THE GRAMMAR OF NEGATIVE POLARITY

by

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SUBMITTED IN PARTIAL FULFILLMENT
OF THE REQUIREMENTS FOR THE
DEGREE OF

DOCTOR OF PHILOSOPHY

at the

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

September 1980

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Submitted to the Department of Linguistics and Philosophy on 11 July 1980 in partial fulfillment of the requirements for the Degree of Doctor of Philosophy

ABSTRACT

This study attempts to characterize the distribution of negative polarity items in English, and to delimit the role of NPIs within sentence grammar.

The recalcitrance of NPIs to a purely syntactic analysis has long been observed, notably in Baker (1970). It is argued there that the primary trigger is negation, a sufficient condition on NPI acceptability being a syntactically defined relationship to negation; and that all other triggers are to be defined in terms of a semantic relation to negation, logical entailment. The structure of this proposal is maintained, but with major alterations.

First, the syntactic (i.e. structural) condition must be stated on logical form rather than on surface structure: in the LF of a sentence containing an NPI the NPI must be represented as occurring in the 'immediate scope' of the negation operator. It is shown that this notion of immediate scope, which also plays a role in grammatical processes such as government and in 'pragmatic quantification', similarly constrains the distribution of 'free choice' any and other quantifiers. This constraint cannot be defined on surface syntactic structure: NPIs thus provide empirical evidence about the existence and syntax of LF, a level of linguistic representation at which logical structure is represented and which is the interface between sentence grammar and semantics. Further evidence about the syntax of LF is provided by arguments that the negative polarity quantifier any must be represented as an existential rather than a universal quantifier.

Second, the semantic condition on sentences with NPIs which do not meet this structural condition is to be stated in terms of their literal meanings; the availability of such sentences for utterance, however, is affected by conversational intent and real world beliefs.

This analysis of NPIs, which posits as the primary trigger a structural relation to negation and defines other triggers in terms of their semantic relation to this primary trigger, is contrasted with a quite different account of NPIs proposed by Ladusaw (1979), who attempts a unified and semantic analysis of all triggers on the basis of logical entailment alone.

Thesis Supervisor: Noam Chomsky
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ACKNOWLEDGEMENTS

I would like to thank the members of my committee--Sylvain Bromberger, Noam Chomsky, Paul Kiparsky, and Haj Ross--for their time and assistance. I have also derived considerable benefit from discussions with Joan Bresnan, Frank Carroll, Ray Jackendoff, Tony Kroch, Bill Ladusaw, Barbara Partee, and Edwin Williams.

I am greatly indebted to Morris Halle for his teaching and encouragement.

This study is dedicated to the memory of my parents, Paul M. A. Linebarger and Margaret Snow Roberts.
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INTRODUCTION

A problem of long standing in the syntax and semantics of English is the analysis of 'polarity-sensitive' items. These are expressions which can only occur in a positive environment, in the case of positive polarity items (PPIs); or a negative environment, in the case of negative-polarity items (NPIs). The class of PPIs includes several, some, still, already, would rather, pretty (ADV.); the class of NPIs includes any, ever, anymore, yet, much, mind (V), budge (an inch), be all that ADJ., too, bother V-ing, care to VP, hold a candle to, can help V-ing, have a hope in hell, lift a finger, drink a drop, in years, so much as, until (with punctative verbs), and bat an eyelash. NPIs are unacceptable in straightforwardly positive sentences, as are PPIs in negative sentences with normal intonation:

(1)(a)*I'm not pretty pleased with it. (PPI in negative sentence)

(b) I am pretty pleased with it. (PPI in positive sentence)

(2)(a)*John has eaten so much as a bite. (NPI in positive sentence)

(b) John hasn't eaten so much as a bite. (NPI in negative sentence)

Both PPIs and NPIs occur in a wide range of environments, not just in simple affirmative or negative statements like (1)(b) and (2)(b); both may be found in environments such as the following.

(3) IF-CLAUSES:
If you eat
{something, I'll give you five dollars.

anything, I'll hit you.

(4) COMPARATIVE CLAUSES:
He knew more than
{anybody realized.

some people thought he did.
(5) COMPLEMENT S OF **TOO**:
He's too young to know anything about it.
   (hold several jobs at once.)

(6) QUESTIONS
Is anything wrong?
   (something)

(7) COMPLEMENT S OF **SURPRISED**:
I'm surprised that he ate anything.
   (actually ate something.)

The obvious question that arises in connection with polarity-sensitive items is, of course, what are they sensitive to? What is a negative environment or a positive environment, and what is it about environments like (3)-(7) above that makes them hospitable to both NPIs and PPIs?

This thesis is an examination of negative polarity items in English, with peripheral reference to positive polarity items. NPIs are of particular interest since they seem to interact with three distinct levels of representation: surface syntactic structure; logical form, i.e. representations of logical structure generated by sentence-grammar interpretive rules; and complete semantic representation, i.e. semantic representations generated by the interaction of linguistic knowledge with other cognitive systems and incorporating real-world beliefs, entailments, discourse intent, etc. Thus negative polarity items may furnish some clues about these different levels of representation and how they interact with one another: how autonomous are they with respect to one another and, when it is clear that information represented at one level constrains the possible representations at another level, how is this constraint effected? I will attempt to specify the contributions of each of these levels to the distribution of NPIs, with particular concern for the
constraints on NPIs that are grammatical (i.e. statable on surface syntactic structure or on logical form).

Chapter 1 is an examination of the attempt, in Lasnik (1975) and Jackendoff (1969, 1972), to state a sufficient condition on NPI acceptability in terms of surface structure. It is demonstrated that there is no surface structure constraint on NPIs that is sufficient to guarantee NPI acceptability.

Chapter 2 is an examination of the analysis of polarity items in Baker (1970). Although I propose a major reformulation of his definition of a negative environment and of other aspects of his proposal, I maintain his distinction between a paradigm case, a structural constraint stated on some level of sentence-grammar, and a set of 'allusions', sentences in which NPIs occur in an environment other than this paradigmatic one and are determined to be acceptable by virtue of a semantic relation to the paradigm case.

In Chapter 3, I attempt to define this structural paradigm case by formulating a restriction on representations at the level of logical form. The behavior of NPIs provides some evidence that linguistic representations similar to the formulae of predicate calculus are in fact constructed by the speakers of English, because the statement of the paradigmatic environment for NPIs makes reference to the notion of 'immediate scope' defined upon just such representations. The notion of 'immediate scope' is also seen to play a role in the distribution of 'free choice' any and other quantifiers.

In Chapter 4 I examine the semantically (rather than structurally) licensed 'allusions'. It is argued that a sentence with an NPI which does not meet the structural constraint may still be
acceptable if its literal meaning implicates some proposition which does have the requisite logical structure. However, whether or not it is appropriate to utter such a sentence depends not only on the possibility of such an implicature: utterance of the sentence will be inappropriate if this implicature is not part of what the speaker is using the sentence to convey.

Chapter 5 concerns the quantifier any: I argue that NPI any is a lexical representation of the existential quantifier.

In Chapter 6, I examine a quite different analysis of negative polarity, that of Ladusaw (1979). He proposes that the semantic property of licensing 'downward entailment' is a necessary (although not sufficient) condition on the ability of an expression to trigger NPIs. Arguments are presented against this analysis.

In Chapter 7, I explore the problems associated with the attempt to eliminate explicit surface structure restrictions on NPIs.

In Chapter 8, I consider the question of what NPIs are and whether they are marked in the lexicon.
FOOTNOTES

1. NPI any, as in (i), is to be distinguished from 'free choice' any, as in (ii).

   (i) He didn't eat any peas.
   (ii) He can do anything.

In the following chapters I will represent NPI any by the existential quantifier; this move will be defended in Chapter 5, where I consider the question of whether the two anys can be collapsed.

2. I will not treat non-polarity 'positive anymore' here.

3. Both yet and much can be stressed or unstressed in negative environments; both can also occur in certain non-negative environments, but only if stressed.

   (i) He hasn't done it yet/yaˈt.
   (ii) I'll do it yet/*yaˈt.
   (iii) I don't have much/muˈch interest in the project, but I have some interest.
   (iv) There has been much/*muˈch interest in the project lately.

4. Too has an NPI and a non-NPI usage. Sentence (i) below is ambiguous between (ii)(a) and (ii)(b), while too in (iii) has only the sense of 'excessively', as in (ii)(b).

   (i) He doesn't have too many friends.
   (ii)(a) He has few friends.
   (b) He does not have the problem that the set of his friends is excessively large.
(iii) He has too many friends.

5. With durative verbs, as in (i), \textit{until} has the meaning 'continuously up to': it may be regarded as a universal quantifier over time. It may also occur with negated punctative verbs, as in (ii).

(i) He slept until noon.
\newline [At: t is a time $\leq$ noon] (he slept at t)

(ii) The baby wasn't born until noon.
\newline NOT [Et: t is a time $<$ noon] (the baby was born at t)
\newline OR
\newline [At: t is a time $<$ noon] NOT (the baby was born at t)

It is unclear whether this sense of \textit{until} with negated punctative verbs is to be characterized as existential rather than as universal, or whether \textit{until} can uniformly be characterized as universal (since negating a punctative verb creates a durative predicate). The problems associated with the representation of \textit{until} are similar to those associated with \textit{any}: since A NOT is equivalent to NOT E, it takes some scrounging to find contexts which reveal the correct representation. See Chapter 5 on the question of whether both NPI \textit{any} and 'free choice' \textit{any} are to be represented as the universal quantifier, or whether at least NPI \textit{any} is to be represented as the existential quantifier. \textit{Until} with negated punctative verbs will be treated as an NPI.

6. See Bolinger (1960) for a more extensive listing of NPIs; see Chapter 8 concerning the delimitation of the class of NPIs.
CHAPTER 1: SURFACE STRUCTURE ACCOUNTS

As demonstrated by sentences (3)-(7) in the Introduction, NPIs may occur in the absence of overt negation. However, negation is (it will be argued in the following chapters) the primary NPI 'trigger'. (By 'trigger' I mean any expression by virtue of which an NPI is acceptable.) Thus a theory of NPIs must contain an account of the conditions under which NPIs may be triggered by negation: these will be sufficient but not necessary conditions on NPI acceptability. In this chapter I will examine several attempts to formulate these sufficient conditions as restrictions on the surface structure configuration of an NPI and the negative trigger.

The most obvious example of the interaction between NPIs and surface structure is furnished by sentences like (1):

(1)(a) Anybody didn't laugh.

(b) The man (who didn't laugh) ate any peas.

From (1)(a) it can be determined that the negative or other 'trigger' must precede the NPI, at least in some cases, and from (1)(b) that it must also command the NPI. Sentences (2)-(7) furnish further clues:

(2)(a) We never sighted any unicorns.

(b) Any unicorns we never sighted.

(3)(a) He didn't sight any unicorns.

(b) Any unicorns weren't sighted by him.

(4) He didn't think that anybody would laugh.

(5)(a) It was not widely believed that John knew anything about physics.

(b) That John knew anything about physics was not widely believed.
(6) From Ross (1967):
That he had stolen anything was never proved.
finally proved.

(7)(a) It is impossible to find any green vegetables there.
(b) Finding any green vegetables is impossible there.
easy
(c)*Any green vegetables are impossible to find there.

Sentences (2) and (3) show that this requirement that the negative precede and command the NPI is to be stated on surface structure rather than on deep structure (before topicalization and passivization); sentence (4) demonstrates that the negative may (sometimes) be in a higher clause than the NPI that it triggers; sentences (5)-(7) demonstrate that an NPI may precede the negative, if it does not command it, in some sentences. This is not, of course, a complete data set.

The sensitivity of NPIs to surface syntactic structure demonstrated in (1)-(7) has encouraged attempts to find surface structure conditions on the triggering of NPIs by overt negatives.

For example, Klima (1964) represented NPIs as derived from PPIs (any from some, yet from already, anymore from still, until (with punctative verbs) from before, etc.) by a suppletion rule applying after passive, in order to avoid generating sentences like (3)(b) above.

Negative polarity items, it should be pointed out, are generally regarded in these surface structure accounts as diagnostics of the scope of negation: if an NPI can occur in a certain position in the surface structure of a sentence, then that position is in the scope of negation. That is, specifying the scope of negation is assumed to be
equivalent to specifying the distribution of NPIs, i.e. of those NPIs triggered by overt negatives.

In section 1.1 I examine the account of the scope of negation (and of the distribution of NPIs and 'nonreferential' quantifiers) in Lasnik (1975); in section 1.2, that of Jackendoff (1969, 1972). All of these accounts, it should be noted, determine the scope of negation on the basis of derived structure rather than deep structure; see Jackendoff (1969) for arguments that the scope of negation cannot be defined on deep structures. In section 1.3, I argue for the inadequacy of all such surface structure statements of the conditions under which an NPI may be triggered by overt negation.
1.1 LASNIK (1975)

The discussion of negation in Lasnik (1975) is not specifically directed at predicting the distribution of negative polarity items, although he suggests that the distribution of any, insofar as it is conditioned by negative environments, parallels that of negated quantifiers. He describes a 'nonreferential' reading for quantifiers (see below) which he assumes to be the mechanical result of occurrence in the scope of negation.

In his analysis the scope of negation is marked by the 'Not Scope Rule', which assigns the feature '+negated' to quantifiers, quantificational adverbs, and to because clauses: basically to anything which is said to have scope relative to other logical elements. A redundancy rule then assigns the value '-referential' to anything marked '+negated', including adverbials such as a because clause. The value '-referential' when assigned to a quantifier encodes the fact that a noun phrase modified by a '-referential' quantifier does not establish a discourse referent (ignoring intrasentential coreference); thus in sentence (8)(a) below, the preferred reading (in which the negative has scope over the quantifier many) cannot be followed in the discourse by (8)(b). If many is not in the scope of the negative, however, then the NP which it modifies may be antecedent to a personal pronoun as in (9). (Similarly, 'nonreferential' quantifiers may not be followed by nonrestrictive relatives or expanded by 'namely...')

(8)(a) John didn't see many people.

(b) They were sorry that he didn't see them.
(9)(a) Many people didn't come.
(b) They were sorry that they didn't.

(Sentence (8)(a) has a reading in which *many* has wide scope with respect to NOT; I will discuss alternate readings in Chapter 3).

This Not Scope Rule assigns the value '+'negated' to the quantifiers and other logical elements listed above only under the following two circumstances.

(1) If the quantifier or other logical element is commanded and immediately preceded by *not* in surface structure, then the Not Scope Rule obligatorily assigns this feature '+'negated' to it. Since certain quantifiers such as *some* and *several* are, in Lasnik's account, inherently '+referential', marking them as '+negated' and hence (by the redundancy rule) '-'referential' will result in the unacceptability of the sentence: the inherent and the assigned values of the feature 'referential' will disagree. Hence the unacceptability of *not several men*, in which *several* must be marked as '-'referential'. Note that this theory makes the incorrect prediction that the following sentence will be unacceptable:

(10) He isn't someone whom I can really trust.

Since the Not Scope Rule obligatorily marks as '+negated' any quantifier that immediately follows *not* in surface structure, we would expect the inherently '+referential' quantifier *someone* to be marked '+negated' and hence '-'referential', resulting in an unacceptable sentence. But sentence (10) is acceptable. (However, *someone* seems to be able to occur in this position only when it is being used predicatively.)
(2) The Not Scope Rule optionally assigns the feature 'negated' if the quantifier or other logical element is commanded by the negative and to the right of it in surface structure, and if it is within the same intonational phrase as the negative.

To summarize, this account predicts that NPIs, which are inherently 'referential', will be acceptable if they occur to the right of and commanded by a negative in surface structure, and in the same intonational phrase with it. For in this event they may be marked 'negated' and 'referential', and thus will be acceptable. Specific criticisms of this and other surface structural accounts will be given in Section 1.3, but note here that in Lasnik's account the Not Scope Rule will fail to mark as 'negated' the NPIs in sentences like (5)(b) and (6), in which an NPI precedes the negative but does not command it.
1.2 JACKENDOFF (1969, 1972)

Jackendoff (1969) presents a similar analysis of negation.

The scope of negation, in Jackendoff's account, is determined by a rule in which the negative, generated in its surface structure position, climbs up the tree by an interpretive rule, taking wider and wider scope:

We observe that the surface structure position of the neg is always included in the interpreted scope. This suggests that the principle of the scope rule is [optional] expansion of the scope of the neg to larger and larger constituents. Such expansion can be expressed by a rule which raises neg from the node on which it is generated to a dominating node. (P. 236)

What this rule does, then, is raise the negative—considering, for the moment, only sentences in which the negative is lexically represented by not—from its position in the VP (over which it always has scope) to the S-node, giving it sentence scope.

Consider the following sentences, in which there is a quantifier occupying subject position:

(11) Some people didn't laugh.
(12) Any people didn't laugh.
(13) Many people didn't laugh.

That the negative is restricted to VP scope in (11) and (13) is demonstrated by the unacceptability of neither-tags:

(14) Some of the boys didn't see anyone, and neither did Bill.

Jackendoff argues (as does Carden (1973)) that neither-tags—and also positive tag questions with rising intonation—require that the
negative have S scope; thus the impossibility of a neither-tag in (14) suggests that the negative has less than S scope, presumably VP scope. The restriction of the negative to VP scope results from a requirement that the leftmost logical element (whether quantifier or negative) be moved first, and that only one such element be permitted to occupy a given node. Thus in (11) some is moved first and, since the S-node position is now filled, the negative is restricted to VP scope. In (12), any in subject position has to be moved first, and thus the negative is restricted to VP scope. Any is thus unable to be in the scope of negation. As in Lasnik's account, certain lexical items (i.e., NPIs) must be in the scope of negation, while others (i.e., PPIs) are not acceptable in the scope of negation. He proposes a feature-changing system similar to Lasnik's.

He observes that the negative not is unable to leave the clause in which it occurs:

(15) That John didn't go bothered anyone.

Since not is trapped in the lower clause, anyone will not be in the scope of negation.

Notice that this account can handle sentences like (5)(b) and (6)—the sentences in which an NPI is acceptable if embedded in a sentential subject preceding not. Since the reading is always available in which a quantifier has scope only over the clause in which it occurs, it is possible in (5)(b) and (6) for anything to be in the scope of negation: this is because it has scope only over the subordinate clause in this reading, and thus does not occupy the topmost S-node, which is thereby left open for the negative. In a
footnote. Jackendoff claims that sentences in which NPIs occur in sentential subjects preceding a negative in the verb phrase must be treated by a different scope rule than the one which accounts for the distribution of NPIs following the negative. This seems odd, since his theory actually accounts for such sentences when the lexical representation of the negative is not. However, he cites only cases in which the negative is an adversative, as in (16):

(16) That anyone at all laughed surprised Bill.

(The reason for his claim that such sentences are to be treated by a different rule is that adversatives, unlike not, do not trigger NPIs in the same clause:

(17) That Bill laughed surprised anyone.

The unacceptability of sentences like (17) is discussed in Chapter 3.)

While his account is superior to Lasnik’s in its ability to handle sentences like (5)(b) and (6), it is less inclusive in its treatment of those sentences in which not does not have scope over a direct object in the same VP:

(18) I didn’t give anybody several of the questions.

(19)(a) ‘There were several questions that I didn’t give anybody.’
   SEVERAL NOT ANYBODY

   (b) ‘There wasn’t anybody who I gave several questions to.’
   NOT ANYBODY SEVERAL

Let us consider only the reading (19)(a), in which several is not within the scope of negation. (The fact that it is under certain circumstances acceptable negated, as demonstrated by (19)(b), is
discussed in Chapter 3.) In Lasnik's account, the scope of negation is not represented as the association of the negation operator with nodes on a tree; it could presumably end anywhere at all, although there are certain circumstances which force it to be terminated (e.g., an intonational break). So in his account the reading (19)(a) of (18) presents no problem: the scope of negation simply terminates after anybody. In contrast, Jackendoff's rule is not equipped to deal with sentences like (18) with the reading (19)(a), since the negative, associated in his account with higher and higher nodes on the tree, cannot have scope over parts of constituents. Thus (19)(a) is not (in this account) a possible reading of (18), since there is no node that the negative operator could dominate (in its climb from its surface position) and thereby cause anybody but not several of the problems to be in its scope.

In Jackendoff (1972) this account of the scope of negation is modified; basically, this later account relies on the 'precede and command' rule discussed above. Negation is characterized as one of a number of modal operators which are borne by lexical items and which place various conditions upon the identifiability of referents for NPs in their scope. Negation imposes the condition that no referent may be identified for an NP in its scope. Everything preceded and commanded by not or a negative-incorporated quantifier like nobody is (optionally) in the scope of the negation operator.

Thus he has eliminated his tree-climbing scope rule, and is now proposing an account which is basically equivalent to Lasnik's. (His claims about the correlation between lexical category and scope type will not be examined here.)
1.3 CRITIQUE OF SURFACE STRUCTURE ACCOUNTS

In the preceding sections I have sketched two accounts of NPIs which may be summarized roughly as follows.

A sufficient condition on the acceptability of NPIs is that they occur in the scope of negation. The scope of negation maximally includes everything to the right of and commanded by the lexical realization of the negation operator in surface structure. As the ambiguity of (20) below demonstrates, the scope of negation can fall short of everything to the right of and commanded by not or other lexical realizations of negation: in the reading (21)(a) of (20), the scope of negation stops short of many. And, as has been widely noted, this reading (21)(a) is not necessarily signalled by an intonation break.

(20) He didn't answer many questions.
(21)(a) [MANYx: x is a question] NOT (he answered x)
(b) NOT [MANYx: x is a question] (he answered x)

If an NPI occurs in the scope of negation, it is predicted to be acceptable. Neither Lasnik's nor Jackendoff's account is designed specifically to account for the distribution of NPIs, which are simply assumed to be diagnostics of the scope of negation. This surface structure account, therefore, may turn out to be inadequate either because it fails to predict the scope of negation from surface structure or because 'occurrence in the scope of negation' is not the correct formulation of the sufficient condition on NPI acceptability.

It should be noted that, as sentences (3)-(7) in the Introduction demonstrate, NPIs can occur in certain contexts without any overt
negation at all. Clearly the surface structure account discussed here is not intended to cover such contexts, but only to describe a sufficient condition under which NPIs may be triggered by overt negation.

Below I will consider two problems for this Lasnik/Jackendoff surface structure account.

The first problem is that, as has long been observed, the acceptability of an NPI in an embedded sentence with the negative in a higher clause depends upon the meaning, not just the syntactic configuration, of the sentence. For example, the following sentences are structurally identical in all the relevant respects:

(22) I didn't realize that he knew anything at all about photography.
(23) I didn't say that I had ever been to Istanbul.
(24) I didn't add that I had ever been to Istanbul.
(25) I don't think that she can help doing what she does.
(26) I don't regret that she can help doing what she does.

If the scope of negation optionally includes everything that is preceded and commanded by the lexical representation of negation, (22)-(26) should all be acceptable since the NPIs in them are preceded and commanded by not.

Thus occurrence in the scope of negation (as defined on surface structure) is not sufficient to guarantee NPI acceptability when the trigger is overt negation. We could accordingly say that this sufficient condition on NPI acceptability is not merely that the NPI occur in the scope of negation but also that it occur in the same
clause with the lexical realization of the negation operator. This reformulation would have the effect that (22)-(26) above would not meet this sufficient condition, and the acceptable (22), (23) and (25) would be acceptable for the same as yet unspecified reasons as (3)-(7) in the Introduction. However, this move will be of no help in connection with a second and more serious problem.

The second problem for the surface structure accounts arises from sentences like the following:

(27)(a) John didn't help us because he had (any) altruistic sentiments--he just didn't have anything else to do.

(b) John didn't lift a finger to help us because he had (any) altruistic sentiments--he just didn't have anything else to do.

(c) John didn't lift a finger to help us (,) because he was busy--he would have helped us if he'd had time.

(28)(a) John doesn't do as well as Mary because he has (any) talent--he gets a lot of help from his friends.

(b) John doesn't hold a candle to Mary because he has (any) talent--he gets a lot of help.

(c) John doesn't hold a candle to Mary because he never works at all--if he worked, he'd do as well.

(29)(a) The bomb didn't explode at 6:00 because (any of) the terrorists goofed--it was purely a technical malfunction.

(b) The bomb didn't explode until 6:00 because (any of) the terrorists goofed--it was purely a technical malfunction.

(Ignore irrelevant reading where explode is durative.)

(c) The bomb didn't explode until 6:00 because somebody goofed--it was supposed to go off earlier, but he forgot.

(30)(a) John didn't yield to us with (much) enthusiasm: he was mad.

(b) John didn't budge with (much) enthusiasm: he was mad.
(31)(a) He didn't help us politely: he was rude.

(b) *He didn't lift a finger to help us politely: he was rude.

In the (a) sentences above, the adverbials (because clauses, purpose clauses, manner adverbials) are to be taken as in the scope of negation: this reading can be forced by the presence of NPIs in the adverbial. What is relevant to the discussion, however, is the varying acceptability of the NPIs preceding the negated adverbials: the (b) sentences demonstrate that NPIs are unacceptable even immediately following not if the adverbial is also in the scope of negation. The (c) sentences demonstrate that NPIs are acceptable in this position if the adverbial is not negated.

That is, even in the same clause with and immediately preceded by a negative, an NPI may be unacceptable. It is not the presence of an NPI in the because clause or other adverbial that renders an NPI in the matrix S unacceptable: it will be unacceptable if the because clause is interpreted as being within the scope of negation, whether or not the adverbial also contains an NPI.

Note that other types of adverbials do not seem to 'rob' NPIs of the negative:

(32) The bomb didn't explode [PUNCTATIVE] until 6:00 during (any of) the tests. TEMPORAL ADVERBIAL

(33) Sue doesn't lift a finger around the house anymore. TEMPORAL ADVERBIAL

(34) The glacier hasn't budged an inch in any direction. DIRECTIONAL ADVERBIAL

(35) I didn't budge my car an inch with (any of) the tactics that earned one red cent you taught me. INSTRUMENTAL ADVERBIAL
Compare (35) with (36) below, which has a manner adverbial:

(36) I didn't earn one red cent with (any) enthusiasm.

In this section I will attempt to demonstrate that there is no way to account for the unacceptability of (27)(b)-(31)(b) by a theory which states the sufficient condition on NPI acceptability in terms of surface structure. (Sentences (33)-(35) are argued in Chapter 4 to be acceptable for reasons which are not relevant here.)

Consider the unacceptable (27)(b). The only possible surface structure explanation of this unacceptability would be an appeal to some syntactic structure of (27)(b) in which the because clause but not the NPI lift a finger is in the scope of negation. It has been suggested (e.g. in Williams (1975)) that the node to which a because clause is attached determines whether or not it is in the scope of a matrix negative: S-attached because clauses are negated, while the S'-attached ones are not. This may be correct—perhaps the scope of adverbials is, unlike that of quantified NPs (as in (20)) predictable from surface structure—but it buys us nothing in connection with sentences like (27). If the negated because clause in (27)(b) is attached to S, we would have to say that the negative has scope over S: since lift a finger occurs in S, it is in the scope of negation and should be acceptable.

