

Tense, Case, and the Nature of Syntactic Categories

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July 30, 2002, revised September 26-27, 2002

To appear in *The Syntax of Time*
[Jacqueline Guéron and Jacqueline Lecarme (eds.), MIT Press].

1. Introduction¹

This paper proposes an explanation for the complementation patterns of verbs, nouns and adjectives in languages like English. We focus on those properties often taken to follow from the theory of case, and add to the picture new observations about the distribution of clausal complements.

Our results build on the proposals of Pesetsky and Torrego (2001, henceforth "P&T 2001"). In that paper we argued that several distinct syntactic phenomena result from interactions between tense-motivated movement into the C-system and nominative case on the subject. This work attempted to unite a number of strands of research that had generally been pursued separately. In particular, our results suggested that work on the syntax of tense illuminates the theory of case. The distribution of tense inside arguments turned out to interact strongly with the *external* distribution of these arguments. The present paper suggests a broader unification of these research strands with recent work on the nature of syntactic categories.

This paper is organized as follows. We begin by summarizing the results of P&T 2001. Next, we extend these results, offering a general theory of complementation patterns. This theory, in turn, will reveal a previously hidden complementarity in the distribution of arguments. Finally, we suggest that this "hidden complementarity" provides support for approaches that view the distinctions among lexical categories as contextually determined.

The phenomena investigated by P&T 2001 included the distribution of *that* and *for* in embedded CPs, as well as the distribution of auxiliary-fronting in interrogative and other clause-

1. We wish to thank Philip Branigan, Hamida Demirdache, Danny Fox, Jacqueline Guéron, Sabine Iatridou, Jacqueline Lecarme, Shigeru Miyagawa, Norberto Moreno, Carlos Piera, Christa Platzack, and Norvin Richards for helpful discussion. We also wish to thank our students at MIT and at the Instituto «Ortega y Gasset» (Madrid) for important questions and comments, as well as audiences at the Conference on Syntax of Tense and Aspect (Paris 2000), the 2001 Colloque de Syntaxe et Sémantique à Paris, and the XII Colloquium on Generative Grammar (Lisbon), Memorial University of Newfoundland, Stanford and Georgetown Universities, the School of Oriental and African Studies (London), and the 2002 Summer Linguistic Seminar of the Linguistic Society of Japan.

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types. Our proposal supported the following hypothesis concerning the nature of nominative case:²

(1) **The nature of nominative case**

Nominative case is an instance of an uninterpretable Tense feature (uT) on D.

The hypothesis in (1) entails that the relationship between a nominative subject and T is symmetrical. Subject agreement on T reflects a set of ϕ -features on T ($u\phi$) which have no semantic interpretation as part of TP, but would receive an interpretation if they were part of a nominal. Hypothesis (1) amounts to the claim that nominative case on a subject reflects T-features on D which have no semantic interpretation as part of DP but would receive an interpretation if they were part of T. We sketch the arguments for this approach in the next section.

Hypothesis (1) led us in turn to a more general speculation about the nature of grammatical features. In standard views, the features of a lexical item L may belong to any of the following three types:

- (A) features which have a semantic value on L (*interpretable features of L*),
- (B) features that have a semantic value on some other lexical item L', but have no value on L (*uninterpretable instances of interpretable features*), and
- (C) features that have no semantic value on any lexical item, including L (*purely formal uninterpretable features of L*).

Most features seem to belong to categories A and B. Structural case is a salient exception: a seeming instance of category C. Hypothesis (1) amounts to the claim that nominative case, at least, is actually an instance of category B, and immediately suggests the more general hypothesis that category C does not exist at all — i.e. that *all* grammatical features have some potential semantic value. If this is so, then we must adopt a view like (1) not only for nominative, but also for other instances of structural case as well. In this paper, we argue that not only nominative, but all instances of structural case are actually instances of uT on D. This proposal suggests an analysis of clause structure that offers a new perspective on the overlapping

2. This hypothesis was first suggested by Williams (1994, 11) (a fact regrettably missed by P&T 2001), and was explored independently by Haeblerli (1999).

yet diverse complementation properties of the categories V, N and A. As a result many of the phenomena discussed under the rubric of "Case Theory" (along with others not normally consider case-related) can receive a unified explanation in a framework without type C features — a framework in which the notion "structural case feature" is not an independent concept.

In particular, we will argue for a proposal about accusative case that parallels (1):

(2) **The nature of accusative case**

Accusative case (like nominative) is an instance of uT on D.

If hypothesis (2) is correct, we must ask what category enters an Agree relation with "accusative" uT and allows it to delete (as is required of uninterpretable features). We will argue that uT on a complement of V enters an Agree relation with an instance of T that is structurally lower than the main tense of the sentence. Contrasts in the complementation properties of V, N and A will turn out to stem from differences in the presence and nature of this lower T. That conclusion will lead us to a proposal with which we will conclude this paper: that apparent distinctions among V, N and A actually reflect distinctions in this lower T — a proposal with potentially far-reaching consequences for the theory of syntactic categorization.

2. Nominative case

In this section, we offer a brief review of the results of P&T 2001 that support hypothesis (1).³ In that paper, we sought an account of the paradigm in (3). When *wh*-movement takes place in a matrix clause of Standard English, and the *wh*-phrase is not a nominative subject, T-to-C movement is also observed, as in the interrogative (3b). T-to-C movement may also fail to apply, as in (3a). (Failure of T-to-C movement yields an exclamative, rather than interrogative interpretation, a fact discussed by P&T 2001 which we will ignore here.⁴) Crucially, when a nominative *wh*-phrase undergoes local *wh*-movement, T-to-C movement is never observed, as seen in (3c-d):

3. Our exposition is somewhat simplified and compressed for reasons of space. For a fuller exposition, see Pesetsky and Torrego (2001).

4. See also Radford (2000) for some necessary modifications of P&T 2001's proposals concerning the syntax of exclamatives.

(3) **T-to-C asymmetry in matrix questions (Koopman 1983)**[non-subject *wh* → "optional" T-to-C]

- a. What a nice book Mary read ___!
 b. What did Mary read ___?

[subject *wh* → no T-to-C]

- c. Who ___ read the book?
 d. *Who did ___ read the book?/*What a nice person did read the book!

Our approach relied on the resources of the theory of movement developed by Chomsky (1995, 2000, 2001) according to which the first ingredient of movement is an Agree relation established between an uninterpretable feature *uF* of a *probe* category H and a corresponding feature of a *goal* category G. The second ingredient is movement itself, triggered by an EPP subfeature of *uF* on H.⁵ In (3b), we argued that T-to-C movement is a response to an Agree relation established between *uT* on C and TP. (P&T 2001 proposed that when a head H bears the feature [*uF*, +EPP], and when this feature probes a goal GP that is the complement of H, it is head movement of G to H that satisfies EPP — a generalization of the Head Movement Constraint of Travis 1984.) If C bears [*uT*, +EPP], then (3a) and (3c) are surprising, since no T-to-C movement is observed in these examples. It was to explain these cases that we first offered the hypothesis in (1). If nominative case is actually a T-feature, then in principle a nominative subject can serve as a goal for *uT* on C just as well as TP itself can. Since neither the nominative subject or TP c-commands the other, both thus count as bearers of T-features that are equally close to C. We thus proposed that *Mary* in (3a) is an inner specifier of CP, moved there in response to [*uT*, +EPP] on C, just as T itself is moved in (3b).

In all the examples of (3), C bears not only [*uT* +EPP], but also [*uWh* +EPP]. Because in (3a-b), the closest bearer of *wh* within the clause is not also the closest bearer of *uT*, we observe two instances of movement triggered by C: T-movement triggered by [*uT* +EPP] on C, and *wh*-movement triggered by [*uWh* +EPP]. In (3c), the nominative subject of the clause is also a *wh*-phrase. Thus, the closest bearer of *uT* is also the closest bearer of *wh*. It is thus not surprising that only one instance of movement is observed. The nominative *wh*-phrase can

5. The idea that EPP is a subfeature of an uninterpretable feature departs slightly from the proposals offered by Chomsky in the works cited.

serve as a goal for both [*uT* +EPP] and [*uWh* +EPP] on C, and one instance of movement can satisfy the EPP subproperties of both features on C.

What accounts for the unacceptability of (3d)? This example is identical to (3c) — a situation in which a single instance of movement can satisfy two properties of C — except that these two properties are here satisfied by two distinct instances of movement: T-to-C movement satisfying *uT* on C, and *wh*-movement satisfying *uWh*. To account for the unacceptability of (3d), P&T 2001 proposed that unnecessary movement operations (e.g. T-to-C movement in (3d)) are forbidden by the general Economy condition in (4):

(4) **Economy of movement**

The EPP properties of *uF* on a head H are satisfied by the smallest possible number of movement operations.

The paradigm seen in the interrogatives and exclamatives of (3) is also observed in embedded declarative clauses in the Belfast dialect of English, so long as successive-cyclic *wh*-movement has applied from within the clause. On the assumption that the embedded declarative clause bears [*uT* +EPP] and [*uWh* +EPP], these facts are explained exactly like the facts in (3):

(5) **Belfast English: T-to-C asymmetry in embedded declaratives (Henry 1995; p.c.)**[non-subject *wh* → (optional) T-to-C movement]

- b. Who did John say [did Mary claim [had John feared [would Bill attack ___]?

[subject *wh* → no T-to-C movement]

- c. Who did John say [___ went to school]?
 d. *Who did John say [did ___ go to school]? (bad unless *do* is emphatic)

The facts of embedded declarative clauses in Belfast English, P&T 2001 suggested, strongly resemble the well-known paradigm of the *that*-trace effect. The conditions on the presence and absence of the word *that* in C of Standard English embedded declarative clauses appear to mirror quite faithfully the conditions on *do* moved to C in (3) and (5):

(6) "That-trace effect" (Perlmutter 1971)

[non-subject wh → optional that]

- a. What do you think [Mary read ___]?
- b. What do you think [that Mary read ___]?

[subject wh → no that]

- c. Who do you think [___ read the book]?
- d. *Who do you think [that ___ read the book]?

P&T 2001 suggested (adapting an idea of Koopman 1983) that the resemblance is not accidental.

In particular, P&T 2001 made the proposal in (7):

(7) Nature of English that

That is not C, but a particular realization of T moved to C.

English C itself, according to this proposal, is phonologically null. On this view, the *that*-trace effect in (6d) does not merely resemble the "*did*-trace" effect in (3d) and (5d); it is, in fact, the same effect.⁶ The *that*-trace/*did*-trace effect thus provided one argument for the hypothesis about nominative case in (1).

The idea about *that* in (7) offers an immediate analysis of the more general omissibility of *that* in English. The [*u*T, +EPP] feature of C can in principle, as we have seen, trigger either T-to-C movement, or subject movement to Spec,CP. The *that*-trace effect and related phenomena arise when both C and the subject bear a *wh*-feature. The Economy condition in (4) thus favors subject movement over T-to-C movement, as just discussed. When the subject (or C) does not bear a *wh*-feature, both types of movement are equally costly; therefore, both types of movement are possible. That is why (3a) and (3b) are both possible, and also why (8a) and (8b) (which involve no *wh*-movement whatsoever) are both possible:

6. Radford (2000) offers a modification of P&T 2001's proposals in which it is not T itself that moves to C and is pronounced as *that*, but a distinct "finiteness" head between T and C. This eliminates the need to identify the phonology relation between *that* and the tensed verb as a form of "doubling" (as in P&T 2001), but at the cost of requiring distinct explanations for the *that*-trace effect and the "*did*-trace effect" — since a different category moves in the two constructions.

