REVIEW ARTICLE

Predication theory: A case study for indexing theory. By DONNA JO NAPOLI. (Cambridge studies in linguistics, 50.) Cambridge: Cambridge University Press, 1989. Pp. ix, 369.

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1. INTRODUCTION. Predication has recently become one of the most burning issues in syntactic theory. The book under review is an ambitious attempt to offer a unified account of predication and anaphor binding. Two major claims Napoli (henceforth, Na) makes in this book are: (i) predication is a purely semantic notion and therefore cannot be appropriately handled by structural approaches, and (ii) the theta-based theory of predication proposed in this book can be so generalized as to deal with anaphor binding as well. In this review, however, we have to limit ourselves to the problem of predication for lack of space. Since Na's theory of anaphor binding is an extension of that of predication coindexing, it will suffice here to show that the latter is inadequate in both theoretical and empirical respects.

2. OUTLINE.

2.1. In this subsection, we will make a brief summary of Na's proposals. Let us begin with her definition of predicate. Na does not define the notion of predicate formally, because she regards predication as a purely semantic relationship, and she only gives an informal definition of it as 'an event lexical item with certain specifiers and modifiers, taking at least one role player (79),' where EVENT covers both states and actions. By ROLE PLAYER, Na means an element which is assigned a semantic role by a predicate coindexed with the element.¹ And the external argument of a

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¹ In what follows, we use the terms ROLE PLAYER and ARGUMENT interchangeably because of their one-to-one correspondence, imposed by Na's PRINCIPLE OF COINCIDENCE (29), and also ignore the distinction between semantic roles and theta roles because it is irrelevant to our discussion.

lexical item at S-structure is called the SUBJECT ROLE PLAYER (henceforth srp) of the predicate headed by that lexical item. But if the head of a predicate is an N, it may, exceptionally, take as its srp an internal argument in its maximal projection. One immediate consequence of this definition of predicate is that any theta assigner can be a predicate and need not be a maximal projection. It will be worth noting here that, for Na, predicates need not even form syntactic constituents. Thus, in a sentence like 1 below, the discontinuous string of the italicized words is regarded as a predicate of which an event lexical item *lent* is the head:

- (1) Jean *lent* Mary the books *in great haste*.

In this connection, it should also be noted that Na does not adopt COMPOSITIONAL theta role assignment by VPs, contrary to the commonly accepted view advocated by Chomsky 1981 and Marantz 1984, among others. In 1, for instance, *lent* assigns theta roles to *Jean*, *Mary* and *the books* in a parallel manner.

Now let us turn to Na's treatment of theta role assignment. Na introduces three principles of theta assignment:

- (2) Direct Theta Assignment: A lexical item assigns a theta role to its sister arguments (64).
- (3) Compositional Theta Assignment: A lexical item assigns a theta role to its prepositional arguments (64).
- (4) External Theta Assignment: A lexical item may assign a theta role to at most one argument that is external to the maximal projection of (the head of) the lexical item (66).

Compositional Theta Assignment 3 is worth remarking upon, because this principle plays an especially important part in her analysis. What Na means by a PREPOSITIONAL ARGUMENT is an argument which appears in a PP whose head is a null preposition *of*, a preposition lexically chosen by the head of a predicate (as in *depend on*), or a preposition constituting part of a predicate (as in *look after*). To illustrate the point, let us look at the following examples:

- (5) a. Bill is **fond** [of *John*]
- b. The girl **depends** [on *her cousin*]
- c. **Look** [after *him*] for me, won't you?

In each case above, the italicized NP gets a theta role from the predicate (represented in boldface) as a prepositional argument. It is in this sense that these NPs are in the argument structure of the respective predicates.

With this much in mind, let us turn to Na's theory of predication co-indexing. Following Rothstein 1983 in essence, Na classifies predicates

into two subgroups: one is a primary predicate and the other is a secondary predicate. Na defines the two kinds of predicate respectively as follows:

- (6) A primary predicate is a predicate
 - (a) whose head is the syntactic head of the first XP right sister to I, or
 - (b) which is itself the first XP sister to I (88).
- (7) A secondary predicate is any predicate other than a primary predicate (89).

Primary predicates and secondary predicates are assumed to be subject to different coindexing principles, stated as follows:

- (8) Primary Predication Coindexing: Coindex a primary predicate with its GF subject (88).
- (9) Secondary Predication Coindexing: Coindex a secondary predicate SP with a phrase that will be called its subject role player that is within the domain of the SP's primary predicate (109).