There is, however, a fairly straightforward way in which Jackendoff's 1969 rule can be altered so as to deal with (27)(b)-(31)(b), and in a way which accords reasonably well with intuition. Let all NPIs except for any and ever prevent the negative from interpretively 'leaving' any node which dominates an
Thus in (27)(b)-(31)(b) the NPI in the VP restricts the negative to VP scope and hence the adverbial, which we will have to represent as attached to S, cannot be in the scope of negation. In this account, then, (27)(b)-(31)(b) without NPIs in the adverbial are simply impossible readings to get; with NPIs in the adverbial, they are unacceptable since these NPIs will be outside the scope of negation.

Confirmation of this account would be in the form of evidence that expressions can be negated following NPIs as long as they are in the VP with the negative and the NPI. (Consider for the moment just those cases in which not is the lexical representation of the negation operator.) There is such evidence if we explain the difference between the set of motivational adverbials (e.g. because, in order to) and manner adverbials on the one hand, and the set of instrumental, temporal, and directional adverbials (see sentences (32)-(35)) on the other hand, by saying that the former are attached to S' or S (correlating with the presence or absence of an intonational break) and that the latter are attached to the VP. Then the fact that instrumentals, temporal, and directionals may be negated following an NPI (as in sentences (32)-(35)) is explained: the NPI restricts the negative to VP scope but since these adverbials are in the VP they will still be in the scope of the negative that has been so restricted.

The impossibility of negated motivational or manner adverbials following an NPI in the VP will be explained by saying that the negative cannot leave the VP because the VP node dominates an NPI: thus the S- or S'-attached adverbial will be outside the scope of
An interesting bit of corroboration comes from sentences like (37) and (38) below:

(37) Drew didn't lift a finger to save anyone.
(38) Drew didn't lift a finger in order to save anyone.

The difference in acceptability between (37) and (38) may be explained by saying that in (37) to save anyone is a VP complement and in (38) in order to save anyone is a purpose clause attached to S. Thus anyone is acceptable in the adverbial of (37): although the NPI lift a finger restricts the negative to VP scope, the complement to save anyone is still in the scope of negation since it is VP-attached. In (38), however, lift a finger 'traps' the negative in the VP and the S-attached complement in order to save anyone is not in the scope of negation: hence anyone is unacceptable in it. Similarly, anyone is acceptable in indirect object position following an NPI:

(39) She didn't give a red cent to anyone.

This surface structural account of the scope of negation which results from this modification of Jackendoff's rule is appealing in its simplicity, and accounts for all the sentences like (27)(b)-(31)(b) that have been looked at so far. However, there seem to be insurmountable problems.
FIRST PROBLEM: In (40) below, the NPI adverbials \textit{anymore} and \textit{in years} follow another NPI, which presumably restricts the scope of \textit{not}. Therefore \textit{anymore} and \textit{in years} must be attached to the VP node: otherwise they will not be in the scope of negation, since the preceding NPI has restricted the negative to VP scope. However, in (41) \textit{anymore} and \textit{in years} follow motivational adverbials. This is a problem, because this revised surface structure account requires motivational adverbials to be S- or S'-attached, in order to explain why an NPI in the VP is incompatible with a negated motivational adverbial. But if \textit{anymore} and \textit{in years} follow an S- or S'-attached expression, how can they be VP-attached? Thus we are forced to make contradictory claims about their surface structure position.

(40)(a) The glacier hasn't bugged an inch in years.
(b) She doesn't lift a finger around the house anymore.

(41)(a) I haven't gone to church because I wanted to in years--I've just been going out of habit.
(b) Sarah doesn't perform in order to make money anymore--she just enjoys performing these days.

SECOND PROBLEM: Some NPIs may occur in clauses with no negative if the clause is embedded under a negative and a so-called 'neg-raising' verb such as \textit{think}:

(42) I don't think that \{ he lives here anymore.
\hspace{1cm} *Mary didn't announce that \}

(43) I don't think that he\{ will budge an inch.
\hspace{1cm} has written the paper yet.

There are two obvious ways to deal with 'neg-raising' verbs and the scope of negation within the framework of our surface structure.
rule: (1) to say that neg-raising verbs (unlike other verbs) are
transparent with respect to negation, and allow anything in their
complement to be in the scope of the upstairs negative or (2) to posit
the existence of a 'neg-lowering' rule that transforms (44) to (45)
before the scope of negation is determined:

(44) I don't think that she went.
(45) I think that she didn't go.

Possibility (1), in which the scope rule is simply applied to
sentences like (43) 'as is', with no relocation of the negative, will
create an insurmountable problem: there is absolutely no explanation
for the unacceptability of sentences like (46) below:

(46) I don't think that he
\[ \begin{align*}
&\text{will budge an inch} \\
&\text{has written the paper yet} \\
&\text{has resigned}
\end{align*} \\
\]
because he has any aspirations for higher office.

The only way that sentences like (27)(b)-(31)(b) are blocked, in
this account, is if the negative is prevented from leaving a node
dominating an NPI. If the negative starts out attached to a node
higher than the node to which the NPI is attached, there is no way to
prevent it from having scope over that node, and hence the NPI should
be acceptable.

Possibility (2), in which there is a 'neg-lowering' rule, would
explain the unacceptability of (46) above: it would have been
transformed into (47) prior to the application of the scope rule; the
negative would, as usual, be prevented from taking scope beyond the VP
since there is an NPI in the VP.
(47) *I think that he won't budge an inch because he has any aspirations to higher office.

There are two serious problems associated with this analysis. The first problem is: the presence of any in subject position of sentence (48) below should render the sentence unacceptable, because the negative should be unable to leave the VP (since there is an NPI in the VP) with the result that anybody is not in the scope of negation.

(48) I don't think that anybody gives a damn about Harold.

The second problem associated with the 'neg-lowering' rule approach to 'neg-raised' sentences is that (as often noted) sentence pairs like (49) and (50) are not always synonymous.

(49) I think that Bill doesn't beat his cat because he loves it.
(50) I don't think that Bill beats his cat because he loves it.

The two sentences share one reading: the reading in which the speaker claims to believe that Bill beats the cat but for some reason other than love, i.e. the reading in which the because clause is negated. However, (49) has another meaning: the speaker believes that the reason why Bill doesn't beat his cat is that he loves the cat, i.e. the reading in which the because clause is not negated. Sentence (50) does not have this reading: that is, the because clause in (50) is obligatorily negated. This is not only another argument against syntactic 'neg-raising': it also creates problems for the 'neg-lowering' rule, which is of course neg-raising in reverse. There is no way to explain why sentence (50) does not have this reading in
which the \textit{because} clause is not negated, since presumably (49) and (50) have the form (49) when the neg scope rule applies. Thus the 'neg-lowering' rule must be abandoned.

There is, as a result, no way to account for the unacceptability of sentences like (46) with the revised scope rule.

The problem created by (46), then, is that if the negative starts out in a position higher in the tree than the NPI in the VP there is no way to explain the unacceptability of the sentence. The same problem arises in connection with sentences with a negative in subject position:

\begin{equation}
(51)^*\text{Nobody contributed a red cent because there was any coercion.}
\end{equation}

Since the negative does not occur in the VP and the \textit{because} clause is $S$-attached rather than $S'$-attached (as it must be in order to be negated in this account), there is no node which dominates the NPI a red cent but not the \textit{because} clause: only if there were such a node could the NPI prevent the negative from leaving and thereby prevent the negation of the \textit{because} clause. Sentence (51) should therefore be acceptable, since nothing prevents the NPI in the \textit{because} clause from being in the scope of negation. But of course (51) is unacceptable.

THIRD PROBLEM: The problem discussed above arises in connection with operators other than negation. For instance, polarity items may occur in questions. Let us assume for the purposes of the discussion that the question operator triggers NPIs analogously to negation: that is, an NPI in the scope of a question operator will be acceptable.

The acceptability of \textit{anything} in the \textit{because} clause of (52) demonstrates that \textit{because} clauses can be in the scope of this question
operator:

(52) Did he beat his cat because it did anything wrong?
    he hates it?

The problem arises once again of NPIs preceding the *because* clause in
such environments:

(53)(a) Did he bat an eyelash when she walked in because he
    was expecting anybody else?

(b) Did he lift a finger to help Frank in order to
    impress anyone?

There is no way to deal with this problem with our revised scope
rule. If we propose that there is a question morpheme which 'climbs'
up the tree in the same fashion as Jackendoff's rule has the negative
climb up the tree, then we are faced with the same problems that were
found to be insuperable in the case of the 'neg-raising' sentences.

FOURTH PROBLEM: This rule is also unable to account for the
acceptability of positive polarity items following the negative in the
matrix S of sentences with *because* clauses:

(54)(a) He's not still hanging around here because he has
    any affection for the place.

(b) I didn't buy you several martinis because I had any
    desire to listen to your hard luck story.

In (54)(a), the *any* in the *because* clause shows that the negative has
S scope, and thus everything in the S should be marked as negated,
resulting (in the theories under discussion) in unacceptability if a
positive polarity item (such as still or several) is so marked: so why
is (54)(b) acceptable?

It appears, therefore, that there is no way to account for the
unacceptability of sentences like (27)(b) if it is claimed that occurrence in the (surface structure defined) scope of negation is sufficient to guarantee No I acceptability.
SUMMARY OF CHAPTER 1

It has been demonstrated in this chapter that it is not a sufficient condition on the acceptability of an NPI that it occur to the right of and in the same clause with a commanding negative in surface structure.

In the following chapters it is argued that occurrence in the scope of negation—however the scope of negation is determined—is not sufficient to guarantee NPI acceptability, and furthermore that the statement of a sufficient condition on NPI acceptability must make reference to a relationship between the MPI and the negation operator that cannot be defined on surface syntactic structure.
FOOTNOTES

1. There may be an acceptable reading of *any green vegetables* in which it is interpreted as 'any green vegetables that there may have been', or 'whatever green vegetables there were'. This occurrence of *any* is not conditioned by the negative in *impossible*, as (i) demonstrates:

   (i) Any green vegetables that there were up there were impossible to locate.
       fairly easy

2. See Chapter 3 concerning the interaction of 'nonreferentiality' of quantifiers and the scope of negation.

3. Note that *any* and *ever*, unlike other NPIs, seem to be acceptable in the matrix *S* of such sentences:

   (i) I didn't cut any of those lectures because I had anything against you.

   (ii) I don't think that he ever wore that suit in order to impress anyone.

This will be discussed in Chapter 3.
CHAPTER 2: BAKER'S CONJECTURE

In the preceding chapter the surface structure accounts of Jackendoff and Lasnik were seen to be inadequate to the task of defining a sufficient condition on NPI acceptability.

I will argue in the following chapters that a sufficient condition on NPI acceptability can in fact be formulated as a part of sentence grammar. However, it must be recalled at this point that a restriction of NPIs to some relation with a negative can never be a necessary condition on NPI acceptability, since NPIs are acceptable following if, too, surprised that, etc. (See sentences (3)-(7) in the Introduction.) So if a sufficient condition is formulated in terms of the relationship (whatever it turns out to be) of the NPI to a negative, the relationship between NPI acceptability by virtue of this condition and NPI acceptability in sentences like (3)-(7) in the Introduction still remains to be determined.

The first proposals concerning this relation were made in Baker (1970a,b).

Baker (1970a) observes sentences such as the following:

(1)(=Baker's (18))
There isn't anyone in this camp who wouldn't rather be in in Montpelier.

(2)(=Baker's (29))
You can't convince me that someone isn't still holed up in this cave.

Since would rather and still are positive polarity items, as demonstrated by their unacceptability in (3) and (4) below, why are they acceptable in the same clause with a negative?
He first attempts to deal with sentences (1) and (2) by modifying Jackendoff's 1969 negative scope rule in the following manner: All nodes of the tree are marked '-negative' at the beginning of the derivation. Negative polarity items are of course inherently '+negative', and positive polarity items are inherently '-negative'. Jackendoff's scope rule applies as usual, but it is written as an alpha rule capable of undoing the results of previous applications:

Thus if an item is in the scope of an odd number of negatives, its derivational feature will be '+negative', but if it is in the scope of an even number of negatives, its derivational feature will be '-negative' if the rule (which is optional) applies.

In addition to the basically insuperable problems which Baker goes on to ascribe to this rule, note that it is of no use with respect to sentences like (27)(b) in Chapter 1. This sentence, repeated below, contains only one negative and everything in the sentence should therefore be marked '+negative'.

(27)(b) John didn't lift a finger to help us because he had (any) altruistic sentiments—he just didn't have anything else to do.
Baker then proposes an entirely different approach to the problems raised by sentences like (1) and (2), based upon his observation that (1) and (2) entail (6) and (7) below, in which the PPIs are acceptable.

(6) (Baker's (50))
   Everyone in this camp would rather be in Montpelier.

(7) (Baker's (52))
   I firmly believe that someone is still holed up in this cave.

He proposes the following rule.

(8) (Baker's (47))

a. Negative-polarity items are appropriate in structures within the scope of negations, whereas affirmative-polarity items are appropriate elsewhere. [This part of his rule is to be 'virtually identical with the original unidirectional rules of Klima and Jackendoff.' That is, by part (a) an NPI is appropriate if it is in the scope of negation as defined on surface structure.]

b. Given semantic representations P1 and P2 satisfying the following conditions:

   (A) P1 = X1 Y Z1 and P2 = X2 Y Z2, where Y is itself a well-formed semantic representation;

   (B) P1 entails P2:

   then the lexical representation appropriate to Y in P2 (by(a)) is also appropriate to Y in P1.

The acceptability of (1), that is, is accounted for on the basis of its entailment of (6), the semantic representations of the two sentences being roughly as in (9):

(9)(a) SEMANTIC REPRESENTATION P1 OF (1)
   neg Ex neg (x would rather be in Montpelier)

(b) SEMANTIC REPRESENTATION P2 OF (6)
   Ax (x would rather be in Montpelier)
Since the PPI would rather is obviously not acceptable in (1) by part (a) of the rule, part (b) must be utilized. The Y in common between the semantic representations of (1) and (6) is the logical subformula x would rather be in Montpelier, however it is represented semantically. Since P1 entails P2, the lexical representation appropriate to x would rather be in Montpelier in (6) is also appropriate to it in (1).

The acceptability of NPIs after surprised that is accounted for similarly. Baker claims that the semantic representation (10)(b) of (10)(a) entails the semantic representation (11)(b) of (11)(a), and hence the lexical representation appropriate to their common subpart Ex(SAY(John,x)) in (11)(a) will also be appropriate in (10)(a). The lexical representation of this subpart is 'John said anything'. It is clear, however, that surprised that S does not entail expect that NOT S: one might be surprised at S without ever having thought about the possibility of S. So logical entailment does not appear to be the relation between P1 and P2.

(10)(a) We are surprised that John said anything.
   (b) SURPRISED (we, (Ex(SAY(John,x))))

(11)(a) We expected that John wouldn't say anything.
   (b) EXPECT (we, (NEG (Ex (SAY (John, x)))))

Baker’s proposal is thus as follows. An NPI must be marked ‘+negated’ in order to be acceptable. Everything to the right of and commanded by the lexical representation of negation in surface structure is marked as ‘+negated’; NPIs so marked are acceptable by virtue of part (a) of Baker’s rule in (8) above. Part (a) therefore is meant to state the sufficient condition: the paradigm case, that
is, of NPI acceptability. Part (b) of the rule describes the circumstances under which an NPI which is not marked as '+negated' by part (a) may still be marked as '+negated' and hence be acceptable. Part (b) relies not on surface structure but on the relation between the semantic representations of sentences. If the semantic representation of what we will call the 'host sentence' entails the semantic representation of what we will call the 'implied sentence', then any NPIs that are acceptable in the 'implied sentence' will also be acceptable in the 'host sentence'.

It was demonstrated in Chapter 1 that surface structure rules like Baker's part (a) are inadequate to define a paradigm case of NPI acceptability. Similarly it is demonstrated in Chapter 4 below that part (b), as Baker (1970b) acknowledges, cannot be formulated in terms of logical entailment alone. Nevertheless, the theory of NPIs 'or which I argue has exactly the structure proposed by Baker: there is a sufficient condition on NPI acceptability stated on some level of linguistic representation, and sentences with NPIs which do not meet this condition may still be acceptable by virtue of their meaning (rather than their structure) if they 'allude' in some as yet unspecified way to a semantic representation whose structure does meet this condition. The distinction between part (a) and part (b), then, is the distinction between a structural (though not necessarily surface structural) condition and a semantic condition; between a paradigm case and a machinery for alluding to that paradigm case. In the following chapters I propose reformulations of parts (a) and (b) while maintaining the structure of Baker's account.

It should be pointed out that this is not the only plausible
structure of a theory of NPIs. For example, Ladusaw (1979) argues against this 'derivative generation' analysis in which the primary trigger is negation. He argues that all triggers are equally basic by virtue of a shared semantic property of 'downward entailment', and attempts to formulate a necessary rather than a sufficient condition on NPI acceptability. His proposals are discussed in Chapter 6.
CHAPTER 3: PART (A) - THE PARADIGM CASE

In this chapter 'part (a)' will be reformulated. That is, I will attempt to formulate a sufficient condition on NPI acceptability to replace the surface structure condition rejected in the preceding chapter.

In section 3.1 sentences like (1)(a) below will be reconsidered; their unacceptability, it has been shown, is recalcitrant to explanation in terms of the surface structure configuration of not and NPIs. (The continuation (1)(b) forces the unacceptable reading of (1)(a).)

(1)(a) John's paper didn't hold a candle to Mary's because he had (any) help.

(1)(b) ... but because he worked hard.

A reformulation of part (a) will be proposed in the light of sentence (1)(a), and in section 3.2 this reformulation, the 'Immediate Scope Constraint', will be worked out in detail. In section 3.3 I will examine the mechanics of the proposed rule; in section 3.4, possible counterexamples to it.

3.1 SENTENCE (1)(a) AND THE PREDICATE 'CAUSE'

Contrast the unacceptability of sentence (1)(a) with the acceptability of sentence (2)(a), with an appropriate continuation (2)(b).

(2)(a) John's paper didn't hold a candle to Mary's because he got drunk the night before.

(2)(b) ... not because he's dumb.
The obvious difference between (1)(a) and (2)(a) is that the because clause is negated in (1)(a) but not in (2)(a), in the readings forced by their respective continuations. That is, treating because as a predicate with two arguments, viz. the complement S of because (hereafter, 'S1') and the matrix S (hereafter, 'S2'), we can represent the logical skeleton of (1)(a) and (2)(a) as in (3) below.

(3)(a) NOT CAUSE (S1, S2)  = (1)(a)
   (b) CAUSE (S1, NOT S2)  = (2)(a)

The unacceptability of the NPI in S2 of sentence (1)(a) becomes somewhat clearer now. The predicate CAUSE intervenes between NOT and S2, with the result that the NPI in S2 is semantically 'distanced' from NOT in some way, despite the surface structure adjacency of not and hold : candle to. S2 of (2)(a), on the other hand, is immediately in the scope of NOT; thus the NPI in S2 is not 'distanced' from the negative by the predicate CAUSE.

There is some evidence that such adverbials must be assigned scope in this way, along with negation, quantifiers, etc. This comes from tag questions. As observed by Jackendoff (1972), Carden (1973) and others, a positive tag question is unacceptable if NOT is not the operator with widest scope. Thus (4)(a) below is unacceptable since 1 several must take wide scope with respect to NOT.

(4)(a) *Several students didn't laugh, did they?
   (b) [SEVERALx: x is a student] NOT (x laughed)

What is relevant is that non-negated because clauses also sabotage positive tags; if we assign scope to such adverbials in the
representation of its logical structure, then (5)(a) can be said to be unacceptable for the same reason as (4)(a), given its logical structure (5)(b); in contrast, (5)(c) with logical structure (5)(d) is acceptable since NOT is the operator with widest scope. (Consider only the most natural readings of (5)(a) and (c), as represented in (b) and (d).

(5)(a) John didn't call because he was too busy, did he?
(b) CAUSE (S1, NOT S2)
(c) John didn't call because he wanted anything, did he?
(d) NOT CAUSE (S1, S2)

Perhaps it is this semantic 'distancing' of the NPI from the negative that renders (1)(a) but not (2)(a) unacceptable. That is, perhaps part (a) should be stated not on surface structure but on some representation of logical structure—hereafter, 'logical form'; as a first approximation to part (a), to be refined in the following sections, consider (6):

(6) An NPI is acceptable in a sentence S only if in the logical form of S the representation of the NPI occurs only in the proposition over which NOT most immediately has scope.

In the following section, 3.2, the notion of 'immediate scope' will be considered in more detail. The term 'logical form' is ambiguous, having various logical and linguistic usages; this ambiguity will be left unresolved for the moment. That is, I will leave open until section 3.3 the question of what linguistic level the constraint sketched in (6) applies to. I will also ignore until section 3.3 the question of how sentences are associated with logical forms.
3.2 THE IMMEDIATE SCOPE CONSTRAINT

In section 3.1 I examined sentences like (1)(a) in which the predicate CAUSE seemed to separate the NPI from NOT in logical form despite the surface structure adjacency of the NPI and the negative morpheme. In this section the tentative formulation of part (a) given in (6) will be worked out in more detail.

Consider the following sentences:

(7)(a) She doesn't budge for everybody.
   (b) NOT [Ax: x is a person] (she budes for x)
   (c) [Ax: x is a person] NOT (she budes for x)

(8)(a) She doesn't budge for just anybody.
   (b) NOT [Ax: x is a person] (she budes for x)
   (c) [Ax: x is a person] NOT (she budes for x)

(9)(a) That doesn't hold a candle to most of Frank's ideas.
   (b) NOT [MOSTx: x is an idea of Frank's] (that holds a candle to x)
   (c) [MOSTx: x is an idea of Frank's] NOT (that holds a candle to x)

In the above sentences, it appears that in some cases a quantifier is capable of 'robbing' the NPIs budge and hold a candle to of the negative. That is, the above sentences do not have readings in which a quantifier intervenes between NOT and the NPI. Consider first sentence (7)(a). It is noted in Carden (1973), Kroch (1974), and elsewhere that sentences like (7)(a) lack the reading (7)(c) for most speakers. That is, the configuration A NOT, at least when A is represented by every or each, is unacceptable. This leaves the reading (7)(b): but it is clear that this is not a possible reading of (7)(a). Thus (7)(a) is unacceptable, as is (8)(a) for the same
4 reasons.

Contrast (7) and (8) with (9): since there is no MOST NOT filter, (9)(a) has an acceptable reading (9)(c) with the order MOST NOT. In the reading with this order, MOST does not intervene between NOT and the NPI. (9)(b), the reading with the order NOT MOST, is unavailable, since MOST intervenes between the NPI and NOT. Sentence (9)(a) is acceptable, in contrast to (7)(a) and (8)(a), because it has this one acceptable reading. Notice that, if there are no NPIS, NOT and MOST can have either order with respect to one another:

(10) He didn't answer most of the questions.

(11)(a) [MOSTx: x is a question] NOT (he answered x)
   (b) NOT [MOSTx: x is a question] (he answered x)

Sentence (10) is clearly ambiguous, having either of the readings in (11). Thus it is the presence of the NPI that sabotages the NOT MOST reading, rather than any inherent scope preference of MOST.

An exception to this generalization is that other NPIS seem generally to be able to intervene between each other and NOT, as demonstrated by (12) below. This will be discussed in section 3.4.1.

(12)(a) That doesn't hold a candle to any of Frank's ideas.
   (b) NOT [Ex: x is an idea of Frank's] (that holds a candle to x)
   (c) [Ex: x is an idea of Frank's] NOT (that holds a candle to x)

Thus it appears that the tentative hypothesis in (6), that part (a) requires simply that the NPI occur only in the largest proposition over which NOT has scope, will have to be revised: we will have to say that there must be no logical elements intervening between NOT and the
NPI in logical form, with the possible exception of other NPIs. By 'logical elements' I mean items which enter into scope ambiguities with one another, disambiguatable at the level of logical form. The class of logical elements which render NPIs unacceptable by intervening between NOT and NPIs includes quantifiers, adverbials, and other operators to be discussed in the following section; it does not include, for reasons to be discussed below, indefinite NPs, the plural marker, or proper names. Thus (6) may be revised as follows:

(13) PART (A): THE IMMEDIATE SCOPE CONSTRAINT (ISC)
A negative polarity item is acceptable in a sentence S if in the logical form of S the subformula representing the NPI is in the immediate scope of the operator NOT. An item is in the immediate scope of NOT if (1) it occurs only in the proposition which is the entire scope of NOT, and (2) within this proposition there are no logical elements intervening between it and NOT. 'Logical elements' are defined here as elements capable of entering into scope ambiguities; that is, the occurrence of the surface realization of n logical elements in a sentence S results in the association of S with up to n! logical forms expressing the possible and acceptable orderings of these elements.

In the following section I will examine some additional examples of NPIs rendered unacceptable by intervening elements in logical form.
3.2.1 ADDITIONAL VIOLATIONS OF THE ISC

In the preceding section I examined some cases of NPIs which were in the scope of negation in logical form but were unacceptable by virtue of some intervening logical element which seemed to 'distance' the NPI from NOT. In this section I will examine some additional intervening elements: (1) non-motivational adverbials, (2) focus operator, (3) the predicate TRUE (in sentences with 'external negation'), and (4) AND and OR.

(1) OTHER NEGATED ADVERBIALS: In the preceding sections it was demonstrated that motivational and causal adverbials like because may render NPIs unacceptable by intervening between NOT and the representation of the NPI in logical form. Other types of adverbial expressions can also intervene in this way to cause a violation of the ISC. I will examine some frequency and manner adverbials that have this effect.

Consider the following sentences:

(14) He didn't budge an inch any more often than he stood his ground.

(15) His papers weren't as good as Frank's as often as they were inferior to them. (AMBIGUOUS)

(16) His papers didn't hold a candle to Frank's as often as they were inferior to them. (NOT AMBIGUOUS)

In (14) note that the adverbial clause any more often than he stood his ground seems to deprive the NPI budge an inch of the negative. I have put the NPI any in the adverbial only to force the reading in which the adverbial is negated, as will be seen from
looking at the next two sentences. (15) is ambiguous depending upon whether or not the adverbial is negated: the following two readings are possible. (Of course, (17) is not very informative.)

(17) (ADVERBIAL NOT NEGATED)
The occasions of his papers’ not being as good as Frank’s were as numerous as the occasions of their being inferior to Frank’s.

(18) (ADVERBIAL NEGATED)
The occasions of his papers’ being as good as Frank’s were not as numerous as the occasions of their being inferior to Frank’s.

In contrast, sentence (16) has only the reading in which the adverbial is not negated; that is, there is the reading paraphrased in (19) below but not that in (20):

(19) (ADVERBIAL NOT NEGATED)
The occasions on which his paper didn’t hold a candle to Frank’s were as numerous as those on which they were inferior to Frank’s.

(20) (ADVERBIAL NEGATED)
The occasions on which his papers were as good as held a candle to Frank’s were not as numerous as those on which they were inferior to Frank’s.

This suggests that such adverbials (perhaps all adverbials?) may be represented in logical form as function terms taking propositions as arguments; they can therefore intervene between NOT and any NPIs that may be in one of these proposition-arguments, rendering the NPIs unacceptable by part (a).

Manner adverbials create similar obstacles for NPIs. Consider the following sentences:

(21) John didn’t help us politely.
(22) John didn't yield enthusiastically.

The adverbs *politely* and *enthusiastically* are most naturally construed as within the scope of negation. However, they can have wide scope with respect to *NOT*. For instance, if John is spoiling for a fight and has in fact been ordered not to yield to his opponent, he might enthusiastically not yield, and this would be captured by the reading of (22) in which *enthusiastically* has wide scope with respect to *NOT*.