- (8) a. Mary expects [_{CP} [_T that]_j+ [C, #F] [_{IP} Sue will buy the book]].
"...that Sue will buy the book..."

- b. Mary expects [_{CP} [Sue, #F]_j [C, #F] [_{IP} *t*-Sue_j will buy the book]].
"...Sue will buy the book..."

The apparent optionality of *that* in C of an embedded declarative thus reflects the choice between T-to-C movement (*that*) and subject movement to Spec,CP (no *that*) as ways of satisfying the [*u*T, +EPP] property of C.⁷

On this view, the well-known observation that *that* is not omissible in subject CPs (Chomsky and Lasnik 1977; Stowell 1981; Kayne 1980) amounts to the claim that only CPs in which T has moved to C are acceptable as subjects of a higher clause:

(9) "That-omission" asymmetry

[non-subject CP → optional that]

- a. Mary thinks [that Sue left].
- b. Mary thinks [Sue left].

[subject CP → obligatory that]

- c. [That Sue left] is obvious.
- d. *[Sue left] is obvious.

The paradigm in (9) can be immediately understood once we remember that instances of uninterpretable T are deleted at some point after they enter an Agree relation with a distinct instance of T. If this deletion operation must apply in an embedded CP before that CP moves to form a subject of a higher clause, as in (9c-d), only a CP introduced by the word *that* — an instance of interpretable (non-deletable) T moved to C — will continue to have an instance of T in C after deletion applies. In P&T 2001, we suggested that T of the higher clause accepts as its subject specifier only a category that itself has an instance of T in its head. We identified this as a consequence of a general "Match Condition" on EPP satisfaction, but for present purposes, we can simply view this as the familiar requirement that the subject of a finite clause in English must be nominative, i.e. must have a T-feature on its head. This idea rests on a natural generalization of our hypotheses in (1) and (2) that would identify as case-marked not only a

7. We continue to leave open, as in P&T, the nature of the mechanism that decides — apparently on a language-particular and dialect-particular basis — when T in C is spelled out as *that* doubling an inflected main or auxiliary verb and when it is spelled out as a displaced auxiliary verb.

category with *u*T in its head, but also a category with *i*T in its head. Thus, after instances of *u*T in C that have entered an Agree relation have been deleted, finite clauses introduced by *that* — but not finite clauses without *that* — count as "nominative". The *that*-omission asymmetry thus provides a second argument in favor of the identification of nominative case with T.

Non-finite clauses in English have an obvious counterpart to *that* when the subject of the clause is overt. This is the clause-introducing element *for* (in Standard English), which we also identify as an instance of T moved to C. Evidence for this analysis includes the existence of "*for*-trace effects" and a "*for*-omission asymmetry" parallel to the *that*-omission asymmetry seen in (9):

- (10) **The *for*-trace effect**
 *Who would you prefer [for ___ to buy the book]?

- (11) **"*for*-omission" asymmetry**
 [non-subject CP → optional *for*]
 a. Mary would prefer [for Sue to leave].
 b. Mary would prefer [Sue to leave].

- [subject CP → obligatory *for*]
 c. [For Sue to leave] would be desirable.
 d. *[Sue to leave] would be desirable.

Finally, as noted by P&T 2001, a counterpart to the *for*-omission asymmetry can be detected with non-finite clauses whose subject is PRO. Bresnan (1972), Carstairs (1973), Pesetsky (1989) and others have observed that infinitives introduced by *for* have a characteristic semantics: most often irrealis, but also generic. Stowell (1982) and Pesetsky (1989) added to this the discovery that this type of semantics also characterizes infinitives with PRO when these infinitives occur as subjects of a higher clause. Thus, while complement infinitives with PRO may be realis (factive or implicative) or irrealis/generic, depending on semantic properties of the higher clause, subject infinitives are limited to irrealis/generic semantics:

- (12) **Realis infinitive asymmetry**
 [non-subject CP → *realis or irrealis infinitive*]
- | | |
|---|-----------------------|
| a. Mary wanted [PRO to learn the election results]. | [irrealis] |
| Mary would hate [PRO to lose the game]. | |
| Mary hates [PRO to lose games]. | [generic] |
| b. Mary hated [PRO to learn the election results]. | [realis: factive] |
| Mary managed [PRO to lose the game]. | [realis: implicative] |
- [subject CP → *only irrealis/generic infinitive*]
- | | |
|--|-----------------------|
| c. [PRO to learn the election results] would shock me. | [irrealis] |
| [PRO to lose the game] would prove they are idiots. | |
| [PRO to learn election results early] is a crime. | [generic] |
| [PRO to lose games like this] annoys the public. | |
| d. ??[PRO to learn the election results] shocked me. | [realis: factive] |
| ??[PRO to lose the game] proved they were idiots. | |
| *[PRO to lose the game] was managed by the team. | [realis: implicative] |

We suggest that this is simply the *for*-omission asymmetry of (11) in disguise. It appears to be a fact about Standard English that T moved to C of an infinitival clause is spelled out as a null morpheme when T agrees with PRO, and is spelled out as *for* otherwise. We thus detect T moved to C in an infinitive with PRO by inspecting its semantics, rather than its phonological form, since an infinitive in which T moved to C is a null morpheme will be homophonous with an infinitive in which PRO has moved to Spec,CP and T has not moved at all. These observations will be quite important in section 6.

3. Accusative case

The explanation offered by P&T 2001 for the phenomena discussed in the previous section, if correct, provides support for the hypothesis that structural case features are actually T features. Our discussion so far has established this for nominative case. In this section, we begin our presentation of new material, and take up the question of accusative case.

If structural case in general is T, then the "Case Filter" of Government-Binding Theory (Chomsky 1981) can be understood as the Argument-Tense Condition in (13).

- (13) **Argument-Tense Condition [Case Filter]**
 An argument must bear T (*u*T or *i*T).

We will discuss the rationale for (13) below. For now, we will assume that it is true, and discuss some of its consequences.

In English, at least, instances of D and C come from the lexicon bearing *u*T, not *i*T. Because CP contains TP, *u*T on C has the ability to satisfy its requirements internal to its maximal projection, as discussed in the preceding section. CPs are thus **self-sufficient** with respect to *u*T. English DP (with qualifications noted below) does not contain TP, and thus does not have a comparable ability to satisfy its requirements internally. In this sense, DPs are not self-sufficient. DP, unlike CP, is dependent on the external environment to satisfy its *u*T property. This is the traditional observation that DPs must search for case, unlike CPs.

Our discussion will take the following form. Consider the hypothesis in (2) — that our conclusions about nominative case extend to accusative. When we combine this hypothesis with the observation that DPs are not self-sufficient with respect to *u*T, we conclude that there must be some occurrence of T in a transitive clause that is responsible for licensing accusative case. We will show that once we have understood the properties of this occurrence of T correctly, we have acquired an understanding of the overall distribution of complements across categories. This result in turn provides support for our initial hypothesis.

We argue first that the most conservative proposal along these lines — a proposal suggested by P&T 2001 (pp. 366-367) — is not correct (at least for languages like English). This proposal would identify the T responsible for accusative case with the T responsible for nominative case — i.e. the main Tense of the sentence.

Consider the complementation properties of clauses whose main predicate is an AP. As is well-known, a DP in English may not serve as the complement to A, but a CP may:

- (14) **DP complement to A: impossible**
 *Bill was afraid the storm.

- (15) **CP complement to A: possible**⁸
 a. Bill was afraid that the storm will be destructive.
 b. Bill was afraid the storm will be destructive.
 c. John was eager to read the instructions.
 d. John was careful to read the instructions.

We observe that the complement position in AP may be occupied by a self-sufficient argument, but not by an argument that is not self-sufficient. This makes sense, if clauses whose main predicate is AP contain no category capable of deleting *u*T on a complement DP. Crucially, however, the main clauses of (14) and (15) do contain an occurrence of T that deletes *u*T on a nominative subject. Clearly, this instance of T does not also delete *u*T on an accusative object. This is true either because this instance of T can Agree only with one DP, or because it is structurally too far away from the complement of A.

All things being equal, we expect T in a clause whose predicate is verbal to have fundamentally the same properties as the corresponding T in a clause whose predicate is adjectival. This means that we must attribute the availability of accusative case for objects of V (and its unavailability for objects of A) to some factor other than the main T of the sentence. We suggest that verbal predication structures differ from their adjectival counterparts in the presence of a *second occurrence of T* — closer to the complement of V than the main occurrence of T, and close enough to enter an agree relation with *u*T on a DP complement. We will use the label **T_o** for this lower occurrence of T, and **T_s** for the main T of the sentence.

T_o, like T_s, bears uninterpretable ϕ -features which act as a probe seeking a goal in its domain — a goal that also bears ϕ -features. Except for possible differences in EPP properties, the subscripts "o" and "s" may be regarded for present purposes as nothing more than a notation for keeping track of which T is under discussion. We will refine this proposal as we proceed, and leave open the possibility of other (perhaps semantic) differences between the two occurrences of T.

8. Note that all types of CPs — finite CPs with and without *that*, and non-finite CPs that are realis or irrealis/generic — are acceptable as complements of A. This fact will be important later.

In many instances, the semantic function of T_0 is apparent. A particularly clear example is provided by telic verbs (e.g. *read*) whose meaning involves two distinct subevents. The first subevent is a process (a predicate with an agent argument, in the case of *read*). The second subevent is the completion of the process (a predicate with an additional argument, i.e. the thing read). Following Hale and Keyser (1993) and Chomsky (1995, ch. 4), we propose that the predicate of each subevent is a distinct level item. In the case of a verbal predicate like *read*, the predicate that assigns the agent role can be called (for convenience) v ; and the lower predicate, V .

Tense heads quite generally have the property of ordering pairs of times, as argued by Klein (1994), Zagona (1990), Stowell (1995), and others. Our hypothesized T_0 has the clear function of relating the time of the vP -subevent to the time of the VP -subevent. If this view is correct, T_0 is located below v and above VP . Thus, the architecture for clauses whose main predicate is verbal must be (16) (omitting the base position of the external argument, which is $Spec, vP$ for all but unaccusative clauses):⁹

- (16) **Verbal predication structure**
 SUBJ T_s [vP v T_0 [vP V OBJ]]

The structure in (16) strongly resembles proposals advanced in much recent work. Kratzer (1996) and Travis (1992) suggested the existence of an aspectual head located in the position of our T_0 . Torrego (1999/2002) proposed the same structure, and argued further that this aspectual head belongs to the category P , an idea that will become important shortly. Lasnik and Saito (1991), Koizumi (1993, 1995) and Lasnik (1999) join Kratzer, Travis and Torrego in providing other evidence (from binding theory, scope and word order) that the head in question licenses accusative case (see also Johnson 1991).¹⁰

9. On the assumption that the phonologically realized verb in English occupies v , it is reasonable to suppose that English particles are overt instances of T_0 . The aspectual import of many particles (cf. atelic *Mary drank her coffee*. vs. telic *Mary drank up her coffee*) fits nicely with the discussion of the semantics of T_0 below. We pursue this connection in work in progress.

