

TEMPORAL ADJECTIVES AND THE STRUCTURE
OF POSSESSIVE DPs*

The presence of temporal adjectives in possessive nominals like *John's former car* creates two interpretations. On one reading, the temporal adjective modifies the common noun (N-modifying reading). On the other, it modifies the possession relation (POSS-modifying reading). An explanation for this behavior is offered that appeals to what occurs in possessive sentences like *John has a former car* (N-modifying reading) and *John formerly had a car* (POSS-modifying reading). In the sentential cases, the source of two readings is two distinct, modifiable phrases. Given the parallels, we propose a structure for possessive nominals analogous to that of possessive clauses. Specifically, we argue that such nominals include a locative small-clause structure, following Freeze (1992), and we explain the ambiguity structurally, as a simple matter of where temporal adjectives attach (NP vs. PP). We show that this analysis provides a straightforward basis for the semantic composition of possessive nominals.

Recent syntactic studies have posited important parallels between the structure of nominals and clauses. Beginning with Fukui and Speas (1986), Abney (1987), and Szabolsci (1983), many researchers have pursued the view that the determiner constitutes an independent head of its own phrase (DP), and that D plays a structural role in the nominal analogous to T in the clause:

- (1) a. [_{DP} John's [_{NP} completion of the project]]
b. [_{TP} John [_{VP} completed the project]]

In this paper we consider data from temporal modification which, we believe, provides further evidence for the basic parallelism. Specifically, we argue that an ambiguity found in possessive examples like (2a) can be directly explained under the assumption that possessive nominals have a structure parallel to that of possessive clauses, and that the modifier in (2a) may attach in the nominal analogously to what is observed in (2b, c):

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- (2) a. John's **former** car
 b. John **formerly** had a car.
 c. John has a **former** car.

Our results support the basic DP analysis, and also clarify the relation between possessive nominals and possessive clauses. We begin in section 1 with the modification data, considering facts from English and several other languages. In section 2 we show how these data raise a problem for compositional semantic accounts under standard views of possessives. In section 3 we introduce our analysis of the structure of possessive nominals, based on the proposal by Freeze (1992) that possessor and possessed are initially projected into a locative small clause. In section 4, we provide a straightforward compositional interpretation for our structures. Finally, in section 5, we consider a number of questions and puzzles that arise under this proposal, and directions for further research.

1. TEMPORAL MODIFICATION IN NOMINALS

The temporal adjective *former* typically attaches to a noun, creating a predicate true of objects that once had the property described by N, but do not at present. Thus in (3a), *former* attaches to *house* to create a predicate true of things that were once houses, but now, through some exigency, are houses no longer. In (3b), *former* attaches to *movie star* to create a predicate true of individuals who were once movie stars.

- (3) a. That is a **former house**.
 b. John met a **former movie star**.

Similar, although slightly more complicated, facts hold with the adjective *old*. *Old* attaches to N to form a predicate with one of several different meanings. For example, an *old* N can refer to something that is aged and that is an N. Thus in (4a), *old car* applies to things that are both old and are cars. Alternatively, an *old* N can refer to something that was formerly an N. On the salient reading of (4b) *old IWW member* describes someone who was formerly a member of the International Workers of the World organization.¹

- (4) a. That is an **old car**.
 b. Mary is an **old IWW member**.

¹ This example shows two additional readings arising from *old*: 'Mary is an aged IWW member' and 'Mary is a long-standing IWW member'. For more on these latter readings, see Taylor (1992) and Larson (1999).

Consider now the examples in (5) and (6), which show a temporal adjective in a possessive nominal:

- (5) a. That is **John's former house**.
 b. John's & former(house) N-modifying reading
 c. former(John's & house) POSS-modifying reading
- (6) a. This is **John's old car**.
 b. John's & old(car) N-modifying reading
 c. former(John's & car) POSS-modifying reading

The phrase *former house* in (5a) can be understood like *former house* in (3a). On this reading *John's former house* refers to an object that John now possesses and that was once, formerly, a house. Imagine us at the scene of a recent tornado, pointing out the effects of its destruction. We represent this reading schematically in (5b). But (5b) is not the most salient reading of *John's former house*. On its most salient reading, this phrase refers to the house that John formerly owned. Perhaps John does not own it any longer. It may not even be a house any longer. But at one time John owned it and it was a house. We represent this reading schematically in (5c). It is important to note that the two readings are truth-conditionally distinct, and that the ambiguity is a genuine one. On its (5b) reading, but not its (5c) reading, *John's former house* can describe an object that was never simultaneously both a house and owned by John. On its (5c) reading, but not its (5b) reading, *John's former house* can describe an object that is no longer possessed by John.^{2,3}

In this paper, we will use the term "N-modifying" to refer to the reading where the adjective modifies just the noun, as in (5b). And we will use the term "POSS-modifying" to refer to the reading where the adjective modifies the possession relation, as in (5c). The example in (6a) shows the same basic ambiguity as (5a). *John's old car* can refer to an object that John possesses and that is an old car (N-mod). *John's old car* can also refer to a car that John formerly owned (POSS-mod). Note that under

² The N-modifying/POSS-modifying ambiguity is noted in Larson (1995) and independently observed by Partee (1983/97), Partee and Borchev (1998, 2000).

³ An anonymous *NALS* reviewer notes that under what we call the POSS-modifying reading, (i) will be verified by a situation where four objects are sitting in my driveway, two of which are cars that I have sold (and hence no longer mine), and two of which are cubes of metal from a scrapyard (and hence no longer cars).

(i) All of my former cars are sitting in the driveway.

We do indeed judge the sentence to be true in these circumstances.

the POSS-modifying reading of (6a) there is no need for the car to be old in absolute terms. If John buys a late-model car and sells it, the car becomes his old car even if it is still quite new and in mint condition.⁴

1.1. *A Positional Correlate*

The N/POSS-modifying readings show an interesting correlation with position in examples like (7a, b), containing two temporal adjectives:

- (7) a. John's new old car.
b. John's old new car.

Notice that (7a) only refers to an old car that John has newly come to own. It does not refer to a new car that John used to own. By contrast, (7b) has the opposite sense: it refers to a new car that John used to own, not to an old car that John has newly acquired. Thus in a sequence of two temporal adjectives (A1, A2), the first adjective must be understood as POSS-modifying and the second as N-modifying:

- | | | | | |
|-----|-------------|-----------|-----------|----------|
| (8) | XP's | A1 | A2 | N |
| | | POSS-mod | N-mod | |

This suggests that the semantic ambiguity of (7a, b) might be due to a structural ambiguity that we cannot directly observe. Specifically, it suggests that on the POSS-modifying reading of (7a, b), the adjective is in the position of A1, whereas on the N-modifying reading, the adjective is in the position of A2, as shown in (9):

- | | | | | | |
|-----|-------------|-----------|-----------|----------|--------------------------------------|
| (9) | XP's | A1 | A2 | N | |
| | a. John's | old | | car | “the car John formerly possessed” |
| | b. John's | | old | car | “the car John possesses that is old” |

⁴ Although we concentrate here on temporal modifiers, the N-modifying/POSS-modifying distinction is also found with intensional adjectives like *alleged*, *purported*, and *putative*, as pointed out to us by Chris Barker. Consider:

- (i) a. John's alleged child
b. my putative forgeries

On the most natural reading of (ia), the allegation is not that the individual in question is a *child* (the N-modifying reading), but rather that the child in question is *John's* (the POSS-modifying reading). In other words, what's alleged is the possession relation. Similarly, (ib) seems to us to denote either some objects that are claimed to be forgeries (the N-modifying reading) or some forgeries that are claimed to be mine (the POSS-modifying reading).

With no intervening material, the positional difference is not directly visible.

1.2. *The N-/POSS-Modifying Ambiguity Elsewhere*

Data parallel to those in English are found in other languages. Korean examples like (10) show the same ambiguity as the English ones. There is an N-modifying reading and a POSS-modifying reading.