NPIs in sentences with such adverbials are acceptable only if the adverbial is not construed as being in the scope of *NOT*. Consider the following sentences with the reading in which the adverbial is negated:

(23) John didn't budge enthusiastically.
(24) John didn't lift a finger to help us politely.

Notice that if the adverbial is not in the scope of negation then the NPI is acceptable. For instance, if it would be construed as insulting for John to help, then (24) can describe his inactivity. This reading is facilitated by the presence of an intonational break or by preposing:

(25)(a) John didn't lift a finger to help us, politely.
     (b) Politely, John didn't lift a finger to help us.

Let us assume, then, that a sentence such as (26) below can be assigned any of the LFs in (27), depending upon the relative scopes of *NOT*, *ENThusiastic*, and the existential quantifier representing *any*:

(26) John didn't do any of the tasks enthusiastically.
(27)(a) NOT ENTHUSIASTIC (John, ([Ex: x is a task] (John do x)));
(b) [Ex: x is a task] ENTHUSIASTIC (John, NOT (John do x)))
(c) NOT [Ex: x is a task] ENTHUSIASTIC (John, (John do x))

The unacceptability of (27)(a) was discussed above. (27)(b) is clearly unacceptable since the representation of any is not in the scope of NOT, much less its immediate scope. (27)(c), however, appears to be a possible reading of (26), especially if any is heavily stressed. It can be paraphrased as in (28):

(28) 'There wasn't one task that he did enthusiastically; he complained about them all.'

In this reading, any is assigned wide scope with respect to the predicate ENTHUSIASTIC: thus the ISC is not violated. Note that NPIs which are not themselves quantifiers or do not contain 'detachable' quantifiers will not allow for such a reading; thus the ISC will always be violated for them when the manner adverbial is negated.

We have seen here that other adverbials besides because can cause violations of the ISC by intervening between NPIs and NOT in logical form. This suggests that any adverbial which can enter into scope ambiguities with NOT is to be treated like because: the acceptable cases of such an adverbial coming between NOT and the NPI in logical form, such as (32)-(35) in Chapter 1, are to be dealt with by part (b).

(2) SENTENCES WITH ATTRACTION TO FOCUS (AtF): NPIs are generally unacceptable if the negative is attracted to focus. (The cases in which NPIs are still acceptable are to be covered by part (b), and will be discussed in Chapter 4.) Consider the following sentences.
(29) JOHN didn't lift a finger to help Louise.

(30) JOHN doesn't hold a candle to Bill.

In these sentences the NPIs are acceptable only if the negative is not attracted to focus.

The proper representation of sentences with AtF seems quite problematic, but I will make a sketchy proposal here along lines that have been suggested elsewhere. (31) seems to be paraphrasable as in (32), when there is AtF, or (33), when there isn't. These paraphrases are given rough formalization in (34) and (35):

(31) JOHN didn't go.
(32) It wasn't John who went.
(33) It was John who didn't go.
(34) NOT (the x such that (x went) = John)
(35) the x such that((NOT (x went)) = John

Thus I am following the paraphrases fairly literally and representing the focus in such sentences as denied or asserted (depending upon whether or not there is AtF) to be the referent of the definite noun phrase the x such that... The non-focussed part of the sentence is thus represented in logical form analogously to a relative clause. The negative, when there is AtF, negates the proposition that the x described by the expression the x such that... is to be identified with the focussed element. Any NPIs in the non-focussed part of the sentence are thus not in the immediate scope of the negative, any more than NPIs in relative clauses are. Thus:

(36) (=logical form of (30) with AtF)
NOT (the x such that (x holds a candle to Bill) = John)

(37) (= logical form of (30) without AtF)
the x such that (NOT(x holds a candle to Bill)) = John

Only in (37) is the NPI hold a candle to in the immediate scope of NOT, although in both (36) and (37) it is in the scope of NOT.

This method of representing sentences with focus also allows us to predict the unacceptability of sentences in which the focus to which the negative is attracted is itself an NPI:

(38)(a) I didn't YIELD--I stood my ground. (AtF)
(b) I didn't BUDGE--I stood my ground. (AtF)

(40)(a) I don't have SOME interest in the project--I have a LOT of interest in it. (AtF)
(b) I don't have ANY interest in the project--I have a LOT of interest in it. (AtF)

In the (b) sentences above, the NPIs budge and any are unacceptable despite the fact that they are the direct focus of the negative. The (a) sentences, which contain non-NPI lexical items roughly synonymous with the NPIs, show that there is nothing wrong with the (b) sentences apart from the separation of the NPIs from the negative.

The representation of (39) is roughly as in (41):

(41)(a) NOT (the x such that (i x-ed) = YIELD)
(b) NOT (the x such that (I x-ed) = BUDGE)

The representation of the meaning of BUDGE is, in (41)(b), separated from NOT by the focussed NP the x such that I x-ed.

Chomsky (1975) provides an argument for this representation of
sentences with focus. He demonstrates that anaphora is sensitive not merely to syntactic structure but to 'partially developed logical form.' The structures to which he demonstrates that the rules of anaphora apply are identical to those proposed above: (42) below he represents as (43).

(42) (=Chomsky (97))

The woman he loved betrayed JOHN.

(43) The x such that the woman he loved betrayed x—is John.

Chomsky demonstrates that he can be coreferential with John only if John is not the focus; the representation (43) allows this to fall out of the crossover principle.

Thus there is independent evidence for the logical forms upon which I am basing my explanation of the unacceptability of NPIs in sentences with AtF.

I will now examine the third class of unacceptable sentences with NPIs in which an overt negative precedes and commands the NPI in surface structure.

(3) 'EXTERNAL NEGATION': Consider the sentences below.

(44) She DID NOT lift a finger to help.
(45) We DID NOT get up until 12:00.
(46) He DOES NOT hold a candle to Frank.

Sentences (44)-(46) are unacceptable when spoken with a rising intonation on did not, i.e. when they are construed as denials.

This use of NOT seems to correspond to the notion of 'external negation', which Kroch (1974) describes as
...a 'metalinguistic' usage in which the negative sentence $\text{NOT } S$ does not directly comment on the state of affairs but instead denies the truth of the statement $S$ previously uttered or implied. Sentence external negation can be paraphrased as 'the sentence $S$ is not true.'

In such sentences the negative clearly has wide scope with respect to other operators in the sentence; thus it is indisputable that the NPIs are in the scope of negation. The wide scope of negation in such sentences is demonstrated by the fact that in (48)(a) below MANY can be interpreted as in the scope of negation only if (48)(a) is construed as a denial. (As will be discussed in section 3.3.2 below, in the corresponding non-denial (48)(b) MANY must have wide scope with respect to NOT.)

(48)(a) Many people HAVE NOT signed up for the course.
(b) Many people haven't signed up for the course.

This suggests that this is another case of NPIs in the scope of NOT but not in its immediate scope; the unacceptability of NPIs in sentences with denial suggests that (if the ISC is correct) there is something intervening between NOT and the NPIs. This sense that there is something 'between' NOT and the NPI in (44)-(46) seems to me to argue for the ISC despite the fact that there is no independently motivated candidate for a logical element which may be represented as actually occurring between NOT and the rest of the logical form of such sentences. Let us represent the intervening element as TRUE.

(49)(a) He DID NOT leave.
(b) NOT TRUE (he left)
Thus the logical forms of (44)-(46) are:

(50)(a) NOT TRUE (she lifted a finger to help)
    (b) NOT TRUE (we got up until 12:00)
    (c) NOT TRUE (he holds a candle to Frank)

Clearly these logical forms do not satisfy the ISC.

Consider sentence (51) below.

(51) The king of France didn't contribute (*one red cent),
    because there is no king of France.

If the judgment marked above is correct, then we can explain it on the basis of the intervening predicate TRUE in the external negation reading, which is forced by the because clause.

The terms 'external negation', 'AtF', and 'denial' have been used in this discussion without much attention to their precise meanings or collapsibility. It seems reasonable to treat sentences like (44)-(46), in which there is the rising intonation found with AtF and also the strong implication of previous discourse on the subject of the non-focussed part of the sentence, as cases of AtF with the predicate TRUE as the focussed element. Sentences like (51) do not seem like AtF, since they do not have the marked intonation or implication of previous discussion. Perhaps in these cases NOT has wide scope with respect to TRUE but there is simply no marked focus, TRUE or anything else.

Note on intonation: One as yet unexplained aspect of all these examples is that many of them are associated with some sort of rising intonation. It should be pointed out here that not all of the examples of violations of the ISC are associated with a rising
intonation. For instance, consider (52) as a response to the question, 'Why was he taken off the list of major American philanthropists?'

(52) He didn't contribute (*one red cent) to enough charities.

'*' marks the reading in which enough is in the scope of NOT, and in which contribute one red cent is taken as an idiom chunk.

(4) OR VERSUS AND. As demonstrated below by the ambiguity of (53)—which can have the reading (54) or (55) depending upon the relative scopes of AND/OR and TWO—the operators OR and AND qualify as 'logical elements' as defined in (13). Without making any pretense of explicating their semantics, I will represent them as below. What is needed is an explanation of why OR but not AND usually permits NPIs in its conjuncts following NOT, as demonstrated by (56) and (57).

(53) Two students saw John\{and\}Mary.

(54) \([\text{TWO}x: x \text{ is a student}] \left( (x \text{ saw John}) \{\text{AND}\} (x \text{ saw Mary}) \right)\)

'There were two students who saw both John and Mary.'

(55) \([\text{TWO}x: x \text{ is a student}] (x \text{ saw John})\)

\{\text{AND}\}

\{\text{OR}\}

\([\text{TWO}x: x \text{ is a student}] ((x \text{ saw Mary}))\)

'John and Mary were each seen by two students.'

(56) I didn't buy any apples or any bagels.

(57) I didn't buy any apples and any bagels.

(58) NOT \(((\text{[Ex: x is an apple]}(I \text{ bought } x))\)

\{\text{AND}\}

\{\text{OR}\}

\((\text{[Ex: x is a bagel]}(I \text{ bought } x)))\)
If, as in (58), the existential quantifier represented by *any* is assigned scope only over the lower conjunct, the ISC will be violated since the representation of *any* will not be in the immediate scope of *NOT*. If this existential quantifier could be assigned scope over the entire proposition in the scope of *NOT*, i.e. over both conjuncts, then the ISC would not be violated. However, this is impossible, perhaps because of the coordinate structure constraint: as (59) demonstrates, no quantifier can be assigned scope over both conjuncts.

(59) I bought five books and three magazines.

(60) Not a possible reading:

\[
\begin{align*}
[FIVE_x: x \text{ is a book}] & \ [THREE_y: y \text{ is a magazine}] \\
(I \text{ bought } x) \ & \ AND \ (I \text{ bought } y)
\end{align*}
\]

'There were five books, the purchase of each of which was accompanied by the purchase of three magazines.' (POSSIBLE PURCHASE OF 15 MAGAZINES)

(61) Not a possible reading:

\[
\begin{align*}
[THREE_y: y \text{ is a magazine}] & \ [FIVE_x: x \text{ is a book}] \\
(I \text{ bought } x) \ & \ AND \ (I \text{ bought } y)
\end{align*}
\]

'There were three magazines, the purchase of each of which was accompanied by the purchase of five books.' (POSSIBLE PURCHASE OF 15 BOOKS)

(62) \(([FIVE_x: x \text{ is a book}] (I \text{ bought } x)) \ AND \ ([THREE_y: y \text{ is a magazine}] (I \text{ bought } y))\)

'I made a purchase which consisted of five books and three magazines.' (PURCHASE OF 8 ITEMS TOTAL)

Neither (60) nor (61) is a possible reading of (59); either of these readings would of course be consistent with a purchase of 15 rather than 8 items. So the only possible reading of (56) or (57) is as in (58), which violates the ISC.

Why, then, is (56) but not (57) acceptable? It seems reasonable
to suppose that as required by part (b) there is an 'implied sentence' (64) for (56) by DeMorgan's Law: in this 'implied sentence' (i.e. in its logical form) the NPI is in the immediate scope of NOT. But of course (57) should have an 'implied sentence' (65) in the same way.

(64) (NOT [Ex: x is an apple] (I bought x)) AND (NOT [Ey: y is a bagel] (I bought y))

(65) (NOT [Ex: x is an apple] (I bought x)) OR (NOT [Ey: y is a bagel] (I bought y))

What is the difference between (64) and (65)? Clearly this is a question about part (b), to be explored in Chapter 4. But it should at least be noted here that (65) does not have to fulfill the ISC for both of its conjuncts: that is, only one of the conjuncts of the form NOT Ex... has to be true in order for (65) to be true. In contrast, both negated conjuncts of (64) must be true in order for (64) to be true. So (65) can be seen to be a much weaker 'implied sentence' than (64). Also note that OR can sometimes sabotage NPIs, as in (66); thus we see the squishiness that is characteristic of part (b):

(66) ??I didn't contribute any clothes to the Salvation Army or a red cent to the United Way.

This concludes the survey of NPIs which are unacceptable despite their occurrence in the scope of negation; that is, of additional violations of the ISC.

As I have noted throughout, sentences with logical forms in which there is an intervening logical element are sometimes acceptable: these cases, I have argued, belong to part (b). I should note here that included in these cases are sentences like (67):
(67) He doesn't believe that she knows any of his friends.
(68) NOT (he believes ([Ex: x his friends] (she knows x)))
(69) NOT ([Ex: x in his friends] (he believes (she knows x)))

Sentence (67) is ambiguous between the readings (68) and (69), i.e., the opaque and the transparent senses of any of his friends. Any is acceptable on either reading of (67). Since (68) violates the ISC, I will treat it as a part (b) case. (The varying acceptability of NPIs in such structures, as demonstrated by sentences (22)-(26) in Chapter 1, argues for treating these as part (b) cases.)

In the following section the notion of 'immediate scope' will be examined in more detail.
3.2.2 IMMEDIATE SCOPE IN KROCH (1974)

In the preceding section I have examined additional evidence that the distribution of NPIs requires reference not simply to the scope of negation in logical form, but to the immediate scope of negation. In this and the following two sections I will examine evidence in that it is not only NPIs that are sensitive to relations of immediate scope with respect to other operators. The evidence to be examined in this section is furnished by Kroch (1974), who argues that

..the major differences between scope in English and in formal logic are: 1) that the English language sentences are quite generally ambiguous as to the scope order of their operators and 2) that English operator words often allow or prefer only certain other operators immediately inside or outside their scope.

I will briefly examine his arguments concerning immediate scope preferences between (1) the universal quantifier and NOT, and (2) NOT and the existential quantifier whose lexical representation is some.

(1) THE UNIVERSAL QUANTIFIER AND NOT: As noted above, for many speakers (70) below cannot have the (b) reading in (71); that is, NOT may not be in the immediate scope of the universal quantifier.

(70) Everybody didn't leave.
(71)(a) NOT [Ax: x is a person] (x left)
(b) [Ax: x is a person] NOT (x left)

(Most if not all speakers can get the reading (71)(a): the ability of universal but not existential quantifiers to be in the scope of NOT even when preceding it in surface structure is discussed later in this chapter.) Kroch argues that sentences like (72) below suggest that it is necessary to state this restriction so as to prevent NOT from
occurring in the immediate scope of the universal quantifier rather than simply to prevent it from occurring anywhere in its scope.

(72) Every student didn't answer several questions.

(73)(a) \[SEVERALx: x is a question] \[Ay: y is a student]  
NOT (y answered x)  
'There were several questions that were left unanswered by every single student.'

(b) \[Ay: y is a student] \[SEVERALx: x is a question]  
NOT (y answered x)  
'For every student there were several questions which that student failed to answer.'

(72) with the reading (73)(a) is unacceptable for those speakers who find A NOT unacceptable, while it is acceptable for them with the reading (73)(b). Thus the prohibition seems to be on A having NOT in its immediate scope, rather than simply in its scope.

(2) NOT AND SOME: Kroch also suggests that the notion of immediate scope must be invoked in order to state the scope preferences with respect to NOT of some and several, two quantifiers which have generally been represented as inherently '-neg' in the Lasnik/Jackendoff feature analysis and which are sometimes classed with the positive polarity items. Consider the following sentences:

(74) John didn't participate in some of the battles.

(75)(a) \[Ex: x are battles] NOT (John participated in x)  
(b) NOT \[Ex: x are battles] (John participated in x)

(76)(Kroch(24))  
Not every soldier in the unit participated in some of the battles.

(77)(a) \[Ex: x are battles] NOT \[Ay: y is a soldier] (y participated in x)
(b) NOT [Ex: x are battles] [Ay: y is a soldier] (y participated in x)
(c) NOT [Ay: y is a soldier] [Ex: x are battles] (y participated in x)

Note that (74) does not allow the reading (75)(b) in which some is immediately in the scope of not. It does, of course, have the reading (75)(a) in which some has wide scope with respect to the negative. (76) also has this wide scope reading for some, represented in (77)(a). (77)(b) is the unacceptable reading (analogous to (75)(b)) in which some is in the immediate scope of negation. This is unacceptable not only because of the proximity of some to NOT, but also because the expression not every does not seem to allow any logical element to intervene between NOT and EVERY. However, Kroch observes that the reading (77)(c) is acceptable: he suggests that this is because the existential quantifier representing some is not in the immediate scope of NOT.

If this is a constraint on some, it differs from the Immediate Scope Constraint proposed for NPIs in this chapter in that the latter is a sufficient but not necessary condition on NPIs, while the former may be a necessary condition on some but cannot be a sufficient one. This is demonstrated by (78)-(80) below.

(78) Not many freshmen have some friends.
(79) Not many freshmen have any friends.
(80) NOT [MANYx: x is a freshman] [Ey: y are friends] (x has y)

I will assume that some and any are truth-conditionally identical and that both represent the existential quantifier (see Chapter 5). In
the reading in which this quantifier is in the scope of NOT, i.e. in (80), it is not in the immediate scope of NOT. (This means that (79), with NPI any, fails the ISC and must be 'rescued' by part (b); I will discuss such cases in Chapter 4.) If the restriction on some in particular or on PPIs in general could be stated by an ISC that simply barred them from the immediate scope of NOT, (78) should be acceptable. But it isn't. Similarly, some is unacceptable embedded under an adversative without any overt nor:

(81) I doubt that some students have arrived.

Although I have restricted this inquiry to NPIs, it seems worthwhile to at least venture some guesses about PPIs. They seem, as Baker demonstrated, to have the same sort of inference-governed distribution as NPIs; that is, there seems to be a part(b) for PPIs. But what is their part (a)? That is, what is the paradigm environment for a PPI, in which it is always acceptable? It has been demonstrated that this environment cannot be stated simply as 'not in the immediate scope of NOT.' If the paradigm environment for PPIs is something like 'not in the scope of negation', as has frequently been suggested, then the acceptability of (76), where some is separated from NOT in LF by the universal quantifier, can be treated as a part (b) case, by virtue of an 'implied sentence' such as (82).

(82) Some soldiers DID participate in some of the battles.

That is (76) violates part (a) of the PPI rule, since some is in the scope of NOT; the intervening every seems to allow part (b) to save the sentence by virtue of (82). It's interesting that when part (a)
for NPIs, the ISC, is violated by an intervening *every* it is almost impossible for part (b) to come to the rescue. Thus NOT EVERY seems to have fairly strong positive rather than negative implications. (To be discussed in Chapter 4.) However, sentences like (81) above, where a PPI is unacceptable embedded under an adversative, suggest that the paradigm case for PPIs cannot be stated so simply.

I have noted in this section that there is additional evidence (from Kroch (1974)) that the notion of immediate scope plays a role in the scope preferences of English non-NPI quantifiers. It is not exactly clear what this role is, since the relationship between *some* and *not* does not seem to be as he suggests, but his observations about *some* support the idea that if two logical operators resist a certain scope order with respect to one another, that order will result in the most unacceptable readings when there are no intervening logical operators, i.e. when the scope relation is immediate.

Kroch also demonstrates that the notion of immediate scope is recalcitrant to any reasonable representation by means of features associated with surface structure nodes; that is, he argues that the need to capture not only whether one element X is in the scope of another element Y, but whether it is in Y's *immediate* scope, is evidence of the necessity of representing logical structure in an unambiguous formal language rather than on surface structures. The evidence noted in this chapter that NPIs are sensitive to the immediate scope of negation provides considerable support to this position.

In the following two sections additional evidence will be presented that the notion 'immediately in the scope of' plays a
significant role in the scope component of English.
3.2.3 IMMEDIATE SCOPE AND FREE CHOICE ANY

Interestingly, it appears that free choice any has a similar 'immediate scope constraint': it seems to be unacceptable if it does not have its trigger in its immediate scope. I will assume that FC any is a universal quantifier; see Chapter 5 below for further discussion of the two anys. Since it is not always clear what the trigger is for FC any, this cannot be established with certainty; however, when the trigger is would or can the facts seem clear. Consider the following sentences. (For simplicity, tense is not marked.)

(82) She would have married EVERY ONE of those boys.

(83)(a) [Ax: x is a boy] WOULD (she marry x)
'Every one of those boys she would have married at one point or another, though she wouldn't necessarily have been willing to engage in polyandry.'

(b) WOULD [Ax: x is a boy] (she marry x)
'She would have engaged in polyandry.'

(84) She would have married ANY of those boys.

(85) Several girls would have married EVERY ONE of those boys.

(86)(a) [SEVERALx: x is a girl] [Ay: y is a boy] WOULD (x marry y)
'There are several girls who at one point or another would have married each of those boys, but would not necessarily have engaged in polyandry.'

(b) [Ay: y is a boy] [SEVERALx: x is a girl] WOULD (x marry y)
'For every boy there were several girls who would have married him.'

(c) [SEVERALx: x is a girl] WOULD [Ay: y is a boy] (x marry y)
'There are several girls who would have engaged in polyandry.'

(87) Several girls would have married ANY of those boys.

As is widely observed, (82) has an ambiguity (between (83)(a) and (b)) which is absent from (84): one hypothesis is that FC any must have wide scope with respect to its trigger. Thus (84) does not have the reading (83)(b), although in (82) WOULD and A can have either scope order.

Consider (85), which contains an additional quantifier several. The possible readings of (85) seem to be the three readings in (86): since there seems to be no reading possible in which several is in the scope of WOULD (when WOULD has the sense of 'be willing'), the task of disentangling readings is somewhat simplified.

Now consider the same sentence with any instead of every. Of the three readings for (85) with every, only the (a) reading is possible for (87) with any: this is the reading (86)(a) with the order SEVERAL A WOULD. The order SEVERAL WOULD A is ruled out because any doesn't have wide scope at all. The order A SEVERAL WOULD, however, is also not possible although any has wide scope with respect to the triggering modal.

Notice that if we replace WOULD with a modal which allows the subject to be in its scope, then any can have widest scope in the sentence. That is, consider COULD. As the widely noted ambiguity of (88) below demonstrates, scope ambiguities are possible between it and A.

(88) Two students could have been elected.

(89)(a) COULD [TWOx: x is a student] (x be elected)
(b) [TWOx: x is a student] COULD (x be elected)

Contrast (90) below, which is similar to (87) but contains COULD instead of WOULD. Since SEVERAL can occur to the right of COULD in logical form, there is a an additional reading, in which A has wide scope with respect to SEVERAL. This is because SEVERAL does not intervene between A and COULD.

(90) Several girls could have won ANY of those elections.

(91)(a) [SEVERALx: x is a girl] [Ay: y is an election] COULD (x win y)

'There are several girls who each had the capacity to win any of those elections.'

(b) [Ay: y is an election] COULD [SEVERALx: x is a girl] (x win y)

'For each election it could have happened that several girls won that election.'

I have demonstrated in this section that the notion of 'immediate scope' is relevant to the distribution of free choice any; thus we have further evidence that it plays a significant role in the grammar.
3.2.4 IMMEDIATE SCOPE AND 'NONREFERENTIALITY'

In this section I will take brief note of a source of confusion about the scope of NOT which may also bear on the question of immediate scope. Jackendoff (1972) suggests that a quantifier in the scope of negation must have 'no identifiable referent' (which must be distinguished from 'unrealized' referents associated with modals, etc.). Similarly, Lasnik (1975) suggests that a quantifier in the scope of negation must be 'nonreferential'; he describes three consequences of such 'nonreferentiality'. They are the inability of an indefinite NP or quantifier to (1) be the antecedent of an appositive relative, (2) be the antecedent of a pronoun later in the discourse, or (3) be expanded by 'namely...'. In the following sentences, indefinite NPs and quantifiers are seen to be 'nonreferential' in this sense when they are in the (immediate) scope of NOT. In the (a) and (c) sentences, the indefinite NPs and quantifiers are not in the scope of negation and can be 'referential' in the sense described above; in the (b) and (d) sentences, the indefinite NPs and quantifiers are in the scope of negation and must be 'nonreferential' in this sense. (The judgments marked on the (b) and (d) sentences are only for the scope order noted.)

(92) APPOSITIVE RELATIVE:
(a) I saw a linguist there, who (it turned out) was Turkish.
(b) I didn't see a linguist there, who (it turned out) was
   was Turkish. (NOT Ex)
(c) I saw many linguists there, who (it turned out) were all
   Turkish.
(d) I didn't see many linguists there, who (it turned out)
   were all Turkish. (NOT MANYx)
(93) ANTECEDENT TO PRONOUN:
(a) I saw a linguist there. It turned out that he was Turkish.
(b) I didn't see a linguist there. It turned out that he was Turkish. (NOT Ex)
(c) I saw many linguists there. They turned out to know you.
(d) I didn't see many linguists there. They turned out to know you. (NOT MANYx)

(94) NAMELY...
(a) I saw a linguist there, namely Smith.
(b) I didn't see a linguist there, namely Smith. (NOT Ex)
(c) I saw many linguists there, namely Smith and Jones and ...
(d) I didn't see many linguists there, namely Smith and Jones and... (NOT MANYx)

It seems worthwhile to note that quantifiers in the scope of negation can, in fact, be 'referential' in the sense of Lasnik (1975): thus these three tests cannot be used to establish the scope of negation. This is demonstrated by the following sentences.

(95) He didn't buy a book about Philadelphia, which incidentally cost thirty dollars, just because he needed something to read on the train. (APPOSITIVE RELATIVE)

(96) He didn't buy a book about Philadelphia just because he needed something to read on the train. It cost at least thirty dollars. (ANTECEDENT TO PRONOUN)

(97) He didn't buy a book about Philadelphia (namely, *Brussels on the Schuykill*) just because he needed something to read on the train.

(98) NOT CAUSE ( (He needed something to read on the train), ([Ex: x is a book about Philadelphia] (he bought x)) )

Sentences (95)-(97) all seem to have roughly the logical structure (98), but the indefinite a book about Philadelphia can be 'referential' with respect to these three linguistic phenomena despite
the fact that it is in the scope of negation.

It has been suggested to me that a book about Philadelphia in (95)-(97) is referential because it does in fact have wide scope with respect to NOT, as in (99) below:

(99) [Ex: x is a book] NOT CAUSE (John bought x, John needed something to read on the train)

'There is a book about Philadelphia that John bought for reasons other than his need to have something to read on the train.'

It seems to me that despite the similarity of the two proposed representations of sentences like (95)-(97), there is a definitive argument that the representation (98) rather than (99) is correct; that is, that a book has to be represented as in the scope of negation. The argument is this: recall from section 3.1 that a positive tag question is unacceptable following a sentence with a quantifier or indefinite NP interpreted as having wide scope with respect to NOT. This is demonstrated by (100).

