

COMPLEX NOUN PHRASES AND LINKERS

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Abstract. Complex noun phrases crosslinguistically contain meaningless elements whose sole function is to serve as linkers of predicates to their subjects—thus, Mandarin Chinese *de* links inverted AP predicates to their subjects as well as possessors, PPs, relative clauses, and noun-complement clauses (e.g., *the claim that John was asleep*). Taking a comparative analysis of French *de* and Thai *tʰi* as its point of departure, this paper argues for a maximally generalized account of the noun phrases in which linkers occur, in terms of DP-internal Predicate Inversion. This approach prompts an analysis of relative-clause constructions that recognizes relative clauses as predicates of DP-internal small clauses, combining the attractions of the traditional approach and the Vergnaud/Kayne raising approach by assigning relative clauses an internal structure similar to the traditional one while giving it the external distribution of a predicate by treating it as the predicate of a noun-phrase-internal small clause. For noun-complement clauses, the approach leads to a revitalization of Stowell's (1981) predication approach to the relationship between the head noun and the clause, the latter serving as the former's subject in a DP-contained small-clause structure. A uniform linker approach to French *de*, Thai *tʰi*, Mandarin Chinese *de*, Japanese *no*, and so on (a) emphasizes the pervasiveness of Predicate Inversion in the noun phrase, (b) confirms the role of linkers as purely functional aides to the inversion operation, (c) furthers our understanding of the structure and derivation of complex noun phrases, and (d) presents a particularly interesting window on microparametric variation in the syntax of noun phrases.

1. Introduction

Noun-phrase-internal constituents ascribing a property to the head noun can be inserted as attributive modifiers in most languages. The examples in (1a)–(3a) illustrate this for English, French, and Thai, respectively. An alternative to attributive modification that all three languages offer for the (a) examples, however, is a strategy by which the property-assigning constituent is separated from the head noun's projection by a meaningless *linker* element—*of* in English (1b), *de* in French (2b), and *tʰi* in Thai (3b).

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- (1) a. that idiot doctor
b. that idiot *of* a doctor
- (2) a. une pizza chaude (French)
a-FEM pizza hot-FEM
b. une pizza *de* chaude
a-FEM pizza DE hot-FEM
Both: 'a hot pizza'
- (3) a. k^hon kèn (Thai)
person smart
b. k^hon t^hii kèn
person THII smart
Both: 'the/a smart person'

The (a) and (b) examples in (1)–(3) are neither syntactically nor semantically equivalent. For the French and Thai examples in (2) and (3), which are the prime focus of our investigation, we show that the (b) examples are subject to quantificational restrictions that the syntax of the constructions is responsible for, and that they have a particular interpretive profile: they receive a contrastive interpretation and must construe the AP to the right of *de/t^hii* as old information. Rather than trying to derive the interpretive properties of the (b) examples from some semantic contribution on the part of the linker (*de/t^hii*), this paper treats the linker as a semantically null element whose presence in the structure is the reflex of the fact that the syntactic derivation of the (b) examples involves Predicate Inversion (see Moro 1997 and, with specific reference to DP-internal Predicate Inversion, Den Dikken 1995, 1998, 2003b), an operation that delivers the special interpretive properties of these examples. The core of the paper can thus be summarized as in (4).

- (4) a. The *linker* (English *of*, French *de*, Thai *t^hii*, etc.) is meaningless.
b. The interpretive differences between the (a) and (b) examples are a reflex of their syntax.
c. The syntactic derivation of the (b) examples involves Predicate Inversion

Predicate Inversion is an A-movement operation that inverts the underlying order of subject and predicate by raising the latter across the former (Moro 1997). This A-movement process is contingent on the presence of a linker in the syntactic structure (Den Dikken 1995) and produces a predicate-linker-subject structure in which the predicate serves as a topic (old information). Thus, by postulating Predicate Inversion as an integral part of the derivation of the (b) examples, the analysis immediately

captures two of their key ingredients: the occurrence of a linker, and their interpretive profile. In the French and Thai examples in (2b) and (3b), the surface word-order effect of Predicate Inversion is undone later in the derivation as a consequence of a further phrasal movement operation that raises the remnant of Predicate Inversion up to the specifier position of a projection generated above the landing site of the raised predicate, with concomitant raising of the linker element up to the head of this projection. This second movement step can be diagnosed particularly clearly in Thai, whose classifier system enables us to pinpoint the exact landing site of the raised remnant.

The structure of this paper is as follows. Taking French as our lead, and taking advantage of the detailed studies of (2b) in the literature, we first outline the key properties of (2b) and its ilk, subsequently matching them with the corresponding earmarks of the Thai linker-*t^{hi}i* construction in (3b). This is the topic of section 2. We then develop an analysis of the construction, with section 3 focusing on Predicate Inversion and section 4 homing in on remnant movement, exploiting the microscopic properties of the Thai classifier system in our analysis.

Once we have the analysis on the table, we consider a number of broader issues—broader both in a theoretical sense and in the sense of empirical facts. In section 5, we confront our linker approach to *de/t^{hi}i* with an alternative that treats them as complementizer elements, firmly rejecting the latter approach and presenting an analysis of constructions in which *de/t^{hi}i* apparently function as complementizers that assimilates them to the examples in (2b) and (3b).

Section 6, finally, considers the broader empirical question of whether the account of Thai and French could carry over to apparently meaningless elements inside complex noun phrases found in other languages—in particular, to Chinese *de*, for which an account identifying it as a D-element is currently the most prominent in the literature. Though we cannot undertake a full reanalysis of all of the facts involving *de*, we show that an account of Chinese *de* as a linker does indeed have a quite number of things to say in its favor.

2. Quantificational and Interpretive Restrictions

We start our discussion of NP-linker-AP constructions with a review of the quantificational and interpretive restrictions imposed on the construction. We take our cue here from the extant studies of the French construction (see Milner 1978; Huot 1981; Azoulay-Vicente 1985; Hulk & Verheugd 1994; Kupferman 1981, 1994a,b; Lagae 1994, 1995; and Hulk 1996, among others), and then go on to present, for each of the two restriction types in turn, the parallels with Thai, which turn out to be near perfect.

2.1 Quantification

2.1.1 French

A key property of the French construction in (2b) is that it is typically *quantificational* in one of three ways, as illustrated in (5).¹

- (5) a. The construction is headed by a *wh*-pronoun:
 Qui *(de) sérieux as-tu rencontré?
 who DE serious have-you met
- b. The construction is headed by an indefinite pronoun:
 Rien *(d') extraordinaire n'est arrivé ce matin.
 nothing DE extraordinary not-is happened this morning
- c. The construction contains a focus:²
 Je n'ai mangé que DEUX pizzas ?(de) chaudes.
 I not-have eaten but two pizzas DE hot

Wh-pronouns and indefinite pronouns force the presence of *de*; cases in which there is a focus inside the complex noun phrase (in the *ne...que* 'only' construction illustrated in (5c)) are rather more natural with *de* than without it but are certainly grammatical either way. What all three examples have in common is that part of the complex noun phrase is quantificational. And indeed, it typically will be quantificational in one of these three ways in the NP-*de*-AP construction.

There is one systematic exception to this generalization: in existential sentences (including possessive-*have* constructions), it is enough for the NP to meet the constraints generally imposed on NPs in existential clauses; so *any*

¹ It is impossible to use full *wh*-phrases in (5a) instead of simple *wh*-pronouns: as Azoulay-Vicente (1985:216–217) points out, (i) is ungrammatical; likewise, replacement of the pronominal quantifiers in (5b) by full quantifier phrases is impossible (cf. (ii), from Azoulay-Vicente 1985:24). Azoulay-Vicente accounts for the latter in terms of the presuppositions of the NP-*de*-AP construction (see also Hulk & Verheugd 1994:31); she does not present an account of the *wh*-facts, nor are we aware of any attempts at coming to grips with these. We leave this aside here.

(i) *Quel homme d' intelligent connais-tu?
 which man DE intelligent know-you

(ii) Paul a développé toutes les analyses (*de) compatibles
 Paul has developed all the analyses DE compatible
 avec la théorie chomskienne.
 with the theory Chomskyan

² Focalization can be established via focus particles like *ne...que* 'only', as in (5c), or via contrastive focal stress on (part of) the NP to the left of *de*, or via pronominalization of the head of the NP in the form of the clitic *en*. Example (5c) is ungrammatical without *ne...que* or contrastive focus accent on the NP part: *j'ai mangé deux pizzas de chaudes* is acceptable only with contrastive stress on *deux*; in the absence of a numeral, emphasis can be put on an attributive modifier: *elle a acheté la robe ROUGE de belle* 'she has bought the dress RED of beautiful' (Azoulay-Vicente 1985).

indefinite noun phrase will do as the first member of the NP-*de*-AP construction in those contexts—(6a,b) contrast with (5) as regards the nature of the predicate.

- (6) a. Il y a deux pizzas (de) chaudes.
 it there has two pizzas DE hot
 b. J'ai deux pizzas (de) chaudes.
 I-have two pizzas DE hot

2.1.2 Thai

As a first-glance comparison of the French paradigm in (5) with the Thai examples in (7) shows, the parallels between the distributions of *de* and *tʰii* are quite strong.

- (7) a. The construction is headed by a *wh*-pronoun:
 Kʰun phóp kʰraj *(tʰii) kèn?
 you met who THII smart
 b. The construction is headed by an indefinite pronoun:
 Mâj mii araj (tʰii) plèək kàət kʰûn mûacʰáaw níi.
 not have what THII strange happened morning this
 c. The construction contains a focus:
 John kin pítsâa (tʰii) rón kʰêε sǒɔŋ cʰín.
 John ate pizza THII hot only two CLF

The match is not fully complete—(7b) is grammatical both with and without *tʰii*, whereas (5b) in French forced the presence of *de*. That partial mismatch is not unexpected, however. What should be borne in mind is that (7b) is formally an existential construction (cf. the use of *mii*), and as will be recalled from section 2.1.1, French existential constructions distinguish themselves from nonexistential sentences in the optionality of the linker *de*. So, the optionality of *tʰii* in Thai (7b) reduces, in the light of French (6), to an independent difference between (5b) and (7b)—the fact that the Thai sentence is an existential construction. This aside, then, the Thai facts in (7a–c) are fully parallel to the French paradigm in (5a–c) as far as the quantificational restrictions on the NP part are concerned.

2.2 Interpretation

2.2.1 French

When it comes to the need to use *de*, the examples in (6) differ from those in (5a,b) in that the linker *de* is perfectly optional in the former, at least on the surface. But it turns out that whether *de* is inserted in examples of this type is

not at all semantically innocuous: the presence of *de* has a clear interpretive effect (where “interpretive” is meant to be neutral between “semantic” and “pragmatic”). In particular, with *de* included, the examples in (6) have the following two distinctive properties:

- NP-linker-AP constructions receive a *contrastive* interpretation (in the examples at hand, a contrast between hot pizzas and pizzas that are not hot; Milner 1978).³
- NP-linker-AP constructions have AP represent *old information* (whereas in their linkerless counterparts, AP represents new information; Lagae 1994).

³ Hulk and Verheugd (1994) argue that there is a second type of contrastive reading for sentences like (6), one in which there is stress on *pizzas*: ‘there are two *pizzas* that are members of the class of hot items’. They call this the “existential” reading, referring to the reading paraphrased in the main text (‘two of the pizzas are members of the class of hot items’—stress on *deux*) as the “partitive” reading. There is a relationship between Hulk and Verheugd’s claim and Azoulay-Vicente’s (1985) observation that (i) is ambiguous between a reading in which, from among the cakes that I ate, only one was hot, and one in which, from among all the things I ate that were susceptible to being hot, in a given situation only a cake and nothing else was actually hot. As Azoulay-Vicente points out, the two readings are distinguished by the possibility of comma intonation and displacement of *de*+AP or NP+ *de*+AP as a unit, as well as by agreement: there is no ϕ -feature agreement in the latter. This is illustrated in (ii) and (iii).

- (i) Je n’ai mangé qu’ un gâteau de chaud.
 I not-have eaten but one cake DE hot
 a. ...the other cakes I ate were not hot
 b. ...nothing else I ate was hot
- (ii) a. Je n’ai mangé qu’ UNE pizza (*,) de chaude.
 I not-have eaten but one pizza DE hot-AGR
 b. *Je n’ai mangé, de chaude, qu’ UNE pizza.
 I not-have eaten DE hot-AGR but one pizza
 c. Combien de pizzas de chaudes avez-vous?
 how-many DE pizzas DE hot-AGR have-you
- (iii) a. Je n’ai mangé qu’ une PIZZA, de chaud.
 I not-have eaten but a pizza DE hot(*AGR)
 b. Je n’ai mangé, de chaud, qu’ une PIZZA.
 I not-have eaten DE hot but one pizza
 c. *Combien de pizzas, de chaud, avez-vous?
 how-many DE pizzas DE hot have-you

Azoulay-Vicente (1985) makes it clear that the syntax of (ii) is altogether different from that of (iii)—in particular, it can be shown that in (iii), the *de*-phrase does not form a constituent with the NP part of the construction at any point in the derivation, as the ungrammaticality of movement of NP-*de*-AP as a unit in the case of (iiia) makes clear: cf. (iic) versus (iiic). An anonymous reviewer points out to us that in Italian, the NP-linker-AP construction resists ϕ -feature agreement on the adjective altogether (cf. (iv)). This would lead us to expect (iv) to pattern with (iii) in the other respects catalogued by Azoulay-Vicente as well. We currently have no information that would allow us to (dis)confirm this expectation. We will ignore the construction in (iii), which is irrelevant for our purposes in this paper.

- (iv) qualche cosa di buono/*buona (Italian)
 some thing-FEM DI good(*-FEM)

That AP is presuppositional in the NP-*de*-AP construction is perhaps particularly clear from the fact that it cannot be focally stressed (cf. **il y a deux places de LIBRES et deux places d'OCCUPÉES* 'there are two places of free and two places of occupied'; Hulk & Verheugd 1994:43, fn. 16). Lagae (1994) refers to the information structure of NP-*de*-AP constructions, which has the unusual property of featuring the AP as old information, as an *inverted* information structure. We take up Lagae's point in section 3, where we show that there is a very real *syntactic* sense in which these linker constructions are inverted as well.

2.2.2 Thai

The interpretive effects seen in French NP-*de*-AP constructions also rear their heads in their Thai counterparts with and without *t^{hi}*.⁴ Thus, for the Thai examples in (8), speakers' intuitions indicate that (8b), with *t^{hi}*, is felicitous only in a context in which there is a contrast between pizzas that are hot and ones that are not, whereas (8a), lacking *t^{hi}*, is not restricted in this way.

- (8) a. pít-sâa rǒn
 pizza hot
 b. pít-sâa *t^{hi}* rǒn [contrast reading]
 pizza THII hot

With reference to Lagae's observation about French that the use of *de*, in contexts in which it is optional in principle, signals that the AP expresses old information, we draw attention to the interpretive contrast between (9a) and (9b) in Thai.

- (9) a. Mii araj plèek kàetk^hûn mûawaanníi máj?
 have what strange happen yesterday Q
 'Did anything strange happen yesterday?'
 b. Mii araj *t^{hi}* plèek kàetk^hûn mûawaanníi máj?
 have what THII strange happen yesterday Q

Whereas (9a) is just a request for information, (9b) primes a reading in which the speaker expects that something strange might have happened. Thus, the property denoted by the AP is presuppositional (i.e., part of the old information) in (9b), and it is not in (9a). Once again, this is a perfect match of what we found for French.