- (10) John-uy yeys cha
 John-POSS old car
- a. John's & old(car) N-modifying reading
 b. former(John's & car) POSS-modifying reading

Korean also can iterate temporal adjectives, and shows the same correlation between position and interpretation found in English. The examples in (11) are exactly parallel to those in (7). The first adjective is POSS-modifying and the second is N-modifying:

- (11) **POSS-mod N-mod**
- a. John-uy say yeys cha
 John-GEN new old car
 'the old car that John has newly come to own'
- b. John-uy yeys say cha
 John-GEN old new car
 'the new car that John formerly owned'

This pattern is also seen when Korean temporal adjectives permute with color adjectives like *palan*, 'blue' ((12)), and quantity predicates like *modun*, 'all' ((13)):

- (12) a. John-uy palan say cha
 John-POSS blue new car
 'the car of John's that is blue and that is a new model'
- b. John-uy say palan cha
 John-POSS new blue car
 'the car that John has newly come to own and that is blue'
- (13) a. John-uy modun say cha
 John-POSS every new car
 'all of John's new-model cars'

- b. John-uy say modun cha
 John-POSS new every car
 'all of the cars John has newly come to own'

Both adjective orderings are possible. But note that when the color or quantity adjective comes first and *say* is in second position, only an N-modifying reading is possible. When the temporal adjective comes first, a POSS-modifying reading is possible.

Italian exhibits an interesting variant of the English-Korean pattern, noted to us by G. Storto (p.c.). (14a, b) illustrate Italian possessive constructions in which N is flanked by temporal adjectives. As the glosses indicate, the right-hand A is necessarily interpreted as N-modifying and the left-hand A as POSS-modifying.

- (14) a. la **nuova** macchina **vecchia** di Gianni
 the new car old of Gianni
 'John's new old car'
- b. la **vecchia** macchina **nuova** di Gianni
 the old car new of Gianni
 'John's old new car'

Storto observes that this pattern is explained under the proposal, argued for by Bernstein (1993) and Cinque (1994), that Italian attributive constructions undergo leftward N-raising, yielding an adjective postnominally. The situation is thus underlyingly the same as in English/Korean, but with N subsequently moving to a site between the two A's (15):⁵

⁵ Storto (p.c.) notes some interesting wrinkles in the Italian facts with cases like (iia, b) where both adjectives appear postnominally. Here the immediately postnominal A is interpreted as N-modifying and the final A as Poss-modifying, a situation Storto interprets as involving N-movement, as in the text, followed by N + A raising (ic):

- (i) a. la macchina **vecchia** **nuova** di Gianni
 the car old new of Gianni
 'John's new old car'
- b. la macchina **nuova** **vecchia** di Gianni
 the car new old of Gianni
 'John's old new car'
- c. la [macchina **vecchia**] **nuova** t di Gianni

There appears to be some variation in speaker judgment with these data, which we cannot pursue here. We simply note that, under these proposals, the general pattern of Italian facts follows that noted for English and Korean.

- (15) **POSS-mod** **N-mod**
 la **nuova** macchina **vecchia** t di Gianni
- └──────────┘

Finally, the N-modifying/POSS-modifying ambiguity is also seen in the Salish language Halkomelem. Burton (1997) notes that Halkomelem allows the past tense morpheme (*-elh/-alh*) to attach in nominals. When it does the result is much like attaching English *former*. Affixed to a nonpossessive N, the result denotes an object that has been broken or destroyed, or an individual who is dead, as in (16a).⁶ Affixed in a possessive nominal, it yields the N-modifying/POSS-modifying ambiguity, as in (16b–e):

- | | | |
|----------------------|--------------------|------------------------|
| (16) a.i. te sqwem:y | ii. Te sqwem:y elh | ‘the dead dog’ |
| the dog | the dog-PST | |
| b.i. tel xeltel | ii. Tel xeltel-elh | ‘my broken pencil’ or |
| my pencil | my pencil-PST | ‘my former pencil’ |
| c.i. tel kopœ | ii. Tel kopœ-elh | ‘my destroyed coat’ or |
| my coat | my coat-PST | ‘my former coat’ |
| d.i. tel má:l | ii. Tel má:l-elh | |
| my father | my father-PST | ‘my late father’ |
| e.i. tel si:l | ii. Tel si:l-alh | |
| my grandfather | my grandfather-PST | ‘my late grandfather’ |

2. A CHALLENGE TO COMPOSITIONAL SEMANTICS

The N-/POSS-modifying ambiguity poses an interesting challenge for compositional semantics. The schematic representations we’ve given for the ambiguity represent it as a matter of scope. Reconsider (5), repeated as (17). On the N-modifying reading only N is in the scope of *former*. On the POSS-modifying reading, possession is in its scope as well.

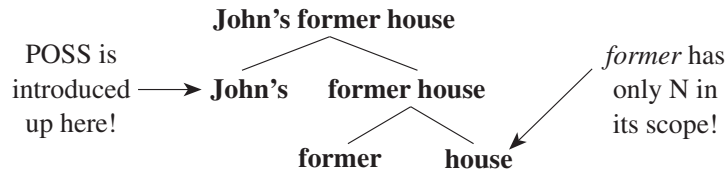
- (17) a. That is John’s former house.
 b. John’s & a **former**(house) N-modifying reading
 c. **former**(John’s & a house) POSS-modifying reading

In typical Montague Grammar analyses, possession is introduced in the interpretation of the genitive determiner. Consider (18) (cf. Barwise and Cooper 1981; Cooper 1983; Engdahl 1985).

⁶ Burton (1997) does not provide examples of inanimate nominals that have exclusively the “destroyed” reading. Rather he gives possessive nominals that are ambiguous.

$$(18) \quad \textit{John's} \Rightarrow \lambda Q \lambda P \exists x \forall y [[[Q\{x\} \ \& \ \mathbf{POSS}(j, y)] \leftrightarrow y = x] \ \& \ P\{x\}]$$

Note that this translation will place *POSS* outside the scope of any adjective. Adjectives combine with nouns; the determiner combines with their result. So at the point where *John's* is combined with an adjective like *former*, the latter has already been put together with N. *POSS* falls outside the semantic scope of *former*, permitting only a N-modifying reading:



These results suggest that in order to capture the *POSS*-modifying reading we need to extract the interpretation of *POSS* from the interpretation of *John's* and introduce it “lower” in the structure or derivation. There are a number of ways we could do this.

We could allow *POSS* to be added to the meaning of the adjective (so that *former* can optionally mean ‘formerly possessed by *x*’). Rule 1 below pairs adjectives like *former* with counterparts that contain *POSS*.

Rule 1: If $\delta \in P_{CN/CN}$, then $F_{1001}(\delta) \in P_{CN/CN}$, and $F_{1001}(\delta) = \delta$
Translation: $\lambda P[\delta'(\wedge \lambda y[\mathbf{POSS}(x, y) \ \& \ P\{y\}])]$

Alternatively we could allow *POSS* to be incorporated into the meaning of the noun (so that *house* can optionally mean ‘house possessed by *x*’). Rule 2 pairs nouns like *house* to counterparts containing *POSS*:

Rule 2: If $\delta \in P_{CN}$, then $F_{1002}(\delta) \in P_{CN}$, and $F_{1002}(\delta) = \delta$
Translation: $\lambda y[\mathbf{POSS}(x, y) \ \& \ \delta'(y)]$

However, neither of these simple moves accounts for the fact that *POSS*-modifying readings arise specifically in possessive nominals; (5a) has a *POSS*-modifying reading, but (3a) doesn’t:

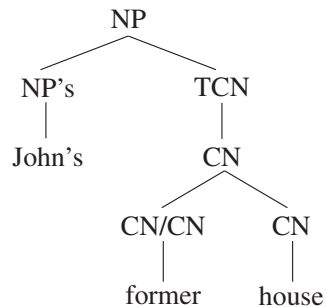
- (5a) John’s former house.
 (3a) That is a former house.

