

The Morpho-Syntactic Significance of the Unextractability of English Possessive Pronouns*

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Abstract: This paper examines a constraint on possessor extraction in English. Such extraction has been observed to be acceptable in the colloquial language of some speakers. However, this paper shows that possessor extraction via topic/focus fronting is uniquely banned. I argue that this syntactic fact, as well as certain morphological facts about English possessors, are correctly predicted by the hypothesis that English possessive pronouns are portmanteau morphemes that correspond to a non-constituent unit in the underlying syntax. I also argue that this result reveals that phase spell-out simultaneously subjects entire phases to morpho-phonological evaluation, including phase edges.

Keywords: syntax, morphology, possession, extraction, portmanteau, phases

1 Introduction

In this paper, I examine new facts about English possessive pronouns and their interaction with syntactic movement, which I argue are of significance for several topics in morpho-syntax. The analysis of these facts that I will propose here not only clarifies English-specific puzzles about the morpho-syntactic status of such elements, but also deepens our understanding of certain general principles that govern the relationship between the syntactic and morphological components of the grammar.

This paper extends research initiated by Davis (2020b, 2021), who reports that many English speakers (specifically, 19 of 34 consulted) are capable of a variety of possessor extraction in colloquial speech. This extraction separates the possessor from the Saxon genitive morpheme [*'s*] and the rest of the possessed DP, which are stranded in a lower clause as in (1) below. Davis describes and analyzes a number of limitations on this extraction, such as the fact that it must be cross-clausal, but shows that it is nevertheless a fully productive process:

- (1) *Colloquial English possessor extraction* (Davis 2021, ex. 9)
- a. *Matrix question*
Who₁ do you think [[*t*₁ **'s kid**] ate the most cake]?

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- b. *Embedded question*
I can't remember [**who**₁ I said [[*t*₁'s **friend**] is coming over]].
- c. *Relative clause*
This is the student [**who**₁ they suspect [[*t*₁'s **answers**] were copied]].
- d. *Free relative*
I'll speak to [**whoever**₁ you suggest [[*t*₁'s **idea**] is the best]].
- e. *Cleft*
It's Michelle [**who**₁ we heard [[*t*₁'s **cat**] is the cutest]].
- f. *Topic / focus movement*
John's life is certainly boring, but let me tell you about my cousin Jim. Now [**this guy**]₁, I think [[*t*₁'s **story**] will entertain you].

As we see in (1a-e), such extraction can be achieved by all forms of *wh*-movement. Additionally, many speakers also accept possessor extraction by topic/focus fronting, which is exemplified by (1f). A deeper investigation of topic/focus possessor extraction, and certain important limitations of it, is the basis for this paper.

This research studied this phenomenon further by identifying speakers who corroborate the judgments reported in Davis (2020b, 2021), and using a questionnaire containing a list of relevant test sentences to elicit additional judgments from those speakers about possessor topic/focus fronting. Ultimately, of 17 speakers who accept possessor extraction via *wh*-movement, 14 consulted in this research judged possessor topic/focus extraction to be acceptable. Several more examples of this variety are provided in (2):

- (2) *More examples of possessor topic/focus fronting*
- a. I don't think John's cat is particularly cute, but **Mary**₁, I've always said [*t*₁'s cat] is really adorable.
 - b. My dog is always well behaved. But [**that guy**]₁, I think [*t*₁'s dumb noisy dog] should get kicked out of the park.
 - c. Your mom is, unfortunately, not a great cook. [**My mom**]₁, however, I suspect [*t*₁'s cooking] could win prizes.

Importantly for this paper, these 14 speakers also reported a contrast un-noticed by previous research. Specifically, 12/14 speakers stated that topic/focus extraction of possessive pronouns like *my* is unacceptable,¹ as (3) shows:²

¹The remaining 2 of the 14 speakers rated the configuration in (3) as marginally acceptable, though worse than the examples in (2). Since the majority of speakers do not have this judgment, I will not analyze this point of variation in detail here. One possibility is that these 2 speakers allow a parse involving something like *distributed deletion*, as discussed in footnote 15 below.

²All these examples are acceptable if the possessum is pied-piped in the usual way:

- (i) a. Your cooking is, unfortunately, not great. [**My cooking**]₁, however, I suspect *t*₁ could win

- (3) *No extraction of possessive pronouns by topic/focus fronting*³
- a. * Your cooking is, unfortunately, not great. **My**₁, however, I suspect [*t*₁ ('s) cooking] could win prizes.
 - b. * I don't think John's cat is particularly cute, but **our/your**₁, I've always said [*t*₁ ('s) cat] is really adorable.
 - c. * My dog is always well behaved. But **his/her/their**₁, I think [*t*₁ ('s) dumb noisy dog] should get kicked out of the park.

I argue that the contrast between sentences like (2) and (3), as well as other examples that we will see in subsequent sections, sharpen our understanding of both English-specific puzzles as well as several more general topics in the theory of morpho-syntax.⁴

1.1 Main proposals

1.1.1 English possessive pronouns as portmanteau morphemes

The first main proposal of this paper is about the morpho-syntax of English possessive pronouns. I will assume following previous literature (Abney 1987; Corver 1992; Chomsky 1995b; Munn 1995) that English possessors are externally merged in the specifier of D. In the presence of typical possessive phrases, this D is expressed by the Saxon genitive morpheme ['s], as diagrammed in (4):

-
- prizes.
 - b. I don't think John's cat is particularly cute, but [**our/your cat**]₁, I've always said *t*₁ is really adorable.
 - c. My dog is always well behaved. But [**his/her/their dumb noisy dog**]₁, I think *t*₁ should get kicked out of the park.

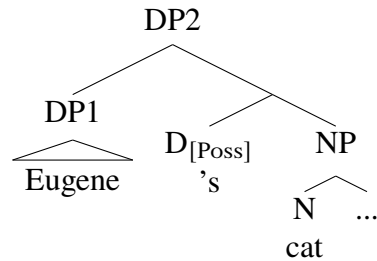
³For the sake of exhaustiveness the examples in (3) also show that attempting to strand an ['s] cannot improve this configuration, though since most possessive pronouns clearly do not co-occur with ['s] this would not be expected to be necessary anyway. See section 4 below for further discussion.

⁴The 3/17 speakers who did not accept possessor extraction via topic/focus fronting did accept similar extraction via clefting, but reported that clefting cannot achieve extraction of possessive pronouns:

- (i) a. It's [my MOTHER]₁ that I suspect[[*t*₁'s cooking] could win prizes].
- b. * It's MY₁ that I suspect[[*t*₁('s) cooking] could win prizes].

Though revealed by different means, this is precisely the same contrast that we see in speakers who allow possessor extraction by topic/focus fronting. This fact strengthens the significance of this contrast and shows that what we are dealing with here is a general limitation on possessor displacement, rather than a contrast specifically endemic to topic/focus movement.

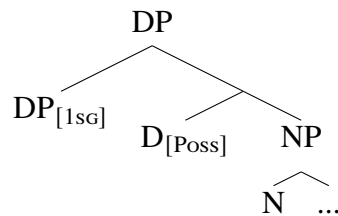
(4) *Full DP possessor in specifier of ['s]*



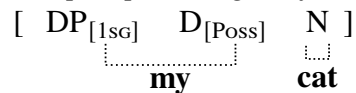
In contrast, building on suggestions in Hudson (2003) and Deal (2006) I will argue that English possessive pronouns like *my* are portmanteau morphemes, which simultaneously express multiple syntactic nodes. Specifically, I will argue that these morphemes express both the possessive D and the pronoun in its specifier at the same time, as in (5) below:

(5) *Possessive pronoun portmanteau*

a. *Structure*



b. *Morpho-phonological form*



I formalize this proposal in the context of Distributed Morphology (Halle and Marantz 1993; Harley and Noyer 1999, a.o.) via the *spanning* operation, which allows one morpheme to stretch across multiple adjacent syntactic nodes (Bye and Svenonius 2012; Merchant 2015; Haugen and Siddiqi 2016; Svenonius 2016; Middleton 2020).