(100)*John didn't answer several questions, did he?

(100) with several is unacceptable because several requires wide scope with respect to NOT, but NOT must have wide scope in order for there to be a tag question.

The relevant fact is that the two proposed readings for (95)-(97), i.e. (98) and (99), behave differently with respect to tag questions. If the speaker of (101) below means 'There was a certain book that he bought for other reasons' (i.e. (99)) then a tag question isn't possible. If he means 'It wasn't out of interest that he bought a book' (i.e. (98)), then a tag question is possible.
(101) John didn't buy a book about Philadelphia because he was interested in the place, did he?

Thus it cannot be said that in sentences like (95)-(97) the indefinite NP is not in the scope of negation; the tag question test shows that it is.

Thus it is clear that 'nonreferentiality', i.e. the inability to establish a discourse referent or to be followed by a nonrestrictive relative or namely..., is not an automatic consequence of occurrence in the scope of negation, despite suggestions to the contrary. After all, the truth of (98) is certainly compatible with the existence of books about Philadelphia, even particular books that can be referred to in the discourse: all that (98) asserts is the absence of a certain causal connection.

But it seems relevant to the matter of NPIs to note here that quantifiers in the immediate scope of NOT seem to be unable to be 'referential' in the sense described above; that is, the (b) and (d) sentences of (92)-(94) seem to be absolutely unacceptable as a result of the occurrence in the immediate scope of NOT of the representation of a and many. That is, it may be that occurrence in the immediate scope of NOT forces the 'nonreferential' reading defined by Lasnik's three tests.
SUMMARY OF SECTION 3.2

In this section I have reformulated part (a) of the NPI rule: NPIs are restricted by it not to a surface structure relationship to NOT but to the immediate scope of the negation operator in logical form. The notion of 'immediate scope', as expressed in (13) above, was seen in this section to be independently motivated. That is, the scope preferences of all and each and of free choice any were seen to make reference to 'immediate scope' although they differ in other respects.

It also appears that in the immediate scope of NOT (but not elsewhere) indefinites and quantifiers must be 'nonreferential' (in the sense that they cannot be antecedent to pronouns later in the discourse, or followed by appositive relatives or namely tags); this seems likely to be a matter of pragmatics. (In Chapter 8 below, the notion 'immediate scope of NOT' is seen to play a role in another pragmatic process related to NPIs.)

Finally, the notion of 'immediate scope' as defined on predicate calculus-like logical forms is identical to the notion of 'minimal c-command' which is central to the notion of government, a connection which cannot be explored here.
3.3 MECHANICS OF THE PROPOSAL

In this section I will consider the implementation of the Immediate Scope Constraint (stated in (13) above) in more detail. Section 3.3.1 concerns the level of 'logical form' upon which the ISC is stated; section 3.3.2, the relevant mapping rules from surface structure to logical form; and section 3.3.3, the application of the ISC.

3.3.1 LOGICAL FORM

In the preceding sections it has been established that the Immediate Scope Constraint can be stated strictly in terms of some representation of logical structure. What is the relation of the ISC to the grammar? Specifically, does it apply to representations generated by rules of sentence grammar?

A level of semantic representation of the sort which seems to be relevant to the statement of part (a) of the NPI rule is proposed in Chomsky (1975):

One may ask, in the first place, whether there is a system of semantic representation analogous to phonetic representation, and if so, what its properties may be... Let us say that the grammar contains a system of rules [SI-1] that associate a derivation with a representation in a system of representation LF...I will take LF to incorporate whatever features of sentence structure (1) enter directly into semantic interpretation of sentences and (2) are strictly determined by properties of (sentence-)grammar...Assume further that there is a system of rules [SI-2] that associates logical form and the products of other cognitive faculties with another system of representation SR (read 'semantic representation'). Representations in SR, which may involve beliefs, expectations, and so on in addition to properties of LF determined by grammatical rule, should suffice to determine role in inference, conditions of appropriate use, etc.
Since not only focus but quantifier scope is demonstrated by Chomsky to interact with sentence-grammar rules of anaphora, it seems that the information required for the statement of part (a) of the NPI rule is stated at this level, i.e. on representations which are the interface between grammar and semantics.

The existence of a class of lexical items sensitive to the immediate scope of NOT is thus additional evidence that 'LF' shares some of the properties of 'logical form': the ISC, that is, sheds light on the syntax of LF.
3.3.2 MAPPING RULES FROM SURFACE STRUCTURE TO LF

In this section I will briefly note the surface structure-->LF mapping rules that are relevant to NPI acceptability.

Let us assume that all 'logical elements' (as defined in section 3.2.1) are assigned scope in LF. Although both surface order and scope preferences of specific lexical items determine the preferred mapping from surface structure to LF, let us--for the purposes of the discussion--assume that any scope ordering is possible for the logical elements in a given clause. The relevant exception is the interaction of negation with other elements: Kroch (1974) observes that an existential quantifier which precedes NOT in surface structure has obligatorily wide scope with respect to NOT in LF, while a universal quantifier in the same position in surface structure may have narrow scope with respect to NOT in LF.

(102) Everybody didn't answer question 5.
(103)(a) NOT [Ax: x is a person] (x answered question 5)
(b) Not acceptable to all speakers:
    [Ax: x is a person] NOT (x answered question 5)
(104) Many people didn't answer question 5.
(105)(a) Not a possible reading of (104):
    NOT [MANYx: x is a person] (x answered question 5)
(b) [MANYx: x is a person] NOT (x answered question 5)

In (102), everybody precedes not but (102) can still be associated with LF (103)(a) in which the universal quantifier represented by everybody is in the scope of negation. In contrast, the quantifier represented by many in (104) cannot be in the scope of NOT in LF.
Kroch proposes a scope component in which the surface order is the interpreted order, subject to readjustment rules which alter this basic order. There is, he argues, a readjustment rule which changes A NOT to NOT A, but not a rule which changes E NOT to NOT E (treating many, some, NPI any, etc. as existential quantifiers). Of course, as noted above, denial and AtF may extend the scope of negation in a sentence like (104), but with the result that TRUE or the focus operator intervenes. Sentence (102), in contrast, seems to be subject to this switch without any special intonation.

In this discussion I will consider only quantifiers which are not embedded in NPs: that is, MANY may precede NOT in LF (106)(b) of (106)(a), although (106)(a) also has a reading in which MANY has wide scope with respect to NOT.

(106)(a) Pictures of many linguists were not available.

(b) NOT [MANYx: x is a linguist] [Ey: y is a picture of x] (y was available)

Obviously, relative scope in LF is much more constrained by surface order than this rough account reflects. But for the purposes of this discussion it is sufficient to say that all interpreted orders are possible for logical elements in the same clause except that there is no readjustment rule to change E NOT to NOT E. The lack of such a readjustment rule may be invoked to explain the unacceptability of (107):

(107)*Anybody didn't arrive early.

(108)(a) [Ex: x is a person] NOT (x arrived early) 'There is a person who didn't arrive early.'

(b) Not a possible LF of (107):
    NOT [Ex: x is a person] (x arrived early)
"There are no people who arrived early."

Since anybody precedes not, a readjustment rule would be necessary to derive an LF of the form of (108)(b); but, as noted above, there is no such readjustment rule for existential quantifiers and NOT. AtF or denial would put the entire sentence in the scope of NOT, but we have seen in the preceding sections that this is at the cost of distancing the NPI from NOT.

Sentence (107) is therefore unacceptable, since its only possible LF, (108)(a), is unlikely to generate an appropriate 'implied sentence' in part (b), as is clear from the paraphrase.

It appears, then, that the ISC together with the fact that any is an existential quantifier is sufficient to predict the unacceptability of anybody in (107) above; no special mention need be made of the surface structure configuration of NPIs and lexical items representing the negation operator. The only specific mention of NPIs in the grammar, that is, is the ISC. In Chapter 7 I will examine some of the problems related to this attempt to eliminate specific surface structure constraints on NPIs.

Throughout the above discussion it has been assumed that logical elements occurring in the same surface structure clause are all assigned scope over that clause and only that clause. I have, of course, been greatly oversimplifying the matter.

First, it has often been noted that quantifiers (unlike not) may be assigned wider scope than the clause in which they occur: (109) has the reading paraphrased in (110)(b) as well as that paraphrased in (110)(a).
(109) At one time or another he has claimed that all those theories are wrong.

(110)(a)'At one time or another he has claimed: "All those theories are wrong."

(b)'It's true of every theory that at one time or another he has claimed of it: "It is wrong."

Second, all the logical elements in a given clause may not have full S scope. The question of whether it is necessary to distinguish VP negation from S negation, for example, is not resolved; in the preceding discussion of external negation the predicate TRUE was used to make the same distinction, thus representing NOT with S scope whether or not the negation is 'external'. (Since there seems to be both an external and an internal negation reading of 'Everybody doesn't like the king of France'--in which everybody is negated and thus not must have S-scope--the S/VP negation distinction does not seem adequate to distinguish between internal and external negation anyway.)

But apart from the question of whether NOT can take less than full S scope over the (smallest) clause in which it occurs, it has been widely observed that other logical elements such as quantifiers may be assigned such narrower scope. For example:

(111) He predicted three earthquakes.

(112)(a) [THREE\(x\): \(x\) is an earthquake] (he predicted \(x\))

(b) He predicted ([THREE\(x\): \(x\) is an earthquake] \(x\) would occur))

(113) I dislike a lot of spices on my eggs.

(114)(a) [A-LOT-OF\(x\): \(x\) is a spice] (I dislike \(x\) on my eggs)

(b) I dislike ([A-LOT-OF\(x\): \(x\) is a spice] \(x\) occurs on my eggs))

(115) I want three tickets.
(116)(a) [THREEEx: x is a ticket] (I want x)
   (b) I want ([THREEEx: x is a ticket] (I have x))

In the three sentences above, there are opaque readings of the quantifiers which are most easily represented by expanding the NP into a proposition. Whether such derived propositional structure (dependent upon the meanings of lexical items rather than simply sentence structure) is to be represented at the level of LF is an open question. It is clear, however, that NPI acceptability is affected by derived propositional structure. As sentences like the following demonstrate, NPIs are sensitive to propositions that are not reflected in the syntax.

(117)(a) It didn't rain until 6:00.
   'It's not the case that it rained continuously up until 6:00.' (NON-NPI UNTIL)
   OR
   'It didn't rain before 6:00.' (NPI UNTIL)

(118)(a) He predicted (rain until 6:00).
   'He said: "It will rain continuously until 6."' (NON-NPI UNTIL)

(b) He predicted rain (until 6:00).
   'Continuously until 6:00, he predicted: "It will rain."' (NON-NPI UNTIL)

(119)(a) He didn't predict (rain until 6:00).
   'He did not predict: "It will rain continuously until 6:00."' (NON-NPI UNTIL)
   NOT A POSSIBLE READING:
   'He did not predict "It will rain at some point before 6:00".' (NPI UNTIL)

(b) He didn't predict rain (until 6:00).
   'It's not true that continuously until 6:00 he predicted: "It will rain."' (NON-NPI UNTIL)
   OR
At no point before 6:00 did he predict: "It will rain." (NPI \textsc{until})

As (117) demonstrates, \textit{until} has an NPI usage roughly as 'before', and a non-NPI usage roughly as 'continuously up to'. (118)(a) and (119)(a) with their paraphrases demonstrate that the object of \textit{predict} can receive a propositional interpretation. The impossibility of getting this NPI sense of \textit{until} as 'before' when \textit{until} occurs in the propositionally interpreted NP and \textit{not} occurs in the aux follows from the Immediate Scope Constraint, as formulated in (13): the proposition in which the NPI \textit{until} occurs is not the entire scope of NOT: so \textit{until} is not in the immediate scope of NOT. That is, (119)(a) cannot receive the interpretation of \textit{until} 6:00 as 'before 6:00'. If, however, the negative is part of this NP proposition, the NPI sense of \textit{until} is available; in (120)(a) \textit{until} means 'before'.

(120)(a) He predicted (no rain until 6:00).
    'He predicted: "It won't rain before 6:00."' (NPI \textsc{until})

(b) He predicted no rain (until 6:00).
    'Continuously until 6:00, he predicted: "it will rain."' (NON-NPI \textsc{until})

Note also that sentences like these provide additional evidence that the paradigm case cannot be stated in terms of syntactic structure alone: \textit{until} is preceded and commanded by a negative in the same surface structure clause in both (119)(a) and (119)(b), but only in (119)(b) can it receive the NPI interpretation.

Similarly, derived propositional structure seems to account for the differences in acceptability in the following sentences. The (a) sentences demonstrate that adversatives such as \textit{dislike} and \textit{doubt}
usually don't trigger clausemate NPIs; however, as the (b) sentences demonstrate, they do trigger NPIs in embedded clauses. The (c) sentences demonstrate that a synonymous expression with not does trigger clausemate NPIs. In the (d) sentences an NPI clausemate of the trigger is acceptable if the NP in which it occurs receives a propositional interpretation: that it does receive such a propositional interpretation is shown by the availability of a paraphrase (e). A similar paraphrase involving the 'untriggered' NPI in (c) is shown, in (f), to be unavailable.

(121)(a) I dislike any of his friends.
   (b) I dislike having to put up with any of his friends.
   (c) I don't like any of his friends.
   (d) I dislike any food on the counter.
   (e) I dislike there being any food on the counter.
   (f) I dislike there being any of his friends.

(122)(a) I doubted anybody's claims.
   (b) I doubted that anybody would show up.
   (c) I didn't believe anybody's claims.
   (d) I doubted any involvement on his part.
   (e) I doubted that there was any involvement on his part.
   (f) I doubted that there were anybody's claims.

Why do such adversatives (unlike not) fail to trigger clausemate NPIs unless these NPIs occur in an NP which receives a propositional interpretation? Consider their LFs.

(123) (=LF of *(121);a))
(a) [Ex: x is his friend] (I dislike x)

(L) 'There is a friend of his that I dislike.'

(124)(=LF of (121)(b))

(a) I dislike ([Ex: x is his friend] (I have to put up with x))

(b) 'I dislike the situation in which I have to put up with his friends.'

Since *dislike* is a verb and is not assigned scope, the existential quantifier representing any will automatically be assigned scope over the entire LF (123) of (121)(a); in (123), however, the existential quantifier representing any will have scope only over the clause embedded under dislike. These LFs, it is clear, both fail the ISC (since in neither case is there an overt NOT); but only (124) seems likely to produce, for part (b) of the NPI rule, an appropriate implied sentence. This is evident from the respective paraphrases (123)(b) and (124)(b): in (123)(b), saying that there is a friend of his whom I dislike does not imply that I don't like any of his friends; while in (124)(b), stating that I dislike the situation of having to put up with his friends implies that there aren't any friends of his that I do care to put up with.

To return to the sentences in (121) and (122), note that the unacceptable (a) sentences do not differ syntactically from the acceptable (d) sentences: their difference lies in the fact that a propositional interpretation is much more available for the NP object of the adversative in the (d) sentences. If there is a propositional interpretation, any will not be assigned scope over the clause containing the adversative: as a result, the LFs of the (d) sentences will be more likely to be associated with an appropriate 'implied
sentence by part (b).

In contrast to these adversative verbs, NOT is assigned scope in LF and therefore can take wide scope with respect to clausemate NPIs. Thus the acceptable (121)(c) has LF (125):

\[(125) = \text{LF of (121)(c)} \]
\[
\text{NOT [Ex: x is his friend] (I like x)}
\]

SUMMARY. The following is assumed about the mapping from surface structure to LF as it relates to NPIs.

(1) The surface order (within a clause or propositionally interpreted NP) of logical elements does not determine the interpreted order, except that if the lexical representation of an existential quantifier precedes the negative in surface structure then E must take wide scope with respect to the NOT in LF. This accounts for the unacceptability of sentences like *Anyone didn't arrive early, given the ISC, with no need for explicit surface structure restrictions on NPIs.

(2) Quantifiers, unlike NOT, can sometimes be assigned scope wider than the clause in which they occur. NOT is clausebound.

(3) NPs can, when semantically appropriate, be assigned propositional interpretations; thus logical elements occurring in these NPs can have scope narrower than the proposition represented by the entire syntactic sentence in which these elements occur. This affects NPI acceptability: On the one hand, an NPI can be rendered unacceptable (as we saw with until), since it is not, in such an NP, in the immediate scope of a negative occurring in the aux. On the other hand, NPI clausemates of adversatives such as dislike can be rendered likely candidates for acceptability by part (b) as a result
This is the most complete text of the thesis available. The following page(s) were not included in the copy of the thesis deposited in the Institute Archives by the author:
3.3.3 THE APPLICATION OF THE NPI RULE

In this section I will consider the question of how the NPI rule actually applies.

THE APPLICATION OF PART (A)

There seem to be two obvious ways in which the ISC—our reformulation of Baker's part (a)—could apply.

First, it could be a filter on logical forms. That is, we could say that a sentence S containing an NPI is associated with an LF without regard for the presence of the NPI; then the Immediate Scope Constraint applies, ruling out LFs in which the representation of an NPI is not in the immediate scope of NOT. In this account, (126) is mapped onto possible LFs (127) or (128); (129) is not a possible output of the mapping rules, as discussed in the preceding sections. LFs (127) and (128) are marked as ill-formed because the E representing the NPI *anybody* is not in the immediate scope of NOT.

(126)*Anybody didn't laugh.*

(127) [Ex: x is a person] NOT (x laughed)

(128) NOT TRUE [Ex: x is a person] (x laughed)

(129) NOT [Ex: x is a person] (x laughed)

Clearly this proposal requires that NPIs be recognizable as such at the level of logical form: that is, that *any* and *some* not be represented identically in LF, *any* still being recognizable as an NPI. This is quite an implausible idea: that *some* and *any* are mapped onto two different representations, truth conditionally identical but distinct from one another only by virtue of *any*’s status as an NPI.
An alternative proposal also has the SS--->LF rules apply blindly to sentences containing NPIs, without regard for their status as NPIs; however, in this account NPIs are not recognizable as such in LF. Some and any, for example, are both mapped onto E. Then the Immediate Scope Constraint marks as unacceptable <SS,LF> pairs in which the LF representation of an NPI occurring in surface structure fails to be in the immediate scope of NOT. That is, the ISC does not mark LFs as unacceptable, but <SS,LF> pairs.

The widely noted acceptability of discourses such as (130) is easy to explain in this account, because (130)(b) has no surface structure containing an NPI. Thus the Immediate Scope Constraint does not mark its <SS,LF> pair as unacceptable.

(130)(a) He didn't eat any peas.
(b) I did, though.

In contrast, the explanation in terms of filters on LFs must explain why the filter does not apply to the post-VPD LF of (130)(b), since it will contain an identifiable NPI which is not in the immediate scope of NOT.

THE APPLICATION OF PART (b)

Sentences with <SS,LF> pairs marked as unacceptable by the ISC may still be acceptable by virtue of part (b). Part (b), which will be examined in the following chapter, involves (in this account) an 'allusion' to a proposition in whose logical form the representation of the NPI is in the immediate scope of negation.
3.4 POSSIBLE COUNTEREXAMPLES

In this section I will consider possible counterexamples to the proposed Immediate Scope Constraint. The first set of possible counterexamples consists of logical elements which are able to intervene between NOT and NPIs in LF without rendering the sentence unacceptable; the second possible counterexample is furnished by sentences with negated because clauses in which certain NPIs are able to occur in the matrix S.

3.4.1 ACCEPTABLE INTERVENERS

In this section I will examine certain expressions which are able to intervene between NOT and NPIs in LF, without rendering the sentence unacceptable. These expressions are (1) other NPIs and (2) indefinite NP markers.

(1) OTHER NPIs. Consider sentence (131) below, in which there are three NPIs:

(131) He hasn't lifted a finger to help anybody yet.

(132) NOT [Ex: x is a person] [Et: t is a time < present] (he has lifted a finger to help x at t)

(133) NOT [Et: t is a time < present] [Ex: x is a person] (he has lifted a finger to help x at t)

(I will represent yet as an existential quantifier over time.) Both possible LF's (132) and (133) violate the ISC as stated in (13), although for different NPIs.

Three explanations of the acceptability of (131) come to mind.

First, it might be that NPIs themselves function as negatives,
'triggering' others. This explanation recalls the suggestion in Jespersen (1917) that the function of NPIs is to 'strengthen' the negative. He cites numerous cases in which NPIs become negatives themselves; for instance, the French negative ne...pas is derived from Latin ne...passum, not...a step. Pas, which was originally an NPI acceptable only with verbs of motion (in line with its original meaning), became first a more general NPI and then an actual negative in its own right which can appear in the absence of ne. Thus NPIs might simply be represented as themselves part of the negative: anything to the right of an NPI, in this case, will meet the ISC. This cannot be, however, as (134) and (135) show:

(134)(a) I didn't realize that anybody was hurt.
(b) NOT (I realized that ([Ex: x is a person] (x was hurt)))

(135)(a) I didn't realize that anybody had gotten up until noon.
(b) NOT (I realized that ([Ex: x is a person] [Et: t is a time \( \leq \) noon] (x got up at t)))

In (134) and (135), it is clear that the ISC is violated for both NPIs, anybody and until, since they do not occur only in the proposition which is the entire scope of NOT. Part (b) of the rule will have to render them acceptable. Since (134)(b) does implicate something like (136) below, it is not surprising that it is acceptable.

(136) I thought that (NOT ([Ex: x is a person] (x was hurt)))

But what about (135)? If NPIs can themselves function as negatives, the existential quantifier corresponding to until, being adjacent to the quantifier representing NPI any, should actually be triggered by
it. NOT would not be required. Part (b) would be needed only to satisfy the ISC for \textit{any}, so that the sentence would not be marked as unacceptable on its account; and the acceptability of (134) demonstrates that part (b) does license \textit{anybody} in the context. But nevertheless (135) is unacceptable, and the unacceptability clearly arises from the presence of NPI \textit{until} (since (134) is acceptable).

It's not surprising that part (b) licenses \textit{anybody} but not \textit{until}. NPIs vary among themselves on the basis of 'strength' or 'liberality'. Some NPIs can only occur in the immediate scope of NOT, while others seem to be triggered much more easily. \textit{Until} is unquestionably one of the 'stronger' NPIs, i.e. one that is seldom acceptable when the ISC is violated; and so it is not surprising that part (b) fails to save sentence (135).

Thus we cannot say that NPIs trigger each other; and therefore the acceptability or unacceptability of both NPIs in (135) must be determined by part (b) rather than by part (a).

A second explanation for the frequent acceptability of multiple NPIs is that while they do not themselves function as negatives they are extensions of a negative to the extent that they are allowed by the ISC to intervene between NOT and an NPI. That is, they might be explicit exceptions to the ISC, and thus sentences with NPIs are acceptable by part (a) of the rule.

The difficulty with this proposal is that not all NPIs can intervene with impunity. Consider \textit{all that many}.

(137)(a)??I didn't contribute one red cent to all that many winos.
(b) NOT [ALL-THAT-MANYx: x is a wino] (I contributed one red cent to x)

In the above sentence the intervening NPI seems to 'deprive' the NPI contribute one red cent of the negative, although not as dramatically as in some other sentences. If in fact NPIs may intervene between NOT and other NPIs, (137) should be acceptable; hence it doesn't seem possible to characterize all NPIs as explicit exceptions to the ISC.

A third possible explanation of the acceptable cases of NPIs intervening between NOT and other NPIs is simply to invoke part (b). Sentence (131) above, which contains multiple NPIs, can be said to 'allude' to propositions with the following LFs:

(138)(a) ISC SATISFIED FOR LIFT A FINGER:
[Ax: x is a person] [At: t is a time < present] NOT (he has lifted a finger to help x at t)

(b) ISC SATISFIED FOR YET:
[Ax: x is a person] NOT [Et: t is a time < present] (he has lifted a finger to help x at t)

(c) ISC SATISFIED FOR ANYBODY:
[At: t is a time < present] NOT [Ex: x is a person] (he has lifted a finger to help x at t)

The appropriate 'allusions' are derived for (131) above by virtue of the equivalence of A NOT and NOT E. When the NPI is all that many, the appropriate allusion will presumably have to be something like MOST NOT; the failure of part (b) to save (137) cannot be explored here.

Note, incidently, that all the NPIs in a given sentence will not be licensed by the same implicature.

So it appears that the acceptability of multiple NPIs is amenable to a part (b) explanation, and thus no reformulation of the ISC is
necessary.

(2) INDEFINITE NP MARKERS. A second possible counterexample to the ISC is furnished by indefinite NPs. Sentence (139) could be mapped onto either (140) or (141), to consider only the possible LFs in which the quantifiers represented by a and anything are both negated. In (140) the representation of anything is not in the immediate scope of NOT, so the pair âˆ<139>,(140)> is marked as unacceptable by the ISC.

(139) I didn't give a wino anything.
(140) NOT [Ex: x is a wino] Ey (I gave y to x)
     'There was no wino who received a gift from me.'
(141) NOT Ey [Ex: x is a wino] (I gave y to x)
     'There was nothing that I gave to a wino.'

(Let us assume that the indefinite marker is represented as an existential quantifier in LF.) We can tell the same story about intervening existential quantifiers lexically represented by the indefinite article that we told about intervening NPIs above: (140) entails (142) below, which satisfies the ISC: thus (139) is likely to be acceptable by part (b), if (140) is its LF.

(142) [Ax: x is a wino] NOT Ey (I gave y to x)

3.4.2 NPI QUANTIFIERS WITH WIDE SCOPE

A second sort of possible counterexamples to the ISC will be discussed in this section. Any, ever (which I will treat, along with
similar adverbs, as a quantifier), and other NPI quantifiers are sometimes acceptable in S2 (i.e. the matrix S) of sentences with negated motivational adverbials, as (143) and (144) demonstrate:

(143) I didn't cut any of his classes because I disagreed with him.
     (I did cut some of his classes because I found him boring.)
(144) I haven't ever cut a class because I disagreed with the lecturer.
     (I have on occasion cut a class because I found him boring.)

CAUSE in (143) may be negated, as in (145)(a) below, or it may have wide scope with respect to NOT, as in (145)(b).

(145) (a) NOT CAUSE (I disagreed with him, I cut any of his classes)
     (b) CAUSE (I disagreed with him, NOT (I cut any of his classes))

In the above I have not yet represented any as a quantifier. In the reading of (143) in which CAUSE is negated, represented by (145)(a), does the quantifier represented by any have scope only over S2 or also over CAUSE? It seems to me that the only possible reading of (143) is, 'There wasn't a single one of his classes that I cut because I disagreed with him (though I may have cut some classes because he was boring)'. This reading can be represented as in (146) below. (143) with the reading in which CAUSE is negated does not seem to be paraphraseable as 'It wasn't because I disagreed with him that I cut classes.' This unavailable reading can be represented as in (147) below: any has scope only over S2.

(146) NOT [Ex: x is a class] CAUSE ((I disagreed with him), (I cut x))
(147) NOT CAUSE ( (I disagreed with him), ([Ex: x is a class] I cut x) )

It appears that the only reading of (143) in which CAUSE is negated is represented by (146) and not by (147). Thus the suggestion that an NPI may not be separated from the negative in logical form does not seem to be contradicted by sentences like (143). Only if the NPI in the matrix S is a quantifier that can be assigned scope over the predicate CAUSE, and hence be in the immediate scope of NOT, will it be acceptable. (Recall that the same wide-scope explanation was suggested in connection with a possible reading of (26) above, with a negated manner adverbial.)