If the A or N could optionally incorporate the *POSS* relation, then we might expect to find the ambiguity in simple DPs like *a former house*, contrary to fact.⁷

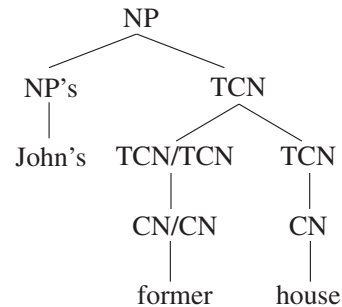
⁷ A classical NP-preposing analysis of prenominal genitives, in which (ia) derives from (ib) by movement to D, also has the potential of accommodating the ambiguity with temporal adjectives and its tie to possessives:

A more sophisticated version of the second approach, one securing the tie to possessives, is presented in Partee and Borschev (2000). In brief, as we understand it, their proposal is that pronominal possessives (e.g., *John's*) must combine with a relational common noun (TCN), and that, when put together with a nonrelational common noun (like *house*), they “coerce” a type-shift in the latter, making it relational (in effect, creating ‘house of’). Partee and Borschev further allow for the type-shifting of adjectives like *former* from common noun modifiers (CN/CN) to relational common noun modifiers (TCN/TCN). Within this system, the ambiguity in *John's former house* then becomes a matter of type-shifting scope:

(19) a. N-modifying reading



b. POSS-modifying reading



We have little specific to say about this proposal, since the theory embedding it invokes many assumptions that we do not share. We note, however, that the crucial mechanism of coercion – in essence, context sensitivity in semantic rules – appears quite powerful, and hence one to be avoided without compelling argument. In (19b) not only the type-shift of *house*, but also that of *former* within the nominal seems to be triggered by the higher possessive. This would appear to require some additional (non-standard) assumptions about compositionality and/or direction of composition (top-down vs. bottom-up). By contrast, the account we propose below

-
- (i) a. John's book
b. the book of John's

The ambiguity of *John's former book* can be represented as a scope ambiguity in the source structure (ii, b):

- (ii) a. the [former book] of John's
b. the former [book of John's]

A version of the preposing analysis is given in McCawley (1988, §12c). This proposal is very much in the spirit of the one we suggest below.

demands no special assumptions about compositionality and invokes only context-free semantic rules.⁸

The broader claim that POSS-modifying readings arise only in possessive nominals might be disputed on the basis of examples like (20):

- (20) [A former student] is in your office.

This nominal can be used to refer to someone who was a student and is a student no longer. But it can also be used in contexts where the individual is currently a student and where *former* appears to modify a possession relation. In section 5.1 below, we analyze (20) as containing an implicit possessive phrase, equivalent to (21a); we analyze the ambiguity in the latter in parallel to (21b):

- (21) a. [A former student **of mine/yours/his/hers**] is in your office.
 b. [My/your/his/her former student] is in your office.

Implicit *of X's* phrases are licensed with relational nouns like *student*, but not with nonrelational nouns like *house*. It correctly follows on our account that with nonrelational nouns a POSS-modifying reading will be absent.

3. POSSESSIVE SENTENCES AND POSSESSIVE DPs

We believe that the behavior of temporal modifiers in possessive nominals can be explained in a revealing way by reference to what occurs in possessive sentences. There is in fact a clear and interesting convergence in the two cases. Compare the possessive nominal (5a) (repeated below) to the sentential possessives in (22a, b):

- (5a) John's former house
 (22) a. John has a **former** [_N house]
 b. John **formerly** [_{VP} had a house]

Ignoring the morphological difference between the adverb *formerly* and the adjective *former*, note that (22a, b), taken together, express basically the same pair of meanings found with (5a). In one case the temporal adjunct modifies the common noun (22a), and in the other it modifies the posses-

⁸ We are grateful to Gianluca Storto for discussion on this point.

sion relation (22b). Note further that there is a correlation between reading and position analogous to that found in the nominal case. In (22), as in (7), the right-hand temporal element (*former*) is N-modifying whereas the left-hand temporal element (*formerly*) is POSS-modifying.

In the sentential examples, the source of two readings and their correlation with structure is straightforward. There are two possibilities for modification because there are two, distinct, modifiable phrases in the tree: VP and N. The reason why the left-hand temporal is POSS-modifying and why the right-hand temporal is N-modifying is also clear. English modifiers typically precede the phrases they modify. Therefore, since N is located inside the possessive VP, a modifier of the N will always come inside, and to the right of, a modifier of the possessive VP:

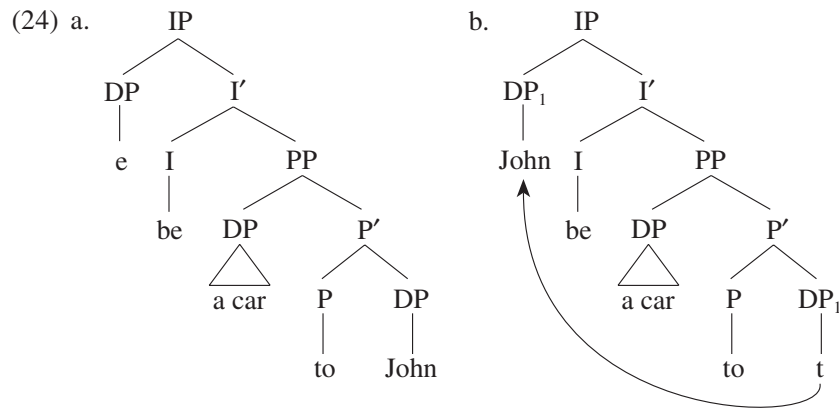
- (23) **formerly** [_{VP} . . . **former** [_N]]
 POSS-mod N-mod

Given the parallels between temporal modification in possessive sentences and nominals it is attractive to try to assimilate the two. We're led to view the behavior of temporals in possessive nominals as arising from an articulated structure like that in possessive clauses – one that offers similar possibilities for modification. Below we consider the structure of possessive constructions, and explore an extension of this structure to possessive nominals. With these results, we then come back to the modification facts.

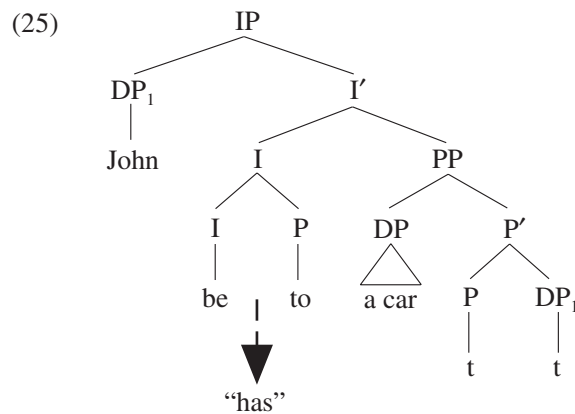
3.1. *The Structure of Possessive Clauses*

Recent work in syntax has explored the idea that possessive constructions actually represent a form of “disguised” locative. Following ideas by Benveniste (1966) and Fillmore (1968), Freeze (1992) proposes that possessive *have* constructions like *John has a car* are composed underlyingly from the copula *be* and a locative preposition, here represented as *to*.⁹ The copula selects PP, which contains two arguments: a theme (*a car*) and a location (*to John*), as depicted in (24a). The surface form of the possessive is derived by first raising the object of *to* to the Spec of IP, as in (24b):

⁹ See also den Dikken (1997), Guéron (1995), Hoekstra (1994), and Kayne (1993), among others, for variants of and alternatives to this analysis.



The locative proposition then incorporates into *be* (25). *Have* is conceived as the “spell-out” of the *be* + *to* aggregate:



Freeze argues for this analysis based on persistent and widespread homologies that hold among locative, possessive, and existential constructions in the world’s languages. He cites many triples like those in (26) and (27), from Hindi and Finnish (respectively):

- (26) a. mai bhaarat-mee thaa
 I India-in COP-sg.MASC.PAST
 ‘I was in India.’
- b. laRkee-kee paas kuttaa hai
 boy.OBL.-GEN proximity dog COP-sg.MASC.PRES
 ‘The boy has a dog.’

- c. kamree-mee aadmii hai
 room-in man COP-sg.MASC.PRES
 ‘There is a man in the room.’
- (27) a. mies on huonee-ssa
 man.NOM is room-inessive
 ‘The man is in the room.’
- b. Liisa-lla on mies
 Lisa-adessive COP(LOC) man
 ‘Lisa has a husband.’
- c. pydlä-llä on kynä
 table-adessive COP(LOC) pencil
 ‘There is a pencil on the table.’

Freeze argues that all three construction types – locative (*The visitor is with John*), possessive (*John has a visitor*), and existential (*There is a visitor with John*) – derive from a single underlying locative structure similar to (24a). The homologies between the constructions are thus explained by appeal to a shared source.