Since primary predication is rather trivial (although it is not without problems, as we will see later), let us here focus on 9. Principle 9, which requires only that a secondary predicate find its srp in the minimal clause containing the secondary predicates, is accompanied by the following two provisos:

- (10) Proviso One: If a secondary predicate is within the theta domain of a lexical item H, its srp must appear in the lexical structure of H (119).
- (11) Proviso Two: A subject role player must not be separated by any of its barriers from the head of its predicate (112).

Some remarks on terminology are in order here. The term THETA DOMAIN is used to indicate all the sisters of a theta assigner. The LEXICAL STRUCTURE of H includes the information on what GFs (such as GF object, GF subject, and so on) H takes as well as the argument structure of H. The notion of BARRIER is not exactly the same as that introduced by Chomsky 1986b, in that the definition of L-marking is slightly modified in accordance with Na's theory of theta assignment and her restrictive X-bar theory. For Na, any element that undergoes Direct or Compositional Theta Assignment is L-marked.

To see the effect of Provisos One and Two, let us consider 12:

- (12) a. *fond* [*of John*] [*naked*]
- b. I ran [*after John*] [*as the easiest to catch*]

c. *I ate [after *Bill*] [as my date]

In 12a and 12b, *John* is the prepositional argument of a lexical head (*fond* and *ran*, respectively); therefore each secondary predicate (*naked* and *as the easiest to catch*) can be coindexed with *John*, meeting Proviso One. Furthermore, the PPs within which *John* is located are L-marked by the respective heads; hence no violation of Proviso Two. In 12c, by contrast, neither the PP nor *Bill* is in the argument structure of *ate*, so that the co-indexing between *Bill* and *as my date* is prohibited by both Provisos One and Two. In many cases, the effect of Proviso Two thus overlaps that of Proviso One, but their differences emerge in cases like the following:

- (13) a. [_{C'} **Penniless**, [_{C'} [_{I'} John [_{I'} [_{VP} left Mary]]]]]
 b. *We [depicted [the assassination of *the head of state*] [as sick]]

Since *penniless* falls outside the theta domain of *left* in 13a, Proviso One does not apply. It is Proviso Two that prevents the coindexing between *penniless* and *Mary* because of the presence of a barrier for *Mary*, that is, the VP, while permitting that between *penniless* and *John*. In 13b, by contrast, Proviso Two does not come into play because there is no barrier for *the head of state* (the intended srp of *sick*), and only Proviso One can rule it out, since *the head of state* is not the argument of *depicted*. Thus Na needs both provisos despite the obvious redundancy between them.

2.2. To make clear the differences between Na's analysis and structural approaches, such as Rothstein's 1983 and McNulty's 1988 among others, we now turn our attention to Na's arguments against the latter.² Na's principal objection to them is concerned with examples such as the following:

- (14) a. Look [_{PP} at *her waist*] [**as a point of comparison**]
 b. the arrival [_{PP} of *John*] [**completely tuckered out**]
 c. Jeff's argument [_{PP} against *Bill*] [**as a candidate**]

In 14, the secondary predicates (in boldface) and their srp's (in italics) do not m-command each other because the latter are protected by PPs,³ therefore, their grammaticality poses a serious problem for those who

² In fact, Na chooses Williams' 1980 analysis to represent structural approaches, but this is not crucial here.

³ M-COMMAND (= Rothstein's c-command) is defined as: α m-commands β iff every maximal projection dominating α dominates β .

postulate the mutual m-command requirement on predication, which requires that predicates and their subjects m-command each other. Na's analysis, on the other hand, can properly account for their grammaticality, as we saw in the preceding section.

Another objection Na makes concerns examples like 15 below, which she analyzes as containing secondary predication:

- (15) a. a crook of a chairman
b. a fool of a man

According to Na's analysis, 15a, for example, has the following structure:

As shown in 16, *crook* functions as the syntactic head of the NP, but semantically, Na claims, it is a secondary predicate taking *a chairman* as its srp. Recall that according to Na's definition, a predicate need not be a maximal projection. If these are instances of predication, analyses based on configurations will be hopeless for at least two reasons: in the first place, because of the failure of the srp's to mutually m-command its predicates, and in the second place, because an N simply does not qualify as a predicate by definition since almost all configurational approaches assume predicates to be maximal projections.