⁴ In footnote 2, we pointed out that French (5c) is ungrammatical without *ne...que* 'only' or contrastive focal stress. For Thai, the effect does not seem to be as strong as it is for French; but even for French not all speakers report equally firm judgments in this domain.

3. Predicate Inversion

3.1 Predicate Inversion: Information Structure

The information-structure properties of the NP-linker-AP construction, in both French and Thai, are an essential cue to the analysis of this construction. Recall from section 2.1.2 that Lagae (1994) talks about an inverted information structure: whereas in a subject-predicate (or modifiee-modifier) relationship, the former is usually the old information and the latter the new information, in the NP-linker-AP construction it is precisely the other way around. We take Lagae's point seriously here, translating it, in fact, into a syntactic derivation of the NP-linker-AP construction involving inversion of the predicate around its subject.

Let us consider the alternation between (10a) and (10b), involving a copular sentence with a predicate nominal.

- | | | | |
|------|----|------------------------------|------------------------------|
| (10) | a. | John is my best friend. | [canonical copular sentence] |
| | | OLD NEW | |
| | b. | My best friend is John. | [inverse copular sentence] |
| | | OLD NEW | |

Following the terminology introduced by Moro (1997), we refer to (10a) as a *canonical copular sentence* and to (10b) as an *inverse copular sentence*. The default information-structure representation of a canonical copular sentence is one in which the subject represents old information and the predicate supplies new information about it.⁵ (It is here that the pragmatic notion of “logical subject” [also known under the name “topic”] and the grammatical notion of “[grammatical] subject” converge: *John* in (10a) is a subject in both senses of the term.) In the inverse copular sentence in (10b), by contrast, the focus or new information is *John*, and *my best friend* is old information—and this information-structure representation for inverse copular sentences is basically fixed. When one inverts a predicate around its subject, the result is an information-structure representation in which the postcopular noun phrase is invariably the focus (see Declerck 1988 and references cited there for detailed discussion).⁶

⁵ Of course, special intonation (focal stress on *John*) can reverse this; but contrastive focus has a syntax of its own, feeding the pragmatic representation of the sentence. This is irrelevant here. When we speak of “default,” we have in mind a situation in which there is no contrastive focus on any of the constituents of the sentence.

⁶ Any information-structure representation for (10b) that differs from the one circumscribed in the main text involves a different analysis of the construction, one in which we are not in fact dealing with an inverse copular sentence but a construction in which *my best friend* is taken to be an underlying subject. Such a reading is hard to get for the particular example in (10b) but much more readily available for one where the postcopular constituent is a common-noun phrase (cf. *my best friend is the President of the United States*, which is genuinely ambiguous).

3.2 Predicate Inversion: Syntax

The term “inverse copular sentence” that we used with reference to (10b) appeals to an analysis of this construction type by which it is syntactically derived from the same underlying representation that also underlies (10a), via syntactic inversion of the predicate nominal around its subject. This analysis was developed in detail in Moro 1997, Den Dikken 1995, and subsequent work.⁷ Let us flesh out that analysis in some detail.

At the core of the account lies the hypothesis that subject-predicate relationships are syntactically projected in the form of a so-called small clause (SC; the precise categorial label of small clauses is a contentious issue, one that, for our purposes, we can abstract away from—see Den Dikken 2003b for detailed discussion of the internal structure of small clauses):

- (11) [SC [DP John] [DP my best friend]]

This small clause surfaces as such in certain contexts. Though in English finite clauses it does not suffice (a copula is needed to support the tense and agreement morphology of the clause), we can see the “naked” SC on its own in the complement of verbs like *consider*, as in (12a).

- (12) a. I consider John my best friend.
b. I consider John to be my best friend.

Because *consider* has the option of selecting a *to*-infinitival complement clause, and because infinitival *to* must always be supported by some verbal element, we also find (12b) alongside (12a); in (12b), a copula is introduced outside the small clause, as a head in its own right, and it is this projection of the copula that serves as the complement of infinitival *to*, into whose specifier position the SC-subject is raised via A-movement (cf. (13)).

- (13) a. [___ to [be [SC [DP John] [DP my best friend]]]]
b. [John_i to [be [SC [DP *t*_i] [DP my best friend]]]]

What interests us here is that (12a), featuring a naked SC complement, is good as it stands, but that (14a), which has the relative order of the two noun phrases reversed, is ungrammatical. In other words, when one embeds an inverse predication below a verb like *consider* one must use the copula (14b).

- (14) a. *I consider my best friend John.
b. I consider my best friend to be John.

⁷ Though the publication date of Moro 1997 does not reveal this, Moro’s work predates Den Dikken’s, which takes Moro 1997 as its starting point.

The interest of the contrast between (12a) and (14a) lies in the fact that it gives us an argument for a syntactic movement analysis of inverse copular constructions. In particular, we can take the need to realize an overt copula in (14) (as opposed to (12)) to signal the fact that there has been syntactic movement of the predicate of the SC in (11) across its subject (cf. (15)).⁸

- (15) a. [___ to [be [_{SC} [_{DP} John] [_{DP} my best friend]]]]
 b. [my best friend_i to [be [_{SC} [_{DP} John] [_{DP} t_i]]]]

Such movement instantiates a syntactically tricky operation—in (15b), the predicate “skips over” an intermediate position (occupied by its subject, *John*) which is *of the same structural type* as the position that the predicate lands in: the predicate is raised to an A-position across an intervening A-position (cf. Rizzi 1990). In other words, it looks like the predicate in (15b) has not taken the shortest move (Chomsky 1993). The empirical facts in (14) tell us that, when the predicate apparently fails to take the shortest move, we need to call on the copula to make the result come out right. The obligatory use of the copula in (14), then, can be looked upon as a syntactic signal for the fact that apparently nonlocal movement has taken place:

- (16) The obligatory use of the copula in contexts in which the copula would not otherwise be obligatory signals the application of inversion of a predicate around its subject.

There is an interesting way in which the generalization in (16) can be made to fall out from Chomsky’s (1993) theory of locality (see Den Dikken 1995, 1998, 2003b for detailed discussion), but for our present purposes,

⁸ An anonymous reviewer asks what could be the trigger for Predicate Inversion. One possibility is that the establishment of the desired information-structural profile (with the predicate as the topic and the subject as the focus) is the driving force for inversion. This is the approach taken in Bresnan (1994) for locative inversion. Moro (2000) suggests, with specific reference to copular inversion, that the need to break the symmetry inside the SC (which for Moro has no internal functional structure) is what forces movement (in the spirit of Kayne 1994)—with Predicate Inversion (i.e., A-movement of the predicate) being one of the two ways to break the underlying symmetry. Both these approaches are rejected in Den Dikken 2003b, the former on the basis of the general consideration that pragmatics does not drive syntax (as well as with reference to specific problems associated with Bresnan’s approach) and the latter on the grounds of its reliance on bare, symmetrical small clauses (which Den Dikken argues in detail cannot exist). The generalization is reached in Den Dikken 2003b that a syntactic licensing requirement on the part of the predicate head is responsible for the inversion of the predicate around its subject: the head of the predicate in Predicate Inversion constructions has formal properties different from those of predicates in un-inverted structures. It is the predicate head’s properties (specifically, its nullness in copular- and locative-inversion constructions) that render it in need of formal licensing, which is accomplished by raising the predicate to a designated A-specifier position. Space does not permit us to discuss the details here; we refer the interested reader to Den Dikken 2003b. We take the existence of Predicate Inversion and the machinery that drives it for granted here.

(16) suffices as a descriptive generalization. What (16) does, in essence, is use the distribution of the copula as a diagnostic for Predicate Inversion—the raising of a predicate around its subject. Viewed this way, the copula in (14) is truly a functional element: it serves as a *linker* element, facilitating the inversion of a predicate around its subject.

3.3 Predicate Inversion in DP

Predication is not in any way restricted to the sentential domain: one finds predication inside noun phrases as well, as for instance in the relationship between adjectival modifiers and the nominal heads of complex noun phrases. And because predication per se is omnipresent, there is no particular reason to expect Predicate Inversion and the concomitant emergence of linker elements to be restricted to the sentential domain, either.

Indeed, Den Dikken (1995, 1998, 2003b) shows that Predicate Inversion and the linker elements that they depend on do show up elsewhere—inside complex noun phrases in particular. Example (17) is a good illustration of Predicate Inversion inside the complex noun phrase. Clearly, we understand (17) in such a way that there is a relationship of predication between *jewel* and *island*—more specifically, we understand (17) to mean that the property denoted by *jewel* is predicated of *island* (the island is like a jewel), not the other way around. In other words, underlyingly *jewel* is the predicate of *island*, the two of them starting out in an SC of the type in (18a); but they do not preserve their underlying order. The predicate is inverted around its subject (18b), and, concomitantly, we see a linker element emerge: *of*.

(17) a jewel of an island

- (18) a. [_{SC} [an island] [jewel]]
 b. [_{DP} a [jewel]_i [of [_{SC} [an island] [_{t_i]]]]]}

With (17) analyzed as a case of Predicate Inversion inside the complex nominal phrase (DP in (18b)), the obligatory use of the meaningless element *of* can be made sense of immediately: *of* is a linker, the DP-internal counterpart of the copula *be* in English.

French has constructions of the type in (17) as well; (19) is an example. As a matter of fact, French is much richer than English when it comes to Predicate Inversion inside the nominal phrase—for alongside (19), we also find (20), a case of inversion of an adjectival predicate around its subject inside a complex DP (see Den Dikken 1995, 2003b; Hulk & Tellier 2000; see also Español-Echevarría 1998 and Den Dikken & Lipták 1997 for DP-internal AP Predicate Inversion in Spanish and Hungarian, respectively). Throughout, we find that Predicate Inversion in the French complex noun phrase is signaled by the emergence of *de*, an element that we are thus led

to analyze as a linker, in perfect agreement with Milner's (1978) view that *de* is a copula-like element (a view rejected by Azoulay-Vicente 1985:32—wrongly, in our opinion).

- (19) a. ce bijou d' île
that jewel DE island
b. [_{DP} ce [bijou_i [de [_{SC} [île] [_{t_i]]]]]}
- (20) a. un drôle de type
a funny DE guy
b. [_{DP} un [drôle_i [de [_{SC} [type] [_{t_i]]]]]}

With the analysis of (20a) given in (20b), we are well on our way toward an analysis of the French construction illustrated in (2b), repeated here as (21a).

- (21) a. une pizza de chaude
a pizza DE hot-AGR
b. [chaude_i [de [_{SC} [pizza] [_{t_i]]]]]}

Taking the distribution of meaningless linker elements to be a key diagnostic for the application in syntax of Predicate Inversion, we know that the mere fact that the linker *de* occurs in (21a) tells us that the derivation of this example involves Predicate Inversion: the adjectival predicate *chaude* inverts with its subject *pizza* in the course of the derivation of (21a), as shown in (21b). Strong additional support for an analysis that treats the AP as an underlying predicate of the noun (rather than as an attributive modifier) comes from Milner's (1978) observation (reproduced in Azoulay-Vicente 1985:26–27) that there is a contrast between (22a) and (22b), a contrast mirrored by the one seen in the copular sentences in (23).

- (22) a. J'en ai vu un de bon.
I of-them have seen one DE good
b. *J'en ai vu un de policier.
I of-them have seen one DE police_A
- (23) a. Ce film est bon. cf. un bon film
his movie is good a good movie
b. *Ce film est policier. cf. un film policier
this movie is police_A a movie police_A

The fact that the adjective *policier* cannot be used predicatively in a copular sentence is responsible for its ungrammaticality in (22b), something that falls

out immediately from an analysis that treats the AP to the right of *de* as an SC predicate underlyingly.⁹

In this context, it is worth drawing attention to the Mandarin Chinese examples in (24), noted by Simpson (2001). Though (24b) is awkward in comparison to (24a) (for the same reason that English *#a green small vase* is awkward as compared to *a small green vase*), this particular order of the two adjectives can be salvaged by inserting *de* to the immediate right of each of them, as in (24c). In section 6.1, we make a detailed case for an analysis of the Mandarin *de*-construction in terms of Predicate Inversion, on a par with French (2b) and Thai (3b), with *de* analyzed as a linker. What matters here is that the contrast between (24b) and (24c) shows clearly that the Mandarin Chinese *de*-construction does not involve attributive modification, which is subject to strict ordering restrictions that predication is not subject to (cf. *the small vase which is green* and *the green vase which is small*).

- (24) a. xiao lü huaping
 small green vase
- b. #lǚ xiao huaping
 green small vase
- c. lǜ de xiao de huaping
 green DE small DE vase

Thus, with Mandarin *de* analyzed as a linker, the facts in (24) lend further support to an analysis of complex noun phrases featuring an AP and a linker in terms of an underlying SC structure, with the AP serving as the predicate of the small clause.

The Mandarin example in (24c) also shows that recursion is possible in constructions involving DP-internal AP Predicate Inversion. This is, of course, expected on the approach to these constructions taken here: *xiao* ‘small’ is the predicate of a small clause that takes *huaping*’s projection as its subject, with which it inverts; the constituent thus formed, [*xiao de huaping*], is

⁹ Den Dikken and Lipták (1997) make a similar case for DP-internal AP Predicate Inversion in Hungarian. For the Mandarin Chinese *de*-construction (discussed in more detail in section 6.1) and the Persian *ezāfe* construction (see section 6.4), which arguably involve linkers as well, we encounter a problem here: as Ortmann (2001) points out, both allow nonintersective adjectives (which cannot normally be used predicatively) to be used with the linker, as shown in (i). At present, the best we can offer with regard to these examples is the speculation that the ban on predicative use of certain adjectives is not a deep but a surface one, with inversion constructions of the type in (i) apparently not being subject to it in Mandarin Chinese and Persian (whereas their French counterparts *are* subject to it). Clearly, this topic needs to be addressed more carefully in future research.

- (i) a. yiqián *de* lǎoshī (Mandarin)
past DE teacher
'former teacher'
- b. moallem-*e* qabli (Persian)
teacher-EZ teacher
'former teacher'

subsequently merged as the subject of another small clause, of which *lū* ‘green’ is the predicate; and with the AP of *lū* in turn inverting with its subject, the surface word order in (24c) is derived straightforwardly, exactly as in English recursive *N of a N* constructions of the type in (25) (based on (1b)).

(25) that asshole of an idiot of a doctor

Recursion is possible in NP-linker-AP constructions as well, as shown for French in (26a) (cf. Huot 1981 for discussion of the restrictions on recursion) and for Thai in (26b).¹⁰

- (26) a. quelque chose *d'* autre *de* grave
 something DE other DE serious
 ‘something else serious’
 b. rót *t^hū* jāj *t^hū* p^hεεŋ k^han nīi
 car THII big THII expensive CLF DEM
 ‘that big expensive car’

A Predicate Inversion analysis that treats *de* or *t^hū* as a linker, on a par with *of* in English (25), accommodates these recursion cases straightforwardly. By contrast, accounts (such as Simpson’s 2001, 2002 for Mandarin Chinese) that place *de/t^hū* all the way up in D would face the question of how DP recursion is apparently legitimate in (26) but not in other contexts (cf. Kayne 1994:86)—a particularly clear indication that embedding a DP immediately inside a DP is not normally grammatical coming from the ill-formedness of *N of a N* constructions such as **that idiot of the/tha/my doctor*, which contrast sharply with grammatical (1b) or (17) (with *a(n)* being lower than D).

Thus, the recursion facts in (24)–(26) give us a clear indication that the meaningless markers that these examples contain are not housed by D and (especially in the light of the contrast in (24b,c)) lend support to an analysis that treats the APs in these constructions as predicates of small clauses. With these AP-predicates inverting with their subjects in the course of the syntactic derivation, we then get the meaningless markers into the bargain, as linkers facilitating Predicate Inversion.