3.2. *The Structure of Possessive Nominals*

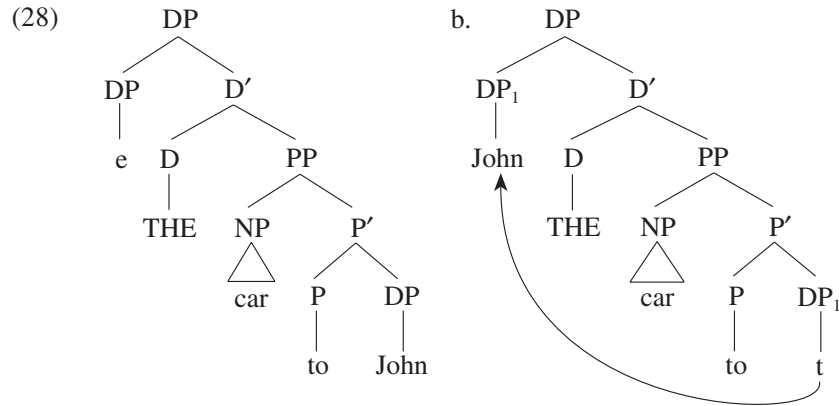
We will not discuss the Freeze analysis further here, but will simply assume its basic correctness and build from it. We want to pursue the idea that possessive nominals, like possessive clauses, are a form of locative construction with a similar derivation.¹⁰

Following Abney (1987) and others, suppose that argument nominals are in fact “DPs”, with category D formally parallel to I. Suppose further, following standard semantic views, that possessive nominals are definite descriptions (Barwise and Cooper 1981; Neale 1990).¹¹ Then *John’s car* might be assigned the underlying clause-like structure in (28a), containing an abstract definite determiner *THE* in a position parallel to *be* in a sentential possessive, and containing the locative PP, also parallel to the

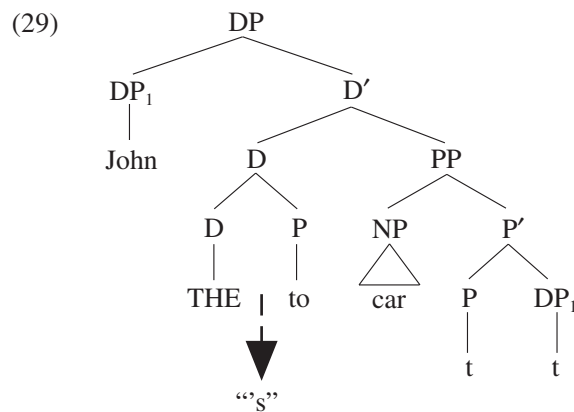
¹⁰ See Larson (1991) for a more articulated theory of DP structure, and a movement approach to possessives somewhat different than the one offered here.

¹¹ See Barker (1995) for a particularly careful discussion of the semantics of possessive descriptions. Barker does not adopt the classical Russellian analysis that we are adopting here largely on grounds of its familiarity. But we believe our proposals could be imported into Barker’s semantics without significant changes.

sentential case. As in the sentential case, the object of the locative P (*John*) raises to the Spec position of DP, as shown in (28b):



The locative preposition then incorporates into the definite determiner. For concreteness, we will assume that the *THE* + *to* aggregate spells out as “’s”, which subsequently cliticizes to the DP subject; see (29).¹²



There are a number of general considerations that make this proposal attractive. First there is the broad connection that it draws between the expression of possession in the nominal and sentential domain. On this proposal, the same syntactic processes are at work in both. In addition, as

¹² The idea that ‘s spells out *THE* + *to* is assumed for concreteness, but is not crucial to our proposal; and indeed, the existence of independent genitive case-making in double genitive constructions like *a picture of John’s* suggest that the object of P may bear genitive case before movement. See section 5.1 for discussion.

discussed by Barker (1995), the psycholinguistic literature provides evidence from the acquisition of possessive nominals supporting the view that children analyze possession as some kind of generalized locative relation, what Barker refers to as “proximity”.¹³ In addition to these broad considerations, there are also some more specific lines of evidence supporting the analysis.

3.2.1. *Constraints on Subjects*

The highly parallel derivations for sentential and nominal possessives assumed on this account lead us to expect parallel behavior. This expectation appears correct, at least in certain cases. Freeze (1992) notes that possessive constructions are sensitive to the [\pm human] value of their possessor subject. Specifically, a [-human] subject of *have* requires the theme to be an “inalienably possessed, or ‘characteristically associated’ noun (i.e., treated as inalienably possessed)” (p. 583). Possessives containing an alienable theme and a [-human] subject are ungrammatical. Compare (30a–d), from Freeze (1992):

- (30) a. The tree has branches. (‘inalienable possession’)
 b. The flour has weevils (in it). (‘characteristic association’)
 c.*The tree has a nest.
 d.*The flour has a ring.

By contrast, Freezes notes that when the subject is [+human], the theme is not limited to these possession types, and may be alienable, inalienable, or characteristically associated (31a–d):

- (31) a. The boy has a needle.
 b. The boy has a cousin/nose.
 c. The boy has fleas (on him).

Interestingly, this same pattern of facts appears to hold in the case of possessive nominals; compare (32) and (33):

- (32) a. the tree’s branches (‘inalienable possession’)
 b. the flour’s weevils (‘characteristic association’)
 c.*the tree’s nest
 d.*the flour’s ring

¹³ Barker cites the studies of Howe (1976) and Slobin (1985) in this connection.

- (33) a. the boy's needle
 b. the boy's cousin/nose
 c. the boy's fleas

Assuming this distribution to be a grammatical matter, the parallelism between sentential and nominal possessives supports the idea of treating them in a syntactically parallel way.

3.2.2. *Possessors Elsewhere*

Freeze (1992) observes that the situation in English possessive constructions is actually a rather uncommon one. Recall that English has nominative-marked possessive subjects and a "possessive copula" (*have*) that is produced by incorporating a locative P (*to*) into an existential copula (*be*) (34):

- (34) a. Mary has a husband.
 b. [_{IP} **Mary** be + TO [_{PP} t [_{P'} t]]] (*be* + *TO* = *have*)
- └──────────────────────────┘

More representative is the case of Hindi and Finnish, illustrated above in (26) and (27), where the existential copula appears throughout, and where a locative preposition or oblique case-marking surfaces in the possessive. On Freeze's account, this more typical case corresponds to a derivation where the entire P' raises to IP Spec position, and where no incorporation of P into the copula occurs:

- (35) a. Liisa-lla on mies (= (27b))
 Lisa-adessive COP(LOC) man
 'Lisa has a husband.'
- b. [_{IP} **Liisa-lla** on [_{PP} mies [_{P'} t]]]
- └──────────────────────────┘

Given our analysis, we might expect analogous effects to show up in possessive nominals. That is, we might expect possessives in which the possessor is accompanied by a preposition or marked with oblique case, and where the unincorporated definite determiner surfaces directly.

Hungarian, as described in an interesting series of papers by Szabolsci (1983, 1994), may present such a case. Szabolsci observes that the subjects of Hungarian possessive nominals may occur without overt case-marking, a situation she diagnoses as involving nominative case (36a). Alternatively, Hungarian possessors may show up in the dative case (36b). With the

nominative possessor, the definite determiner may be absent, whereas with the dative possessor, the definite determiner is required:

- (36) a. Mari kalap-ja-i
 Mari-**NOM** hat-POSS-PL(-3SG)
 ‘Mari’s hats’
- b. Mari-nak a kalap-ja-i
 Mari-**DAT** the hat-POSS-PL(-3SG)
 ‘Mari’s hats’

Under the analysis advanced here, it is very tempting to see this alternation in terms of the English/Finnish alternation shown above. That is, it’s tempting to suggest that Hungarian shows in its possessive nominals *both* of the two options noted by Freeze. The idea would be that with the nominative possessors, P incorporates into the definite determiner. The determiner + preposition aggregate (*a + TO*) spells out as \emptyset and the subject surfaces in nominative case, as in English sentential possessives. With the dative possessors, no incorporation of P into the definite determiner (*a*) occurs. Thus the latter shows up obligatorily, and the subject surfaces in an oblique case, as with Finnish sentential possessives.¹⁴

¹⁴ These remarks leave open the case in Hungarian where the possessor is marked nominative and the definite determiner is present.

- (i) a. Mari kalap-ja-i
 the Mari(-NOM) hat-POSS-PL(-3SG)
 ‘Mari’s hats’

Interestingly, in addition to the English and Finnish paradigms, Freeze (1992) identifies a third possibility with sentential possessives. This is the case where the bare location phrase moves to subject position, and where the P reanalyzes with the copula but spells out as *be + P*. Freeze suggests that Portuguese shows both of these possibilities: both *have* and the possibility of spelling out *be + P* explicitly:

- (ii) a. O menino tem fome (Freeze 1992, (76a))
 the child has hunger
 ‘The child is hungry.’
- b. O menino esta com fome (Freeze 1992, (76a))
 the child is with hunger
 ‘The child is hungry.’

A natural possibility that we will not explore here is that the alternation in Hungarian possessive nominals with a nominal subject is parallel to what we find in (ii). Thus *a + TO* can spell out either as \emptyset (the equivalent of *have*) or explicitly as the sequence *a + TO*. Assuming *TO* to be abstract, the result is phonologically identical to *a* itself. Tóth points out that Hungarian does not in fact exhibit an independent dative preposition/postposition, but rather marks indirect objects with dative case. One view of this is that the Hungarian dative P is abstract (*TO*).