A third argument against structural approaches is offered in connection with the presence of implicit arguments in examples like the following:

- (17) a. I'm saddened by destruction of any kind.
b. I'm saddened by the Venetians' destruction of their own city.

Na argues that it is quite natural to assume that both occurrences of *destruction* in 17 have the same argument structure and therefore are predicates; if so, both must take an srp. Then the sole candidate conceivable for an srp in 17a is an implicit argument of the head N. The presence of an implicit argument in a case like this, Na claims, is evidenced by examples such as the following:

- (18) The destruction of the city [PRO to prove a point] was deplorable.

Since the PRO subject of an infinitival rationale clause requires an agentive controller, an implicit argument must be assumed to be present in cases like 18. This assumption leads Na to a modification of Chomsky's 1981, 1986a Projection Principle to the effect that it 'require[s] that lexical properties be reflected in the syntactic levels by syntactic entities, where syntactic entities need not fill GFs, but must be able to function syntactically (80).' In structural approaches, on the other hand, the presence of implicit arguments cannot be postulated without elaborating the structures of NP.⁴ Na concludes from this that predication is best analyzed as a semantic notion which admits of no syntactic analyses.

3. IN DEFENSE OF STRUCTURAL APPROACHES. In this section, we consider Na's arguments against structural approaches to predication in detail. First let us investigate those data which Na claims are counterexamples to structural approaches. As is easily observed, almost all the examples she offers contain *as* phrases as secondary predicates, as in:

- (19) a.(=14a) Look [at *her waist*] [**as a point of comparison**]
 b.(=12b) I ran [after *Bill*] [**as the easiest to catch**]
 c. We invested [in *gold*] [**as the best commodity**]

Consider, then, examples like the following, which correspond to the examples in 19, with only the word orders changed:

- (20) a. [**As a point of comparison**] [_{VP} look [at *her waist*]]
 b. [**As the easiest to catch**] I [_{VP} ran [after *Bill*]]
 c. [**As the best commodity**] we [_{VP} invested [in *gold*]]

The point to be noticed here is that, according to Na's Proviso Two of Secondary Predication Coindexing, these examples should be ruled out because there is, in each case, a barrier secluding an *srp* from its secondary predicate, i.e. the VP, which is in no way L-marked. (Recall Na's analysis of 13a in the preceding section.) These examples, however, are all grammatical and therefore constitute evidence against Na's theory of predication coindexing. Notice furthermore that in sentences like 19, we cannot replace *as* phrases with BARE NPs, i.e., NPs not accompanied by *as*. At this point, it will be worth looking at differences between *as*

⁴ Na's argument here seems untenable because of the ungrammaticality of *the city's destruction to prove a point* (Roeper 1987). Na's theory fails to account for the absence of an implicit argument here. Notice also that in order to include Ns in predicates, Na has to make several exceptional assumptions. (See p.68, p.70, p.121, etc.) Therefore we assume, without further argument, that an N is not a predicate.

phrases and secondary predicates without *as*. Let us first consider sentences like the following:⁵

- (21) a. It was as a changed man that John came out of prison.
b. *It was a changed man that John came out of prison.
- (22) a. What did they come out of prison as?
b. *What did they come out of prison?
- (23) a. Bill works for the vice-president and as the receptionist.
b. *Bill works for the vice-president and the receptionist. (on the same reading as 23a.)
- (24) I like to visit famous cities as or with a tourist.

To enumerate the differences between *as* phrases (henceforth ASPs) and bare secondary predicates (BSPs), ASPs can undergo clefting while BSPs cannot; ASPs can be moved by *wh*-movement,⁶ while BSPs cannot; ASPs can be conjoined with PPs while BSPs cannot; and last, but not least, the OBJECT of *as* can be moved by Right Node Raising just as ordinary objects of Ps can. All these facts strongly suggest that ASPs of this kind are better analyzed as modifiers of the category PP (just like ordinary PPs) rather than as predicates, although the OBJECTS of *as* have some characteristics in common with predicates, as shown by Emonds 1985.⁷ By this, however, we don't mean that all ASPs should be treated as ordinary PPs. In fact, some ASPs do behave in the same way as predicates do, as in:⁸

- (25) a. I regard him as a teacher.
b. *It is as a teacher that I regard him.
c. *As a teacher, I regard him.