¹⁰ Constructions similar to (2b) and (3b) in Persian (with *-e*) and in Palauan (with *el*) are also recursive, as seen in (i)–(ii) (from Ortmann 2001).

- (i) sag-*e* sefīd-*e* bozorg (Persian)
 dog-EZ white-EZ big
 ‘the big white dog’
 (ii) ngka əl kekere əl babii (Palauan)
 DEM EL small EL pig
 ‘this small pig’

3.4 Interim Results

Let us recapitulate what we have found so far:

- The information structure of NP-linker-AP constructions, in both French and Thai, is inverted.
- The inversion of the information structure of NP-linker-AP constructions matches that of Predicate Inversion constructions in general (cf. (10)).
- With NP-linker-AP constructions analyzed in terms of Predicate Inversion, we may understand the presence of the linker element (French *de*, Thai *tʰi*) from the general perspective of the need for linkers in Predicate Inversion constructions.

With these pieces of the puzzle in place, we return to the fact that the NP-linker-AP constructions such as (27) (which repeats (5c)) are characterized by what we have called a contrastive interpretation: the speaker is making a contrast between pizzas that are hot and pizzas that are not hot.

- (27) Je n'ai mangé que DEUX pizzas ?(de) chaudes. (= (5c))
 I not-have eaten but two pizzas DE hot-AGR

With the quantifier *deux* 'two' in focus (which it is required to be in this construction), the interpretation of the AP *chaudes* 'hot', which has the information-structural profile of a topic, becomes that of a contrastive topic, as a consequence of the interaction between focus and topic. Compare English (28a), where *bagels* is interpreted as a regular topic, with (28b), where the presence of focus turns the topic into a contrastive topic.

- (28) a. Bagels, I won't eat.
 b. Bagels, I would NEVER eat (but pizzas, I WOULD).

The interplay of the facts that there is focus on *deux* and that the application of Predicate Inversion to the AP destines the AP to function as a topic thus guarantees the contrastive interpretation of examples like (27).

So, the information-structural properties of the NP-linker-AP construction and the occurrence of the linker element (*de/tʰi*), two hallmarks of the construction, are both taken care of by the Predicate Inversion analysis, which we take to be well motivated on these grounds. But the analysis has not, so far, managed to shed light on the fact that there are quantificational restrictions on the NP part of NP-linker-AP constructions occurring in nonexistential contexts (section 2.1), and we are only half way when it comes to accounting for the surface word order of these constructions. Although Predicate Inversion gives us a linker and a story for their information-structural profile, it seems to give us the wrong order of constituents (AP-linker-NP). These two issues (quantificational restrictions and word order) are both addressed in section 4.

4. Beyond Predicate Inversion

The part of the derivation depicted in (21b) is parallel in all respects to what happens in (20b). But whereas for (20) this is essentially all, there must be something more going on in the derivation of (21a)—after all, on the surface we do not find *chaude* preceding *pizza*. In fact, the surface word order is much closer to what we would have had if we had not inverted *chaude* around its subject. But in light of the foregoing, we cannot assume that there has been no inversion: the emergence of the linker *de* and the interpretive properties of the construction reveal that Predicate Inversion has taken place. Apparently, the word-order effect of Predicate Inversion is undone later in the derivation. For a complete syntactic analysis of NP-linker-AP constructions, we now need to shed light on *how* the inversion of the subject and predicate is undone.¹¹ It is here that the internal structure of complex noun phrases will be essential, as we show in this section, with special reference to the structure of quantified noun phrases in Thai.

4.1 Nonexistential Contexts

Let us begin by reassessing the outcome of the discussion in section 2.1.1, about quantificational restrictions on the NP part of the NP-linker-AP construction in French. Except in existential sentences (including possessive-*have* sentences), it must be quantificational in one of three ways—a *wh*-pronoun, an indefinite pronoun, or a focused noun phrase (see (5)). Taking into account the fact that (a) the nonsubject noun phrase in existential and possessive-*have* sentences is smaller than a full DP (cf. **there is the yellow house in that town*, **I have the yellow house*; setting aside list readings in *there* sentences and transitory possession constructions), whereas (b) the noun phrases featuring *de* in (5a–c) are in DP positions, we can rephrase this statement as follows:

- (29) Whenever the top structure of the NP-linker-AP construction is a *full DP*, the NP part must be a *wh*-pronoun, an indefinite pronoun, or a focus.

¹¹ The “restoration” of the base order of subject and predicate is obligatory in the French and Thai constructions under discussion: reversal of the NP and the AP in (2b) and (3b) yields an ungrammatical result. In Mandarin (24c), by contrast, Predicate Inversion is the final station. Like Thai and French as far as word order is concerned (i.e., featuring the NP-linker-AP order) are Persian (58c), Kurdish (59) and (60), Takia (i), and Kenya Luo (ii); like Mandarin are most other Southeast Asian languages (see fn. 21 on Cantonese, and the Newari examples in section 6.2). There are also languages that allow freedom of word order in constructions that seem to be of the same general type. Thus, in Tagalog (discussed in Schachter & Otanes 1972, and Rubin 1994, 2002), we find an apparently free alternation between (iia) and (iib), both featuring *na/ng*, which Schachter and Otanes (1972:107) call a “device of linking.” It also shows up in relative-clause constructions and complex noun phrases in which a PP is predicated of the head noun’s projection, as seen in (iic–f); its distribution thus matches that of Thai *l^hū* and Mandarin *de* quite closely. Palauan seems to allow a word-order alternation similar to that found in Tagalog, as seen in (iv). See Ortmann 2001 and references cited there for more data and discussion of the languages mentioned in this note.

What the members of the set {*wh*-pronoun, indefinite pronoun, focus} have in common is that they are all attracted to operator positions higher up in the clausal hierarchy (and if Kayne 1998 is right—but this will be inconsequential here—those movements are in fact all overt-syntactic movements). In keeping with the derivation by phase theory of Chomsky 2001, to be attractable to the *wh*-, Q-, or Focus position in the matrix clause, the NP part of the complex NP-*de*-AP construction must be on the edge of the DP phase—which is tantamount to saying that the NP part must be raised to Spec,DP. Once in Spec,DP, it is attractable by higher operator heads.

Irrelevant details aside, we may conclude that the elements legitimating NP-*de*-AP in (5) are in Spec,DP—in other words, in the examples in (5a–c), the way in which the underlying relative order of NP and AP is restored is by A'-movement of the nominal part to Spec,DP. It is precisely those elements that can raise to Spec,DP (elements attracted by a *wh*-, Q-, or Focus head) that are eligible for participation in the NP-*de*-AP construction. The same holds, *mutatis mutandis*, for Thai NP-*t^hü*-AP constructions in nonexistential contexts (see (7)).

4.2 Existential Contexts

What about the existential and possessive-*have* sentences in (6)? In (6) the container noun phrase is smaller than DP: the associate of *il+y* and the

- (i) ab uya-*n* an (Takia)
house good-N DET
'good house'
- (ii) pala *má-bí-th* (Kenya Luo)
knife MA-sharp
'sharp knife'
- (iii) a. bahay *na* maganda (Tagalog)
house NA beautiful
b. maganda *-ng* bahay
beautiful NA house
Both: 'beautiful house'
c. bahay *na* nakita ko
house NA saw I
d. nakita ko *-ng* bahay
saw I NA house
Both: 'the house that I saw'
e. libro *-ng* nasa mesa
book NA on table
f. nasa mesa *-ng* libro
on table NA book
Both: 'the book on the table'
- (iv) a. blai *əl* beches (Palauan)
house əL new
b. beches *əl* blai
new əL house
Both: 'new house'

complement of *have* cannot normally be full DPs (noncanonical cases aside). So here, restoration of the underlying relative order of the NP and AP is not the result of fronting to Spec,DP. What goes hand in hand with this is that, in existential and possessive-*have* constructions, we do not find the quantificational restrictions seen in (5). Those quantificational restrictions are imposed only in cases in which the NP part of the NP-linker-AP construction raises to Spec,DP, not otherwise.

So we find that in some NP-linker-AP constructions (the ones whose top structure is DP), the NP part raises to Spec,DP, and it is those instances of the construction that are subject to the quantificational restrictions discussed earlier. But in other such constructions (the ones whose top structure is smaller than DP), the NP part cannot raise to Spec,DP. That the behavior of the latter is different from the former is not unexpected from this perspective (though we have to leave a detailed discussion of the whys and hows for another occasion). But the question we now need to address is: where *is* the NP part raised in those existential and possessive-*have* cases? The answer seems to be: a pretty low one, just outside the projection internal to which Predicate Inversion takes place. French and Thai both give us indications to that effect.

4.2.1 French quantifiers

Let us begin with French, saving the best for last. In French possessive-*have* examples of the type in (30a,b), we find a syntactically complex quantifier in front of the NP part of the NP-linker-AP construction. Here it is clear that, inside the complex quantified noun phrase, *beaucoup* and *combien* occupy the highest specifier positions, of a functional head that is spelled out as *de*.¹² So, at best, the projection of *pizzas* can occupy the second highest specifier position in the complex noun phrase—below the position occupied by the higher *de*, the *de* we believe spells out the functional head Q.

¹² Following the reasoning of the preceding discussion, this suggests that *beaucoup* and *combien* end up in those high specifier positions as a result of A-movement around some lower specifier position, such specifier-skipping movement being signaled by an instance of the linker element *de*. We have suppressed this part of the story, however, in order not to complicate the discussion unnecessarily. See Doetjes and Rooryck 2001 for more detailed discussion of French quantified noun phrases featuring *de* and for a critical evaluation of the chances of extending a Predicate Inversion analysis to *beaucoup/combien*.

Note that, just as in cases involving simpler noun phrases (see (i)), *combien* is extractable from out of its container in (30b), as shown in (ii) (see similar examples in Azoulay-Vicente 1985). This shows that *combien* is indeed in a high structural position in the NP-*de*-AP construction, crucially not trapped inside the nominal part of the construction. Put differently, *combien* teams up with the entire NP-*de*-AP phrase, not with just the NP part.

- (i) Combien as-tu de pizzas?
 how-many have-you DE pizzas
- (ii) Combien as-tu de pizzas de chaudes?
 how-many have-you DE pizzas DE hot-AGR

- (30) a. Tu as beaucoup de pizzas de chaudes.
 you have many DE pizzas DE hot-AGR
 b. Tu as combien de pizzas de chaudes?
 you have how-many DE pizzas DE hot-AGR

We can learn more about the exact landing site of the NP part of the NP-linker-AP construction by looking at the structure of quantified noun phrases in Thai.

4.2.2 Thai quantifiers and classifiers

In Thai NP-linker-AP constructions featuring a quantified noun phrase (i.e., counterparts of French cases like (30a)), we find that the quantifier finds itself to the right of the NP-linker-AP sequence, followed in turn by a classifier appropriate for the choice of noun. This word order pattern is illustrated in (31).

- (31) rôm t^hti jàj lăaj k^han
 umbrella THII big many CLF
 ‘many big (as opposed to small or medium-size) umbrellas’

Singhapreecha (2001) argues that quantifiers and classifiers project their own functional projections in the extended projection of the noun, between D and the base NP (see also Tang 1990a,b for Mandarin Chinese). More specifically, she argues that the classifiers and quantifiers themselves represent the heads of those functional projections (unlike in French, where *beaucoup* and *combien* are specifier elements). Like all other heads (given the theory of antisymmetry of syntax developed in Kayne 1994), both classifiers and quantifiers precede their complements in the underlying representation. Given that they end up to the right of the noun phrases that they are construed with, they will receive extended projections of the noun phrase in their specifier positions as a result of massive pied-piping movement in the course of the overt-syntactic derivation.

Let us make this more precise, illustrating Singhapreecha’s (2001) analysis on the basis of a particularly complex case such as (32).

- (32) rôm (k^han) jàj sǎam k^han nán
 umbrella CLF big three CLF DEM
 ‘those three big umbrellas’

The complex noun phrase illustrated in (32) is head-final at the top level: the demonstrative (arguably a D-head in Thai; see also Tang 1990a,b for Mandarin Chinese, but note fn. 23) surfaces all the way at the end of the DP. Therefore, on the assumption that D underlyingly precedes its complement, the entire complement of D has raised into Spec,DP. Continuing on from right to left, the next-to-last item in the complex DP is the classifier *k^han*, another head. Interestingly, this classifier can occur twice in the complex noun phrase in (32):

once between the head-noun and the adjective, and once in penultimate position. Even more interestingly, the occurrence of the classifier $k^h an$ between the head noun and the adjective turns out to be in complementary distribution with the linker $t^h i$, as a comparison of (32) and (33) shows.

- (33) $r\acute{o}m$ $t^h i$ $j\grave{a}j$ $s\acute{a}am$ $k^h an$ $n\acute{a}n$
 umbrella THII big three CLF DEM
 ‘those three big (as opposed to small or medium-size) umbrellas’

This, we believe, tells us two things: (a) the token of the classifier in penultimate position is not a copy of the (identical) classifier between the head noun and the adjective in (32) but, instead, each is generated in the head position of its own Classifier Phrase (as Singhapreecha 2001 also argued); and (b) the head position of the Classifier Phrase realized by the leftmost token of $k^h an$ in (32) serves as the landing site of movement of the linker $t^h i$ in (33).

With these two things in place, we can now flesh out the structure and derivation of the examples in (32) and (33). Let us start with the former, which is illustrated in (34). With NP realized as $r\acute{o}m$ and AP as $j\grave{a}j$, (34e) delivers precisely the desired surface output for (32) with both instances of $k^h an$ overtly spelled out. Alternatively, the token of $k^h an$ in the head position of Clf1P (annotated as $k^h an^1$) can remain unexpressed, in which case we derive the variant of (32) with only one instance of the classifier $k^h an$.

- (34) a. [_{SC} NP AP]
 → merging Clf1 (= $k^h an^1$); NP-to-Spec, Clf1P →
 b. [_{Clf1P} NP_i [$k^h an^1$ [_{t_i} AP]]]
 → merging Q (= $s\acute{a}am$); Clf1P-to-Spec, QP →
 c. [_{QP} [_{Clf1P} NP_i [$k^h an^1$ [_{t_i} AP]]]_j [$s\acute{a}am$ _{t_j}]]
 → merging Clf2 (= $k^h an^2$); QP-to-Spec, Clf2P →
 d. [_{Clf2P} [_{QP} [_{Clf1P} NP_i [$k^h an^1$ [_{t_i} AP]]]_j [$s\acute{a}am$ _{t_j}]]]_k [$k^h an^2$ _{t_k}]]
 → merging D (= $n\acute{a}n$); Clf2P-to-Spec, DP →
 e. [_{DP} [_{Clf2P} [_{QP} [_{Clf1P} NP_i [$k^h an^1$ [_{t_i} AP]]]_j [$s\acute{a}am$ _{t_j}]]]_k [$k^h an^2$ _{t_k}]]]_m
 [$n\acute{a}n$ _{t_m}]]

Because we know independently, from the optionality of $k^h an^1$ in (32), that the head position of Clf1P can be empty, we can naturally exploit the Clf1 position in the structure as a landing site for movement. This comes in handy for the analysis of (33), whose structure and derivation are depicted in (35).

