Light Predicate Raising*

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Following Ross (1967/86) many linguists have assumed that sentence pairs like (1)-(4) are related by a rule of "Heavy NP Shift":

(1)  
   a. Mary gave everything that he demanded to John.  
   b. Mary gave to John everything that he demanded.  

   (2)  
   a. Max put all the boxes of home furnishings in his car.  
   b. Max put in his car all the boxes of home furnishings.  

   (3)  
   a. I would consider anyone who leaves his doors unlocked foolish.  
   b. I would consider foolish anyone who leaves his doors unlocked.  

   (4)  
   a. You see large numbers of Dr. Who fans at such conventions.  
   b. You see at such conventions large numbers of Dr. Who fans.  

In essence, this rule derives the second member of each pair from the first by rightward movement of a phonologically "heavy" noun phrase:

(5)  
   a. Mary gave \text{[everything that he demanded]} to John.  
   b. Max put \text{[all the boxes of home furnishings]} in his car.  

In this article I explore an alternative to the Ross analysis. On the proposed account, the "b" examples in (1)-(4) arise, not by rightward movement of an NP, but rather by leftward movement of a verbal category:

(6)  
   a. Mary \text{[gave to John]} everything that he demanded.  
   b. Max \text{[put in his car]} all the boxes of home furnishings.  

What relates such pairs is thus not "NP Shift", but a form of predicate raising.

In section 1, I motivate the analysis by considering some data that are mysterious under an NP Shift view of (1)-(4). In section 2, I introduce the predicate raising account and show that it illuminates these puzzles as well as a number of other simple facts about the construction. Sections 3 and 4 explore two more extended consequences; section 3 examines NP Shift in expletive constructions with existential and
presentational interpretation, where a postverbal NP appears to undergo rightward movement. Section 4 discusses the radical consequences of predicate raising for the analysis of parasitic gaps. Finally, in section 5 I briefly consider the general question of why a rule of rightward NP movement should be absent.

1.0 Asymmetries between "Heavy NP Shift" and A'-Movement

Under standard views, "Heavy NP Shift" involves rightward movement of NP with adjunction to VP:

(7)

This assimilates Heavy NP Shift to the general class of A'-movements, and hence leads us to expect that it will pattern similarly to Wh-movement, Topicalization, Quantifier Raising, etc. Interestingly, there are a number of cases in which the two pattern quite differently.

1.1 Absence of P-stranding

One well-known divergence between Heavy NP Shift and A'-movement involves extraction from PP. As noted by Ross (1967/86), Bresnan (1976), and Stowell (1981), among others, Wh-movement freely allows preposition stranding in English whereas Heavy NP Shift strongly resists it and demands piedpiping of PP (8)-(10):

(8)  
  a. Who did you talk to about Jonnie's problems?  
  b. *I talked to about Jonnie's problems all of the teachers.  
  c. I talked about Jonnie's problems to all of the teachers.  
      (cf. I talked to all of the teachers about Jonnie's problems.)

(9)  
  a. Who did he bargain with about wages?  
  b. *He bargained with about wages three senior officials.  
  c. He bargained about wages with three senior officials.  
      (cf. He bargained with three senior officials about wages.)
(10) a. Which city did she fly off to after the semester?
   b. *She flew off to after the semester the oldest city in Mongolia.
   c. She flew off after the semester to the oldest city in Mongolia.
      (cf. She flew off to the oldest city in Mongolia after the semester.)

This asymmetry is not limited to English. Christensen (1987) notes analogous facts for Norwegian (11)-(12); and parallel data exist in Swedish (13)-(14) (Swedish examples due to Elisabet Engdahl (p.c.)):

(11) a. Vi har lant den interessante boken du nevnte til Petter.
   we have lent the interesting book you mentioned to Peter
   b. Vi har lant til Petter den interessante boken du nevnte.

(12) a. Vi skal lese om den interessante boken du nevnte i morgen.
   we shall read about the interesting book you mentioned tomorrow
   b. *Vi skal lese om i morgen den interessante boken du nevnte.

(13) a. Max gav allt han hade med sig till John.
    Max gave everything he had with him to John
   b. Max gav till John allt han hade med sig.

    I talked with all my teachers about my problems
   b. Vem ska jag tala med om mina problem?
      who shall I talk with about my problems
   c. *Jag talade med om mina problem alla mina lärare.
      I talked with about my problems all my teachers

Standardly, this divergence between A'-movement and Heavy NP Shift in extraction from PP is simply stipulated. Ross (1967/86) imposes a non-strandability condition on the Heavy NP Shift operation:

(15) \[ \text{PP} \quad \begin{array}{c} \text{P} \\
      \hline
      \end{array} \quad \text{NP} \]

Similarly, Bresnan (1976) assumes distinct transformations of Heavy NP Shift and Wh-movement and states structural conditions for application which demand pied piping in the latter case. Stowell (1981) elaborates Kayne’s (1981) proposal that preposition stranding is licensed by a reanalysis operation incorporating V and P. Stowell suggests an "antecedent condition" which requires a moved element to be to the left of a V+P complex governing its trace. This forbids reanalysis in the case of rightward movements like Heavy NP Shift, and so blocks preposition stranding. Here too a rule-specific condition is assumed, although one governing reanalysis and not Heavy NP
Shift per se.

Under all of these proposals, the reason why constraints should hold of NP Shift (or rightward movement) but not other, putatively similar movements goes unexplained. We are thus left with an asymmetry between the two.

1.2 Bounding Effects with Adjuncts

A second, less familiar asymmetry between Heavy NP Shift and A′-movement concerns their interaction with certain adjuncts. As is well-known, English allows for a variety of unselected depictive phrases that may be understood as predicated of either the subject (16) or the object (17):[3]

(16) a. John left the party [angry].
    b. Max discussed the musical [nude].
    c. Alice drove the car [drunk].

(17) a. Felix found the door [open].
    b. Jude ate the fish [raw].
    c. Edith drinks tea [cooled with ice].

In all such examples, the object is fully extractable under leftward A′-movement:

(18) a. Which party did John leave angry?
    b. That game I never play blindfolded.
    c. The car that Alice drove drunk is parked over there.

(19) a. Which door did Felix find open?
    b. This fish you should never eat raw.
    c. A tea that Edith drinks cooled with ice is easy to find.

However Heavy NP Shift seems to be licensed smoothly only when the adjunct has object orientation (20)-(22); Heavy NP Shift with subject-predicated adjuncts is considerably weaker (23)-(25):[4]

(20) a. Felix found the Midville music library door open.
    b. Felix found open the Midville music library door.

(21) a. Jude never eats fish over two days old raw.
    b. Jude never eats raw fish over two days old.
(22) a. Edith always drinks herbal tea that is made from Camomile and lemon grass cooled with ice.
   b. Edith always drinks cooled with ice herbal tea that is made from Camomile and lemon grass.

(23) a. John left the party for the ambassador from Ulan Bator angry.
   b. *John left angry the party for the ambassador from Ulan Bator.

(24) a. Max discussed the recent Broadway musical by Sondheim nude.
   b. *Max discussed nude the recent Broadway musical by Sondheim.

(25) a. Alice never drives her red, fuel-injected '68 Chevy drunk.
   b. *Alice never drives drunk her red, fuel-injected '68 Chevy.

It is tempting to try to view this result in terms of different attachment sites for subject- vs. object-oriented adjuncts (Williams (1980)) and an associated bounding condition on Heavy NP Shift. The facts in (20)-(25) might seem to follow if subject-oriented adjuncts are always attached to S and if Heavy NP Shift is required to take a VP-internal adjunction. However Andrews (1982) argues convincingly on the basis of data from VP-Preposing (26a), Though Movement (26b), and Wh-clefting (26c) that both subject- and object-oriented adjuncts must have a VP-internal attachment:

(26) a. John said he would eat the meat nude/raw, and eat the meat nude/raw he did.
   b. Eat the meat nude/raw though John did, nobody thought he was crazy.
   c. What John did was eat the meat nude/raw.

In view of this, no simple bounding condition seems possible for the divergence between Heavy NP Shift and other A'-movements. We are thus left with a second apparent asymmetry.

1.3 The Distribution of meng- in Modern Indonesian

Chung (1976) describes the distribution of the transitivity marker meng- in the grammar of modern Bahasa Indonesian which exhibits a third distinction between Heavy NP Shift and other forms of movement. Examples (27a-c) (from Chung (1976)) illustrate the occurrence of meng- in simple clauses:

(27) a. Saja (me-)lihat diri saja dalam air.
    1sg. TRANS-see self my in water
    'I saw myself in the water'
   b. Mereka (me-)masak ikan untuk saja.
    3pl. TRANS-cook fish for 1sg.
    'They cooked a fish for me'
Thus (27a,b) show *meng* licensed by reflexive and non-reflexive object nominals, and (27c) shows that when the verb is intransitive, the intransitive marker *ber-* must occur and not *meng*.

The basic rule for the distribution of *meng* appears to be that this element attaches to transitive verbs that are adjacent to their direct object in surface form. Accordingly, although *meng* appears smoothly in examples like (27a-c), it cannot occur in sentences where the direct object has undergone movement, as in passives (28a), object preposing constructions (28b), relatives (28c), clefts (28d), or questions (28e):

(28) a. Dia (*men-*)di-pukul oleh mereka.
   3sg. TRANS-PASS-hit by 3pl.
   'He was hit by them'
b. Buku itu saja (*mem-*)batja.
   book the 1sg. TRANS-read
   'That book I read'
c. Surat jang anak itu sedang (*mem-*)tulis pandajang-nja tiga halaman.
   letter COMP child the PROG TRANS-write length-its three page
   'The letter that the child was writing is three pages long'
   2sg.-EMPH COMP 1 sg. TRANS-wait
   'It's you that I'm waiting for'
e. Apa jang mereka (*me-)masak untuk pesta?
   What COMP 3pl. TRANS-cook for party
   'What are they cooking for the party?'

Interestingly, there is one apparent exception to the generalization just stated: Heavy NP Shift constructions. Although the direct object does not occur adjacent to its verb in (29a-c), having been shifted rightward on the usual view, *meng* is nonetheless able to appear:

(29) a. Iwan me-masukkan ke dalam truk lima2 andjing jang ribut.
   Iwan TRANS-force to inside truck five dog COMP noisy
   'Iwan forced into the truck five dogs that were barking loudly'
b. Yati me-masak untuk Ali ikan jang di-tangkap oleh kakak-nja kemarni.
   Yati TRANS-cook for Ali fish COMP PASS-catch by sibling-her yesterday
   'Yati cooked for Ali the fish caught by her brother yesterday'
c. Saja mem-beri kepada Ali semua uang jang kamu kasih.
   1sg. TRANS-give to Ali all money COMP 2sg. give
   'I gave to Ali all the money you gave to me'

Chung herself gives the distribution in terms of linear order, stating that meng- is licensed when the verb precedes its object in surface form. But since Heavy NP Shift is the only rightward movement rule discussed in Chung (1976), and hence the only rule which results in an object preceded by (but not adjacent) to its verb at S-Structure, in effect the precedence condition stipulates Heavy NP Shift as exceptional. We thus observe a third asymmetry.

2.0 "Heavy NP Shift" Reconsidered

The facts noted above can be illuminated under an alternative view of the basic "NP Shift" phenomenon advanced in Larson (1988). The latter appeals to D-Structures deriving from early proposals by Chomsky (1957) and Filmore (1965), and their more recent elaboration in work by Dowty (1978), Bach (1979) and Jacobson (1983,87). The basic idea is that in an example like (30a) involving multiple arguments, the latter are initially structured within VP in subject-predicate form, with outermost elements being hierarchically most subordinate. In particular, the VP underlying put the box in his car is a binary branching structure consisting of an empty V taking a specifier Max and a VP complement. The latter is in turn headed by put and takes a specifier the box and a complement in his car:

(30) a. Max will [\_VP put the box in his car].
   b. 
      \[
      \begin{array}{ll}
      \text{IP} & \ldots \text{VP} \\
      \text{NP} & \\
      \text{Max} & \text{V'} \\
      \text{e} & \text{VP} \\
      \text{the box} & \text{V'} \\
      \text{put} & \text{PP} \\
      \text{in his car} & \\
      \end{array}
      \]

The intuitive content of this structure is that put takes the locative in his car forming a small predicate put-in-his-car. This is predicated of an "inner subject" the box forming a VP with clause-like structure the box put in his car. The latter is then predicated of the subject Max. The correct surface ordering of IP constituents derives by raising of put to
the empty V position and by raising of Max to IP specifier position.[5] This movement is taken to follow from general principles governing the assignment of Case and agreement:[6]

(31)

"Heavy NP Shift" examples like Max put in his car all the boxes of home furnishings derive by a variant of the V Raising operation in (31). Specifically, they arise when the latter interacts with the following (optional) rule of V' Reanalysis:

**V' Reanalysis**: If \( \alpha \) is a V' and \( \alpha \) is thematically monotransitive, then \( \alpha \) may be reanalyzed as V.

Understanding "thematically monotransitive" to mean that \( \alpha \) determines exactly two thematic roles, V' Reanalysis says that any V' which corresponds semantically to a binary relation may be categorically reconstrued as a head.[7] To illustrate, consider the structure in (32):
Put selects three arguments, an agent, a theme and a goal, and in the lowest V' in (32), the goal role has been discharged by the PP *in his car*. It follows that V' is a predicate with exactly two undischarged arguments - agent and theme - and hence subject to optional V' Reanalysis.

If V’ Reanalysis does not apply, head-to-head movement of V proceeds as in (31) above; *put* raises to the \([v, e]\) position, yielding the "non-shifted" version of VP: *put all the boxes of home furnishings in his car*. On the other hand, if V’ Reanalysis does apply, then the result is (33a). Raising now applies to the entire complex constituent *put in his car*, yielding (33b):
2.1 Some Consequences

A "Light Predicate Raising" analysis sheds light on the NP Shift/A’-movement asymmetries observed in section 1.