4. SEMANTICS OF POSSESSIVE DPs

Along with providing a syntactic account of possessive nominals that is parallel to the account of possessive clauses, this analysis affords a very straightforward view of the semantic composition of possessive DPs.

4.1. *Basic Rules*

Assume that the possessor subject *John* is interpreted in its source position, and that DP receives the same interpretation as its contained D'. Then we can propose the simple Montague Grammar-style translation rules in (37) and (38) for the basic possessive structure:¹⁵

- (37) a. [_{DP} *John*] → **j**
 b. [_P *TO*] → $\lambda x \lambda y [\text{POSS}(x, y)]$
 c. [_N *car*] → **car'**
 d. [_D *THE*] → $\lambda Q \lambda P \exists x \forall y [[Q\{x\} \leftrightarrow y = x] \& P\{x\}]$
- (38) a. [_{P'} P DP] → P'(^DP')
 b. [_{NP} N] → N'
 c. [_{PP} NP P'] → $\lambda x [\text{NP}'(x) \& P'(x)]$
 d. [_{D'} D PP] → D'(^PP')

Under these rules, we can build up the translation of *John's car* (= *THE car to John*) as shown in (39), according to which DP denotes the set of properties of the unique car possessed by John:

- (39) a. [_{P'} *to John*] → $\lambda x \lambda y [\text{POSS}(x, y)]$ (**j**) → $\lambda y [\text{POSS}(\mathbf{j}, y)]$
 b. [_{NP} *car*] → **car'**
 c. [_{PP} *car TO John*] → $\lambda x [\lambda y [\mathbf{car}'(y)](x) \& \lambda y [\text{POSS}(\mathbf{j}, y)](x)]$
 → $\lambda x [\mathbf{car}'(x) \& \text{POSS}(\mathbf{j}, x)]$
- d. [_{D'} *THE car TO John*]/[_{DP} *John's car*]
 → $\lambda Q \lambda P \exists x \forall y [[Q\{x\} \leftrightarrow y = x] \& P\{x\}] (^{\lambda x} [\mathbf{car}'(x) \& \text{POSS}(\mathbf{j}, x)])$
 → $\lambda P \exists x \forall y [[[\mathbf{car}'(y) \& \text{POSS}(\mathbf{j}, y)] \leftrightarrow y = x] \& P\{x\}]$

This is in fact close to the standard Russellian semantics assigned to the possessive description under generalized quantifier theory (Barwise and Cooper 1981).

¹⁵ We assume that POSS is equivalent to the general locative "IT" relation posited by Barker (1995).

4.2. *Temporal Modification*

With these results in hand, we now return to the ambiguity of examples like *John's former car*. Following the analogy to possessive sentences, we propose that the ambiguity is structural and arises from the availability of two different positions for the attachment of the temporal adjective *former*, as shown schematically in (40):

- (40) a. John's former car
 b. $[_{DP} THE [_{PP} [_{NP} \mathbf{former} car] [_P TO[_{DP} John]]] \quad N\text{-mod}$
 c. $[_{DP} THE \mathbf{former} [_{PP} [_{NP} car] [_P TO[_{DP} John]]] \quad POSS\text{-mod}$

In the first structure, *former* attaches to NP. This corresponds to the N-modifying reading, where we have an entity that was formerly a car. In the second structure, *former* attaches to PP. This corresponds to the POSS-modifying reading, where we have a car that was formerly possessed.

For the purposes of this paper, we will interpret the temporal adjective *former* by means of the standard Montagovian lexical and phrasal rules in (41), which treat the AP semantically as a function that applies to the interpretation of the modified noun as function to argument and shifts its temporal index:

- (41) a. *former* \rightarrow **former'**
 b. $[[\mathbf{former}']^M]^{M, g, w, t}$ is that function h from $D_{\langle s, \langle e, t \rangle \rangle}$ to $D_{\langle e, t \rangle}$ such that for all $\alpha \in ME_{\langle s, \langle e, t \rangle \rangle}$ and $x \in \text{Var}_e$, $[[h(\langle w, t \rangle)](\alpha)](x) = 1$ iff $a(\langle w, t \rangle)(x) \neq 1$ and for some $t' < t$, $[\alpha(\langle w, t' \rangle)](x) = 1$ (basically, Dowty et al. 1981, p. 164)
 c. $[_{XP} AP XP] \rightarrow AP'(\wedge XP')$

The N-modifying reading of *John's former car* arises by combining *former* directly with *car*:

- (42) a. $[_{NP} car] \rightarrow \mathbf{car}'$
 b. $[_{NP} \mathbf{former} car] \rightarrow \mathbf{former}'(\wedge \mathbf{car}')$
 c. $[_{PP} \mathbf{former} car TO John]$
 $\rightarrow \lambda x[\mathbf{former}'(\wedge \mathbf{car}')(x) \ \& \ (\lambda y[POSS(j, y)](x))]$
 $\rightarrow \lambda x[\mathbf{former}'(\wedge \mathbf{car}')(x) \ \& \ POSS(j, x)]$
 d. $[_{DP} THE \mathbf{former} car TO John] / [_{DP} John's \mathbf{former} car]$
 $\rightarrow \lambda P \exists x \forall y [[\mathbf{former}'(\wedge \mathbf{car}')(y) \ \& \ POSS(j, y)]]$
 $\leftrightarrow y = x \ \& \ P\{x\}$

The latter can be read informally as “the set of properties of the unique x that was formerly a car and that John possesses.” Note that in (42d), **former'** has only **car'** in its scope.

The POSS-modifying reading of *John's former car* arises by combining *former* with the larger PP *car TO John*:

- (43) a. $[_{PP} \textit{car TO John}] \rightarrow \lambda x[\mathbf{car}'(x) \ \& \ \text{POSS}(\mathbf{j}, x)]$
 b. $[_{PP} \textit{former car TO John}] \rightarrow \mathbf{former}'(\wedge \lambda x[\mathbf{car}'(x) \ \& \ \text{POSS}(\mathbf{j}, x)])$
 c. $[_{D'} \textit{THE former car TO John}] / [_{DP} \textit{John's former car}]$
 $\rightarrow \lambda P \exists x \forall y [[[\mathbf{former}'(\wedge \lambda x[\mathbf{car}'(x) \ \& \ \text{POSS}(\mathbf{j}, x)]) (y)]$
 $\leftrightarrow y = x] \ \& \ P\{x\}]$

The latter can be read as “the set of properties of the unique x that is formerly a car that John possessed.” In (43d), **former'** has all of $(\wedge \lambda x[\mathbf{car}'(x) \ \& \ \text{POSS}(\mathbf{j}, x)])$ in its scope.

This analysis yields correct truth conditions for the relevant examples, and also shows why possessive nominals with non-agreeing temporals are possible in examples like *John's current former car* (discussed earlier). Because there are two sites for attachment, it is possible for the two adjectives to apply to distinct predicates (44):

- (44) $[_{D'} \textit{THE current former car to John}] / [_{D'} \textit{John's current former car}]$
 $\rightarrow \lambda P \exists x \forall y [[[\mathbf{current}'(\wedge \lambda x[\mathbf{former}'(\wedge \mathbf{car}') (x) \ \& \ \text{POSS}(\mathbf{j}, x)]) (y)] \leftrightarrow y = x] \ \& \ P\{x\}]$

The analysis also shows why, in a sequence of two temporal adjectives, the left must be POSS-modifying and the right N-modifying. The reasoning is identical to the sentential case. English attributive adjectives typically precede the phrase they modify. Therefore, since N is located inside the locative PP, a modifier of the N will always come inside, and to the right of, a modifier of the locative PP:

- (45) **formerly** $[_{PP} [_{NP} \mathbf{former} [_{NP} \dots]] \dots]$
 POSS-mod N-mod

Finally, the analysis clarifies why it is *possessive* nominals that display the temporal modification ambiguity. Possessive DPs introduce the relation POSS in the form of the abstract preposition *TO*. It is the presence of this additional relation that creates the additional possibility for modification.

Summarizing our results so far, we have seen that by assuming parallel structures for sentential and nominal possessives, we can explain the ambiguity induced by temporal adjectives noted at the outset. The N-modifying/POSS-modifying ambiguity becomes a simple structural one, a matter of differing attachment of AP within DP. The assumed parallelism can be motivated by the similar constraints and case-marking possibilities observed for sentential and nominal possessives. Furthermore, the nominal

structures we assume can be given a straightforward compositional semantic interpretation.