10. Some of this evidence suggests that the $u\phi$ -features of the category we call T_0 have the EPP property, triggering movement of the accusative DP to $Spec, T_0$ (i.e. triggering a sort of Object Shift). We leave open the

[continued]

Although the semantic contribution of T_0 is clearest in clauses that denote two temporally distinct subevents, T_0 must be present even in clauses where temporally distinct subevents cannot be identified — e.g. stative clauses like *Mary owns a car* — since even stative clauses (in English at least) allow accusative DP complements. We would not be surprised, however, to see the actual shape of object case on DP reflecting differences in the aspectual semantics of the clause in which they occur. This situation is found in Spanish. Animate accusative DPs in Spanish surface in two forms: as bare DPs, or as DPs introduced by the preposition *a*. The choice depends in part on the aspectual properties of the predicate, as observed by Torrego (1998). The verb *tapar* 'cover, block the view of', for example, has both a stative and a non-stative use. When the object of *tapar* is animate, the preposition *a* marks non-stativity:¹¹

- (17) ***a* marks non-stativity: *tapar***
 a. La policía tapaba los oradores.
 'The police blocked the view of the speakers.' [stative only]
 b. La policía tapaba **a** los oradores.
 'The police moved so as to block the view of the speakers.' [non-stative only]

A similar effect is observed with *conocer*, which may mean either 'know' (stative) or 'get to know' (non-stative). With an animate object, the two readings are disambiguated by *a*:

- (18) ***a* marks non-stativity: *conocer***
 a. Conoce bien un vecino suyo.
 'They know a neighbor of theirs well.'
 b. Conoce bien **a** un vecino suyo.
 'They got to know a neighbor of theirs well.'

Not surprisingly, the imperative (which disambiguates in favor of non-stativity) is unacceptable with an animate object unless the object is preceded by *a*:

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 important question of whether this is a general property of (English) T_0 or a variable property triggered, perhaps, by other factors. See Platzack (2001) for discussion of related matters.

11. As is well-known, other factors play a role in distribution of *a*, including (in some cases) specificity, which we will not deal with here.

- (19) ¡Conoce *(a) tu vecino!
 'Get to know your neighbor.' (Torrego 1998, 32)
 [vs. ¡Conoce la ciudad 'Get to know the city.']

The phenomenon is quite general. An achievement predicate, even one without a stative alternant, takes a DP complement with *a* when the complement is animate:

- (20) **Spanish *a* with achievement predicates**
 a. La policía detuvo *(a) un ladrón.
 the police detained (to) a thief
 'The police detained a thief.'
 b. La lluvia empapó *(a) muchos turistas.
 The rain soaked (to) many tourists
 'The rain soaked many tourists.' (Torrego 1998, 30)

Similar correlations between aspect and the form of objective case have been observed in other languages, e.g. by Kiparsky (1998) for the accusative/partitive alternation in Finnish and by Svenonius (2001) for a dative/accusative alternation in Icelandic. It is our hope that correlations of this sort can be related to a general theory of instantiations of T_0 .

Adjectival clauses differ crucially from verbal clauses. The structure we suggest for adjectival clauses is (21). We have included a distinction between *a* and A, modeled on the distinction between *v* and V, but nothing in this paper hinges on this. What is crucial is the absence of T_0 :

- (21) **Adjectival predication structure**
 SUBJ T_s [_{ap} *a* [_{AP} A OBJ]]

In addition to modeling the distinction in complementation possibilities between verbal and adjectival clauses, the structures in (16) and (21) predict that adjectives denoting temporally distinct subevents should not exist. This prediction appears to be correct. Adjectival clauses may be individual-level (e.g. *altruistic*) or stage-level (*drunk*), may denote a process (*busy*) or the result of a process (*destroyed*) — but there appear to be no adjectives that denote two-part events with different times associated with the two parts. Thus, for instance, it is impossible to say #*The woman very angry in three minutes was Mary*, where *very* makes it clear that *angry* is an adjective, and *in three minutes* diagnoses telicity, i.e. a process followed by an end-state. The

intended meaning would be something like 'The woman who moved from a state of non-anger to a state of extreme anger in three minutes was Mary', yet adjectival constructions with this sort of meaning do not exist. We attribute this to the inability of adjectives to distinguish the times of two subevents, a consequence of the absence of T_0 .

4. Prepositional Phrases

Adjectives in languages like English may, of course, take PPs as complements:

- (22) **PP complement to A**
 Bill was afraid of the storm.

If the Argument Tense Condition in (13) is correct, then the head of the complement to A in examples such as (22) bears a Tense feature. If the structure in (21) is correct, a PP complement to A must be "self-sufficient", just as CP is. In fact, there is evidence that the category P is actually a kind of T. This T occupies a position within certain DPs that is quite analogous to the position occupied by T within CP. Thus PP is not just self-sufficient, but is actually a special self-sufficient type of DP. One argument for this view comes from a surprising "P-trace" effect discovered by Kayne (1984, p. 28).

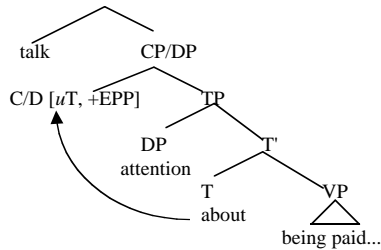
When an English gerund is the object of V, either the subject or object of the gerund may be extracted by A-bar movement, as seen in the (a) and (b) examples of (23)-(25) below. When the same gerund is the object of a preposition, however, subject extraction is noticeably worse than object extraction. Speakers' judgments concerning the strength of the effect vary somewhat, but the contrast is clear to most speakers:

- (23) **The P-trace effect**
 a. the unpublished paper that he resented [the student reading __]
 b. the student that he resented [__ reading his unpublished paper]
 c. the unpublished paper that I apologized [for the student reading __]
 d. *the student that he apologized [for __ reading your unpublished paper]
- (24) a. How much attention do you remember [John and Mary paying __ to this]?
 b. How much attention do you remember [__ being paid to this by John and Mary]?
 c. How much attention did you talk about [Bill paying __ to John and Mary]?
 d. *How much attention did you talk [about __ being paid to John and Mary]?

- (25) a. Which tunnel did she endorse [the government constructing __ with public money]?
 b. Which company did she endorse [__ constructing this tunnel with public money]?
 c. Which tunnel did she argue against [the government constructing __ with public money]?
 d. *Which company did she argue [against __ constructing this tunnel with public money]?

Kayne conjectured that this effect has the same source as the *that*-trace effect. If this is so, then our analysis of the *that*-trace effect can extend to the P-trace effect. Crucially, we must assume that the prepositions in the (c) and (d) examples of (23)-(25) are instances of T within the gerund. These instances of T may serve as goals for *uT* on C/D of the gerund¹², as shown in (26):

(26) **P as T within a gerund**



As in non-gerunds, when C/D also bears *uWh* and the subject is a nominative *wh*-phrase, it will be more economical for the [*uT*, +EPP] feature of C/D to be satisfied by Agree and by movement of the subject, than by distinct operations involving both the subject and the head of TP. In other clause-types, the result would be an acceptable output in which T fails to raise to C/D (perhaps remaining unpronounced, like unraised *that*), e.g. outputs like those in (27). In these examples, however, failure of the preposition (i.e. T) to move to C leads to a configuration in which the selectional properties of the higher verb are not satisfied. The verbs

12. See P&T 2001 for arguments inspired by Szabolcsi (1983; 1987) that D and C are the same category. If this view is correct, D is simply the name traditionally used when the category takes a nominal complement, while C is simply the name used with a clausal complement. Reflecting ambiguities familiar from the literature, we use the mixed term C/D for the category when it introduces a gerund, but nothing hinges on this label.

apologize, *talk* and *argue* each need a complement whose head contains an appropriate, selected preposition, e.g. *for*, *about* and *against* in the present case:¹³

- (27) **Failure to move P to C/D violates selectional requirements**
 a. *the student that he apologized [__ (for) reading your unpublished paper]
 b. *How much attention did you talk [__ (about) being paid to John and Mary]?
 c. *Which company did she argue [__ (against) building this tunnel with public money]?

The similarity between a gerund introduced by a preposition and the CPs that we have discussed so far makes it clear why these types of gerunds, at least, may occur as complements to A:

- (28) **P-introduced gerund as complement of A**
 Anne is afraid [of Mary winning the prize].

The *uT* feature on C/D of the gerund enters an Agree relation with the preposition (an instance of T), and thus does not need an external T₀ to satisfy its requirements.

We turn now to an obvious objection to this analysis: the derived constituent structure of PPs. If the derived structure for PPs were identical to the derived structure of *that*-clauses and *for*-clauses, they would show a bimorphemic head consisting of C/D and the moved preposition. The sister of this bimorphemic head would be the gerundive TP. Such an analysis would fly in the face of the fact that movement of the gerund may strand the preposition — an option not available to finite and infinitival TP complements of C:

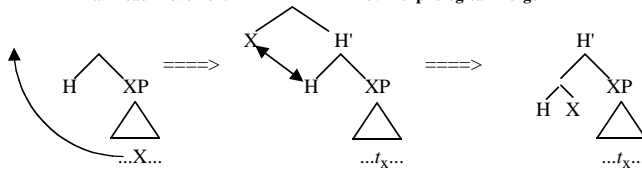
- (29) **Constituency of P+gerund vs. *that/for*+TP**
 a. [The student reading your unpublished paper] we have already apologized [for ____].
 b. *[The student read your unpublished paper] we have already said [that ____].
 c. *[The student to read your unpublished paper] we would prefer [for ____].

This is an important issue that we do not have space to discuss fully in this paper. We will, however, briefly sketch an answer to this question, inspired by ideas of Matushansky (2002), and will address the topic in greater detail in a fuller presentation of this material.

13. The logic of the situation is predicted by a bottom-to-top derivation of the sort assumed in this work: the Economy Condition applies within the gerund clause blindly, and is not outranked by the subcategorization requirements of a predicate merged later.