2.1.1 Preposition Stranding. We noted that prepositions are not strandable under "NP Shift" (34a). On the present account, to generate (34a) by predicate raising we require a pre-raising structure in which V (talk) and P (to) form a constituent that excludes the direct object:

(34) a. *We talked to about Jonnie's problems all the teachers.
    b. We [talk to about J's problems] all the teachers t.

There are two possible ways for such a V-P unit to arise: the verb and preposition might form a D-Structure group - a lexical "merger" in the sense of Marantz (1984) (35a). Alternatively, V and P might be amalgamated at some point prior to raising by (downgrading) head-to-head movement - "P-incorporation" in the sense of Baker (1988) (35b):
Both of these possibilities can be ruled out, however. (35a) can be excluded on the grounds that English simply does not permit the free V+P lexical merger required for D-Structures units like talk to (see Marantz (1984) for discussion). Since there is no such lexical form, (35a) is simply unavailable. (35b), on the other hand, can be ruled out as an ECP violation. As it stands, this structure is equivalent to an incorporation from subject position, hence [\(\tilde{\nu} \; e\)] fails to be properly governed (Baker (1988)). Moreover V' Reanalysis and Light Predicate Raising will not save the violation:
Assuming that heads share indices with their projections as a matter of X-bar theory, but that adjoining elements share indices only with the node they adjoin to, it follows that the index of P will label the V under which P adjoins in (35b), but not the higher projection V'. This means that after V' Reanalysis, the reanalyzed V' will fail to bear the index of P. The ECP is thus again violated in (36) since [v, e] fails to be properly governed.

This analysis predicts that examples like (34a) should be possible exactly when the verb and preposition form a lexically specified constituent. This situation is exemplified by verb-particle constructions like (37a-c):

(37) a. Max looked up the word in the dictionary.
    b. Felix threw out the old papers.
    c. They sealed off the last remaining exit.

Assuming that look up, throw out, seal off form constituents at D-Structure, we expect well-formed examples parallel to (34a) with a "stranded" particle. This expectation is met:

(38) a. Max looked up in the dictionary the word that Bill had asked him about.
    b. Felix threw out with the trash a manuscript that Oscar had been working on for years.
    c. They sealed off without incident the Blob's only remaining exit from the cave.

2.1.2 Adjunct Orientation. V Raising structures allow a simple account of the adjunct orientation facts noted above. Recall that "NP Shift" was possible over object-oriented adjuncts, but not over subject-oriented adjuncts:
(39) a. Jude never eats fish over two days old raw.
    b. Jude never eats raw fish over two days old.

(40) a. John left the party for the ambassador angry.
    b. *John left angry the party for the ambassador from Ulan Bator.

Suppose now (largely following proposals by Dowty (1979) and Schein (1995)) that differences in subject vs. object orientation are represented structurally as shown in (41) below. These structures represent object-oriented adjuncts as attaching at a point that makes the direct object their closest c-commanding argument, while subject-oriented adjuncts attach at a point that makes the subject their closest c-commander.[9]

(41) a. b. 

We may suppose such configurations to follow from a simple principle governing thematic assignment with secondary predicate structures:

**Principle:** XP assigns a θ-role to NP iff XP is sister to a V-projection that assigns a θ-role to NP.

In (41a), V assigns a θ-role to the object; hence raw is sister to V when predicated of the object. In (41b), V' assigns a θ-role to the subject; hence angry is sister to V' when predicated of the subject.

These assumptions entail that object-oriented adjuncts will form a constituent with V that excludes the direct object, and hence that they will involve verb raising. This in turn yields the possibility of raising V+ADJUNCT as a unit, producing "NP Shift" with object-oriented predicates:
Sisterhood of V and AP involves no discharge of thematic roles, hence the lower V' preserves the valence of the original V. In the example at hand, this means that eat raw, like eat, will correspond to a binary relation between agents and the entities that they eat in a raw state. This permits V' Reanalysis and raising of the complex predicate.[10]

By contrast, subject-oriented adjuncts simply form no constituent with V that excludes the direct object. This flatly excludes predicate raising from deriving a surface form in which the direct object appears right-peripheral to a subject-oriented adjunct.

2.1.3 The Distribution of meng-. The facts concerning the "transitivity marker" meng- are also directly predicted under this account. As we have seen, Light Predicate Raising leaves a direct object in situ. It follows then that in both (43a) and (43b) below ikan jang ditangkap loeh kakaknja kemarni, 'the fish that I caught yesterday', is the surface object of, and adjacent to a transitive verb. The only difference is that in the former it is the object of the simplex transitive memasak, 'cook', while in the latter it is the object of the complex transitive memasak untuk Ali, 'cook for Ali':

(43) a. Yati me-masak ikan jang di-tangkap oleh kakak-nja kemarni untuk Ali.
   Yati TRANS-cook fish COMP PASS-catch by sibling-her yesterday for Ali
   'Yati cooked the fish caught by her brother yesterday for Ali'

b. Yati me-masak untuk Ali ikan jang di-tangkap oleh kakak-nja kemarni.
   Yati TRANS-cook for Ali fish COMP PASS-catch by sibling-her yesterday
   'Yati cooked for Ali the fish caught by her brother yesterday'

In these circumstances we expect transitive marking with meng- as usual, and this is just what we observe.
2.1.4 XP Shift. Under the Light Predicate Raising analysis, the derivation of "NP Shift" examples makes no crucial appeal to the category NP. This predicts that categories other than NP should participate in the same basic phenomenon. Consider (44)-(46) below:

(44) a. Max talked [to Mary] [about Bill].
    b. Max talked [about Bill] [to Mary].
    c. Max talked [about Bill] [to all of the other witnesses].

(45) a. Jack made a promise [to leave] [to Mary].
    b. Jack made a promise [to Mary] [to leave].
    c. Jack made a promise [to Mary] [to leave by 5:00p.m. sharp].

(46) a. Marcia behaved [rudely] [toward Lisa].
    b. Marcia behaved [toward Lisa] [rudely].
    c. Marcia behaved [toward Lisa] [more rudely than I would have expected].

In each of these sets there is an intuition of unmarked order for the complement arrangement in the "a" examples. And although the judgments are subtle, the inverse order seems to become most natural only when the outer complements are stressed or "heavy (cf. the "b" and "c" examples).

Predicate raising permits such data to be assimilated to the general "NP Shift" phenomenon, even though they do not involve NP. Consider, for example, the variants in (44). Assuming the two PPs represent internal arguments of talk, and that the underlying VP is as in (47a), the lower V' phrase talk about Bill will have a theta-grid with two undischarged θ-roles, and hence be subject to reanalysis. As with put, we can choose not to apply V' Reanalysis, and so raise only V. This yields talk to all the other witnesses about Bill. Alternatively, we can apply V' Reanalysis and raise the entire complex predicate to the empty V position (47b):

(47) a. 

```
   VP
  /   \
 NP   VP
  |   |
 Max V'  \
   |   |
     e PP V'  \
      |      |
       to all the other witnesses VP PP talk about Bill
```
b. 

```
Max        V
  V'         VP
    talk about Bill     PP
      to all the other witness
```

This yields (44c) above, with its appearance of "Heavy PP Shift". The remaining examples are analogous.

This analysis appears compatible with familiar facts showing "domain asymmetry" between the two PPs in to-about constructions. The following examples, parallel to ones discussed by Barss and Lasnik (1986) for double object structures, imply that the NP contained in the to-PP asymmetrically c-commands the one contained in the about-PP:

(48) a. I talked to the men about each other.
    *to each other about the men. (Anaphora)

b. I talked to no man about his son.
    *to his son about no man. (Quantifier Binding)

c. Which man did you talk to about his son?
   *Which boy did you talk to his father about? (Weak Crossover)

d. Who did you talk to about which boy?
   *Which boy did you talk to who about? (Superiority)

e. I talked to each man about the other's son.
    *to the other's son about each man. (each...other)

f. I talked to no one about anything.
    *to anyone about nothing. (Negative Polarity)

This result is problematic under more traditional views of phrase structure, even assuming that the domain NP may extend out of PP. Standard representations of "double PP" examples either predict no asymmetries between NP1 and NP2 based on hierarchical relations (49a), or else predict that NP1 should be in the domain of NP2 but not conversely (49b):
On the other hand, under (47a) these facts are straightforward. Given the presence of V', the to-PP asymmetrically c-commands the about-PP, hence the NP nodes can be related in the appropriate way.[11]

The distribution in (48) contrasts with the comparative uniform unacceptability of parallel examples in which the about-PP precedes the to-PP:

(50) a. *I talked about the men to each other.
   b. ?*I talked about each other to the men.
   c. *Which man did you talk about to his son?
      *Which boy did you talk about his father to?
   d. ?*Who did you talk about to which boy?
      *Which boy did you talk about who to?
   e. I talked about each man to the other.
      *about the other to each man.
   f. I talked about nothing to anyone.
      *about anything to no one.

Again these facts are straightforward under (47b). After raising of the complex V, neither PP c-commands the other. This correctly predicts ill-formedness of any dependency relations between complements requiring c-command.[12]

2.1.5 “Freezing”. Wexler and Culicover (1980) point out that when NP appears in right-peripheral position after “NP shift”, the associated VP becomes “frozen” for extraction:[13]

(51) a. John gave to Bill the picture that was hanging on the wall.
   b. *Who did John give to the picture that was hanging on the wall to?
      (cf. Who did John give the picture that was hanging on the wall to?)
   c. *Bill would be easy for John to give to the picture that was hanging on the wall.
      (cf. Bill would be easy for John to give the picture that was hanging on the wall to.)
(52)  a. They elected President of Mauritania the colonel who had engineered the recent coup.
    b. *Which country did they elect President of the colonel who had engineered the recent coup?
       (cf. Which country did they elect the colonel who had engineered the recent coup President of?)

This result follows directly under the present analysis. Consider the VP structure underlying (51a) after Light Predicate Raising:

(53)

The string *give to Bill* has the following status: it is a lexical category V, however it is not a basic lexical verb. In the terminology of Di Sciullo and Williams (1987), *give to Bill* is “syntactic atom” although it is not a “morphological object”. As a lexical category, *give to Bill* is expected to have the usual properties of V; e.g., it may assign Case. On the other hand, as a syntactic atom *give to Bill* is not analyzable by syntactic rules. We therefore derive the islandhood property of “NP Shift” constructions: since the raised predicate is a syntactic atom, it is “opaque” to MOVE α, hence extraction as in (51) and (52) is forbidden.[14]

3.0 Predicate Raising in Pleonastic Constructions

A central prediction of the LPR analysis is that only transitive constructions should undergo "NP Shift". This is because only transitive predicates undergo reanalysis and subsequent raising around an internal argument. Pleonastic constructions involving *there* appear to challenge this prediction in an interesting way. Note that in such examples, NP Shift occurs with intransitive verbs like *be, arise, fly and dance* (54)-(56), and with apparent intransitive predicates like *enter the room* (57):

(54)  a. There was an odd assortment of little green men in the attic.
       b. There was in the attic an odd assortment of little green men.
(55)  a. There arose a fierce storm off the coast.
    b. There arose off the coast the fiercest storm in living memory.

(56)  a. ??There walked/danced/flew a man into the hall.
    b. There walked/danced/flew into the hall the tallest man any of us had ever
       seen.

(57)  a. *There entered a tall dark stranger the room.
    b. There entered the room a tall dark stranger.

To motivate an approach to these examples, we consider the nature of expletive there.

3.1 Pleonasm as "Transitivity Alternation"

Within the Government-Binding theory, expletive there has standardly been analyzed as
a "dummy element", inserted into unselected, non-thematic positions in order to satisfy
principles of grammar. The pair in (58) below represents a typical case:

(58)  a. A fierce storm arose.
    b. There arose a fierce storm.

Following proposals by Perlmutter (1978) and Burzio (1986), arise and other verbs
permitting "there insertion" have been widely analyzed as "unaccusatives"; the sole
argument of arise is an underlying object, and its deep subject position is athematic:

(59)  \[ ip e [vp arise a storm] \]

Simple intransitive surface forms like (58a) arise from (59) by movement of the object
NP to subject position. The "there-insertion" variant (58b) results when the NP remains
VP-internal, leaving the IP subject position non-thematic. This triggers insertion of a
purely formal NP - the expletive there.

Chomsky (1981) suggests that insertion of the expletive is required to satisfy
certain general principles governing the distribution of empty categories. In brief, given
that the sole argument of arise remains in situ in (58b), the subject position will be
unfilled by movement. The result is an empty category in subject position which must
be licensed like other empty elements. The typology of empty categories available in a
non pro-drop language like English forbids a governed subject ec of this kind.
Structures like (59) are thus ungrammatical as they stand. Insertion of the
phonologically overt expletive element provides a means for rescuing such examples,
essentially by removing the problematic ec.[15]

This view of expletives is plausible and widely assumed. Interestingly, however, a
number of questions arise in connection with its central premise: the view that there is
an unselected formal element. First, if *there* is indeed unselected, then we expect no lexical restrictions on the predicates with which it may co-occur. As is well-known, however, such restrictions do in fact exist. Expletive *there* appears only with a specific semantic class of intransitive predicates - those connoting "existence" or "coming into existence" and "availability" or "coming into availability". Thus in pairs like *appear/disappear, arise/fall, enter/exit*, etc., which otherwise involve the same underlying syntax, only the former admits expletive *there*:

(60) a. There appeared a tall, dark stranger.
   b. *There disappeared a tall dark stranger.

(61) a. There arose a great civilization.
   b. *There fell a great civilization.

(62) a. There entered a small, shy child.
   b. *There exited a small, shy child.

Other languages are analogous to English in this respect; sentences involving verbs of the existence or availability class often show a variant involving a special pleonastic element not available in non-thematic positions of other predicates with similar underlying syntax. This behavior thus presents a puzzle: if *there* is unselected, as on the standard view, then why (and how) is its occurrence constrained to verbs of a particular semantic class?