- (35) a. [_{SC} NP AP]
 → merging F; AP-to-Spec, FP (Predicate Inversion), with
 Spell-Out of F as linker $t^h i$ →
 b. [_{FP} AP_a [$t^h i$ [NP _{t_a}]]]
 → merging Clf1 (null); remnant movement (see fn. 13)
 to Spec, Clf1P + $t^h i$ -to-Clf1 →

- c. $[_{ClfIP} NP_i [t^h \ddot{u}_x [_{FP} AP_a [t_x [t_i t_a]]]]]$
 \rightarrow merging Q (= *săam*); ClfIP-to-Spec,QP \rightarrow
- d. $[_{QP} [_{ClfIP} NP_i [t^h \ddot{u}_x [_{FP} AP_a [t_x [t_i t_a]]]]]_j [s\ddot{a}am t_j]]$
 \rightarrow merging Clf2 (= *k^h an^2*); QP-to-Spec,Clf2P \rightarrow
- e. $[_{Clf2P} [_{QP} [_{ClfIP} NP_i [t^h \ddot{u}_x [_{FP} AP_a [t_x [t_i t_a]]]]]_j [s\ddot{a}am t_j]]_k [k^h an^2 t_k]]$
 \rightarrow merging D (= *nán*); Clf2P-to-Spec,DP \rightarrow
- f. $[_{DP} [_{Clf2P} [_{QP} [_{ClfIP} NP_i [t^h \ddot{u}_x [_{FP} AP_a [t_x [t_i t_a]]]]]_j [s\ddot{a}am t_j]]_k [k^h an^2 t_k]]_m [nán t_m]]$

Let us comment on this derivation in some detail. Recall first of all that, in the course of the derivation of complex noun phrases with the linker $t^h \ddot{u}$, the AP inverts around its subject, ending up in the specifier position of a functional projection, here labeled FP. This is what (35b) depicts; it just repeats what we argued earlier. The next step in the derivation is new: it involves raising of the remnant around the fronted AP, to Spec,ClfIP, whose head here is base-generated empty.¹³ This step, like the one depicted in (35b), involves the skipping of a specifier position: that of FP, which AP was raised into. To make this legitimate, the head of FP, which is spelled out as $t^h \ddot{u}$, has to raise to the head position of ClfIP—this is another case of domain-extending head movement (Chomsky 1993).

The interim result of the derivation through step (35c) is a word order in which, as desired, NP precedes $t^h \ddot{u}$, which in turn precedes AP. Whatever happens later in the derivation, *rôm $t^h \ddot{u}$ jàj* ‘umbrella THII big’ will have to remain a constituent, preserving its word order. That will be no problem, given the derivation we have proposed: after all, *rôm $t^h \ddot{u}$ jàj* is indeed dominated by a single node, ClfIP. And it is this node that, just like in the derivation of (32) depicted in (34), we can now raise to Spec,QP, as in (35d). This step is identical to the ClfIP-to-Spec,QP raising operation performed in (34c). In fact, beyond (35c) everything in the derivation of (33) is exactly like what is going on beyond (34b) in the derivation of (32).

¹³ Movement to Spec,ClfIP is motivated by the need for the classifier to check its features against the NP. Movement of just the subject across its inverted predicate is generally impossible in Predicate Inversion constructions (Moro 1997). So, arguably what actually moves in the step from (35b) to (35c) is the entire remnant small clause (including the trace of the raised predicate); this continues to guarantee a feature-checking relationship between Clf1 and the SC-subject given a definition of checking domain as in Chomsky 1993. To keep the structures transparent, however, we will use the simplified scenario shown in the main text. An anonymous reviewer asks whether the extraction restrictions known to hold for cases of Predicate Inversion at the clausal level (discussed in detail in Moro 1997; see Den Dikken 2003b for a reanalysis of the core facts and some corrections and extensions of Moro’s seminal observations) are reproducible in the domain of NP-linker-AP constructions. Because the subject of the inverted predicate is carried across the AP via remnant movement, it is freed up for subextraction, though the Left Branch Condition continues to restrict extraction independently. The inverted AP is predicted to be frozen in place, which is empirically correct but does not seem to be particularly revealing—alternative approaches (e.g., a reduced relative clause approach) would presumably accommodate this as well. Although certainly compatible with the analysis proposed, it does not seem, therefore, that extraction facts will serve to provide unequivocal support for the Predicate Inversion analysis. We take it, however, that this analysis is amply supported by its accomplishments highlighted in section 3.

For our purposes, the only relevant step is the one depicted in (35c)—raising of the remnant across the raised AP, into Spec,ClfIP, with concomitant raising of *t^{hi}* from F to ClfI. This step (arguably triggered by the need for ClfI to check a feature against NP) is responsible for the restoration of the relative order of NP and AP and takes the linker up into a position directly in between NP and AP. In other words, this step gets us the right word order for the NP-linker-AP sequence—and what the Thai facts (in particular, the comparison of (32) and (33)) have shown us is that this word order is established fairly low in the structure. In fact, we have managed to put our finger on the precise point in the structure at which it happens: ClfIP, which is below the position of quantifiers. This is, of course, directly compatible with what (30) told us for French (where ClfI is empty and once again serves as a landing site for movement of the linker). We take it, then, that we have succeeded in showing how the surface word order NP-linker-AP is brought about. We intend the account developed on the basis of Thai to carry over to French, which indeed it will on the assumption that French noun phrases feature a projection of ClfI as well, whose specifier serves as a landing site and whose head is null (see Kobuchi-Philip 2003:277 on null classifiers in languages of the English/French type).

A straightforward prediction of the account outlined here is that the word-order effect of inversion of a predicate around its subject can only be undone (via subsequent movement to the specifier of a Classifier Phrase) in contexts in which Classifier Phrases can be projected. This prediction is confirmed by interesting facts from Romanian involving the linker *de*, discussed by Rubin (1994, 2002) (who identifies *de* as a functional element introducing modifiers, Mod). First let us consider (36a), in which the linker *de* (identical to its French cognate) intervenes between the projection of the head noun and a PP that is predicated of the head noun, in that order. On these assumptions, (36a) then results from inversion of the PP around its subject (leading to the appearance of the linker *de*) with subsequent restoration of the basic word order via movement of ClfP. It is worth emphasizing that the fact that the head noun is itself adorned with the affixal definite determiner *-ul* confirms quite strikingly that *de* is not in D (as it would be on an extension to Romanian of Simpson's 2001, 2002 analysis of similar linker elements in (South-) East Asian languages, particularly Mandarin Chinese *de*).

- (36) a. covor-ul *de* sub masa
 rug-DEF.MASC DE under table
 'the rug under the table'
- b. *problem-a *de* grea
 problem-DEF.FEM DE tough-FEM
- c. Problem-a este curios *de* grea/
 problem-DEF.FEM is curious DE tough-FEM/
 *grea *de* curios.
 tough-FEM DE curious
 'The problem is curiously tough.'

Though Romanian (for reasons unclear to us) does not produce constructions of the type in (36b), in which the predicate of the head noun is adjectival (as in the French and Thai examples), it does feature *de* in (36c), involving adverbial modification of an AP—or, put differently, cases in which an adverb is predicated of an AP. The word order in (36c) arises, on our assumptions, via inversion of the underlying predication relationship: *curios*, which is predicated of *grea*, inverts with its subject and the linker *de* pops up as a result. Interestingly, however, the underlying subject-predicate order is not restored in (36c), unlike in (36a). From our perspective, that is a direct consequence of the fact that the functional structure required to undo the word-order effect of Predicate Inversion is unavailable in (36c): the extended projection of adjectives features no Classifier Phrases (whereas that of nouns does).

4.3 Summary

This essentially completes our account of the NP-linker-AP construction. To recapitulate, what we have found is the following:

- NP and AP entertain a relationship of predication structurally encoded in the form of a small-clause structure.
- The AP predicate inverts around its NP subject, via Predicate Inversion.
- Predicate Inversion gives rise to the emergence of a linker element (French *de*, Thai $t^h\hat{u}$) in the functional head position whose specifier serves as the landing site of AP-raising.
- Predicate Inversion is also responsible for the information-structural properties of the NP-linker-AP construction. As in other instances of Predicate Inversion, the inverted predicate is presuppositional, serving as a contrastive topic in the presence of a focus.
- The word-order effect of Predicate Inversion is undone at a subsequent point in the derivation, when NP raises around AP into the specifier of a Classifier Phrase. The linker (*de*/ $t^h\hat{u}$) concomitantly raises to the head of this Classifier Phrase; the net result is NP-linker-AP, as desired.

For French, this is basically the whole story. But for Thai, a bit more needs to be said. It turns out that surface NP- $t^h\hat{u}$ -AP sequences in Thai are often ambiguous between a structure in which $t^h\hat{u}$ is a linker in the sense of this paper (and hence, we are dealing with a derivation such as the one sketched previously) and one in which $t^h\hat{u}$ seems to be introducing a (reduced) relative clause. The two structures are syntactically distinct, but it seems to be possible to treat both incarnations of $t^h\hat{u}$ as a linker. The next section shows this by taking a close look at the syntax of relative clause (and noun-complement clause) constructions in Thai.

5. Linker versus Complementizer

The analysis of French (2b) and Thai (3b) developed in the preceding pages treats *de* and *tʰi* as copular elements brought in as a reflex of the Predicate Inversion operation. It explicitly does not treat these elements as complementizers, determiners, or prepositions. A prepositional approach to *de* and *tʰi* in (2b) and (3b) would be tough to reconcile with the fact that what follows it is not, and cannot be, Case dependent (whereas we know that prepositions are quintessential Case assigners). The determiner analysis is compromised by the recursion facts discussed at the end of section 3.3 (see (24)–(26)). So these approaches scarcely look promising. But one might be tempted to assimilate constructions of the type in (2b) and (3b) to reduced relative clause constructions, with *de/tʰi* serving as the complementizer introducing the relative clause.

5.1 French

For French, a treatment of *de* in (2b) as a complementizer may seem *prima facie* attractive in the light of the fact that French *de* indeed appears to have an incarnation as a complementizer, in infinitival clauses of the type in (37a). But an analysis of *de chaude* in (2b) as a reduced relative clause is immediately defeated by the fact that, in nonfinite clauses featuring operator movement (including infinitival relatives), we do not find *de* in French but *à* (cf. (37b,c)).¹⁴

- (37) a. Il est difficile *de* lire ce livre.
 it is difficult DE read that book
 ‘It is difficult to read that book.’

¹⁴ Den Dikken (1996) argues that the *de* of (37a) can and should in fact be analyzed as a linker (making sense in an illuminating way of the distribution of *de* and *à* in (37a–c)), on a par with the *de* found in the French constructions previously reviewed, thus achieving a unification of all instances of *de* in the opposite direction. Rather than trying to treat them all as complementizers, we can analyze them systematically as linkers. In the interest of space, we forgo reproducing Den Dikken’s arguments for a linker approach to the *de* of (37a).

Note that there are Romance languages that use (the counterpart of) *de* in *tough*-movement and infinitival-relative constructions. Romanian is particularly interesting in allowing even finite relative clauses to be introduced by *de* (cf. (ia) alongside infinitival (ib); see Rubin 1994, 2002 and references cited there). It seems to us that, whereas the *de* of French (37a) originates inside the infinitival clause, the *de* of Romanian (ia,b) is outside the CP altogether, serving as a linker connecting the relative clause to the “head” (see the discussion of Thai *tʰi* as a linker of relative clauses and noun-complement clauses).

- (i) a. omul *de* a sosit ieri (Romanian)
 man-the DE has arrived yesterday
 ‘the man that arrived yesterday’
 b. niște cărți *de* citit până mâine
 some books DE read-INF for tomorrow
 ‘some books to read for tomorrow’

- b. Ce livre est difficile [Op_i à/*de lire t_i].
 that book is difficult to/DE read
 'That book is difficult to read.'
- c. Je cherche un livre [Op_i à/*de lire t_i].
 I look-for a book to/DE read
 'I am looking for a book to read.'

Moreover, as Azoulay-Vicente (1985) argues astutely, there is direct evidence against an account that derives French NP-*de*-AP constructions from relative-clause constructions (as proposed, for instance, in Huot 1981). She mentions a variety of arguments, a particularly simple one being the fact that *de*+AP cannot be coordinated with a relative clause (cf. **il y a une place [de libre] et [qui est confortable]* 'there is a place [free] and [which is comfortable]').¹⁵ These kinds of facts tell us that not only would it be wrong to systematically derive NP-*de*-AP constructions from underlying relative-clause constructions, it is also impossible to assume that the former are structurally ambiguous between a DP-internal Predicate Inversion analysis of the type proposed here and one involving a (reduced) relative clause. There is no sense in which the French NP-*de*-AP construction has anything in common with relative-clause constructions at all, as far as its structure and distribution are concerned.

5.2 Thai

In Thai, t^{hi} does seem to have an incarnation as a complementizer of relative clauses, as seen in (38). But it is not difficult to show that a distinction should be made between t^{hi} constructions involving (reduced) relative clauses and linker- t^{hi} constructions. A straightforward syntactic indication that the linker- t^{hi} construction should not be assimilated to relative-clause constructions comes from the placement of t^{hi} +AP vis-à-vis classifiers belonging to the head noun. As (38) shows, a true relative clause must follow such classifiers. So, whereas in (39a), where the t^{hi} +AP sequence follows the classifier, we are arguably dealing with a reduced relative clause, the grammaticality of (39b) tells us unequivocally that there must be a derivation available for t^{hi} +AP constructions in which t^{hi} does not introduce a relative clause.

- (38) rôm sǎam k^han t^{hi} John súu maa nán
 umbrella three CLF THII John bought VPRT those
 'those three umbrellas that John bought'

¹⁵ Another of Azoulay-Vicente's arguments against Huot's (1981) reduced relative clause approach is that the quantificational restrictions on the NP part of the NP-*de*-AP construction (see section 2) do not hold of relativized noun phrases:

- (i) a. J'ai lu l'article [qui est intéressant].
 I-have read the-article which is interesting
 b. *J'ai lu l'article [d' intéressant].
 I-have read the-article DE interesting

- (39) a. rôm sǎam k^han t^hîi jàj nán
 umbrella three CLF THII big DEM
 ‘those three big umbrellas’
 b. rôm t^hîi jàj sǎam k^han nán
 umbrella THII big three CLF DEM
 ‘those three big (as opposed to small or medium-size) umbrellas’

There are two respects in which (39a) differs from (39b): the first, and obvious way concerns word order; but tracking this word-order difference, we also find an interpretive distinction between the two examples. Whereas (39b) obligatorily has the contrast reading typical of noun-phrase-internal AP-inversion constructions with linker *t^hîi*, (39a) does not force this special interpretation; a contrast reading is not strictly unavailable in (39a), but our point is that it is not the only interpretation available for the *t^hîi jàj* phrase here, in contradistinction to (39b), where a contrast reading is forced. In both respects, (39a) behaves like a relative-clause construction (cf. (38)). The interim result, then, seems to be that (a) *t^hîi*+AP constructions are often structurally ambiguous between AP-inversion constructions and reduced relative clause constructions (two parses that can be teased apart on the basis of the placement of *t^hîi*+AP vis-à-vis classifiers and quantifiers, and interpretive properties), and (b) *t^hîi* can serve as an element introducing a relative clause: apparently, *t^hîi* doubles as a linker and as a relative complementizer in Thai.

5.2.1 Noun-complement clauses introduced by *t^hîi*: A Predicate Inversion approach with *t^hîi* as linker

Although this would already mean a lexical duplication for *t^hîi*, things seem to get even worse when we realize that *t^hîi* also seems to manifest itself as a complementizer introducing what are traditionally called noun-complement clauses of the type in (40).

- (40) C^hán māj c^hǝp k^hwaamk^hít t^hîiwāa k^háw
 I NEG like idea THII+WAA he
 cá? laa?ǝk cáak ɲaan.¹⁶
 will resign from job
 ‘I do not like the idea that he will resign from his job.’