Contrast (143) with (148): in the latter, the NPI is an idiom chunk with no subpart that could be 'detached' to act like a quantifier and, by taking wide scope with respect to CAUSE, occur in the immediate scope of NOT. Thus it is separated from NOT by CAUSE in its LF (149), and is unacceptable.

(148) *His paper doesn't hold a candle to mine because he had help... (he just worked hard)

(149) NOT CAUSE ( (his paper holds a candle to mine), (he had help))

Sentences like (143), therefore, do not represent counterexamples to the ISC.

This concludes our brief survey of possible counterexamples to the ISC.
SUMMARY OF CHAPTER 3

In this chapter part (a) of the NPI rule has been reformulated, as the Immediate Scope Constraint. The ISC is a structural condition, stated upon representations at the level of logical form: a sufficient condition on the acceptability of an NPI is that it occur in the immediate scope of NOT. Examples of logical elements whose intervention results in a violation of the ISC are the predicate CAUSE, the focus operator, other quantifiers, AND, and TRUE (which encodes 'external negation'). We have also seen that analogous 'immediate scope constraints' apply to other quantifiers.

In the following chapter I will examine part (b), the IOUs for which have been piling up in the course of this discussion.
FOOTNOTES

1. The restriction of *several* is not so simple, as will be discussed in section 3.2.2; but this is irrelevant to the argument from tag questions.

2. Carden (1973) also observed the unacceptability of NPIs in sentences like (7). His explanation within the framework of generative semantics quantifier lowering is, I believe, almost identical in effect to the Immediate Scope Constraint.

3. For the purposes of the discussion I will represent free choice *any* and *every* identically, as the universal quantifier. NPI *any* will be represented as the existential quantifier, a move that will be discussed in Chapter 5.

4. For dialects in which the configuration *A NOT* is acceptable, i.e. in which (i) below can have the (ii)(a) reading, sentences ((7), (9), and (10)) are predicted to be acceptable although unambiguous, lacking the reading in which the universal quantifier intervenes between NOT and the NPI.

(i) Everybody didn't answer the question.
(ii)(a) \([\text{Ax: } x \text{ a person}] \text{ NOT } (x \text{ answered the question})\)
(b) NOT \([\text{Ax: } x \text{ a person}] (x \text{ answered the question})\)

From now on I will discuss only the dialect in which (ii)(a) is not acceptable.

5. I am following Jackendoff (1972) in representing sentences like (26) as in (27).
6. Note that some NPIs contain semi-detachable subparts: lift a finger, for example, almost allows a reading (ii) of (i); this reading is paraphrased in (iii).

   (i) I didn't lift a FINGER to help because I was coerced.

   (ii) NOT [Ex: x is an amount of effort] CAUSE ((I was coerced), (I made x amount of effort))

   (iii) 'NONE of my efforts were the result of coercion.'

7. Jackendoff (1972) distinguishes two intonational contours for sentences with focus: the A-intonation, in which there is a high pitch on the focussed item, and the sentence has a falling pitch; and the B-intonation, in which there is also a high pitch on the focussed item but the sentence has a rising rather than a falling pitch. AtF is associated with the B-intonation.

8. There is another (non-AtF) use of the rising intonation with sentences like (29) and (30) which allows NPIs: this may be termed the 'counterexample intonation'. If someone has suggested that everyone on the team is as good as Bill, (30) might be said with a rising intonation to furnish a counterexample to this claim. (30) seems acceptable in this case. Obviously, (30) in this case will not have the LF (36) so it does not represent a counterexample to the explanation of why (30) is unacceptable with AtF.

9. It is noted in Jackendoff (1972) and elsewhere that the focussed item does not even have to be a single lexical item, as demonstrated by (i). Thus the logical forms of such sentences look rather odd.

   (i) It didn't IMplode—it EXPlosed.
10. This is clearly a gross oversimplification of conjunction. Among other things, note that in (i) both quantifiers in the conjoined object may have scope over everybody in the subject, although they may not be assigned scope over each other.

   (i) Every student read five books and three articles.

However conjunction is to be represented, however, it seems justifiable to cite AND as an ISC violator.

11. Chomsky (1979) and elsewhere

12. The subject of English quantification is treated in detail in May (1977), Kroch (1974).

13. See also Ioup (1975) concerning scope preferences of different quantifiers.

14. NPIs occurring within larger NPs can be treated as acceptable (when they are acceptable) by part (b), in the same way as NPs occurring in relative clauses; see Chapter 4.

15. Quine (1960) makes this proposal. This is not indisputably the best move; Jackendoff (1972) presents objections to it.


17. I do not know why this sentence lacks the following reading 'He predicted: "It won't rain continuously up until 6:00."'

18. I must point out that VPD is sometimes odd when there is an NPI in the antecedent.
(i) Tom doesn't hold a candle to Bill, but I do.

(ii) Sam didn’t budge an inch, although he normally would when confronted by an authority figure.

(iii) I don’t believe how many books she’s read, but the admissions officer does.

(iv) He doesn’t have a hope in hell of winning, but most people do.

Many speakers find (i)-(iv) acceptable; they are marginal to me. However, they ‘bother’ me in much the same way that sloppy identity does, so it may have nothing to do with the presence of NPIs.

19. The failure of part (b) to redeem sentences like (148) will be discussed in section 4.5.4 below.

20. What about sentences like (i) below?

(i) John didn’t give anything to Mary.

It seems clear that expressions like John and Mary do not represent ‘logical elements’ in the sense of (13) above: that is, they do not induce scope ambiguities with each other or with negation and quantifiers. Thus they do not cause violations of the ISC.
CHAPTER 4: PART (B) - 'ALLUSIONS'

In the preceding chapter I argued that the Immediate Scope Constraint marks as unacceptable <SS,LF> pairs if the representation of an NPI in LF is not in the immediate scope of NOT. A great number of ultimately acceptable sentences, therefore, are marked as unacceptable by the ISC. In this chapter I will examine the conditions under which such sentences are determined to be acceptable.

The basic theory of part (b) which I will argue for (roughly following Baker (1970)) is that these sentences are acceptable because they in some way allude to the paradigm case. That is, a <SS,LF> pair which fails the ISC--i.e., which contains an 'untriggered' NPI--may be deemed acceptable by virtue of a pair < <SS,LF>, I>, where 'I' denotes some implicature of the form X NOT NPI Y, an environment in which the representation of the NPI is in the immediate scope of NOT. (This pair will hereafter be written '<S,I>').

The observations to be made in this chapter do not begin to approach a predictive account of part (b). I hope, however, that they may at least clarify the nature of the problem.

Section 4.1 is a rough data set of part (b) cases, intended primarily to demonstrate the great variation in acceptability among different NPIs and triggers, and to characterize informally the sorts of implicatures by which I claim that NPIs are licensed in part (b).

In section 4.2, I argue for the insufficiency of a purely semantic account of part (b): that is, an account based entirely on inferences (whether logical or otherwise) from the literal meanings of sentences without reference to real world beliefs or conversational intent. In section 4.3, I argue for the insufficiency of a purely
conversational account: that is, an account based entirely on speaker meaning as distinct from sentence meaning. In section 4.4 a rough proposal is made concerning part (b) which attempts to incorporate both the semantic and the conversational constraints on NPIs; the conversational constraints are examined in more detail in section 4.5. Section 4.6 concerns the consequences of part (b) for the theory of grammar.
4.1 A DATA SET

In this section I will list some representative part (b) cases. For each 'trigger' (i.e. context licensing NPIs) I will demonstrate that there is an 'NPI squish' in that environment (i.e. that not all NPIs are acceptable there) and that there is also a 'trigger squish' (i.e. that not all semantically similar contexts license NPIs). The term 'squish' is used somewhat loosely here; the question of whether any real hierarchies can be established is left open. I assume, in the absence of any other explanation, that this squishiness is caused by the varying 'strength' or 'liberality' of different NPIs and by the varying availability of the appropriate implicature. (The question of availability will be discussed in the following sections.)

In the list of triggers, the following information will be given for each trigger T:

a. T: The trigger in an acceptable sentence with an NPI (NPI-1)
b. NON-T: A syntactically comparable expression which does not permit NPIs
c. T-SQUISH: A semantically similar expression which does not license NPI-1
d. NPI SQUISH: an NPI (NPI-2) which is not licensed by T
e. IMPLIC: The implicature in which the representation of the NPI is in the immediate scope of NOT. For clarity, an English sentence is given, although strictly speaking it isn't sentences that are relevant to part (b), but rather semantic representations. Both NPI-1 and NPI-2 are acceptable in this sentence, although only NPI-1 is licensed by T.
LIST OF REPRESENTATIVE PART (B) CASES

1. **SURPRISE**
   
   a. T: I was surprised that she contributed a red cent.
   
   b. NON-T: *I was informed that she contributed a red cent.
   
   c. T-SQUISH: *I was pleasantly surprised that she contributed a red cent.
   
   d. NPI-SQUISH: *I was surprised that she had too many friends.  
   [Too in its NPI usage: see footnote 4, Introduction.]
   
   e. IMPLIC:
   I had expected her not to contribute a red cent. (NPI-1)
   I had expected her not to have too many friends. (NPI-2)

2. **HARD**
   
   a. T: He made me so angry that it was hard to lift a finger when he asked for help.
   
   b. NON-T: *He made me so angry that it was easy to lift a finger when he asked me to hit him.
   
   c. T-SQUISH: *The wind was blowing and it was rather hard to lift a finger.
   
   d. NPI-SQUISH: *He made me so mad that it was hard to contribute a thin dime to his campaign.
   
   e. IMPLIC:
   He made me so mad that I almost couldn't lift a finger when he asked for help. (NPI-1)
   He made me so mad that I almost couldn't contribute a thin dime to his campaign. (NPI-2)

3. **IF CLAUSES**
   
   a. T: If you give a damn about the whales, you'll contribute.
   
   b. NON-T: *If you contribute, you give a damn about the whales.
   
   c. T-SQUISH: ??If you give a damn about the whales, you must be George Smith.
   
   d. NPI-SQUISH: ??If you can help being selfish, you'll contribute.
   
   e. IMPLIC:
   Either you contribute or you don't give a damn about the whales.
Either you contribute or you can't help being selfish. (NPI-2)

4. **IF-CLAUSES 2: THREATS vs. PROMISES**

   a. T: If you contribute a red cent to the Moonies, I'll hit you. (THREAT)

   b. NON-T: *If you contribute to the Moonies, you'll have any regrets.

   c. T-SQUISH: *If you contribute a red cent to the Moonies, I'll kiss you. (PROMISE)

   d. NPI-SQUISH: *If you get up until noon, you'll regret it. [See footnote 5 in the Introduction concerning NPI until.]

   e. IMPLIC:

   Either you don't contribute a red cent to the Moonies or I'll hit you. (NPI-1)

   Either you don't get up until noon or you'll regret it. (NPI-2)

5. **RELATIVE CLAUSES HEADED BY UNIVERSAL QUANTIFIER**

   a. T: Every restaurant that charges so much as a dime for iceberg lettuce ought to be closed down.

   b. NON-T: *Some restaurants that charge so much as a dime for iceberg lettuce ought to be closed down.

   c. T-SQUISH:

   ??Every restaurant that charges so much as a dime for iceberg lettuce actually has four stars in the handbook. 

   OR

   ??Not everyone who budged was pushed.

   d. NPI-SQUISH:??Everything that she eats anymore makes Albert sick.

   [Ignore 'positive anymore' dialects or any wide scope reading of anymore: the only relevant reading is the one in which Albert's nausea is evoked by her continuing to eat foods that she ate in the past.]

   e. IMPLIC:

   \[Ax((x \text{ is a restaurant and } x \text{ charges so much as a dime for iceberg lettuce}) \rightarrow x \text{ ought to be shut down.}) \] (NPI-1)

   \[Ax(I \text{ eat } x \text{ anymore} \rightarrow x \text{ makes Albert sick}) \] (NPI-2)
[Given this representation of relative clauses headed by universal quantifiers, we can employ the same part (b) strategy as for antecedents of conditionals: see 3. and 4. above.]

6. COMPARATIVES

a. T: Cows fly more often than he lifts a finger to help.
b. NON-T: *Cows fly because he lifts a finger to help.
c. T-SQUISH:
*Cows fly about 32% more often than he lifts a finger to help.
OR
*The sun rises more often than he lifts a finger to help.
d. NPI-SQUISH: *Cows fly more often than he gets up until noon.
e. IMPLIC:
If aeronautical events involving cows are rare, then he almost never lifts a finger to help. (NPI-1)
If aeronautical events involving cows are rare, then he almost never gets up until noon. (NPI-2)

7. SUPERLATIVES

a. T: The last person to give a flying fuck about the whales was George Smith.
b. NON-T:
*The most recent person to give a flying fuck about the whales was Mary Jones.
OR
[In a context in which a total of 115 people and no more are known to have demonstrated concern for whales]
*The 115th person to give a flying fuck about the whales was Mary Jones.
c. T-SQUISH: ??The third-from-last person to give a flying fuck about the whales was Mary Smith.
d. NPI-SQUISH: ??The last person to bat an eyelash when he walked in was Alice.
e. IMPLIC:
After George Smith, no one gave a flying fuck about the whales. (NPI-1)
After Alice, no one batted an eyelash when he walked in. (NPI-2)
8. \textbf{BEFORE}

\begin{enumerate}
\item \textbf{T}: He left before Mary showed any interest in flying us all to Rio.
\item \textbf{NON-T}: *He left after Mary showed any interest in flying us all to Rio.
\item \textbf{T-SQUISH}: *He left a few minutes before Mary showed any interest in flying us all to Rio.
\item \textbf{NPI-SQUISH}: *He left before I could believe how clever he was.
\item \textbf{IMPLIC}: When he left, Mary hadn't showed any interest in flying us all to Rio. (NPI-1)
\textit{When he left, I couldn't believe how clever he was.} (NPI-2)
\end{enumerate}

9. \textbf{ONLY} 1: \textbf{NPIs} OUTSIDE OF FOCUS

\begin{enumerate}
\item \textbf{T}: Only John has any interest in playing soccer.
\item \textbf{NON-T}: *Even John has any interest in playing soccer.
\item \textbf{T-SQUISH}: *Of the three of us, it's John who has any interest in playing soccer.
\textbf{BUT COMPARE:}
\textit{It's the pushy people who accomplish anything.}
\item \textbf{NPI-SQUISH}: *Only John contributed a thin dime.
\item \textbf{IMPLIC}: Anyone who isn't John doesn't have any interest in playing soccer. (NPI-1)
\textit{Anyone who isn't John didn't contribute a thin dime.} (NPI-2)
\end{enumerate}

10. \textbf{ONLY} 2: \textbf{NPIs} IN FOCUS

\begin{enumerate}
\item \textbf{T}: Only people who have ever studied Walbiri will be able to decipher that remark.
\item \textbf{NON-T}: *Even people who have ever studied Walbiri will be able to decipher that remark.
\item \textbf{T-SQUISH}: *I have only ever met her, I don't know her well. [The focus of only is \textit{ever met}.]
\item \textbf{NPI-SQUISH}: *Only pictures worth a red cent will be on display.
\end{enumerate}
If anyone hasn't studied Walbiri, he won't be able to decipher that remark. (NPI-1)

If a picture isn't worth a red cent, it won't be on display. (NPI-2)

11. RELATIVE CLAUSES HEADED BY NONSPECIFIC NPs

a. T: A doctor who knows anything about acupuncture is worth his weight in gold.

b. NON-T:
*A doctor who knows anything about acupuncture is easy to find.
   OR
*A certain doctor who knew anything about acupuncture was not available.
   OR
*A doctor who knew anything about acupuncture wasn't available, because he was sick.

c. T-SQUISH: ?

d. NPI-SQUISH: *A doctor who could believe the size of that wound was not available.

e. IMPLIC:
All the doctors there (if any) didn't know anything about acupuncture. (NPI-1)

All the doctors there (if any) couldn't believe the size of that wound. (NPI-2)

12. NEGATED BECAUSE CLAUSE

a. T: I didn't buy the ticket because I had a hope in hell of winning.

b. NON-T: *I didn't buy the ticket since I had a hope in hell of winning.

c. T-SQUISH: *I didn't buy the ticket just because I had a hope in hell of winning.

d. NPI-SQUISH: *I didn't buy the ticket because I had seen the horse's ears budge.

e. IMPLIC:
I didn't have a hope in hell of winning. (NPI-1)

I hadn't seen the horse's ears budge. (NPI-2)
13. **NOT MANY**

a. T: I don't give a damn about that many people.

**WITH THE READING:**

NOT [\( \text{MANY} x : x \text{ is a person} \)] (I give a damn about x)
'There aren't many people I care about.'

b. NON-T: *I don't give a damn about just anybody.

**WITH THE READING:**

NOT [\( Ax : x \text{ is a person} \)] (I give a damn about x)
'It isn't just anybody I care about.'

c. T-SQUISH: ?

d. NPI-SQUISH: *I couldn't believe how tall that many people were.

**WITH THE READING:**

NOT [\( \text{MANY} x : x \text{ is a person} \)] (I could believe how tall x was)
'There weren't that many people whose height didn't inspire incredulity in me.'

e. IMPLIC:

It's true of many/most people that I don't give a damn about them. (NPI-1)

It's true of most/many people that I couldn't believe how tall they were. (NPI-2)

14. **NOT ENOUGH**

[Consider only the readings in which ENOUGH is negated.]

a. T: He doesn't give a damn about enough people to qualify him as a member of the human race.

b. NON-T: ?

c. T-SQUISH: *He doesn't give a damn about enough people to qualify him for sainthood. (NPI-2)

d. NPI-SQUISH: ??He didn't contribute a red cent to enough charities to qualify him as a member of the human race.

e. IMPLIC:

There are enough people who he doesn't give a damn about to disqualify him as a member of the human race. (NPI-1)

There are enough charities that he didn't give a red cent to to disqualify him as a member of human race. (NPI-2)
15. **NOI SAY**

a. T: I didn't say that we had a hope in hell of winning.

b. NON-T:
* I didn't yell/add that we had a hope in hell of winning.

OR

* The ticket doesn't state that the purchaser has a hope in hell of winning.

c. T-SQUISH:
* I didn't say that we had a hope in hell of winning, because I knew that we had already won.

d. NPI-SQUISH: ??I didn't say that Smith's work holds a candle to Jones's.

e. IMPLIC:
I entertained, or at least did not rule out, the possibility that we didn't have a hope in hell of winning. (NPI-1)

I entertained, or at least did not rule out, the possibility that Smith's work doesn't hold a candle to Jones's. (NPI-2)

16. **NOI + INSTRUMENTAL ADVERB**

a. T: I didn't earn a red cent with any of the tactics that you showed me. 3

b. NON-T: *I didn't earn a red cent with any enthusiasm. (MANNER ADVERB)

c. T-SQUISH: ??I didn't earn a red cent with any particularly admirable tactics.

d. NPI-SQUISH: *I couldn't help thinking about it with any of the mind control tactics that you showed me.

e. IMPLIC:
Using the tactics that you showed me, I (still) didn't earn a red cent. (NPI-1)

Using the mind control tactics that you showed me, I (still) couldn't help thinking about it. (NPI-2)

17. **QUESTIONS 1: YES/NO, NONQUECLARATIVE**

[NOTE: '*' marks sentences which are unacceptable as true questions rather than as queclaratives]

a. T: Did you eat any peas?
b. NON-T: Did you eat any peas! (EXCLAM.)

c. T-SQUISH:
*You have eaten any peas? OR
*Would you like any peas? (OFFER)

d. NPI-SQUISH:
*Do you give a flying fuck about the whales? (Must be queclarative.)

But compare:

Do you think it's possible that he really DOES give a flying fuck about the whales? (Non-queclarative.)

e. IMPLIC:
It's possible that you didn't eat any peas. (NPI-1)
It's possible that you don't give a flying fuck about the whales. (NPI-2)

18. QUESTIONS 2: YES/NO, QUECLARATIVE

a. T: So you actually think he'll help you--did he lift a finger to help his own family?

b. NON-T: see above

c. T-SQUISH: *Maybe he will help you--did he lift a finger to help his family?

d. NPI-SQUISH: ??So you actually think you're as strong as Mary--do you hold a candle to her little brother?

e. IMPLIC:
He didn't lift a finger to help his own family. (NPI-1)
You don't hold a candle to her little brother. (NPI-2)

19. QUESTIONS 3: WH, QUECLARATIVE

[NOTE: '*' marks the following questions as unacceptable as true questions rather than queclaratives]

a. T: Who bats an eyelash when she walks into the room? No one. (from Borkin (1971))

b. NON-T: *Who bats an eyelash when she walks into the room? I do.

c. T-SQUISH: ??At what percentage of the board meetings does Alice bat an eyelash when he walks into the room? At none of them.
d. NPI-SQUISH: *Who left until the bell rang? No one.

e. IMPLIC:
No one bats an eyelash when she walks into the room. (NPI-1)
No one left until the bell rang. (NPI-2)

20. QUESTIONS 4: WH, NONQUECLARATIVE

a. T: Which books have any students complained about? *Moby Dick and The Scarlet Letter.*

b. NON-T: *Moby Dick and The Scarlet Letter* are two books that any students have complained about.

c. T-SQUISH:
*Who gives a flying fuck about the whales? John and Mary.*
(Perfectly acceptable as a queclarative, but can't be taken as a request for information.
Compare:
Who actually DOES give a flying fuck about the whales? John and Mary.

d. NPI-SQUISH: ??Which books hold a candle to the Bible?

e. IMPLIC:
It's possible that there are no books that any students complained about.

It's possible that no books hold a candle to the Bible.

This concludes the list of representative triggers; it is, of course, far from exhaustive.
4.2 INSUFFICIENCY OF A PURELY SEMANTIC ACCOUNT OF PART (B)

I have suggested that sentences whose \(<SS,LF>\) pairs are marked as unacceptable by the ISC may still be acceptable if the semantics—i.e., the component that determines the literal meanings of sentences, along with entailments and implicatures that arise solely out of these literal meanings—generates a pair \(<S,I>\) where \(I\) is some implicature of the form \(X \text{ NOT NPI } Y\) generated from the literal meaning of the sentence.

Is the existence of an \(<S,I>\) pair sufficient to guarantee NPI acceptability by part (b)? Clearly not: the NPI squish established in the previous section shows that the existence of some implicature of the form \(X \text{ NOT NPI } Y\) from the literal meaning of the sentence is insufficient to guarantee acceptability for all NPIs.

Furthermore, as Baker (1970b) and others have observed, there are many unacceptable sentences which logically entail \(X \text{ NOT NPI } Y\). Consider double negation: since \(P\) entails \(\text{NOT (NOT } P\))\), NPIs would be predicted to be acceptable in all affirmative sentences. And the interdefinability of the logical connectives represented by \(\text{if, and, or, and not}\) creates the same problem. A sentence of the form \(P \text{ AND Q}\) should tolerate NPIs since it entails \(\text{NOT (( NOT P)OR( NOT Q))}\); a sentence of the form \(P \text{ OR Q}\) should tolerate NPIs because it entails \(\text{NOT(( NOT P)AND( NOT Q))}\); sentences of the form \(P-->Q\) should tolerate NPIs in \(Q\) as well as \(P\) since they entail \(\text{NOT Q-->NOT P}\). Similarly, a sentence of the form \(Ax \emptyset(x)\) should tolerate NPIs in \(\emptyset\) since it entails \(\text{NOT Ex NOT } \emptyset(x)\).

Or consider even. Let us suppose that (1) below asserts (2) and implicates (3): why isn't (4) acceptable by virtue of a corresponding
implicature (5)?

(1) Even John helped.
(2) John helped.
(3) It was most likely that John wouldn't help.
(4) *Even John lifted a finger to help.
(5) It was most likely that John wouldn't lift a finger to help.

Similarly, we might expect wish or pretend to license NPIs, since they have counterfactual implicature. As (6) and (7) demonstrate, they seldom if ever do license NPIs.

(6) He pretended that he had ever been there.
(7) *I wish I had a red cent.

Another example of the insufficiency of purely semantic account of part (b) is furnished by examples 6 and 14 on the list of triggers. The relevant sentences are repeated below.

(8)(a) Cows fly more often than he lifts a finger to help.
       (b) The sun rises more often than he lifts a finger to help.
       (c) 'P more often than Q' has the implicature 'if P very seldom, then almost never Q'

(9)(a) He doesn't give a damn about enough people to qualify him as a member of the human race.
       (b) He doesn't give a damn about enough people to qualify him for sainthood.
       (c) 'Not enough X to Y' has the implicature 'Enough NOT X so that NOT Y'

These sentences will be discussed further in section 4.4 and 4.5; simply note here that without information about real world beliefs
there is no way to predict the acceptability of the (a) sentences but
the unacceptability of the (b) sentences. Both the (a) and the (b)
sentences seem to be part of an <S,I> pair by virtue of the strategy
noted (quite informally) in (c): but there doesn't seem to be anything
about the literal meanings of the (a) sentences that explains why they
are acceptable while the (b) sentences are unacceptable. Clearly in a
world where cow flight is known to be an everyday occurrence and
sunrise is known to be infrequent, we would expect (8)(a) to be
unacceptable and (8)(b) to be acceptable. The relative acceptability
of (9)(a) and (9)(b) is similarly affected by real world beliefs.

In Chapter 3, we saw that NPIs are not uniformly acceptable when
some logical element intervenes between the representation of the NPI
and NOT in LF. If we examine some of these unacceptable cases of NPIs
in the non-immediate scope of NOT, a possible strategy arises for
capturing part (b) strictly in terms of the literal meanings of
sentences.

(10) His paper doesn't hold a candle to mine because
he had any help. (NOT CAUSE)

(11) He didn't give just anybody a red cent. (NOT Ax)

(12) He didn't lift a finger enthusiastically.
(  NOT MANNER ADVERBIAL)

(13) JOHN doesn't hold a candle to Bill.
(  NOT FOCUS OPERATOR)

(14) He DID NOT contribute a red cent. (NOT TRUE)

The above sentences seem to be associated with positive
implicature, respectively (15)-(19):

(15) His paper 'holds a candle to' mine.
(16) He gives some people 'a red cent'.
(17) He did 'lift a finger'.
(18) Someone does 'hold a candle to' Bill.
(19) It has been suggested that he did contribute 'a red cent'.

So perhaps we can say that a sentence S with an NPI is acceptable iff S has no positive implicature involving the NPI. Such a suggestion would require a precise specification of 'positive implicature'; however, the counterexamples are so straightforward that this theory can be abandoned in its unelaborated state.

First, consider the factive triggers: regret, surprised, not realize, etc. Here are expressions which license NPIs but have positive implicature. For instance, (20) implicates (21) and (22) implicates (23):

(20) I regret that I lifted a finger to help him.
(21) I did 'lift a finger to help' him.
(23) I didn't realize that there was anybody in the kitchen.
(24) There was 'anybody' in the kitchen.

Second, consider NPIs like anymore and yet: (25) implicates (26) and (27) implicates (28).

(25) He doesn't lift a finger around the house anymore.
(26) He used to 'lift a finger around the house'.
(27) He hasn't contributed a red cent yet.
(28) He may 'contribute a red cent' in the future.

So although it may be that positive implicature plays a role in part (b), the distribution of NPIs cannot be predicted on the basis of
it.