A related question arises with regard to Case-assignment. Lasnik has observed data suggesting that the postverbal NP is assigned Case directly by V in expletive examples. As (63)-(65) show, expletive constructions appear to require adjacency of V and the postverbal NP just as transitive constructions require adjacency of V and a direct object. Such behavior is a widely accepted diagnostic for a case-assignment relation between V and NP:

(63) a. There often arose fierce storms.
   b. *There arose often fierce storms.

(64) a. There will usually be a question of legality.
   b. *There will be usually a question of legality.

(65) a. John often saw Mary.
   b. *John saw often Mary.

Interestingly, however, if the usual view of expletives is assumed, this result appears to run afoul of the familiar observation by Burzio (1986) that, with great regularity, verbs assign Case to an object if and only if they assign a thematic role to - i.e., select a subject. The standard view of *there* as unselected in expletive examples, forces us to
admit an instance of Case-assignment without subject selection.

Finally, the standard analysis of expletives appears to conflict with proposals by Chomsky (1986a) that natural language subscribes to a “Full Interpretation Principle”, according to which every element present in syntactic representation must be interpreted at LF. This general proposal has considerable intuitive appeal and significant empirical consequences (see Chomsky (1986a) for discussion). However, note that if the usual analysis is correct, expletives constitute a clear anomaly for Full Interpretation. If expletives are in fact syntactically overt, unselected elements, they precisely represent an element not interpreted at LF, and hence must be accommodated in some special way.

Given these simple points, consider an alternative view of pleonastic there. Consider the idea that the expletive is in fact selected by the verbs with which it co-occurs and that pairs like (58a,b) do not arise from the same D-Structure source. Specifically, suppose that the relevant predicates actually admit two distinct underlying representations. One is a basic unaccusative frame, with no selection of a subject, no Case assignment to an object, and movement to subject position in the familiar way (66a). The second, however, is a pseudo-transitive frame, with selection of a special subject element - the expletive there, Case assignment to the object position, and no movement of NP (66b):

(66) a. 

On this view, the appearance of expletive there would represent a form of "transitivity alternation" open to the specific semantic class of "existence" and "availability" verbs. As a matter of their lexical properties, such verbs would have the option of projecting an extra argument - an expletive subject.

This proposal resolves the questions of selection and Case assignment directly. Lexical restrictions on the occurrence of there insertion follow from the lexically determined nature of the alternation. Furthermore, conformity with Burzio's Generalization is restored, since precisely in the frame where V assigns a Case its object we now assume it to project a subject.[18] Finally, the general conceptual problem raised by there vis-a-vis Full Interpretation is eased. If pleonastics like there
are indeed selected elements, they cease to present an anomaly for the principle.

Given that *there* does not refer like a typical argument NP, and makes no apparent semantic contribution, the transitivity involved here is evidently a purely formal one. The relevant Vs are transitive strictly in the sense of licensing two NPs in A-position as a matter of lexical properties. Under this proposal, then, the occurrence of pleonastic *there* with licensing, unaccusative verbs is rather analogous to the occurrence of *cognate objects* with unergative verbs. The latter are verbs that may occur intransitively, selecting an underlying subject but no object (67a), and also transitively, projecting a special cognate object (67b):

(67) a. John died.
    Felix sneezed.
    b. John died a terrible death.
    Felix sneezed a wall-rattling sneeze.

Here too the special argument projected in this alternation appears to be semantically empty to a large extent, and the "transitivity" largely formal.[19]

3.2 Transitivity Alternation as Reanalysis

This analysis of expletives can be brought together with certain other features of the present account. In Larson (1988) it is suggested that V raising structures of the kind assumed here are licensed by the X-bar theory in (68) operating together with the principles of argument realization in (69):

(68) a. XP → YP X'  
    b. X' → X ZP

(69) a. If α is an argument of β, then α must be realized within a projection of β.
    b. Roles determined by a predicate α are projected according to the thematic hierarchy AGENT>THEME>GOAL>OBLIQUE, such that if Θ₁ > Θ₂, then the argument to which Θ₁ is assigned c-commands that to which Θ₂ is assigned.

To briefly illustrate their effect, consider once again a VP headed by the verb *put*. *Put* determines three thematic roles - agent, theme and location - all of which must be projected in conformity with X-bar theory. Note however that the X-bar theory in (68) permits at most two arguments to be realized within a single projection of V. This means that a single X-bar projection of *put* can include at most the theme and oblique arguments (70a). This structure leaves the agent role unprojected and no site to project it in. To accommodate the remaining argument we must therefore make some elaboration of (70a). (70b) is, in effect, the minimal structural elaboration of (70a) compatible with the three principles given above:
Here an X-bar "shell" with empty head has been projected to accommodate the agent phrase. In this structure all arguments of *put* are realized. The structure satisfies X-bar theory (68). Prominence of roles on the thematic hierarchy is properly reflected in c-command relations of the arguments bearing those roles (69b). And all arguments either do or, after V raising, will fall within a projection headed by V (69a). The final surface form of this example derives as in (31) by movement of the verb and highest VP specifier.

Now to say that phrases are limited to at most a single specifier and a single complement, as in (68), is to say, in effect, that the basic configuration admitted under X-bar theory is the transitive one, in which a predicate relates two terms. That is, it is to establish a natural correspondence between the syntactic notion of being lexical head - an item heading an X-bar projection - and the semantic/thematic notion of assigning (exactly) two thematic roles:[20]

(71) \( \alpha \) is an X\(^0\) \( \Leftrightarrow \) \( \alpha \) determines two thematic roles.

Of course these categorial and thematic notions do not actually coincide. In fact coincidence fails in either of the two possible ways. There are thematically transitive expressions which are not lexical categories. This is the case with phrases like *put in his car*, which determine an internal and an external argument but are of category V\(^\prime\). Likewise, there are expressions which are heads categorially, but thematically intransitive. This is the case with unergative verbs like *die* or *jump*, which project an external argument, but no internal argument, and it is the case with unaccusatives like
arise and exist, which project an internal argument, but no external argument.

In Larson (1988) it is proposed that V’ Reanalysis and Cognate Object Formation are a reflection in grammar of the correspondence in (71). Thus the former represents the case where a phrasal transitive predicate is reconstrued as a categorial head (72a). And the latter represents the case where a lexical, intransitive predicate is reconstrued as a transitive by projecting a special internal argument (72b):

(72) a. **Ditransitives: V’ Reanalysis**

```
V'   V   PP
put  in his car  put  in his car

Thematic transitive  Thematic transitive
Categorial nonhead    Categorial head
```

b. **Unergatives: Cognate Object Formation**

```
VP
John  V  (ZP)  John  V  NP
sneeze  sneeze  a powerful sneeze

Thematic nontransitive  Thematic transitive
Categorial head         Categorial head
```

Notice now that the projection of pleonastic subjects for unaccusatives may be viewed in the same light. We can take this to represent the case where a lexical, intransitive predicate is reconstrued as a transitive by projecting a special external argument:
On this view, all three operations fall together as instances of the general scheme 
AFFECT $\alpha$ applying in the service of the correspondence in (71). The result is in each 
case a form of pseudo-transivity - either categorial or thematic.

3.3 Predicate Raising and Pleonastic Projection

Let us return to examples (54)-(57) involving pleonastic there, examining unaccusative 
and presentational uses in turn.

3.3.1 Unaccusatives. Examples (54) and (55) (repeated below) exhibit NP Shift with 
unaccusative verbs:

(54) a. There was an odd assortment of little green men in the attic.
    b. There was in the attic an odd assortment of little green men.

(55) a. There arose a fierce storm off the coast.
    b. There arose off the coast the fiercest storm in living memory.

Consider derivations underlying the latter pair. As an unaccusative, arise selects a 
single internal argument. Furthermore as an inchoative predicate, a verb of "coming 
into existence", arise may project a pleonastic subject. Suppose now that reanalyzed,
pseudo-transitive arise occurs with an oblique locative phrase, as in (55). Recalling 
earlier discussion of put, the result will be a “filled out” X-bar projection headed by arise 
with the theme argument a fierce storm in specifier position, and the locative off the 
coast in complement position (74a).[21] This structure leaves one argument of arise 
unprojected - that corresponding to the external argument there. Hence, as in the case 
of put, we project an X-bar shell to accommodate it (74b):
Now by assumptions *arise* has the status of a transitive verb. Furthermore, the modifier *off the coast* discharges none of its argument roles. It follows that the V' *arise off the coast* has the thematic status of a transitive verb and is subject to V' Reanalysis. If reanalysis does not apply then V alone raises resulting in the VP underlying *There arose a fierce storm off the coast* (75a). On the other hand, if V' Reanalysis does apply, then *arise off the coast* is reconstrued as V and raises as a unit. The result is the VP underlying *There arose off the coast a fierce storm* (75b).
Example (54), involving be, is analyzed similarly. Pleonastic Subject Projection and V' Reanalysis thus combine to yield the range of examples in a simple way.[22]

3.3.2 Presentational Constructions. Consider now cases like (56) and (57) (repeated below) involving "presentational there":

(56) a. ??There walked/danced/flew a man into the hall.
   b. There walked/danced/flew into the hall the tallest man any of us had ever seen.

(57) a. *There entered a tall dark stranger the room.
   b. There entered the room a tall dark stranger.

These examples diverge from ones with unaccusatives in a number of ways. First, "NP Shift" is strongly preferred with presentationals. Such constructions are in general poor with non-heavy NPs, as pointed out by Safir (1985):

(76) a. *There walked into the room John.
   b. ?There walked into the room the Princess of Cleves.
   c. There walked into the room the man that everyone thought would one day rule the world.

Second, the verbs in question appear semantically or thematically anomalous for Pleonastic Subject Projection. Unergatives like walk, dance and fly are neither verbs of existence or availability. Furthermore, while the verb enter is unaccusative in other uses, it is clearly transitive in (57), and so should neither require nor permit its valence to be "boosted". Finally, expletive presentational constructions have a generally "marked" status. Modern English speakers find them stylistically archaic, and languages which allow other pleonastic constructions with the equivalent of there often forbid presentational altogether (e.g., French).

Under the present account we can shed light on the special properties of
presentationals. Consider D-structures for (56) and (57), which are parallel to (74a) above:

(77) a.

\[
\begin{array}{c}
\text{VP} \\
\text{NP} \quad \text{V'} \\
\text{the tallest man that} \quad \text{V} \quad \text{PP} \\
\text{any of us had even seen} \quad \text{walk} \quad \text{into the room}
\end{array}
\]

b.

\[
\begin{array}{c}
\text{VP} \\
\text{NP} \quad \text{V'} \\
a \text{ tall, dark stranger} \quad \text{V} \quad \text{NP} \\
\text{enter} \quad \text{the room}
\end{array}
\]

As noted, the individual verbs in these examples are inappropriate for Pleonastic Subject Projection, being either of the wrong notional semantic class or the wrong valence. Observe, however, that the V' predicates in (77) do have the right thematic/semantic character. Although \textit{walk} is a simple intransitive motion verb, \textit{walk into the room} is plausibly an intransitive predicate of "coming into availability". Similarly, although \textit{enter} is a transitive predicate of "coming into availability", \textit{enter the room} is an intransitive availability predicate. Indeed, \textit{walk into the room}, \textit{fly into the room}, \textit{dance into the room} are essentially synonymous with \textit{enter the room} up to the manner of motion specified.

Suppose now that although Pleonastic Subject Projection (like Cognate Object Formation) is an operation on lexical Vs, as a marked option its domain can be extended to intransitive predicates of existence and availability in general. In the case of \textit{walk into the room} in (77a), this means that an expletive \textit{there} can be projected (78):
The salient properties of this structure now follow directly. The marked status of the construction derives simply from the marked status of the rule application used to produce it. Likewise, the apparent semantic anomaly of an unergative motion verb projecting a pleonastic falls away. We see that it is not \textit{walk} which licenses \textit{there}, but rather \textit{walk into the room}. The latter is a semantically appropriate predicate. Finally, the strong preference for NP Shift is clarified. Note that after Pleonastic Subject Projection, V's like \textit{walk into the room}, \textit{enter the room}, etc. will have transitive thematic status. Thus if the marked aspect of presentational constructions lies in the application of a lexical rule to a phrasal predicate, then V' Reanalysis offers a natural means for "erasing" the problematic structure (79):

After reanalysis, the predicate in question now is a lexical category, as originally required, and undergoes raising in the familiar way. An analogous account can be given for constructions involving \textit{enter}.

\textbf{3.3.3 A Constraint on Presentational.} This account of presentational constructions appears to illuminate certain cross-linguistic data from French. Safir (1985) observes that while French permits pleonastic subjects equivalent to \textit{there} with unaccusatives, presentational uses parallel to (56) and (57) are not possible:
This result appears to correlate with another systematic difference between English and French discussed by Green (1974), Talmy (1985) and Rapoport (1986). These authors note that French departs quite generally from English in forbidding resultative constructions equivalent to (81), in largely forbidding verb-particle constructions equivalent to (82) (from Green (1974)), and in the lack of ambiguity in locative PPs like that in (83) (from Rapoport (1986)):

(81) a. Max shot him dead.
    b. Felix drank himself silly.

(82) a. He filed the serial number off.
    b. He swept the petitions aside.
    c. John ate the dessert up.
    d. She told him off.