Syntactic movement operations like *wh*-movement and topic/focus fronting are forms of phrasal movement, which we only expect to be possible for syntactic constituents. However, notice that a pronoun and a D whose specifier it occupies do not form an exclusive syntactic constituent: the only phrase that contains both of those elements is the possessive DP as a whole, as we see in (5a) above, though this node also contains NP. The fact that a possessive D and a pronoun in its specifier do not form an exclusive constituent leads us to the prediction that if English possessive pronouns are indeed portmanteau morphemes that simultaneously express these two syntactic elements, then such pronouns should be unavailable for movement. We have seen in (3) above that this is correct.

Beyond making the right syntactic predictions, I argue that this analysis also makes desirable predictions about the morphology of English possessive pronouns. Furthermore, I argue that these findings strengthen the evidence that portmanteau forms arise via a morphological mechanism like *spanning*, which can operate over non-constituents. This

result is importantly in contradiction to claims by research in the *Nanosyntax* framework (Starke 2009; Caha 2009, a.o.), for which portmanteau phenomena are handled by allowing morphological realization of phrasal (but never non-constituent) nodes.

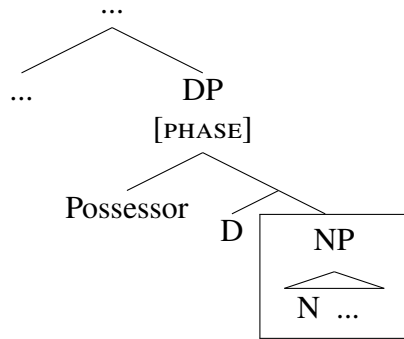
1.1.2 On the nature of the syntax-morphology mapping

The second main proposal of this paper is about the general nature of the syntax-morphology relationship. Much research in syntactic theory has argued that syntactic derivations proceed chunk-by-chunk or cycle-by-cycle, given the evidence that syntactic operations like movement are derived in a punctuated, step-by-step fashion (Chomsky 1973, 1977, 1986; Du Plessis 1977; Henry 1995; Cole and Hermon 2000; McCloskey 2000, 2001, 2002; Nissenbaum 2000; Legate 2003; Sauerland 2003; Bruening 2001, 2006; Barbiers 2002; Abels 2003, 2012; Wiland 2010; Henry 2012; van Urk 2015; van Urk and Richards 2015; Davis 2020a, 2021). Much recent work in this vein has followed Chomsky (2000, 2001) in attributing this property of syntactic derivations to *phases*. These are taken to be constituents (generally CP, vP, and sometimes DP) which demarcate grammatical cycles due to the way that they connect the structure built so far to the components of the grammar responsible for interpretation and morpho-phonological form. In Chomsky's terms, this is achieved through phase-by-phase applications of the operation *spell-out*. I argue that the analysis of English possessive pronouns discussed above has significant implications for theories about the way that phase spell-out relates syntactic structures to morpho-phonology.

In phase theory, it is hypothesized that syntactic structures are only assigned morpho-phonological form at the time they are subject to spell-out. Much research in the Distributed Morphology framework has taken this hypothesis very seriously, arguing that spell-out and thus morpho-phonological processes like stress assignment and allomorphy indeed occur in phase-by-phase fashion (Marvin 2003; Embick and Marantz 2008; Embick 2010; Newell 2008; Newell and Piggott 2014; Moskal 2015; Moskal and Smith 2016). However, there are multiple proposals about the nature of phase spell-out. In this paper, I will adjudicate between two competing proposals about spell-out in recent syntactic research.

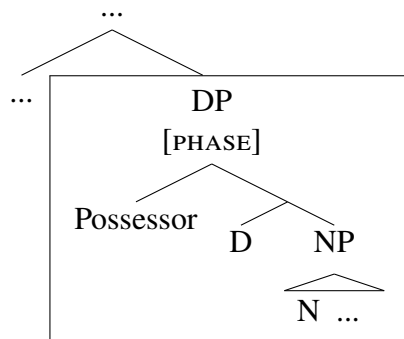
In the version of phase theory in Chomsky (2000), which is adopted by a great deal of syntactic literature, it is hypothesized that once a phase is built, spell-out applies to its complement. Since the morpho-syntax of the DP is most relevant for this paper, here I will hypothesize that DP is a phase (Heck and Zimmermann 2004; Bošković 2005, 2016; Newell 2008; Newell and Piggott 2014; Syed and Simpson 2017; Simpson and Park 2019, a.o.). For Chomsky (2000), if DP is a phase, then when a DP is constructed its complement NP will spell-out, as diagrammed in (6). Notice that for this theory, a possessor in spec-DP is not subject to spell-out at this time:

(6) *Phase theory #1: When DP is built, only NP spells-out*



In contrast, a different proposal about spell-out is made by works in the phase framework often termed *cyclic linearization* (Fox and Pesetsky 2005a,b; Takahashi 2004; Ko 2007, 2011, 2014; Müller 2007; Sabbagh 2007; Podobryaev 2009; Takita 2010; Fanselow and Lenertová 2011; Jenks 2011; Medeiros 2013; Overfelt 2015; Erlewine 2017; Davis 2020a, 2021, a.o.). Such works hypothesize that when a phase is built, the entire thing spells-out and is thus evaluated by the morpho-phonological component of the grammar, as diagrammed in (7). Research in this vein argues that this finding is revealed by the way that spell-out assigns linear order to the content of phases, but this reasoning also makes the prediction that as soon as a DP is built, all of its content will be assigned morphological form—including a possessor in its specifier, if present.

(7) *Phase theory #2: Simultaneous spell-out of the entire DP*



In this paper, I will argue that the second of these two theories of spell-out is correct. In brief, I will argue that if spell-out only applied to phase complements, then we would predict certain patterns of pronominal possessor extraction that are in fact unattested. By hypothesizing that entire phases spell-out at once, we accurately predict that formation of a possessive portmanteau happens before movement has a chance to occur, as we'll see.

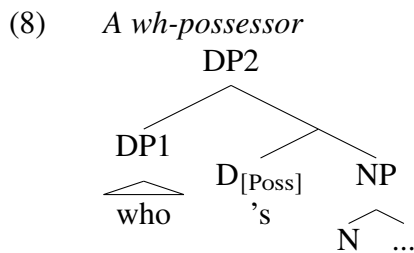
1.2 Paper contents

Section 2 provides background on the syntax of possession and the extraction of possessors. Section 3 presents the analysis of possessive pronouns as portmanteau morphemes which

correspond to unextractable non-constituents. Section 4 discusses additional facts which I argue reveal that full phases spell-out at once, assuming the phasehood of DP. Section 5 relates this analysis to facts about coordinated possessors. Section 6 concludes.

2 Background: Possessor syntax and extraction

As mentioned above, I follow previous work in assuming that a possessor DP sits in the specifier of a possessive D, whose usual form is [*'s*]. Under this analysis, the word *whose* consists of the *wh*-phrase *who*, and the possessive D which it is in the specifier of:



This account predicts the well-known fact that *whose* cannot be extracted, as shown in (9) below. This word corresponds to two elements that do not form an exclusive constituent—the possessive D and its specifier. Therefore we expect *whose* to be immobile, as pointed out by Corver (1992).

- (9) *No extraction of “whose”*
- a. * Mary is the author [_{CP} **whose**₁ they said [[_t₁ **new book**] is good]].
 - b. * **Whose**₁ did you say we should buy [_t₁ **cookies**]?

For the same reason, any other possible combination of possessor DP and [*'s*], which will never comprise a constituent, cannot be extracted:

- (10) *No extraction of DP+[*'s*]*
- a. * [**Which kid's**]₁ should we buy [_t₁ **cookies**]?
 - b. * **Timmy's**₁ we should buy [_t₁ **cookies**].

In contrast, since a possessor in spec-DP is itself a constituent, we predict the possibility of extracting a possessor and stranding D below. As we saw above, in the colloquial register of some English speakers, this prediction is verified.