Thus membership in an <S,I> pair, where 'I' denotes an implicature of the form X NOT NPI Y generated from the literal meaning of the sentence, is insufficient to guarantee the acceptability of a sentence which fails the Immediate Scope Constraint.
4.3 INSUFFICIENCY OF A PURELY CONVERSATIONAL ACCOUNT OF PART (B)

Our theory of part (b) will have to take into account the fact that NPIs do not ever seem to be acceptable by virtue of conversational implicature alone. That is, NPIs in a sentence S will not be licensed solely by virtue of the pair <S,I> if this I is some implicature arising not out of the literal meaning of S but solely out of the utterance of S in the context of the conversation.

Consider sarcasm, with or without special intonation. No matter how clearly the speaker conveys, by the utterance of (29), that he believes (30), any is still unacceptable in (29).

(29) I'm sure that Mary has ever considered anybody except herself.
(30) Mary has never considered anybody but herself.

Recall the following case from the list of triggers (example 7):

(31) The last/115th person to give a flying fuck about the whales was Mary Jones.

Consider a context in which, the whales having become extinct, it is known that in all of history only 115 people have demonstrated concern for whales. In that case 115th person to demonstrate concern would also be known to be the last person to do so; however, only last and not 115th triggers an NPI.

Finally, consider the following discourse among three people in the event that it is known that one, and only one, of the three knows Greek.

(32) A: Who knows Greek?
(33) B: *I know any Greek.
(24) B: I'm the only one who knows any Greek.

(35) C doesn't know any Greek.

We can conceive of a context in which B intentionally conveys (35) by the utterance of (33). Nevertheless, this does not license NPIs in (33), although NPIs may occur in (34), which has almost the same force as (33) in this conversation.

Thus our theory of part (b) will have to provide some explanation for the fact that NPIs in a sentence S are not licensed merely by the use of S to convey X NOT NPI.
4.4 A TENTATIVE PROPOSAL

The analysis of part (b) that I have argued for is that sentences with 'untriggered' NPIs (i.e., NPIs which are not in the immediate scope of NOT in LF) are acceptable only by virtue of their 'alluding' to some other proposition in whose logical structure the conditions for triggering this NPI are met. This notion, of the acceptability of a sentence depending upon some sort of 'allusion', sounds misleadingly exotic. One way to look at part (b) cases is to say that they lack a 'trigger' and must therefore be related to some LF with the trigger analogously to the way that a sentence with an empty VP must be related to some antecedent. (Of course, in the case of the missing trigger the 'antecedent' (i.e. the implicature) is not to be taken as identical in the relevant respect to the triggerless sentence, but only as similar.)

This comparison may be helpful in making some sense of the semantic and conversational constraints on part (b) of the NPI rule.

(38)(a) I expected NOT Ex (he eat x)
(b) I'm surprised that he ate anything.

(39)(a) Susy enjoyed the movie.
(b) I didn't.

(40)(a) NOT Ex (x saw John)
(b) Anybody didn't see John.

LF: Ex NOT (x saw John)

(41)(a) It's twelve o'clock.
(b) No, I didn't.
Clearly the well-formedness of (38)(b) and (39)(b) cannot be determined in isolation; we can only speak of the well-formedness of <b,a> pairs such as (38) and (39) above. (In contrast, the pair (40) and (41) are ill-formed. The pair <(40)(b), (40)(a)> is ill-formed because (40)(b) simply does not have the implicature (40)(a).

Well-formedness constraints on discourses with VP anaphora are treated in Williams (1977) and elsewhere. (Treating VP anaphora as a copying rule and specifying constraints on the output I assume to be equivalent to specifying constraints on the pair.)

But the appropriateness of uttering (39)(b) hinges not only upon the well-formedness of the <S, antecedent> pair--actually, of the pair of LFs rather than of sentences--but also upon the availability of the antecedent sentence. That is, (39)(b) may not be appropriately uttered twenty years after the utterance of (39)(a)--or by someone who is not part of the discourse--although (39)(b) is a member of a well-formed discourse.

The parallel between such <S, antecedent> pairs and <S,I> pairs is clear. The semantic well-formedness of a sentence S with an untriggered NPI cannot be determined in isolation, any more than the semantic well-formedness of (39)(b) can be determined outside of a given discourse. We must look at the <S,I> pair, where the relation between S and I parallels the anaphoric relation between the sentences with empty nodes and their antecedents. If an implicature of the form X NOT NPI Y can be generated by the semantic component from the literal meaning of a sentence S, then the relation <S,I> is well-formed. However, the the availability of this implicature affects the appropriateness of uttering S, just as the availability of
(39)(a) affects the appropriateness of uttering (39)(b), regardless of the well-formedness of the discourse (39).

Obviously the availability of an appropriate implicature does not hinge upon its having been uttered previously in some discourse. Rather, I will argue (as a first step toward a theory of part (b)) that this implicature is available if and only if it is part of what the speaker is using S to convey.

To illustrate this distinction between semantic well-formedness of the <S,I> pair and the availability of S for utterance, let us consider sentences (8)(a) and (b). repeated below as (42)(a) and (43)(a), with their implicatures (42)(b) and (43)(b) generated by the semantic component.

(42)(a) Cows fly more often than he lifts a finger to help.
     (b) If it's rare for cows to fly, then he almost never lifts a finger to help.

(43)(a) The sun rises more often than he lifts a finger to help.
     (b) If it's rare for the sun to rise, then he almost never lifts a finger to help.

Both (42)(a) and (43)(a) are members of a well-formed <S,I> pair, but (43)(a) sounds unacceptable. (I will mark 'unavailable' sentences with '*' as well as semantically ill-formed sentences.) Perhaps this is because, given the non-rarity of sunrises, (43)(b) is uninformative as a result of the falseness of the antecedent clause. That is, it is uninformative in the way that it would be uninformative to say 'If pianos are bread and the White House is bacon, we can make a BLT out of two pianos and the White House.' P-->Q is trivially true when the antecedent is false, and it is the consequent that is the licensing
implicature. In contrast, the implicature associated with (42)(a) is informative since the antecedent clause is true. Thus (42)(a) is appropriately uttered because the implicature which licenses the NPI is informative enough that we might expect (42)(a) to be used to convey it. In contrast, the licensing implicature (43)(b) is so uninformative that it is unlikely that (43)(a) would be used to convey such an empty message.

Of course, what is relevant is whether the implicatures (42)(b) and (43)(b) are likely to be regarded as informative (and hence worth conveying) by the speaker: so if the speaker is known to think that cows fly often and that the sun almost never rises, the judgments of acceptability should be reversed.

Thus—to repeat—the appropriateness of uttering (42)(a) or (43)(a) is not fixed for once and for all.

Note that in this account there are many semantically well-formed <S,I> pairs containing sentences which will never be appropriately uttered. Thus the <S,I> pair generated for (43)(a) is well-formed, but (43)(a) is unlikely ever to be appropriately uttered as a member of the <S,I> pair with the implicature as in (43)(c). Every sentence with an NPI is a member of at least one semantically well-formed <S,I> pair, since every proposition entails its double negation. Similarly, every sentence with a VP of the form *did too* is a member of a semantically well-formed discourse with (44) below as an antecedent although such a discourse is unlikely to occur.

(44) I saw a unicorn wearing a jumpsuit.

So we must speak of semantic well-formedness of <S,I> pairs rather
than of the sentences themselves. (Or alternatively we can speak of
the well-formedness of certain occurrences of a sentence S, as
distinguished from the well-formedness of S itself (the type) and from
the appropriateness of certain utterances of S (tokens). Otherwise we
would have to say that every sentence with an NPI is semantically
well-formed, since there is such a <S,I> pair where the implicature is
its double negation (the 'unavailability' of which will be discussed
in the following section).

Recall from section 4.2 that the appropriate implicature must be
in some way generable from the literal meaning of a sentence S. This
falls out of the theory just proposed. The semantic well-formedness
of acceptable part (b) sentences with NPIs is well-formed as a
member of a pair <S,I> generated by the semantic component. If the
semantic component can generate no implicature of the form X NOT NP' Y
(ignoring implicatures such as NOT NOT S since they never turn out to
be available) then the <S,I> pair will be ill-formed, just as a
discourse consisting of (39)(b) and no antecedent is ill-formed.

This is exactly parallel to the widely noted unacceptability of a
non-linguistic antecedent for VP anaphora; that is, one cannot
appropriately point to a pile of broken dishes and say 'No, I didn't'.

In the following section the question of the 'availability' of
appropriate implicatures (and hence the availability of S for
utterance) will be explored further.
4.5 'AVAILABILITY'

Since, as noted in the preceding section, every sentence with an NPI belongs to at least one semantically well-formed <S,I> pair where the licensing implicature is the double negation of S (just as every sentence of the form NP did A, too belongs to a semantically well-formed discourse with 'I saw a unicorn wearing a jumpsuit' as antecedent), it is clear that the 'availability' of the implicature plays a major role in part (b). That is, every sentence with an NPI has at least one well-formed occurrence (in the <S,I> pair where the implicature is the double negation of S) but there are many such sentences which will never be appropriately uttered (i.e., which have no acceptable tokens). In this section I will consider four ways in which a sentence S sounds unacceptable (i.e., appears, in isolation, to be unlikely ever to be appropriately uttered) because although it is a member of a semantically well-formed pair <S,I> this implicature is not available.

Recall that '*' is used here to mark not only syntactically or semantically ill-formed sentences but also sentences which appear unlikely ever to be appropriately uttered.

In section 4.5.1 I will consider cases where the implicature is unavailable because it is not likely to be believed by the speaker to be true (whether it is explicitly denied by the speaker or so widely believed to be false that the speaker is assumed to share in this general belief); in section 4.5.2, cases where the implicature is unavailable because it is a presupposition of S or otherwise too much 'background' to be part of what the speaker is using S to convey; in section 4.5.3, cases (such as the one discussed above) where the
implicature is unavailable because it is uninformative and therefore an unlikely message for a speaker to be using S to convey; and in section 4.5.4, other cases where the appropriate implicature is generated by the semantics but is insufficiently 'available' for S to be appropriately uttered.
4.5.1 IMPLICATURE UNAVAILABLE BECAUSE DENIED BY SPEAKER

Consider the following sentences.

(45)(a) I'm not going to Texas because I have any friends there.
(b) I don't have any friends there.
(c) I'm not going to Texas because I have friends there (although I do) but because I like the weather.
(d) I'm not going to Texas because I have any friends there, although I have lots of friends in Texas: I'm going for the weather.

(46)(a) She was surprised that there were any buffaloes in the dining room.
(b) She had expected that there wouldn't be any buffaloes in the dining room.
(c) She was surprised that there were buffaloes in the dining room, although she had never considered the possibility of such an infestation.
(d) She was surprised that there were any buffaloes in the dining room, although she had never considered the possibility of such an infestation.

(47)(a) I didn't say that I would lift a finger to help you.
(b) I left open the possibility that I wouldn't lift a finger to help you.
(c) I didn't say that I would help you, because it just goes without saying that I always help you.
(d) I didn't say that I would lift a finger to help you, because it just goes without saying that I always help you.

The (a) sentences above, in which NPIs are acceptable, have, I claim, the implicatures (b). That these implicatures are not entailed by the (a) sentences is demonstrated by the (c) sentences, which are not contradictory although they contain explicit denials of the implicatures (b). Finally, the unacceptable (d) sentences demonstrate that it is by virtue of these optional implicatures (b) that the (a)
sentences are acceptable.

So one circumstance under which the implicature may fail to be available is if the speaker denies it: because how, in this event, can it be part of what he is using S to convey?

Similarly, if the licensing implicature is widely believed to be false, and the speaker assumed to share in this general belief, then it is unavailable. Thus consider (48), cited in Williams (1975):

(48) Grass isn't green because it contains any chlorophyl.

Its unacceptability is not, I think, related to the fact that the because clause is nonmotivational (the explanation suggested by Williams) but has to do with the widespread belief that grass does contain chlorophyl. (48) is appropriately uttered only if the speaker intends to convey (49). But if the speaker shares in the general belief that grass contains chlorophyl, then how can he be using (48) as a vehicle to convey (49)? But if the speaker does have the mistaken belief that there is no chlorophyl in grass, and if he is using (48) to convey (49), then (48) sounds acceptable.

(49) Grass doesn't contain any chlorophyl.

Contrast (48) with (50); the licensing implicature (51) is much more available.

(50) Grass isn't green because it contains any green paint.

(51) Grass doesn't contain any green paint.

(50) is somewhat odd, due to the unlikeliness of a speaker ever needing to convey (51), i.e. to the unlikeliness of anyone ever
suggesting that grass does contain green paint. But it is much better than (48) given the much greater unlikeliness that anybody would believe and intend to convey (49). (Again, recall that '•' and terms like 'unacceptable' are used in this discussion only to indicate the unlikeliness that a given utterance of S will ever be appropriate.)

So the implicature of the form X NOT NPI Y to which a sentence containing an NPI must allude will be unavailable if there is reason to believe that the speaker does not believe it to be true.
4.5.2 IMPLICATURE UNAVAILABLE BECAUSE 'BACKGROUND'

In this section I will consider unacceptable sentences for which the only plausible licensing implicature is too much 'background' to be available as a member of the <S,I> pair.

Consider first sentences whose implicatures of the form X NOT NPI Y are presuppositions (either logical or pragmatic). If the implicature is a presupposition of S, it is unlikely to be part of what the speaker is using S to convey: that is because it will be inappropriate (speaking quite loosely here) to utter S in the first place if this presupposition is not believed by speaker and hearer to be true. So presuppositions of S tend not to be available to license NPIs. Consider (52)-(55) below.

(52)(a) Even John has been there.
   (b) ASSERTION:
       John has been there.
   (c) PRESUPPOSITION:
       John is the person who is most likely not to have been there.
   (d) Even John has ever been there.

(53)(a) Only John has been there.
   (b) ASSERTION:
       Anyone who is not John has not been there.
   (c) PRESUPPOSITION:
       John has been there.
   (d) Only John has ever been there.

(54)(a) He accused me of contributing to the Moonies.
   (b) ASSERTION:
       He claimed that I contributed to the Moonies.
   (c) PRESUPPOSITION:
       Appropriate behavior for me was to not contribute to the Moonies.
(d) He accused me of contributing anything to the Moonies.

(55)(a) He criticized me for contributing to the Moonies.

(b) ASSERTION:  
He said that I ought to have not contributed to the Moonies.

(c) PRESUPPOSITION:  
I contributed to the Moonies.

(d) He criticized me for contributing anything to the Moonies.

Let us follow Horn (1969) and Fillmore (1971) respectively and say that the distinction between even and only, and between accuse and criticize, is that even and accuse have presuppositions the form X NOT NPI Y while it is the assertions involving only and criticize that are of the form X NOT NPI Y. Since only and criticize license NPIs, and even and accuse do not, they confirm our hypothesis that the I of an <S,I> pair will not be available if it is a presupposition (taking presupposition to include shared assumptions, etc.) of S.

Of course, it is possible to introduce new information into a discourse by treating it as presupposition. 'He has stopped embezzling company funds' can be said as a way of introducing into the discourse the fact that he was embezzling in the past. Sentences whose NPIs are to be licensed by a presupposition are improved if there is some device that calls attention to the presupposition itself, making it more available. Thus at least in (56)(b) below calls attention to the negative presupposition. (The difference in acceptability between (56)(b) and (c)--i.e. the lesser likelihood that (56)(c) will ever be appropriately uttered--is perhaps because people are less likely to accuse one another of never having been to Istanbul than of having been remiss in love. Given a context in which
accusations of never having been to Istanbul were flying fast and thick, (56)(c) might be expected to sound more acceptable.)

(56)(a) You should pretend that you have ever loved me.
   (b) You should at least pretend that you have ever loved me.
   (c) You should at least pretend that you have ever been to Istanbul.

Next consider sentences which entail the only plausible I for an <S,I> pair but do not seem to be likely vehicles for conveying it:

(57)(a) He DID NOT lift a finger to help.
   (b) LF: NOT TRUE (he lifted a finger to help)
   (c) I: NOT (he lifted a finger to help)

Here, the I of the <S,I> pair is entailed by the meaning of the LF, but the purpose of uttering (57) is not so much to convey that 'he did not lift a finger to help' as to convey that some previous statement was false. One would be unlikely to introduce the information that 'he did not lift a finger to help' by means of such a metalinguistic denial. That is, one would be unlikely to introduce the fact that a panda bear had mysteriously appeared on Mass. Ave. by uttering (58):


Similarly, consider (59).

(59)(a) Everybody didn't budge.
   (b) NOT [Ax: x is a person] (x budged)
   (c) I: There was someone who didn't budge.
Again, this I of the <S,I> pair can be inferred from the literal meaning of (59)(a) with LF (59)(b) but does not seem available: that is, (59)(a) seems like an odd way to introduce (59)(c). Perhaps this has to do with the flavor of denial associated with A NOT--->NOT A readjusted sentences. Contrast (59)(a) with (60), which has not undergone this readjustment rule since NOT A is the surface order: it seems more plausible as a way of introducing (59)(c), with the result that the NPI sounds better in it.

(60)?Not everybody budged.

So we have seen in this section that for a sentence S to be construed as the member of an <S,I> pair licensing NPIs in S, the implicature must be part of what the speaker is using S to convey. Presuppositions and certain entailments may therefore be unavailable as Is of such <S,I> pairs.
4.5.3 CASES WHERE THE IMPLICATURE IS 'UNINFORMATIVE'

As discussed in connection with (42) and (43) above, sometimes the licensing implicature may be unavailable because it is uninformative. Consider also the following sentences, in the reading in which ENOUGH is in the scope of negation (and thus causes the ISC to be violated): this reading is paraphrased in (61)(b) and (62)(b). (The readings of (61)(a) and (62)(a) in which ENOUGH has wide scope with respect to NOT are of course acceptable, as discussed in Chapter 3.)

(61)(a) He doesn't give a damn about enough people to qualify him as a member of the human race.

(b) 'There aren't enough people whom he cares about to qualify him as a member of the human race.'

(c) I: There are enough people whom he doesn't give a damn about to disqualify him as a member of the race.

(62)(a) He doesn't give a damn about enough people to qualify him for sainthood.

(b) 'There aren't enough people whom he cares about to qualify him for sainthood.'

(c) I: There are enough people whom he doesn't give a damn about to disqualify him from sainthood.

As with (42) and (43), the licensing implicature of the unacceptable sentence turns out to be uninformative. One might have to feel concern for the whole human race in order to be a saint, so the implicature (62)(c) associated with (62)(a) doesn't indicate whether he cares about many people or about few people. The implicature associated with (61), by contrast, is more informative since one can care about almost nobody and still be regarded as properly socialized:
so if one cares about less than this minimal set, one has to care about very few people.

Thus we have another example of two sentences both of which have well-formed occurrences as members of \(<S,I>\) pairs, but only one of which is likely ever to be appropriately uttered; the unacceptable (62)(a) is associated with an \(I\) that is too uninformative to be available, i.e. to be part of what (62)(a) is being used to convey.
4.5.4 OTHER CASES WHERE THE IMPLICATURE IS UNAVAILABLE

In this section I will take note of two other cases where the acceptability of a sentence depends not upon the ability of the semantics to generate an appropriate \(<S,I>\) pair but upon the 'availability' of this \(I\).

Consider (64) and (65) below. As noted by Lakoff (1969), NPIs tend to be unacceptable in promises but acceptable in threats.

(64)(a) If you contribute a red cent to the Moonies, I'll hit you. (THREAT)

(b) I: Don't contribute a red cent to the Moonies.

(c) I: *Contribute a red cent to the Moonies.

(65)(a)*If you contribute a red cent to the Moonies, I'll reward you. (PROMISE)

(b) I: *Contribute a red cent to the Moonies.

(c) I: Don't contribute a red cent to the Moonies.

Statements of the form 'P-->Q' can be construed as either promises or threats on the basis of their structure as conditionals. If Q is something desirable to the addressee, then it may be that 'P-->Q' can be construed as a promise; if Q is something undesirable to the addressee, then it may be that 'P-->Q' can be construed as a threat. A promise can be seen as an imperative 'P!', a threat as an imperative 'NOT P!' Thus NPIs are acceptable in threats, since they have the implicature 'NOT P!' but not in promises, since they have the implicature 'P!' All of this, it seems to me, can be determined without reference to real world beliefs; that is, the semantics generates for (64) and (65) both the (b) and the (c) implicatures.
What does hinge on the real world is the beliefs of the speaker about the desirability of Q to the addressee. In sentence (65), Q ('I'll reward you') is something generally desirable, so (65)(a) is hard to construe as a threat, i.e. the implicature (65)(c) is hard to associate with (65)(a). The implicature (65)(b) is more available. By contrast, the negative implicature (64)(b) is much more available for (64)(a), since Q ('I'll hit you') is undesirable to most people. Lakoff observes that sentences like (65)(a) would be acceptable if spoken by someone who believed that being rewarded was undesirable to the addressee—in that case, the speaker would in fact be using (65)(a) to convey (65)(c).

What about if clauses in general? Although they usually tolerate most NPIs, NPI acceptability is somewhat squishy and seems to correlate, for reasons that are not clear to me, with the naturalness of a paraphrase of the form 'NOT-P OR Q'. That is, although P-->Q entails NOT-P-->NOT-Q and thus we might expect NPIs in both the antecedent and the consequent clauses of sentences with if, it appears that NOT-P OR Q is the relevant implicature. When it is available—as evidenced by the naturalness of the paraphrase—then NPIs seem to be acceptable in the antecedent clause.

(66)(a) If you give a flying fuck about the whales, you'll contribute.

(b) Either you don't give a flying fuck about the whales or you will contribute.

(67)(a)??If you give a flying fuck about the whales, you must be George Smith.

(b) Either you don't give a flying fuck about the whales or you are George Smith.
Finally, consider negated *because* clauses. A sentence of the form 'NOT CAUSE (P,Q)' can fail to be true for many reasons: P and Q can both be true but the assertion of the causal relation false; or either P or Q can be false. When the causal relation is expressed by *because*, i.e. when the sentence is of the form 'NOT (Q because P)', Q tends to be (not necessarily logically) presupposed: that is, the sentence tends to be taken as a denial that it was P that caused Q. The possibility of an implicature NOT-P is therefore stronger in such sentences than the possibility of an implicature NOT-Q. Thus NPIs are much more frequently acceptable in the lexical representation of P when the causal connection is expressed by *because*.

(68)(a) I didn't help her because she's ever lifted a finger to help me.

  WITH READING: NOT CAUSE (P, Q) and with the emphasis 'Q not because P'
  'It wasn't because she's ever lifted a finger to help me that I helped her.'

(b) I: She has never lifted a finger to help me. (NOT P)

(69)(a) I didn't lift a finger to help her because she's helped me.

  WITH READING: NOT CAUSE (P, Q), and with the emphasis 'P had no result Q'

(b) I: I didn't lift a finger to help her. (NOT Q)

Notice, however, that a sentence of the form 'NOT (Q because P)' can sometimes have the emphasis 'P has no result Q': consider the sentences in (70) below: the NOT Q implicature licenses an NPI in (70)(a) but not in (70)(c). The lesser availability of such a readings makes NPIs less likely to be acceptable in Q.
(70)(a) I haven't won any awards because I'm careful.

(b)'My carefulness has won me no awards.'

(c)I didn't budge when they evacuated because I'm careful.

(d)'My carefulness didn't lead me to join in the evacuation.'

If the causal relation is expressed by result in, for example, the relative availability of the implicatures NOT P and NOT Q are reversed.

(71)(a) All that flattery didn't result in my contributing one red cent to his campaign. NOT CAUSE (P,Q)

(b) I: I didn't contribute one red cent to his campaign. (NOT Q)

(c)*His flattering me any did not result in my contributing to his campaign. NOT CAUSE (P,Q)

(d) I: He didn't flatter me any. (NOT P)

(71)(a) and (c) both have the structure NOT CAUSE(P,Q), where P=flattery and Q=contribution. In this case, the implicature NOT Q is quite available and NPIs are acceptable in Q, as demonstrated by (71)(a). By contrast, the implicature NOT P is unavailable and, as (71)(c) demonstrates, NPIs are not generally acceptable in P. Thus the 'availability' of a given implicature is affected by the particular lexical items which express the causal relation.
SUMMARY OF SECTION 4.5

I have suggested in this section that the acceptability of a sentence S which fails the ISC cannot be determined in isolation; that is, we cannot speak of the well-formedness of S considered as a type. Rather, we can only speak of the well-formedness of given occurrence of S in an <S,I> pair, where I is an implicature of the form X NOT NPI Y generated from the literal meaning of S by the semantics. The acceptability of a given token, i.e. a particular utterance of S, depends not only on the well-formedness of S in an <S,I> pair but also on the availability of this I. Thus, for example, any sentence of the form P-->Q has the possibility of being construed as a threat, i.e. as a command 'NOT-P!.' Thus any sentence of the form 'P-->Q' is a member of an <S,I> pair generated by the semantics, in which the representation of any NPI in P is in the immediate scope of NOT. But the appropriateness of a given utterance of S depends upon whether or not S can be construed as a member of an <S,I> pair; unless the speaker believes that Q is undesirable, allowing S to be construed as a threat, this I will simply be unavailable and the utterance of S will be inappropriate.

In this section we have seen that the licensing implicature may fail to be available for a number of reasons: (1) the speaker explicitly denies its truth or can be expected not to believe that it is true; (2) it is a presupposition of S or otherwise too 'background'; (3) it is simply 'uninformative' and therefore unlikely to be what the speaker is using S to convey; (4) it is unavailable due to real world factors such as the expected belief of the speaker in the desirability of Q in sentences of the form 'P-->Q', which makes
them unlikely vehicles for threats.
4.6 PART (B) AND SENTENCE GRAMMAR

In the preceding sections I have suggested that the appropriateness of uttering a sentence containing NPIs is determined not only by structural properties such as 'immediate scope' but by inference and by beliefs about the real world. This inability of the part (b) cases to be captured by linguistic rule has sometimes been cited as evidence that the line between linguistic knowledge and other systems of knowledge has been drawn too narrowly, and that linguistic knowledge cannot even be characterized without reference to other kinds of knowledge. Lakoff (1972), for example, makes the following observations about Baker's conjecture:

For linguistics, its consequences are remarkable, since it claims that the distribution of morphemes (e.g., 'would rather') is determined not simply by which other elements and structures are present in the same sentence, or even in a transformational derivation of that sentence, but in addition by logical equivalences. ... Baker's conjecture would, if correct... show that there was a relation between grammaticality and logical equivalence.

NPIs have thus been used as arguments that grammatical rules require reference to logical equivalence; or, in Lakoff (1969), to presupposition.

Similarly, Hintikka (1977) examines the behavior of any and concludes that it represents a counterexample to the thesis of the autonomy of syntax (not to mention to generative grammar itself).

In the any-thesis [his proposed rule for the occurrence of any], the syntactic acceptability or unacceptability of certain (putative) sentences is explained by reference to their semantical properties. This is in sharp contrast to all approaches to grammar in which the syntactical component is independent of the semantical one.
(His any-thesis is a variant of the analysis of any as a universal quantifier whose distribution can be predicted on the basis of its interaction with every. In the following chapter I will present arguments against such an analysis.)