(83) a. The bottle floated under the bridge.
    "the bottle floated around under the bridge"
    "the bottle floated to a point under the bridge"
    b. Le bateau flottait sous le pont.
    "the bottle floated around under the bridge"
    #"the bottle floated to a point under the bridge"

As they point out, in each case what appears to be at issue is the unavailability in French of a process of semantic "regrouping" (Green (1974)) or "conflation" (Talmy (1985)) which brings inchoative elements into the verbal complex without a change of morphological form. Thus the absence of resultatives and verb-particle constructions reflects a constraint on incorporating CAUSE-BECOME into the semantics of means, manner or instrument verbs ((84)-(86) adapted from Rapoport (1986)):

(84) a. hammer₁: Betsy hammered the nail
    b. hammer₂: Betsy hammered the nail flat
    c. hammer₂ =def x CAUSE (y BECOME AP by hammer₁-ing)
Similarly, the absence in French of a path reading in (83) reflects a constraint on incorporating **BECOME** into the semantics of **float**:

(86) a. float₁: The bottle floated under the bridge
    b. float₂: The bottle floated under the bridge
    c. float₂ =def x **BECOME** PP by float₁-ing

These points can be brought together with the data in (80), I believe. Recall that on our account presentationals involve treating certain V's as lexical Vs. Phrases like **walk into the room**, **enter the room**, etc. are analyzed as complex inchoative verbs and project pleonastic subjects. It seems plausible that the extension of lexical rules to the syntax is constrained by what the lexicon can independently provide. So if applying a lexical rule in the syntax involves treating its target as a complex inchoative word, we expect complex inchoative words to be available in the lexicon. This appears to be what is behind the divergence between English and French in presentational constructions. As evidenced by (81)-(83), English very freely permits the lexical formation of inchoative predicates. Accordingly, Pleonastic Subject Projection in the syntax involves no processes not independently available in the lexicon. On the other hand, French permits very little latitude in the formation of lexical inchoatives, as evidenced by the lack of examples parallel to (81)-(83). We thus do not have the latitude in forming syntactic inchoatives that is required for presentationals.[23]

### 3.4 Definiteness Restrictions

It has been widely noted in the literature that pleonastic constructions with **there** show a certain constraint on NPs occurring in postverbal position (Milsark (1974), Kayne (1979), Guéron (1980), Safir (1985), Burzio (1986)). Only indefinite noun phrases may appear:

(87) a. There was/were  \{a mirror, two mirrors, many mirrors\} on the desk.
    \{the mirror, *every mirror, *most mirrors\}
    b. There developed  \{a fierce storm, *the fiercest storm\} off the coast.

This restriction disappears, however, when the NPs in question are in right-peripheral position:
a. There was/were on the desk
   a mirror that I had never seen before.
   the mirror that you asked me about.
   most mirrors that had been collected during that period.

b. There developed off the coast
   a fierce storm.
   the fiercest storm they had experienced.

The question arises as to how these facts are accommodated in the present analysis. Why does predicate raising (alias NP Shift) void the definiteness restriction on postverbal NPs?

The answer that I suggest derives from work by Belletti (1987) on Case assignment in unaccusative constructions. Following Burzio (1986), Belletti assumes that unaccusatives, like passives, do not assign structural objective Case to their underlying object NP. This normally forces the latter to undergo movement to IP specifier position (89a). In pleonastic constructions, however, it is proposed that unaccusatives assign an inherent Partitive Case (89b):

(89) a. [IP a storm will [VP arise t]]
   b. [IP there will [VP arise a storm]]
      Partitive Case

This allows NP to remain *in situ* and satisfy its Case requirements. It also accounts for the definiteness restriction on the assumption that Partitive Case is incompatible with the semantics of definite NPs (see Belletti (1987) for discussion).

I will adopt the substance of Belletti’s account, modifying it slightly to include the analysis of structural Case assignment in Larson (1988). In the latter, the structural Case assigned by Vs to their objects actually originates with INFL, and is transmitted under government by I:

(90) [I ... [V V NP]...]
      Objective Case

On this picture, failure to assign Objective Case amounts to blocking Objective Case transmission from INFL. We may take this to be a lexically specified property of the passive morpheme, and of the general class of intransitives, including unaccusatives, unergatives, and other predicates which do not intrinsically select both an internal and external argument.

Taking these points together, then, the general situation is as follows: unaccusatives block Case transmission to their objects, and assign no thematic role to
their subjects; this triggers NP movement as in (89a) in the usual case. After Pleonastic Subject Projection, however, unaccusatives acquire a derived transitive status. They assign a special theta-role to a subject (there), and, in conformity with "Burzio's Generalization", a special pseudo-Objective Case (Partitive) to their objects. Their status as non-Case transmitters continues to block the structural Case from INFL, hence assignment of Partitive enforces the definiteness restriction.

Consider now the situation presented by NP Shift examples like (88b):

(91)

\[ IP \]
\[ NP \] I' \[ \]
\[ there \] I \[ VP \]
\[ NP \] V' \[ NP \] V \[ VP \]
\[ t \] V \[ develop off the coast \] NP \[ the fiercest storm \] V \[ they had experienced \]

Develop off the coast has undergone V' Reanalysis and raised around the "heavy" theme NP. (Pleonastic there has also moved to subject position). Not being a "morphological object", the complex predicate is not listed in the lexicon. So, in particular, it is not (and in fact cannot be) specified as blocking Objective Case transmission from I. Since Objective Case is assigned to the heavy NP, Partitive Case need not be. As a result, the definiteness restriction enforced by Partitive Case is lifted, accounting for the divergence between (87) and (88).[24]

3.5 "Heavy NP Shift" from Subject Position?

A number of languages have been described in the literature as exhibiting "NP Shift" from subject position. Examples are given in (92)-(96). In each case, the phonologically heavy NP appearing sentence-finally is the notional subject of IP:
(92) a. tiosc nach riabh t ar fáil an comhoibriú ó na feirmeorí
because COMP(NEG) be(PAST) available the cooperation from the farmers
a bhí riachtanach.
COMP be(PAST) necessary
'Because the necessary cooperation from the farmers was not forthcoming'
b. Tháinig t amach sa chaint an leithséal fill come(PAST) out in-the talk the excuse treachery(GEN)
a tugadh don athair.
COMP was-given to-the father
'The treacherous excuse that had been given to the father emerged in the talk'
(Irish; Chung & McCloskey (1987))

(93) Pað munu kaupa essa bók margir stúdentar.
will buy this book many students
'Many students will buy this book'
(Icelandic; Platzack (1987))

(94) a. Ont telephones aujord'hui, tous les gens a qui vous aviez donne rendez-vous.
'Have called today all the people with whom you had an appointment'
b. Je crois qu'ont defile dans ce bureau, les gens les plus etranges que j'ai jamais recontres.
'I believe that have come to this office the strangest people I have ever met'
(French; Deprez (1987))

(95) a. lo yadanu 'im omnan tesapek et ha-hanhala ha toxnit
NEG we knew if in-fact will satisfy ACC the management the plan
le-hakamat megurei-keva.
for-the-construction dwellings permanent
'We didn't know if, in fact, the plan to construct permanent dwellings would
satisfy the management'
b. elu ha-kartisim Se-otam natan le-iSt-o dod-i ha-Samen
these the-tickets that-them gave to-wife-his uncle-mine the-fat
mi-herzeliya.
from Herzeliya
'These are the tickets that my fat uncle from Herzeliya gave to his wife'
(Hebrew; Shlonsky (1987))

(96) a. Mattu gi petta adyu ya:hu na taotao.
infl-arrive LOC door that like-Agr L man
'That man that I like appeared at the door'
b. Man-istaba gi tenda adyu i tres na lalahi ni un-tungu.
infl-were LOC store that the three L men COMP infl-know
'The three men who we know were in the store'
(Chamorro; Chung (p.c.))
These data raise a question for our analysis similar to that posed by intransitive constructions. Under the Light Predicate Raising view, only heavy internal arguments - direct objects - should appear to undergo rightward movement, thus how are we to analyze apparent heavy external arguments at the right-periphery?

Our results with predicate raising in unaccusative constructions suggest a plausible view. Consider the English paradigm in (97) below. (97a) is a copular sentence with a "heavy NP" subject. (97b) is a variant of it with the pleonastic there. (97c) is a variant of the latter with shift of the postverbal NP. Suppose now (contrary to fact) that English permitted not only (97a-c), but also (97d), equivalent to (92)-(96) above:

(97) a. An odd assortment of little green men was in the attic.
   b. There was an odd assortment of little green men in the attic.
   c. There was in the attic an odd assortment of little green men.
   d. Was in the attic an odd assortment of little green men.

One view of this sentence might be that it is related to (97a) by rightward movement of NP (98a). There is another possibility however. Rather than arising by NP Shift, (97d) might instead be a variant of (97c) - one in which the element corresponding to there is simply null (∅) (98b):

(98) a. t was in the attic [an odd assortment of little green men].
   b. ∅ was in the attic an odd assortment of little green men t.

On the latter view, the apparent NP Shifted subject would in fact be no subject at all, but rather a post-verbal NP. And the analysis of the right-peripheral position in (97d) would essentially reduce to the analysis of the right-peripheral position of NP in (97c).

A detailed defense of the view that (92)-(96) are actually null pleonastic constructions whose "shifted" subjects arise by predicate raising is clearly beyond the scope of this paper. However two general points are notable in this context. First, it seems significant that languages cited as showing subject Heavy NP Shift all appear to be either pro-drop languages (which permit zero pleonastics and other null subjects quite freely), or else languages for which null pleonastics have been independently argued in the literature.[25] Thus the "null pleonastic analysis" always seem to be available for subject Heavy NP Shift examples in principle.

Second, examples of subject Heavy NP Shift often manifest properties of expletive constructions. In a number of cases the verbs involved are clearly unaccusative (consider (92) and (96)). In others, even when the verb is not unaccusative the right-peripheral NPs are reported to show definiteness effects like those observed in impersonal constructions (see, e.g., Platzack (1987) on Icelandic).
The only examples which do not show earmarks of unaccusativity are those from French and Hebrew. Interestingly, in these cases the subject position has been independently argued to contain an expletive (by Kayne (1979) and Shlonsky (1987), respectively).

These points do not, of course, constitute an argument for the proposed view. But they do suggest that the "null pleonastic" analysis is not a priori implausible, and hence the extent of the problem posed by "subject Heavy NP Shift" for our account is not yet clear.[26]

4.0 Parasitic Gaps

The account of "NP Shift" presented here has strong consequences for the analysis of parasitic gap constructions like (99a-d):

(99) a. Which article did John file without reading?
    b. This is the kind of food that you must cook before you eat.
    c. That's the movie star that John flatters constantly in order to impress.
    d. She's a person that anyone who meets likes.

Following proposals by Taraldsen (1981), Engdahl (1983) and Chomsky (1982), such sentences have been widely analyzed as involving two empty categories - one derived by A'-movement (f), and one produced by some other means (e):

(100) Which article did you file t without reading e ?

The latter is taken to be "parasitic" on the former on the basis of pairs like the following:

(101) a. *John filed that article without reading.
    b. Which article did John file t without reading my directive?

These examples appear to show that e is licensed only in the presence of a matrix syntactic variable t, although the converse is not true.

Chomsky (1982) characterizes the abstract conditions relating a parasitic gap (e) to an independent gap (f) and its binder (XP) as follows:

(102) XP . . . t . . . e, where XP is in A'-position and t does not c-command e.

These capture the fact that parasitic gaps are not licensed by A-movement (103a,b), nor by A'-movement from subject position (103c):
(103) a. *These articles were filed without my reading e.
b. *John seemed to be happy despite Mary criticizing e.
c. *Who sneezed without Bill hearing e?

A further apparent property of the construction is that the independent gap must be present at S-Structure. The LF trace of a quantifier (every article) or an in situ wh-phrase (which article) does not license e:

(104) a. *John filed every article without reading e.
b. *Who filed which article without reading e?

The relevance of this phenomenon for Light Predicate Raising is straightforward. As pointed out originally by Engdahl (1983), "Heavy NP Shift" appears to license parasitic gaps ((105b) from Engdahl (1983)):

(105) a. John filed without reading all the books on the third shelf.
b. I offended by not recognizing immediately my favorite uncle from Cleveland.
c. You should cook before you eat any food left out overnight.
d. John flattered constantly in order to impress the famous movie star from Laguna.

On a standard analysis of "NP Shift", these examples are subsumed directly under the generalization in (102). The structure of (105a), for example, is equivalent in relevant respects to (100):

(106) John filed t without reading e [all the books on the third shelf].

On the present analysis, however, the generalization in (102) cannot apply. Examples like (105a-d) will involve neither A'-movement nor production of a syntactic variable, but rather movement of complex predicates like file without reading and cook before you eat:

(107) a. John [\(v\) filed without reading e] all of the books on the third shelf t.
b. You should [\(v\) cook before you eat e] any food left out overnight t.

In the resulting structure there simply is no independent gap, hence no t for e to be parasitic upon.

Light Predicate Raising therefore commits us to the following claims: first, the descriptive generalization embodied in (102), with its view of parasitic gaps as crucially involving A'-movement, is incorrect. Appearances to the contrary, the presence of a
syntactic variable must play no essential role in the licensing of parasitic gap constructions like (105a-d). Second, and more positively, the parasitic gap phenomenon is rooted in the nature of certain complex predicates. Its basic properties derive from how expressions like file without reading or cook before you eat are formed and understood.

4.1 Parasitic Adjuncts as Secondary Predicates

The nature of the complex predicates involved with parasitic gaps is suggested by further reflection on (105c) (repeated below):

(105c) You should [cook before you eat] any food left out overnight.

Assuming this form to derive by Light Predicate Raising, the underlying structure of VP is as in (108), where V-PP forms a V′, and where this V′ is thematically transitive and subject to reanalysis:

(108)

Now since the verb cook is itself already transitive, the addition of before you eat e must involve thematic composition which preserves the transitivity of the head. Intuitively, this composition must link the theme role of cook and the theme role of eat. We understand (105c) as stating that you should cook food x that has been left out overnight before you eat x; any food left out overnight is, in effect, the joint object of cook and eat:

(109) [np any food ...] [v cook before you eat]

Interestingly, this situation is not unfamiliar. The circumstances with cook before you eat e appear closely analogous to those involved with the object-oriented secondary predicate structures discussed earlier in 2.1.2. Recall the latter show the same
underlying $[_{V} V \ XP]$ configuration as (108):

(110) a.  b.

