Verbal Ellipsis in the Nominal Domain*

Nicholas LaCara
nick.lacara@gmail.com

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University of California, Santa Cruz

1 Introduction & Background

In this paper, I present data from a scarcely documented kind of ellipsis occurring in some registers of English. In this type of ellipsis, a VP within a POSS-ing DP is elided under identity with a VP elsewhere in the structure (see Vahedi 2008, Anderson 2007, and Pullum 1991 for some more background)[1]:

(1) Mary's reading Wittgenstein came as a surprise, but nobody expected John's __.

The problem is that not all VPs can be valid antecedents to ellipses in this position. Surprisingly, a VP that is not the complement of the possessive D, or POSS, cannot serve as antecedent:

(2) * John took a long time to read that book, although Mary's __ took longer.

In this paper, I investigate the nature of this ungrammaticality. Provided that ellipsis is typically insensitive to material outside of the ellipsis site, the example in (1) is striking. In the following sections, I argue that the morphosyntactic material within the ellipsis site and within the antecedent cannot be held responsible for the ungrammaticality of such examples. To wit, it appears to be the case that the syntactic identity conditions on the (internal) structures of elided constituents are not the only syntactic considerations that must obtain for this kind of ellipsis to occur (see Fiengo & May 1994, Rooth 1992, for more). The problem is localized to the possessive head itself. The immediate verbal complement to this head cannot be the antecedent for VPE of the sister of heads in the clausal domain—T, Σ, and auxiliaries. Verbal sisters to other heads in POSS-ing DPs can serve as antecedents, however, meaning that the POSS-ing DP itself does not preclude ellipsis within it; rather, the possessive head somehow blocks its sister from serving as the antecedent to VPE.

In §2, I will describe my assumptions about the internal structure of POSS-ing phrases and the verbal complexes contained therein. Following this, I will establish VP ellipsis within the gerundive in §3. I will also present the basic problem and data, and show that though VP ellipsis is restricted in these constructions, NP ellipsis is not constrained in the same way.

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[1]It is very interesting that Abney (1987) claims the examples under discussion to be ungrammatical (Ch. 3, §6.1). Working with linguistically naïve native English speakers strongly contradicts his assertion. People who have never heard constructions such as the one in (1) typically find them grammatical, and the intuitions about the crucial examples are quite consistent. Pullum (1991) also comments on their validity, with some qualification.

At this point in the paper I begin looking at possible analyses of the problem. In §4, I argue that the impermissible ellipses cannot be the result of morphological mismatches. From there, I move on to demonstrate that the syntactic structures of VPs inside of POSS-ing DPs and TPs must be structurally identical, which I initially argue for in §2. Finally, I show that VP ellipsis is only blocked in the immediate complement to POSS. In §5, I summarize the material presented up to that point, and provide some discussion and analysis. In §6, I discuss the implications and context of the work presented here and, finally, conclude.

2 Verb Phrases and the Structure of Poss-ing Phrases

In this section, I intend to describe the internal structure of the POSS-ing phrases that will be under scrutiny throughout the length of this paper. I take the structure described by Abney (1987) as my starting point in §2.1 and move thence. In §2.2, I will focus on fixing some of the weaknesses of the structure proposed by Abney, and I will use these to motivate a structure where VP is in construction with the POSS D head. Finally, I will bring the structure more up-to-date in 2.3 to reflect a contemporary understanding of verbal syntax, calling on recent work on VPs. The sum of all of this will be to make my assumptions about these structures explicitly clear, as they will form the basis of my analysis throughout the rest of this paper.

2.1 Abney (1987) and the Internal Structure of POSS-ing Phrases

The structure of POSS-ing phrases has been of some interest to linguists of the generative tradition. The whole of Chomsky (1970) is dedicated to a description of the differences between these (what Chomsky refers to as GERUNDIVES), finite clauses, and so-called derived nominals. Examples of each are given in (3) below:

(3) **Three kinds of clause-like structures**

a. John refused the offer. *Finite Clause*

b. John's refusing the offer... *Gerundive* (Chomsky 1970, exx. (60))

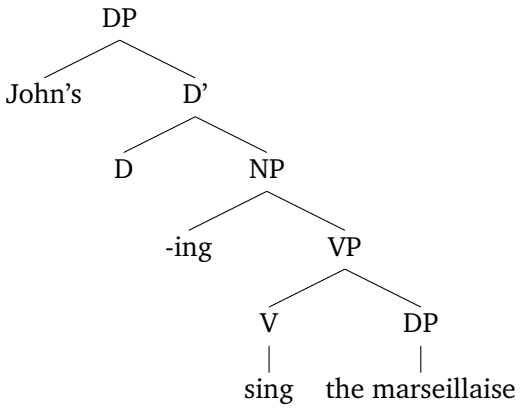
c. John's refusal of the offer... *Nominal* (Chomsky 1970, exx. (61))

Chomsky's focus in his discussion is on the derivational relationship between the kinds of phrases in (3). Each has its own syntactic properties. Examples (3b) and (3c) are indeed very similar in appearence to (3a), but these two phrases have remarkably different distributions from finite clauses. The property that separates them is that they appear in positions typically occupied by nominals. Examples (3b) and (3c) are further differentiated from each other by their own syntactic and semantic properties. The main verb in the POSS-ing DP in (3b) can directly take a nominal complement. This is not the case for the possessed nominal phrase in (3c). Here, the head noun must take a PP complement, which appears to be a requirement for Case assignment. A further difference is that POSS-ing gerundives take adverbial modifiers whereas the possessed nominals take adjectival modifiers (see §2.2.1). Finally, the nominals often have opaque semantics, deviating in meaning from their verbal counterparts[2]. These properties led Chomsky to conclude that the gerundives must be fundamentally syntactically verbal, but that the nominals are nouns in the syntax[3].

[2]I do not discuss these facts in detail as they are not immediately relevant to the discussion. The reader is referred to Chomsky (1970) for examples and discussion.

[3]There are many more properties that separate POSS-ing phrases from sentences themselves; the reader is referred to Abney (1987, Ch. 3, §2 & §3) for a much fuller discussion of the facts than is warranted here.

The real achievement of Abney (1987) was to unify the verbal syntax of POSS-ing phrases with their nominal distribution in a satisfying way. In his investigation, Abney unifies POSS-ing phrases and what had previously been thought of as possessive NPs by identifying *-'s* or POSS as a determiner. Arguing from the nearly identical distribution of the two types of constructions, he concludes that this determiner must be the head of both kinds of phrases and introduces the DP. His structure is in Tree 1.



Tree 1: POSS-ing structure in Abney (1987, p. 142): "John's singing the Marseillaise"

There are a few problems with this structure that I wish to turn to now. These stem primarily from structural observations and internal inconsistencies in Abney's discussion.

2.2 Fixing Abney's Structures

The structure in Tree 1 is problematic in a number of ways, mostly having to do with what sort of material is assumed to intervene between D and VP. Abney spends considerable time discussing this (see Abney 1987, Ch. 3, §4); here I want to turn to some of the reasons that the structure above is less than optimal. I will adopt the solution of simply removing the intervening NP layer—the one headed by *-ing*. This simplifies the syntax and more easily captures the data about which Abney was worried.

2.2.1 *-ing* is not in N

In the POSS-ing structure proposed by Abney there is a NP intervening between D and VP. According to this analysis the NP is intended to serve as an equivalent to IP, and the verb must move up to N in order for *-ing* to be suffixed. Earlier on, though, Abney specifically argues that *-ing* should not be in N, stating that nouns are seldom affixes. Furthermore, N is a lexical category, and it makes more sense if we "take *-ing* in Poss-ing to be 'Inflectional' in the sense of being a functional element; one which is like Infl, moreover, in selecting VP" (p. 123). He concludes that *-ing* should actually be a D, and not an N, as D is a functional element. He abandons this later on to account for the fact that some gerundives can co-occur with determiners (Abney's judgments):

(4) **Determiners with Gerundives** (Abney 1987, Ex. (208))

a. There is no enjoying life without thee.

b. This telling tales out of school has got to stop.

c. The judgement of heaven for my wicked leaving my father's house.

d. Between rheumatism and constant handling the rod and gun.

The fact that some sorts of gerundives can occur with other determiners is not very strong evidence against an analysis where D hosts *-ing*. For one, the examples in (4a), (4b), and (4d) are not necessarily of the same class as POSS-ing DPs, and may well have a different internal structure. Beyond this (4c)[4] and (4d) have adjectival modifiers, which POSS-ing gerundives do not in contemporary English (see Pullum 1991). One of the notable facts about POSS-ing DPs is that they can only take adverbial modfication and not never adjectival:

(5) **Adverbial vs. Adjectival modification in POSS-ing DPs**

a. * John's quick destroying the city.

b. John's quickly destroying the city.

This contrasts sharply with modficiation of nouns:

(6) **Adverbial vs. Adjectival modification of NPs**

a. John's quick destruction of the city.

b. * John's quickly destruction of the city.