This expectation that the distribution of specific words be syntactic and predicted by linguistic rule has been expressed in the linguistic literature not only in connection with NPIs but also in connection with selection restrictions. Initially, it was proposed that selection restrictions block insertion of words into inappropriate contexts; in (72), tomatoes would simply not be insertable into the environment 'John translated the --.'

(72) John translated the tomatoes.
(73) John ate the tomatoes.

Jackendoff (1972) demonstrates the difficulties associated with this; in particular, sentences like (74) would be (incorrectly) blocked.

(74) It's nonsense to say that John translated the tomatoes.

He proposed instead that a violation of selection restrictions simply results in a sentence's being marked as anomalous.

As has often been noted, sentences in which such violations occur can frequently have reasonable interpretations; (72), for example, might be appropriate in the event that the tomatoes were carved with elaborate inscriptions; or perhaps John came home to find his living room knee deep in tomatoes: when he finally determined the reason for this he might be said to have 'translated the tomatoes', especially if they were the work of some friend given to operating in mysterious and
symbolic ways. (Of course, this kind of interpretation may be necessary even when selection restrictions aren't violated: 'John tripped on the tomatoes' might be used to convey the fact that John finally came to grief in some situation involving tomatoes.)

But surely it is not part of a speaker's linguistic competence to 'fit' each sentence to the real world; his linguistic competence simply provides him with a literal meaning whose relevance to the world he must determine non-linguistically.

Bolinger (1960) suggested that the constraints on NPIs should be classed along with selection restrictions in the 'idiom grammar', in contrast to the syntactic rules of the 'transform grammar'; that is, that the unacceptability of sentences like (75) and (76) is a function of 'idiom' grammar, while the unacceptability of (77) is a function of 'transform grammar':

(75) John ate any peas.
(76) John disproved the peas.
(77) John were eaten the peas.

The parallel between the NPI rule and selection restrictions is suggestive. Selection restrictions might be thought of as analogous to part (a), specifying the 'paradigm' case of the occurrence of a word. (Thus the 'paradigm case' of the environment in which translate occurs is with some sort of linguistic entity as object.) When the literal meaning of a sentence does not satisfy the selection restrictions of all of its components, then it must be construed in some way that leads these selection restrictions to be met. Thus sentence (72), which doesn't meet the selection restrictions for
translate. can be construed in various ways: the object of translate can be taken to be not the entire fruit, but writing on the surface of the fruit; or tomatoes can be taken to refer to the situation of tomatoes in the living room which can itself be seen as analogous to something in a foreign language, in need of translation. Thus from the literal meaning of (72) we can in some way that is surely not a part of our strictly linguistic competence derive some additional interpretations of (72) in which the selection restrictions on 'translate' are met. This is of course parallel to part (b) of Baker's rule for NPIs.

Part (a) of the NPI rule and selection restrictions, then, may be thought of as representing the paradigm case; when these restrictions are not met it is necessary to recast the sentence so as to furnish this paradigmatic environment.

NPIs are not the only expressions which occur outside of a paradigm environment defined upon some level of linguistic representation (LF in the case of NPIs) and by their presence force the sentence in which they occur to 'allude to' another sentence.

In (78) below the presence of on earth forces one to take the sentence as insinuating (79), a direct question. If other aspects of the sentence are incompatible with such an insinuation, the expression on earth will be unacceptable. In (80), for example, the wh-clause can't be taken as an indirect question and thus can't allude to a direct question. (81) suggests that it is not enough for on earth to occur in an indirect question; there must be a direct question implied by the speaker.
(78) A description of what on earth he's doing would sure come in handy.

(79) What on earth is he doing?

(80) A description of what on earth he's doing was published in the Globe yesterday.

(81) Everyone knows what on earth the square of 2 is.

Another 'displaced' expression forces the 'insinuation' of commands:

(82) We'll be more comfortable when we get the hell out of this place.

(83) Let's get the hell out of this place!

(84) ??When the cell gets the hell out of the precancerous stage...

(82) seems to imply (83), while (84), which is unlikely to have such an implied command, cannot contain the hell. 'Command' is perhaps too strong: in (85), the implication seems to be roughly as in (86):

(85) They'll be more comfortable once they get the hell out of here.

(86) They should get the hell out of here.

Thus NPIs, question expressions such as wh- on earth, and command expressions such as the hell all seem to be able to have the effect, when they occur outside their paradigmatic environment, of forcing one to see the sentence in which they occur as 'alluding to' some other sentence which furnishes their paradigm environment. The paradigm environment in all cases is defined on some level of linguistic representation, e.g. after NOT in LF, in a direct question, in an imperative, etc. These and similar cases are discussed in Sadock (1975).
In summary, the recalcitrance of the part (b) cases to grammatical description does not argue for an enlargement of the grammar to contain, e.g., a theory of entailment or, much worse, theories of conventional and conversational implicature. Such a move would be analogous to incorporating into the grammar a theory of metaphor, since such a theory is necessary to account for the distribution of lexical items in general.
SUMMARY OF CHAPTER 4

The variety of contexts in which NPIs are acceptable has been of great interest to linguists. Probably because of the sensitivity of NPIs to their surface structure relation to negation, it has been widely assumed that their distribution must be accounted for within sentence grammar and perhaps within syntax. Thus the part (b) cases have been used to argue for the inclusion into sentence grammar of whatever machinery is required to capture them.

I have argued in this chapter for the analysis of part (b) first proposed in Baker (1970): that the primary trigger is NOT, in the immediate scope of which an NPI is expected to occur; and that all other sentences containing NPIs are acceptable only if they can be construed as alluding to a proposition in which whose representation their NPI is appropriately triggered. Thus we cannot determine for once and for all the well-formedness of a sentence like (87) below, considered as a type; we can only determine the well-formedness of particular occurrences of it. If it occurs as a member of an <S,I> pair with an implicature such as (88)--that is, if it 'alludes' to (88)--then that occurrence of it is semantically well-formed. If this implicature is part of what the speaker is using S to convey, then the implicature is 'available' and this utterance (i.e. token) of S is appropriate since S can be construed as a member of the well-formed pair <S,I>.

(87) I didn't stay because I had any friends there.
(88) I didn't have any friends there.
In a sense there is a parallel between this 'allusion' and discourse anaphora such as VPD. In both cases, we can speak of a pair \(<b,a>\) and of a relation of similarity or identity between \(b\) and \(a\). In the case of NPIs, \(b\) is the sentence containing the untriggered NPI and \(a\) is the licensing implicature; in the case of VPD, \(b\) is the sentence with the 'deletion' and \(a\) is the sentence in the discourse to whose VP the VP of \(b\) is anaphorically related. The well-formedness of \(b\) cannot be established in isolation; only the well-formedness of particular occurrences of it can be determined. There are several additional similarities between part (b) and VPD.

First, \(a\) must be a linguistic entity. In the case of NPIs, this means that the negative implicature cannot be furnished exclusively by context: this was demonstrated in section 4.2; in the case of VPD, this means, for example, that one cannot point to a pile of broken dishes and say 'No, I didn't.'

Second, there are constraints on what is a well-formed \(<b,a>\) pair. That is, (89) is not an appropriate discourse and (90)(a) is not generable from the meaning of (90)(b):

(89)(a) It's twelve o'clock.

(b) Yes, it did.

(90)(a) John doesn't have any friends there.

(b) John said that he has any friends there.

And third, as demonstrated in section 4.5, the 'availability' of \(a\) affects the appropriateness of uttering \(b\) quite apart from the semantic well-formedness of the \(<b,a>\) pair.

Needless to say, there are great problems associated with this
analysis. How are the appropriate implicatures generated by the semantics? We have seen that the implicatures which license NPIs are in many cases not logically entailed: for example, *surprised that S* cannot be said to entail *expect that NOT S*, but it was demonstrated in section 4.5.1 that this is the implicature which licenses NPIs in the complement of *surprise*. Also, the characterization of the licensing implicature as X NOT NPI Y is clearly much too weak. And what are the implicatures associated with questions? 'Availability' remains to be characterized: it is unclear whether or not it can be worked out entirely in terms of Gricean maxims.

A question also arises as to whether part (a) can be treated as a subcase of part (b). That is, can we say that all acceptable sentences with NPIs are acceptable by virtue of occurrence in an <S,I> pair and that the <S,I> pairs which the part (a) sentences occur in have the property that this I is simply the LF of S?

The difficulties associated with this analysis of part (b) as an allusion to the triggering environment have led to other analyses of part (b) in which negation is not the primary trigger. One such analysis, that of Ladusaw (1979), is argued in Chapter 6 to be untenable. Thus I believe that the 'derivative generation' analysis proposed here is at least in the right ball park, although it is, so far, wildly unconstrained. However, as discussed in section 4.6, determining the appropriateness of an NPI in a given sentence does not seem to be any more an obligation of the grammar than determining the appropriateness of a given metaphor.
1. See Horn (1970) on the varying 'strength' of NPIs.

2. I will assume that NPIs in NPs headed by indefinites are treated in the same way. Such constructions provide one of the few examples of NPIs preceding and commanding (although not c-commanding) not in surface structure:

   (i)(a) Tickets to any of the afternoon concerts were not available.
   (b) Tickets were not available to any of the afternoon concerts.

   (ii)(a)*Tickets to any of the afternoon concerts were not green.
   (b)*Tickets were not green to any of the afternoon concerts.

The (a) sentences demonstrate, as far as I can tell, that NPIs in such NPs are acceptable only in negated 'presentation' sentences (see Gueron (1978)), i.e. in sentences which simply introduce the existence (or lack thereof) of the subject into the discourse. Only presentation sentences, Gueron claims, allow the PP extraposition that (i)(a) but not (ii)(a) may undergo (as demonstrated by the (b) sentences) so this may be the relevant difference.

3. Perhaps a red cent is 'detachable' here, as discussed in Chapter 3. However, there is nothing to be 'detached' in (i) below, so it's likely that the acceptability of 16.a. cannot be explained in terms of part (a) with the 'detached' portion of the NPI occurring in the immediate scope of NOT.
(i) I couldn't budge the rock with ANY of his tools.

4. This is the last that will be said here about NPIs in questions; they deserve fuller and more precise treatment than I can possibly give them here.

5. The term 'implicature' is used here as a noncommittal term to include logical entailment, presupposition, conventional implicature, etc. As will become clear in this chapter, the precise relationship that must hold between the literal meaning of S and X NOT NPI Y remains to be determined.


7. The 'positive presupposition' hypothesis and this argument against it are also noted in LeGrande (1975).

8. The 'uninformativeness' of P-->Q where P is false does not extend to counterfactuals, of course.

9. I am speaking quite loosely here about the 'causal connection'. 'P because Q' has at least two quite distinct senses: (1) P actually results in Q, or (2) the truth of P allows one to conclude that Q is true.

10. It might be suggested that in (70)(a) the existential quantifier representing any has wide scope with respect to CAUSE; such readings are discussed in section 3.4.2. However, this wide scope reading has the paraphrase (i), which does not seem to express the meaning of (70)(a).
(i) There was no award that I won because of my carefulness.

11. Lakoff characterizes the difference between promises and threats as presuppositional.
CHAPTER 5: ON THE REPRESENTATION OF ANY

The English determiner any has received considerable attention by linguists and philosophers, focussing on the question of whether it can be said to have the same meaning in (1) and (2) below.

(1) John didn't do anything.
(2) John can do anything.

Quine (1960) argued for a univocal analysis of the any found in negative contexts (polarity any) and that found with modals (free-choice any): in both cases any is to be represented as a universal quantifier with wide scope over its trigger. Under this analysis, (1) and (2) are represented as in (3) and (4).

(3) \( \overline{\forall} \) NOT (John did \( x \)) \( =(1) \)
(4) \( \overline{\forall} \) POSSIBLE (John do \( x \)) \( =(2) \)

This univocal universal analysis of any (hereafter, the 'A-theory') has been supported by Lasnik (1975), LeGrande (1975), Hintikka (1977), and others. It is not, however, the only possible analysis of any. It has also been argued that at least polarity any receives an existential interpretation, although it may be that free-choice any is most plausibly represented by the universal quantifier. Under this analysis sentence (1) is represented as in (5).

(5) NOT Ex (John did \( x \)) \( =(1) \)

Since \( \overline{\forall} \) NOT \( 0 \) \( (x) \) is logically equivalent to NOT Ex \( 0 \) \( (x) \), the A-theory and the E-theory make truth-conditionally identical
predictions about sentence (1). Arguments which support this analysis (hereafter, the 'E-theory') may be found in Carlson (1980), Fauconnier (1975), Horn (1972), Klima (1964), Ladusaw (1979), and elsewhere.

In this chapter I will argue for the E-theory, surveying some of the arguments for this position already in the literature and proposing some additional arguments. The discussion is not intended as an exhaustive survey of the arsenal of such arguments.

In deciding between the E-theory and the A-theory, we are confronted by at least four basic types of arguments, each of which will be examined in this chapter. They are, in what seems to me to be decreasing order of importance, (1) arguments based upon the inability of one or the other theory to capture truth conditions of sentences containing any (section 5.1); (2) arguments based upon the conflict between one or the other theory and some otherwise valid grammatical rule (section 5.2); (3) arguments based upon distributional facts (section 5.3); and (4) arguments based upon the internal simplicity of the account of any (section 5.4). Section 6.5 is a discussion of potential arguments for the E-theory based upon contexts of the form 'Ø NOT'.

5.1 ARGUMENTS BASED UPON TRUTH CONDITIONS

I will first consider arguments based upon the relative abilities of the A-theory and the E-theory to capture the truth conditions of sentences containing *any*.

In section 5.1.1, I will argue that the A-theory is unable to capture the truth conditions of sentences containing *any* when there is some operator or predicate \( \emptyset \) which is in the scope of NOT and enters into scope ambiguities with *any*; in section 5.1.2 I will take note of the argument (widely observed) that the A-theory is unable to give account of the meanings of sentences with verb phrase deletion.

5.1.1 *NOT \& CONTIGUITY*

Under the A-theory, *any* is always assigned wide scope with respect to NOT. As a result, this theory predicts that any operator or predicate \( \emptyset \) that is itself in the scope of NOT will automatically be in the scope of *any*. Under the E-theory, *any* is assigned narrow scope with respect to NOT, and scope ambiguity between *any* and \( \emptyset \) is at least not ruled out. It will be seen below that the A-theory's prediction of no ambiguity is incorrect.

Let \( \emptyset \) be a verb of propositional attitude. The A-theory predicts that *any* will have to take wide scope with respect to this predicate; that is, that only the transparent reading (7) will be available for a sentence like (6).

(6) John doesn't believe that she knows any felons.

(7) \([\text{Ax: } x \text{ is a felon}] \text{ NOT (John believes that (she knows } x)\)]

'It is true of every felon that John does not believe that she knows him.'

TRANSPARENT READING OF (6)
The E-theory does not rule out scope ambiguity between any felons and the belief context: that is, it does not rule out the possibility that there is both an opaque reading (9) of (6), in which any felons is in the scope of believe, and a transparent reading (8), in which any has wide scope with respect to believe.

(8) NOT [Ex: x is a felon](John believes that(she knows x))

'There are no felons whom John believes that she knows.'
TRANSSPARENT READING OF (6)

(9) NOT (John believes that ([Ex: x is a felon] (she knows x)))

'John does not believe that there are felons whom she knows.'
OPAQUE READING OF (6)

The transparent reading of (6) is captured under both analyses of any: (7) and (8), that is, have identical truth conditions. But only the E-theory allows (6) to have the opaque reading, which is represented as in (9). Without question, sentence (6) does have both the transparent and the opaque readings. That the opaque and transparent readings have different truth conditions is well-known. Considering (6), imagine that Smith is a felon and that John believes that she knows Smith but does not believe that Smith is a felon. In this case the opaque reading (9) can still be true, since John can believe both that she knows Smith and that she knows no felons; the transparent reading ((7) or (8)) will be false, since there 'actually is a felon whom he believes that she knows.

Under the A-theory, then, any must be extracted out of the belief context in order to take wide scope over NOT, and there is no way to represent the opaque reading of sentences like (6).

Belief contexts are not the only examples of 'NOT Ø' contexts
in which the A-theory will obligatorily assign any wide scope over Ø.

Adverbs such as rarely or seldom could also be used as examples of Ø.

In a similar vein, consider unlikely:

(10) It is unlikely that anyone will be struck by lightning.

(11) [Ax: x is a person] UNLIKELY (x will be struck by lightning)

'It is unlikely that each person will be struck by lightning.'

(12) UNLIKELY [Ex: x is a person] (x will be struck by lightning)

'It is unlikely that someone will be struck by lightning.'

(13) UN [Ex: x is a person] LIKELY (x will be struck by lightning)

'There is no one who is likely to be struck by lightning.'

Sentence (10) seems to have only the reading (12), in which any is in the scope of the entire predicate UNLIKELY. (11) and (12), of course, are not to be collapsed: (11), but not (12), is compatible with a situation in which it is certain that there will be someone struck by lightning, although each person's risk is very small. Not surprisingly, there is no reading (13), equivalent to (11), in which any has wide scope with respect to likely: unlikely would have to be decomposed into un plus likely in order to get this reading. The A-theory predicts (falsely) that (11) is the representation of (10), since any must take wide scope with respect to the triggering negative element un, and hence over any Ø that is itself in the scope of negation: Ø in (10) is the predicate LIKELY. The E-theory predicts that (10) will have only the representation (12), (13) being ruled out by the impossibility of lexically decomposing unlikely. Thus we have
another example of a $\emptyset$ over which the A-theory falsely predicts that \textit{any} must take wide scope.

As a final example of a 'NOT $\emptyset$' context in which the A-theory falsely predicts that \textit{any} has obligatorily wide scope over $\emptyset$, consider the interaction of \textit{any} and negated quantifiers.

(14) He didn't give anything to many of his friends.

This sentence appears to be three-ways ambiguous; the three possible readings are paraphrased in (15)-(17).

(15) 'There were many of his friends to whom he gave nothing.'

(16) 'There was no present which he gave to many friends.'

(17) 'Few of his friends received presents at all.'

The reading paraphrased in (15) is irrelevant here, since MANY has wide scope with respect to NOT and hence we do not have a 'NOT $\emptyset$' context. It is the distinction between (16) and (17) that we will consider: in both cases, MANY is negated and what varies is the relative scope of MANY and the quantifier whose lexical representation is \textit{any}.

The A-theory can assign to (14) only one representation in which MANY is negated: (18) below, which is paraphrased above in (16).

(18) $\left[ \text{Ax: x is a present} \right] \text{NOT } \left[ \text{MANYy: y is a friend} \right] \left( \text{he gave x to y} \right)$

The E-theory, since it does not require \textit{any} to be assigned wide scope with respect to NOT, permits (14) to be represented as in (19), paraphrased in (16) above; or as in (20), paraphrased in (17) above.
(19) \( \text{NOT [Ex: } x \text{ is a present]} \ [\text{MANYy: } y \text{ is a friend}] \text{ (he gave } x \text{ to } y) \)
(20) \( \text{NOT [MANYy: } y \text{ is a friend]} \ [\text{Ex: } x \text{ is a present}] \text{ (he gave } x \text{ to } y) \)

Obviously (18) and (19) have the same truth conditions. (20), however, has no analogue under the A-theory, since under that analysis \text{any} must have scope over \text{NOT} and hence cannot be in the scope of a negated quantifier such as \text{MANY} in (20). (The fact that (20) results in a violation of the Immediate Scope Constraint (which I have stated in terms of the E-theory) is irrelevant here; as discussed in the preceding chapter, many \( N \)-Is are acceptable in the environment \text{NOT MANY --.}) So the A-theory once again fails to account for a scope ambiguity that is clearly present.

In summary, if polarity \text{any} is a universal quantifier with wide scope over \text{NOT} in contexts of the form \text{'NOT } \emptyset \text{'}, then it is predicted that it will exhibit no scope ambiguity with respect to \( \emptyset \). This prediction has been demonstrated to be false in sentences where \( \emptyset \) is a verb of propositional attitude, a predicate such as \text{LIKELY}, or another quantifier. The E-theory, since it represents polarity \text{any} as an existential quantifier in the scope of \text{NOT}, allows for scope ambiguity between \text{any} and \( \emptyset \).

5.1.2 VERB PHRASE DELETION

It has frequently been noted that discourses like (21) present a problem for the A-theory:

(21)(a) He didn't see anything.
(b) I did \( \Delta \), though.
Following the interpretive account of VPD in Williams (1977), let us assume that VPD is a copying rule which fills in the empty VP node in (21)(b) with a $\lambda$-expression copied from the LF of (21)(a).

Under the A-theory, (21)(a) receives something like the interpretation (22); under the E-theory, something like (23).

(22) He did $\lambda x \forall y \neg (x \text{ saw } y)$

(23) He did $\lambda x \neg \exists y (x \text{ saw } y)$

(The precise location of NOT with respect to the $\lambda$-expression, and the question of why it is not copied if it is in fact in the $\lambda$-expression, cannot be considered here.)

The VPD argument is simply that (22), the representation for (21)(a) provided by the A-theory, gives us no way to characterize the meaning of (21)(b): (21)(b) clearly does not have the representation (24) below. (23), however, the representation of (21)(a) provided by the E-theory, allows us to represent (21)(b) correctly as in (25) below.

(24) I did $\lambda x \forall y (x \text{ see } y)$

'I saw everything.'

(25) I did $\lambda x \exists y (x \text{ see } y)$

'I saw something.'

So the E-theory, but not the A-theory, is able to account for the meanings of sentences with VPD where the antecedent verb phrase contains polarity any.
5.2 ARGUMENTS BASED UPON OTHER GRAMMATICAL RULES

In this section I will consider arguments for the E-theory which are based upon the A-theory conflicting with otherwise valid generalizations in the grammar. In section 5.2.1 I propose an argument based upon tag questions. Section 5.2.2 concerns arguments in the literature that the A-theory forces any to be treated as an exception to certain restrictions on quantifier scope.

5.2.1 TAG QUESTIONS

Another argument in support of the E-theory arises in connection with tag questions. Recall from the preceding chapters that positive tags are acceptable only if NOT is the operator with widest scope. This is demonstrated by the unacceptability of a positive tag following (26), in which several has obligatorily wide scope with respect to NOT.

(26) Several students didn't go.
(27) Several students didn't go, did they?

This fact about tag questions can be exploited for another argument against the A-theory. Under the A-theory, (28) below should be represented as in (29); under the E-theory, it should be represented as in (30). Since (28) can be followed by a positive tag, the A-theory (which assigns widest scope to any rather than to NOT) would force us to abandon this otherwise unblemished generalization about positive tag questions.

(28) He didn't eat anything (did he?)
(29) $\forall x \neg (\text{he ate } x)$
(30) $\neg \exists x (\text{he ate } x)$

5.2.2 RULES RESTRICTING QUANTIFIER SCOPE

Ladusaw (1979) and Carlson (1980) note that quantifiers in post-copular NPs in *there*-insertion sentences never take wide scope with respect to NOT in sentences like (31)(a):

(31)(a) There aren't three unicorns in the garden.
(b) He didn't see three unicorns.

THREE UNICORNS in (31)(a) must take narrow scope with respect to NOT, although in (31)(b) it can take either wide or narrow scope with respect to NOT. That is, (31)(a) does not have a reading as in (32)(a) in which THREE is unnegated, although (31)(b) does have such a reading, as in (32)(b).

(32)(a) There are three unicorns which aren't in the garden.
(b) There were three unicorns which he didn't see.

Since *any* can occur in this position, Ladusaw and Carlson observe, the A-theory would force us to say that it is not subject to this restriction on the scope of quantifiers occurring in such post-copular NPs. That is, *any* in (33) has, under the A-theory, scope over NOT.

(33) There aren't any unicorns in the garden.

Under the E-theory, of course, *any* in (33) has narrow scope with
respect to NOT, so we are not forced to treat any as an exception to this restriction on the scope of quantifiers in sentences with there-insertion.

Another argument based upon restrictions on quantifier scope is found in Kayne (1979), who notes that the difference between sentences like (34) and (35) lies in the fact that SEVERAL can take scope over NOT (and hence be 'extracted' from its clause) only if is not in subject position. The acceptability of any in (36) would require it to be treated as an exception to this constraint if any is represented as a universal quantifier with wide scope with respect to NOT. Since it is represented by the E-theory as taking narrow scope with respect to NOT, the E-theory does not conflict with Kayne's (perhaps shaky but generally correct) generalization.

(34)(a) He doesn't think that she knows several of his friends.

(b) NOT (he thinks that([SEVERALx: x\in\{\text{his friends}\}] (she knows x)))

'He doesn't think "she knows several of my friends".'

(c) [SEVERALx: x\in\{\text{his friends}\}] NOT (he thinks that she knows x)

'There are several of his friends whom he doesn't think she knows.'

(35)(a) He doesn't think that several of his friends know her.

(b) NOT (he thinks that ([SEVERALx: x\in\{\text{his friends}\}] (x knows her)))

'He doesn't think "several of my friends know her".'

(c) NOT AVAILABLE?

[SEVERALx: x\in\{\text{his friends}\}] NOT (he thinks that (x knows her))

'There are several of his friends whom he doesn't think know her.'

(36) He doesn't think that anyone knows her.

Thus we have seen two cases where the A-theory forces us to treat any as an exception to restrictions on quantifier scope.
5.3 DISTRIBUTIONAL ARGUMENTS

Horn (1972) and Fauconnier (1975) have observed various similarities and differences between polarity *any* and free-choice *any* with respect to the lexical items which can co-occur with them. These distributional facts have been used to argue for both the A-theory and the E-theory.

In favor of the A-theory, it has been noted that *at all* and *whatsoever* can occur with both *anys*, as (37) and (38) demonstrate.

(37) He can do *anything at all.*
   *anything whatsoever.*
(38) He didn't do *anything at all.*
   *anything whatsoever.*

Describing the distribution of these two expressions would obviously be simpler if we could treat the two *anys* in a unified way.

But this approach cuts both ways. In favor of the E-theory, expressions like *just*, *absolutely* and *almost* have been cited: they occur with free-choice *any* but not with polarity *any*.

(39) He can eat absolutely anything.
(40) He didn't eat absolutely any peas.

Another argument against the A-theory based upon distributional facts is proposed by Horn (1972), based upon *there*-insertion.

(41)(a) Some people were in the outer office.
   (b) There were some people in the outer office.
(42)(a) Everybody was in the outer office.
   (b) There was everybody in the outer office.
(43)(a) I don't think that anybody was in the outer office.
   (b) I don't think that there was anybody in the outer office.

(44)(a) I think that he can do anything.
   (b) I think that there is anything that he can do.

Sentences (41) and (42) suggest that there-insertion is inappropriate with lexical items which lexically represent the universal quantifier, and appropriate with lexical items which lexically represent the existential quantifier. In sentences (43) and (44) we see that there-insertion is appropriate only with polarity any, not with free-choice any. Under the E-theory this follows from the partiality of there-insertion to existential contexts.

However, LeGrande (1975) points out that in sentences like (44) the there-insertion construction separates any from its trigger, i.e. the modal can; thus it is not clear that the reason for the unacceptability of (44) is the semantic inappropriateness of there-insertion with universals. This is quite a plausible objection: recall from Chapter 3 that there is an Immediate Scope Constraint for free choice any.

LeGrande suggests that can cannot be raised into there is clauses. But in fact there seem to be acceptable cases of there-insertion with universals, including free choice any:

(45) There could be ANYBODY in the outer office.
(46) There could be every major entomologist in the country at that meeting.