But as discussed in this subsection, so-called noun-complement cases of the type in (40) open up a perspective on complementizer-*t^hîi* that leads to the conclusion that, despite appearances, it should not be analyzed as a complementizer. A linker analysis of this incarnation of *t^hîi*, on the other

¹⁶ In (40) we chose the noun *k^hwaamk^hít* as the head of the noun phrase; the facts are the same with nouns like *k^háawluu* ‘rumor’ and *k^ham?áaŋ* ‘claim’.

hand, is not difficult to construct, given independently plausible assumptions about noun-complement clauses. This then extends naturally to relative clauses, as we show in section 5.2.2.

What will strike the reader when looking carefully at (40) is that, in addition to *t^{hi}i*, there is an element *wâa* between the head noun and the subject of the clause. This element *wâa*, although originally a verb (and still usable meaning ‘to say, to blame, to scold’), is standardly analyzed as a complementizer in Thai complement clauses (Ekniyom 1982, Kobsiriphat 1988, Hoonchamlong 1991, among others). It can be used to introduce “assertive” clauses (Ekniyom 1982; cf. Kiparsky & Kiparsky’s 1970 nonfactive complements), whereas *t^{hi}i* introduces nonassertive/factive clauses. The minimal pair in (41) illustrates this difference.

- (41) a. John k^hâwcaj/c^hûa wâa Mary [assertive]
 John understand/believe COMP Mary
 cà? laa?ðòk càak ɲaan.
 will resign from job
 ‘John understands/believes that Mary will resign from her job.’
 b. John k^hâwcaj/c^hûa t^{hi}i(wâa) Mary [factive]
 John understand/believe THII(+COMP) Mary
 cà? laa?ðòk càak ɲaan.
 will resign from job
 ‘John understands/believes (the fact) that Mary will resign from her job.’

If *t^{hi}i* were a complementizer, we would be dealing, in (40) and the variant of (41b) in which we find *t^{hi}i* and *wâa* glommed together, with *two* complementizers in a row, hence with two CPs. But we know independently that CP recursion is universally impossible outside bridge verb contexts (Iatridou & Kroch 1992, Vikner 1995, and references cited there). Hence we must conclude that (at least) one of the two elements in between the noun and the subject of the embedded clause in (40) (i.e., either *t^{hi}i* or *wâa*) is not a complementizer here. And given that we believe that the standard analysis of *wâa* as a complementizer is arguably correct, we may now take the co-occurrence of *t^{hi}i* and *wâa* in (40) to show that *t^{hi}i* in noun-complement clause constructions is not a complementizer.

With this conclusion drawn, we now present an analysis of (40), and (41b) as well, in which *t^{hi}i* is a *linker*—the only alternative available to us, on the simplifying (and conceptually restrictive) assumption that *tertium non datur*. The question to answer, from the perspective of that analysis, is: what is *t^{hi}i* linking in (40) and (41b)? For (40), the answer must be the projection of the head noun and the complement clause introduced by *wâa*. For *t^{hi}i* to link those two, one of them must be the predicate of the other, and moreover, the underlying subject-predicate relationship must have been inverted in the course of the syntactic derivation. Let us see how we can meet all those requirements.

The crucial step is to realize that the traditional analysis of noun-complement clauses, which literally takes them to be the complement of the noun, is false. That is, in *the claim that John was asleep* we are not in fact dealing with a clause base-generated in the complement of the noun *claim*. Instead, we have a structure in which the projection of the noun *claim* and the *that*-clause are in a predication relationship, with the former serving as the predicate of the latter, as in (42a). This analysis, due in essence to Stowell (1981) (see also Napoli 1989:250), captures the—otherwise elusive (cf. *Barriers*)—CNPC effect in (43).

- (42) a. $[_{DP} D [_{XP} CP [_{X'} X [_{NP} \text{claim}]]]]$
 b. $[_{DP} D [_{FP} [_{NP} \text{claim}]_i] [_{F'} F+X_j [_{XP} CP [_{X'} t_j t_i]]]]$

- (43) ?* *Who* did they discuss the claim that John had kissed *t*?

In the course of the syntactic derivation, the predicate nominal inverts with its CP subject via Predicate Inversion, as depicted in (42b). In English, apparently, this does not give rise to the emergence of an overt realization of F (unlike in other cases, including ones in which the head noun is *question* and its subject is a *wh*-CP: *the question of whether John was asleep*). English is somewhat unexpected that way. The Thai facts are more straightforward: here we find the expected surface reflex of the Predicate Inversion operation, the linker t^{hi} . In other words, the t^{hi} in front of the complementizer *wâa* that introduces the subject-CP in (40) can readily be assimilated to the cases of linker- t^{hi} discussed earlier.

An extension of this analysis to (41b) is readily available if we follow in the footsteps of Kiparsky and Kiparsky's (1970) original approach to factive complements. They argued that factive verb-complements do not exist: there is always a projection of an abstract noun (FACT) in between the verb and the clause (cf. *John c^hûa k^hâawluu t^{hi}û[wâa]*... 'John believes the rumor that...'). For them, this noun FACT took the clause as its complement; but in line with our analysis of noun-complement clauses in (42), we treat it as the subject of the projection of FACT. Analyzed this way, the emergence of t^{hi} in (41b) is fully parallel to the occurrence of t^{hi} in (40)—so t^{hi} is a linker, not a complementizer, in (41b) as well.

This analysis of "noun-complement constructions" (now in quotes because, on the analysis in (42), these really do not involve complement-CPs at all) and factive complements garners further support for our t^{hi} -as-linker account of the cases that are the focus of our paper. The discussion of (40) and (41b) allows us to forestall criticism to the effect that our linker- t^{hi} is the only noncomplementizer t^{hi} . As a matter of fact, we can turn that kind of criticism around by 180 degrees: if our analysis is on the right track, we have identified two contexts featuring t^{hi} in which t^{hi} definitely cannot be

analyzed as a complementizer; the burden of proof will now be on the shoulders of those who would still like to claim that *t^hii* is indeed a complementizer in some other contexts. So let us ask: is *t^hii* ever a complementizer in Thai?¹⁷

5.2.2 Back to relative clauses: A Predicate Inversion approach with *t^hai* as linker

The obvious candidate for complementizer-*t^hii* is, of course, the *t^hii* that introduces relative clauses, seen in examples like (38), repeated here. The position that the *t^hii* introducing relatives is indeed a complementizer (and not, for instance, a *wh*-element raised to Spec,CP) is taken explicitly in two generative studies of Thai clausal structures, Kobsiriphat (1988:57) and Hoonchamlong (1991:172–194).

- (38) rôm sām k^han *t^hii* John súuu maa nán
 umbrella three CLF THII John bought VPRT those
 ‘those three umbrellas that John bought’

We have observed that the *t^hii*+relative clause is demonstrably in a different structural position from linker-*t^hii*+AP. Our argument was based on the different locations of the two vis-à-vis numeral classifiers (recall (39)). So there is good reason to distinguish between *t^hii*+relative clause on the one hand, and linker-*t^hii*+AP on the other—but that does not mean, of course, that the incarnation of *t^hii* that introduces relative clauses cannot possibly be linker-*t^hii*. As a matter of fact, despite the fact that she analyzes it as a complementizer, Hoonchamlong (1991) actually refers to the *t^hii* introducing relatives as a relative linker; and we would like to argue that it is possible to analyze this *t^hii* as a linker

¹⁷ Kobsiriphat (1988) exploits the occurrence of *wh*-elements right next to *t^hii*, as in (ia), to argue for syntactic *wh*-fronting in Thai, and for the idea that *t^hii* is a C-head. But note that overt *wh*-fronting does not otherwise occur in Thai (cf. *k^hun mâj k^hâwcâj araj?* ‘you NEG understand what’); Kobsiriphat’s own rendition of (ia) in English suggests that it is actually a cleft-like construction with an elliptical copular root clause—which, in literary Thai, may be spelled out as in (ib). This suggestion seems to be further supported by *araj (t^hii) sūuu t^hii sūt t^hii k^hun hěn?* ‘what is the tallest you see?’. If indeed (ia) is an elliptical variant of (ib), then *araj* is not in the specifier of a projection headed by *t^hii* at all: *t^hii* in fact serves to introduce a relative clause in the examples in (i), and *t^hii* in relative-clause constructions in Thai is actually an instantiation of the linker (see the next section).

- (i) a. Araj *t^hii* k^hun mâj k^hâwcâj?
 what THII you NEG understand
 b. Araj k^huuu siŋ *t^hii* k^hun mâj k^hâwcâj?
 what BE thing THII you NEG understand
 ‘What is it/the thing that you don’t understand?’

in our sense of the term, on a par with the other incarnations of $t^h\ddot{u}$ discussed in this paper.¹⁸

As before, the recipe is simple: if we want to maintain that a particular incarnation of $t^h\ddot{u}$ is a linker, we need to find the two constituents it links and we need to identify one of them as the predicate of the other. Additionally, we need to perform a Predicate Inversion operation in the course of the syntactic derivation (potentially undone, as far as word order is concerned, by subsequent movement) that will result in the emergence of the linker.

Finding the subject and the predicate in (38) is easy. In line with all standard approaches to relative-clause constructions, we take the relative clause to be the predicate of the projection of the head noun. Concretely, then, *John súu maa* ‘John bought’ in (38) is the underlying predicate of the noun phrase of which *rôm* ‘umbrella’ is the head. Inversion of the relative clause around its subject will introduce F, realized as $t^h\ddot{u}$; and subsequent remnant movement will reinstate the underlying order of subject and predicate, much like in the linker- $t^h\ddot{u}$ constructions featuring APs discussed previously. But as we know from the contrast in (39), there is a difference between the two—and that difference can now be characterized, in the light of the analysis of relative-clause constructions with $t^h\ddot{u}$, in terms of a difference in the size of the constituent which the predicate is predicated of.

Concretely, in (39b) *jàj* ‘big’ is predicated just of the projection of the head noun *rôm* and the numeral classifier combines with the constituent so formed (as depicted in (32), repeated here as (44)).

- (44) a. [_{SC} NP (= *rôm*) AP (= *jàj*)]
 → merging F; AP-to-Spec,FP (Predicate Inversion), with
 Spell-Out of F as linker $t^h\ddot{u}$ →
 b. [_{FP} AP_a [$t^h\ddot{u}$ [_{SC} NP t_a]]]
 → merging Clf1; remnant movement to Spec,Clf1P + $t^h\ddot{u}$ -to-Clf1 →
 c. [_{Clf1P} NP_i [$t^h\ddot{u}_x$ [_{FP} AP_a [t_x [_{SC} t_i t_a]]]]]
 → merging Q; Clf1P-to-Spec,QP →
 d. [_{QP} [_{Clf1P} NP_i [$t^h\ddot{u}_x$ [_{FP} AP_a [t_x [_{SC} t_i t_a]]]]]_j [*săam* t_j]]
 → merging Clf2 (= k^han^2); QP-to-Spec,Clf2P →
 e. [_{Clf2P} [_{QP} [_{Clf1P} NP_i [$t^h\ddot{u}_x$ [_{FP} AP_a [t_x [_{SC} t_i t_a]]]]]_j [*săam* t_j]]]_k [k^han^2 t_k]]
 → merging D (= *nán*); Clf2P-to-Spec,DP →
 f. [_{DP} [_{Clf2P} [_{QP} [_{Clf1P} NP_i [$t^h\ddot{u}_x$ [_{FP} AP_a [t_x [_{SC} t_i t_a]]]]]_j [*săam* t_j]]]_k
 [k^han^2 t_k]]_m [*nán* t_m]]

¹⁸ That still does not mean that all instances of the Thai word $t^h\ddot{u}$ are linkers: its *lexical* incarnations—as a noun (‘land, real estate’) and as a preposition (‘at, in’)—are arguably different entities (though it is certainly worth exploring the possibility that linker- $t^h\ddot{u}$ might have evolved out of one of the two lexical $t^h\ddot{u}$ ’s (see, e.g., Simpson & Wu’s [2001] observation that Korean *kes*, which is used as a functional element in headless and internally headed relative clauses, in pseudo-clefts and as a sentence-final particle, much like Chinese *de*, may have evolved from the formal noun *kes* meaning something like ‘thing’). In this paper we will not consider the evolution (or grammaticalization) of linker elements; our discussion is confined to the nonlexical incarnations of $t^h\ddot{u}$, for which we make the strong claim that they are all alike: they all instantiate linker- $t^h\ddot{u}$.

In (39a), on the other hand, a reduced relative clause whose only audible content is *jāj* ‘big’ is predicated of *rôm sām kʰan* ‘three umbrellas’ as a whole, in the same way that the full relative clause in (38), *John sūtu maa* ‘John bought’, is predicated of *rôm sām kʰan* (see (45d)).¹⁹ Just as in (32), *sām kʰan* instantiates a substructure headed by Clf2 taking QP as its complement; but unlike in (32), where Q (*sām* ‘three’) takes a ClfP

¹⁹ See Den Dikken 2003a (sect. 4.3, 4.5) for relevant discussion of why the subject of a (reduced) relative clause is phrase-structurally larger than the subject of other predicates inside the complex noun phrase. Den Dikken (2003a) relates this to the fact that (reduced) relative clauses feature movement of a (null) operator connected to the “head” of the relative clause: with operators being QPs, their associates (i.e., the “heads” of relative-clause constructions) must also be minimally as large as QP. The facts of Rotuman support this conclusion in a particularly interesting way, as Den Dikken shows.

In Mandarin Chinese as well, it is possible to have the relative clause predicated of a quantified noun phrase: thus, (ia), featuring *mei-ben* ‘every’, alternates freely with (ib), in which *mei-ben shu* as a whole is the subject of the relative clause.

- (i) a. *mei-ben* [wo zuotian mai] de shu (Mandarin)
 every-CLF I yesterday bought DE book
 b. [wo zuotian mai] de mei-ben shu
 I yesterday buy DE every-CLF book
 Both: ‘every book I bought yesterday’

For Mandarin, however, the issue is complicated by the fact that with weak quantifiers (including numeral quantifiers), a word order of the type in (ib), with the Q+classifier following the linker *de*, is restricted to contexts in which the relativized noun phrase is not required to be indefinite (see esp. Huang 1982, and also Del Gobbo 2003:68–86 for recent discussion and further references). Thus, (iia) is grammatical throughout, but (iib) is banned from syntactic contexts sanctioning indefinite noun phrases only (such as *have* and existential sentences).