The presence of adjectival modifiers in (4c) and (4d) suggests the presence of a nominal and not a verbal head here, and thus the presence of determiners is not surprising. Crucially, if POSS-ing DPs had any sort of NP layer between DP and VP, we would expect that the judgments for each example in (5) to be reversed. This would fall out from the simple fact that adjectives modify NP, and so if there were an NP anywhere in the POSS-ing DP structure, *quick* in (5a) would be able to modify it. As such, the need for an intervening NP layer in POSS-ing DPs appears to be quite unmotivated.

2.2.2 V-to-N Movement?

Given the evidence above, the analysis of *-ing* sitting in N seem untenable, but in spite of this Abney attempts to further motivate the structure in Tree 1 in part to capture the ordering of adverbs with relation to the verb. He wants to account for the contrast in the placement of adverbs observed in (7); particularly, he wants to make sure that there is a structural position to which an adverb can adjoin and still be able to produce the linear ordering in (7a):

(7) **Adverb placement in POSS-ing phrases**

a. John's hurriedly singing the song. (Based on Abney 1987, Ex. (214))

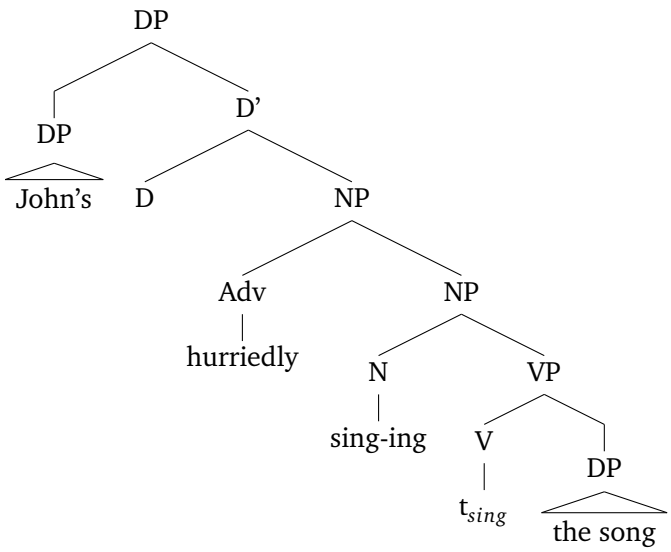
b. * John's singing hurriedly the song.

This leads to the argument that D selects NP, and N selects VP. As long as an adverb modifies NP and not VP, this permits V to move to *-ing* without having the verb wind up on the wrong side of the adverb.

There are at least two problems with this analysis. If, as noted above, $N_{\textit{-ing}}$ is meant to be an equivalent to Infl in these structures, then this looks suspiciously like (clausal) V-to-T movement. Here, a non–auxiliary verb moves to N, but non-auxiliaries never move to T in TPs (Pollock 1989, §5.4). Since the analog does not occur in TPs and there is no immediate reason to believe that DPs ought to behave differently from TPs, the motivation for the proposed movement here is weak.

More to the point, however, we have already seen that it is not the case that adverbs can modify NPs (recall example (6) above), so realistically speaking putting an extra NP layer above VP does not actually provide a legitimate place for the the adverb to adjoin. Further, even if the movement above could be motivated, one would still expect adverbial modification of VP to occur, as it does in contexts of V-to-T movement.

[4] It is a curious fact that *my* appears in this example. However, it is very clearly ungrammatical in contemporary Modern English (Pullum 1991). Abney (1987, p. 197) attributes this example to Daniel Defoe, who died in 1731.



Tree 2: Movement of V to N if NP can be modified by adverbs.

(8) **Adverb placement in V-to-T contexts**

a. John had hurriedly sung the song.

b. * John hurriedly had sung the song.

The contrast between (7) and (8) is important here. In (8a), the auxiliary *have* raises to T, past the adverb *hurriedly*, causing the adverb to appear directly to the right of the verb. If this does not happen, as in (8b), then the result is ungrammatical. The V-to-N analysis does not rule out modification of any of the lower verbal phrases, though, so, in principle, this pattern should also be available in POSS-ing DPs. It turns out, though, that this is exactly opposite of the pattern observed in (7) where the adverb must always show up directly to the left of the allegedly moved verb.

The point here is that the structure in Tree 1 actually predicts examples like (7b) to be okay if movement to N is permitted to occur. The problems with the analysis here and in §2.2.1 suggest that a different structure is necessary in order to account for the data above.

2.2.3 VP as Sister to D

In order to fix these problems, I am going to adopt a model of POSS-ing phrases that does not include any sort of *-ing*-headed NP. Rather, I will adopt an analysis where the possessive D head directly selects a VP instead of a NP. Such analyses have been proposed elsewhere in the literature; for instance, Pullum (1991) proposes a very similar analysis in the GPSG framework, arguing that POSS-ing phrases are simply NPs headed by verbs in the present participle form. The subject of the POSS-ing sits in the equivalent of a sentential subject position, but the structure is an NP rather than an S. This captures the basic intuition that POSS-ing phrases are essentially verbal and basically clause-like. An equivalent analysis in a P&P framework was also adopted by Vahedi (2008) in her work on POSS-ing and ACC-ing, which essentially matches my assumptions here.

The problems discussed above are alleviated by the adoption of such a hypothesis. The suffix *-ing* is not a separate head in the syntax, but rather inflectional morphology on the highest verb in the verbal complex imposed on it by being selected by POSS (Embick 1997) (see Subsection 2.3 below). Such an analysis does not rely on unmotivated syntactic movement in order to get the ordering facts straight,

either. In examples like (7), the ordering of adverbs with respect to the verb falls out automatically—adverbs modify VP, just as they normally do. Verbs do not move to D, as there is no motivation for them to do so, and the possessive determiner is simply spelled out as *-'s*. The structure is given in Tree 3 below, and this will be the structure that I build my analysis on. The occurence of *-ing* on the verb here is simply a morphological requirement enforced by the verb's proximity to the POSS head. Notice that in cases where there are auxiliaries, the highest auxiliary must always bear *-ing*:

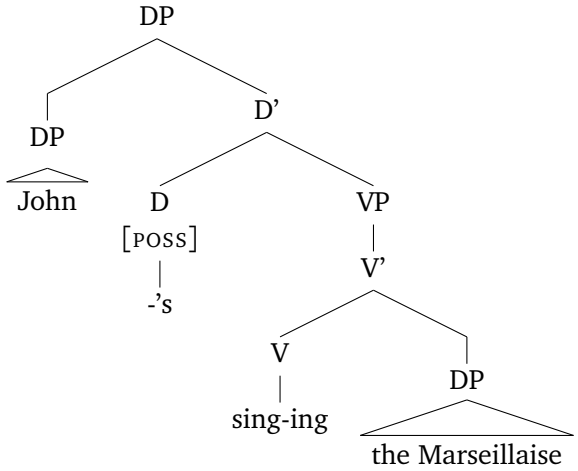
(9) *-ing* **occurence in POSS-ing phrases containing auxiliaries:**

a. John's having eaten the meal

b. John's having been eating the meal

c. * John's has eaten the meal

This appears to be a selctional requirement. The D_{poss} head selects for a V in the *-ing* form. There are some problems for this analysis, which I will shortly turn to in §2.3.2. First, I want to build up the rest of the structures that appear to occur in the VP.



Tree 3: Abney's (1987) structure amended: "John's singing the Marseillaise"

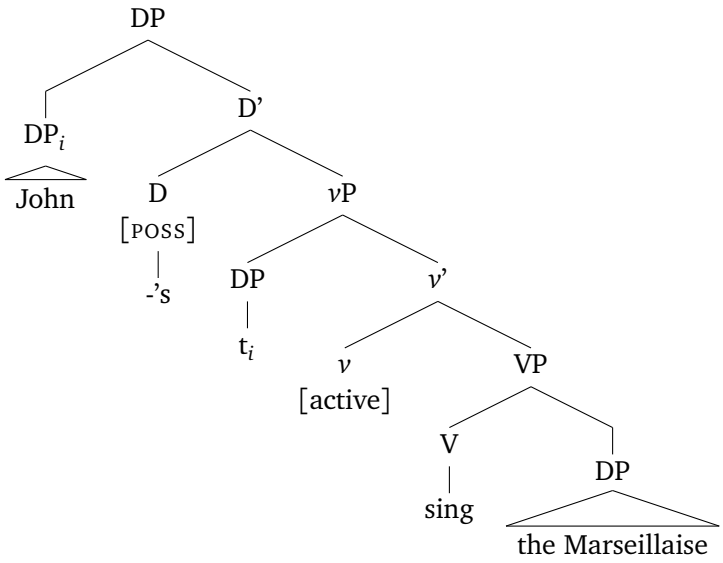
2.3 Updates

2.3.1 External Arguments

When Abney wrote his dissertation, it was still believed that subjects were generated in SPECTP. This certainly seems to be the case in Abney's writing. Kuroda (1988), based on evidence in Japanese and English, argues that the subject of a sentence must originate as the external argument of V (*i.e.* the specifier of VP or SPECVP). SPECVP is a θ-marking position, and so arguments in that position are assigned one of the θ-roles locally within the VP. SPECTP in English is then a Case-marking position. In English, the nominal generated in SPECVP raises to SPECTP in order to get Case.