- (11) *English possessor extraction stranding [*'s*]*
- a. **Who**₁ do you think [[_t₁'s **kid**] ate the most cake]?
 - b. I can't remember [[**which student**]₁ you said [[_t₁'s **homework**] got thrown away]].

My analysis of the unextractability of English possessive pronouns will use fundamentally the same logic as Corver's solution for the unextractability of *whose*, as we'll see in section 2.⁵

Davis (2020b, 2021) argues that what differentiates English grammars that do and do not allow such possessor extraction is the evaluation timing of a phonological adjacency requirement of the clitic [*'s*]. Various works attribute the typical illicitness of possessor extraction in English to a phonological requirement which rejects movement that separates a possessor from the possessive D (Chomsky 1995b; Radford 1997; Gavruseva 2000; Gavruseva and Thornton 2001, a.o.). Indeed, Gavruseva argues that adjacency requirements of this variety play an important role in constraining possessor extraction cross-linguistically. Davis (2020b, 2021) builds on this general idea to account both for the difference between English grammars with and without possessor extraction, as well as various details about when such possessor extraction can occur. One such detail noted in the introduction is that such possessor extraction must cross a clause boundary. (See Davis 2021, p. 296, ex. 11.) I have controlled for this constraint in the test sentences analyzed in this paper, which all involve cross-clausal movement.

As we saw in the introduction, topic/focus fronting can extract a possessor. But we also saw that this is not possible for possessive pronouns, as (12) shows once again:

- (12) *No extraction of possessive pronouns by topic/focus fronting*
- a. * Your cooking is, unfortunately, not great. **My**₁, however, I suspect [*t*₁ ('s) cooking] could win prizes.
 - b. * I don't think John's cat is particularly cute, but **our/your**₁, I've always said [*t*₁ ('s) cat] is really adorable.
 - c. * My dog is always well behaved. But **his/her/their**₁, I think [*t*₁ ('s) dumb noisy dog] should get kicked out of the park.

There would be no puzzle here if English pronouns were generally incapable of topic/focus fronting, but this is not so, as (13) demonstrates:

- (13) *Topic/focus fronting usually possible for English pronouns*
- a. I don't like you, but **him**₁, I like *t*₁.
 - b. Mary is very well-groomed, but **you**₁, I think should *t*₁ bathe a lot more often. You stink!
 - c. I don't care how you talk to other people, but **me**₁, you gotta respect *t*₁! I'm the boss!

Therefore the unextractability of English possessive pronouns represents a genuine puzzle.

⁵Of course, *who* is arguably a pronoun. The account I will offer in this paper does not predict that possessive pronouns should be generally unextractable: this constraint should only hold for possessive pronominal morphemes that express a non-constituent. Since *who* is not a portmanteau, its extractability is expected. As we'll see, since it happens to be the case that non-*wh* possessive pronouns in English are portmanteau morphemes, they are immobile.

In the next section, I argue that this fact is correctly predicted by the hypothesis that English possessive pronouns are portmanteau morphemes that correspond to non-constituents and thus are immobile. The remainder of the paper discusses some consequences and extensions of this analysis.

3 Possessive pronouns as non-constituent spans

While full DP possessors are immediately followed by [*'s*], most possessive pronouns clearly occur without this morpheme (though see footnote 6 on *his* and *its*).⁶

(14) *English possessive pronouns*

- a. my(*'s) food
- b. our(*'s) food
- c. your(*'s) food
- d. his food
- e. her(*'s) food
- f. its food
- g. their(*'s) food

Deal (2006) notes two potential analyses of this fact: morphological merger of [*'s*] with the pronoun (Hudson 2003), or deletion of [*'s*] in the presence of a pronoun (Huddleston and Pullum 2002). Below I discuss the predictions of both of these proposals, rephrasing them slightly to be compatible with the hypothesis that [*'s*] corresponds to possessive D. As previewed above, I will ultimately argue in favor of a version of the morphological merger analysis, which I will re-cast as involving portmanteau formation via spanning.

⁶The only possessive pronouns for which the absence of [*'s*] is unclear are *his* and *its*. It is conceivable that we might decompose these into *he* + *'s* and *it* + *'s*. If this is the case, then we should be able to extract *he* or *it*, stranding [*'s*] below. As (i) shows, this is in fact impossible:

- (i) a. * I don't think Mary's cat is particularly cute, but take a look at John's. **He**₁, I've always said [*t*₁ 's cat] is really adorable.
- b. * Your computer is slow, but mine is very fast. **It**, I think [*t*₁ 's processor] costs more than your car.

In the context of the analysis presented here, this fact indicates that *his* and *its* are not synchronically decomposable, but rather are portmanteau forms just like the rest of the possessive pronouns under consideration here. Consistent with this analysis is the fact that *his* and *its* cannot be fronted. For the first of these elements, we have seen this fact in (3c) above. For the latter, see (ii):

- (ii) * Your computer is slow, but mine is very fast. **Its**, I think [*t*₁ processor] costs more than your car.

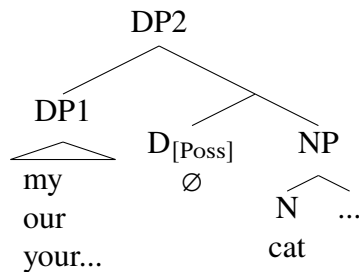
3.1 Against a deletion analysis

First I will discuss why an [’s]-deletion analysis does not make the correct predictions. The hypothesis that [’s] deletes in the presence of a pronoun can be understood as the result of a rule of contextual allomorphy. In Distributed Morphology, rules of contextual allomorphy can be described by specifying that certain rules of Vocabulary Insertion (VI) can only assign a particular morpho-phonological form to a given element when in the appropriate context. The relevant rules for the hypothesis under consideration are shown in (15) below. The rule in (15a) states that the possessive D receives a null exponent when to the right of a pronoun, and the rule in (15b) states that the possessive D is expressed as [’s] otherwise:

- (15) *VI rules for possessive D in English, assuming null allomorphy with pronouns*
- a. $D_{[POSS]} \leftrightarrow \emptyset / [\text{Pronoun } _]$
 - b. $D_{[POSS]} \leftrightarrow 's / \text{elsewhere}$

If the disappearance of [’s] in the presence of a pronoun is due to a rule like (15a), then the morpho-syntactic structure for a DP containing a possessive pronoun would be as in (16) below. Here we see a possessive pronoun sitting in the specifier of DP, whose head happens to be silent due to the above allomorphy rule. I argue that this analysis does not make the right predictions.

- (16) *Possessive pronoun and silent D (Incorrect analysis)*



This analysis is incorrect for the following reason: If English possessive pronouns simply correspond to DP constituents sitting in the specifier of a coincidentally silent D, nothing should prevent their extraction. However, we have seen that unlike other possessors, these possessive pronouns are unextractable. I will therefore pursue a different analysis.

3.2 In favor of a portmanteau analysis

Deal (2006) cites Hudson (2003) for the proposal that English possessive pronouns and [’s] are united via a process like contraction or morphological merger. I argue that such an analysis, which treats English possessive pronouns as portmanteau morphemes, makes the correct syntactic predictions.⁷ Specifically, by following previous literature in considering

⁷Deal (2006) argues that a deletion analysis best captures the fact that some speakers permit forms like *your all’s / your guys’*, which she suggests involve the pronoun receiving genitive morphology, with the intervening element bleeding the rule that would normally delete [’s]. Deal notes that not all speakers allow

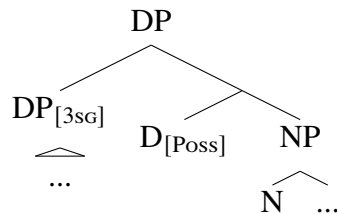
[’s] a realization of possessor-selecting D, this analysis necessitates stating that the relevant morphological merger operation creates a portmanteau form that expresses a non-constituent syntactic unit—a possessive D and the possessor in its specifier. From this basis, we accurately predict the immobility of English possessive pronouns.

