of our proposal would remain the same under revisions of (50): lambda abstraction over the correlate is free, but restrictions on the orphan rule out certain correlates.

5. Orphans: composition or construction?

To our knowledge the most detailed analysis of orphans hosted by VP anaphora is Culicover & Jackendoff's Indirect Licensing account (2005: 283–300).[4] Culicover & Jackendoff do not analyze *do the same to/with/for X* specifically, but illustrate their analysis of overt VP anaphora with the rule for *do so* in (60).

[3]We thank Jason Merchant for (58) and for pointing us in this direction. Note that the infelicity of (57) and (58) is not due to the A-bar extraction of the orphan, since relativization of an orphan is fine:

(54) Today while riding on highway 15 going towards Athens one of their transfer trucks came from out of nowhere and began tailing me. It was not at a comfortable distance and after about ten miles the driver sped past going around 80 in the 55 that we were in. He continued at this pace until he caught up with another vehicle which he did the same with.

(http://www.merchantcircle.com/business/Stephens.Oil.Co.770-464-3301 4/7 2011)

[4]Huddleston & Pullum (2002:1533) have a brief mention of orphans headed by *to* in their discussion of *do it/that* anaphora, but no analysis. Miller (2011) is concerned with the distribution of different VP anaphors in discourse and cites examples of *do so to X* with VP-internal correlates as evidence against assimilating overt VP anaphora to pseudogapping, much in the spirit of our argument in section 2. Finally, Sobin (2008:155–157) briefly discusses orphans hosted by *do so* in his response to Culicover and Jackendoff's (2005) arguments for a flat VP structure.

(60) ***Do so* anaphora** (Culicover & Jackendoff, 2005:289)

Syntax: $[_{\mathrm{VP}}\ [_{\mathrm{V}}\ \mathrm{do}][_{?}\ \mathrm{so}]\ \langle\ \mathrm{YP}_{\mathrm{i}}^{\mathrm{ORPH}}\ \rangle]$ CS:$[_{\mathrm{Action}}\ \mathcal{F}(\ldots);\ \ldots\ \langle\ \mathrm{Y}_{\mathrm{i}}\ \rangle\ \ldots\ ]$

(60) specifies the syntax and semantics (CS stands for Conceptual Structure) of VPs with orphans hosted by *do so*, effectively treating it as a construction. In contrast we treat such VPs as having an ordinary syntax (see (29)) and a compositional semantics (see section 3). In Culicover & Jackendoff's analysis:

> "The VP is connected by indirect licensing to an antecedent, the orphan is connected to a target [i.e. correlate; DH, LM & BØ] within the antecedent. ...Within the CS [i.e. the Conceptual Structure; DH, LM & BØ], there is the familiar open function $\mathcal{F}$ whose content is filled in from the antecedent by indirect licensing and the optional semantic constituent Y corresponding to the orphan falls within the domain of $\mathcal{F}$." (Culicover & Jackendoff, 2005:289)

We see three advantages to our current proposal over the constructional analysis offered by Culicover & Jackendoff.

First, (60) only covers orphans with VP-external correlates and, as Culicover & Jackendoff (2005:290) acknowledge, it would require further stipulations to (60) to cover orphans with VP-internal correlates. Our adjunction analysis covers orphans with either kind of correlate and we offer a semantics for orphans with VP-internal correlates in section 3.

Secondly, our adjunction analysis explains why orphans to VP anaphors are PPs, whereas this must be stipulated on the Indirect Licensing analysis. (60) in fact leaves the syntactic category of the orphan open (notated YP), failing to account for the lack of non-PP orphans with VP anaphora. (Sobin (2008:157) makes a similar point.) Part of Culicover & Jackendoff's motivation for leaving the orphan unspecified for syntactic category is that they see orphans hosted by VP overt anaphora as part of a larger family of indirectly licensed elements, including fragments (their Bare Argument Ellipsis) and remnants of pseudogapping and sluicing. As we saw in section 2, these remnants are not restricted to being PPs, hence the use of YP in (60).

Thirdly, the striking differences between orphans and remnants of ellipsis documented in the present paper find a natural explanation under our proposal because we posit fundamentally different analyses of orphans (base-generated adjuncts to overt VP anaphor with no hidden syntactic structure) and remnants (extractees from articulated syntactic structure that is then elided). These differences (syntactic categories allowed and determination of P in the case of PP remnants and orphans) have to be stipulated on Culicover & Jackendoff's account, because remnants of ellipsis and orphans are analyzed the same way by rules employing Indirect Licensing.

Several recent proposals (Baltin & van Craenenbroeck (2008), Elbourne (2008), Baltin (2010)) posit inaudible syntactic structure in VP anaphora as well as VP ellipsis, pointing to a uniform account in which VP anaphora has unpronounced structure just as ellipsis does. Such an account faces much the same problem as the semantics-based account of Culicover & Jackendoff (2005): if VP anaphora involves syntactic reconstruction, why is it that VP anaphora orphans are not governed by syntactic movement constraints, while remnants of ellipsis are so governed?

We end by summarizing the main claims of this paper: Orphans are not extractees, but base-generated adjuncts to VP. The interpretation of orphans with VP-internal correlates involves lambda abstraction over the correlate, creating a slot for the orphan in the meaning reconstructed for the anaphor. A compositional, non-constructional analysis of orphans is thus possible. The striking differences between remnants and orphans argue against recent attempts to unify VP ellipsis and overt VP anaphora and reaffirm Hankamer & Sag's (1976) distinction between Deep and Surface Anaphora, once *do so* is recognized as a Deep Anaphor (Houser, 2010).

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