Furthermore the thematic structure of these V’s is quite similar. *Eat raw* and *bring in* are composite transitive predicates (recall they undergo V’ Reanalysis (42)). And just as the theme roles provided by V and PP are understood as linked and assigned to the same NP in (109), so the theme roles of the AP and PP adjuncts in (110) are understood as linked and jointly predicated of the verbal object. If John eats the meat raw, the meat is both eaten and raw, and if John brings the wash in, the wash is brought and comes to be in as a result:

(111) a. $[_{NP} \text{the meat}] \ [_{V} \text{eat raw}]$

  Theme

b. $[_{NP} \text{the wash}] \ [_{V} \text{bring in}]$

  Theme

These points thus suggest that complex parasitic gap predicates are a form of secondary predication structure in which a surface modifying clause (*before you eat, without reading*, etc.) has an underlying status equivalent to an object-oriented resultative or depictive adjunct.

4.1.1 Role Identification. We may make this view more precise by appeal to certain technical proposals in Higginbotham (1985), which sets out a simple theory of thematic roles and their manipulation.[27] Specifically, we can appeal to the notion of theta-role identification, in which the roles assigned by two predicates are merged. (112a-c) illustrate three basic cases where this notion applies; here "<...>" represents a set of roles determined by a predicate, and linking is indicated by a solid line:
(112a) is a secondary predicate structure with identification of roles assigned by a verb and adjectival predicate. (112b) is a coordination with role-identification between two verbs across the conjunction and. Finally, (112c) is a restrictive relative clause with identification of roles via an operator. The role borne by man is linked to Oᵢ in the specifier position of CP, which in turn binds a trace receiving the role assigned by see. The result, in all three cases, is that the relevant theta-roles are jointly assigned. In John cooked the meat unsalted, the meat is understood as both cooked and unsalted. In John cooked and ate the meat, the meat is understood as both cooked and eaten. Finally in John is a man I saw, John is understood as both a man and an individual that I saw.

These three cases of role identification fall under the following general constraint, slightly reformulated from Higginbotham (1985):[28]

**Identification:** For role bearers α and β, a role of α may be identified with a role of β iff α governs β.

Here "role bearer" denotes either a predicate which assigns a role or an operator to whose trace a role is assigned. In (112a), cook and unsalted are mutually governing role bearers. In (112c), man governs Oᵢ on the usual assumption that a lexical head (N) governs the specifier of its structural complement (CP). Finally in (112b), cook and eat mutually govern assuming as a basic property of conjunctions (perhaps their core property) that the categorial structure they introduce forms no barrier to government.

With these points in mind, consider now the predicate cook before you eat. We
wish to identify the theme roles assigned by *cook* and *eat*. However these roles cannot be directly linked as in (110a,b) since the bearers do not stand in the necessary government relation:

\[
(113)
\]

\[
\text{V'} \\
\text{V} \\
\text{cook} \\
\text{P} \\
\text{before} \\
\text{you eat e}
\]

In (113), *cook* governs the PP *before you eat*, but it does not govern the role assigner *eat*, which is embedded within CP, IP and VP. It follows that if identification is to occur, it must appeal to the operator strategy employed with relative clauses.

Modifying proposals by Contreras (1984) and Chomsky (1986a), suppose that an empty operator O\textsubscript{i} is generated in the object position of *eat*. The latter may move to the specifier position of CP, as in (114a). In this configuration O\textsubscript{i} and the verb *cook* are in close proximity, however government is still blocked by the intervening preposition *before*.[29] Suppose then that along with their status as subordinating prepositions, *before*, *without*, *by*, etc. also have the capacity to function “insubordinately” (to adopt both a term and a suggestion by Huybregts and van Riemsdijk (1985)) and to behave as coordinators. Given earlier remarks, this amounts to saying that these elements may shed their status as barriers to government. Identification thus becomes possible much as in the restrictive relative case (114b):

\[
(114) \ a.
\]

\[
\text{V'} \\
\text{V} \\
\text{cook} \\
\text{P} \\
\text{before} \\
\text{SpecC'} \\
\text{C'} \\
\text{O}_i \\
\text{you eat e}
\]
b. The result is a V-PP complex with the semantics of a transitive verb. 'Cook-before-you-eat' is a predicate true of some pair of individuals <x,y> just in case x cooks y before you eat y, etc.

Under this approach, the licensing of parasitic gaps in adverbial adjunct constructions is completely independent of matrix A'-movement, as noted above. Thus (99a) (repeated as (115a)) receives the underlying VP in (115b):

(115) a. Which article did John file without reading?
   b. Which article V file without reading t.

Identification and reanalysis produce the complex V file without reading t. Predicate raising and Wh-movement then apply to yield the observed surface form.

4.1.2 Obligatory V' Reanalysis. Since this account claims a fundamental homology between parasitic gap and secondary predication structures, it must address certain apparent differences between the two construction types.

First, whereas there are subject-oriented adjuncts (116a,b), there are no subject-
oriented parasitic gap structures (116c,d) (where (116c) is starred on the reading 'without anyone seeing Sally'):

(116) a. John left the party [angry].
    b. Felix painted the wall [nude].
    c *Sally left the party [without anyone seeing].
    d. *Oscar arrived [before I saw].

Second, whereas the verb may raise away from a simple object-oriented adjunct (117a), or may raise with it in "NP Shift" constructions (117b), only the latter is possible with parasitic gap adjuncts (117c,d):

(117) a. John [painted] the barn t red.
    b. John [painted red] the barn that he inherited t.
    c. *John [offended] his uncle t by not recognizing.
    d. John [offended by not recognizing] his favorite uncle from Cleveland t.

Third, whereas other adjuncts can be dislocated from their verbs by movement (118a), parasitic gap adjuncts must stay in place (118b,c):

(118) a. Raw is no way to eat fish e.
    b. After visiting Bill, who did you hire?
    c. *After visiting e, who did you hire?
        (cf. Who did you hire after visiting e?)

Fourth, and finally, whereas other secondary predication structures are compatible with passive, parasitic gap constructions, as we have noted, are not:

(119) a. The meat was eaten raw.
    b. The wash was brought in.
    c. *The article was filed without John reading e.

As it turns out, these data can be drawn together in an interesting way. All four surface differences can be jointly explained if we assume that, unlike other secondary predicates, parasitic gap structures involve obligatory V' Reanalysis.

To see this, consider first the lack of subject orientation in parasitic gap adjuncts. As discussed in 2.1.2, subject-oriented adjuncts adjoin to V'.
The V' leave the party has only one unassigned role, the agent, and hence is intransitive. When this role is identified with that borne by O, the result is a V' (leave the party without anyone seeing) that is still intransitive. Since V' has the wrong thematic status, reanalysis cannot apply. But by assumptions V' Reanalysis must apply. Hence (120) is ruled out. This account of ill-formedness extends directly to earlier examples involving raising and movement from subject position:

(103) b. *John seemed t to be happy despite Mary criticizing e.
    c. *Who sneezed without Bill hearing e?

Like (116c,d), these sentences require subject-oriented parasitic adjunct structures (be) happy despite Mary criticizing and sneeze without Bill hearing. Hence they are excluded on the same grounds.

Consider next the observation that verbs cannot be raised away from a parasitic adjunct (117c), nor can the adjunct be moved away from the verb (118c). Here again if V' Reanalysis is obligatory the facts can be explained. Suppose that in creating a lexical category, V' Reanalysis "freezes" the resulting complex predicate for extraction. Then if reanalysis must apply neither of the two movements in question will be permitted. Only raising of the entire unit will be allowed. This accounts very simply for data taken elsewhere to show the "S-Structure character" of the parasitic gap phenomenon. Recall that sentences involving quantifiers and in situ wh-phrases do not license parasitic gaps (104a,b), a result that is somewhat problematic on the view that syntactic variables license parasitic gaps, and that quantifiers and in situ wh create such a variable at LF:

(104) a. *John filed every article without reading e.
    b. *Who filed which article without reading e?

Under the proposal made here, the ill-formedness of (104) just assimilates to that of (117c). The former, like the latter, involve V movement out of a lexical constituent:
(121) a. John filed every article \([_v \ t \text{ without reading } e]\).
   
   b. Who filed which article \([_v \ t \text{ without reading } e]?\)

Finally, consider the observation that parasitic gaps are not licit with passive while other secondary predicates are:

(122) a. *These articles were filed without my reading e.
   
   b. *My uncle was offended by my not recognizing e.

This result may again be derived from our assumption when it is taken together with one additional proposal about how passive applies to complex predicates. Observe the following examples:

(123) a. John was punched and kicked by Bill.
   
   b. *John was punched and fell by Bill.

(123a,b) are cases of V conjunction (as we infer from the single, right-peripheral by-phrase). They show that although V-conjunction of two passives is licit, conjunction of a passive and an unaccusative (fall) is not. What rules (123b) out? One plausible candidate is the familiar A-over-A Principle of Chomsky (1965). Suppose applying passive to \([_v \ V \text{ and } V]\) involves applying it to the whole, and hence uniformly to both conjuncts. Then passive in (123b) requires Case absorption and external theta-role suppression with both punch and fall. But this is impossible since the latter assigns neither Case nor an external theta-role. Hence the sentence is out.

If passive must apply to a whole complex predicate, then the unacceptability in (122) can be viewed analogously to that of (123b). Since file without reading e must be analyzed as V, filed without reading e must be analyzed, in effect, as \([_v \ \text{file without reading } e]\)-en. As above, passive will be unable to apply uniformly to this predicate for although it may absorb Case and suppress the theta-role of file, it will be unable to do so with without O, reading. Hence ill-formedness. This account allows for the acceptable passive secondary predicate examples like the wash was brought in. Since the verb and the adjunct need not form a complex V in the latter case, passive can apply to the verb alone (\([_v \ \text{bring-en in}]\)).

These results raise the natural question as to why V’ Reanalysis should be obligatory with parasitic gaps but not with other secondary predicates. A plausible suggestion is that it follows from the government requirement on role identification. Recall that in order for the empty operator to be identified with a role assigned by the transitive verb, it is necessary for the prepositions before, without, by, etc. to behave "insubordinately". That is, in order to obtain the transparency necessary for
government, these connective must lose their status as independent governors, i.e., as full-fledged lexical heads. This implies that in parasitic gap constructions, the PPs headed by before, without, etc. should lose their status as independent complements, and hence that the constituent made up of V and PP should lose the full head-complement status of a V' projection.

Suppose, as a principle of grammar, that in order to count as a proper projection of X, X' must contain a complement headed by an independent governor. Then since V-PP must its status as a proper projection of V as the price of obtaining transparency of government, parasitic gap structures will always necessarily contain a "defective" V'. This defect will be eliminable just in case V' can be reconstrued as V, and hence just when the parasitic structure is object-oriented and the transitivity requirement for V' Reanalysis is met. On any other orientation for for the parasitic gap structure, reanalysis will be blocked, the defective V' will not be eliminable, and hence the structure will be ill-formed.[31,32,33]

4.1.3 Pronoun/trace Alternation. Our results illuminate a number of important distributional contrasts between examples containing a parasitic gap vs. an overt pronoun:

(124) a. Which article did you file without reading e  ?
    b. it

The former involve an operator that must be theta-identified with the matrix V, and hence an adjunct that must undergo V' Reanalysis. The latter involve no such operator, hence no such identification, hence no obligatory reanalysis.

This difference correctly predicts that all the effects attributable to obligatory V' Reanalysis should vanish when an overt pronoun appears. Thus V may raise away from its adjunct, and the adjunct may raise away from V when a pronoun is present (125a,b); likewise passive is possible in the matrix clause (125c):

(125) a. John filed every article without reading *e/it.
   b. Without reading *e/it, which article did you file?
   c. Every article was filed without John's reading *e/it.

There are also interesting consequences with regard to basic syntactic position. It has been observed in the literature (Mohanan (1982)) that certain adjuncts with PRO typically show strict subject control when they contain no other empty category. Thus in (126a,b), for example, PRO must be construed with the subject John and not the object Bill despite the greater pragmatic naturalness of the latter:

(126) a. John, strangled Bill, while PRO_{i} unconscious.
    b. John, spotted Bill, without PRO_{i} seeing him_{j}.
This fact may be simply explained if we suppose that controlled adjuncts like those in (126) must take the high attachment of subject-oriented adjuncts (127), and if we grant the usual assumption that control of PRO requires c-command by the antecedent:

\[(127)\]

```
<table>
<thead>
<tr>
<th>VP</th>
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<tbody>
<tr>
<td>NP</td>
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<tr>
<td></td>
</tr>
<tr>
<td>John</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>V'</td>
</tr>
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<td>V</td>
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<tr>
<td></td>
</tr>
<tr>
<td>strangle</td>
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<tr>
<td>NP</td>
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<tr>
<td>while PRO</td>
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<tr>
<td>unconscious</td>
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<tr>
<td></td>
</tr>
<tr>
<td>PP</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Bill</td>
</tr>
</tbody>
</table>
```

In this structure, only the subject *John* c-commands PRO, hence only the subject is a possible controller.

Note now that given these assumptions, the position of adjuncts like *without PRO reading α* or *by PRO not recognizing α* will differ according to whether α is a parasitic gap vs. pronoun. If the first, then the adjunct will take the by-now familiar low attachment as sister to V (128a). If the second, however, then the adjunct must take a high attachment as sister to V' (128b):

\[(128)\] a.

```
<table>
<thead>
<tr>
<th>VP</th>
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<tbody>
<tr>
<td>NP</td>
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<tr>
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<td>I</td>
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<td>e</td>
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<tr>
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</tr>
<tr>
<td>NP</td>
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<tr>
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<tr>
<td>my uncle</td>
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<td>V</td>
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<tr>
<td>offend</td>
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<tr>
<td></td>
</tr>
<tr>
<td>PP</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>O by PRO not recognizing e_1</td>
</tr>
</tbody>
</table>
```
This in turn predicts an important contrast between the two with regard to NP Shift. Observe that while (128a) will permit V' Reanalysis and Light Predicate Raising, (128b) will not. It follows that whereas a parasitic gap adjunct can appear with an object to its right, the equivalent with a pronoun will be ill-formed:[34]

(129) a. I offended by not recognizing ∅ immediately
   b. [my favorite uncle from Cleveland],
   [no/every uncle from Cleveland],

We see then that under this account, adjuncts with a parasitic gap and adjuncts with a pronoun have a fundamentally different syntax. The former involve complex predicate formation with its attendant syntactic effects, and a close relation to the verb. The latter involve no such formation and are in essence simple V' predicate modifiers.