However, neither Deal nor Hudson discuss in detail how this morphological analysis might be implemented. As previewed above, I will implement this analysis in the context of Distributed Morphology. As discussed in section 1, for this theory syntactic structures begin their life as abstract representations that lack morpho-phonological information. Rather, that information is assigned later on by VI rules, which apply when the structure in question is spelled-out (in phase-by-phase fashion) to the morpho-phonological component of the grammar. A given VI rule can only apply when it matches all, or a subset of, the syntactic features present in the context of insertion. I assume that a single VI rule can simultaneously express multiple syntactic elements via the spanning operation (Bye and Svenonius 2012; Merchant 2015; Haugen and Siddiqi 2016; Svenonius 2016; Middleton 2020). For concreteness, I will also assume that word order assignment (linearization) precedes the application of VI rules (Embick 2010; Arregi and Nevins 2012; Haugen and Siddiqi 2016; Ostrove 2018, a.o.).

As previewed above, I assume that usual possessive DPs sit in the specifier of a D realized by its default form [’s], as the derivation below shows:

(17) *Typical possessive structure*

a. *Build structure*



b. *Linearize*

[DP_[3sg] D_[Poss] N]

such forms, and thus suggests that speakers vary between a deletion analysis and a morphological merger analysis. If the extraction ban I focus on in this paper also holds for speakers who are capable of possessor extraction and who allow forms like *your all’s / your guys’*, then this would suggest that the morphological merger analysis is universally correct. This would entail that another factor is responsible for generating these forms. One possibility is that the forms Deal notes are exceptions that are not the result of fully productive morphological rules. As this hypothesis might lead us to predict, in my judgment *your guys’* is marginal, but the use of the possessive pronoun with [’s] in several other analogous contexts is clearly illicit:

- (i) a. We/us/*our students’ rights are being violated.
- b. You/*your two’s cake was the best one at the picnic.
- c. You/*your people’s ideas are all nuts.

However, further empirical research on this topic is needed. See also the facts in (22) below.

- c. *Assign form*
- | | | |
|-----------------------|---------------------|-----|
| [DP _[3SG] | D _[POSS] | N] |
| John/who | 's | cat |

Since the morphology of such possessors straightforwardly corresponds to a phrase in spec-DP, the extractability of such possessors is accurately predicted.

- (18) *Extractability of typical possessors*
- a. **Who**₁ do you think [*t*₁'s kid] ate the most cake?
 - b. **Mary**₁, I've always said [*t*₁'s cat] is really adorable.

In contrast, under my analysis pronominal possessive morphemes simultaneously express a possessor pronoun and possessive D, with a single portmanteau form. For concreteness, in (19) below I state the VI rules necessary to allow such morphemes to span across these elements:

- (19) *VI rules for English possessive pronominal morphology*
- a. [DP_[1SG] D_[POSS]] ↔ my
 - b. [DP_[1PL] D_[POSS]] ↔ our
 - c. [DP_[2SG] D_[POSS]] ↔ your
 - d. [DP_[2PL] D_[POSS]] ↔ your
 - e. [DP_[3SG] D_[POSS]] ↔ its
 - f. [DP_[3SG, M] D_[POSS]] ↔ his
 - g. [DP_[3SG, F] D_[POSS]] ↔ her
 - h. [DP_[3PL] D_[POSS]] ↔ their

A representative derivation is provided in (20) below. Here the initial hierarchical structure in (20a) is linearized as in (20b), after which VI rules apply in (20c). In (20c) the 1st person singular pronoun and the possessive D that it has been linearized next to are expressed together via the portmanteau form *my*.

- (20) *Possessive portmanteau derivation*
- a. *Build structure*
- ```

graph TD
 DP --> DP1SG[DP[1SG]]
 DP --> NP
 NP --> DPOSS[D[POSS]]
 NP --> N
 N --> ellipsis[...]

```
- b. *Linearize*
- |                       |                     |     |
|-----------------------|---------------------|-----|
| [ DP <sub>[1SG]</sub> | D <sub>[POSS]</sub> | N ] |
|-----------------------|---------------------|-----|

- c. *Assign form*
- |   |                     |                     |     |   |
|---|---------------------|---------------------|-----|---|
| [ | DP <sub>[1sg]</sub> | D <sub>[Poss]</sub> | N   | ] |
|   | └───┬───┘           |                     | └─┘ |   |
|   | my                  |                     | cat |   |

Importantly, this analysis captures the fact that such possessive forms cannot be extracted: morphemes like *my* do not correspond to a constituent, and thus are immobile.

- (21) *No extraction of possessive pronouns by topic/focus fronting*  
 \* Your cooking is, unfortunately, not great. **My**<sub>1</sub>, however, I suspect [*t*<sub>1</sub> ('s) cooking] could win prizes.

The literature on spanning generally assumes that the elements expressed together by a portmanteau morpheme must be structurally contiguous. This hypothesis accurately predicts the fact that a pronoun which is linearly adjacent to a possessive D, but separated from it by additional structure, cannot trigger use of a portmanteau possessive form (22):

- (22) *Linear adjacency is not sufficient for use of a possessive portmanteau*
- a. The picture of ?**them's/\*their** frame is really ugly.
  - b. You don't seem like yourself today. The real ?**you's/\*your** baking skills are much better.
  - c. Won't you submit little old ?**me's/\*my** cake to the baking contest?

This analysis also predicts the fact that the morpheme ['s] is absent from these possessive forms (though see footnote 6 above about *his* and *its*). If a given syntactic node can only be morpho-phonologically expressed one time (Halle and Marantz 1993; Bobaljik 2000; Arregi and Nevins 2012; Coon and Keine 2020), when a portmanteau possessive form realizes both D and a possessor, it will not be possible for D to be expressed independently.<sup>8</sup>

### 3.3 More on spanning and pronoun structure

Works using Distributed Morphology generally assume that each morpheme corresponds to one syntactic terminal node, and never a non-terminal node or a non-constituent unit. Works adopting spanning argue that this assumption must be revised in order to allow multiple syntactic terminals to be expressed by one morpheme. However, the works on spanning cited above nevertheless speak about one morpheme spanning across multiple terminals, and not across phrasal nodes. Notice that in (20c) above, however, I have posited that English possessive pronominal morphology does indeed span across a possessor pronoun DP as well as the D that selects it.

As far as I know, there is no empirical reason to outright reject the possibility of spanning, or an equivalent mechanism, expressing a head and a phrasal node together. However,

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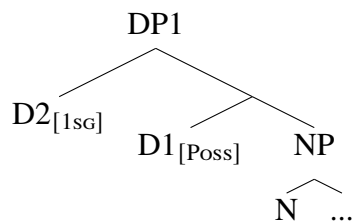
<sup>8</sup>This fact could also be understood as an effect of the *Minimize Exponence* principle (Siddiqi 2009; Haugen and Siddiqi 2016), which prefers derivations that realize a given structure with the smallest possible number of morphemes.

maintaining that this is impossible is not a problem for the above analysis, provided that we take adopt a different perspective on the syntax of pronouns.

In many languages like English, pronouns are a closed class of functional elements that plausibly lack a lexical (NP core), as several works have suggested (Postal 1969; Abney 1987; Baltin 2012).<sup>9</sup> If this is so, then the spanning configuration necessitated by this analysis falls in line with typical proposals about spanning and the application of VI rules more generally. A revised possessive portmanteau derivation that reflects this shift in analysis is provided in (23):<sup>10</sup>

(23) *Possessive portmanteau derivation: Revised*

a. *Build structure*



b. *Linearize*

[ D2<sub>[1SG]</sub> D1<sub>[Poss]</sub> N ]

c. *VI rules*

[ D2<sub>[1SG]</sub> D1<sub>[Poss]</sub> N ]  
                   my                  cat

If pronouns are indeed non-projecting heads, then the possibility of an alternative analysis arises: It could be that English possessive pronouns are immobile not because they correspond to non-constituents, but because as heads they are incapable of long-distance phrasal movement (Travis 1984). However, if pronouns are in general bare D heads, this cannot be correct: We've seen in (13) above that English pronouns are usually mobile. Under a *bare phrase structure* approach to labeling (Chomsky 1995a,b, a.o.) a non-projecting head is its own maximal projection, and thus should be capable of phrasal movement. In this case, pronouns should be generally mobile even if they are non-projecting determiners. Since pronouns are indeed usually mobile as in (13) regardless of how exactly we choose to analyze them, I maintain that possessive pronoun extraction is illicit for the reasons already stated above.