It follows then that one would want to adopt a similar analysis for the structure in Tree 3 above. Verbs still ought to assign their θ-roles locally—the main difference between POSS-ing phrases and sentences is that the functional layer above VP in the former is not a TP but a DP. Since the DP that sits in SPECDP is receiving a θ-role from the main verb in the VP, it stands to reason that it is moving to SPECDP to receive (genitive) Case, analogous to the movement described by Kuroda (1988).

Kratzer (1996) further developed this line of thought with the introduction of "VoiceP" (or "little" *v*P, which I will use here[5]). The point of this phrase is to account for differences in argument structure that correlate with different voices. So, for instance, the Agent *v* head assigns the Agent role to arguments in its specifier. Kratzer argues specifically that POSS-ing phrases need to have VoiceP in order to explain the accusative Case marking of verbal complements. In Tree 4, I present the structure that this entails.



Tree 4: POSS-ing with *v*P: "John's singing the Marseillaise"

2.3.2 Auxiliaries

POSS-ing phrases, like typical clauses, permit a full range of auxiliaries to occur:

(10) John's having been being admired always perplexed me.

(11) $[_{Aux}$ have $[_{Aux}$ been $[_{vP}$ being $[_{VP}$ admired$]$ $]$ $]$ $]$

The auxiliaries themselves behave a lot like verbs. They expone tense in the clausal domain and show agreement with the subjects. They also undergo T-to-C movement, much as normal verbs do in languages other than English. Assuming that V must adjoin to little *v* as it moves to T in other languages, and provided that auxes do in fact move to T in English, I am going to label them as little *v*s that intervene between D_{poss} and the voice-determining *v*P. Their status in the structure is quite important, as they can license VP ellipsis. Tree 5 shows how they are organized.

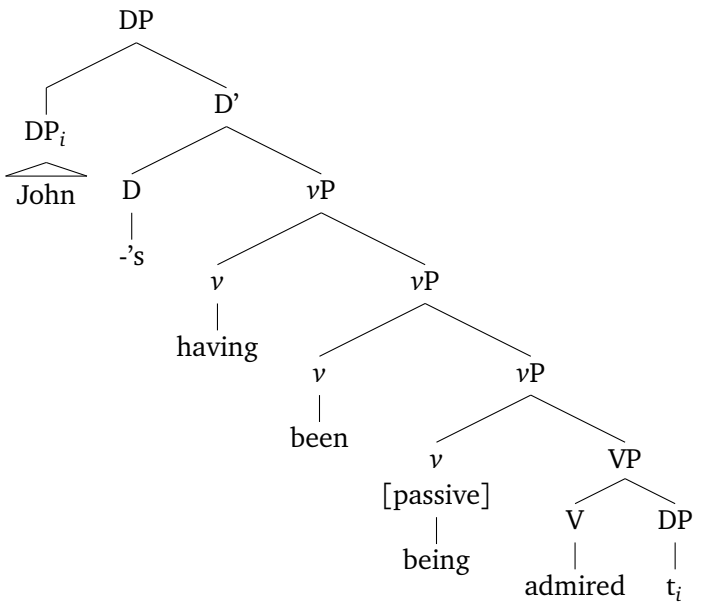
2.3.3 Negation

Finally, we come to negation in the POSS-ing phrases. Negation is said to always occur between POSS and the highest verbal element. This comes as a consequence of there being no possible verbal movement to D in these structures as there is to T in tensed domains, as discussed in §2.2.3 above:

(12) **The position of negation**

a. John's not eating the cake

[5]See, however, discussion in Merchant (2007) for arguments that there needs to be a separate VoiceP and *v*P.



Tree 5: POSS-ing phrase with auxiliary verbs: *John's having been being admired*

b. Murphy's not having been at the party

Negation poses an interesting problem for the structures outlined above. If we take it to be a structurally intevening head, such as Σ, sitting between D_{poss} and *v*P, the immediately local relationship that obtains between the head of the verbal phrase and the D is broken apart. This is undesirable under the structure I am advocating here. The *-ing* suffix is required on verbs that are immediately adjacent to the POSS head, but there is no easy way to cash this out in the syntax if there is an intervening projection between D and the verbal element.

Notice, too, that this is a different problem from that of T Lowering (Embick & Noyer 2001). Under this analysis, the entire T node is taken to lower to V when there is no intervening head, thus causing tense to be exponed directly on the verb itself. The post-syntactic lowering of T to V is blocked by the intervening Σ in the structure. It is potentially tempting to try to devise a similar explanation POSS-ing DPs, but a D to V lowering approach is untenable, since D is taken to spell-out as *-'s*. If D lowered to V to effect the suffixation of *-ing*, then it would not be in the proper place to spell out *-'s*. Even then, we would expect Σ to block the lowering of D to V anyway, just as T lowering is blocked in TPs.

As I see it, there are two ways around the problem of negation in POSS-ing DPs. One way around this difficulty is to say that there is a special Σ head selected by the possessive determiner head that subsequently selects for *v*P. This Σ head would thus impose the requisite morphological requirements on its complement, requiring that it appear with the *-ing* suffix. Crucially, this head would be a different one from the one seen in clauses, as the morphological requirements just mentioned are clearly different from those in clauses. Moreover, the Σ head in POSS-ing DPs does not support the emphatic affirmation that one finds in clauses. In TPs, Σ can host an affirmative element—either *too* or *so*—that must bear stress, but this element can never be present in a POSS-ing DP:

(13) **Elements in Σ**

a. i. John did not sing the Marseillaise.

ii. John's not singing the Marseillaise

b. i. John did too sing the Marseillaise!

ii. * John's too singing the Marseillaise

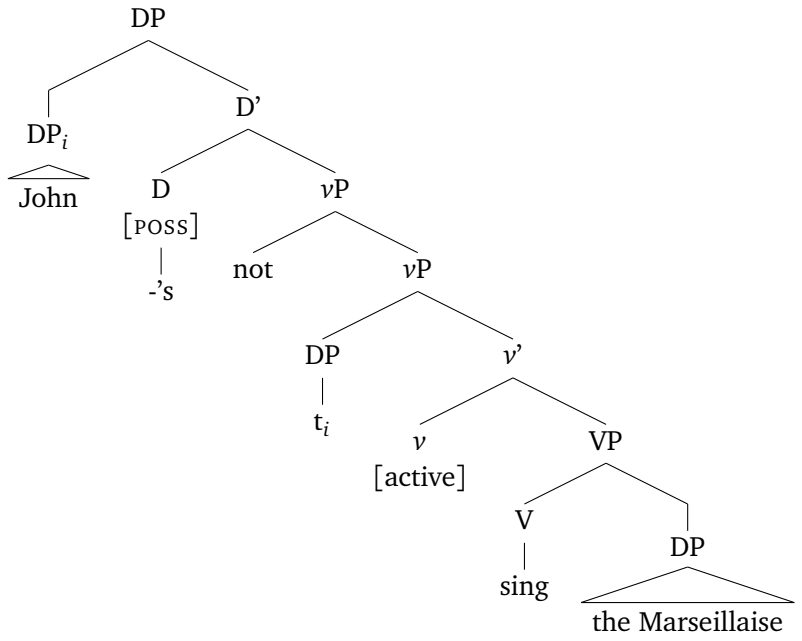
The second possibility is that the negation seen in the examples above is actually constituent negation. There is some motivation for proposing such an analysis. Abney (1987, p. 129) notes, for instance, that negation in POSS-ing phrases cannot take wide scope in cases like (14a), although they can in the clausal equivalent:

(14) **Scope of Negation in POSS-ing as opposed to Sentences** (Abney 1987, p.129)

a. *Neg > ∀ Everybody's not coming

b. Neg > ∀ Everybody didn't come.

Here, one might adopt the analysis of consituent negation outlined by Embick & Noyer (2001, p. 588-589). In their view, a [neg] feature (spelled out as *not*) adjoins to *v*P and has the effect of negating that *v*P (see Tree 6). For them, this is the same [neg] feature that is exponed in regular ΣPs, which explains the semantic similarities between sentential negation and constituent negation, as well as the fact that both license NPIs. This also explains why emphatic affirmation does not occur in POSS-ing DPs—only the [neg] feature adjoins to *v*P. This would allow for the POSS to directly select for the verbal head[6].