Both T-to-C movement in finite and non-finite clauses and the prepositional version of T-to-C movement in gerunds are instances of head movement. T-to-C movement in finite clauses and infinitives yields a structure familiar from work on head movement by Travis (1984) and Baker (1988), in which the moved head morphologically adjoins to the head whose features trigger the movement. Our results as a whole argue strongly that head movement belongs to the same system as phrasal movement. This leads one naturally to wonder why the derived constituent structure after head movement should involve morphological adjunction, rather than specifier formation, as is the case with phrasal movement. Matushansky suggests that head movement does in fact form a specifier, just like phrasal movement (in agreement with Fukui and Takano (1998, 44-51); see also Toyoshima 2001). Matushansky proposes in addition that the familiar morphologically adjoined structure is the result of a second, "follow-up" process, triggered by some heads but not by others, that "morphologically merges" a non-branching Spec,H with H itself. The two processes, Head Movement and Morphological Merger, are sketched in (30):

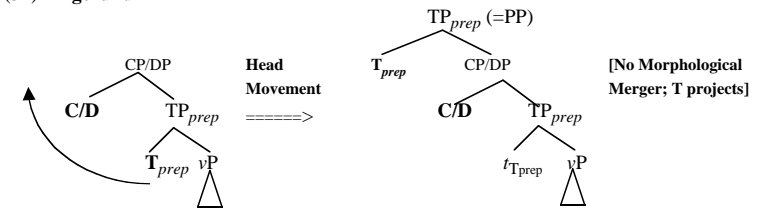
(30) **Matushansky's (2002) analysis of Travis-Baker Head Movement**
 a. Head Movement b. Morphological Merger



If it is a fact that bare TPs do not undergo movement such as topicalization, the constituency indicated by the facts in (29) teaches us that head movement of a prepositional T to C/D of a gerund is not followed by morphological merger of the moved preposition with C/D. By contrast, head movement of T to C of a finite clause or infinitive *is* followed by morphological merger of T with C. If the topicalized constituent in (29a) is a maximal projection, then one further option besides the option of morphological merger must be allowed: it must be the case in

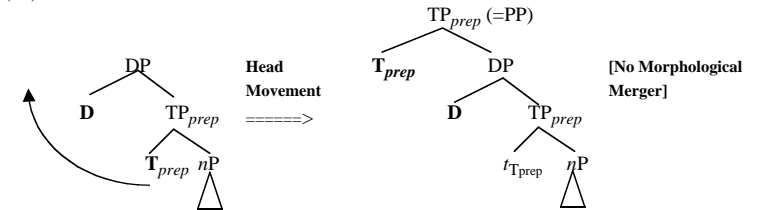
(29a) that the moved element (the preposition) projects, forming a TP (= PP) rather than a CP/DP. This is illustrated in (31):¹⁴

(31) **P + gerund**



Much the same analysis can now be posited for non-gerund DPs introduced by a preposition. Here too, we would argue that the preposition is actually a species of T merged below D and above NP (actually above *n*P, as discussed below). Here too, for English at least, we propose that the preposition undergoes head movement triggered by *u*T on D, and that this head movement is not followed up by morphological merger. As before, the possibility of stranding the preposition under movement indicates the possibility of projecting the moved preposition, rather than the D whose features triggered movement:¹⁵

(32) **P + DP**



14. When the CP/DP on the right side of (31) undergoes movement, stranding the preposition, it is an instance of "remnant movement", in that the moved CP/DP contains a trace of the stranded preposition.

15. If, as just suggested (and contra Kayne 1994), TPs do not undergo movement — or at least do not undergo A-bar movement processes such as topicalization, the fact that the sequence P+DP may pied-pipe under topicalization must indicate that the projection of P, rather than D, after P-to-D movement, is optional. When pied-piping occurs, it is DP that has projected. If the choice of projecting category is made "once and for all" in a derivation, we understand why a P+DP sequence that has pied-piped to an intermediate position as part of a

[continued]

The idea that prepositions are a species of T is not as exotic as it might seem. It is a common observation that elements of the prepositional vocabulary are found in the T position of a variety of clause-types across languages. Familiar examples from standard English include:

- (33) **Prepositional clausal T**
 a. John considers [there *to* be many reasons for this].
 b. Mary kept [there *from* being a riot].

It is also a common observation that elements of the prepositional vocabulary are found in C. This led Emonds (1985, chapter 7) to suggest that the category C be understood as a species of P. Our treatment of English *for*, however, suggests that such elements are actually instances of T whose presence in C is due to movement — a hypothesis that might be plausibly extended to similar phenomena in other languages.¹⁶

What common property unites members of the super-category that contains both prepositions and traditional instances of T? We suggest, though will not press the point, that this supercategory unites those predicates that situate events and individuals in time and space. It is a commonplace that the same vocabulary is often used for spatial and temporal location and direction (*before*, *after*, *within*, etc.), and for both spatial and temporal ordering. For prepositions that are not in any clear sense spatial or temporal, one can imagine a view of θ -role assignment that identifies such prepositions with positions in an abstract space in which a given state or scene takes place. The specific suggestion that prepositions and traditional instances of T may belong to the same category has been argued for in recent work by Torrego (1999/2002) (who focuses on Spanish *a* as a predicate of both temporal and spatial ordering) and by Dermirdache

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topicalization or *wh*-process may not strand the preposition in that intermediate position (Postal 1972): *Bill, I believe [to t_i] t_j that Mary has spoken t_j .

16. This rethinking of the notion "prepositional complementizer" removes, perhaps, some of the initial plausibility of proposals that prepositions originate as clause-introducers. In several recent papers, Kayne (2000, chapters 14-15; 2001) has pursued this approach, analyzing apparent clause-internal instances of P as complementizers which come to occupy a clause-internal position (and to take a nominal complement) as a result of a series of movement operations. One might imagine a reinterpretation of Kayne's approach to certain empirical problems in terms of prepositional T_S and T_O . It could turn out that certain apparent PPs are actually composed by movement of a remote DP to the specifier of a T. We do not take up this possibility here. We suspect that it is not the correct analysis of the constructions we have discussed here, but that it might be on the right track in other domains.

and Uribe-Etxebarria (2000) (who provide a general framework in which spatial and temporal predicates receive a similar syntax).

5. Properties of verbal T_O

We have offered a proposal concerning the complementation properties of V and A. We will shortly be turning our attention to N, whose complementation properties will turn out to be systematically and interestingly different. These differences will lead us to the proposal concerning the nature of syntactic categories with which we will end this paper. We begin by observing a special property of T_O in clauses whose main predicate is verbal. This property will be central to the distinction between verbal and nominal constructions discussed in the next section.

The observation that an adjective like *afraid* allows (and, because of the absence of T_O , requires) a PP complement headed by *of* immediately raises the question of why a corresponding verb, e.g. *fear*, does not also allow a PP complement headed by *of* — as an option, in addition to the possibility of a bare DP complement:

- (34) **No optional P in VP**
 a. John is afraid of the dark.
 b. John fears (*of) the dark.

If we are correct in our analysis of PP as a species of TP (and in our conclusion that, although the preposition has moved from inside DP, it forms the head of the construction after movement) the facts in (34) may be taken to indicate that (35) holds. A preposition is an instance of iT in our analysis, not uT . The qualification "verbal" in (35) is a preparation for the discussion in the next section, where we contrast verbal T with a nominal counterpart:

- (35) **Special property of [verbal] T**
 The goal of $u\phi$ on verbal T must bear uT .

The observation in (35) appears to be a property not only of T_O , but also of T_S , (putting possible exceptions such as Locative Inversion aside), which is why we have not limited (35) to T_O .

The statement in (35) raises two obvious questions. The first concerns VPs that appear to contain no DP complement whatsoever, and thus potentially no instance of uT . The second concerns VPs that appear to contain a selected PP complement, and thus call into question the

requirement for verbal T_o to probe uT . We will briefly discuss each of these questions before proceeding further.

We focus first on the VP of sentences like those in (36) that lack an overt DP complement:

(36) **VPs without any overt DP complement**

- a. Mary arrived.
- b. The boat sank.
- c. A bell sounded.

- d. The dog barked.
- e. They worked hard.
- f. The victim screamed.

If the sentences in (36) conform to the architecture of (16), and if T_o in these structures has the property in (35), then we must ask how T_o satisfies its needs. These include the need for a goal bearing ϕ -features, in addition to the more specific need in (35). The problem arises, however, only if we analyze the VPs in (36) as lacking a DP complement. We suggest that this is not the case, and that each of these examples contains a phonologically null DP complement.

The verbs in (36a-c) are probably unaccusative, which means that the VPs in these examples do contain DP complements. We propose that unaccusative (and, presumably, passive) clauses contain T_o , just like active transitive clauses. The T_o of an unaccusative or passive clause, however, differs from the T_o of an active transitive clause in the same way that T_s of an infinitival complement to a raising verb like *seem* differs from other instances of T_s . A T of this sort has the property that Chomsky (2000) calls "defective". Chomsky suggests that defective T contains only a proper subset of the ϕ -features of non-defective T, and that this has a crucial consequence. A defective, " ϕ -incomplete" T acts as probe, just like non-defective T, triggering agreement and potentially movement, but fails to mark uninterpretable features of its goal for deletion. This means that a DP in an Agree relation with a defective T still needs to agree with some other category, in order for uT (Case) on DP to be marked for deletion (and eventually erased). That is why the DP in a simple unaccusative matrix clause ends up in an Agree relation with T_s :

(37) **Structure of unaccusative clauses**

Mary_i T_s [_v, arrived] [T_o , $u\phi$: defective] [_{VP} V [_{t_i}, uT , $i\phi$]].

No problem arises if we assume that defective T_o in structures like (37) has the property in (35) as well (and likewise for defective T_s).

The verbs in (36d-f) are probably unergative. This means that the surface subject is not an underlying complement to V. Nonetheless, following Hale and Keyser (1993) (see also Chomsky 1995, chapter 4), we suggest that the V in an unergative VP does have a null DP complement, boldfaced in (38):

(38) **Structure of unergative clauses**

The dog T_s [_v, barked] [T_o , $u\phi$] [_{VP} V [**DP** [**e**], uT , $i\phi$]].

The null DP may be taken to be an expression whose meaning is provided by the verb, and which — if it were phonologically expressed — would be the DP found in cognate object and light verb constructions such as those in (39):

(39) **Cognate object and light verb constructions**

- a. The dog barked a loud bark./The dog gave a bark.
- b. They did good work.
- c. The victim screamed a loud scream./The victim gave a scream.

We turn now to the second obvious question raised by (35): PPs that appear to be complements of verbs. Consider first PPs that function as second objects of a verb:

(40) **PP complements as second objects**

- a. Mary returned the book to Bill.
- b. The government provided the town with water.

If a second object is structurally lower than the first (perhaps because of a "shell" configuration of the sort proposed by Larson 1988 to explain facts discovered by Barss and Lasnik 1986) then the PP in examples like those in (40) will not function as a goal for T_o and will raise no problems for (35).

Some VPs in which a PP complement appears to be a first object may have a similar structure, if the verb is unaccusative, as it probably is in examples like those in (41) below. If an unaccusative analysis of verbs like *matter*, *arrive*, and *smell* (in the relevant sense) is correct, then the PPs in (41) are really second objects, and pose no problem to the generalization in (35):

(41) **PP complements as second objects of unaccusative verbs**

- a. This issue matters to Sue.
- b. The train arrived at the station.
- c. The room smells of formaldehyde.

Other examples, superficially similar to (41), contain verbs that are clearly not unaccusative:

(42) **PP complements of non-unaccusative verbs**

- a. The dogs barked at the mailman.
- b. Mary worked for the government.
- c. John shouted to the bus driver.
- d. Sue argued against that view.
- e. We spoke to the president.
- f. Bill looked at the statue.

Some of the examples in (42a-f) may well have an analysis like that proposed for unergative verbs — as a comparison of (42a-b) with (36d-e) immediately suggests. If these examples contain a phonologically null DP complement, as we suggested in (38) for standard unergative constructions, then the PP in these examples is once again a second object. This removes the possible objection to (35). Alternatively, if it should turn out to be the case that some PPs are genuine first objects of verbs, we might propose that satisfaction of the selectional properties of a verb takes priority over satisfaction of (35), i.e. that a violation of (35) by a goal that bears *t*T for selectional reasons is permitted.^{17,18}

17. "Pseudopassive" constructions might provide relevant evidence. Perlmutter and Postal (1984, pp. 100-104) note that the passive construction may strand the P of a complement PP to an unergative verb. Examples (ia-b) are from Perlmutter and Postal:

- (i) a. The room was exercised in by Spider Man.
- b. This hall has been lectured in by three Nobel laureates.
- c. The mailman was barked at by the dogs.
- d. That view was argued against by Sue.
- e. The president has been spoken to.