Note, moreover, that some speakers accept even sentences like:⁹

- (26) a. I regard it as being too foggy enough to cover our retreat.
b. I regard there as being a real problem with security on campus.

These facts may be interpreted as suggesting that in a case like 26, the combinations of the *as* phrases under investigation and their *srp*'s constitute small clauses, as suggested by Chomsky 1981. Pursuing this possi-

⁵ Example 22b is cited from McNulty 1988 and 23a and 24 are from Emonds 1985.

⁶ For some reason, *PIED-PIPING* in cases like this seems to result in awkwardness or unacceptability. See Emonds 1985.

⁷ For example, both of them are impossible to *tough*-move, to passivize, and so on. For details, see Emonds 1985.

⁸ The examples in 25 are cited from Tanaka 1987.

⁹ Examples 26a and 26b are cited from Postal 1974 and Borkin 1974, respectively.

bility will take us too far afield, however, so we only suggest that analyses along these lines will account for the reason categories other than NPs can appear in the OBJECT positions of this kind of *as*.

There is another case in which ASPs and NPs preceding them form constituents of some kind, as the following examples show:¹⁰

- (27) a. It was [Bill as a leader] that we argued against.
- b. What we argued against was [Bill as a leader]
- c. [Women as engineers] still surprises some people.
- d. Which situation do you consider *t* to be a better one, [Bill as President] or [Jack as President]?

Apart from the question of which category this kind of constituent belongs to,¹¹ the point of interest for us now is that the strings bracketed in 27 are unmistakably single constituents. In this light, let us consider the following example Na gives as a confirmation of her analysis:

- (28)(=14c) Jeff's argument [against *Bill*] [as a candidate]

Since there is now a strong possibility that the string of *Bill* and *as a candidate* can be a constituent, it is obvious that the grammaticality of 28 does not argue against structural approaches; if it is a constituent, *Bill* and *as candidate* m-command each other, meeting the mutual m-command condition, even if the *as* phrase is a predicate.

Before leaving this topic, let us take a look at a case in which *as* phrases may lack srp's, as shown in:

- (29) a. a reputation as an excellent teacher
- b. a job as an editor

Na would analyze these examples as containing implicit arguments of the head Ns, which function as the srp's of the secondary predicates. But if implicit arguments are limited to agentive arguments, which possibility Na herself suggests (70), there will be no implicit argument in 29a because *reputation* arguably does not take an agentive argument, as evidenced by the following contrast:

- (30) a. her reputation as an excellent teacher
- b. *John's reputation of her as an excellent teacher

Therefore we may reasonably dismiss analyses based on implicit arguments in cases like 29 as implausible. Thus the examples in 29 lend support to our view that the *as* phrases in question are not predicates in that

¹⁰ Example 27c is cited from Emonds 1985.

¹¹ For the discussion of examples like 27c, see Safir 1983.

they need not take *srp*'s.

From the arguments above, it follows that it is only the examples containing such *null* prepositions *of* and idiomatic expressions that remain as counterexamples to structural approaches, as illustrated in:

- (31) a.(=12a) fond [of *John*] **[naked]**
 b.(=14b) the arrival [of *John*] **[completely tucked out]**
 c. Bill looked [on *John*] **[as a friend]**

To account for these examples in structure-based approaches, we will have to revise the definition of m-command so as to ignore the presence of PPs like those in 31. This may seem, at first, to be too expensive for the theory of grammar, but we have an independent basis for this revision. For example, consider the following sentences,¹² in which *she/her* is intended to be coreferential with *Rosa*.

- (32) a. It didn't occur [to *Rosa*] that *she* had failed the exam.
 b. *It didn't occur [to *her*] that *Rosa* had failed the exam.
 (33) a. It is foolish [of *Rosa*] that *she* bought such a thing.
 b. *It is foolish [of *her*] that *Rosa* bought such a thing.
 (34) a. We look [on *Rosa*] as being more attractive than *she* used to be.
 b. *We look [on *her*] as being more attractive than *Rosa* used to be.

The crucial point here is that, in each b-sentence of the above pairs, the prepositional object *her* behaves as if it m-commanded the R-expression *Rosa* although *she/her* is secluded from *Rosa* by a PP. This means that if we are to exclude the b-sentences by the Binding Principle (C), we must assume that prepositions of idiomatic expressions and those regarded as mere Case-markers (such as *of* and *to*) are invisible to m-command relation.¹³ As for lexically chosen prepositions, we do not include them in this group because of the ungrammaticality of sentences like:

- (35) a. *I presented John [with *it*] **dead**.
 b. I presented *it* to John **dead**. (Na, 149)

On the other hand, Na analyzes the object of *with* as the argument of *presented* (47–49), so she cannot account for this contrast.¹⁴ If this ap-

¹² Example 32b are cited from Reinhart 1983.