<sup>9</sup>While my analysis necessitates a proposal of this variety for English, there is likely a significant degree of cross-linguistic variation in pronoun structure (Déchaine and Wiltschko 2002).

<sup>10</sup>It is also possible that English possessive pronouns originate as full DPs, but are reduced to bare D heads via a process like morphological impoverishment (Halle and Marantz 1993; Harley and Noyer 1999). In this situation, spanning should be able to occur to the structurally impoverished pronoun post-impoverishment.

### 3.4 Against a Nanosyntactic approach to portmanteau formation

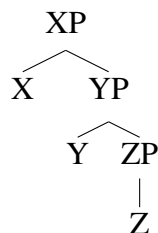
To achieve portmanteau formation, much literature using Distributed Morphology appeals to a mechanism of *fusion*, which unites multiple terminal nodes into one before VI rules apply. While a fusion analysis is potentially compatible with the arguments of this paper, I set this discussion aside until the next section. Before that, here I discuss a separate morpho-syntactic framework which I argue is not compatible with these results: Nanosyntax (Starke 2009; Caha 2009, 2017b,a, 2018, 2019; De Clercq and Wyngaerd 2017, a.o.).

Work in Nanosyntax frequently posits what are in essence portmanteau morphemes, but derives them by mechanisms that are quite different than what is often assumed in work using Distributed Morphology. In classical Distributed Morphology VI rules apply terminal-by-terminal, assigning to each the morpheme that matches the largest subset of features that the terminal in question has. In contrast, Nanosyntax adopts precisely the opposite view. Specifically, Nanosyntax posits that morpho-phonological form can be assigned to non-terminal nodes, and that the morpheme assigned to a given node is the one that matches the smallest superset of the features that node contains. Both of these frameworks are designed to force selection of the morpheme that best fits the context of insertion, though they do so in very different ways.

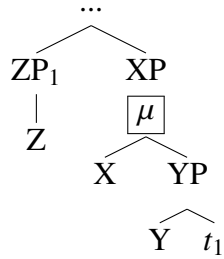
Nanosyntax lacks a post-syntactic mechanism like spanning or fusion that can result in two elements that originally did not form a constituent being morphologically expressed together. In fact, Nanosyntactic research attempts to eschew such post-syntactic morphological operations in general. Instead, Nanosyntax frequently appeals to syntactic movement as a means of creating the configurations needed to achieve the right morphological results. To get a sense of how this system functions, consider what would be necessary to achieve insertion of a hypothetical morpheme  $\mu$ , specified as expressing X and Y, in the structure in (24a) below. Nanosyntactic assumptions allow us to attempt to insert  $\mu$  at a phrasal node in this tree. However, none of them are appropriate. Assignment of  $\mu$  at XP would not satisfy the subset principle, since XP contains an element Z, which is not a subset of the features  $\mu$  is specified for. The same problem applies to YP, which is an even worse candidate since it does not contain X. Insertion at ZP fails because ZP contains no relevant features whatsoever. An environment appropriate for  $\mu$  can be derived by moving ZP to a higher position, as in (24b). In the absence of ZP, the node XP contains only the heads X and Y, and therefore fulfills the conditions for the insertion of  $\mu$ .

(24) *Given a morpheme  $\mu$  specified for X and Y...*

a. *Build structure*



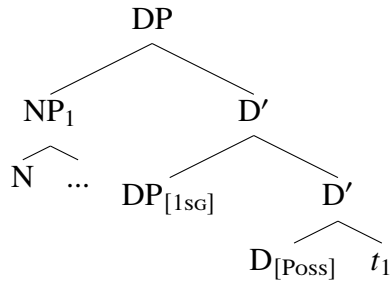
- b. *Move ZP, assign  $\mu$  to XP*



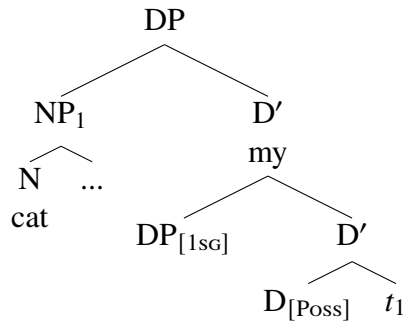
With these considerations in mind, consider English possessive pronouns once more. Under a Nanosyntactic analysis, the only way for a possessive D and a pronoun in its specifier to be expressed by one morpheme would be for NP to move to a higher position, as in (25a) below. In the absence of NP, we end up with a segment of DP that contains only the desired nodes. However, notice that this movement of NP incorrectly predicts that in this situation, N will be pronounced linearly preceding the possessor. This is shown in (26), which shows how VI would proceed in this configuration. This state of affairs is unavoidable since Nanosyntactic research explicitly adopts the Linear Correspondence Axiom (Kayne 1994), for which c-command relationships are directly responsible for determining linear order. The only way to avoid the problem here would be to assume that after (25b), additional movement brings the segment of DP that has been assigned possessive pronoun morphology to a higher position, as in (25c):

- (25) *Possessive portmanteau derivation under Nanosyntactic assumptions*

- a. *Build structure, move NP*

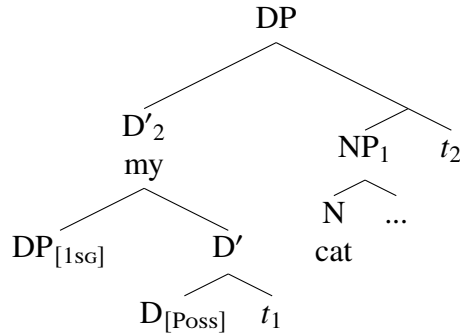


- b. *Apply VI rules*





c. *More movement*



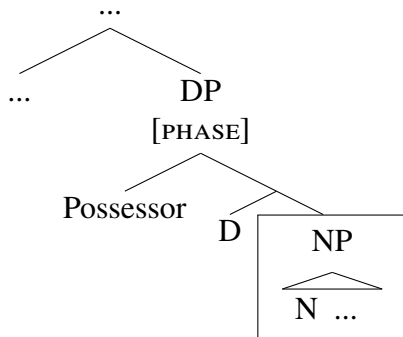
Since there is no independent motivation for any of the movements that are necessary here, it is clear that a Nanosyntactic analysis faces considerable challenges in accounting for the facts discussed in this paper.

## 4 On the nature of spell-out

In this section, I use further facts about the limitations of English possessor extraction to adjudicate between two proposals about the nature of the syntax-morphology relationship. As summarized in the introduction, a great deal of research has followed Chomsky (2000, 2001) in pursuing the hypothesis that syntactic structures are evaluated by the morpho-phonological (and semantic) components of the grammar cycle-by-cycle. In Chomsky's terms, these cycles are *phases*. Current research adopting phase theory most commonly assumes that CP, vP, and DP are phases. In this section I will hypothesize the phasehood of DP, since as we'll see, this will straightforwardly lead us to the correct predictions.

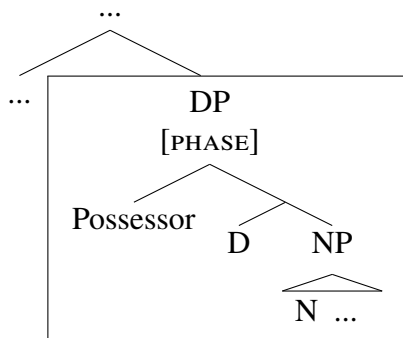
Chomsky (2000) argued that when a phasal phrase is built, only its complement is spelled-out. Therefore for this theory, when a DP is built only NP is subject to spell-out, as signified by the box in the diagram in (26) below. By hypothesis, after this process occurs only NP will have been assigned morpho-phonological form. The rest of the material in DP, including any possessor that happens to have been merged into spec-DP, will not be spelled-out until the next highest phase (presumably a vP or CP) spells-out.