This possibility is surprising if unergative verbs always take a null DP object, and if the PPs in examples like those in (i) are second objects. With only sporadic exceptions (*The building was taken care of by the custodian*), the object of PPs that function as clear second objects cannot be moved under passive:

- (ii) *This village was supplied grain with.

While this contrast might be taken as an argument against the proposal that unergative verbs take a null DP complement, it is also conceivable that the null DP complement is optionally absent, and that pseudopassivization is
[continued]

Let us therefore assume that (35) is a correct generalization and begin to investigate its consequences. In this paper, we have discussed four argument types in English:

1. "bare" DP;
2. CP not introduced by *that* or *for*;
3. CP introduced by *that* or *for*; and
4. PP.

We will now examine how each of these argument types fares when merged as a complement to V and probed by verbal T₀ with the property in (35). We will see that a technical question concerning the timing of feature deletion needs to be resolved in a particular manner if we are to account correctly for the interaction of both T₀ and T_s with these four clause types. This demonstration will put us in a good position to understand the distinctions between verbal and nominal complementation in the next section.

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possible only when the DP option is not taken. This might help us understand non-unaccusative verbs that do not allow pseudopassivization; these might be verbs that require the null DP complement:

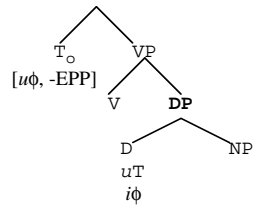
- (iii) a. *The government was worked for by many ethnic minorities.
- b. *The bus driver was shouted to by the stranded passengers.
- (compare: *ok The bus driver was shouted at...*)

We would analyze the stranded preposition of a pseudopassive construction as an instance of prepositional T that is "defective" in the sense discussed above in the main text. It is because the preposition is defective in a pseudopassive that its DP complement must search elsewhere for a way to mark its *u*T feature (its Case) for deletion. If a defective preposition counts as an instance of *t*T, then pseudopassive constructions offer a clear case in which verbal T₀ tolerates a goal that does not bear *u*T, indicating that (35) must be understood as outranked by selectional requirements. We consider the question open.

18. The Spanish *a* linked to non-stative T₀ that introduces the animate DPs discussed in the previous section cannot be an instance of *t*T, but must be an instance of *u*T — i.e. a case marker (as argued by Torrego 1998). If it originates inside DP, like other prepositions that we have discussed, then we must ask if it yields the same structure as English prepositions, i.e. if it ends up as a head of a PP. Torrego (1998) argues that this use of *a* does function as a head of a PP in one dialect of Spanish. If this is correct, then we must ask whether *a* contains any interpretable features whatsoever. It must, if Chomsky (1995, ch. 4) is correct in his suggestion that the derivation cannot tolerate a head all of whose features are eventually erased. (This was his argument against the existence of "Agr₀".) We leave the matter open.

The most straightforward case is the first: a "bare" DP, i.e. a DP that does not contain a prepositional T.¹⁹

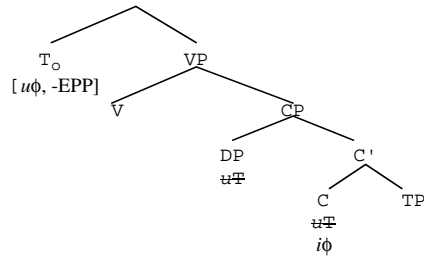
(43) **argument type 1: T_o probing DP**



The *uφ* features on T_o probe the *iφ* features on DP. Since the head of DP contains *uT*, condition (35) is satisfied.

Consider next a finite CP complement to V that is not introduced by *that* (or *for*; the same analysis will extend to a realis infinitive functioning as the complement of V).

(44) **argument type 2: T_o probing CP not introduced by *that***



Here the *uφ* features on T_o probe the *iφ* features on CP. As long as *uT* on C is undeleted at the stage in the derivation at which *uφ* on T_o acts as a probe, (35) is satisfied. This is an important

19. One might also investigate the possibility that bare DPs in English contain a "defective" T akin to the T of infinitival clauses from which raising takes place (Chomsky 2000). On this view, in English, a phonologically null preposition raises to D in normal accusative DPs, but due to its defective nature (the absence of some potential
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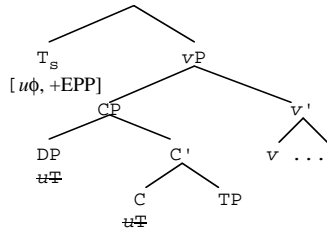
point. In P&T 2001 the fact that *uT* on C deletes after entering an Agree relation with *uT* on a subject DP provided an explanation for the *that*-omission asymmetry in (9). We claimed that once an uninterpretable feature has been "marked for deletion" by entering an Agree relation, it deletes quite soon. In the case at hand, we claimed that *uT* on C deletes once its maximal projection (CP) has been fully formed. In essence, this amounted to the proposal that, as suggested by Chomsky (2000), features marked for deletion disappear at the end of the next phase.

This proposal is incompatible with (35), and it is (35) that we will be defending at length shortly. In (44), the *uT* feature on C, marked for deletion by the nominative DP that moves to Spec,CP, must still be present at the point in the derivation at which *uφ* on T_o probes the CP complement of V. On the other hand, if our account of the *that*-omission asymmetry is to be maintained, when such a CP is probed by a T that has an EPP property (T_s in the case of the *that*-omission asymmetry), a *uT* feature on the head of that CP must delete *before* the CP moves to Spec,TP. That was the engine of our explanation for the *that*-omission asymmetry. Thus, the timing of deletion of uninterpretable features is important. One can imagine a number of different approaches to the issue. We will present the one that we consider the most straightforward.

Compare the structure in (44) to a structure in which exactly the same type of clause is an external argument of *v* that has not yet moved to Spec,TP_s. Such a structure is given in (45), which ultimately yields an unacceptable output:

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members of its φ-feature set fails to mark *uT* on D for deletion. Spanish accusative *a* (Torrego 1998) may be an overt instance of a defective prepositional T of this sort.

(45) **T_s probing CP not introduced by *that* (argument type 2)**



An uninterpretable feature marked for deletion, such as #F in (44) and (45), when present on a maximal projection α (CP), must be allowed to survive past the point at which other heads are merged and form their own maximal projections. Thus #F on C must still be present after the construction of VP and the merger of T_o in (44), since T_o (if (35) is true) still sees *uT* on CP. The structure in (45) shows us that #F on C must also survive the completion of the phase boundary vP, since *uφ* on T_s is capable of probing CP in this structure and, if (35) is true, still "sees" *uT* on CP. On the other hand, #F must delete once and for all in (45) before the EPP property of *uT* on T_s is satisfied — since it is the deletion of *uT* on C in such structures that creates a violation of the requirement that subjects be "nominative" (the Match Condition of P&T 2001) and thus rules out finite subject CPs not introduced by *that*. We summarize this proposal in (46):

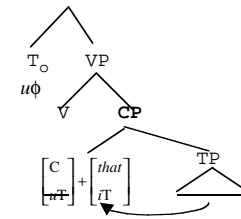
(46) **Timing of deletion of uninterpretable features**

An uninterpretable feature #F marked for deletion within a completed phase Π , is deleted the moment a new head σ is merged to Π .

We assume that the establishment of an Agree relation between the uninterpretable features of σ and any goals within phase Π is part of the process of merging σ with Π . The satisfaction of EPP properties of these features (the formation of specifiers of σ) involves one or more further instances of Merge, and thus is not simultaneous with the merger of σ and Π . Note also the crucial reference to "#F marked for deletion within a completed phase Π ". The *uT* feature of the DP external argument in (43) enters an Agree relation and is marked for deletion by T_s, but this relation is not established inside vP, therefore *uT* on DP does not delete before DP becomes the subject of T_s.

Let us now turn to the third argument type whose interaction with T_o we will be discussing: a complement CP introduced by *that* (or *for*). In such a CP, T (*iT*) has moved to C, forming a specifier of CP that undergoes morphological merger with C (following the ideas of Matushansky 2002, discussed above). The result is a familiar Travis-Baker structure in which C contains both the (phonologically null) complementizer which bears #F and the moved instance of *iT*. Given our proposal concerning the timing of deletion, when T_o is merged with a VP containing such a CP, #F is still present on the head of CP, thus satisfying the requirements of verbal T_o given in (35).

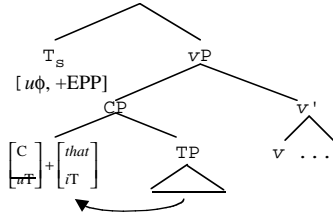
(47) **argument type 3: T_o probing CP introduced by *that***



It is important to note that (35) states that the goal of verbal T_o in a structure like (47) must bear *uT* – not that it must fail to bear *iT*. The goal of verbal T_o in (47) in fact bears both. It is its role as bearer of *uT* that allows it to satisfy (35). This observation will be of the utmost importance in the next section.

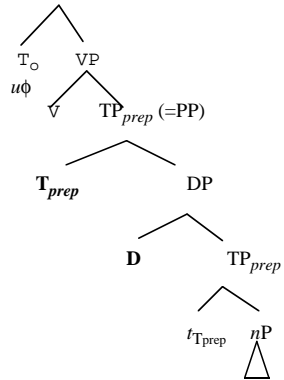
Note also that our proposals about timing also permit a CP introduced by *that* to function as the subject of a sentence, probed by T_s. The #F feature of C is not yet deleted when the *uφ* features of T_s probe a CP introduced by *that* in Spec,vP. This satisfies (35) for T_s. As we just saw when considering argument type 2 as a sentential subject, #F on C will delete before CP moves to satisfy the EPP requirement of T_s. A CP introduced by *that*, unlike a CP of argument type 2, still retains an instance of T in C after #F is deleted — namely, the instance of *iT* that moved to C and morphologically merged with it. Thus, a CP of type 3, unlike a CP of type 2, satisfies the Match Condition and can be a specifier of T_s.

(48) **T_s probing CP introduced by *that* (argument type 3)**



Finally, we note once more that argument type 4, a TP whose head is prepositional (that is, a PP) differs from a CP introduced by *that* or *for* in bearing only *iT*, and not *uT* in its head.²⁰ For this reason, such an argument may not be the goal probed by T_o (or by T_s for which we omit the tree):

(49) **argument type 4: T_o probing TP_{prep} (=PP) [violates (35)]**



20. This is true of English. We leave open the possibility that other languages, e.g. those without preposition stranding, may differ in this respect.

6. Properties of nominal T_o

We have seen that the goal of verbal T_o (as well as the goal of T_s) bears *uT*. This observation straightforwardly explained the acceptability of bare DPs, CPs introduced by *that* or *for*, and CPs not introduced by *that* or *for* in this context. It also explained the impossibility of a PP as a goal of verbal T_o. A PP, if we are correct, is actually a TP — i.e. a category headed by an instance of *iT*. Its head contains no instance of *uT*. In this respect, a PP contrasts with a *that*-clause (or *for*-clause), whose head does contain an instance of *uT*. More specifically, the head of a *that*-clause or *for*-clause contains both *iT* and *uT*, and it is the presence of *uT* that allows (35) to be satisfied.