¹³ For analogous ideas, see Reinhart 1983 and Roberts 1986.

¹⁴ Though Na argues that (i) below is grammatical despite the presence of a PP, the ungrammaticality of the corresponding sentence (ii) suggests that the relevant part in (i) is an instance of postmodification, as Tsuzuki (p.c.) pointed out to me:

(i) The dean presented us [with *the new program*] **already approved**.
 (ii) *The dean presented us [with *it*] **already approved**.

proach is on the right track, then most of Na's counterexamples to the mutual m-command requirement will be no longer problematic for structure-based theories of predication.

Let us next turn to the 'a fool of a man' type of construction, repeated below for easy reference:

- (36)(=15) a. a crook of a chairman
b. a fool of a man

Although we admit that what she calls a *srp* in this construction has something of SUBJECTHOOD, the subjecthood of this kind can also be observed in the case of modification. Compare 36 with the corresponding examples below:

- (37) a. a crooked chairman
b. a foolish man

At this point, it should be noted that, in discussing the distinction between predication and modification, Na remarks that

'the fact that a modifier (such as an AP) falls within the maximal projection of the item it modifies (such as an N), so that it is an intrinsic part of the sense of the entire phrase (such as being an intrinsic part of the reference of the NP), is so different from the relationship of a predicate to a role player that this difference demands recognition in the theory (74).'

The important point here is that, according to this distinction, what Na calls secondary predicates in this construction (i.e. the syntactic heads) will be categorized as modifiers rather than predicates, because they fall within the maximal projections of the Ns to which they are linked, and are intrinsic parts of the reference of the entire NPs, as Na herself argues. Thus, to analyze this construction as an instance of predication would lead Na to abandon her distinction between predication and modification, obviously an undesirable consequence. Therefore, following Ike-uchi 1986, we propose to analyze this construction as having the following structure:

As a confirmation of this analysis, Ike-uchi offers examples such as the

following:¹⁵

- (39) a [scrawny], [sorry], [jackass of a] horse

As is well known, coordination is only possible between elements of the same category. Another argument for this structure Ike-uchi makes is formulated in relation to the extraposition of complements of the head N (the semantic head N, for Na). In ordinary stacked NPs, the complements of the lowest N cannot be extraposed, as shown in:¹⁶

- (40) a. *[A review of [certain answers *t*]] was given [to your argument]
 b. [A review *t*] was given [of certain answers to your argument]

In the construction in question, by contrast, this operation is permitted, as in 41:¹⁷

- (41) a. [A hell of [a report on the secret activities of the CIA]] came out.
 b. [A hell of [a report *t*]] came out [on the secret activities of the CIA]

This contrast between 40 and 41, Ike-uchi argues, can be accounted for only if we posit a structure like 38 for this construction; otherwise, 41b would be excluded, just like 40, as a Subjacency violation. This is exactly what Na's analysis predicts, contrary to fact. As for the derivation of this construction, we assume, without argument, that it is derivatively generated in the sense of Chomsky 1965.

From the arguments above, we may draw the conclusion that this construction also is not problematic for structural approaches to predication.

4. COUNTERARGUMENTS. In this section, we will examine Na's fundamental assumptions in some detail. Let us first look at the version of X-bar theory that Na adopts. Na proposes the following X-bar schemata:

- (42) $X'' \rightarrow \text{SPEC } X' \ X'$
 $X' \rightarrow X \ Y''^*$

According to 42, only zero-level categories are permitted to take multiple sisters (although C'' or I'' are exceptionally permitted to). For concreteness, we take as an example the following sentence:

- (43) John ate the meat raw nude.

¹⁵ Example 39 is cited from Ike-uchi 1986, who ascribes its original form to L. Sterne.

¹⁶ The examples in 40 are cited by Ike-uchi 1986 from Selkirk 1977.

¹⁷ The examples in 41 are cited from Ike-uchi 1986.