(26) *Phase theory #1: When DP is built, only NP spells-out*



In contrast, a different proposal about spell-out is made by works in the phase framework often termed *cyclic linearization* (Fox and Pesetsky 2005a,b; Takahashi 2004; Ko 2007, 2011, 2014; Müller 2007; Sabbagh 2007; Podobryaev 2009; Takita 2010; Fanselow and Lenertová 2011; Jenks 2011; Medeiros 2013; Overfelt 2015; Erlewine 2017; Davis 2020a, 2021, a.o.). Such works hypothesize that when a phase is built, all of its content spells-out and is thus evaluated by the morpho-phonological component of the grammar, as diagrammed in (27). Research in this vein argues that this fact is revealed by the way that spell-out assigns linear order to the content of phases. This reasoning also makes the prediction that as soon as a DP is built, all of its content will be assigned morphological form—including a possessor in its specifier, if present.

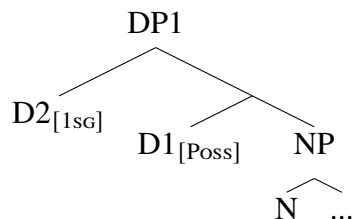
(27) *Phase theory #2: Simultaneous spell-out of the entire DP*



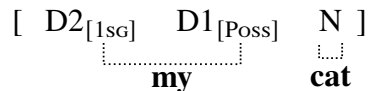
My analysis of the immobility of possessive pronouns in English provides a way of adjudicating between these two phase theories. Above, I proposed that the possessive pronominal forms under discussion are portmanteau morphemes which express both a possessor pronoun and possessive D via spanning:

(28) *Possessive pronoun portmanteau*

a. *Initial structure*



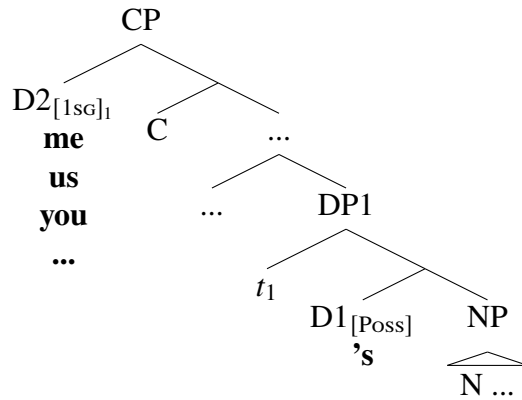
b. *Morpho-phonological form*



In phase theory, and Distributed Morphology more generally, it is argued that morpho-phonological form is not assigned to syntactic material until it spells-out. This means that the portmanteau morphology that expresses D and the possessive pronoun will not be assigned until the time that spell-out applies to them.

Recall that under the first version of phase theory described above, when a DP is built, only NP spells out. If this is so, D and its specifier will remain un-spelled-out until the completion of a higher phase in the derivation in question. This analysis makes the prediction that it ought to be possible to extract the possessive pronoun before portmanteau morphology is assigned. Since the portmanteau morphology depends on the possessive D and pronoun being structurally adjacent within DP, if movement separates the two before they spell-out, we would expect them to both be realized with alternative morphology—presumably their default (“elsewhere”) forms. For the possessive D, this would be [’s]. For the extracted pronoun, this would likely be accusative morphology, which has been argued to be the default form that English pronouns take when no other form is available (Marantz 1991; Schütze 1997, 2001; Preminger 2014).<sup>11</sup> We see a schema for this predicted configuration in (29) below:

(29) *Prediction: Non-adjacent pronoun and D will receive default morphology*



Recall that in this study, 14/17 possessor-extracting speakers accepted possessor extraction via topic/focus fronting. 12 of these 14 speakers report that sentences matching the structure in (29) are unacceptable. The actual sentences under consideration are shown in (30) below:

<sup>11</sup>Schütze points out that there are many heterogeneous environments in English where accusative case arises, evidently by default. Schütze points out that different languages use different cases as their morphological default, nominative being a common choice, though in English accusative is clearly required:

- (i) (From Schütze 1997, p. 54, ex.65)
- a. Her/\*she in New York is what we must avoid.
  - b. Him/\*he liking beans surprised them.
  - c. It was us/\*we.
  - d. Me/\*I, I like beans.
  - e. Me/\*I too.
  - f. Everyone but them/\*they gets on John’s nerves.
  - g. Who did it? — Me/\*I.
  - h. We can’t eat caviar and him/\*he (eat) beans.

- (30) *An alternative attempt at possessor pronoun fronting*
- a. \* Your cooking is, unfortunately, not great. **Me**<sub>1</sub>, however, I suspect [*t*<sub>1</sub> ('s) cooking] could win prizes.
  - b. \* I don't think John's cat is particularly cute, but **us/you**<sub>1</sub>, I've always said [*t*<sub>1</sub> ('s) cat] is really adorable.
  - c. \* My dog is always well behaved. But **him/her/them**<sub>1</sub>, I think [*t*<sub>1</sub> ('s) dumb noisy dog] should get kicked out of the park.

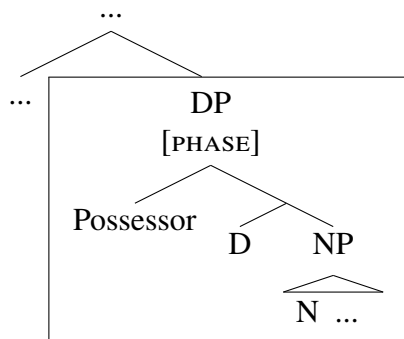
Compare this configuration with the unacceptable topic/focus extraction we saw first in this paper, repeated in (31) below:

- (31) *No extraction of possessive pronouns by topic/focus fronting*
- a. \* Your cooking is, unfortunately, not great. **My**<sub>1</sub>, however, I suspect [*t*<sub>1</sub> ('s) cooking] could win prizes.
  - b. \* I don't think John's cat is particularly cute, but **our/your**<sub>1</sub>, I've always said [*t*<sub>1</sub> ('s) cat] is really adorable.
  - c. \* My dog is always well behaved. But **his/her/their**<sub>1</sub>, I think [*t*<sub>1</sub> ('s) dumb noisy dog] should get kicked out of the park.

While the sentences in (31) should indeed be illicit due to involving impossible non-constituent movement, this issue should not apply to the sentences in (30). I argue that the sentences in (30) are unacceptable because of a morphological timing problem.

Recall that under the second version of phase theory mentioned above, when a DP is constructed it is immediately and entirely spelled-out:

- (32) *Phase theory #2: Simultaneous spell-out of the entire DP*



I argue that this phase theory makes the right predictions. Under this theory, we predict that there will be no chance for the possessor pronoun to extract alone into a higher part of the clause before being spelled-out as in (30). Rather, the possessor pronoun and possessive D will be assigned their combined portmanteau form immediately, before any movement from DP can occur. Since after spell-out the possessive pronoun does not correspond to an independent free morpheme, there is no morpho-phonologically licit way to extract it.

Extraction of an entire portmanteau form would be morpho-phonologically licit, since these are themselves free morphemes. However, they do not correspond to an exclusive syntactic constituent, so the syntax cannot move them. Thus we accurately predict that the attempts at possessive pronoun fronting in (30) and (31) above both fail. The former fails due to a morphological problem, and the latter fails due to a syntactic problem.<sup>12</sup> Consequently, there is simply no way for such extraction to succeed. Importantly, we arrive at this correct result by hypothesizing that phases entirely spell-out once built, as posited by the cyclic linearization framework.<sup>13</sup>

#### 4.1 The possibility of a fusion analysis

To achieve portmanteau formation, much literature using Distributed Morphology appeals to a mechanism of *fusion*, which unites multiple terminal nodes into one at spell-out before VI rules apply. As previous literature has noted, fusion has the problematic property of requiring the grammar to know which terminal nodes to fuse prior to the application of the relevant VI rule—in other words, a “look-ahead problem” (Chung 2007a,b; Caha 2009, 2018). While fusion may have certain theoretic problems, a fusion analysis is potentially compatible with the arguments of this paper.