Recall that the complementation patterns of verbs differ from the complementation patterns of adjectives. Adjectives are indifferent to the presence or absence of *uT* on the head of their complement. So long as the complement is self-sufficient, i.e. not in need of any T_o whatsoever, the result will be acceptable. This fact entails the impossibility of a bare DP complement to A and the possibility of a PP complement to A. This pattern is the opposite of that observed with complements of V. On the other hand, adjectives and verbs are similar in both allowing a full array of CP complements, as seen in (15), repeated below as (50):

- (50) **CP complement to A: all types possible**
- | | |
|--|-------------------------------|
| a. Bill was afraid [that the storm will be destructive]. | <i>that</i> |
| b. Bill was afraid [the storm will be destructive]. | <i>no that</i> |
| c. Bill was eager [to read the instructions]. | <i>irrealis</i> ²¹ |
| d. Bill was careful [to read the instructions]. | <i>realis</i> |

As we noted earlier, the behavior of complements to A is what we expect if T_o is absent from structures of adjectival predication. The behavior of complements to V, by contrast, is what we expect if structures of verbal predication contain a T_o that seeks *uT*, as stated in (35).

We now turn to the complementation properties of nouns. At first sight, nouns appear to behave like adjectives. As is the case with adjectives, the complement of a noun may not be a bare DP, but may be a PP:

21. In an irrealis complement with a subject other than PRO, T in C is realized as *for*, as we expect: *Bill was eager for Mary to read the instructions.*

- (51) **DP complement to N: impossible**
*Bill's fear the storm
- (52) **PP complement to N: possible**
Bill's fear of the storm

Work in "Government-Binding Theory" took the similarity between the complementation properties of N and A to be complete. Thus, for instance, Chomsky (1980; 1981), developing an unpublished suggestion by J.-R. Vergnaud, suggested that neither NP nor AP contains a structural case assigner for the complement. PP and CP, in turn, were taken to have no case need. Consequently, both PP and CP were predicted to be acceptable as complements of N and A — in contrast to DP. In later work, Chomsky (1986) suggested that N and A do assign case after all, but that this type of case is "inherent", and is "realized" as a preposition in languages like English. Crucially, neither of these variant proposals posited a case-theoretic difference between nominal and adjectival complementation structures. In our framework, such proposals could be translated straightforwardly into a hypothesis that N, like A, is not associated with T₀.

We will argue, however, that this approach is wrong. The complementation properties of N and A, though similar with respect to DP and PP complements, are not identical. In particular, N and A behave quite differently with respect to CP complements.

As (50a-b) show, the presence of *that* is optional in finite CP complements to A. Finite CP complements to N, however, behave differently, as observed by Stowell (1981, 1982). Though judgments occasionally waver, the presence of *that* appears to be obligatory in a finite CP complement to N in English:²²

22. We assume that the CPs in examples like (53a-d) are normal complements to N, and seek an explanation in the properties of T₀ for the facts under discussion. Several previous researchers have suggested, however, that N does not take a normal finite CP complement at all, and use this claim as part of an explanation of the obligatoriness of *that*.

Stowell (1981), for example, argues that finite CPs that look like complements to N are actually appositive adjuncts. On this hypothesis, the CP in a nominal like *Mary's belief that the world is round* would be an appositive modifier that offers a description of Mary's belief. We have chosen nouns that exclude this analysis. The proof that *X* is not itself an instance of *X*, nor is a demonstration that *X* an instance of *X*. Thus, the CPs in (53a-d) cannot be appositive modifiers, contrary to Stowell's proposal (cf. also Ogawa 2001, 148-157).

Grimshaw (1990) offers a proposal similar to Stowell's in many respects, except that her analysis does not claim that all putative complements to N are actually appositives. According to Grimshaw's theory, the CPs in examples like (53a-d) are syntactic complements to N, and are interpreted relative to the "lexical-conceptual structure" (*lcs*)

[continued]

- (53) ***That* obligatory in finite CP complement of N (Stowell 1981, 1982)**
 - a. I liked your proof [that Mary could not have committed the crime].
 - b.* I liked your proof [Mary could not have committed the crime].
 - c. My demonstration [that Sue was insane] was accepted by the court.
 - d.*My demonstration [Sue was insane] was accepted by the court.

Strikingly similar facts can be observed in the domain of infinitival complementation. Recall our discussion of the distribution of infinitives in section 2. In that section, we observed (following Stowell 1981; 1982) that an irrealis infinitival CP may function as the subject of a higher clause, just like a finite clause introduced by *that*. In contrast, a realis infinitival CP may

[continued from previous page]

evoked by N much as they would be interpreted relative to the *lcs* of the corresponding *V*. They are not, however, θ -marked arguments of N, since Grimshaw argues that the θ -marking capacity of N is defective. N, according to Grimshaw, can only θ -mark an argument that is the object of a preposition. Grimshaw suggests (p. 80) that this claim may explain (in the context of a theory in which a null C must be governed by a θ -marker) the non-omissibility of *that*. She argues at length that whatever the relation held by a CP complement to N, it is not θ -marking.

Grimshaw offers several pieces of evidence in support of this proposal. For example, she notes that adjectives like *frequent* and *constant* with a singular N eliminate result and object readings of N, and force arguments of N to be realized. This explains contrasts outside the domain of clausal complementation (e.g. *the frequent expression of one's feelings* vs. **the frequent expression*, p. 50). Grimshaw states (p. 74) that this effect is not found with CP complementation, a claim somewhat undercut by her additional claim (p. 75) that adjectives of frequency are actually not possible with singular nouns with (finite) CP complements — a second argument for her hypothesis. In fact, however, the data appear to vary with the choice of nominal. Grimshaw notes the impossibility of such examples as (i)a-b (pp. 75-76, judgments hers):

- (i) a. *Their frequent/constant announcement that they were the greatest eventually became tiresome.
- b. *His frequent/constant statement that he was about to resign was intended to mislead.

The behavior of other nominals, however, leads us to question the generalization. These other nominals not only allow the construction excluded in (i) (as seen in (ii)), but also show the pattern identified by Grimshaw as characteristic of argument taking in general. The presence of the frequency adjectives in (ii) makes the object CP obligatory, as seen in (iii):

- (ii) a. His frequent/constant claim that he was about to resign annoyed us.
- b. The constant belief that someone is trying to poison you is a sure sign of insanity.
- (iii) a. *His frequent/constant claim annoyed us.
- b. *The constant belief is a sure sign of insanity.

We suspect that the unacceptability of (i) arises, not from any deficiency in the argument-taking capacity of nominals, but from some interaction between the semantics of specific predicates and the semantics of individual frequency adjectives. For example, in our judgment, the use of *repeated* instead of *frequent* or *constant* in (ib) renders the example entirely acceptable. Crucially, as in (iii), acceptability disappears if the complement is not present. Thus, though there are factors influencing judgments that are not fully clear, it looks as though the complementation properties of N and V are essentially the same, except for the factors under discussion in the main text. For this reason, we have sought an alternative to the family of approaches represented by Stowell (1981) and Grimshaw (1990). See also Ogawa (2001, 200-216) for fuller discussion along similar lines.

not serve as the subject of a higher clause — just like a finite clause that is *not* introduced by *that*.

Exactly the same pattern can be observed in the complement position of nominals. The English verbs that select infinitival complements can be sorted into those whose complements are irrealis and those whose complements are realis.²³ If we examine the subset of these verbs that have nominalizations, we observe a remarkable correlation.²⁴ Only a verb that takes an irrealis infinitival complement continues to permit infinitival complementation when it is nominalized. A verb whose infinitival complement is realis, by contrast, excludes infinitival complementation when nominalized. This generalization appears to be quite robust, as (54) and (55) exemplify.²⁵

- (54) **Realis infinitival complementation to N: impossible**
- | | |
|--|---|
| *Mary's hate/hatred to ride in the car | *John's dislike to hear rumors about them |
| *Sue's love to solve problems | *Harry's bother to check the facts |
| *Bill's luckiness to win a prize | *Bill's condescension to speak with us |
| *Mary's dare to defy the government | *Mary's disdain to ride in the elevator |
| *Bill's help to understand things | *John's management to find a plumber |
| *John's neglect to turn off the light | *Sue's omission to mention this |
| *Mary's venture to ring the doorbell | *Bill's scorn to answer the letter |
- (55) **Irrealis infinitival complementation to N: possible**
- | | |
|---|--|
| Mary's desire to win | Harry's need to be accepted |
| Bill's agreement to ride in the car | Bill's arrangement to take the next flight |
| John's wish to win a prize | Sue's eagerness to win the prize |
| Sue's attempt to defy the government | John's choice to stay late |
| Mary's consent to undergo the operation | Bill's decision to ride in the elevator |
| Bill's demand to be taken to the king | Mary's endeavor(s) to find a plumber |
| John's hope to understand things | Sue's intention to answer the letter |
| John's learning to play the piano | Bill's offer to speak with us |
| Sue's plan to leave | John's preparation(s) to take the plane |
| Bill's promise to turn off the light | Mary's proposal to start the meeting |
| Bill's refusal to ring the doorbell | Bill's request to be allowed to leave |
| Sue's resolution to make the call | Mary's struggle to get her car to work |
| John's undertaking to pay the bill | John's vow to never take the subway |

Once again, the complementation properties of N contrast with A. Just as adjectives freely accept finite complements with or without *that*, so adjectives allow either irrealis or realis infinitival complements, in semantically appropriate contexts. This is demonstrated in (53c-d). In (56), we offer more contrasts between acceptable realis infinitival complements of A and unacceptable realis infinitival complements of N:

23. See footnote 27 for a discussion of ECM and Raising infinitives.

24. We take this correlation from Pesetsky (1989).

25. We know of only one exception, the noun *failure*. As noted by Pesetsky (1989), This noun, like the verb *fail*, allows an infinitival complement (*Bill's failure to leave*). Yet *fail* is a (negative) implicative verb. If Bill failed to leave, then Bill did not leave. We do not have an account of this exception.

(56) **Realis infinitival complements: A (possible) vs. N (impossible)**

- a. Mary was happy to learn the election results.
(cf. *Mary's happiness to learn the election results)
- b. Tom was depressed to hear that he had been passed over for promotion.
(cf. *Tom's depression to hear that he had been passed over for promotion)
- c. John was lucky to pick a topic that no one had worked on.
(cf. *John's luck to pick a topic that no one had worked on.)²⁶
- d. Sue was very clever to figure this out.
(cf. *Sue's cleverness to figure this out)
- e. Bill was rude to behave that way.
(cf. *Bill's rudeness to behave that way)

Clearly, the complementation patterns of N and A are distinct. Thus, it appears unlikely that structures of nominal predication lack T₀, like structures of adjectival predication.

Let us therefore start from scratch, and ask what property distinguishes acceptable from unacceptable complements of N. We suggest that the relevant property is the presence of *t*T on the head of the complement.