- (ii) a. *liang-ben* [wo zuotian mai] de shu (Mandarin)
 two-CLF I yesterday bought DE book
 b. %[wo zuotian mai] de liang-ben shu
 I yesterday buy DE two-CLF book
 Both: ‘two books I bought yesterday’

Simpson’s analysis of Mandarin relative-clause constructions, according to which *de* is a D-head receiving the relative clause’s IP in its specifier position (see section 6.1 for brief discussion), yields (ib) and (iib) without any ado; the (a)-examples are analyzed in terms of placement of the quantifiers in a position above the landing site of the relative clause’s IP (i.e., above DP) in the specifier of a QP that dominates DP (cf. English *all the books*). The problem with this account is that it fails to shed light on the definiteness effect: for Simpson, both word-order patterns have structures that are minimally as large as DP (given that *de*, for Simpson, occupies D), and the (a)-cases are in fact *larger* than the (b)-constructions. Thus one would not expect that (iia) is acceptable and (iib) is bad in contexts in which noun phrases are generally required to be *smaller* than DP (i.e., definiteness-effect contexts). From that perspective, one would want the (b)-cases to be larger than the (a)-constructions. To meet this desideratum, we suggest that relative clauses in Mandarin (presumably as a reflex of the ways in which the language constructs its relative clauses; see Del Gobbo 2003 for detailed discussion) have the option of being predicated directly of the projection of the lexical noun, with the quantifiers and classifiers being generated outside the FP (cf. our analysis of AP-inversion in quantified noun phrases in (33)), alongside the alternative of having the relative clause predicated of the quantified noun phrase, as in Thai. In the former scenario, the full projection of the noun phrase is not required to be as large as DP, hence it can occur in definiteness-effect contexts. In the latter (given that Mandarin does not have the possibility of multiple classifiers, as in Thai (32)), a projection of a null determiner (or Del Gobbo’s [2003] null demonstrative) is needed to top off the noun phrase above FP, and as a result (iib) will be barred from contexts in which noun phrases are required to be smaller than DP.

complement, in (45) Q takes the projection of *rôm* ‘umbrella’ as its complement. The familiar raising operations take place within Clf2P (boldfaced in (45)), as depicted in (45b,c). The whole constituent *rôm sǎam kʰan* ‘three umbrellas’ is subsequently merged as the subject of the adjectival small clause of which the reduced free relative containing *jàj* ‘big’ is the predicate (see (45d)), after which a projection of F is introduced outside the small clause, and the reduced relative clause predicate inverts with its subject *rôm sǎam kʰan*, *tʰü* being introduced in the process (see (45e)). The word-order effect of Predicate Inversion is undone just as in the derivations discussed earlier via remnant movement of the small-clause subject (or remnant small clause; see fn. 13) to the specifier of an empty-headed Classifier Phrase projected right outside FP, with *tʰü* raising to the head of the Classifier Phrase (see (45f)). Finally, as before, the entire Classifier Phrase raises to Spec,DP, whose head is filled by the demonstrative *nán* (45g). The resulting word order is (39a).

- (45) a. [**Clf2P** Spec [*kʰan*² [**QP** Spec [*sǎam* [**NP** (= *rôm*)]]]]] →
NP-to-Spec, QP →
- b. [**Clf2P** Spec [*kʰan*² [**QP** **NP**_i [*sǎam* [*t_i*]]]]] →
QP-to-Spec, Clf2P →
- c. [**Clf2P** [**QP** **NP**_i [*sǎam* [*t_i*]]]_k [*kʰan*² *t_k*]]
→ merging Clf2P as subject of reduced relative, creating SC →
- d. [_{SC} [**Clf2P** [**QP** **NP**_i [*sǎam* [*t_i*]]]_k [*kʰan*² *t_k*]] [_{RC} *Op* (...) [_{AP} *jàj*]]]
→ merging F; RC-to-Spec, FP (Predicate Inversion),
with Spell-Out of F as linker *tʰü* →
- e. [_{FP} [_{RC} *Op* (...) [_{AP} *jàj*]]]_a [*tʰü* [_{SC} [**Clf2P** [**QP** **NP**_i [*sǎam* [*t_i*]]]_k [*kʰan*² *t_k*]]]_a]]
→ merging Clf1; remnant movement to Spec, Clf1P
+ *tʰü*-to-Clf1 →
- f. [_{Clf1P} [**Clf2P** [**QP** **NP**_i [*sǎam* [*t_i*]]]_k [*kʰan*² *t_k*]]]_j [*tʰü*_x [_{FP} [_{RC} *Op* (...) [_{AP} *jàj*]]]_a [_{SC} *t_j* *t_a*]]]]]
→ merging D (= *nán*); Clf1P-to-Spec, DP →
- g. [_{DP} [_{Clf1P} [**Clf2P** [**QP** **NP**_i [*sǎam* [*t_i*]]]_k [*kʰan*² *t_k*]]]_j [*tʰü*_x [_{FP} [_{RC} *Op* (...) [_{AP} *jàj*]]]_a [_{SC} *t_j* *t_a*]]]]]_m [*nán* *t_m*]]

The reader can repeat the exercise for (38), where the predicate of the small clause is a full relative clause, featuring null-operator movement within the bounds of the relative clause.

The approach to relative-clause constructions taken here is much closer to the standard GB approach than Kayne’s (1994) raising analysis, while at the same time it steers clear of the collision with antisymmetry incurred by the GB analysis. Rather than assuming that the head of the relative-clause construction is physically generated inside the relative clause and raises to its edge, the present approach base-generates the “head” outside the relative clause and postulates movement of a (null) operator inside the

relative clause, just as in the GB approach. But instead of placing the relative clause in a right-peripheral adjunction position, our analysis generates the relative clause as a predicate of a DP-embedded small clause.²⁰ In addition to avoiding the right-adjunction problem, this has the important advantage of representing the predication relationship between the relative clause and the “head” directly, in structural terms: relative clauses are no different, on this approach, from other predicates; predication is systematically encoded in the structure in terms of a small clause. As an added bonus, we are awarded an integrated approach to the *tʰi* of relative-clause constructions and the linker-*tʰi* found in noun-phrase-internal AP-inversion constructions of the type in (3b).²¹ Given that the linker approach to *tʰi* was seen to provide an adequate account of noun-complement constructions as well, we conclude that this approach brings forth a unified analysis of all nonlexical incarnations of Thai *tʰi*. In light of this conclusion, we may now venture the general hypothesis that once a linker, always a linker (barring accidental homophony).

6. A Broader Perspective

Taking that general hypothesis seriously, we would now like to be able to show for other languages and for other types of complex noun phrases as well that elements that can arguably be identified as linkers in some constructions should also be treated as such in other constructions in which they function as nonlexical, essentially meaningless elements—especially if those constructions turn out to be similar or even identical to the constructions in which the languages we just investigated employ linker elements. Though we will not be able to unfold a detailed crosslinguistic investigation of linker elements around the globe, the following brief discussions of mostly (South-)East Asian languages gives us confidence that the uniform linker approach has a lot to recommend it.

²⁰ Del Gobbo (2003) rejects Kayne’s analysis of relative clauses as well as Simpson’s (2002) variant thereof, showing that the raising analysis would run into insurmountable problems in the account of prenominal relatives in Mandarin Chinese—in particular, it makes the prediction that prenominal relatives (derived, on Kayne’s and Simpson’s analyses, via raising of the relative’s IP to Spec,DP) should have to or at least be allowed to be interpreted as appositive relatives, a prediction that Del Gobbo shows is false for Mandarin (whose relatives are exclusively restrictive). Our analysis is immune from Del Gobbo’s critique of Kayne’s analysis and is superior on other grounds (see the main text) to the adjunction analysis adopted by Del Gobbo.

²¹ A difference between the two is that *tʰi* is inmissible in relative-clause constructions, whereas APs can be juxtaposed to the noun phrases they modify without there being any intermediary *tʰi* (see (3a)). Whereas APs can be either attributive or predicative, relative clauses can only be predicates. With APs, then, we have a choice between inserting it as an attributive modifier (presumably in a designated specifier position, *à la* Cinque’s [1999] work), in which case we never get *tʰi*, or generating it as the predicate of a noun-phrase-internal small clause. But with relative clauses we have only the latter option. Apparently, in Thai, all noun-phrase-internal small-clause predicates must invert with their subjects via Predicate Inversion, which gives rise to the linker *tʰi*.

6.1 Linkers Everywhere: The Case of Mandarin *de*

The Mandarin Chinese functional element *de* (discussed at the end of section 4, in (36), and which Cheng [1997a] aptly calls a *modification marker*) is used in a variety of ways, discussed in detail in work by Cheng (1986, 1997a,b), Simpson (2001, 2002) and Tang (1983, 1993), among others. The examples in (46) (from Simpson 2001, 2002) give a representative sample.²²

- (46) a. hao *de* shu (Mandarin)
good DE book
'good books'
- b. wo *de* shu
I DE book
'my book'
- c. zai Beijing *de* ren
in Beijing DE people
'people in Beijing'
- d. wo mai *de* shu
I buy DE book
'the book that I bought'

²² Cantonese *ge* is the direct counterpart of Mandarin *de*, having essentially the same distribution. A direct comparison of the Mandarin examples in the left-hand column of (i) and their Cantonese renditions in the right-hand column (all taken from Cheng 1997b) should make this clear.

- | | |
|----------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|
| (i) Mandarin | Cantonese |
| a. hufei <i>de</i> maoyi
Hufei DE sweater
'Hufei's sweater' | b. wufei <i>ge</i> laangsaam
Wufei GE sweater
'Wufei's sweater' |
| c. hufei mai <i>de</i> maoyi
Hufei buy DE sweater
'the sweater that Hufei bought' | d. wufei maai <i>ge</i> laangsaam
Wufei buy GESwearer
'the sweater that Wufei bought' |
| e. congming <i>de</i> xuesheng
intelligent DE student
'intelligent student' | f. cungming <i>ge</i> hoksaang
intelligent GESTudent
'intelligent student' |
| g. hufei tuixiu <i>de</i> xiaoxi
Hufei retire DE news
'the news of Hufei's retirement' | h. wufei teojiau <i>ge</i> siusik
Wufei retire GENews
'the news of Wufei's retirement' |

Cheng (1997a) also notes that Taiwanese has an element *e* similar in function to Mandarin *de* and Cantonese *ge*. We do not have an extensive paradigm of uses for Taiwanese *e* parallel to what we found for Mandarin and Cantonese: all we have is the possessive noun phrase in (ii), which is entirely analogous to (ia,b).

- (ii) ah-Gu *e* phongesang (Taiwanese)
Ah-Gu E Sweater
'Ah-Gu's sweater'

In the discussion in this section, we focus on the Mandarin examples in (46), for ease of exposition.

- e. Deng Xiao-ping shishi de xiaoxi
 Deng-Xiao-ping die DE news
 'the news that Deng Xiao-ping had died'
- f. wo zuotian lai de.
 I yesterday come DE
 'I arrived yesterday.'

Simpson (2001) observes:

The function which might seem to be constant and always associated with *de* is to introduce some kind of predication on a nominal, this being particularly clear in cases with relative clauses, adjectives and prepositional phrases linked by *de* to the following noun, but also arguably so in instances of clause-final *de* (Simpson & Wu 1998) and possession structures.

As a consequence of this connection between *de* and predication, it is impossible to use *de* in a DP in which nothing is predicated of the head noun, as in (47).

- (47) a. **de* shu
 DE book
 b. *shu *de*
 book DE

Simpson's own analysis does not, in fact, manage to connect the function of *de* to its syntactic properties in any direct way. For Simpson, *de* is a D-head; and D has nothing to do with predication.²³ For us, on the other hand, *de* is a linker

²³ Simpson only manages to capture the link between *de* and predication via a detour, by saying that all constructions involving *de* are basically relative-clause constructions, with *de* in D and the IP of the relative clause raised to Spec,DP. In support of his D-approach to *de*, Simpson (2001) notes that *de* "developed from the earlier classical Chinese element *zhi* which had a distribution largely parallel with modern Chinese *de*" and that this element *zhi* seems to have had a demonstrative use in constructions like (i). (The linker *de* is first found only in the Yuan Dynasty. Classical Chinese *zhi* and *zhe* are its predecessors, the two dividing up the labor such that *zhe* was used in relative clauses and *zhi* was employed in all other modification cases. Premodern Chinese had three linker elements, two *di*'s and a *ge*. See Ohta 1958, Cao 1995, Cheng 1997b.) With demonstratives being associated to the D-domain (though we add that they are unlikely to be Ds; cf. Bernstein 1997, Giusti 1997), the idea that *de* developed out of a marker that had a demonstrative use would conjure up a natural grammaticalization scenario, so the argument goes.

(i) *zhi* er chong you he *zhi* (Classical Chinese)
 these two worm again what know
 'and what do these two worms know?' (Zhuangzi 1.10)

Simpson notes further that in literary Burmese, the marker *thii* (whose transliteration is the same as that of the Thai linker *thii*; in spoken Burmese, *thii* alternates freely with *i* in some contexts, with the latter being used instead of *thii* in possessive noun phrases) can also apparently be used as a (proximal) demonstrative, as shown in (iia), alongside its uses in (iib–d), which seem to pattern with Mandarin (46).

popping up as a reflex of a fully general Predicate Inversion operation, an operation that, as its name suggests, can only apply in contexts in which there is a predicate inside the complex noun phrase. Our approach to *de* thus captures Simpson's observation and the ill-formedness of (47) straightforwardly. Let us work out the linker analysis of *de* in more detail, with specific reference to the examples in (46).

Of these examples, the first shows an obvious resemblance to the Thai and French examples discussed earlier: it involves a noun and an adjective predicated of that noun, the two being separated by a meaningless element apparently linking them. The obvious difference between the Thai and French cases on the one hand and Mandarin Chinese (46a) on the other is the relative order of the adjective and the noun: whereas in (2b) and (3b) the order is NP-linker-AP, in (46a) we find AP-*de*-NP. That does not prevent an

- (ii) a. *thii* sa-ouq (Burmese)
 THII book
 'this book'
 b. U-Win-Win *i* sa-ouq
 U-Win-Win THII book
 'U-Win-Win's book'
 c. ca-naw weh *thii* sa-ouq
 I buy THII book
 'the book that I bought'
 d. Twee ya *thii* wun-tha ba *thii*.
 meet get THII be-pleased POL THII
 'I am pleased to meet you.'

But the *thii* in (iia) is arguably a different element from the *thii* we find in (iib–d). Paulette Hopple (p.c.) tells us that in the literature on Burmese, the proximal *thii* in (iia) and the *thii* in (iib–d) are standardly assumed to be different morphemes—an approach that may garner support from the fact that the literary Burmese transliterations for these two elements are different: for the *thii* in (iia) (which is *di* in colloquial Burmese) the literary transliterations are *zi/ze*, whereas the literary Burmese transcription of the *thii* in (iib–d) is *saññ/sany*. While analyzing all *thii*'s as nominalizing particles, Hopple (1999) takes the two *thii*'s to derive from different prototypical structures. Simpson's D-approach to Burmese proximal *zhi* in (i) and *thii* in (iia) may well be accurate. However, it presumably should not be extended to instantiations of *de* in (46) and *thii* in (iib–d), as linkers.

Conceding that *zhi* in (i) and *thii* in (iia) are genuine proximal demonstratives does not affect our account of Thai *tʰi* and Chinese *de* as linkers. Nor does it necessarily mean that proximal *thii/zhi* are profoundly different lexical elements from the linkers in (46) and (iib–d). We know from Hebrew, for instance, that demonstratives may develop into copular elements. And in Lahu (Schiller 1999, Matisoff 1991) and Palauan (Ortmann 2001; cf. (ii) in fn. 10), (proximal) demonstratives pattern with inverted predicates, themselves separated from the rest of the noun phrase by a linker; see Lahu *ve* in (iii) (see Matisoff 1991:393 for the observation that *ve* might derive from a form “which originally seems to have had a highly abstract copular meaning”), which is noteworthy also for the fact that in (iib), ‘headman’ has arguably been A'-fronted to Spec,DP. This would be hard to accommodate if *chi* itself were already sitting in Spec,DP, with *ve* in D, as Simpson would have it (Simpson [2001] makes it clear that he intends his account of Mandarin *de* to extend to Lahu *ve*).

- (iii) a. *chi* *(*ve*) qhaʔ-ʃɛ nĩ gâ (Lahu)
 this VE headman two CLF
 b. qhaʔ-ʃɛ *chi* *(*ve*) nĩ gâ
 headman this VE two CLF
 Both: 'these two headmen'

assimilation of the three constructions, however. The Mandarin Chinese word order actually reflects an intermediate step in the derivation of the French and Thai examples. In particular, it looks like the Mandarin Chinese derivation stops at the point at which the AP has inverted with its subject—that is, has raised to Spec,FP, with the linker *de* being introduced in F.