Tree 6: Head adjunction of [neg] to *v*P, following Embick & Noyer (2001): *John's not singing the Marsillaise.*

To be entirely fair, the analysis of negation in POSS-ing DPs is somewhat orthogonal to the discussion that is to follow; however, I believe that it is worth discussing here given that ellipsis is believed to be licensed in some cases by Σ. To that end, ellipsis may actually help us to determine which analysis we might want to adopt. If *v*P can be elided in POSS-ing DPs containing negation, we may want to adopt the first analysis, especially if we take ellipsis as being the deletion of the complement of a syntactic head (Lobeck 1995). The alternative is that ellipsis can delete the smaller *v*P sister to [neg] under the adjunction analysis.

[6]Nothing rides particularly on using the structure proposed by Embick & Noyer (2001); this is merely the account with which I am familiar. Any other adjunction-based theory for constituent negation should work just as well here.

3 VP Ellipsis in Poss-ing Phrases

Ellipsis is a process whereby syntactic material in an utterance fails to be pronounced[7]. Ellipsis of VP can occur in POSS-ing phrases, as I noted in the Introduction, but there are some peculiar restrictions on it in this syntactic domain. In this section, I discuss the licensing conditions that must obtain in the structure that I developed in §2. Here, I will primarily be concerned with ellipsis licensed by the D head, keeping in mind NP ellipsis as a basis for comparison.

3.1 Ellipsis After Poss

It is a well known fact that phonologically realized T heads in English license verb phrase ellipsis, henceforth VPE (Ross 1967, Lobeck 1995, for more), and that the POSS head allows for noun phrase ellipsis, henceforth NPE (Jackendoff 1971, Chisholm 2001, for more). Examples of each are given here[8]:

(15) **VPE after T and NPE after D**

a. Mary will buy a car, and John might$_T$ __, also. *VPE*

b. I like Sally's car, and I like Tom's$_{poss}$ __, too. *NPE*

Following the discussion in §2, the *vP* in POSS-ing phrases is directly adjacent to POSS. This is directly analogous to the position of *v*P next to T within TPs. Here, there is an apparent overlap of the domains where ellipsis is licensed in the examples above. As noted above, a pronounced T licenses the ellipsis of its *v*P complement[9], resulting in VPE. The possessive D licenses the ellipsis of its complement, which typically results in NP ellipsis. Crucially, though, the possessive D can also take *v*P as its complement, putting it directly in the same structural location where NPE occurs. Given the similarity between the TP and DP structures, we should expect, contra Abney (1987), that *v*Ps can be elided in the DP as well, and they can:

(16) **Ellipsis of a *v*P complement to D in a POSS-ing DP**

Erik's buying a car came as a surprise, and Bud's __ came out of nowhere.

3.2 The "Size" of VPE

The fact of the matter, though, is that verbal and nominal structures are not identical, so in spite of the surface similarity described above, we should not be so quick to jump to conclusions. The material following POSS is substantially different in nominals than it is in POSS-ing phrases. Thus, it is not simply enough to assume POSS licenses VP ellipsis directly. In clauses auxiliaries can license VPE, not just T, but there does not appear to be any such equivalent lower head in DPs that are not POSS-ings. This raises the question: how much material does VPE elide in these structures?

There are some apparent restrictions on these other VPE licensing heads within POSS-ing contexts. Single auxiliaries resist getting stranded in POSS-ing phrases:

(17) John's having eaten a turtle was strange, but...

[7] I remain agnostic as to whether the elided structure remains unpronounced at PF or gets deleted. However, I have argued that null pronominal accounts of VPE (see, for instance, Lobeck (1995)) are unfeasible in light of some of the data presented here. I leave this argument aside here.

[8] In my examples, I underline to indicate an antecedent, and I employ an underscore (*i.e.* __) to show the site of an ellipsis.

[9] Given the reanalysis of the VP as a more complex constituent containing *v*P, VPE licensed by a D or a T is really *v*P ellipsis. Inasmuch as its properties are the same, I will generally refer to elision of *v*P as VPE, except where the distinction is crucial.

a. . . . Mary's ~~[having eaten a turtle]~~ didn't faze me.
b. * . . . Mary's having ~~[eaten a turtle]~~ didn't faze me.

(18) Sally's being upset was understandable, but. . .
a. . . . Harvey's ~~[being upset]~~ was incomprehensible!
b. * . . . Harvey's being ~~[upset]~~ was incomprehensible!

This might invite the proposal that VPE licensed by POSS must elide all of the material adjacent to D. This would be unusual, given that it is hard to recover an elided perfective *have*, as in (17b) and (19) (Johnson 2001).

(19) **Eliding auxiliary *have*** (Johnson 2001)
Sally might have eaten rutabagas, but Holly shouldn't __.

However, stranding auxiliaries in POSS-ing phrases notably improves when more than one is left behind:

(20) John's having been eating a turtle was strange, but. . .
a. . . . Mary's ~~[having been eating a turtle]~~ didn't faze me.
b. . . . Mary's having been ~~[eating a turtle]~~ didn't faze me.

The explanation behind this seems to be that VP ellipsis after licensors ending with the *-ing* suffix is severely dispreferred. Johnson (2001) notes that as far back as Ivan Sag's dissertation, it has been observed that "VPs elide quite badly when the Aux governing them has *ing* suffixed to it" Johnson (2001, p. 3). This seems to be a general constraint on VPE:

(21) **Ellipsis after *-ing*** (Johnson 2001)
* Doc Golightly is being discussed and Sally is being __ too.

Since POSS-ing phrases require that the highest verbal element appear with the *-ing* suffix, the constraint on stranding a single auxiliary is unsurprising.

3.3 VPE & NPE

Importantly, these ellipses are restricted with regard to which antecedents they are allowed to take. Where the antecedent is the complement of any head other than POSS—i.e. a T, *v*, or Σ[10]—but the ellipsis site is complement to POSS, the ellipsis is ungrammatical. A particularly interesting fact about these structures is that they permit the elision of a NP but not a verbal complement where we expect ambiguity between the two options. This is surprising because the syntactic structure is identical in these cases, and the restrictions on VPE and NPE are largely the same (Chisholm 2001).

It appears that in order for this kind of ellipsis to be able to apply, the antecedent *v*P must be the complement of a POSS as well. Compare the examples in (22) with the unelided equivalents in (23):

(22) **Impermissible ellipsis in POSS-ing DPs**
a. * He hesitated to <u>gesticulate wildly</u> because of Sally's __.
b. * I thought John would <u>leave early</u>, and I knew about Mary's __.

[10] I will generally refer to all ellipses and antecedents in TPs (as opposed to DPs) by the less-specific term "TP-internal" or "clausal" antecedents, noting, of course, that each of the ellipsis-licensing heads in these domains may have its own individual properties.

(23) **The unelided equivalents**

a. He hesitated to gesticulate wildly because of Sally's gesticulating wildly.

b. I thought John would leave early, and I knew about Mary's leaving early.

As we see in (22), the ellipses fail to find antecedents, and the sentences are ungrammatical. Crucially, (23) shows that these sentences are completely grammatical when no ellipsis has occurred.

To put it succinctly, this is weird. This problem is not attributable to the well-known restrictions on ellipsis antecedents, documented originally by Ross (1967). Ross claims that an ellipsis antecedent cannot be c-commanded by the ellipsis site, as in examples like (24)[11]:

(24) **Anti-c-command** (Ross 1967)

* I will __, if I can work on it.

The other restriction on ellipsis is that the ellipsis site cannot precede the antecedent if the antecedent is in a different conjunct of a coordinate structure:

(25) **The backwards ellipsis constraint at work**

* I will __, and Mary will work on it too.

The examples in (22) do not fall afoul of either of these restrictions. In neither case is the ellipsis in a position to C-command the antecedent, and in (22b), where there is a coordinate structure, the ellipsis clearly follows the antecedent. Therefore, the fact that the ellipsis cannot find an antecedent in these instances is not predicted by the typical syntactic restrictions on ellipsis.

An even more perplexing fact is exemplified in (26):

(26) **No possible VPE where NPE is allowed**

a. * Harvey wanted to buy a Ferrari because of Sally's __.

b. Harvey wanted to buy a Ferrari because of Sally's __.

In these cases the ellipsis *can* find an antecedent, but that antecedent must be nominal as in (26b)—the antecedent cannot be a *v*P. This is a particular problem because one type of ellipsis is allowable in a domain where we would expect another to be equally licit Generally speaking, ellipsis in DPs headed by POSS permits ambiguity between NPE and VPE when there are is both a possible NP and VP antecedent, as shown in (27). In other words, (26a) should be ambiguous, but it is not.

(27) **VPE/NPE ambiguity in POSS DP**

a. Mary's writing a poem inspired John's ~~writing a poem~~.

b. Mary's writing a poem inspired John's ~~poem~~.

This is especially unusual given that the restrictions on VPE and NPE are largely the same. Chisholm (2001) notes that the only real difference seems to be that VPE can take so-called split antecedents while NPE cannot (see Fiengo & May 1994, for some discussion), so the fact that VPE is not allowable here while NPE is perfectly licit poses a problem for syntactic accounts of ellipsis. If the structural restrictions that hold over NPE are indeed the same as those that hold over VPE, then there is no reason that the ellipsis in (26a) should not be possible while the ellipsis in (26b) is. This indicates that there must be some constraint that precludes the ellipsis in (26a) to which NPE is not sensitive.