Since fusion operates on terminal nodes, a fusion analysis would require adopting some version of the view that pronouns are heads, as discussed in section 3.3 above. A fusion-based derivation of an English possessive pronoun is shown in (33) below:

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<sup>12</sup>The remaining 2 of the 14 relevant speakers rated the configuration in (30) as marginally acceptable, in contrast to the wholly unacceptable (31). Additionally, while 12 of these 14 speakers indeed rate both (30) and (31) as unacceptable, 6 of those 12 suggest that the violation in (30) feels less severe than that in (31). This fact suggests that the hypothesized morphological problem in (30) is less flagrant than the syntactic problem in (31). The movement in (31) should be genuinely impossible due to the nature of Merge, which unavoidably operates only on constituents. However, the sentences in (30) could be generated by choosing a sub-optimal morphological derivation—either by suspending the usual portmanteau morphology, or by overriding the portmanteau form with default morphology after extraction occurs. Either of these strategies would involve an exceptional morphological process, but it is conceivable that this is at least possible (if dis-preferred), unlike non-constituent movement.

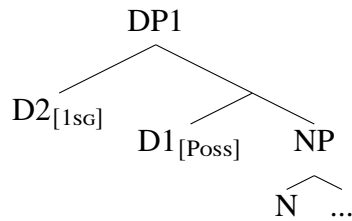
<sup>13</sup>In the introduction, I mentioned that three of the 17 speakers consulted in this study rejected possessor extraction via topic/focus fronting, despite accepting it by *wh*-movement. In footnote 4 above, I noted that these speakers do in fact perceive the relevant contrast when we instead examine possessor extraction via clefting: while this is possible for full DP possessors (ia), pronominal possessors resist extraction (ib), as expected. Additionally, 2 of these 3 speakers stated that extraction of an accusative pronoun, stranding [*'s*] below, is unacceptable (ic). The third speaker stated that this option is degraded, but perhaps not completely unacceptable. This speaker thus patterns like the 2 speakers mentioned in footnote 12 above who marginally accept extraction of the form in (30).

- (i) a. It's [my MOTHER]<sub>1</sub> that I suspect[[*t*<sub>1</sub>'s cooking] could win prizes].
- b. \* It's MY<sub>1</sub> that I suspect[[*t*<sub>1</sub>('s) cooking] could win prizes].
- c. \* It's ME<sub>1</sub> that I suspect[[*t*<sub>1</sub>('s) cooking] could win prizes].

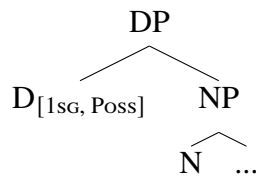
This general pattern of judgments for possessor extraction in clefts has the same distribution as the judgments for sentences involving non-clefting topic/focus extraction. These clefting facts can therefore be taken as additional evidence for the proposals defended here.

(33) *Possessive portmanteau formation via fusion*

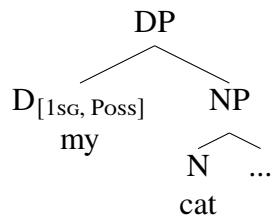
a. *Initial structure*



b. *Fusion of pronoun and possessive D*



c. *Morpho-phonological assignment*



Assuming that the constituent in question continues to be labeled DP post-fusion, it would evidently be the case that this DP is headed by a D that is the result of fusion of multiple elements, as we see in (33b-c). As discussed in section 3.3 above a bare phrase structure theory would consider non-projecting terminals to be both minimal and maximal, and thus potentially capable of phrasal movement. However, if the fused D in (33) indeed counts as projecting here, it should not be available for phrasal movement. In this situation we would accurately predict the immobility of the possessive pronoun. This perspective is also compatible with the arguments of this section: Assuming that that DP spells-out in its entirety as soon as it is built, fusion will immediately combine the possessive D and pronoun in its specifier, bleeding extraction. In summary, if we are willing to grant certain assumptions about the configurations that fusion creates, a fusion analysis is compatible with the main arguments of this paper.

## 5 Extension: The form of coordinated possessors

As discussed above, previous literature on spanning assumes that two terminals can only be expressed together via a span if they are structurally contiguous. I argued above that for this reason, embedding a pronoun in additional structure bleeds portmanteau formation, even if that pronoun happens to be linearly adjacent to a possessive D, as (34) shows again:

- (34) *Linear adjacency is not sufficient for use of a possessive portmanteau*
- The picture of ?**them's/\*their** frame is really ugly.
  - You don't seem like yourself today. The real ?**you's/\*your** baking skills are much better.
  - Won't you submit little old ?**me's/\*my** cake to the baking contest?

Since embedding a possessor pronoun in a coordinate structure will disrupt structural adjacency between it and the possessive D, we expect usual possessive morphology to be absent in such contexts. This topic turns out to be empirically quite complex, as I discuss in this section.

I am currently aware of only scattered discussion about possessor coordination in English.<sup>14</sup> With two full DP possessors, in my judgment it is acceptable for ['s] to suffix to the entire coordination, or onto each of the possessors:

- (35) *Non-pronominal possessor coordination*
- [John and Mary]'s cat is cute.
  - [John's and Mary's] cat is cute.

With two pronouns, there is no perfect choice, but in my evaluation the best option is to either use the possessive form of both (36a), or to use two accusative pronouns and suffix ['s] onto the entire coordination (36b):

- (36) *Possessor pronoun coordination*
- ?? [My and your] cat is cute.
  - ?? [Me and you]'s cat is cute.
  - \* [My and you]'s cat is cute.
  - \* [Me and your] cat is cute.

When the first conjunct is a pronoun and the second is a full DP, use of an accusative pronoun is best (37a), but use of a possessive pronoun seems acceptable as well (37b):

- (37) *Pronoun + DP coordination*
- Accusative pronoun*  
? Me/us/you/him/them and Mary's cat is cute
  - Possessive pronoun*  
?? My/our/your/his/their and Mary's cat is cute

When the first conjunct is a full DP and the second is a pronoun, use of an accusative pronoun is likely the best choice (38a). Marking the first conjunct with ['s] and having a possessive pronoun as the right conjunct also seems tolerable as well (38d):

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<sup>14</sup>See Huddleston and Pullum (2002) and <https://languagelog.ldc.upenn.edu/nll/?p=706>, for instance.

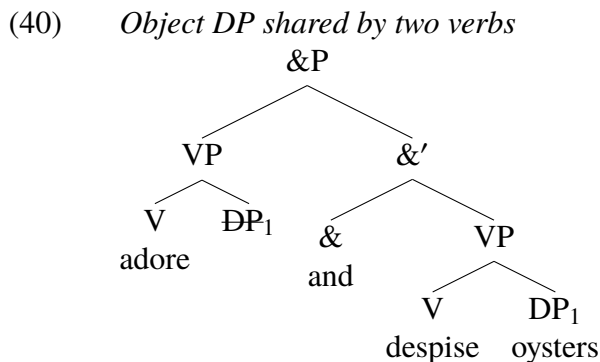
- (38) *DP + Pronoun coordination*
- a. *Accusative pronoun, [’s] preserved*  
?? Mary and me/us/you/him/them’s cat is cute
  - b. *Possessive pronoun, [’s] preserved*  
\* Mary and my/our/your/his/their]’s cat is cute
  - c. *Possessive pronoun, [’s] absent*  
\* Mary and my/our/your/his/their cat is cute
  - d. *Possessive pronoun, [’s] on first conjunct*  
?? Mary’s and my/our/your/his/their cat is cute

There are clearly several factors interacting here. The analysis of this paper predicts that use of accusative pronouns in coordination along with maintenance of [’s] should be the best choice, since in these situations the structural adjacency required for the pronoun and [’s] to be realized with a portmanteau form is absent. Indeed, such forms seem to be feasible at least some of the time.