According to Na's analysis, this sentence will be assigned a structure like the following (irrelevant details omitted):

This analysis of sentences like 43, however, creates more problems than it can solve. Just consider which NP functions as the srp of each predicate in the above examples. Na's theory cannot decide which; it tells us only that any combinations of indexing between *John* and *the meat* on the one hand and *raw* and *nude* on the other are permissible. In her analysis, the choice of the srp's in cases like this is determined by such factors as pragmatics, semantics, lexical structures, and so on.

A further argument against Na's structure 45 can be formulated in relation to relative ordering restrictions on combinations of secondary predicates of different kinds. Notice that Na's analysis will predict a considerable degree of freedom in the order in which multiple secondary predicates appear; in fact, however, we do not find this, as 45 shows:¹⁸

(45) *John ate the meat nude raw.

As several linguists point out, when a SUBJECT-ORIENTED secondary predicate and an OBJECT-ORIENTED one co-occur, the former must follow the latter, for which fact Na's theory fails to give any explanation. Once again, Na will have to resort to pragmatics and so on. At this point, it will be helpful to see how these facts are explained in structure-based analyses. Following Rochemont and Culicover 1990 in part, let us assume the structure for 43 to be something like 46 (irrelevant details omitted):

That subject-oriented predicates like *nude* may, but need not, appear in (or more precisely, be adjoined to) VPs is evidenced by the following examples:¹⁹

- (47) a. I was told that John would come into the room with a surprise, and come into the room he DID NUDE.
 b. I was told that John would come into the room nude, and come into the room nude he DID.

Given the structure 46, this result will follow from the assumption that VP Preposing affects only VP constituents. As a confirmation of the VP-internal position of object-oriented predicates, observe the following contrast:²⁰

- (48) a. John ate the meat himself nude.
 b. *John ate the meat himself raw.

Floated Emphatic Reflexives are assumed to be in VP-adjoined positions, as Fukuda 1989 argues on the basis of the familiar syntactic constituency tests such as the following:²¹

- (49) a. What John did was finish the job himself.
 b. What John did himself was finish the job.

Then, the ungrammaticality of 48b shows that object-oriented predicates must appear inside VPs.

Returning now to structure 46, if we define m-command in terms of DOMINATION in the sense of Chomsky 1986b,²² *John* and *nude* m-command each other, as do *the meat* and *raw*. On the other hand, mutual m-command relation does not hold either between *John* and *raw* or between *the meat* and *nude*. Accordingly, given the mutual m-command requirement on predication, the subject of each predicate is uniquely determined. This analysis will also give an account of the ordering restriction illustrated in 45 on the basis of the mutual m-command requirement.²³ Na's structure for 45, on the other hand, is not capable of accounting for

¹⁸ Example 45 is cited from Rochemont and Culicover 1990.

¹⁹ The examples in 47 are taken from Rochemont and Culicover 1990. The words in upper case indicate the positions of greatest phonological prominence in the sentence.

²⁰ The examples in 48 are cited from Culicover and Wilkins 1984.

²¹ The examples in 49 are cited from Fukuda 1989.

²² Following May 1985, Chomsky 1986 defines DOMINATION as: α is dominated by β only if it is dominated by every segment of β .

²³ Rochemont and Culicover 1990 ascribe the ungrammaticality of 45 to what they call AN INTERPRETIVE NESTING REQUIREMENT.

these facts. Furthermore, it does not seem to us that the version of X-bar theory Na assumes is as RESTRICTIVE as she claims it is, in comparison with the one we are assuming here. It is restrictive only in preventing elements other than a specifier from occurring as sisters to X', but it is too lenient with elements appearing as sisters to zero-level heads. Truly, if there were no differences in behavior between what she claims to be sisters to zero-level categories with respect to syntactic operations, we would have to admit that the X-bar theory in question is restrictive in the true sense of the word. This is not the case, however, as evidenced by the facts discussed above. In light of these facts, we may with good reason conclude that Na's X-bar theory COSTS more than other versions of X-bar theory in that it needs supplementing by a lot of yet-to-be-discovered factors.

Next let us turn our attention to Na's definition of predicate. For convenience we repeat it here: 'a predicate is an event lexical item with certain specifiers and modifiers, taking at least one role player.' This has led Na to the assumption that predicates cannot be recognized as such at a syntactic level. A natural question to be asked here is: are there not any syntactic operations the applicability of which depends on whether their target is a predicate or an argument? If there are, we will have evidence that predicates must be syntactically identified. One plausible candidate will be *Though-Movement*. The following contrast will illustrate the point.²⁴

- (50) a. Though John is a genius, he can't tie his shoe laces.
- b. Genius though John is, he can't tie his shoe laces.
- (51) a. Though Susan is married to a genius, she isn't intimidated.
- b. *(A) genius though Susan is married to, she isn't intimidated.