[11] This assumes, of course, that the CP headed by 'if' is in fact modifying VP. Ross doesn't provide any evidence that this phrase does not adjoin to TP (though to his credit, this is not easy to show). This issue is tangential to my main point, but it is at least worth noting that the restrictions on antecedents could be more stringent than typically presented.

3.4 Deep or Surface Anaphora?

One might legitimately wonder, given the picture above, whether this is actually ellipsis. It may well be the case that an apparently elided VP in the POSS-ing DP is not actually deleted, but rather some sort of null VP pro-form. The distinction is important. Ellipsis is an example of what Hankamer & Sag (1976) call SURFACE ANAPHORA. Surface anaphora are so-called because they are in some sense very superficial: they essentially serve only to cover up surface structure. They, thus, contrast with DEEP ANAPHORA, which are inserted in the deep structure of a sentence. These are syntactic elements, either pronounced or phonologically unrealized, that have no internal (syntactic) structure.

There are a few ways to test whether an anaphor is a surface anaphor. A surface anaphor has syntactic material inside of it, which means that the material is available to be manipulated by other syntactic processes. This permits one to use these processes to effectively see inside the structure that ellipsis obscures. There are a few ways in which one can do this. DPs in the elided structure can serve as antecedents for pronouns elsewhere in the discourse. This can be seen in example (28), where the girl that John meets can serve as the antecedent for the third person feminine pronoun. Crucially, the DP that is elided by the VPE is indefinite, and introduces a previously unmentioned discourse referent (as in Heim 1982). In spite of not having even been uttered, the unpronounced DP can still establish an antecedent:

(28) Tom talked to a new girl last night. John did [~~talk to a new girl~~$_i$] too, and she$_i$ was pretty.

Another way one can look at the structure internal to a surface anaphor is by extracting something from it. It is possibe to move material that originates inside of a surface anaphor outside of it. This is what is happening in the examples in (29). In (29a), a DP, *the play*, has been moved out of the ellipsis site via topicalization. Similarly, in (29b), the subject of the second clause originates as the D-structure object of the verb *attack*. Passivization moves the object to subject position and the VP is subsequently elided.

(29) **Extraction out of surface anaphora**

a. The movie, I loved. The play, I didn't [~~love~~ ~~*t*~~].

b. Harvey was attacked, but Murphy was not [~~attacked~~ ~~*t*~~].

These contrast noticeably with deep anaphora, where the above diagnostics produce ungrammaticality. Since deep anaphora have no internal structure, it is not possible to have a nominal antecedent inside of one, nor is it possible to extract any material out of one. Take as an example the verbal deep anaphor *do it*. In example (30a), there is no reading available where John talks to a different girl than Tom does; that is, the only possible antecedent for *she* is the new girl that Tom talked to. There is thus no DP in the *do it* anaphor to serve as an antecedent. Likewise, (30b) shows that it is not possible to topicalize a DP out of the anaphor, as could be done in (29a).

(30) **No extraction out of deep anaphora**

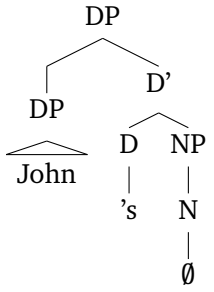
a. * Tom talked to a new girl last night. John did it too, and she was pretty.

b. * The movie I never saw. The play I did it.

Now, let us return to the problem at hand—the difference in grammaticality observed in (31). So far we have seen that in order for VPE in POSS-ing DPs to be licensed, the antecedent must also be located in a POSS-ing DP. If the antecedent is located in any other structural position, then the ellipsis is not possible:

(31) a. I expected John's leaving early because I knew about Mary's __.
b. * I thought John would leave early because I knew about Mary's __.

This is only a problem, however, if this is actually ellipsis. If, rather, examples like (31a) were the result of some hitherto unobserved deep anaphora, we might be able to explain (31b) as being the result of certain licensing conditions on the anaphora[12].



Tree 7: The structure for a deep anaphor analysis. *John* is generated *in situ*.

Given the diagnostics above, we can test this hypothesis, although it proves to be a bit difficult in this domain. Provided that what we are dealing with here is in fact a surface anaphora, the *she* in (32) ought to be able to take as its antecedent the girl with whom John talked.

(32) ? I remember Tom's talking to a girl last night, and I remember John's [~~talking to a girl~~$_i$], too. She$_i$ was pretty.

(33) I remember Tom's talking to a girl last night, and I remember John's [~~girl~~$_i$], too. She$_i$ was pretty.

Judgments about (32) are subtle, and generally hard to get at. Examples like this are quite confounding in that people are much more ready to assume that there is in fact NPE as in (33). It does seem to be generally possible to get the reading as outlined in (32), but it is admittedly less than clear.

The other way we can test whether this is a surface anaphor is by seeing if we can extract anything out of it. Our hands are somewhat tied here due the fact POSS-ings are A'-islands. It is thus not possible to topicalize or wh-move anything out of the VP for independent reasons. The one possible movement out of VP within the confines of the POSS-ing DP is passivization, as shown in (34).

(34) Mary's being seen by the police was surprising, but Tom's [~~being seen by the police~~] wasn't.

This example shows that a D-structure object (in this case *Tom*) can be moved to the subject position in a POSS-ing DP; in other words, some element in the elided structure is clearly being extracted. This is direct evidence for verb phrase ellipsis and not for deep anaphora. We could, of course, claim that there is no movement in these passive examples and that, for some reason, this manner of VP anaphora simply causes the passive subject to be generated in SPECDP. I think, however, this would be a step in the wrong direction. If we do not adopt a movement analysis of passives, then it would be necessary to explain exactly how the so-called possessor comes to be in SPECDP and how it receives a θ-role (see Houser et al. 2007 for similar arguments regarding surface anaphora in Danish). Taken together with the evidence from pronoun antecedents above and the fact that we would expect VPE to be possible in this position as discussed in §3, it seems best to conclude that the missing *v*Ps in these POSS-ing DPs are attributable to VP ellipsis and not some sort of deep anaphora.

[12]Thanks to Luis Vicente for suggesting this hypothesis to me.

3.5 A VPE Typology

As I noted, there are cases where we expect the apparent elision of a *v*P in a POSS-ing to be able to find an antecedent but where this does not happen. In (35) below, I provide examples of the four logically possible kinds of VPE. The distinction between types is based upon whether there is a clausal antecedent or a POSS-ing-internal antecedent, and whether the ellipsis is licensed by T, Aux, or Σ, or by POSS.

(35) **The four logically possible patterns of VPE:**

a. Steve played the guitar and John did __ also.

b. Steve's playing the guitar inspired me and John's __ depressed me.

c. i. % Steve's playing the guitar convinced me to __.

ii. % Steve's playing the guitar convinced me that John should __.

d. * Steve played the guitar because of John's __.

While the other examples are generally acceptable to different degrees, sentences of the form in (35d) are categorically impermissible. The observation is that VP ellipses in POSS-ing phrases are only possible when the antecedent is also in a POSS-ing phrase. More complex are examples like (35c). Grammaticality judgments vary with regard to examples such as these. A fair number of speakers reject them as completely impossible whereas others find them grammatical (or at least acceptable). There seems to be some preference towards ellipses after *to*, as in (35c-i) rather than modals. This varying assymetry is somewhat unexpected, especially since the pattern in (35d) is universally ungrammatical. Whatever the analysis arrived at might be, it needs to account for this asymmetry.

Before we proceed, we need to see that verbal morphosyntax is not the cause of the ungrammaticality of (35d). It could be argued that the ungrammatical cases are the result of the deletion of the verb with the *-ing* suffix. In this case, the badness of the ellipses in cases like (35d) above would result from morphological differences existing between the elided constituent and the antecedent. I turn to this possibility immediately, arguing that it does not provide a satisfactory account of the given data.

4 Morphosyntactic Identity & Locality

4.1 Identity & Recoverability

Depiante & Hankamer (2006), writing on sluicing in Spanish, argue that ungrammatical sluices are the result of "una verdadera falta de identidad en el nivel de la sintaxis entre los morphemas que pertenecen al Sintagma de Tiempo antecedente y aquellos que pertenecen al Sintagma de Tiempo elidido en el nivel de la Estructura Morfológica"[13] (p. 6). That is to say, assuming a post-syntactic theory of morphology like Distributed Morphology (Halle & Marantz 1993), the morphological features of an antecedent and the corresponding sluice must be identical at the level of syntax, before morphology:

(36) **Tense mismatch in slucicing in Spanish**[14] (Depiante & Hankamer 2006, ex. (16a))

* Ayer,	María comió	carne,	pero	mañana,	no	sé	dónde
Yesterday,	María eat.3SG.PST	meat,	but	tomorrow,	NEG	know.1SG.PRES	where

[~~comerá~~ ~~carne~~].
eat.3sg.fut meat

[13]"...a true lack of identity at the level of the syntax between the morphemes that belong to the antecedent TP and those that belong to the elided TP at the level of morphological structure." My translation.