4.2 Two Consequences

This analysis suggests certain connections between parasitic gaps and other phenomena. In this section I briefly consider two such cases: a special class of parasitic gap structures with promise, and a set of facts involving extraction from coordinate structures.

4.2.1 Parasitic Gaps with Promise. English contains a class of object-oriented secondary predicate structures which differ in an important respect from those discussed so far:

(130) a. Max laughed John out of the door.
   b. Alice drank Max under the table.
   c. The wolves howled Igor into a frenzy.
   d. Oscar ate himself sick.

As in more familiar cases, the possibility of Light Predicate Raising shows that verb and
adjunct together form a complex transitive predicate:

(131) a. Alice drank under the table the barkeep and his entire staff.
    b. The wolves howl into a frenzy anyone who has to listen to them for more than an hour.

Note however that the mode of thematic composition in this case is quite different from examples like *eat raw or bring in. The role contributed by the adjunct is not identified with any role borne by V, and hence the direct object bears no thematic relation to the simplex verb. In (130a), John bears no thematic relation to laugh - John is not "laughed" in any sense. Similarly for Max and drink in (130b), etc. The adjuncts make an "absolute" contribution to the verbal complex in such cases, increasing the valence of a basically intransitive predicate.

Given the analogy drawn here between secondary predication and parasitic gaps, we are led to ask whether anything comparable to (130a-d) occurs in the domain of parasitic gap phenomena. Are there cases where a parasitic gap operator makes an absolute contribution to a basically intransitive predicate, boosting it to transitivity?

Consider constructions with infinitival complements to promise such as (132a). As has been noted in the literature, (Stowell (1981), Larson (1991)), the surface direct object in such constructions typically resists NP Shift (132b). Interestingly, however, when the infinitival complement contains a parasitic gap the result is much improved (132c):

(132) a. John promised a little child with red hair to take Mary to the movies.
    b. *John promised to take Mary to the movies a little child with red hair.
    c. John promised to take e to the movies a little child with red hair.

In Larson (1991) (following a suggestion by Bowers (1973)) it is argued that infinitival control structures involving promise are underlyingly double object constructions, and hence that (133a,b) are formally parallel:

(133) a. John promised [the child] [to take Mary to the movies].
    b. John promised [the child] [a toy bear].

It is furthermore proposed that double object examples derive from underlying oblique forms, and involve structures in which the goal phrase (the child) has been moved to direct object position and the theme (to take Mary to the movies, a toy bear) realized as a V' adjunct:
This structure accounts for the unavailability of NP Shift in (132b). Observe that in order to derive the latter by Light Predicate Raising, the indicated V’ in (134) would have to undergo reanalysis. But this not possible since V’ lacks the correct thematic structure. In [promise t, to take Mary to the movies], for example, t discharges the goal argument of promise and the infinitive discharges the theme. This means that [promise t, to take Mary to the movies] has only one argument, the agent, left to assign - i.e., it is intransitive. Since V’ cannot undergo reanalysis, it cannot raise as a unit to yield (132b).

With these points in mind, consider now the following structure for (132c):

(135) differs minimally from (134) in containing an preposed empty operator in place of Mary. Suppose we allow this operator in Spec of CP to contribute "absolutely" to the
thematic structure of the intransitive V'. That is, suppose we allow O_i to contribute a role to V' without being identified with any role assigned by the latter. As with (130a-d), this would, in effect, create a transitive predicate from a former intransitive. Intuitively, [v' promise t_i [O_j to take t_j to the movies]] would denote the relation holding between x and y just in case x promises the child to take y to the movies.[35,36]

With its thematic status thus altered, we correctly predict that (135) will allow V' Reanalysis and subsequent Light Predicate Raising around the derived direct object:

\[(136) \text{John } \textbf{promised to take e to the movies} \text{ a little child with red hair } t.\]

We also provide for another class of facts. Stowell (1981) notes that infinitival constructions with promise, like double object structures generally, resist wh-extraction of their "inner object" (137a,b). This too improves when the infinitive contains a parasitic gap (137c):

\[(137) \begin{align*}
\text{a. } & ?*Which \text{ child did you promise to take Mary to the movies?} \\
\text{b. } & ?*Which \text{ child did you promise those pictures of Oilcan Boyd?} \\
\text{c. } & Which \text{ child did you promise to take e to the movies?}
\end{align*}\]

Note now that if we take (137c) to derive from a structure like (134), with which child the object of the derived complex predicate promise to take to the movies, then the former need no longer be viewed as involving extraction of an inner object:

\[(138) \text{You } \textbf{promise to take to the movies} \text{ which child } t_i.\]

After predicate raising, which child is the object of the complex transitive verb. There is, in effect, no second object involved here.[37]

These remarks do not of course constitute a formal analysis of promise-type parasitic gap phenomena; this waits upon an account of precisely when empty operators or adjuncts can contribute absolutely to an intransitive V or V'. Nonetheless these remarks do suggest further potential for the connection made here between secondary predication and parasitic gaps. It appears that properties of former may also be found reflected in properties of the latter.

4.2.2 Complex Coordinations. Ross (1967/86), and more recently Lakoff (1986) have drawn attention to some interesting facts concerning extraction and coordinate structures (examples from Lakoff (1986)):
(139) a. What did Harry go to the store and buy e?
   b. How much can you drink e and still stay sober?
   c. That's the stuff that guys in the Caucasus drink e and live to be a hundred.
   d. That's the kind of firecracker that I set off e and scared the neighbors.

(140) a. Sam is not the sort of guy that you can just sit there and listen to e.
   b. Sam is not the sort of guy that you can just sit there, listen to e and stay calm.
   c. Sam is not the sort of guy that you can just sit there, listen to e, stay calm and not want to punch e in the nose.

As is well-known, examples like these appear to violate the "Coordinate Structures Constraint" (CSC), which requires extraction to remove material equally from conjuncts of a coordination:[38]

(141)

And as is also familiar, acceptability in such cases appears to hinge on whether the sequence of actions given by the conjuncts forms a "natural course of events". (142a,b), in which the events described by the conjuncts are intuitively unconnected, are noticeably weaker than (139) and (140):

(142) a. *Who did you hit a home run and recognize e?
   b. *What did Harry send a telegram to Felix and eat e?

Notice now that "coordinate structure violations" similar to those in (139)-(140) also appear in the context of NP Shift ((143) from Lakoff (1986)):

(143) Max went to the store, bought e, came home, wrapped up e and put under the Christmas tree [one of the nicest little laser death-ray kits I've ever seen].

Here again, the notion of a "natural courses of events" seems to be active:

(144) a. You can eat and not get cancer [any of the herbs on this shelf].
   b. *You can eat and leave for home [any of the herbs on this shelf].

Accepting these as genuine instances of the NP Shift phenomenon, and recalling previous discussion, a view of this phenomenon emerges very different from that entertained by Ross and Lakoff. We analyze the NP Shift examples, not as involving rightward extraction from a coordinate structure (145a), but rather raising of a complex
predicate around an object (145b):

(145) a. 

And we are led to analyze Wh-movement examples, not as involving extraction from a coordinate structure (141), but extraction from the object position of a complex verb (146):

(146) 

Under this view, the violation of the Coordinate Structures Constraint in (139)-(140) is purely illusory.

This result raises the question as to how complex coordinate Vs like those in (139)-(140) are formed and understood. I suggest that they be analyzed along much the same lines as the parasitic gap constructions discussed above - i.e., that they have essentially the status of secondary predications.[39] To illustrate, I propose that the
complex V in (143) has the structure of a V' conjunction, where conjuncts exhibiting a trace contain an adjoined empty operator:

\[(147)\]

\[\text{V'0} \quad \text{V'1} \quad \bullet \quad \text{go to the toy store} \quad \text{V'2} \quad \bullet \quad \text{O, buy t (and) V'3} \quad \bullet \quad \text{O, buy t (and) V'4} \quad \bullet \quad \text{O, wrap up} \quad \text{V'5} \quad \text{(and) V'6} \quad \text{(and) V'7} \quad \text{(and) V'8} \quad \text{O, put t under the X-mas tree}\]

This sequence may be viewed as a string of nested secondary predications, where V'8 is a secondary predicate of V'7 and the two compose to form the predicate V'6. Where the latter is a secondary predicate of V'5 and the two compose to form the predicate V'4. And so on. Assuming, as before, that conjunctions form no barrier to government, the V's in (147) will mutually govern and permit theta-identification. The result is a complex transitive V' whose object is understood as something that is bought, wrapped up and put under the Christmas tree, and whose subject is understood as someone who goes, buys, comes home, etc.

The view that (147) is a secondary predication structure casts light on two important properties of the construction. First, it suggests why the usual "parallelism" requirement on coordination is void in these cases. As is well-known, it is in general only possible coordinate predicates which assign the same number of thematic roles:
In the case of (147), however, this requirement is not met. *Come home*, for example, contributes one theta-role while *O, wrap up t, and O, put t, under the X-mas tree* contributes two. If (147) is not a genuine instance of coordination but rather a secondary predicate construction, then this behavior is clarified. As we have already seen (e.g., in (112a) and (130)), with secondary predication there is no parallelism requirement on theta-identification. Hence its absence in (147) is not anomalous.

A second consequence of this view is that we derive some idea of why "natural courses of events" are involved. Suppose the thematic structure is as we have claimed, where the V's in (147) constitute successive, nested subpredications of the matrix predication. It is natural to understand these as determining subevents of the matrix clause event. As a matter of our cognitive makeup, subordination relations between events are doubtless limited in certain ways; we are presumably compelled to understand such relations in terms of familiar notions like cause, purpose, temporal precedence and inclusion, etc. As a consequence we expect well-formed secondary predications to be organized according to certain natural relations between events: secondary predications must conform to "natural courses of events". [40]

### 4.3 Some Remaining Problems

Certain examples of parasitic gaps pose difficulties for the analysis developed here. In concluding this section, we consider two important cases.

#### 4.3.1 Subject Parasitic Gaps

English contains a class of parasitic gap structures that does not appear to fall under the general approach pursued here. These include an empty category within a subject NP (149a-c). There is no obvious analysis here in which the verb and subject phrase containing the parasitic gap compose to form a complex transitive verb taking the wh-trace as its object. Similar remarks apply to parasitic gaps contained in a preposed adverbial (149d):

(149) a. Chiquita is a donkey that [anyone who meets e] likes.
   b. Who did [Mary’s talking to e] bother most?
   c. Which man did [friends of e] visit?
   d. Chiquita is a donkey that [whenever you meet e] you like.
Again, barring some elaborate restructuring, it is not evident how the preposed adverb in (149d) can be composed together with *like* to form a complex transitive V taking the trace of the relativized NP as its object.

One might attempt to dismiss subject parasitic gaps and cases like (149d) as phenomena fundamentally different from that discussed above, and involving fundamentally different licensing principles. And in fact there is some plausibility to this view. Shlonsky (1986) argues that at least certain examples of subject parasitic gaps should be analyzed similarly to donkey anaphora cases, with (149a,d) for instance, parallel to (150a,b), respectively:

(150)  
(a) Anyone who meets a donkey likes it.  
(b) Whenever you meet a donkey you like it.

Furthermore, under the theory in Chomsky (1986b) examples like (149a-c) appear to contravene the normal subjacency relation required to hold between parasitic and independent gap (Browning (1987)). Nonetheless any attempt to eliminate (149a-d) from present discussion must contend with the fact that there cases similar to them, but involving a right-peripheral NP:

(151)  
(a) Anyone who meets e admires without qualification [a person that can swallow their own tongue]. 
(b) Mary's talking to e bothered most [her ex-boyfriend from college]. 
(c) Whenever you meet e you always like [a person with two heads and a tail].

(151a-c) have the surface appearance of "NP Shift", and so would appear to require treatment within the same context as examples like (105a-d).

One possible approach to the data in (149) and (151) has been suggested to me by Jane Grimshaw (p.c.). Grimshaw observes that (151a-c) might be accommodated within the present account if they as analyzed, not involving as "Heavy NP Shift"/Light Predicate Raising, but rather Right Node Raising. The latter is illustrated in (152):

(152)  
(a) John likes, but Max positively idolizes [a person that can swallow their own tongue].  
(b) Whenever you can, you definitely should [spend winters in Ulan Bator].

Like "NP Shift", Right Node Raising yields a right-peripheral constituent in surface from. Unlike the latter, however, it appears to involve true rightward, "across the board movement" to an A'-position:
(153) John likes t but Max positively idolizes t  
\[a \text{ person that can swallow their own tongue}\]

Under Grimshaw's suggestion, (151a-c) would be analyzed similarly; for example, (151a) would receive the structure in (154):

(154) Anyone who meets t admires without qualification t  
\[a \text{ person that can swallow their own tongue}\]

And by extension, cases like (149a-d) would derive by initial Right Node Raising of wh-, with subsequent movement to CP specifier position:

(155) [Which donkey] does [anyone who meets t like t] t  
\[
\begin{array}{c}
\text{[anyone who meets t like t]} \\
\text{[which donkey]} \\
\end{array}
\]

Without attempting to defend this suggestion in detail here, we may note two facts which make it plausible prima facie. First, observe that examples like (149) and (151) display the characteristic intonational properties of Right Node Raising. In all of these examples we find two distinct intonational phrases separated by a heavy break after the first trace:

(156) a. Anyone who meets t admires without hesitation t ...
   b. John likes t but Max positively idolizes t ...