- (48) [DP D (...) [FP [AP hao]_i [F (= *de*) [SC [NP shu] *t_i]]]]]*

Whereas French and Thai reinstate the underlying relative order of the NP and the AP via a subsequent remnant-movement operation to a Spec,ClfP position between D and FP, Mandarin Chinese leaves it at Predicate Inversion (recall also fn. 11). We suspect (though future research needs to address this issue in more detail) that the reason why Mandarin differs from Thai, in particular, when it comes to the reinstatement of the underlying constituent order after Predicate Inversion is that Mandarin does not have the kind of classifier recursion found in Thai (32): with only a single ClfP present in the structure and with the head of this ClfP physically occupied by the classifier, remnant movement to Spec,ClfP with the necessary concomitant raising of the linker to Clf⁰ becomes impossible.

For relative-clause constructions such as (46d) and noun-complement clauses like (46e), the discussion of Thai in section 5.2 has shown that an extension of the linker approach to these constructions is readily available and, in fact, desirable in light of the fact that the *tʰi* used in relative and noun-complement clause constructions is the exact item used as a linker in AP-inversion constructions. This point is strengthened considerably by the fact that we find precisely the same correspondence in Mandarin Chinese as well.²⁴ That is, the fact that Mandarin Chinese is just like Thai in employing the same element as a linker in both unequivocal Predicate Inversion constructions and relative and noun-complement clause constructions strongly confirms our unified analysis of these elements. For the particular case of Mandarin Chinese (46d), then, we propose an analysis according to which *de* is once again a linker in F, this time linking the inverted relative clause to its subject, as in (49).

- (49) [DP D (...) [FP [RC wo mai]_i [F (= *de*) [SC [NP shu] *t_i]]]]]*

It is worth noting that Simpson (2002), referring to Tsao (1997), points out that there are strict ordering restrictions in complex noun phrase constructions involving a combination of a noun-complement clause and a relative clause: as (50) shows, in such cases the latter must come first, and both are separated from what follows by *de*. This is as expected. The relative clause is predicated of the constituent comprising the head noun and its “complement,” which on

²⁴ In several other languages—including Kurdish, Persian (if the *-i* on restrictive relatives is taken to be an allomorph of the *-e* that occurs as a linker elsewhere; Ortmann 2001), Tagalog, and Palauan (where we use the sample of languages drawn on by Ortmann 2001 as our somewhat random guide)—we likewise find that the linker used in constructions like (2b) shows up in relative-clause constructions as well.

our analysis involves a predication relation as well; inversion of both predication relationships, with concomitant introduction of two linker elements (*de*), yields (50a), whereas (50b) is underivable.

- (50) a. [wo zuotian tingdao]-de [Deng Xiao-ping shishi]-de
 I yesterday hear DE Deng-Xiao-ping die DE
 xiaoxi
 news
 ‘the news that Deng Xiao-ping had died which I heard
 yesterday’
 b. *[Deng Xiao-ping shishi]-de [wo zuotian tingdao]-de
 Deng Xiao-ping die DE I yesterday hear DE
 xiaoxi
 news

Like Simpson (2001, 2002), we have little to say here about the use of *de* as a clause-final particle in finite clauses, as in (46f).²⁵ But the linker approach to *de* is readily applicable to the examples in (46b,c). The PP *zai Beijing* ‘in Beijing’ in (46c) is plainly a predicate of the noun phrase projected by *ren* ‘people’. The fact that it surfaces to the left of its subject and is separated from it by *de* fits in perfectly with a Predicate Inversion approach to (46c), as depicted in (51).

- (51) [DP D (...)] [FP [PP *zai Beijing*]_i [F (= *de*) [SC [NP *ren*] *t_i*]]]

A parallel account can be given of the possessive noun phrase in (46b). Den Dikken (1995) argues in general that possessive constructions universally involve an underlying structure featuring a small clause of the type in (52), with the possessum as the subject of a PP predicate (headed by the dative preposition or its null allomorph) that harbors the possessor as P’s complement.

- (52) [SC [POSSESSUM] [PP P_{DAT} [POSSESSOR]]]

Inversion of the dative PP predicate around its subject occurs, according to Den Dikken (1995, 1999), in the course of the derivation of possessive- *have* sentences, double-object constructions, and possessed noun phrases of the type *John’s book* (see the end of section 6.4) as well as in French (53b), derived from (53a) via an application of Predicate Inversion to a null-headed dative PP whose word-order effect is undone, much as in the French and Thai examples in (2b) and (3b), via subsequent remnant movement.

²⁵ See Simpson and Wu 1998 for discussion of an approach that assimilates it to the *de*’s seen in (46a–e). In this connection, also note the use of Burmese *thii* as a clause-final particle (illustrated in (iid) in fn. 23), which Hopple (1999) identifies as a topic marker: what precedes it is “given,” a topic. This is interesting in light of the use of the Rotuman general-purpose linker *ne* (discussed at length in Den Dikken 2003a, based on Churchward 1940) as a topic marker.

- (53) a. une voiture à Jean (French)
 a car to Jean
 b. une voiture de Jean
 a car of Jean

With this as background, an analysis of Chinese (46b) immediately presents itself. The null-headed dative PP inverts with its subject, with the linker *de* showing up as a result; and unlike in French (53b), the derivation stops there. This is depicted in (54).

- (54) [DP D(...)]_{FP} [PP P_Ø WO]_i [F (= *de*)]_{SC} [NP shu] t_i]]]

6.2 Linkers in Relational Noun Phrases

It is interesting to note, in the context of possessed noun phrases, that the Mandarin linker *de*, although obligatorily present when the possessum is a noun that is not inherently relational, is optional when the possessum is a kinship term (Tang 1983, Cheng 1997a).²⁶

- (55) a. ta *(*de*) maoyi (Mandarin)
 he DE sweater
 ‘his sweater’
 b. ta (*de*) meimei
 he DE sister
 ‘his sister’

Kölver (1977) (quoted in DeLancey 1986) notes a similar alternation in Newari, another Southeast Asian language:

- (56) a. ram-ya-gu tasbir (Newari)
 Ram-GEN/DAT-GU(LI) picture
 ‘Ram’s picture’
 a’. ram-ya tasbir
 Ram-GEN/DAT picture
 ‘a picture of Ram’
 b. ram-ya kala
 Ram-GEN/DAT wife
 ‘Ram’s wife’

²⁶ We find similar facts in Yucatec Maya (a Mayan language; Lehmann 1990). This leads us to suspect that the marker *-li* (Yucatec Maya) is a linker, on a par with Mandarin *de*.

- (i) a. in nah-il (Yucatec Maya)
 1SG house-IL
 ‘my house’
 b. in la’ak
 1SG friend
 ‘my friend’

- The Newari facts are particularly interesting because, as Kölver (1977) notes, (56a) itself alternates with a *-gu*-less counterpart, given in (56a'). In this latter example *Ram* is the depictee whereas in (56a), with *-gu*, *Ram* is the possessor of the picture. The possessive reading involves an underlying predication in which *Ram* is the subject (cf. (52)); the objective (depictee) reading, on the other hand, is standardly taken to have *Ram* projected as the internal argument of the head noun. Because *Ram* is an internal argument of the head noun, no prepositional predicate head is needed to introduce a predication relationship between *Ram* and *tasbir*. The very fact that in (56a'), there is no predication relationship between *tasbir* and *Ram* then entails that Predicate Inversion is inoperative; concomitantly, no linker (*-gu*) occurs.

6.3 Linkers and Case Particles

²⁷ In Mandarin, apparently, it is nonetheless possible to introduce the relative (*ta* 'he' in (54b)) with the aid of a predicate head external to the kinship noun phrase. Although the use of the linker *de* is by no means necessary, it is nonetheless possible in the Mandarin counterpart of *his sister*.

that this element is certainly not a Case morpheme. After all, it is immediately preceded by what to all intents and purposes is indeed a Case morpheme, *-ya* (which synchronically seems to serve as a genitival marker but goes back to a dative/locative form, something that, from Den Dikken's [1995] perspective on possessive constructions, is an interesting point in itself).²⁸

This important point leads naturally to the question of whether markers that are customarily identified as Case particles should not be rethought as linkers. Japanese *no* comes to mind as an obvious case in point. Even readers with only a passing knowledge of Japanese are presumably familiar with the fact that possessors are separated from possessums by the element *no*, which is typically glossed as a genitival Case particle (see (57a)). Interestingly, however, the distribution of *no* is substantially broader than this, covering cases that, from the perspective of the foregoing discussion, would involve a linker—it occurs as a sentence-final particle in cleftlike constructions such as (57b), in pseudoclefts like (57c), in headless relatives (57d), in internally headed relatives (57e), in children's headed relatives (57f), and in nominalizations (57g) (data from Simpson & Wu 2001).

- (57) a. Taroo *no* hon (Japanese)
 Taroo NO book
 'Taroo's book'
- b. (Watashi-wa) kinoo kita *no* desu.
 I-TOP yesterday come NO BE
 'I came *yesterday*/it was yesterday that I came.'
- c. (Watashi-ga) katta *no* wa hon desu.
 I-NOM buy NO TOP book BE
 'What I bought was a book.'
- d. Kono-hon-wa watashi-ga katta-*no* ja-nai.
 this-book-TOP I-NOM buy-NO BE-NOT
 'This book is not the one which I bought.'
- e. Keikan-wa [doroboo-ga ginkoo-kara
 policeman-TOP thief-NOM bank-from
 dete-kita]-*no*-o tsukamaeta.
 exit-came-NO-ACC arrest
 'The policeman arrested the robber who came out from the bank.'
- f. ohana motteru *no* wanwa
 flower holding NO doggie
 'the doggie (that is) holding the flower'
- g. [Taroo-ga tsuita]-*no*-o shiranai.
 Taroo-NOM arrived-NO-ACC not.know
 'I didn't know that Taroo had arrived.'

²⁸ Interestingly, pronominal possessors are not adorned with this Case particle in Newari—thus, in *ji-gu la* 'I-GU meat' the possessor is separated from the possessum just by the linker *-gu* and is itself Caseless; however, *-gu* must be present.

Given that it is unlikely that in all forms in (57) the *no*-marked constituents are genitively marked, a uniform analysis of *no* as a genitival Case particle seems untenable. Two alternatives present themselves: (a) *no* is a nominalizer (i.e., we generalize from (57g) to the rest of the paradigm), or (b) *no* is a linker (i.e., we generalize from (57a) to the rest of the paradigm). Simpson and Wu (2001) essentially take the former route (see also DeLancey 1986); Koike (1999) takes the latter, though he places it in D. We follow Koike's approach but introduce the linker in a position lower than D (viz., our head F), in line with the analysis we have outlined. For the case of nominalizations (57g), we assume that what inverts with the clause is a null nominal predicate, much as in the analysis of factive complement clauses adorned with *l^{hi}i* in Thai.

For the particular case of Japanese, this means that it has no genitival Case particle.²⁹ This may lead one to rethink the status of the other Case particles of Japanese as well. For locative *ni* we have little doubt that it represents a preposition. The status of *o* as an accusative particle is less than clear (cf., e.g., *o*-deletion and the double-*o* constraint). And the status of *ga* as a nominative Case particle is called into question by the systematic interpretive properties (exhaustive/identificational focus) associated with *ga*-marked subjects of specific predicate types (in particular, with individual-level predicates; see Kuno 1973 for early discussion).

We will not undertake a wholesale reanalysis of the Japanese Case particles here, but at the very least, *no* and *ni* should arguably be taken out of the set of Case particles in Japanese, leaving two possibilities to be further explored: (a) Japanese has precisely two Case particles, representing the structural Cases (nominative and accusative); or (b) one or even both of these are not Case particles either.

6.4 Linkers and Agreement

So far, we have focused primarily on (mostly Southeast) Asian languages, onto whose sundry linker constructions we imposed an analysis developed originally on the basis of facts from the languages of Western Europe (here represented by French and English) and informed by the Latinate grammatical tradition and its notion of a copula. In the Persian grammatical tradition, a construction highly reminiscent of the cases analyzed in the foregoing has been discussed in much the same way, under the name of the *ezāfe*-construction.³⁰

²⁹ For interesting and congenial discussion of the Korean possessive particle *ŷi*, likewise characterizable as a linker, see Jun and Kang 1998, Den Dikken 2000:938–939.

³⁰ See also the *iDaafa*-construction in Lebanese Arabic, discussed in some detail by Ouhalla (2001: section 4) and used both in relative and possessed noun phrases (see (i); Ouhalla glosses *-it* as a feminine suffix, but it is clearly different from the feminine suffix in non-*iDaafa*-constructions like *l-baTT-a illi ŷakalnaa-ha* 'the-duck-FEM the we-ate-it'; we take it to be an inflected incarnation of the *iDaafa* morpheme, glossed as 'ID.FEM'—on inflected linkers).

- | | | | | | |
|-----|----|----------------------|----------|-------------|-------------------|
| (i) | a. | baTT- <i>it</i> | illi | ŷakalnaa-ha | (Lebanese Arabic) |
| | | duck-ID.FEM | the | we-ate-it | |
| | | 'the duck we ate' | | | |
| | b. | suur- <i>it</i> | l-bint | | |
| | | picture-ID.FEM | the-girl | | |
| | | 'the girl's picture' | | | |

This term is interesting from our point of view: *ezāfe* means ‘putting things together’ or ‘linking things’—in other words, the Persian grammatical tradition looks upon the *ezāfe*-construction as a copular construction.³¹ In its distribution, the Persian *ezāfe*-construction shares a lot with the Thai and Mandarin Chinese constructions discussed earlier, being used in a variety of contexts, including possessive noun phrases (58a), adjectival modification (58b), PP modifiers (58c), ordinal numerals (58d) and—if one follows Ortmann (2001) in taking the *-i* of (58e) to be an allomorph of *-e* (contra Ghomeshi 1997, which presented the first generative analysis of the *ezāfe*-construction)—restrictive relative clauses (58e).³²

Ouhalla’s analysis, according to which the relative clause or possessor is a subject, is similar to ours when it comes to surface structure (they end up in A-specifier positions as a result of inversion), but unlike Ouhalla we do not assume that the modifier is base-generated as a subject (which strikes us as a bizarre hypothesis).

Ouhalla (2001) also discusses relative-clause and possessed noun phrase constructions in Amharic, a Semitic language with a Cushitic substrate, spoken in Ethiopia. These Amharic constructions feature a linker as well—the element *yā* (that Ouhalla analyzes as a genitive Case marker; see our discussion of genitive and linkers at the end of the previous section). There is something peculiar about the placement of this linker element in the linear string of relative clause constructions, however, that needs further study. As Ouhalla points out, the linker *yā*, a prefix, shows up to the immediate left of the rightmost free-standing element of the relative clause (the past-tense auxiliary in (ii)). Ouhalla tentatively suggests a phonological prefixation operation whereby *yā*, which he base-generates in D, gloms on to the left of the nearest constituent of the relative clause (in Spec,DP); but this raises numerous questions that we are not prepared to address at this time.

- (ii) wādKo yā-nābāra-w beet (Amharic)
 fallen YĀ-PAST-the house
 ‘the house that had fallen down’

It is interesting to note, by the way, that Amharic *yā* is also used to introduce factive complement clauses—compare the Thai *hū* and Burmese *thii*, discussed previously.

³¹ See also Browne 2001 for an interpretation of the *ezāfe*-construction as a linker construction. Browne suggests that the Modern Greek determiner-spreading construction (see (i)) might be similar to the Persian *ezāfe*-construction, with the repeated determiner serving as a linker. But this is mistaken: Campos and Stavrou (2002) are arguably right in treating the repeated determiner in (i) as a lexicalization of the functional head of the small clause constituted by the AP predicate and its subject (much as in Bennis, Corver & Den Dikken’s [1998] treatment of the “spurious” indefinite article in Germanic); see Den Dikken (2003b:chap. 5) for more discussion. (Thanks to Arhonto Terzi for drawing our attention to Browne 2001 and Campos & Stavrou 2002, and for discussing the Greek facts with us.)