[14]My glosses and translation.

'Yesterday, María ate meat, but tomorrow, I don't know where [~~she will eat meat~~].'

In example (36), the antecedent is in the past tense, but the elided material is in the future, and this is ungrammatical. Hankamer and Depiante explain this as a lack of identity at the level of syntax. Tense and aspect heads are inside of the TP, they note, and as such the sluiced TP does not share identity with the antecedent because the identity condition on the T and Asp heads is not met. Eliding the T node effectively deletes unrecoverable information[15].

Turning back to VPE now, it seems unlikely that there is anything in the *v*P-internal structure that could prevent an ellipsis from happening within POSS-ing phrases. Take for example (22b), reproduced below as (37b). One of the features of VPE in English is that it preserves tense information[16], or in this case, the licensing head (shown in boxes).

(37) a. I thought John $\boxed{\text{would}}$ <u>leave early</u>, and I knew that Mary $\boxed{\text{had}}$ [~~left early~~].

b. * I thought John $\boxed{\text{would}}$ <u>leave early</u>, and I knew about Mary $\boxed{\text{'s}}$ [~~leaving early~~].

In the case of VPE in POSS-ing DPs, the sister to the elided *v*P is POSS, which is not elided because it sits outside of the ellipsis site, and phonologically dependent on the material directly before it (see §4.4). It is a requirement that all verbs selected by this head must be in their present participle, or V+*ing*, forms. The verb's form is the only outward difference between POSS-ing phrases and normal sentences. As the verb's form is enforced by the immediately higher selecting head, POSS, the form should be recoverable based on the remaining POSS head. Of course, contra the discussion above, it could be the case that it is simply the verb's form that is interfering with the ellipsis, but if it were, we would not be able to explain the following examples:

(38) a. Tom has never <u>played chess</u> before, but he is [~~playing chess~~] right now.

b. * I thought John was <u>leaving early</u>, and I knew about Mary's [~~leaving early~~].

Example (38a) is grammatical in spite of the fact that the morphological forms of the verbs are different (and, notice that the elided form is the same as it would be in a gerundive). (38b) is still ungrammatical despite the fact that the morphological forms of the verbs are identical.

There remains one final possibility that the *-ing* suffix seen in the POSS-ing phrases could somehow be some sort of non-verbal *-ing*, and this difference accounts for the ungrammaticality found in examples like (35d) and (37b)(see Borer 1990, for discussion). The attested acceptability of examples such as those in (35c), however, suggests that this should not be the case. The fact that POSS-ing-internal *v*Ps can antecede VPE outside of gerunds lends credence to the notion that the internal structures and morphological features of the *v*Ps are the same. As we shall see presently, this is a crucial bit of evidence, as these marginal examples allow us to more clearly understand the internal structure of POSS-ing DPs.

4.2 Structure

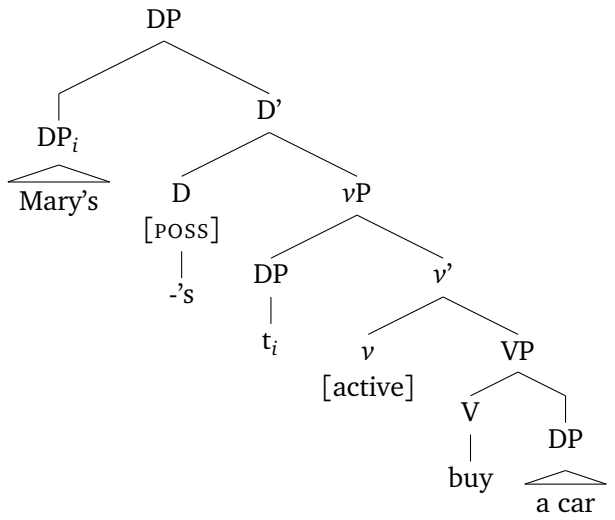
All together, there does not appear to be any obvious element or feature in the verbal structure that would cause a mismatch in the identity between POSS-ing *v*P and one that sits in a TP at the level of

[15]At least one person has pointed out to me that the naïve view of (36) would be that the sluice fails because the verb *comer* occurs in different forms—*comió* in the antecedent and *comerá* in the sluice. A full excursus on the morphology of Spanish verbs and the structure of VPs in that language would not be appropriate here, but following Depiante & Vicente (2010), I assume that the verb head-moves through *v* and Asp, stopping finally at T, and that each of these heads is expressed on the verbal root. The fact that the verb forms are different is thus a consequence of the material in the syntactic derivation, and the ungrammaticality of (36) is the result of the mismatch of that material.

[16]Even where tense is normally spelled out on the verb, do-support ensures that this information is not lost. Thus, the tense information is recoverable

syntax. The difference in the *v*Ps appears to be at the level of morphology. However, even where the morphological form is the same, the ellipsis is still bad. Consequently, we should be able to rule out any *v*P-internal morphological differences preventing an ellipsis from occurring.

It is, of course, possible that my assumptions about the the structure of vP as established at the beginning of the paper were somehow ill-founded. In §2, I argued for the basic structure shown in Tree 8, where vP is the direct complement to D. The presence of the *-ing* suffix on the highest verbal element is the result of morphological requirements in POSS-ing DPs. The resulting structure is that everything under vP in POSS-ings is identical to what we see in TPs.



Tree 8: The basic structure for a POSS-ing DP: "Mary's buying a car"

The problem with examples such as (35d) and (37b) is only actually a problem if the structure of vP is actually the same in both domains. If, in fact, vP was somehow different in POSS-ing DPs, then there would be no reason to expect VPE to be possible across the two. We would instead predict VPE to be impossible when the antecedent and the ellipsis occured in different structures. Such an analysis would fit the typology in §3.5 much more closely than what I have been assuming so far. The question, then, is whether there is some invisible element in the POSS-ing structure—something that we thus far have no evidence for—that makes ellipsis of the type in (35d) impossible.

We can be fairly confident that the structures as described in in §2 are the correct ones, however, and the evidence comes from those examples in (35c), reproduced here as (39):

(39) **VPE after T with POSS-ing-internal antecedents**

a. % Steve's <u>playing the guitar</u> convinced me to __.

b. % Steve's <u>playing the guitar</u> convinced me that John should __.

As discussed, examples like this receive a number of varying judgments from different speakers, and even inconsistent judgments from individual speakers. Some people think that these are perfectly grammatical. Others think they sound funny, and a few more simply refuse to accept them. The fact they are possible (in spite of being somewhat marginal) is a clear sign that the vP structures in the two domains need to be the same. The requirement that the elided structure be the same as the antecedent's at the level of the syntax, as discussed by Depiante & Hankamer (2006), means that this needs to be the case for the examples in (39) to even be a possibility.

One might be inclined to argue that the marginality of such examples is reason enough to simply ignore them. After all, how can we make a strong claim based on evidence that seems, in some sense, funny or somewhat off? We could, instead, pursue the alternative analysis where TPs and POSS-ing DPs differ in their internal structures, and then try to weaken the structural identity requirement in some (hopefully prinicipled) way.

There is an old problem, originally discusssed by Warner (1985), that can lead us to see why we would want to use this material. Warner describes the facts about verbal morphology and ellipsis discussed above, namely that the form of a verb does not affect the validity of an ellipsis. However, this does not obtain, he claims, for auxiliary verbs. In his words: "In cases of ellipsis of a VP after an auxiliary, if the head of the VP in ellipsis is an auxiliary verb, it must show the same morphology as its discourse antecedent, if it is a nonauxiliary verb it may differ from its discourse antecedent in morphology, but not in voice" (Warner 1985, p. 61-62). He reaches this conclusion based on examples such as the following:

(40) **Morphological mismatch of auxiliaries in VPE:** (Warner 1985, §7)

a. * John is happy today, and he often has [~~been happy~~] in the past.

b. * John has probably kissed his grandmother goodnight, but Paul won't [~~have kissed his grandmother goodnight~~] yet.

Lasnik (1995) proposes a solution for this problem, claiming that main verbs are inflected after insertion into the syntactic structure, but that auxiliaries come out of the lexicon fully inflected and that each form is essentially a separate lexical item. This allows him to keep a unified analysis of ellipsis for auxiliaries and main verbs, though he must stipulate that verbal inflection and agreement for auxiliaries is different than it is for main verbs, which is an unappealing consequence.