Second, the right peripheral position of NP in (151) appears to be higher than the VP-adjunction site assumed under standard views of NP Shift. Observe that an NP right-adjointed to VP will fail to c-command the parasitic gap in cases like (151c):
Here e falls outside the domain of NPi in (157), and disallows binding of the former by the latter, even under more extended theories of c-command involving containment in maximal projections (e.g., May (1985)). Hence NPi must be attached at least as high as IP. On a Right Node Raising view, this result is straightforward. Given that (152a) is a sentence conjunction, it is clear that Right Node Raising must involve adjunction at least as high as IP.[43]

4.3.2 Oblique Predications? All examples of parasitic gaps analyzed above have been ones involving predication of a direct object. As it turns out, however, parasitic gaps also occur in examples where the apparent target of predication is a PP object:

(158) a. Who did you send a bill to without contacting e?
    b. Which oven did you put the bread in after heating e?
    c. Which hay did you load the truck with after bailing e?

At first glance such examples might appear to raise no special questions. Given the analogy between parasitic gap adjuncts and secondary predications, (158a-c) will fit in smoothly, it seems, if they are analyzed as containing oblique-oriented secondary predicates. On this view, the lower portion of the VP in (158a), for example, would have the representation in (159):
Here O would presumably be theta-identified with the role assigned by send to the indirect object who.

Nonetheless, this analysis encounters serious problems. First, if without O contacting t were properly analyzed as an oblique-oriented secondary predicate, then we would clearly expect such predicates to be available in general. Perhaps surprisingly, however, this is not so. As (160a-c) illustrate, secondary predication of an indirect or locative object is not possible, even when the interpretation would be a natural one:

(160) a. Max, sent a letter to John while he was drunk
(c.f. Max sent a letter to John while he was drunk)

b. You put the bread in the oven when it was cold
(c.f. You put the bread in the oven when it was cold)

c. Felix loaded the truck with hay while it was still green
(c.f. Felix loaded the truck with hay while it was still green)

Structure (159) thus appeals to a thematic possibility not elsewhere available.

An equally serious problem for (159) concerns reanalysis. We saw earlier that many simple properties of parasitic gaps could be explained if the adjuncts containing them obligatorily reanalyze with the verb and form a complex transitive V. This constraint was proposed to follow from a government requirement on thematic identification. Notice now that if (159) were correct, then no reanalysis of the lowest V' can have occurred in (158a). We know this from the fact that the verb raises away from the parasitic adjunct:
And we know it from the fact that the lowest V' has the wrong thematic status for V' Reanalysis, possessing three unsaturated arguments and not two, as required. Our earlier reasoning about the exclusion of subject-oriented parasitic gaps should thus also exclude oblique-oriented parasitic gaps on the structure in (159).

These points seem to weigh heavily against analyzing (158a-c) as oblique-oriented secondary predicates. Unfortunately, however, the alternative is not at all clear. At present the only other possibility for such examples that I can see is the (rather baroque) structure in (162):

(162)

Here who is underlyingly the object of a V' like that appealed to in (135) above, and the parasitic gap adjunct is once again object-oriented. Presumably, theta-identification in this structure would involve linking the roles borne by the two operators.

At present I do not know whether such a proposal can be made to work, nor what principles govern the formation of V's like those assumed. At any rate it is clear from these remarks that apparently simple examples like (158a-c) pose an important challenge to the general account we have been pursuing.

5.0 The Absence of "Heavy NP Shift"

In this paper I have argued for the reanalysis of "NP Shift" phenomena as instances of predicate raising. This result, if correct, poses an interesting general question within the syntactic framework assumed here (essentially that of Chomsky (1981)). Supposing that by-now familiar examples like (163a) are indeed to be analyzed by leftward X₀ movement, as in (163b), and not by rightward XP movement, as in (163c), we would like to know why the second analysis is excluded:
(163) a. Max put in his car all the boxes of home furnishings.

   b. \[ \nu \alpha \] NP t

   c. \[ V t \ldots \] NP

Since the rule MOVE \( \alpha \) applies freely, the second derivation is available in principle. Accordingly, its absence must reflect the intervention of some definite grammatical constraints. We would like to know what these constraints or principles are.

At present I can see two potential answers to this question. On the one hand, the derivation in (163c) might be excluded as part of a quite general prohibition on rightward movement in English. Suppose, for example, that operator-variable constructions \( O_i [\beta \ldots t \ldots] \) are subject to the requirement that the operator \( O_i \) govern the constituent \( \beta \) which is its scope. Given the rightward direction of government in English this would directly forbid configurations of the form \( [\beta \ldots t \ldots] \) XP, precluding not only "Heavy NP Shift", but also extraposition and Right Node Raising. This view is compatible with proposals that "extraposged" relative and comparative clauses are actually base-generated in their right-peripheral surface position (see Larson (1983)). It is also compatible with the view mentioned in fn. 43 that so-called Right Node Raising does not actually involve rightward movement but rather a form of discontinuous constituency.

A second, more theory-internal answer to the question of (163c) might appeal to the way that NP Shift interacts with basic grammatical relations on the present account. Under traditional views of phrase structure, subject and object can be distinguished by government relations at D-Structure. Objects (and complements) are arguments governed by the verb in underlying form, while subjects are arguments that are not:

(164)

On the present approach, however, grammatical relations are not distinguished by government at D-Structure, but only at a later point. Objects (and complements) are arguments governed by \( V \) after raising, while the subject is that argument which remains ungoverned after raising has occurred:
Notice now that "Heavy NP Shift", if it actually existed, would exercise an important obscuring effect on the object relation within VP. Specifically, it would result in an NP that is notionally an object and in the linear position of objects, but which is not governed by, and hence not an object of V. If the boxes in (165) is adjoined to the highest VP, then it will fall outside the c-command domain of put and fail to be governed by it. Likewise if the boxes is adjoined to the lower VP, then government will be blocked under the assumption that V can govern the head and specifier of an XP sister, but no other constituents (see Chomsky (1986b)).

It is plausible to think that this situation might be excluded under some strengthened version of the Projection Principle of Chomsky (1981), which demands that selectional properties be respected at every level of representation. Suppose, in particular, that within VP we require $\alpha$ to be governed whenever the trace of any chain it participates in is governed. This would ensure, in effect, that grammatical relations remain "univocal" within the domain in which they are projected (VP). Movement between complement positions would be possible as, for example, in the account of double object constructions in Larson (1988). Likewise movement of an underlying object to IP subject position would be licensed, as in the standard analysis of passives and unaccusatives. However classical "Heavy NP Shift" would be forbidden since this involves a loss of object status within VP.

I will not attempt to develop these proposals any further at this point. Nonetheless these brief remarks do suggest that potential lines of explanation are open for the absence for the absence of "Heavy NP Shift".
Notes

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1. Ross (1967/86) does not specify a particular derived structure for Heavy NP Shift, while Bresnan (1976) and Stowell (1981) give the adjunction site as VP. Evidence is discussed in 4.3.1 showing that if NP Shift examples do indeed involve noun phrase movement, then IP must also be admitted as a potential adjunction site.

2. More precisely, Ross's condition (1986, p.139) proscribes rightward movement out of \[NP P NP\]. Such exocentric structures have now been abandoned in favor of endocentric constructions involving PP.


4. Infinitival purpose adjuncts appear to pattern similarly to depictive adjuncts vis-a-vis orientation and NP Shift. Thus in (i) \textit{in order to please her mother} is predicated of the subject NP \textit{Max} (we understand Max as the "pleaser"). NP Shift "around" this adjunct appears quite marginal. In (ii), the transitive purpose clause \textit{to use in bed} is predicated of the object \textit{the lamp}. Correspondingly, NP Shift around the direct object is much more acceptable:

   (i) a. Max praised Mary in order to please her mother.
   b. *Max praised in order to please her mother a girl who he knew from college.

   (ii) a. Max bought the lamp to use in bed.
   b. Max bought to use in bed a lamp with special black light attachments.

5. In Filmore (1965), the correct surface form is derived by a rule of "Separation" which shifts the PP rightward:

   (i)

   ![Diagram of Separation rule]

   In the nontransformational, categorial analyses of Bach (1979) and Dowty (1978), the
peripheral position of PP arises by an operation of "Right Wrap", which breaks up the V-PP sequence by wrapping the verb around the object argument:

(ii) \[
\begin{array}{c}
\text{put the box in his car} \\
/ \ \\ \text{the box} \\
\text{put in his car} \\
\text{in his car}
\end{array}
\] "Right Wrap"

Right Wrap is formally analogous to verb raising in analyses involving phrase structure, a parallelism first noted and developed in Jacobson (1983,1987).

6. Specifically, \textit{put} must head a projection governed by INFL to receive tense and agreement information. Furthermore the object, \textit{the box} must be governed (and hence c-commanded) by V in order to receive Case. The verb raises to meet these joint requirements. Likewise, the VP specifier \textit{Max} must bear Case and raises to receive it from INFL. The proposal that verbs raise to permit Case assignment is defended by Koopman (1984), Travis (1984), Sproat (1985), among others. The idea that verbs raise to obtain inflection from INFL is developed in Roberts (1985), where it is also attributed to N. Fabb.

7. This view of transitivity and V' Reanalysis departs from Larson (1988), where \(\alpha\) is transitive (and undergoes reanalysis) when it selects (exactly) one internal argument - i.e., when it takes a direct object. Here \(\alpha\) is transitive (and undergoes reanalysis) when it selects (exactly) two arguments - i.e., when it corresponds to a binary relation. These represent two views of transitivity that have been widely debated in the literature. The former might be termed the "grammatical" notion of transitivity, and the latter the "logical" notion of transitivity. For a useful discussion of various approaches to transitivity see Siewierska (1984).

8. As is also discussed by Jacobson (1983,1987), V Raising allows for a simple treatment of particle movement. Suppose that verb-particle amalgams are entered in the lexicon as basic V’s:

(i) \[
\begin{array}{l}
\text{a. } [\text{\(V\) look } [\text{\(PP\) up } ] ] \\
\text{b. } [\text{\(V\) throw } [\text{\(PP\) out } ] ] \\
\text{c. } [\text{\(V\) smash } [\text{\(PP\) in } ] ]
\end{array}
\]

These structures will have the thematic status of transitive verbs, and hence will be subject to V’ Reanalysis. If reanalysis does not apply, then V raises and the verb and particle appear separated in surface form (iia). If reanalysis does apply, then V-Prt raises as a unit and the two appear adjacent in surface form (iib):
(ii) a. smash \[v_p \text{ the windshield } [v \ t [p_p \text{ in }]]]\]

b. smash \[v_p \text{ the windshield } [v \ t] \]

9. The behavior of negative polarity items provides simple evidence for the different attachment of subject- vs. object-oriented secondary predicates proposed in (41). Consider (ia); this example is ambiguous, having either of the readings: 'I left no one with I myself in the state of being angry at someone else', or 'I left no one with that person in the state of being angry at someone else'. Compare now (ib):

(i) a. I left no one [angry at someone else].

b. I left no one [angry at anyone else].

Unlike (ia), (ib) is unambiguous having only the second reading. This result is straightforward under (41). Negative polarity items like anyone must be c-commanded by an "appropriately negative" element at S-Structure in order to be licensed. This will be possible if angry at anyone else is predicated of the object no one, since it will then be c-commanded by the negative quantifier according to (41a). On the other hand, licensing of the polarity item will not be possible if angry at anyone else is predicated of the subject I, since then, according to (41b) it will not be c-commanded by no one.

10. See section 4.1.1 for more on role identification.


12. There are a number of remaining puzzles about the multiple complement data in general, and about to...about constructions in particular. First, it is clear that the heaviness effect is much stronger for NP than for PP, AdvP or IP. Although the "c" examples are more natural than the "b" examples in (44)-(46) the difference is not a strong one. This suggests that "heaviness" may well have a grammatical component, and may not solely be due to functional factors (e.g., greater ease of processing with right-peripheral components) as is usually asserted. The fact that NP is singled out with respect to heaviness implies that Case may be involved.

Second, as Edwin Williams has pointed out, the degree of deviance in the first member of each pair in (50) is noticeably less than in the second member, with many people finding them awkward, but not flatly unacceptable - particularly when the final PP is stressed (compare (50f) to I talked about nothing TO ANYONE). I am unable to explain this gradation of judgments at present.

13. I am grateful to Daniel Finer for drawing my attention to these facts.
14. Wexler and Culicover (1980) claim a second instance if "freezing" in examples involving NP Shift. They state that the NP object too becomes an island for extraction:

(i)  
   a. John mailed to Alice an expensive book about frogs.
   b. ?What did John mail to Alice an expensive book about?
   (cf. What did John mail an expensive book about to Alice?)

(ii) 
   a. Felix wrote for Oscar a short article on tennis.
   b. ?What did Felix write for Oscar a short article on?
   (cf. What did Felix write a short article on for Oscar?)

In general this second form of islandhood appears must weaker than that cited in the text, with examples like (ib) and (iib) being merely awkward for many speakers. Furthermore the degree of deviance in the interrogative examples appears to track the degree of deviance in the simple NP Shift counterparts. Thus (ia), with raised verb+dative, is somewhat more natural than (iia), with raised verb+beneactive adjunct. Correspondingly, (ib) is rather more natural than (iib). I will set aside consideration of examples like (i) and (ii) pending clarification of whether a genuine islandhood phenomenon is actually involved here. (I am grateful to N. Chomsky for discussion of these data.)

15. For discussion of this account of pleonastics, see Chomsky (1981,1986a), Burzio (1986), and Safir (1985).

16. This semantic restriction has been noted by Kimball (1973), Milsark (1974), Szabolsci (1986), among others.

17. Lasnik observes that V and the postverbal NP can be nonadjacent when (and only when) the verb is be:

(i)  
   a. There is often a problem with the water heater.
   b. There are usually several hundred people at these meetings.