Consider first the range of possible complements to N. Consider first PP. A PP, in our approach, is headed by an instance of *t*T, and thus conforms to the generalization that we are proposing. Consider next finite a CP introduced by *that*. Such a CP is also an acceptable complement to N. A finite CP introduced by *that*, like a PP, has an instance of *t*T in its head (even though the head also contains *u*T, as discussed above). The same is true of an irrealis infinitival CP — also acceptable as a complement to N. We argued in section 2 that irrealis infinitives are just like finite *that*-clauses in undergoing movement of T to C (with subsequent morphological merger of T with C). As a consequence, an irrealis infinitive is like a *that*-clause in hosting an instance of *t*T in C.

Let us now turn to complements of N that are *not* acceptable. We begin with finite CPs that are not introduced by *that*, and their infinitival counterpart — realis infinitives. Such CPs, according to our proposals, do not host an instance of *t*T in C. The fact that these CPs are not acceptable as complements of N thus conforms to our generalization. The same is true of bare

26. The expression *It was John's good luck to pick a topic that no one had worked on* does not involve nominal complementation, but extraposition. Contrast **John's good luck to pick a topic that no one had worked on just ran out*.

DPs. A bare DP contains only *u*T in D, and does not contain any instance of *t*T in D. The fact that a bare DP is not possible as a complement of N once again supports the generalization that a complement to N is acceptable only if its head contains *t*T.

This generalization looks very much like a variant of the property attributed to verbal T₀ in (35). We take this resemblance to be significant. In particular, we will suggest that nominal predication structures are just like their verbal counterparts — and *unlike* their adjectival counterparts — in containing an occurrence of T₀. The T₀ in nominals, however, differs from the T₀ in verbal structures in seeking a goal that bears *t*T, rather than a goal that bears *u*T. We thus propose an architecture for nominal predication structures like that in (58), which is parallel to the architecture of verbal predication structures presented in (16) and repeated below as (57). Note that semantically bipartite (e.g. telic) verbs may retain this character when nominalized. If this semantic property correlates with a distinction between *v* and V in verbal predication structures, it probably correlates with a similar *n*/N distinction in nominal predication structures, as indicated in (58). We leave open the question of a possible counterpart to T_s in nominals:

(57) **Verbal predication structure**
SUBJ T_s [_{VP} *v* T_{0V} [_{VP} V OBJ]]

(58) **Nominal predication structure**
... [_{NP} *n* T_{0N} [_{NP} N OBJ]]

The key difference between T_{0V} and T_{0N} is the contrast between (35) (repeated below as (59)) and (60):

(59) **Special property of verbal T**
The goal of *u*φ on verbal T (T_{0V}) must bear *u*T.

(60) **Special property of nominal T**
The goal of *u*φ on nominal T (T_{0N}) must bear *t*T.²⁷

27. As is well-known, ECM and Raising constructions in English are possible in VP and AP, but not possible in NP:

- (i) a. *my belief (of) Mary to be intelligent
- b. *Mary's appearance to be intelligent

[continued from previous page]

If we were to combine our proposals with the analysis of Chomsky (1981; 2000) according to which ECM and Raising infinitives are bare TPs, we would make an entirely wrong prediction about VP and NP. Verbal T₀ should reject a goal headed by interpretable T, and nominal T₀ should accept such a goal. This leads us to propose that ECM and Raising infinitives are actually CPs. If we propose that the subject of such CPs raises to Spec,CP much as in finite clauses without *that*, we immediately understand why such CPs are acceptable as complements of V and A, but not as complements of N. The reason is the same as that provided for the distribution of finite clauses without *that*:

- (ii) a. ... believe [T₀, uφ: nondefective] [CP [Mary, uT]_i C [TP t_i to be intelligent]]
- b. ... seems [T₀, uφ: defective] [CP [Mary, uT]_i C [TP t_i to be intelligent]]

The central difference between such CPs and the others that we have discussed is the fact that *uT* on the subject (i.e. case on the subject) is not marked for deletion by any element within CP. This means that T is "defective" in the sense already discussed, and also that *uT* on C is defective in the same sense. The subject moves to Spec,CP as a consequence of agreement with [*uT*, +EPP] on C, much as it moves first to Spec,TP as a consequence of agreement with [*uφ*, +EPP] in both our system and Chomsky's. (Defectiveness is no bar to Agreement and EPP-motivated movement, even though the result does not mark features for deletion.) If T moved to C instead of the subject, the subject would not be in a phase-peripheral position, and thus (if Chomsky's Phase Impenetrability Condition is correct) would not be accessible to CP-external probes. When the higher clause contains an unaccusative verb like *seem* as in (ii)b, the subject in Spec,CP of the embedded infinitive (*Mary*) ultimately agrees with a higher T_s and raises to the higher subject position. When the higher clause contains an active transitive verb like *believe* in (ii)a, the higher T₀ marks *uT* on the embedded subject for deletion, possibly accompanied by movement to Spec, T₀, as discussed earlier.

Thus, the fact that ECM and Raising infinitivals have a distribution similar to the distribution of finite clauses without *that* is directly explained as a consequence of the defectiveness of *uT* within such infinitivals that motivates ECM and Raising in the first place.

If this analysis is correct, the reference to *goal* in (59) and (60) should probably be replaced with a reference to *goals*. Consider an embedded ECM infinitival whose subject is a *that*-clause. Such examples have occasionally been marked as deviant (e.g. by Stowell 1981), but seem to be acceptable to most speakers, with appropriately helpful prosody:

- (i) He considered [[that Mary left] to be a tragedy].

If our analysis of ECM is correct, the *that*-clause in (i) occupies Spec,CP of the embedded infinitive. This means that *uφ* on a higher T₀ should see the *that*-clause as a goal. Since the head of a *that*-clause bears *tT* as well as *uT*, this goal should be acceptable not only to verbal, but also to nominal T₀. This might make the false prediction that (ii) should be an acceptable nominal:

- (ii) *his consideration [[that Mary left] to be a tragedy]

Note, however, that not only Spec,CP but (the infinitival) CP itself is a goal of T₀, since neither c-commands the other. The fact that the head of infinitival CP bears only *uT* would exclude (ii) if we required all the goals of nominal T₀ to bear *tT*. As far as we can tell, none of our results would be threatened by such an alteration, nor by a comparable view of verbal T₀.

7. The Nature of Syntactic Categories

The statements in (59) and (60) are "technical" in that they posit a relation between two elements, a probe and its goal, that goes beyond the link between an uninterpretable feature and its interpretable counterpart that is the essence of the Agree relation. If our proposals are on the right track, we must hope that the statements in (59) and (60) will turn out to be consequences of deeper facts about the contrast between nouns and verbs. We speculate that there is a connection between the tense-seeking properties of T₀ and the tense properties of the category that contains T₀. If this speculation is correct, nominal T₀ seeks a goal whose tense is interpretable (in the languages we have investigated) for reasons connected to the fact that nominal phrases themselves lack the full tense system characteristic of clauses. Our general idea is that there may be an inverse relation between the richness of tense on the predicate and the richness of tense (including prepositions) on its arguments. Recent research on languages in which nominals appear to have a fuller tense system, such as Somali (Lecarme 1997; this volume) and Halkomelem Salish (Wiltschko 2001) suggests that such speculations may be warranted. In this paper, we will not offer a concrete proposal along these lines. Instead, we will explore a different aspect of our proposal: the *logic* of (59) and (60). We will argue that the logical structure of our system provides a new insight into the nature of syntactic categorization — whatever the ultimate sources of the generalizations in (59) and (60).²⁸

Let us review our results so far. In the last two sections, we have developed a proposal about the complementation properties of V, N and A. This proposal, in turn, depended on analyses of the internal structure of CP, DP and PP presented in P&T 2001 and further developed in earlier sections of this paper. We have argued that a VP is a complement of a T (T_{0V}) with uninterpretable φ-features that seeks a goal that bears *uT*. NPs differ minimally. An NP is a

²⁸ It is important to ask whether the "technical" property that distinguishes among N, V and A correlates with (or can be explained in terms of) other properties of these categories. Baker (2002), for example, offers a comprehensive theory of these categories according to which N and V differ in other, more idiosyncratic respects. In particular, only N induces a referential index, and only V (our *v*) has the ability to take a specifier that bears a thematic role. A is distinguished (in a manner reminiscent of our proposals) by having neither of these properties. Baker's typology of categories is perhaps compatible with the framework sketched here, but we would need to find a link between properties like "bears an index" and occurrences of T that seek *tT*. The speculations in the main text would presumably be relevant here.

complement of a T (T_{0N}) with uninterpretable ϕ -features that seeks a goal that bears iT . An AP is not a complement of any sort of T_0 .

Our proposal thus postulates correlations between syntactic categories and their complementation properties significantly different from those offered in earlier work. Proposals within the Government-Binding tradition noted the existence of such correlations, but did not assume that the relation between syntactic category and complementation properties was biunique. As we discussed above, much earlier work took the case properties of N and A to be identical (in contrast to V), attributing them to a feature *shared* by N and A (and not shared by V) — e.g. the [+N] feature of Chomsky (1970).

What is new in our approach is the identification of structural case with T, and the analysis of certain elements (e.g. *that* and *for*) as instances of T moved to C. These ideas provide a new perspective on the formal import of alternations in the C system. Once we view the presence or absence of words like *that* as an indicator of differences in the distribution of Tense features in a complement CP, differences in the distribution of CP complements to N and A can be seen as part and parcel of the system traditionally called Case Theory.

The picture that emerges is quite different from the traditional one. We have reached a conclusion much stronger than the traditional view. If our suggestions are correct, the relation between the syntactic categories A, V and N and their complementation properties is biunique after all. This biuniqueness is not readily apparent at the level of data, but only becomes clear at a more abstract level. At the level of data, the repertoire of complement types allowed by A, V and N shows considerable overlap, as the chart in (61) makes clear:

(61)

	1. PP	2. DP	3. CP not introduced by <i>that</i> or <i>for</i> ; or realis infinitive	4. CP introduced by <i>that</i> or <i>for</i> ; or irrealis infinitive	EXPLANATION
as complement to A	√	—	√	√	no T_0
as complement to V	—	√	√	√	T_0 seeking uT
as complement to N	√	—	—	√	T_0 seeking iT

The complementation properties of A and N are indeed identical with respect to PP and DP, just as traditional proposals claimed. All three categories allow CP introduced by *that* or *for*. With respect to other CPs, A and V pattern together.

The system proposed here reveals a pattern in these overlapping properties. There are two bifurcations. The first bifurcation concerns the presence or absence of T_0 . Since structures of adjectival predication lack T_0 entirely, there is no category around that cares whether the complement of A bears uT or iT . That is why all types of CP are possible as complements to A. What happens to T within CP does not matter. On the other hand, the complement to A must be self-sufficient, which is what excludes bare DPs.

For predicational structures that contain T_0 , there is a second bifurcation. If the T_0 is the type that seeks uT (the type we have called "verbal"), the complement may not be a PP, since the head of PP bears only iT , but may be a DP, which bears only uT .²⁹ On the other hand, if the T_0 is the type that seeks iT , the opposite pattern of complementation obtains. As expected, a CP of the type in column 3 — a CP with only uT on its head — has the same distribution as DPs. It is possible when T_0 is the type that seeks uT (verbal T_0) but is not possible when T_0 is the type that seeks iT (nominal T_0). A CP of the type in column 4 leads a double life. The reasons for this lie in our treatment of *that*-trace effects, the *that*-omission asymmetry and similar phenomena. Because the head of a column 4 CP contains both uT and iT , such a CP is acceptable in structures of both verbal and nominal complementation.