Potsdam (1997), on the other hand, argues that morphology is not the way to think about the ungrammaticality of examples like those in (40). At the very least, Warner's conjecture is an overgeneralization. Even Warner himself admits that his conjecture is probably too strong. Some people accept the following:

(41) **Morphological mismatch of auxiliaries in VPE:** (Potsdam 1997)

a. He simply won't **be** honest about himself. He never has [~~**been** honest about himself~~] yet.

b. He may **be** thrashed by his father. In fact, from the yells, I think he is [~~**being** thrashed by his father~~].

The main conclusion of Potsdam (1997) is that the ellipsis of auxiliaries with different morphological forms needs to be available in principle, even if it doesn't always result in clearly grammatical results. To emphasize the point, even the marginal cases need to be predicted to be possible. Rather, the badness of many of the examples that Warner writes about fall out from other syntactic properties the constructions might have. In cases like (42), where an auxiliary is raised out of an antecedent, the ellipsis is always ungrammatical. This is a case of verb-stranding VPE, and the cross linguistic generalization about the process is that while it is possible for traces of XP-size elements to exist in antecedents of VPE, it is not possible for traces that are X°-size (Goldberg 2005). Since the form of auxiliaries can change depending on where they are sitting in the tree, the problem only appears to be with the morphology in such cases.

(42) **X° trace in ellipsis:** (Potsdam 1997)

* I **am** [*t* confused about ellipsis]$_{vP}$, and you will [~~**be** confused about ellipsis~~] too.

This explanation readily explains the examples in (40) without predicting that the examples in (41) are ungrammatical. Potsdam is unable to find a straightforward structural explanation for the marginal cases, though he does hypothesize that it is harder to elide auxiliaries because of the sort of functional grammatical information that they carry (recall, too, the discussion in §3.2). Similarity in morphological form may thus help to alleviate the burden of finding an antecedent. The crucial point, though, is that the marginal cases need to be available, and that the marginality may have some alternative explanation.

A very similar result has been shown for examples that are very similar to (39). Arregui et al. (2006) provide evidence for this claim in the domain of subjectless verbal gerundives, which are closely related to POSS-ing DPs, syntactically speaking. These gerundives have the distribution of DPs (they show up in argument positions), they can be modified by adverbs, and their head verbs take the *-ing* suffix, but they have no external argument and no sort of overt determiner. Since these gerundives can show up in argument position, it puts VPs into a syntactic position outside of the place where they are typically found. In their experiments, Arregui et al. (2006) show that ellipses in environments syntactically parallel to their antecedents are easier to find than those that occur in different syntactic environments. The farther one goes down the list in (43), the harder it gets for people to find verb phrase antecedents. The conclusion, then, is that it is harder for people to find the VPE antecedent in subject position in (43b) as opposed to the canonical VP in (43a), but it is possible.

(43) **Progressively degraded VPE antecedents** (Arregui et al. 2006, ex. 9)

a. None of the astronomers saw the comet, but John did.

b. Seeing the comet was nearly impossible, but John did.

c. The comet was nearly impossible to see, but John did.

d. The comet was nearly unseeable, but John did.

This finding supports the idea that marginal ellipses need to be available. In the case of (43b), the location of the antecedent has an effect on how acceptable people judge the example. Crucially, though, people find these grammatical at least some of the time, and these examples are very similar to the examples in (39). Following all of this, then, the ellipses in (39) need to be available in principle—the theory should not predict that they are ungrammatical, but the relative location of the antecedent and the ellipsis site causes them to be somewhat more marked.

What all of this permits us to say is that the structure of vP in POSS-ing DPs must be identical to vP in TPs. Given the structural identity requirement on ellipsis and the the fact that the ellipses in (39) are possible, the structure of vP must be the same in both domains. This, of course, means that (35d) remains a problem. This type of ellipsis is not marginal; it is simply never possible. The same structural identity requirement that tells us that the vPs in POSS-ing DPs are of the same form as in TPs also predicts that VP ellipsis in a POSS-ing with a TP-internal antecedent should be grammatical. This means, though, that it cannot be the syntactic form of the vP that leads to ungrammaticality in examples of type (35d), and so some other type of explanation needs to be developed.

4.3 Locality

Another fact suggesting that the analysis for (35d) lies outside of the verbal syntax is that ungrammaticality of the type under analysis only occurs when the verbal complex is the immediate complement of POSS. Ellipses after other licensing heads remain perfectly licit, even inside the DP. For instance, ellipsis is possible inside of embedded clauses that are found inside POSS-ing DPs:

(44) **Ellipsis in clauses embedded in POSS-ing DPs**

a. John might buy a car, but I didn't know about [Mary's thinking she should __]$_{DP}$.

b. Mary's attempting to solve the puzzle inspired [John's thinking that he should try to __]$_{DP}$ also.

In addition to this, even auxiliaries that are complements to POSS seem to be able to license ellipsis for many speakers, as discussed in §3.2.

(45) **Stranding Auxiliaries in Poss-ing-internal VPE**

a. * John had been eating a bagel, so I expected Mary's ~~[having been eating a bagel]~~.

b. John had been eating a bagel, so I expected Mary's having been ~~[eating a bagel]~~.

Notice that in the in the grammatical examples above, the antecedents are not complements to POSS. If POSS prevented ellipsis everywhere in the DP (i.e. in its c-command domain), we would expect all of the above examples to be ungrammatical, but they are not. Consequently, one can conclude that POSS only blocks the ellipsis of its immediate complement, but it does not block ellipsis in deeper parts of the structure. The restriction is thus very local, only extending to the immediately adjacent verbal complex. The locus of the effects, then, is the possessive determiner itself.

4.4 Prosody

There is no *a priori* reason to assume that the locality condition on D described above is purely syntactic in nature. The validity of an ellipsis has been argued to be influenced by the prosody of the structure in which it occurs. This is hardly surprising, given that ellipsis is the non-pronunciation of syntactic material. The removal of phonological material directly affects the prosody of an utterance, and the syntactic structure of an utterance helps to determine its prosody. Consequently, there would be nothing startling about prosody and ellipsis interacting.

One issue that has been discussed in the literature is how phonologically weak heads might license ellipsis. It seems that the amount of prosodic material around an ellipsis site may have a direct effect on whether or not an ellipsis is permitted to occur or not. Sandy Chung (p.c.) has suggested that examples such as (46) may sound better to some people than ones like (47).

(46) *? John left early yesterday, so I expected Mary's __ today.

(47) * John left early yesterday, so I expected Mary's __.

My investigations so far indicate that examples like (46) still sound rather bad to most people, but they contrast slightly with the examples in (47), where no adverb is found. I have no straightforward explanation for why this may be. Chung suggested that this may be because of the extra phonological material after the ellipsis site, and that this permits some necessary variation in intonation that makes the ellipsis sound better. That is, the possessive *-'s* simply does not provide enough prosodic substance to allow this ellipsis to occur. The following discussion, I think, shows that this cannot be the case.

The question here is whether or not the possessive determiner *-'s* is prosodically substantial enough to permit the ellipsis of its complements. If there is any direct reason to think that it is too weak, then it may be possible to understand the locality effects noted above. Superficially, at least, the examples in (35d) are very similar in appearance to ellipsis after reduced auxiliaries. It has been known for a long time that ellipsis after a phonologically reduced modal or auxiliary is impossible (King 1970). Some of these patterns can be seen in in (48).

(48) **Ellipsis after reduced auxiliaries (The "Harold King facts"):** (King 1970)

a. i. * Joan's taken more from you than Bill's [~~taken~~] from me.

ii. Joan's taken more from you than Bill has [~~taken~~] from me.

b. i. * Who's hungry? John's [~~hungry~~] most of the time, but I'm not [~~hungry~~].

ii. Who's hungry? John is [~~hungry~~] most of the time, but I'm not [~~hungry~~].

However, this really is only superficial. These are not facts about where ellipsis is permitted to happen; rather, they appear to be facts about where phonological reduction can occur. As King himself notes, extraction of a wh-element from a position directly after *be* prevents it from being phonologically reduced. Beyond even this, dialects of English that permit V-to-T movement of possessive (that is, non-auxiliary) *have* do not permit reduction of *have* before an extraction site either[17].

(49) **Extraction from after *be* and *have***

a. i. * I wonder where Gerard's *t* today.

ii. I wonder where Gerard is *t* today.

b. i. * I don't have any of the books which Mary's *t*.

ii. ! I don't have any of the books which Mary has *t*.

The reason this is important is that while the possessive head -*'s* may be in some sense phonologically weak, it isn't phonologically reduced. Since the Harold King facts tell us about reduction, they do not really tell us anything about POSS or about the prosody of ellipsis. So, despite the *prima facie* similarity, it would not be productive to try to tie the facts about locality to the Harold King facts.

Importantly, though, it has been argued that phonologically weak elements do not always permit ellipsis to occur regardless of whether their weakness is the result of phonological reduction or not. A well-known case of this is discussed by Zwicky (1982), where he notes the difficulty in eliding material after the non-finite T "to" in Enlgish.

(50) **Ellipsis after *to*:** (Zwicky 1982)

a. * You shouldn't play with rifles, because to [~~play with rifles~~] is dangerous.

b. You should keep your rifles unloaded because not to [~~keep your rifles unloaded~~] is dangerous.