- (i) a. i pena *(i) asimenja (Modern Greek)
 the-FEM.SG pen the-FEM.SG silver
 b. i asimenja (i) pena
 the-FEM.SG silver the-FEM.SG pen
 Both: ‘the silver pen’

³² In the glosses, EZ stands for *ezāfe* (i.e., “linker,” in our terms). Notice that (58e) involves a relative complementizer as well as a linker, once again suggesting that the two should not be collapsed. Note also that appositive relative clauses do not involve the *ezāfe*-construction. In several other languages, one likewise finds a difference between apposition and restrictive modification, with only the latter involving a linker element. See, for example, DeLancey 1986 for relevant remarks and illustrations.

- (58) a. asb-*e* pedar
horse-EZ father
‘father’s horse’
- b. telegrām-*e* be Rom
telegram-EZ to Rome
‘telegram to Rome’
- c. mard-*e* pir
man-EZ old
‘old man’
- d. bace-*ye* avval
child-EZ first
‘first child’
- e. Opel-*e* zard-*i* ke jelow-*e*-dar ast
Opel-EZ yellow-EZ REL front-EZ-door COP.3SG
māle-man ast.
POSS-1SG COP.3S
‘The yellow Opel that is standing in front of the house is mine.’

Persian is genetically closely related to Kurdish, both belonging to the Iranian subgroup of the Indo-Aryan branch of Indo-European. And Kurdish has a construction that closely matches the Persian *ezāfe*-construction, featuring a linker element that is both etymologically and synchronically parallel to its Persian cognate. Nonetheless the Kurdish linker construction is not normally referred to as an *ezāfe*-construction (cf. Akrawy’s [1982] “possessive article” and Barnas & Salzer’s [1994] *(un)bestimmte Partikel* [i.e., (in)definite particle]), something that Ortmann 2001 blames on a peculiar property of the Kurdish construction—the fact that the linker element agrees with the noun to its left for gender and number (cf. also the Lebanese Arabic *iDaafa*-construction mentioned in fn. 30). The examples in (59) (adapted from Ortmann 2001) illustrate this for definite noun phrases; the ones in (60) for indefinite noun phrases (where EZ in the glosses stands for *ezāfe*, as in the Persian examples).

- (59) a. kur-*ê* mezin
boy-EZ:MASC.SG big
‘the big boy’
- b. kur-*ên* mezin
boy-EZ:PL big
‘the big boys’
- c. keç-*a* baş
girl-EZ:FEM.SG nice
‘the nice girl’
- d. keç-*ên* baş
girl-EZ:PL nice
‘the nice girls’

- (60) a. mêm-ek-î mezin
man-INDEF-EZ:MASC.SG big
'a big man'
- b. hesp-in-e min
horse-INDEF-EZ:PL POSS.1SG
'some of my horses'
- c. jin-ek-e baş
woman-INDEF-EZ:FEM.SG nice
'a nice woman'
- d. xûşk-in-e te
sister-INDEF-EZ:PL POSS.2SG
'some of your sisters'

In (59) we see clearly that the linker element has a different form depending on whether the noun to its left is a singular or plural, and—in the singular—on whether it is masculine or feminine. (There is no gender agreement in the plural, in other words.) In the indefinite examples in (60), the linker is separated from the head noun by an indefinite marker, *-ek* in the singular, *-in* in the plural; the plural form of the linker element turns out to be indistinct from the feminine singular form of the linker in the indefinite paradigm.

Two things are noteworthy about these facts. First, the morpheme glossed as EZ is not glommed directly on to the head noun but is severed from it by an indefinite marker in (60). This tells us (on the reasonable assumption that the indefinite marker represents some functional category in the extended projection of the head noun) that the EZ morpheme follows a maximal projection. This is of course what we expect: the EZ morpheme on our analysis is a linker that introduced in the course of a Predicate Inversion operation that inverts a noun-phrase-internal predicate with its phrasal subject. The constituent preceding the EZ morpheme in (59)–(60) is, in fact, the subject of the inverted predicate, which tells us that, just as in French (2b) and Thai (3b), the word-order effect of Predicate Inversion is undone later in the derivation via raising of the subject to the specifier of a higher functional projection whose head is empty in the base but gets filled by the linker as it raises. Concretely, then, the relevant subpart of the derivation of (58a) can be sketched out as in (61) (cf. the structure for Thai (30) given in (32)).

- (61) a. $[_{SC} NP AP]$
 \rightarrow merging F; AP-to-Spec,FP (Predicate Inversion), with
 Spell-Out of F as linker EZ \rightarrow
 b. $[_{FP} AP_a [_{EZ} [_{SC} NP t_a]]]$
 \rightarrow merging Clf (null); remnant movement to Spec,ClfP +
 EZ-to-Clf \rightarrow
 c. $[_{ClfP} NP_i [_{EZ_x} [_{FP} AP_a [_{t_x} [_{t_i} t_a]]]]]$

The second noteworthy thing about the facts in (59) and (60) is, of course, the fact that the EZ morpheme shows agreement with what precedes it. From the perspective of the analysis just sketched, this is easy to make sense of—what it involves is a feature-checking agreement relationship between the noun phrase in Spec,ClfP and the linker (EZ) raised to the head of this functional projection. In other words, it is representable as a garden-variety feature-checking relation established in the course of the syntactic derivation; specifically, it is assimilated to agreement between classifiers and the constituents they classify (and receive in their specifier positions).

Agreement in ϕ -features between linkers and one of the constituents they link is not found in the Southeast Asian languages we discussed (for the simple reason that these languages do not have ϕ -feature agreement). But agreeing linkers are not unique to Kurdish. The so-called associative marker in Bantu—also referred to as “relational element” (Carstens 1991); cf. our linker—is of precisely the same type. We will illustrate the Bantu facts here with the aid of examples from Bafut (from Tamanji 2002):

- (62) a. fi-Nkobɛ f.i m-fɔ (Bafut)
 19-statue 19-AM 1-chief
 'a chief's statue'
 b. ni-bɔʔɔ n.i m-fɔ
 5-pumpkin 5-AM 1-chief
 'a chief's pumpkin'

The associative marker in Bantu serves the same purpose as the linker elements canvassed earlier. And just like the linker of Kurdish, it shows obligatory agreement with the constituent to its left, with which it entertains a specifier-head relationship. For Maasai (Eastern Nilotic), Koopman (2001) points out that the agreeing linker shows up both in possessed noun phrases and relativized DPs (though the parallel is obscured by the fact that the former feature two agreeing elements between the possessum and the possessor, the leftmost one agreeing with the possessum (like the AM in (62)) and the rightmost with the possessor).

On the approach to the English possessed noun phrase taken by Den Dikken (1995, 1999), even English shows agreement on one of its linker elements. Den Dikken analyzes the English Saxon genitive construction in (63) as in (64), on the basis of an underlying structure in which the possessum is the subject of a dative small clause harboring the possessor (cf. (52)); the dative PP (whose head is null) inverts with its possessum subject (by raising to Spec,FP), and concomitantly a linker is introduced in F.

- (63) a. the child's toys b. his toys (*his*= *he*+ 's)
c. the children's toys d. their toys (*their* = *they*+ 're)

- (64) a. [_{SC} POSSESSUM [_{PP} P_{DAT} POSSESSOR]]
 → introducing F; PP-to-Spec,FP (Predicate Inversion),
 with Spell-Out of F as a linker →
 b. [_{FP} [_{PP} P_Ø POSSESSOR]_a [_{LINKER} [_{SC} POSSESSUM *t_a*]]]

In (63a,c) this linker is spelled out as *'s*, the genitival marker—identical in all of its allomorphy with the contracted copula *'s*, something that supports a treatment of the genitival marker as a copular element. Perhaps surprisingly, though, this incarnation of the linker is quite different from the linker seen examples such as (1b), *that idiot of a doctor*. This led Den Dikken (1995, 1999) to conclude that the surface realization of the linker in English is determined by the category of the constituent in its specifier (Spec,FP)—in other words, the surface distribution of *of* and *'s* is a reflex of an agreement relationship in FP.

In addition to this agreement relationship with respect to the categorial features of the constituent in the specifier of the linker, we also find an agreement relationship in the English possessed noun phrase that more closely parallels the one found in Kurdish (59)–(60) and Bafut (62)—one involving ϕ -features. This does not become apparent when we look at the left-hand examples in (63), where the linker is invariably *'s*, regardless of the ϕ -feature specification of the possessor in its specifier. But looking at the right-hand examples, we see a different picture emerge: with *his* analyzed as the amalgam of *he* and *'s* and *their* (which is homophonous to *they're* in *they're not at home*) as the conglomeration of *they* and *'re*, we actually find a number-agreement effect in (63b,d) that is entirely on a par with the number-agreement effect seen in English copular sentences (cf. *he's not at home* and *they're not at home*).³³

Viewed this way, then, the English facts in (63b,d) are a case of an agreeing linker, much like the Kurdish (59) and (60) and Bafut (62). These are perfectly normal from the perspective of our analysis. The fact that constructions with agreeing linkers are apparently quite rare is to a large extent an accidental artifact of the fact that many languages with overt linkers have little or no ϕ -feature agreement to begin with.

6.5 Linkers in the Complex Noun Phrase: A Predicate-based Typology

Now that we have surveyed the territory of complex noun phrases featuring linkers, let us tabulate what we have found. Table 1 provides an overview of

³³ That number agreement does not manifest itself when the possessor is a full noun phrase is not an isolated fact about the English possessed noun phrase: the contrast between full nominal and pronominal possessors when it comes to possessor agreement presents itself in Hungarian as well. More generally, ϕ -feature agreement differences between full nominals and pronominals are not uncommon in the languages of the world (e.g., Celtic). See Den Dikken 1999 for more details; see also Bernstein and Tortora, to appear, for a different but not unrelated take on the agreement facts in Saxon genitival constructions.

Table 1. *Complex noun phrases and linkers*

Language	Linker	AP	PP Poss	PP Loc	Category of predicate Relative clause	N-compl clause	NP	Dem
English	<i>of, 's</i>							
French	<i>de</i>	(2b), (5), (6)	(63) (53b)	(36a)	fn. 14 (i) (38), (39a) (46d) fn. 22 (id)	(40) (46e) fn. 22 (ih)	(1b), (17) (19)	
Romanian	<i>de</i>							
Thai	<i>phi</i>	(3b), (7), (8b), (9b)						
Mandarin	<i>de</i>	(24c), (46a) fn. 22 (if)	(46b) fn. 22 (ib) fn. 22 (ii) fn. 23 (iib)	(46c)				
Cantonese	<i>ge</i>							
Taiwanese	<i>e</i>							
Burmese	<i>thi/i</i>				fn. 23 (iic)			fn. 23 (iia) fn. 23 (iii)
Lahu	<i>ve</i>							
Newari	<i>-gu</i>		(56a) (57a)		(56c,d) (57d-f)			
Japanese	<i>no</i>							
Tagalog	<i>na/-ng</i>	fn. 11 (iia,b)		fn. 11 (iie,f)				
Palauan	<i>l</i>	fn. 11 (iv)						
Takia	<i>-n</i>	fn. 11 (i)						
Kenya Luo	<i>ma-</i>	fn. 11 (ii)						fn. 10 (ii)
Amharic	<i>yä</i>				fn. 30 (ii)			
Bantu	ass. m.		(62)					
Persian;Kurdish	ez fe	(58c); (59), (60)	(58a) fn. 30 (ib) fn. 26 (ia)	(58b)	(58e) fn. 30 (ia)			
Arabic	iDaafa							
Yucatec M	<i>-il</i>							

the constructions discussed in this paper and their illustrations. The organizing principle for this table is the typology of predicates, set out in the horizontal dimension. We emphasize that Table 1 should not be read as a language-typological statement. The fact that, for any given language in the table, a particular cell is not occupied does not necessarily mean that the language in question does not employ its linker for that particular purpose. Though it is presumably true that Table 1 exhausts the types of noun-phrase-internal predication and Predicate Inversion, we have not aimed at exhaustivity in the language department, merely providing key illustrations, with French, Thai, and Mandarin Chinese serving as our primary languages of illustration.

7. Concluding Remarks

In this paper, we discussed complex noun phrases featuring a predicative constituent separated from the noun phrases they are construed with by a semantically meaningless linker element—*de* in French and Mandarin Chinese, *t^hü* in Thai, and so on. We argued that these come about via Predicate Inversion applied to the predicative constituent, which serves underlyingly as the predicate of a DP-embedded small clause of which the NP part of the construction is the subject. The predicate inverts with its subject via an A-movement operation that skips the base position of its subject (Moro 1997). To facilitate Predicate Inversion, the insertion of a linker element outside the small clause is needed (Den Dikken 1995). The distribution of these meaningless linker elements thus serves as a diagnostic for the application of Predicate Inversion. Additionally, Predicate Inversion is associated with a particular information-structural profile (with the inverted predicate being a topic and its subject a focus) that further helps us identify instances of inversion of the predicate around its subject.

Exploiting these diagnostics, we developed an analysis of French and Thai complex noun phrases of the NP-*de/t^hü*-AP type (see (2b), (3b)) in terms of Predicate Inversion followed by a remnant-movement operation that reinstates the underlying order of subject and predicate. We showed, on the basis of a detailed examination of the Thai facts, that the word-order effect resulting from Predicate Inversion is undone by phrasal movement to the specifier of a Classifier Phrase, with concomitant raising of the linker to the head of this Classifier Phrase. Extending the analysis to French, we concluded that the syntactic distribution of Classifier Phrases is by no means confined to languages featuring overt classifiers.

The analysis of predication and Predicate Inversion in the complex noun phrase, developed primarily on the basis of the facts from French and Thai, was applied in section 6 to linker constructions in a variety of other languages, including Mandarin Chinese *de*-constructions, Japanese *no*-constructions, and the Persian *ezāfe*-construction. That discussion revealed the pervasiveness of predication and inversion in nominal phrases, and the systematicity of the need for a linker whenever the predicate inverts with its subject.

Along the way, we introduced an analysis of relative-clause constructions that combines the attractions of the traditional approach and the raising approach by assigning relative clauses an internal structure similar to the traditional one while giving it the external distribution of a predicate by treating it as the predicate of a noun-phrase-internal small clause. The fact that relative-clause constructions behave like DP-internal Predicate Inversion constructions in many languages (in particular, in giving rise to the emergence of a linker element) lends support for this analysis. By the same token, the fact that so-called noun-complement clauses (as in *the claim that John was asleep*) exhibit a behavior mimicking that of noun-phrase-internal predication constructions led us to revisit Stowell's (1981) original conjecture that the relationship between the head noun and the clause in these constructions is predicational, postulating an underlying small clause in which the clause serves as a subject of the projection of the head noun.

This exercise in noun-phrase-internal predication and Predicate Inversion extends the research program initiated by Den Dikken (1995) to a variety of languages whose linkers have traditionally been analyzed in different terms. We have endeavored to show that a linker approach to French *de*, Thai *t^hii*, Chinese *de*, Japanese *no*, the Persian *ezāfe* morpheme, and kindred creatures in sundry other languages brings forth a straightforward and unified perspective on their syntactic function. Throughout, these meaningless elements serve one purpose only—accommodating the inversion of a predicate around its subject, a process that is pervasive in the syntax of noun phrases and beyond.

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