5. SOME OPEN ISSUES

There are several additional interesting puzzles raised by our analysis that we will briefly sketch here. These include the unexpected presence of temporal ambiguities in double genitive constructions, the unexpected absence of temporal ambiguities in relative clause constructions, and the possible existence of a third type of temporal modification reading. We present some potential lines of analysis, but will not attempt to fully resolve them here.

5.1. *Adjectival Scope with Double Genitives*

Along with familiar prenominal genitives, discussed above, English also contains so-called “double genitive” constructions, illustrated in (46a, b). The latter have the general form *a(n) N of DP’s* and permit a temporal adjective, as shown in (47):

- (46) a. a car of John’s
 b. an enemy of Frank’s
- (47) a former car of John’s
 a. ‘a car which was once possessed by John’
 b. ‘an object which is possessed by John and which was once a car’

Notice now that although *former* does not appear to be in construction with the possessive *John’s* in (47), the example nonetheless exhibits the same ambiguity found in *John’s former car*: there is a POSS-modifying reading, (47a), and there is an N-modifying reading, (47b). The puzzle raised by this case is straightforward: how do we predict the POSS-modifying reading in the double genitive given the apparent structural distance between the possessive and the adjective?

The syntax and semantics of double genitives has been the subject of ongoing discussion in the literature.¹⁶ One very natural idea under our Freeze-style approach is to analyze these cases essentially as indefinite, untransformed variants of the structures that give rise to prenominal genitives. Consider (48) below, where the *of*-phrase is a predicate, similar

¹⁶ See, for example, McCawley (1988), Barker (1998), Partee and Borchev (2000), and Storto (2000).

to that in our locative PP small clause, where the object of P has not fronted, and where P itself has not incorporated into D:

- (48) $[_{DP} a [_{PP}[_{NP} \text{car}] [_{P'} \text{of John's}]]]$

Under (48), we can explain the ambiguity of *a former car of John's* just as before, appealing to different structural attachments. When *former* attaches to PP, it will yield the POSS-modifying reading (49a); and when it attaches to NP, it will yield an N-modifying reading, (49b).

- (49) a. $[_{DP} a \textbf{former}[_{PP}[_{NP} \text{car}] [_{P'} \text{of John's}]]]$ (POSS-modifying)
 b. $[_{DP} a [_{PP}[_{NP} \textbf{former} \text{car}] [_{P'} \text{of John's}]]]$ (N-modifying)

The analysis of prenominal and double genitive modification thus comes out to be the same.

There are a number of interesting points to be observed about this proposal. First, note that although it makes the underlying structures of prenominal and double genitives parallel, it does not make them identical: the former involves a dative-locative *TO*, whereas the latter involves *of*. This distinction appears to be an important one, given the observation by Storto (2000) that the interpretation of the POSS relation appears subtly different in the two cases. Storto brings out the contrast with the example in (50):

- (50) Yesterday, John and Paul were attacked by (different) groups of dogs.
 a. Unfortunately, **John's dogs** were pitbulls.
 b. Unfortunately, **some of John's dogs** were pitbulls.
 c.# Unfortunately, **some dogs of John's** were pitbulls.

As Storto notes, the prenominal genitives in (50a, b) can be interpreted as denoting the set of dogs that attacked John, a denotation supplied by the preceding context. By contrast, the double genitive in (50c) cannot apparently receive the context-supplied reading. Instead it must be interpreted more narrowly, as referring to dogs that John owned. On our account this difference can be located directly in the lexical semantics of *TO* versus *of*. Specifically we can allow *TO* to denote a free variable over relations, whose content can be fixed contextually; but we require *of* to denote the possession relation in particular.

As a second point, notice that if (48) is correct, we can no longer view the possessive morpheme 's occurring in genitives uniformly as the spell-out of *THE* + *TO*. No *THE* occurs in (48) (rather, the indefinite *a* appears); furthermore, 's is already present on *John's* without any incorporation of P into D. If (48) is correct, then, we would appear to require two distinct

's in English: one spelling out *THE* + *TO*, and a separate genitive case-marker 's, plausibly governed by *of*.¹⁷

Finally, it is worth noting that under the proposal in (48), double genitives become rather analogous to existential constructions insofar as the small clause subject and predicate remain *in situ* and there is no surface movement. It thus becomes interesting to observe that double genitives, like existentials, exhibit what Barker (1998) terms an "anti-definiteness" restriction. Thus existentials exclude definite nominals as small clause subjects (51b). Likewise, simple double genitives exclude the definite determiner (52b):¹⁸

- (51) a. There is a car in the parking lot.
 b.*There is the car in the parking lot.

- (52) a. a car of John's
 b.*the car of John's

¹⁷ This view is defended in Lyons (1986); see also McCawley (1988). The "two 's" view gains some support from the fact that the English prenominal and postnominal genitive forms diverge in the first and second person, suggesting distinct status:

- (i) a. **John's** car/a car of **John's**
 b. **his** car/a car of **his**
 c. **my** car/a car of **mine**
 d. **your** car/a car of **yours**

¹⁸ B. Partee (p.c.) questions the presence of a definiteness effect on the basis of examples like (ia–d):

- (i) a. the car of John's that I like best
 b. those old cars of John's
 c. the first two joint papers of ours that have been referred to in print
 d. one of those ideas of his that you have to listen to in every talk

We believe what's going on here reflects a general fact about the interaction of restrictive modifiers and *the*. The pattern of data appears largely identical to one noted by Jackendoff (1977) with proper nouns:

- (ii) a.* the Paris
 b. the Paris that I love best
 c. the old Paris
 d. the Paris of the twenties

Thus while we agree with Partee's judgment that the definiteness restriction is lifted in (ia–d), we do not conclude that there is no definiteness restriction, with **the car of John's* as the "odd case"; in our view this would be equivalent to concluding that definite determiners are acceptable with proper nouns in English, with (iia) as the odd case. For more on the interaction of possessives and definiteness, see Lyons (1986), Barker (1998), and Storto (2000).

We will not attempt to explore this parallelism further, but simply note it as a suggestive one.

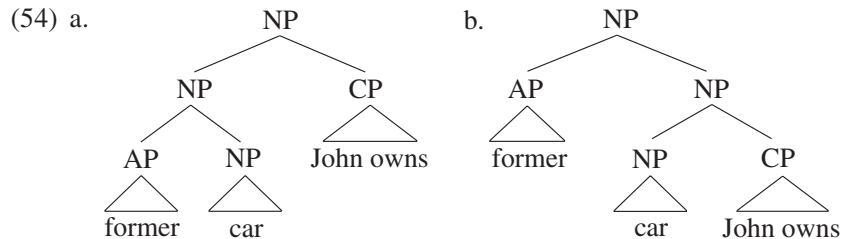
5.2. *Adjectival Scope with Possessives versus Relative Clauses*

There is an interesting contrast between the interpretation of temporally modified possessive nominals and temporally modified nominal + relative clause structures. Compare (53a, b):

- (53) a. John's **former** car
 b. a/the **former** car **that John owns/owned**

Whereas (53a) shows the familiar ambiguity, (53b) does not. The latter has only the N-modifying reading, denoting an object that was formerly a car and is or was owned by John. The POSS-modifying reading is absent.

These results are surprising given the usual view that attributive adjectives and relative clauses are both adjunct common noun modifiers. This leads us to expect an N-modifying/POSS-modifying ambiguity based on whether AP adjoins inside or outside the scope of the relative (respectively):



Evidently, this expectation is misplaced; only a narrow scope for the adjective is available (54a).

Obligatory wide scope modification is found not only with relative clauses but also with postnominal adjectives. Consider the English examples in (55a, b), due to Sadler and Arnold (1994), and the French example in (56), due to Doetjes (1997):

- (55) a. A **fake** antique **rotten with neglect**. (= S&A's (28a))
 b. An **alleged** burglar **fond of country houses**. (= S&A's (28b))

- (56) un **ancien** président américain **sympathique**
 a former president American pleasant
 (= 21, p. 150 in Doetjes 1997)
 'a pleasant former American president'

As Sadler and Arnold note: “[(55a)] describes an object which is a fake antique, but which is genuinely rotten with neglect. [(55b)] describes an alleged burglar, not an alleged country house loving burglar” (p. 196). Similarly, Doetjes observes that (56) describes an individual who *is* pleasant and who *was* formerly an American president, not an individual who was formerly a pleasant American president. The generalization is that the prenominal adjective takes scope beneath the postnominal modifier, just as in (55b).