For Zwicky, *to* is a "prosodic leaner", in the sense that it is prosodically dependent on the phonological material that precedes it, and must therefore "lean" on that material in order to be stranded. In the case of (50a), there is nothing in the immediate domain for *to* to lean on—*because* is too high up the tree. In contrast, *to* can lean on *not* in (50b), and the ellipsis goes through. The head essentially gets sufficient prosodic weight from the material next to it to license the ellipsis.

If *to* ever requires some syntactically close phonological material, then -*'s* certainly must, also. The fact of the matter is that the possessive determiner never occurs without some phonological material on which it can lean. Whether it be in a true possessive DP like *Harvey's pig* or in a POSS-ing DP like those under discussion here, -*'s* will always have something in SPECDP to lean on. If anything, Zwicky's observations show that the possessive should be able to get enough prosodic weight from the preceding material to allow for ellipsis to happen

To my mind, this needs to be the case anyway. If the locality condition really were the result of some prosodic effect, then the fact that the posessive D can *ever* license ellipsis is quite strange. POSS clearly licenses NP ellipsis with no trouble. Recall that there are some instances where we can find ambiguity between a VPE and NPE reading, as in (51a).

(51) **VPE-NPE Ambiguity**

[17]Thanks to Jim McCloskey for verifying this for me.

a. i. Kate's writing a novel inspired Sally's __.
ii. Kate's writing a novel inspired Sally's __.
b. i. * Kate wanted to write a novel because of Sally's __.
ii. Kate wanted to write a novel because of Sally's __.

If prosody really mattered here, then one might expect the prosody before the ellipsis site in each of the examples in (51) to be different. As far as I know, this does not happen[18]. VPE has never been shown to have different prosody from NPE, and to my knowledge, it does not. The fact that there is no correlations between readings in (51) and prosody suggests very strongly that the locality condition on *poss* is not the result of prosody.

The bigger problem for a prosodic account is the contrast in (51b) (reproduced from (26)). If prosody really did make a difference, then we would have to somehow say that the prosody at the ellipsis site that permits (51a-i) to happen is unavailable in (51b-i). I can think of no reason why this should be the case. The only difference between the two, as discussed in §3.3 above, is the category of the head that selects the antecedent of the VPE. There is no reason that this ought to change the prosody of the ellipsis site in such a way as to make the ellipsis impossible.

5 Summary

So far, we have seen that there are a number of facts that need to be taken into account when considering this data. There are no evident *v*P-internal reasons for the ellipses to be bad. Ellipses deeper in the structure are permitted, but the verbal material immediately adjacent to POSS cannot be elided if the antecedent is not itself an immediate complement to POSS. This all points toward the D_{poss} head. It seems that inasmuch as this head licenses the ellipsis of a *v*P, it also severely restricts when it can happen.

Stepping back for the moment from the intricacies of the data, it seems appropriate to discuss the ellipsis-licensing heads at this point. We could think of POSS as a VPE-licensing head in addition to its normal role as a NPE-licensing head, as discussed originally by Lobeck (1995), but this, I think, misses a rather important generalization. It would be better to think of POSS as simply an ellipsis-licensing head. The fact that it doesn't license sluicing, elision of a DegP, or whatever other phrase, is the result of the head's idiosyncratic selectional properties.

Given such an understanding, names like "verb phrase ellipsis" and "noun phrase ellipsis" are really misnomers. Ellipsis licensing heads are simply heads that permit the elision of their complements, whatever that complement may be. What appears to be VPE is actually the amagalmation of ellipses licenced by heads that take verbal complements. T, *v*, and Σ all license *v*P complements. The fact that they generally take one kind of complement, a *v*P, is what results in VPE[19]. Likewise, NPE should

[18] I have talked to several people about this. Many of them have reported that they feel like different intonations just before the ellipsis sites result in different readings; however, judgements about which intonation causes an NP as opposed to a VP ellipsis is entirely inconsistant across speakers. What I think is occuring here has more to do with what material is being focused in the antecedent, as ellipsis has been tied to focus for a long time (Rooth 1992). See Frazier et al. (2007) for further discussion and experimental findings on the focussing of different arguments in the antecedent.

[19] Notice, too, that the verb *be* can elide its non-VP complements too:

i. John was [very afraid]$_{AP}$, and Mary was [~~very afraid~~]$_{AP}$ too.
ii. Clothilde is [a goat]$_{DP}$, and Frederick may be [~~a goat~~]$_{DP}$ too.
iii. Sally was [at the beach]$_{PP}$, and Harvey was [~~at the beach~~]$_{PP}$ too.

It would be strange to propose that each of these represents a different kind of ellipsis—AP ellipsis, DP ellipsis, and PP ellipsis. As the discussion above suggests, it makes more sense to think of these as complement of V ellipsis; the fact that the category

be thought of as a variety of Complement-of-D ellipsis. Since some D's select VPs as complements, DP-internal VPE would be another form of Complement-of-D ellipsis.

With this analysis of ellipsis, it does not make sense to generalize over VPE as a unified process. An individual head licenses the ellipsis of its complement, and the consequence of this may well be that each ellipsis licensing head carries its own idiosyncratic constraints on ellipsis. In this view, the fact that the restrictions on gerundive-internal VPE spring from the POSS head are unsurprising. There is some restriction on T elements in the clausal domain that prevents them from finding an antecedent in a verbal complex locally c-commanded by D. Sadly, there is no immediately obvious explanation for why this constraint should exist. So, while this analysis explains the local effects of D_{poss} on ellipsis, there is no account of why D_{poss} has those effects. In the following section, I turn to some of the other implications that this theory gives rise to, and possible ways of exploring it futher.

6 Implications and Conclusion

If we are to adopt an analysis where restrictions on ellipsis are derived from the head that licenses the elision, then we might be able to explain some of the facts above. There are some more general implications that the above hypothesis makes with regard to what gets elided.

It has been observed in previous work that VP ellipsis is subject to constraints on form both inside and outside of the ellipsis site. Rooth (1992)'s discussion of Fiengo & May (1994) summarizes this view succinctly. Fiengo & May identify two relations between VP ellipses and their antecedents. One is a relation of structural identity that must hold between antecedent and elided VPs. Basically speaking, the structure and content of the VPs must be the same in order for one to be elided. Importantly, Fiengo & May identify yet another relation, which holds over the greater structure in which the VPs occur. Rooth describes this relation as "regulating indices", requiring syntactic isomorphy for the patterns of indices in a tree.

It is fairly obvious that the restriction on clausal antecedents for ellipses in POSS-ing phrases cannot be the same one described by Fiengo & May (1994). If the discussion and analysis of the structure of POSS-ing phrases in §2.3 is at all on track, then one would legitimately expect the structural isomorphy between the DP and TP functional layers to be sufficiently similar. Rather, what is uncovered here is a different syntactic requirement that must hold over the structures that contain antecedent and elided VPs. This constraint is apparently correlated with the category of the licensing head, though for the time being, its full nature is unfortunately unknown.

The conditions on ellipsis of a VP inside of a POSS-ing gerundive are both complex and fascinating. As I have shown, the typical understanding of ellipsis in the syntax simply cannot account for all of the data presented. VPE in POSS-ing DPs is much more restricted than VPE in other domains. This cannot be attributed to VP-internal morphosyntax or to conditions outside of the DP. This leaves the licensing head itself to be the source of the restrictions, and locality conditions on the restrictions point to this being the case. However, moving to an account of ellipsis where heads license the deletion of their complements still raises a number of issues that are not fully resolved here.

One reason that POSS may not allow an ellipsis to find VP antecedents may have to do with its more usual status as the possessive determiner. The fact that it typically selects for NPs may cause speakers to react differently when it selects for a VP. There do not seem to be a great deal of ellipsis-licensing heads in the language that take complements of different categories, but the verb 'be' selects for many phrase types and seems to allow for the ellipsis of all of them. One potential course of investigation would be to see if there are any restrictions on 'be' and the ellipsis it licenses. The question to ask would be

of each of the elided constituents is different is merely the result of the fact that *be* takes many different types of complements.

whether ellipsis after 'be' has different properties depending on the elided constituent. This could help identify reasons why some ellipses are licit while others are not permissible.

Another place for investigation is VPE after other heads. As I have noted many times so far, ellipsis is licensed by T, V_{aux}, and Σ. It would likely be worthwhile to test and see how good ellipses are when the antecedent and the elided constituent are selected by different members of this set of licensing heads to see if there are any restrictions in this domain. If any regularities are discovered, this could help uncover why the mismatch between POSS and other licensing heads exists.

In conclusion, there is still a great deal of work to be done. The problems presented here are only a few of many peculiar questions posed by ellipsis in POSS-ing nominals. The facts, though, point to the ellipsis-licensing head as being the source of a lot of these, and it is these heads that need further investigation.

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