However, this analysis does not predict examples like (35b), which appears to involve non-constituent coordination of two units consisting of a pronoun and a D, as in [[DP D & DP D] NP]. I suggest that this is a result of DP-internal *Right Node Raising*. This term describes structures where a single complement appears to be shared by two heads, as in the VP in (39):

- (39) *Right Node Raising of an object DP (V & V DP)*  
I both **adore and despise** oysters. They look gross, but taste great.

Citko and Gračanin-Yuksek (2021), who offer a comprehensive overview of phenomena like Right Node Raising, argue that it involves a single complement shared by two heads via *multi-dominance*—an approach to phrase structure that is beyond the scope of this paper. For the sake of simplicity, I diagram complement sharing as in (40). Example (40a) represents (39) above by placing co-indexed DPs into the complements of each of the coordinated VPs, with the first DP crossed-out to reflect that this phrase is not actually present in the surface string in Right Node Raising examples like (39).

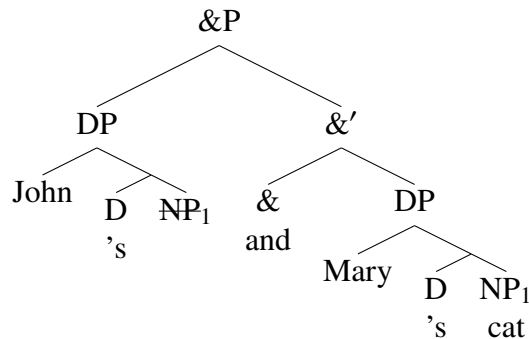


In (41) below, we see a similar structure used to model (35b) above. Here one NP is the



shared complement of two possessive Ds, each of which selects a possessor in its specifier.

(41) *Object DP shared by two verbs*



Notice that if one of the two possessors in such a structure is a pronoun, portmanteau morphology can be assigned, creating a form combining a possessive pronoun with a full DP marked with [*'s*]. This is precisely what we see in (37b) and (38d). If both possessive Ds happen to select pronouns, portmanteau formation will apply twice, as in examples like (36a). In summary, by introducing the possibility of NP sharing in the fashion of Right Node Raising, we can explain certain possibilities about possessor coordination that, at first glance, do not fit the spanning analysis of possessive morphology that I have developed in this paper.

However, this topic definitely requires further empirical study. Unlike the facts examined earlier in the paper, the data in this section is the result of my own judgments and informal discussions, rather than rigorous judgment-gathering. It appears that in many of the relevant configurations, the judgments are often ambiguous. While I suspect that this is an unavoidable problem for any investigation into this corner of English grammar, I will leave this for future research to determine.

## 6 Conclusion

English possessive pronouns, most of which clearly do not co-occur with [*'s*], cannot be extracted. Full DP possessors show precisely the opposite properties. We predict these syntactic and morphological facts by positing that English possessive pronominal morphemes are portmanteau forms, which express a possessive D and a possessor pronoun in its specifier. Since these elements do not form a constituent, the immobility of the resulting forms is accurately predicted. This analysis provides further motivation for the existence of portmanteau morphology, and the impossibility of bleeding portmanteau formation by possessive pronoun extraction (presumably resulting in default non-portmanteau morphology) provides evidence that phases spell-out immediately and all at once, as hypothesized by the cyclic linearization theory. These findings also show how facts from non-standard grammatical phenomena, even in a well-studied language like English, can provide a unique

window into the grammar which enriches our understanding of it.<sup>15</sup>

### 6.1 Appendix: Postnominal [’s]

One of the main points of my core analysis is that [’s] disappears from possessive pronominal forms because it is compressed into a portmanteau along with the possessor pronoun. However, there is another construction where we see the same possessive forms co-occurring with [’s], except in the 1st person singular (42):

- (42) *The re-emergence of [’s]*<sup>16</sup>
- a. A cat of mine
  - b. A cat of our’s
  - c. A cat of your’s
  - d. A cat of his’
  - e. A cat of her’s
  - f. A cat of their’s

If I am correct that the possessive D is expressed with the pronoun as a portmanteau in forms like *my*, *our*, *your* and so on, what allows [’s] to occur in (42)? Furthermore, what exactly is *mine*? We might decompose this into *my-n*, but this still leaves us with the question of what this *-n* is. It is possible that the forms in (42) do not actually contain a genuine possessive [’s], since the same forms must be used in contexts arguably involving possessor-stranding NP ellipsis (43):

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<sup>15</sup>This analysis also has implications for the nature of English possessor extraction. Possessor extraction is a particular instance of *left branch extraction* from the nominal domain (Ross 1967)—something which is totally banned in some languages, but very productive in others. There is debate in the literature about how exactly left branch extraction is derived, and it is likely that different languages achieve it in different ways. Davis (2020b, 2021) argues using several diagnostics that that English possessor extraction is genuine sub-extraction. A variety of works on left branch extraction in other languages also adopt this view (Ross 1967; Borsley and Jaworska 1998; Corver 1990, 1992; Stjepanović 2010; Bošković 2005, 2016, a.o.). A challenge for this analysis is that in some languages such as Russian (Pereltsvaig 2008), left branch extraction can extract units that are likely not syntactic constituents. There are two other analyses of left branch extraction proposed in the literature which straightforwardly rule in such non-constituent displacement. One is the *remnant movement* approach (Franks and Progovac 1994; Kayne 2002; Bašić 2008; Abels 2003, 2012), for which left branch extraction is derived by movement of a remnant phrase that has been previously evacuated by everything but the relevant left branch material. The other is the *distributed deletion* approach (Faneslow and Čavar 2002; Bošković 2001, 2015; Fanselow and Féry 2013; Bondarenko and Davis To appear), for which LBE is formed by movement of an entire nominal phrase, but part of that nominal phrase continues to be pronounced in its origination position, thus creating the appearance of sub-extraction. Since in neither of these two analyses is the displaced left branch material actually extracted, there is no need for that material to be a constituent. Importantly, my analysis of the English facts shown here indicates that possessor extraction in English is indeed sensitive to syntactic constituency, since if this were not the case, possessive pronoun fronting would be acceptable. Thus this analysis further supports the proposal of Davis (2020b, 2021) that English possessor extraction is indeed true extraction.

<sup>16</sup>Regular phonological reduction will block the form *his’s* by reducing the final sibilant cluster to a single [s], which English orthography encodes as <-s’>, as in *students’, kids’,* and so on.

- (43) *Emergence of [’s] with possessor-stranding NP ellipsis*  
 Q: Have you seen any cats recently?  
 A: Yes, I just saw mine/our’s/your’s/his’/her’s/their’s sitting on the fence.  
 (\* Yes, I just saw my/our/your/his/her/their sitting on the fence.)

Thus perhaps both (42) and (43) are ellipsis contexts which, for reasons that remain to be explained, involve suffixation of a distinct element /-s/ (excluding the 1st person singular, where this element is evidently realized as /-n/.) Alternatively, perhaps this element -s/-n is an NP proform which cliticizes to the possessor, and ellipsis per se is not occurring in either of these contexts. I will leave this puzzle for future work.<sup>17</sup>

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<sup>17</sup>One speaker reports that pronominal possessor extraction improves if that pronoun takes on one of the forms seen in (42-43), provided that the possessive D is realized as [’s] as in (i):

- (i) %:? **Ours**<sub>1</sub> I’ve always said [<sub>1</sub>’s cat] is really adorable.

If the forms in (42-43) are assigned to a possessive pronoun that is not left-adjacent to a possessum NP (for reasons which would require an explanation), then the judgment in (i) would indeed be predicted. Since the status of these possessive forms remains very unclear, I will set this possibility aside for now.

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