An important property of the adjectives in (53), (55), and (56) is that they are semantically **nonintersective**.¹⁹ That is, they do not support the entailment pattern in (57):

$$(57) \quad \text{NP is a(n) A N} \quad \rightarrow \quad \text{NP is A and NP is an N}$$

Thus if it is true that Bill is a former president, it doesn't follow that Bill is former and Bill is a president. Indeed, the latter is not even well-formed. Similarly, if Gordon is an alleged burglar, it doesn't follow that Gordon is alleged and Gordon is a burglar. The behavior of nonintersective adjectives like *former*, *ancien*, *alleged*, and *fake* contrasts with that of intersective adjectives like *white* and *naked*, which do support the entailment pattern in (57). Thus if Monticello is a white house, then Monticello is white and Monticello is a house. Similarly, if Venus is a naked woman, then Venus is naked and Venus is a woman.²⁰

In Larson (1998, 1999, 2000) it is argued that intersective and nonintersective modifiers have a different syntax within the larger [_{DP} D NP] structure of nominals. In particular, intersective modifiers are semantically predicates and originate syntactically as complements of D. Thus relative clauses, postnominal PP modifiers, postnominal APs, and intersective pronominal A's are, like NP itself, underlying D-complements, and there is no constituent containing NP and the modifier that excludes D, contrary to the usual picture in (54).²¹

¹⁹ Pace Sedler and Arnold (1994), not all prenominal adjectives take scope beneath a relative clause. For example, the adjectives in (ia, b) seem to require scope over the relative clause:

- (i) a. the **oldest** antique **that was rotten with age**
 b. the **first** American president **that was pleasant**

²⁰ See Siegel (1976) for a different framework than the one adopted here, and see Larson (1998, 1999) for criticisms of Siegel's approach.

²¹ More precisely, relative clauses, postnominal PPs and APs, and intersective pronominal A's all originate as inner complements of D in a DP “shell structure,” where D subsequently raises away from the complement:

- | | | | |
|------|---|---|-----------------|
| (58) | [_{DP} a [_{NP} vase] | [_{CP} that was broken]] | Relative clause |
| | | [_{PP} in pieces] | Postnominal PP |
| | | [_{AP} broken into pieces] | Postnominal AP |
| | | [_{AP} broken] | Prenominal A |

By contrast, nonintersective modifiers are constituents of D-complements, and correspond to predicates or quantifiers within that domain.

- (59) [_{DP} a [_{NP} **former** vase]]

Thus a nonintersective adjective like *former* corresponds to a quantifier over times or events within a D-complement, such as an NP.²²

The properties of (53), (55), and (56) appear compatible with these syntactic assumptions. Under our analysis, the N-modifying/POSS-modifying ambiguity with the nonintersective adjective *former* corresponds to a different attachment within the complement of the covert determiner *THE*:

- | | | |
|---------|---|----------------|
| (60) a. | [_{DP} <i>THE</i> [_{PP} [_{NP} former [_{NP} car]] [_{P'} <i>TO</i> John]]]] | N-modifying |
| b. | [_{DP} <i>THE</i> [_{PP} former [_{PP} [_{NP} car]] [_{P'} <i>TO</i> John]]]] | POSS-modifying |

In the relative clause structure, by contrast, there is no possibility of a similar attachment ambiguity. Although *former* can attach exclusively to NP as in (61a), counterpart to (60a), NP and CP do not make up a single constituent to which *former* can attach, hence there is no counterpart to (60b):²³

-
- | | | | |
|-----|---|-------------------------------------|----------------|
| (i) | [_{DP} [_{D'} a [_{DP} [_{NP} vase] [_{D'} t | [_{CP} that was broken]]]] | RC |
| | <u> </u> | [_{PP} in pieces] | Postnominal PP |
| | | [_{AP} broken into pieces] | Postnominal AP |
| | | [_{AP} broken] | Prenominal A |

In the case of intersective APs that will end up prenominal, there is subsequent raising for agreement, with AP becoming a second Spec of DP; cf. (ii). For more on this syntax for DP see Larson (1991).

- (ii) [_{DP} [_{D'} a [_{AP} broken] [_{DP} [_{NP} vase] [_{D'} t t]]]]
-

²² We believe this will explain an observation made by an anonymous *NALS* reviewer that adjectives like *former* only appear to apply to N's or N-complexes referring to "natural kinds." On the proposal advanced here, reference to and modification of kinds occurs at the NP level. See Larson (2003) for more on this point.

²³ An anonymous *NALS* reviewer suggests examples like (ia) as a potential problem for the account offered here. (ia) can refer to a person who was a neighbor when I was in Oklahoma, and who is no longer a neighbor now; this would appear to involve *former* taking scope over both the nominal and the RC (ib):

- | | | |
|-----|----|---|
| (i) | a. | my former neighbor when I lived in Oklahoma |
| | b. | my [former neighbor when I lived in Oklahoma] |

- (61) a. [_{DP} a/the [_{NP} **former** [_{NP} car]] [_{CP} that John owns]] N-modifying
 b.*[_{DP} a/the **former** [_{NP} car] [_{CP} that John owns]] *POSS-modifying

The absence of a POSS-modifying reading with the possessive relative clause is thus correctly predicted.

5.3. A Pure POSS-Modifying Reading?

As a final note concerning scope, consider the temporally modified possessive nominal in (62a) and the three informal logical representations in (62b–d):

- (62) a. John's former coffee shop
 b. John's & former(coffee shop) N-modifying
 c. former(John's & coffee shop) POSS-modifying
 d. former(John's) & coffee shop Pure POSS-modifying

Representation (62b) is what we have called the N-modifying reading, where *former* applies exclusively to the noun. (62c) is what we have identified as the POSS-modifying reading, where the adjective has both the noun and the possession relation within its scope. (62d) represents a third possibility, where *former* applies exclusively to the possession relation, but not to the noun. In effect, (62d) represents a “pure POSS-modifying” reading.

Irene Heim (p.c.) observes that (62d) does not appear to represent a potential reading of (62a), as illustrated in the following scenario. Suppose John once owned a clock shop located at 55 Main St., but subsequently sold it to a firm that converted it to a coffee shop. The present status of the establishment is thus as follows: it was formerly owned by John, but is currently a coffee shop. As Heim notes, although it is possible to point and truthfully utter (63a) as we are walking by the establishment, it does not appear possible to point and truthfully utter (63b):

- (63) a. That is John's former clock shop!
 b.#That is John's former coffee shop!

The correct conclusion, we believe, is that not all RCs attach in the same place. Specifically, nonintersective temporal relatives like *when I lived in Oklahoma* and generic relative clauses should be given an event-modifying semantics and syntax, like nonintersective modifiers. See Larson (1983, 2000) for discussion of nonintersective temporal RCs, and Larson and Takahashi (2002) for discussion of generic relative clauses in Japanese, Korean, and Turkish.

But the latter should be possible if (63a) had a representation as in (62d). Hence it seems there is no pure POSS-modifying reading, in which AP takes scope solely over the possession relation.

Consider now the nominal in (64a), containing the AP *alleged*, and the three corresponding representations in (64b–d):

- | | | |
|---------|-------------------------------|---------------------|
| (64) a. | John's alleged coffee shop | |
| b. | John's & alleged(coffee shop) | N-modifying |
| c. | alleged(John's & coffee shop) | POSS-modifying |
| d. | alleged(John's) & coffee shop | Pure POSS-modifying |

Consider the same scenario given above, with the extra element that John receives a statement from the local government one day stating that he owes property taxes on 55 Main St. The local tax authorities believe (incorrectly) that John is still the owner.

Note that if we wish to refer to the property in question, then (65), the equivalent of (63b), is now felicitous. But notice that (64c) does *not* appear to represent the correct reading of (65) in the circumstances.

- (65) That is John's alleged coffee shop!

It seems a correct principle that if X alleges A & B, then X alleges A & X alleges B. However, it appears that a property can be John's alleged coffee shop without anyone alleging that it is a coffee shop. All that's required, it seems, is that it be a coffee shop and that it be alleged to be John's. But this is just what is represented by the pure POSS-modifying reading (64d). Hence a pure POSS-modifying reading appears to be available in this case.²⁴

The apparent divergence between *former* and *alleged* in possessive modification is surprising, and it is unclear to us at present how to account for it. Why is *alleged* able to take scope narrower than *former* in the possessive construction? We leave this interesting question to further study.