What makes this contrast is arguably the difference in status between the two occurrences of *genius*: one is a predicate, and the other is an argument of *to* (or *married*, if *to* is a mere Case-marker). If this is the case, it will provide convincing evidence for the syntactic distinction between arguments and predicates. The following pair of examples may also shed light on this problem.²⁵

²⁴ Examples 50-51 are cited from Culicover 1982.

²⁵ The examples in 52 are cited from Burzio 1981.

- (52) a. the island that John was [the first one to reach *t*]
 b. *the island that John met [the first one to reach *t*]

In general, wh-movement from complex NPs is impossible, as in 52b, but it is allowed when the complex NP is a predicate. Whatever factors may be involved in ruling 52a grammatical,²⁶ the main point of interest for us here is that relativization is sensitive to the status of its target. If we make the standard assumption that the Subjacency condition is responsible for syntactic movement alone, and if examples like 52b are excluded by this condition, this contrast may also provide a second justification for the assumption that distinction must be made between arguments and predicates in syntax.

Another problem with Na's definition of predicate is that, in some cases, it has to turn to syntactic information to decide whether an element is a predicate or not, which is obviously incompatible with her theta-based approach. For example, consider sentences like the following:

- (53) a. This ratty piece of leather is a wallet.
 b. No one could consider this ratty piece of leather a wallet.

Of course, Na's definition of primary predicate can recognize *a wallet* in 53a as a primary predicate, but when *a wallet* may function as an argument or a predicate in other cases, how can we know at all that it is a predicate? Na herself touches on this problem, and only remarks that 'it is by virtue of appearing in a predicative position that the N *wallet* must head a predicate and take a role player (44).' An immediate question here is: what does 'a predicative position' mean? Since Na assumes *be* to be a grammatical word, not (the head of) a predicate, *be* should have nothing to do with the status of its right sister. Therefore Na's remark amounts to saying that, at least in cases like 53a, the notion of predicate is determined solely on the basis of syntactic configurations, which is sure to undermine Na's definition of predicate in terms of argument structures. It should also be observed at this point that it is always a maximal projection, not its lexical head, that becomes a predicate in this way. This is clear from the fact that *wallet* never takes an internal role player even when it is in a predicative position. This also seems to suggest that predicates are all maximal projections, contrary to Na's claim. The situation

²⁶ We could adopt Chomsky's 1986b proposal to the effect that adjunction is possible only to nonarguments.

with 53b is a little different, because Na assumes secondary predicates of this type to be the arguments of *consider*, which assigns them an event theta role. This theta role turns concrete nouns like *wallet* into predicates. This analysis, however, is confronted with serious problems. For example, compare 54a with 54b:²⁷

- (54) a. *How inefficient do you believe the claim that Bill considered John *t* when he worked here?
 b. ?How flat do you believe the claim that John said Bill hammered the metal *t*?

As McNulty 1988 observes, RESULTATIVE predicates like *flat* in 54b behave in the same way as ordinary arguments with respect to the Empty Category Principle, which shows that they are theta-governed in the sense of Chomsky 1986b. As is clear from the ungrammaticality of 54a, on the other hand, the predicates under investigation cannot be moved out of islands, and therefore we are led to assume that they are not theta-governed. If this is the case, it falsifies Na's claim that this kind of predicate is assigned a theta role by *consider*.

A third problem with Na's definition of predicate emerges in relation to verbs like *seem*, which Na claims not to be predicates because they never denote events. Na regards verbs of this kind as parts of predicates, as in the case of auxiliary verbs. This view, however, does not seem to be on the right track. To see this, consider the following examples:

- (55) John was, *I believe/I think/they say/Bill claims*, the first one to arrive.

What characterizes the italicized verbs above is, among others, that they are all verbs taking clausal arguments. By virtue of having argument structures, they will qualify as predicates even in Na's framework. With this in mind, consider a sentence like the following:

- (56) John was, it *seems*, the first one to arrive.

The fact that *seem* can occur in this construction in addition to those verbs in 55 clearly shows that *seem* also takes a clause as its argument. Therefore Na's analysis of *seem* misses the important generalization observed here.