We thus see that an apparently chaotic and overlapping pattern of data follows directly from two choices in a decision tree. T_0 may be present or absent, and it may seek uT or iT . How these choices affect actual complementation patterns is explained by the interaction of these choices with independently motivated analyses of CP, PP and DP.

29. As discussed in section 5 and in footnote 17, it is possible that selected PPs may function as (first) complements of V. If this is the case, we suggested that satisfaction of selectional requirements might outrank the requirement that the goal of verbal T_0 bear uT . If this is true, then there are instances of PP complements to V admitted by our system, which makes the underlying complementary distribution of complement types even more opaque at the level of data.

The point of special interest now is the fact that each of the categories A, V and N is associated with its own unique syntactic environment. The uniqueness is not evident when we look directly at the complements of these categories, but is evident when we look "upward" to see what if any T_O is associated with the category. This raises the possibility that the status of a predicate as adjective, verb or noun is not intrinsic to the predicate. Instead, we might suppose that there is a single category **PR** (for *predicate*) whose morphological status as A, N or V is determined by rule, as in (62):

(62) **Contextual Determination of Lexical Categories**³⁰

- a. PR is morphologically V when associated with T_O that seeks *uT*.
- b. PR is morphologically N when associated with T_O that seeks *iT*.
- c. Otherwise, PR is morphologically A.

This proposal converges with other recent work. Marantz (1997; see also Harley and Noyer 1998) has proposed that the determination of a predicate as verb, noun or adjective is the result of the combination of a category-neutral predicate with a higher functional head.³¹ These results dovetail in many respects with the research of Borer (1991/1993, 2001) and Fu, Roeper and Borer (2001), who have argued for the presence of a VP or VP-like constituent in process nominals – where the nominal character of the structure as a whole results from the nominal

30. Our choice of the vague phrase "associated with" in (62) is deliberate, intended to leave open several possibilities. If the structures we have proposed in (57) and (58) are correct, the phrase "associated with" should be taken to refer to the status of PRP as the complement of T_{OV} or T_{ON} . Alternatively, it may be Agree between a feature of T_O and features of PR that establishes the relevant association, perhaps combined with head movement of PR to T_O (and morphological merger). We must also consider a different possibility, which we have omitted from discussion so far. We have assumed without discussion that the various species of T_O are syntactic heads distinct from PR (i.e. independent of V and N).

It is also conceivable, however, that T_O (both verbal and nominal) is not a distinct head at all, but is a set of features of PR. We suggested in footnote 9 that English particles may be overt instantiations of (verbal) T_O . We are not, however, aware of constructions that simultaneously contain overt instantiations of T_O and PR. It is thus possible that verbs are instances of PR with verbal T_O -features; nouns, instances of PR with nominal T_O -features; and adjectives, instances of PR devoid of T_O -features. The claim advanced in this section would be recast as the claim that the features that distinguish verbs, nouns and adjectives are not *sui generis* categorial features, but the T_O -features of PR. The $u\phi$ -features that are properties of T_O in the proposals discussed in the main text would, on this view, be features of PR. A similar view could be developed for finite T_S , which would analyze this T_S as a feature of the highest verb of the clause, instead of analyzing it as the first functional projection above PR. Such an analysis is, of course, a mainstay of many viable treatments of the English auxiliary system. We know of no particular reason to choose among these various alternatives. The overall structure of our proposals is independent of this choice.

31. For some critical discussion of these approaches, see Baker (2002, chapter 6).

character of the head that embeds the VP. In both streams of research one finds the additional proposal that the functional heads that determine syntactic category are heads that license particular thematic roles. For example, Marantz suggests that the unavailability of a causative external argument in a nominalization like *growth* — which contrasts with its availability in the corresponding verb — derives from a difference in the argument-taking potential of nominalizing and verbalizing heads. Thus, *John grows tomatoes* is acceptable because of the existence of a head (*v* for Marantz) that simultaneously verbalizes and causativizes, while **John's growth of tomatoes* (Chomsky 1970) is unacceptable because of the non-existence of a head that simultaneously nominalizes and causativizes.

The focus of these proposals differs from ours. We have suggested that the categorial status of a predicate depends, not on an argument-taking head, but on a "case-related" head (T_O) with aspectual properties. It is possible, of course, that these two approaches will turn out to be compatible, as we learn more about the relation between argument-taking and case properties of predicates.

Some subsequent literature has developed other arguments in favor of category-neutral predicates. Although couched in the framework of Marantz (1997), these arguments can probably be easily recast in our terms. Embick (2000), for example, in a detailed study of the Latin perfect tense, argues that the status of a predicate as verb or adjective (the category to which he assigns the perfect participle) is determined by the nature of the functional projections that surround it. In particular, a predicate's categorial status is established as a result of calculations that take into account the properties of a voice-related phrase (*v* for Embick, T_O for us) as well as the properties of an aspectual phrase (a higher T in our framework). Pylkkänen (2002) provides another type of argument for the overall proposal. She shows that a CAUSE morpheme in Japanese and other languages may be merged in at least three different points in the syntactic derivation. These distinct sites correlate with distinct semantic properties of the clause as a whole, and also correlate with other syntactic and semantic properties. The point of special relevance to us is her suggestion that the lowest position in which CAUSE may be found lies lower than the head that provides a category-neutral root with its syntactic category. For us, this would be a position below T_O and above PR. When CAUSE is merged in this lowest position,

various modifiers that Pykkänen analyzes as verb-selecting (for example, certain adverbs) may not modify the lower predicate to the exclusion of CAUSE.

If our proposals are correct, it is the combination of T_O with PR that determines whether the head of PRP is nominal, verbal or adjectival. Under this view, we must also ask what, if any, contribution to syntactic categorization is made by the higher heads of the clause — those we have called *v*, *n* and *a*, as well as T_S. If V, N, A are contextually determined names for species of PR, it is natural to suggest that something similar is true of *v*, *n* and *a*. These may simply be convenient names for species of a single category, which we might call *pr*. If this is the case, then any differences in properties of *pr* that distinguish syntactic categories must result from the syntactic environment, e.g. the status of T_S. Thus, we might suppose that possessive morphology (whether genitive or dative case, PPs headed by *of*, or English 's) is a product of a nominal T_S,³² while nominative/accusative morphology on a subject is a product of a verbal T_S. The fact that subjects of adjectival phrases must be case-licensed outside of the adjectival phrase might indicate the non-existence of an "adjectival T_S" parallel to the non-existence of an adjectival T_O. Under this overall view, it is appropriate to wonder what combinations of T_S and T_O are possible. In the English and Spanish gerund, it looks as if a nominal T_S may cooccur with a verbal T_O, suggesting some freedom of distribution. A verbal T_S, however, appears to require the presence of a nominal T_O:

- (63) **T_S/T_O combinations (English)**
- | | |
|---|--|
| a. [Mary's reading of the book] surprised us. | [nominal T _S / nominal or absent T _O] |
| b. [Mary reading the book] surprised us. | [verbal T _S / verbal T _O] |
| c. [Mary's reading the book] surprised us. | [nominal T _S / verbal T _O] |
| d. *[Mary reading of the book] surprised us. | [verbal T _S / nominal or absent T _O] |

32. The integration of this suggestion with the framework of P&T 2001 raises some complex issues discussed in that paper. It is not crucial that nominal T_S be the actual source of possessive morphology, but rather that possessive morphology is a sign of the presence of nominal T_S. A distinct head, as discussed in P&T 2001, might be responsible for the actual shape of possessive morphology.

- (64) **T_S/T_O combinations (Spanish)**
- | | |
|---|--|
| a. [El leer del libro de María] nos sorprendió. | [nominal T _S / nominal or absent T _O] |
| b. [El leer el libro María] nos sorprendió. | [verbal T _S / verbal T _O] |
| c. [El leer el libro de María] nos sorprendió. | [nominal T _S / verbal T _O] |
| d. *[El leer del libro María] nos sorprendió. ³³ | [verbal T _S / nominal or absent T _O] |

We leave the further investigation of this topic for future research.³⁴ If our approach is correct, facts like those in (63) and (64), which appear on the surface to be facts about case, may turn out to be facts about tense and tense interpretation.

33. This example is marginally acceptable with an irrelevant parse in which *del libro* is a partitive object, and the overall syntax is that of example (64b).

34. In Spanish, the presence of an object clitic entails the presence of verbal, rather than nominal T_O. Thus, the gerund counterpart to (i) allows a bare DP object, but does not allow an object introduced by the preposition *de* 'of', as seen in (ii):

- | | | |
|------|---|--|
| (i) | Juan se afeitó la barba. | |
| | Juan clitic-Refl shaved the beard | |
| | 'Juan shaved his beard.' | |
| (ii) | a. *[el afeitarse de la barba (de Juan [= subject]) | [nominal T _S / nominal or absent T _O] |
| | the shave-Refl of the beard of Juan | |
| | b. [el afeitarse la barba Juan] | [verbal T _S / verbal T _O] |
| | c. [el afeitarse la barba (de Juan [= subject])] | [nominal T _S / verbal T _O] |
| | d. *[el afeitarse de la barba Juan] | [verbal T _S / nominal or absent T _O] |
| | 'Juan shaving his beard'/Juan's shaving of his beard/etc. | |

It is possible that a similar effect can be observed with subjects. Pronominal possessors in Spanish show the morphology of adjectives, and come in two forms: strong and weak:

- | | |
|---------------------------------|----------------------------------|
| (iii) a. su libro (weak) | b. el libro suyo (strong) |
| his/her/their book | the book his/her/their |

The weak forms lack gender agreement with the noun in the singular, and in some dialects can be doubled by a genitive PP (e.g. *su libro de él*, lit. 'his book of him'), unlike the strong forms. One might analogize the weak forms to subject clitic pronouns.

Crucially, in the gerund construction, use of the weak form as a subject precludes an object introduced by *de*. The strong form shows no such restriction:

- | | | |
|------|---|-------------------------------------|
| (iv) | Weak form incompatible with object introduced by <i>de</i> | |
| a. | [su leer los libros] | [verbal T _O] |
| | his (weak) read the book | |
| b. | *[su leer de los libros] | [nominal or absent T _O] |
| | his (weak) read of the books | |

[continued]

In this paper, we have argued that the general theory that explains such facts as the *that*-trace filter — if extended in natural ways to explain comparable facts about PPs, and about nominal and clausal complementation — leads us to a new view of the very nature of syntactic categories. This unification of research questions is possible because of the tight links among concepts and phenomena found in the overall framework that we have assumed here. At the very center of this web of connections is the syntax of tense.

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[continued from previous page]

- (v) **Strong form compatible with object introduced by *d***
- a. [el leer los libros suyo] [verbal T₀]
 the read the books his (strong)
- b. [el leer de los libros suyo] [nominal or absent T₀]
 the read of the books his (strong)

We can begin to make sense of these facts if the weak possessive form entails the presence of a verbal T_s much as the use of an object clitic entails the presence of a verbal T_O. The use of verbal T_s, in turn, entails the presence of verbal T_O. This leads us to expect the unacceptability of (iv)b, given the generalization already seen in (64).

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