²⁴ It is interesting to consider how a pure POSS-modifying reading would be structurally represented in our account. The most natural proposal would be to let A modify the locative P small clause head directly, [_P A P], following an adverbial analogy proposed by Di Sciullo and Williams (1987). This would, however, require us to abandon the view that 's is the spell-out of *TO* + *THE*. We are grateful to G. Storto for raising this point.

6. CONCLUSION

Ambiguity has often provided a window into linguistic structure. In this paper we have argued that an ambiguity involving temporal adjectives found in numerous languages sheds interesting light on the structure of possessive nominals. In particular, it suggests that the form of the latter closely matches that of possessive clauses, a conclusion that is in line with much recent work suggesting parallels between nominal and clausal structure. By articulating the nominal to include a locative small-clause structure, we account for the ambiguity as a simple matter of structural attachment, explain certain ordering restrictions on the ambiguity, and provide a plausible basis for compositional semantic interpretation. This analysis, if correct, has numerous implications for other constructions, and we have briefly explored two of them involving double genitives and relative clauses. However, the general domain is clearly a rich one empirically, and there are many questions still to be explored.

REFERENCES

- Abney, S.: 1987, *The English Noun Phrase in Its Sentential Aspect*, PhD dissertation, MIT.
- Barker, C.: 1995, *Possessive Descriptions*. CSLI Publications, Stanford.
- Barker, C.: 1998, 'Partitives, Double Genitives, and Anti-uniqueness', *Natural Language and Linguistic Theory* **16**, 679–717.
- Barwise, J. and R. Cooper: 1981, 'Generalized Quantifiers and Natural Language', *Linguistics and Philosophy* **4**, 159–200.
- Benueniste, E.: 1966, *Problèmes de Linguistique Générale*. Gallimard, Paris.
- Bernstein, J.: 1993, *Topics in the Syntax of Nominal Structure across Romance*, PhD dissertation, City University of New York.
- Burton, S.: 1997, 'Past Tense on Nouns as Death, Destruction and Loss', in K. Kusumoto (ed.), *Proceedings of the North East Linguistic Society 27*, pp. 65–77. GLSA, University of Massachusetts at Amherst.
- Cinque, G.: 1994, 'On the Evidence for Partial N-Movement in the Romance DP', in G. Cinque et al. (eds.), *Paths toward Universal Grammar*, pp. 85–110. Georgetown University Press, Washington, D.C.
- Cooper, R.: 1983, *Quantification and Syntactic Theory*. Reidel, Dordrecht.
- den Dikken, M.: 1997, 'The Syntax of Possession and the Verb *Have*', *Lingua* **101**, 129–150.
- Di Sciullo, A. M. and E. Williams: 1987, *On the Definition of Word*. MIT Press, Cambridge, Mass.
- Doetjes, J.: 1997, *Quantifiers and Selection: On the Distribution of Quantifying Expressions in French, Dutch and English*, PhD dissertation, Holland Institute of Generative Linguistics (HIL).
- Dowty, D., R. Wall, and S. Peters: 1981, *Introduction to Montague Semantics*. Reidel, Dordrecht.
- Engdahl, E.: 1985, *Constituent Questions*. Reidel, Dordrecht.
- Fillmore, C.: 1968, 'The Case of Case', in E. Bach and R. Harms (eds.), *Universals in Linguistic Theory*, pp. 1–88. Holt, Rinehart and Winston, New York.
- Freeze, R.: 1992, 'Existentials and Other Locatives', *Language* **68**, 553–595.

- Fukui, N. and M. Speas: 1986, 'Specifiers and Projection', in N. Fukui, T. R. Rapoport, and E. Sagey (eds.), *MIT Working Papers in Linguistics 8*. MIT, Cambridge, Mass.
- Guéron, J.: 1995, 'On HAVE and BE', in J. Beckman (ed.), *Proceedings of the North East Linguistic Society 25*, GLSA, University of Massachusetts at Amherst.
- Hoekstra, T.: 1994, 'Have as BE Plus or Minus', in G. Cinque et al. (eds.), *Paths towards Universal Grammar*. Georgetown University Press, Washington, D.C.
- Howe, C.: 1976, 'The Meanings of Two-Word Utterances in the Speech of Young Children', *Journal of Child Language 3*, 29–47.
- Jackendoff, R.: 1977, *X-Bar Syntax*. MIT Press, Cambridge, Mass.
- Kayne, R.: 1993, 'Toward a Modular Theory of Auxiliary Selection', *Studia Linguistica 47*, 3–31.
- Larson, R.: 1983, *Restrictive Modification: Relative Clauses and Adverbs*. PhD dissertation, University of Wisconsin-Madison.
- Larson, R.: 1991, 'The Projection of DP and DegP', to appear in R. Larson (forthcoming), *Essays on Shell Structure Projection*. Routledge, New York.
- Larson, R.: 1995, 'Olga Is a Beautiful Dancer', paper presented at the annual meeting of the Linguistic Society of America, New Orleans.
- Larson, R.: 1998, 'Events and Modification in Nominals', in D. Strolovitch and A. Lawson (eds.), *Proceedings from Semantics and Linguistic Theory 8*. Cornell University, Ithaca, N.Y.
- Larson, R.: 1999, 'Semantics of Adjectival Modification', lectures presented at the LOT Winter School, Amsterdam.
- Larson, R.: 2000, 'Temporal Modification in Nominals', paper presented at the International Roundtable 'The Syntax of Tense and Aspect', November 15–18, 2000, Paris, France.
- Larson, R. and N. Takahashi: 2002, 'Order and Interpretation in Prenominal Relative Clauses', paper presented at the annual meeting of the Linguistic Society of America, San Francisco.
- Larson, R.: 2003, 'Two Domains of Nominal Modification', ms., Stony Brook University.
- Lyons, C.: 1986, 'The Syntax of the English Genitive Constructions', *Journal of Linguistics 22*, 123–143.
- McCawley, J.: 1988, *The Syntactic Phenomena of English*. The University of Chicago Press, Chicago.
- Neale, S.: 1990, *Descriptions*. MIT Press, Cambridge, Mass.
- Partee, B.: 1983/1997, 'Uniformity vs. Versatility: The Genitive, a Case Study', appendix to T. Janssen, 'Compositionality', in J. van Bentham and A. ter Meulen (eds.), *The Handbook of Logic and Language*, pp. 464–470, Elsevier, New York, 1997.
- Partee, B. and V. Borschev: 1998, 'Integrating Lexical and Functional Semantics: Genitives, Relational Nouns, and Type-Shifting', in R. Cooper and T. Gamkrelidze (eds.), *Proceedings of the Third Tbilisi Symposium on Language, Logic and Computation*, pp. 229–241. Center on Language, Logic and Speech, Tbilisi State University, Tbilisi.
- Partee, B. and V. Borschev: 2000, 'Genitives, Relational Nouns, and the Argument-Modifier Distinction', in C. Fabricius-Hansen, E. Lang, and C. Maienborn (eds.), *Approaching the Grammar of Adjuncts* (ZAS Working Papers in Linguistics 17), pp. 177–201. Zentrum für Allgemeine Sprachwissenschaft, Berlin.
- Sadler, L. and D. Arnold: 1994, 'Prenominal Adjectives and the Phrasal-Lexical Distinction', *Journal of Linguistics 30*, 187–226.
- Siegel, E.: 1976, *Capturing the Adjective*, PhD dissertation, University of Massachusetts at Amherst.
- Slobin, D.: 1985, 'Cross-linguistic Evidence for the Language-Making Capacity', in D. Slobin (ed.), *The Cross-linguistic Study of Language-Acquisition, Vol. 2: Theoretical Issues*, pp. 1157–1256. Lawrence Erlbaum Associates, Hillsdale, N.J.
- Storto, G.: 2000, 'On the Structure of Indefinite Possessives', in B. Jackson and T. Matthews (eds.), *Proceedings from Semantics and Linguistic Theory 10*, pp. 203–220. Cornell University, Ithaca, N.Y.

- Szabolsci, A.: 1983, 'The Possessor That Ran Away from Home', *The Linguistic Review* **3**, 89–102.
- Szabolsci, A.: 1994, 'The Noun Phrase', in I. Kenesei (ed.), *Syntax and Semantics 27: The Syntactic Structure of Hungarian*, pp. 179–275. Academic Press, New York.
- Taylor, J.: 1992, 'Old Problems: Adjectives in Cognitive Grammar', *Cognitive Linguistics* **3**, 1–35.

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