We conclude this section by examining Na's Provisos for Secondary Predication. As touched on earlier, her Provisos One and Two overlap in many cases, obviously an undesirable redundancy from a theoretical

²⁷ Examples 54a-b are cited from McNulty 1988.

viewpoint. What is worse, Na needs still another proviso to deal with examples like:

- (57) I hate [the Huns' destruction of the city]

Since the secondary predicate *destruction* falls within the theta domain of *hate*, Proviso One requires that the srp *the Huns'* be in the lexical structure of *hate*, which is not the case in 57. Therefore Na proposes a less restrictive version of Proviso One:

- (58) Alternative to Proviso One for $H=N$: If a secondary predicate is within the theta domain of a lexical item H, either the secondary predicate or its srp must receive a theta role from H (121).

All the three provisos are necessary for Na's theory of predication. However, even with these elaborated provisos, her theory wrongly predicts that sentences like the following are grammatical (where the indices designate predication relations):

- (59) *We_i [considered Mary_j intelligent_j drunk_j]

Nothing in her theory prevents the coindexing between *we* and *intelligent* or that between *Mary* and *drunk*; Proviso One does not work here because *we* is in the lexical structure of *considered*, nor does Proviso Two because of the absence of relevant barriers, nor does Alternative 58 for an obvious reason: H is not an N.

There seem to be still more problems with Na's theory of predication, but we have to leave them untouched for lack of space.

5. CONCLUDING REMARKS. We hope that we have shown in this article that predicates should be recognized as syntactic entities, contrary to Na's claim. But this does not mean that the book under review has not made a significant contribution to the study of predication. In fact, some of the possibilities suggested in this book seem to be worth exploring. For example, the unified treatment of predicates and anaphors, which we have not touched on here, is most promising, apart from the question of whether Na's analysis is plausible or not.

REFERENCES

- BORKIN, ANN MARGARET HOPKINS. 1974. Raising to object position: A study in the syntax and semantics of clause merging. University of Michigan dissertation.
 BURZIO, LUIGI. 1981. Intransitive verbs and Italian auxiliaries. MIT dissertation.
 CHOMSKY, NOAM. 1965. Aspects of the theory of syntax. Cambridge, MA: MIT Press.
 —. 1981. Lectures on government and binding. Dordrecht: Foris.

- . 1986a. *Knowledge of language: Its nature, origin, and use*. New York: Praeger.
- . 1986b. *Barriers*. Cambridge, MA: MIT Press.
- CULICOVER, PETER. 1982. *Though-attraction*. Reproduced by the Indiana University Linguistic Club.
- , and MICHAEL ROCHEMONT. 1989. *English focus constructions and theory of grammar*. Cambridge: Cambridge University Press.
- , and WENDY WILKINS. 1984. *Locality in linguistic theory*. New York: Academic Press.
- EMONDS, JOSEPH E. 1985. *A unified theory of syntactic categories*. Dordrecht: Foris.
- FUKUDA, KAORU. 1989. On emphatic reflexives. *English Linguistics* 6.36–51.
- IKE-UCHI, MASAYUKI. 1986. Nouns with appositional *of* complements and pseudo-partitive NPs. *English Linguistics* 3.98–117.
- MARANTZ, ALEC P. 1984. *On the nature of grammatical relations*. Cambridge, MA: MIT Press.
- McNULTY, ELAINE MARIE. 1988. *The syntax of adjunct predicates*. University of Connecticut dissertation.
- POSTAL, PAUL M. 1974. *On raising*. Cambridge, MA: MIT Press.
- REINHART, TANYA. 1983. *Anaphora and semantic interpretation*. Kent: Croom Helm Ltd.
- ROBERTS, IAN G. 1986. *The representation of implicit and dethematized subjects*. Dordrecht: Foris.
- ROEPER, THOMAS. 1987. Implicit arguments and the head-complement relation. *LI* 18.267–310.
- ROTHSTEIN, SUSAN D. 1983. *The syntactic forms of predication*. MIT dissertation.
- SAFIR, KEN. 1983. On small clauses as constituents. *LI* 14.730–35.
- TANAKA, SHOICHI. 1987. The structure of prepositional *as* constructions. *Studies in English Literature* 64.1.97–114.
- WILLIAMS, EDWIN. 1980. Predication. *LI* 11.81–114.