He suggests that in such examples the Case relation between V and NP has been obscured by the capacity of be (and only this verb) to raise to INFL in English. On this view, NP is in fact adjacent to the verbal trace:

(ii)  
   There \([i \text{ is often } \text{VP } a \text{ problem with the water heater}]]\)

Lasnik notes independent support for this suggestion in the fact that when INFL is already occupied by a modal, blocking the raising of be, adjacency between V and NP is again required:

(iii) *There will be often a problem with the water heater
See Shlonsky (1987) for useful discussion of these and other facts about Case assignment in pleonastic constructions.

18. For more on the nature of this Case marking, see 3.4.


20. A natural question arises as to whether categories such as A, N and P are also sensitive to this correspondence - whether "transitivity effects" are observable outside the verbal system. As pointed out to me by R. Kayne, the equivalent of "NP Shift" also appears to occur inside nominalizations:

(i)  a. The destruction of Boston with rockets.
     b. *The destruction with rockets of Boston.
     c. The destruction with rockets of every major city on the eastern seaboard.

Furthermore, although I cannot defend the claim here, I believe that certain complement reorderings within comparative phrases are analyzeable by these means.

21. Recall that the projection of oblique phrases follows the hierarchy in (69b), hence off the coast, in the attic, etc. are realized in a position subordinate to the theme.

22. Ellen Broselow has pointed out to me that this analysis can account for certain contraction data arising with NP Shift in pleonastic constructions. Consider (i) and (ii):

(i) a.i. There is a green alien with violet eyes in the garden.
     ii. There's a green alien with violet eyes in the garden.
     b.i. There is in the garden a green alien with violet eyes.
     ii. *There's in the garden a green alien with violet eyes.

(ii) a.i. There are rats with sunglasses on the table.
     ii. There're rats with sunglasses on the table.
     b.i. There are on the table rats with sunglasses.
     ii. *There're on the table rats with sunglasses.

Under more standard views, contraction is blocked in the "b.ii" examples by a syntactic variable, which intervenes between there and be. On the present account, this result can be derived in either of two plausible ways. We could appeal to the fact that since be in the garden and be on the table are lexical Vs, contraction would involve cliticizing a subpart of a lexical category, violating lexical integrity. Alternatively, we may observe that in Light Predicate Raising constructions, the raised complex V invariably constitutes a distinct intonational domain bearing stress. The latter might then be taken to block the reduction necessary for contraction.
23. The general proposal that "syntactic word formation" is limited by what the lexicon can independently provide was, of course, an observation frequently made within the framework of generative semantics.

24. It is worth observing that, under these proposals, the definiteness restriction may be viewed as a general property associated with derived transitivity, and as having no special connection with pleonastic constructions or those involving unaccusatives. In brief, when an inherently intransitive predicate has its valence "boosted" to transitivity, it must determine a Case for its object. Partitive might be then viewed as a general default Case, which carries the semantic restriction of indefiniteness.

This idea leads us to expect definiteness effects in other pseudo-transitive constructions, an expectation which appears correct. Note that the definiteness restriction also appears to apply in cognate object constructions:

(i) John sneezed
    a mighty sneeze
    some little trifling sneeze
    many loud sneezes
    *that sneeze
    *every sneeze
    *most sneezes

25. The former is true, for example, of Chamorro (Chung (1983,1987)), Hebrew (Borer (1980)), Irish (McCloskey and Hale (1984)), Italian (Rizzi (1982), Burzio (1986)), and Spanish (Torrego (1984)). The latter is true, for example, of French (as discussed by Kayne and Pollock (1978), Pollock (1986), Adams (1987), and Deprez (1987)) and Icelandic (as discussed by Platzack (1987)). This second group is particularly interesting since it precisely in the context of "subject inversions" that null pleonastic subjects have been proposed.

26. Choe (1987) has argued that VSO surface order in Berber is underlyingly pro-V-S-O, where pro is an empty expletive element and S is a postverbal NP. Choe suggests, furthermore, that this analysis may apply quite generally to VSO languages - that, in the strictest sense, there are no VSO languages at either the level of D- or S-Structure. If such a view can be sustained, then it is plausible that the largest class of examples of "subject Heavy NP Shift" - those involving VSO languages - will be analyzable along the lines suggested here. Such examples will all involve "shift" of a postverbal NP and not a true subject.

27. The thematic operations proposed in Higginbotham (1985) are quite similar in effect to ones proposed within the framework of Montague Grammar in the mid-late 1970's. In particular, theta-identification is similar to operations on functional structure Dowty (1979) involving abstraction. See also Li (1988) for recent work in a similar spirit.
28. I assume a "minimality" definition of government along the lines of Chomsky (1986b) wherein the α governs τ in the configuration $[\beta \ldots \tau \ldots \alpha \ldots \tau \ldots]$ iff α is a lexical category, α c-commands τ, and no closer governor δ intervenes (i.e., for δ a lexical category, if δ c-commands τ). In configuration (i) this will allow α to govern YP, its specifier τ, and its head μ, but no constituents of ZP owing to the presence of the closer governor μ:

(i) $$X' \quad X \quad YP \quad \alpha \quad SpecY' \quad Y' \quad \tau \quad Y \quad ZP \quad \mu \ldots$$

29. In Larson (1990) it is proposed that temporal PPs involving a clausal complement differ in the internal syntax of the latter. It is suggested that before, after, since and until take a CP whose specifier contains a zero temporal operator (ia), whereas while takes a CP whose specifier is empty (ib):

(i) a. $[PP \quad before \quad [CP \quad O_i \quad [C' \ldots \]]]$  
   b. $[PP \quad while \quad [CP \ldots \]]$

This difference of structure accounts for an important difference of meaning between the two. Whereas the PP in (iia) shows an ambiguity comparable to that in the when clause of (iic), the PP in (iib) does not:

(ii) a. John arrived before Mary said that she left.  
    b. John arrived while Mary said that she slept.  
    c. John wondered when Mary said that she left.

In (iic) it is possible to construe when with the time of Mary's saying, or the time of Mary's leaving. And similarly for before in (ia). This reading is not apparently available for (iib), however, yielding only a pragmatically odd "while she spoke words" interpretation for PP.

In Larson (1990) the ambiguity in (ia) is accounted for by assuming an empty operator in (ia) parallel to when in (ic) which may originate in either of the two clauses embedded under before:
If this analysis is correct, then we might expect interference between empty operators when *before*-type PPs occur in parasitic gap structures. In particular, we expect that when the upper CP specifier position is occupied by the gap operator, no empty temporal operator will be possible, and hence no "long distance" temporal readings allowed.

Although the judgements are subtle, this expectation appears to be justified. Whereas in (iv), *before* can be understood as associated with either the upstairs or downstairs clause, in (v) only the former seems possible; in my judgement, (v) must be understood as stating that John investigated Bill before the time at which Mary uttered certain words:

(iv) John saw Bill before Mary said that she visited him.
(v) Who did John see before Mary said that she visited e.

Presumably when *before*’s temporal operator is blocked from appearing in CP specifier position, this P must resort to the "operatorless" strategy of *while* in combining with its complement. The latter only allows the "upstairs" readings (see Larson (1990) for discussion). These results must, of course, be regarded as tentative given the complexity of the examples and the generally more marginal character of parasitic gaps contained in tensed clauses.

30. (118c) is taken from Lasnik and Uriagareka (1988), where the observation that adjuncts containing parasitic gaps are not frontable is attributed to E. McNulty.

31. Note that because no closer governor intervenes between N and O in relative clauses, no "insubordination" and no corresponding "defect" in the N' projection will arise.

Relative clauses and parasitic adjunct constructions differ importantly in that while the former allows both empty and overt, the latter requires the operator to be null:

(i) a. [The man I saw] came in.
   b. An article I filed [without reading e].

(ii) a. .. before [CP Oi [Mary said [that she left t]]]
     b. .. before [CP Oi [Mary said [that she left t]]]
The source of this difference is unclear, however it is interesting to note that theta-identification in general seems to occur only between elements sharing category features. Thus in the case of the relative clauses we get identification between two [+N]'s (man and which), and in the case of simple secondary predication we get identification between [+V]'s (eat and raw), or [-N]'s (bring and in). What we do not get is identification between [+V,-N] and [-V,+N] (file and which). It is possible that cases like the latter are confined to theta-assignment, where the former is compelled to take the latter as an argument. If this were true, then theta-identification in constructions like (ib) would only be possible via an empty operator, which is devoid of categorial feature content.

32. This view of parasitic gaps interacts with earlier proposals about pleonastic there to correctly predict examples like (i):

(i) There arrived without anyone seeing e a sinister agent from Galaxy Five.

The latter will have the VP structure in (ii), where without anyone seeing e is predicated of the postverbal NP and reanalyzes with V:

(ii) 

33. This analysis of parasitic gap formation shares an important feature with the account of Kayne (1984). In the latter, the licensing of parasitic gaps involves the interaction of certain chains or "paths" generated by a syntactic variable and a parasitic gap. A crucial aspect of Kayne's analysis is that the paths generated by these elements form a "connected" subtree. On the present account, with its obligatory V' Reanalysis, a similar (although stronger) connectedness requirement is imposed, namely, the verb and adjunct clause must form a single lexical unit.

34. Engdahl (1983) records pairs like (126a,b) as of roughly equal acceptability. I am at a loss to explain these judgments since in my own speech (and others whom I have consulted) the contrast is quite sharp. The grammaticality difference between (126a,b)
has been noted independently by Lasnik (p.c.).

35. (135) differs from structures considered thus far in that the parasitic gap occurs within a selected complement and not an adjunct. This difference is not, however, tied to the possibility of O making an "absolute" semantic contribution to V'. Consider (ia) with the VP structure in (ib):

(i)  
(a) Who did you persuade that Martha should visit e.
(b) [NP / you / V / e / NP / who / V / CP / persuade / O <1, 2, 3*>]

As in (135), we have a gap-containing complement clause that receives a thematic role from V (here the "3" role, whose assignment, or "discharge" is marked by a '*'). Now note that in this case O does contribute "absolutely" to an intransitive V' - a V' with only one unassigned role. Instead it identifies with the theme role of a transitive - a V with two unassigned roles. (ia) is thus parallel to the standard cases of secondary predicates or parasitic adjuncts in which the operator contributes through identification.

36. More accurately, on a formal semantic treatment [V promise t [O to take t to the movies]] would denote the relation holding of <x,y> on some assignment g just in case x promises g(z) to take y to the movies, where g(z) is identical to the denotation of NP. In this case g(z) = den(the child).

37. Multiple questions appear to provide evidence for this derivation:

(i)  
(a) *Who promised which child to take e to the movies?
(b) Who promised to take e to the movies which child?

The obligatory right-peripheral position of the in situ wh which child in (ib) suggests that extraction is from the object position of the complex predicate, and not from "inner object" position.
38. Ross (1967/86) formulates the Coordinate Structures Constraint as follows (p.98):

"In a coordinate structure, no conjunct may be moved, nor may any element in a conjunct be moved"

39. Lakoff (1986) records a suggestion by Pauline Jacobson that apparent violations of the Coordinate Structures Constraint might be viewed as covert parasitic gap constructions. The proposal developed here is in the spirit of Jacobson's suggestion, although instead of treating the first as an instance of the second, we are analyzing both as cases of secondary predication.

40. See Lakoff (1986) for a variety of interesting observations on the notion "natural courses of events" at work in these examples.

41. There is a certain amount of variation in speaker judgments with regard to (151a-c), with some finding them quite awkward. I adopt a "worst case" analysis of the data here, assuming them to be essentially well-formed.

42. Right Node Raising generally requires a right-peripheral position for the trace in each conjunct from which extraction occurs. This requirement is met in (154) under the assumption that the adjunct without qualification has been reanalyzed and raised with V analogously to what occurs in (i):

(i) I [admire without qualification] a person that can swallow their own tongue. t.

The structure proposed in (153) appears compatible with the claim in Cowper (1985) that subject parasitic gap structures behave as if there is an intervening operator or position that is bound by the wh-phrase and that in turn binds the wh-trace and parasitic gap. In (153), we can identify this position as that of the Right Node Raised wh- that is subsequently extracted.

43. A number of authors have argued plausibly that RNR is not actually an extraction rule at all but rather involves a form of discontinuous constituency in which the "raised" expression is a simultaneous daughter of two mother nodes. McCawley (1982), for example, analyzes RNR as involving trees with "crossing branches"; Erteschik-Shir (1987) develops a related view using the analysis of "across the board" extraction in Williams (1978) (see also Levine (1985), McCloskey (1986)). These proposals, if correct, do not prejudice the basic point made here, for they still permit examples like (151a-c), to be analyzed as RNR, and examples like (149a-d) to be analyzed as extraction of a Right Node "Raised" constituent.

It is worth noting that the view of basic clause structure advocated here largely undermines arguments purporting to show that RNR does not necessarily affect
constituents. Grosu (1976) cites (ia-c) and Abbott cites (iia-e) as exhibiting right-peripheral elements that are not phrases (examples in Erteschik-Shir (1987)):

(i)  
   a. John has sliced, and Mary also seems to have sliced, a large piece of cake with a shining new knife.
   b. Bill may present, and Mary certainly will present, a series of papers at tomorrow’s linguistic meeting.
   c. Mary may have conducted, and Bob certainly will conduct, a number of tests in the large oval laboratory.

(ii)  
   a. Smith loaned, and his widow later donated, a valuable collection of manuscripts to the library.
   b. I borrowed, and my sisters stole, large sums of money from the Chase Manhattanbank.
   c. Leslie played, and Mary sang, some C&W songs at George’s party.
   d. Mary baked, and George frosted, 20 cakes in less than an hour.
   e. John offered, and Mary actually gave, a gold Cadillac to Billy Schwartz.

Under the analysis given here, the relevant expressions are indeed all constituents - in fact they are all VPs. Thus, the right-peripheral expression in (iib) has the structure in (iii):

(iii)
References