So the distributional argument for the E-theory based on there-insertion does not seem to go through, although the
Carlson/Ladusaw argument discussed in section 5.2.2 is unaffected by these facts.

Thus there are distributional arguments for and against the two theories. It seems to me that it is easier to explain why the two anys share certain expressions like at all than it is to explain why they fail to share others. The explanation for their shared co-occurring expressions may lie in the fact that A and E correspond to 'scalar endpoints', as discussed by Fauconnier (1975): it may be that the distribution of at all is to be characterized as 'associated with expressions denoting scalar endpoints' rather than 'associated with universals'.
5.4 ARGUMENTS BASED UPON SIMPLICITY

The A-theory, of course, has simplicity to offer. If we say that any lexically represents two distinct quantifiers A and E, we are left with the following questions: (1) Why do A and E share this lexical representation? It is obviously not a coincidence in the way that it is coincidental that pen denotes either a writing instrument or a fenced area. (2) Why are the <SS,LF> pairs associated with sentences containing either free choice or NPI any unacceptable (in the paradigm case) if the representation of any in LF fails to be immediately adjacent to a 'trigger'? That is, not only do the two anys share the requirement that they be immediately adjacent to some logical element in LF, they seem to be the only quantifier(s) that have to be 'triggered' at all.

Nevertheless, despite this compelling evidence that the A-theory is on the side of simplicity, there is evidence that the A-theory does not always compare favorably with the E-theory even on these grounds.

In section 5.4.1, it is argued that the A-theory's characterization of any as the wide scope variant of every is incorrect. In section 5.4.2, it is argued that the existence of the class of NPIs complicates the A-theory by requiring it to have a principled reason for distinguishing polarity any from NPIs like ever. Perhaps most serious for the A-theory on the issue of simplicity are the differing surface structure constraints on the two anys: in section 5.4.3 it is argued that only the E-theory can offer an independently motivated explanation for these constraints.
5.4.1 INTERACTION WITH **EVERY**

In the versions of the A-theory presented in Hintikka, Lasnik, and Quine, **any** is claimed to be in complementary distribution with **every**: **any** is taken to be the universal quantifier with wide scope over any logical operator which 'is capable of inducing a meaning-affecting scope ambiguity in relation to the universal quantifier'. That is, **any**'s function is to disambiguate **every** in cases where **every** would otherwise have ambiguous scope with respect to another operator; the use of **any** in (47) signals the wide scope interpretation of the universal quantifier:

(47)(a) John didn't do everything. = NOT $\forall x (\text{John did } x)$

(b) John didn't do anything. = $\forall x \text{ NOT (John did } x)$

The first thing to note about this claimed interaction with **every** is that it is much less simple than this. Recall from Chapter 3 that free choice **any** must, apparently, have its trigger in its immediate scope. This means that the distribution of labor between **any** and **every** is less elegant: given a trigger $T$, **every** occurs if the universal quantifier which it represents is to the right of $T$, or to the left of $T$ if there is any logical element $\emptyset$ intervening between $T$ and the universal quantifier; **any** occurs if the universal quantifier is immediately to the left of $T$ with no intervening logical elements. Thus we should find **every** in contexts of the form $T (\emptyset) A$ or $A \emptyset T$; we should find **any** in contexts of the form $A T$. This weakens some of the force of the A-theory's claim to be the simpler theory.

More seriously, there seem to be cases where **any** and **every** are interchangeable in a given sentence, and cases where only **every** occurs.
and is ambiguous with respect to its scope relation to a logical operator.

**EVERY AND ANY INTERCHANGEABLE:** An example of *any* and *every* which seem to be interchangeable:

(48)(a) Anybody can do that.  = Ax POSS (x do that)
(b) Everybody can do that.  = Ax POSS (x do that)

There does not seem to be any scope difference between (48)(a) and (b). This is not to say that there are not cases where *any* and *every* do disambiguate a scope difference; the most widely cited sentence is (49):

(49)(a) Anybody could be elected.  = Ax POSS (x be elected)
(b) Everybody could be elected.  = POSS Ax (x be elected)

The difference seems to be that in (48) *can* expresses ability, whereas in (49) *could* expresses possibility. However, this version of the A-theory requires, in order for *any* to be acceptable in a given context, that *every* in the same context would result in a different interpretation of the sentence. This does not seem to be the case in (48), and so there is no reason for *any* to occur.

**EVERY AMBIGUOUS AND ANY UNACCEPTABLE:** There are also sentences in which *every* but not *any* is acceptable, and in which *every* enters into scope ambiguities with respect to some logical operator:

(50) I wanted to marry \{every\} one of them, \{*any\}

- but polyandry is illegal. (NARROW SCOPE OF A)
- but I finally settled on Fred. (WIDE SCOPE OF A)
(50) with every can express either a desire to marry a whole group of people, in which case the universal quantifier has narrow scope with respect to want, as in (51); or (50) can express the fact that the matrimonial urge was directed at a number of different individuals, although there was no question of group marriage: in this case the universal quantifier has wide scope with respect to want, as in (52).

(51) I wanted (Ax (to marry x))
(52) Ax (I wanted (to marry x))

If any is in fact simply the wide scope variant of every, why isn't it acceptable in (50) to force the reading (52)?

Since much of the force of the A-theory hinges upon the alleged complementary distribution of any and every, the fact that this is not the case represents something of a problem for it.

6.4.2 OTHER NEGATIVE POLARITY ITEMS

The A-theory appears at first glance to offer simplicity not only because it provides a unified account of the representation of any (as A) but also because it provides a unified account of what is a 'trigger' for any: '...The distribution of any has nothing to do with negation per se...A 'trigger' for any is an operator whether a negative, modal, or whatever capable of inducing a meaning-affecting scope ambiguity in relation to the universal quantifier.'

However, this argument from simplicity ignores the large class of negative polarity items which occur only in the so-called NPI environments; budge and ever, for example, are not triggered by can:
(53)(a) He can budge an inch, he's just stubborn.
   (b) He can ever do the homework; he's just lazy.

Ever might be expected to be the wide scope variant of always, just as any is the wide scope variant of every in the unified account; but (53)(b) does not furnish a reading like (54).

(54) At POSS (He do the homework at t)
   'He is at all times capable of doing the homework.'

Always in sentence (53)(b) might be expected to have only the reading in which always has narrow scope with respect to can:

(55) POSS At (He do the homework at t)
   'He has the capacity to always do the homework.'

However 'He can always do the homework' allows (depending upon the context) either of these two interpretations, depending on the relative scope of can and always: thus ever, which is now restricted to NPI environments, does not perform the function that any is claimed by the unified theory to perform. (Most NPIs, e.g. budge, have no such counterpart.)

Since there is a class of items for which a negative environment must be delimited by the grammar (and which often receive an existential interpretation in this environment), there seems to be a trade-off with respect to simplicity. If there were a unified rule for any which made no reference to a separate NPI environment but which correctly described the trigger simply as any logical operator capable of inducing a scope ambiguity, then it would be possible to capture the undisputed similarity between the two anys; but even this
theory would have the complication of treating any quite differently from the class of NPIs, although the existence of its free-choice variant does not seem to affect the distribution of polarity any as compared to ever or other NPIs.

5.4.3 SURFACE STRUCTURE CONSTRAINTS ON THE TWO ANYS

The argument for the A-theory on grounds of simplicity runs into serious trouble in connection with sentences like (56) and (57) below.

(56) *Anybody didn't leave.
(57) Anybody can leave.

These sentences are represented as follows (assuming, as argued in Chapters 3 and 4, that unacceptable sentences with NPIs are assigned LFs):

UNDER THE A-THEORY:
(58) $\forall x \neg (x \text{ left}) = (56)$
(59) $\forall x \text{ POSS} (x \text{ leave}) = (57)$

UNDER THE E-THEORY:
(60) $\exists x \neg (x \text{ left}) = (56)$
(61) $\forall x \text{ POSS} (x \text{ leave}) = (57)$

(The E-theory is unspecified with respect to the representation of free-choice any; let us assume that it is as in (61).)

As discussed in Chapter 3, we do not need, under the E-theory, to make specific mention of the requirement that polarity any follow its trigger if they are clausemates. A sentence like (56) will automatically be assigned the LF (60) because of the independently
motivated principle that the surface order of NOT and existentials is the order in LF, unless the NOT E--E NOT readjustment rule applies. The immediate scope restriction on NPIs marks as unacceptable the \(<SS,LF>\) pair with (60) as LF, since the E representing any is not even in the scope of NOT, much less its immediate scope. (The LF (60) is also an unlikely candidate for redemption via part (b), as discussed in the preceding chapter.)

Under the A-theory, however, (56) must be ruled out by means of some surface structure restriction in addition to the restriction that the A representing any have wide scope with respect to its trigger in LF. For surely the rules that derive the LF of (56) under the A-theory will assign to it the LF (58), since the general principle of scope assignment in English seems to be to follow the surface order, with numerous optional departures (such as assigning quantifiers wider scope than their surface order allows). If the A-theory assigns to (56) the LF (58), which is well-formed since the A representing any has immediate wide scope with respect to NOT, how will it rule out (56)? It will have to have a special rule for any to the effect that 'any cannot precede its trigger if they are clausemates'. Thus in this respect the A-theory is more complicated than the E-theory, requiring two rules for any: (1) the requirement of immediate wide scope with respect to the trigger, stated on LF; and (2) the surface structure requirement. In contrast, the E-theory requires only one rule: the requirement of immediate narrow scope with respect to the trigger, stated on LF.

It might be objected that (58) is not the LF assigned to (56) under the A-theory, because the readjustment rule which changes
A NOT into NOT A will apply to (58) since any is a universal; the LF of (56) would then be (62):

(62) NOT Ax (x left)

(62) would then be filtered out by the wide scope requirement of the A-theory. The problem is that the readjustment rule in question is optional for many speakers, but these speakers still do not find (56) acceptable. They should, of course, since they have the option of assigning to (56) the LF (58) as well as (62). So this objection fails.
5.5 ARGUMENTS BASED UPON 'Ø NOT' CONTEXTS
AND THE IMMEDIATE SCOPE CONSTRAINT

It is conceivable that a parallel argument to the argument from 'NOT Ø' contexts may eventually emerge from 'Ø NOT' contexts. Unfortunately, this argument is beset by major problems, set forth here in hopes that someone else may be able to work it out.

Ladusaw (1979) proposes an argument for the E-theory based upon rarely, which he analyses as USUALLY NOT. He demonstrates that the A-theory is unable to predict the correct reading for sentences with rarely as trigger unless lexical decomposition is invoked, and that it also predicts a nonexistent reading.

(63) He rarely eats anything.
(64) USUALLY NOT Ex (he eats x)
(65)(a) Ax USUALLY NOT (he eats x)
      (b) USUALLY Ax NOT (he eats x)

That is, the E-theory correctly predicts that (64) is the only reading of (63). Of the A-theory's two entries, (65)(b)—which is equivalent to (64)—correctly represents the meaning of (63) but at the cost of stating scope relations on lexically decomposed expressions; and (65)(a) is not a possible reading of (63): that is, (63) cannot mean that although he frequently eats, his diet is so varied that each item recurs quite infrequently on his menu. (The judgments are complicated by the fact that usually verges on being a trigger for free choice any.)

This argument seems like quite a strong one for the E-theory; the question arises of whether there is a general argument for the
E-theory associated with 'Ø NOT' contexts. That is, Ladusaw's argument has two prongs: (1) most importantly, the A-theory cannot predict the correct reading, when the trigger consists of a 'Ø NOT' context fused into a single word, without lexical decomposition; and (2) the A-theory predicts an absolutely unavailable reading, (65)(a). Perhaps all 'Ø NOT' contexts, not just those contained in a single word, can be exploited to provide an argument along the lines of prong (2), i.e. an argument that the A-theory will require additional machinery to rule out certain readings.

Consider sentence (14), repeated below as (66).

(66) He didn't give anything to many of his friends.

The E-theory allows only one possible order for the operators in (66) if MANY is not negated. This is the order in (67). The A-theory as formulated by Lasnik and others is compatible with two possible orders, (68)(a) and (b).

(67) MANY NOT E
(68)(a) MANY A NOT
(b) A MANY NOT

(67) and (68)(a) can both be paraphrased 'There were many friends to whom he gave nothing.' But what about (68)(b)? This would have the paraphrase 'Each present was withheld from many of his friends.'

There does not seem to be any reading such as (68)(b) for (66). (66) with the order (68)(b) clearly has different truth conditions than its truth conditions with the order (67)/(68)(a): if there are 100 presents and 100 friends and each friend receives a different
present, the reading of (66) with the orders (67) and (68)(a) is false (since everybody gets a present) but the reading with the order (68)(b) is true, since every present is denied to 99 people.

Since the order (68)(b) is not a possible order for (66), the A-theory (but not the E-theory) has the problem of ruling it out. The obvious candidate for this task is the Immediate Scope Constraint. As demonstrated in Chapter 3, section 3.2.3, both NPI any and free choice any must be immediately adjacent to their triggers (although in the E-theory this adjacency is rightward in the first case and leftward in the second). So perhaps the order (68)(b) is ruled out by the ISC, which in the A-theory is simpler to state: the representation of any in LF must be immediately to the left of the 'trigger'. In (68)(b), A is separated from NOT by MANY, and thus we might expect (68)(b) to be ruled out.

A problem with this approach may arise from the existence of scope ambiguities when MANY is negated, discussed in section 5.1.1. That is, (66) can have readings with either of the following orders.

(69) NOT MANY E
(70) NOT E MANY

Since MANY can intervene between the representation of any and the triggering NOT in LFs with the order (69), how can such intervention be ruled out in LFs with the order (68)(b)?

Fortunately for the A-theory, there is a simple answer. While the order (69) will result in an LF that is likely to give rise to the appropriate implicature (71) for part (b), there seems to be absolutely no such implicature associated with LFs having the order in
(68)(b).

(71) Many of his friends didn't get anything.

In fact, (69)(b) is quite compatible with every one of his friends getting some present: thus it is most unlikely to give rise to an implicature containing the subformula \textit{Ax: }x \textit{is a present NOT}. to reformulate part (b) in terms of the A-theory. As noted in Chapter 3, triggers other than negation seem never to be separated from free choice \textit{any} by an intervening logical element: so the A-theory can rule out the order (68)(b) quite consistently. (The problem posed for it by the possible order (69) is of course severe, but this is discussed in section 5.1.1 on 'NOT $\emptyset$' contexts.)

That is, the fact that the A-theory represents \textit{any} as taking wide scope with respect to \textit{NOT} raises the question of why (66) cannot receive an LF with the order (68)(b), and more generally of why \textit{any} does not exhibit scope ambiguities with $\emptyset$ in '\textit{NOT}$ \emptyset$' contexts. Unless there is some principled way of ruling out this order, the A-theory can be claimed to make a false prediction. But in fact the A-theory does have a principled way of ruling out the order in (68)(b): the Immediate Scope Constraint. So for the moment there is no such argument, although the facts are rather suggestive.

Another version of the '\textit{NOT}$ \emptyset$' argument which the ISC is able to counter is that of Carlson (1980), based upon pronoun binding.

Carlson notes the difference between sentences like (72) and (73) below: in (72), \textit{each} may bind the pronoun \textit{him} while in (73) \textit{anyone} cannot. The reading of (72) in which \textit{him} may be bound by \textit{each} is represented as in (74).
(72) Bob had already told us not to offend each man by the time we had talked to him.

(73) Bob had already told us not to offend anyone by the time we had talked to him.

(74) \( \forall x (\text{Bob had already told us } (\neg (\text{to offend } x)) \text{ by the time we had talked to } x) \).

Carlson argues as follows:

[The A-theory] seems to predict that any variable bound by \( \forall x \) [taking such pronouns as bound variables] need not be within the scope of the triggering element, such as a negative, since the universal quantifier may lie beyond its scope.... If [the A-theory] is correct, a reading such as [(74)] should be available upon substitution of any for each.

(It will be assumed in this discussion that a pronoun can be bound by a quantifier only if it is within the scope of that quantifier in LF.)

But Carlson’s argument, I think, is yet another casualty of the A-theory variant of the Immediate Scope Constraint. The problem is as follows.

He assumes that since any is a universal quantifier with wide scope over \( \neg \) it can, like each, be assigned almost indefinitely wide scope with respect to \( \neg \). That is, in a '0 \neg' context, it should (like each) be able in many cases to be assigned scope over \( \forall \) as well as over \( \neg \). Since any is usually argued to be the 'wide scope variant' of each, its scope might be expected to be even more unlimited to the left than each’s. Thus, Carlson seems to be arguing, (73) with any and (...) with each should both be able to have the LF (74) as well as the LF (75) below. In (74) but not in (75) the universal quantifier has scope over 0, 0 being the LF representation of Bob had already told us.
(75) Bob had already told us \((Ax \text{ NOT } (\text{to offend } x))\) by the time we had talked to him.

Clearly, in the LF (75) we would not expect the universal quantifier to bind him, since him is not within its scope.

So Carlson's argument relies upon the possibility, within the A-theory, that the universal quantifier represented by any can take wide scope with respect to 0 in '0 NOT' contexts, as in (74).

Unfortunately, as demonstrated in Chapter 3, the A-theory can quite plausibly rule out (74) as an LF of (73) on the basis of its variant of the Immediate Scope Constraint. Thus, since (73) must have this LF in order for anyone to bind him, the A-theory does not in fact predict that the pronoun him in (73) can be bound by anyone: it rules out such a possibility by the independently motivated Immediate Scope Constraint.
SUMMARY OF CHAPTER 5

In this chapter I have argued that polarity any is represented by an existential quantifier in the scope of NOT. The arguments for this analysis of any (the 'E-theory') against the univocal universal analysis of any (the 'A-theory') are of four basic types. (1) The most important arguments, I believe, are those which demonstrate that the A-theory (but not the E-theory) makes incorrect predictions about the truth conditions of sentences containing any. These incorrect predictions were seen to arise in connection with 'NOT Ø' contexts and sentences with verb phrase deletion. (2) Next come the arguments which demonstrate that the A-theory (but not the E-theory) requires any to receive special treatment by the grammar in connection with rules such as restrictions on quantifier scope and tag questions. (3) Distributional arguments cut both ways, but seem to be on the side of the E-theory. (4) Arguments on the grounds of simplicity do not necessarily favor the A-theory: it was demonstrated that the A-theory, but not the E-theory, is complicated by the existence of NPIs, the non-complementary distribution of any and every, and by the surface structure restrictions on polarity any. Furthermore, the 'Immediate Scope Constraint' on free choice any complicates the account of the complementary distribution of the two anys.

Nevertheless, the homonymity of the two anys and their common need to be 'triggered' by an immediately adjacent logical element suggest quite strongly that the correct analysis of any will turn out to be a univocal one, at least diachronically. In Chapters 6 and 8 below I will examine Fauconnier's analysis of 'scalar endpoints', which perhaps allows us to tell a plausible story about the two anys.
and their relation to one another.
FOOTNOTES

1. Of course, any does not have to take wide scope with respect to every operator in the sentence, only with respect to its actual trigger. (And, in fact, see sections 3.2.3 and 5.5 concerning the Immediate Scope Constraint on free choice any.) Thus the A-theory can account for the ambiguity of (i), which has been cited as a counterexample to it, by assigning to (i) the representations (ii) and (iii): the trigger is NOT in (ii) and POSS in (iii).

   (i) He can't do anything.
   (ii) Ax NOT POSS (he do x)
   (iii) NOT Ax POSS (he do x)

2. Alternatively, Davison (1979) and Fauconnier (1979) argue for a univocal existential analysis of any.

3. The inability of the A-theory to account for the opaque reading of any in belief contexts is also noted in Carlson (1980) and Kayne (1979).

4. See Ladusaw (1979) and section 5.5 below concerning such an argument.

5. This sentence was pointed out to me by Frank Carroll.

7. I assume that want is the trigger, and hence that the reading (52) does not violate the free choice any Immediate Scope Constraint.
CHAPTER 6: LADUSAW (1979)

In this chapter I will examine a recent analysis of NPIs that contrasts sharply with the proposals that I have made.

Ladusaw (1979) attempts to define 'triggerhood' on the basis of the entailment relations of sentences. The starting point for Ladusaw's theory is the notion of 'scalar endpoint' developed by Fauconnier (1975a,b). Fauconnier observes that expressions like even Louise, Adolph Hitler, and the most difficult problem in (1)-(3) below function pragmatically as universal quantifiers because they may be regarded as lower endpoints on the pragmatic scales associated with the proposition schemata John invited X, John would be polite to X, and Mary can solve X.

(1) John even invited Louise.
(2) John would be polite to Adolph Hitler.
(3) Mary can solve the most difficult problem.

The lower endpoint of a pragmatic scale associated with a proposition schema is the value for X for which the proposition is least likely to be true: thus if it is true for this value of X it can be (pragmatically, not logically) inferred that it will be true for all other values of X. For example, if Mary can solve the most difficult problem we can infer that she can solve any problem, most difficult problems being assumed to be the least likely to be solved.

In Fauconnier's account, if a scale S is associated with a proposition schema P, the reverse of S, S', will be associated with the proposition schema NOT P: the lower endpoint of S, that is, is the upper endpoint of S'. Alternatively, we may say that the same scale S
is associated with P and with NOT P, but that the truth of P licenses 'upward' inferences on this scale S (from least likely values for X in P) while the truth of NOT P licenses 'downward' inference on the same scale S (from most likely values for X in P): if P is not true for the most likely value of X, it can be pragmatically inferred that it is not true for any of the less likely values either.

(4) John didn't even invite Louise.
(5) John wouldn't be polite to his best friend.
(6) Mary can't solve the easiest problem.

Thus in (4)-(6) we can distinguish two scales, S' associated with the entire logical forms NOT P or S associated with the subpart P of the logical form: in (4), even forces Louise to be taken as a lower endpoint of some scale, but there is an ambiguity arising out of the possibility of this scale being either S or S'. If Louise is the lower endpoint of S, then (4) has an 'external negation' reading, as a denial that John invited almost everybody, if Louise is the lower endpoint of S', then (4) implies that John invited almost nobody, since John didn't invite X is true even when X has as its value the least likely person not to be invited. Alternatively, we can say that the same scale S is associated with both John invited X and John didn't invite X: in non-negative contexts the direction of implication is 'upward' while in negative contexts the direction of implication is 'downward'.

Sentences (5) and (6) are unambiguous only because his best friend is most likely to be taken as the lower endpoint of the scale S' associated with John wouldn't be polite to X but not of the scale S
associated with John would be polite to X: thus the 'external negation' reading is missing. Similarly, the easiest problem is more plausibly taken as the lower endpoint of the scale S' associated with Mary can't solve X than as the lower endpoint on the scale S associated with Mary can solve X.

Many NPIs are expressions which are appropriate as scalar endpoints in negative contexts. If someone 'hasn't lifted a finger', for example, it can be pragmatically inferred that he hasn't moved at all. Fauconnier, Fodor (1979), and Ladusaw all propose that there is some correlation between the properties of licensing downward entailments and triggering NPIs. Ladusaw attempts to correlate triggerhood not with the kind of pragmatic phenomenon observed by Fauconnier but with a strictly logical notion of downward entailment. It is Ladusaw's theory that will be examined here; in Chapter 9, however, I argue that NPIs and the 'pragmatic quantification' described by Fauconnier do, in fact, occur in the same environments, although these environments cannot be captured by the strictly logical formulation of downward entailment that Ladusaw proposes.

Ladusaw makes the following proposal.

(7) A negative-polarity item is acceptable only if it is interpreted in the scope of a downward-entailing expression. (1979b)

That is, he identifies the property of being 'affective' (licensing NPIs) with the property of being downward-entailing, defined as below. He is concerned, however, with logical rather than 'pragmatic' downward-entailment.

(8) An expression is affective [= downward-entailing] iff it licenses inferences in its scope from superset to subsets. (1979b)
Let us first consider NOT. Expressing the fact that brussels sprouts are a subset of the class of green vegetables in terms of the entailment from (9)(a) to (9)(b), we see that (10)(a) entails (10)(b) by contraposition. Since in (10) we are able to substitute subset for superset salva veritate, NOT qualifies as a downward entailing expression. We therefore expect it to license NPIs, and (11) demonstrates that, as the reader may have observed, it does.

(9) P-->Q
   (a) John ate brussels sprouts (P)
   (b) John ate a green vegetable. (Q)

(10) NOT Q-->NOT P
   (a) John didn't eat a green vegetable (NOT Q)
   (b) John didn't eat brussels sprouts (NOT P)

(11) John didn't eat any green vegetables.

The basic strategy followed by L. is exemplified by his tests for the direction of entailment for Determiners and Quantifier NPs:

(12) For any Determiner D, if 'D men walk' entails 'D fathers walk', then D is downward-entailing. ...For any Quantifier NP P, if 'P walks' entails 'P walks slowly', P is downward-entailing. (1979a)

This test predicts that Every and No are DE determiners with respect to the N in their scope, as (13) and (14) demonstrate; but that Every NP is not DE with respect to the VP in its scope although No NP is DE with respect to the VP in its scope, as (15) and (16) demonstrate.

(13)(a) Every man has a brain. -->
       (b) Every father has a brain.
(14)(a) No man has a brain. -->
   (b) No father has a brain.

(15)(a) Every man walks. -->
   (b) Every man walks slowly.

(16)(a) No man walks. -->
   (b) No man walks slowly.

Similarly, consider relative clauses embedded under universally quantified relative clauses:

(17)(a) Everyone who knows anything about physics will laugh him out of the room.
   (b) Everyone who has a pet will get in free. -->
   (c) Everyone who has a pet cat will get in free.

Just as in (13) above, every is seen to be DE with respect to the nominal in its scope; thus NPIs are expected to be acceptable in such relative clauses, as demonstrated by (17)(a).

Consider the antecedent clauses of conditionals: since they may contain NPIs, as demonstrated by (18)(a), they must, in L.'s account, be in the scope of a DE operator. And in fact there is DE from (18)(b) to (18)(c).

(18)(a) If you have any pets, you will get in free.
   (b) If you have a pet, you will get in free. -->
   (c) If you have a cat, you will get in free.

The downward entailment from (18)(b) to (18)(c) is simply an instance of logical implication given the upward entailment in (19) below:
(19) P --> Q
    (a) You have a cat (P)
    (b) You have a pet (Q)

(20) Q --> R
    (a) You have a pet (Q)
    (b) You get in free (R)

(21) P --> R
    (a) You have a cat (P)
    (b) You get in free (R)

Note from the above cases that if is DE with respect to the antecedent clause only (the substitution test fails when applied to the consequent clause, as the reader may verify).

So far Ladusaw's account predicts quite cleanly some of the part (b) cases which in my account are treated rather unsatisfyingly as involving allusions to negative sentences. I will clarify this proposal before determining whether it is workable.

SCOPE: L. defines scope in terms of Montague grammar, although he suggests (1979a) that the same arguments could be made within a framework in which scope is defined 'geometrically' at the level of logical form. Basically, an expression x is in the scope of another expression y if x denotes an argument to the function which y denotes. Any expression contained in x is also in the scope of y.

SUBSETS AND SUPERSETS: The basic test for whether an operator is DE is to determine whether there is an 'upward entailment' for it to reverse, the upward entailment expressing the subset/superset relation. So given the upward entailment from (22)(a) to (22)(b), we would expect there to be DE under negation; as demonstrated by (16)
above, this is the case.

(22)(a) Some man walks slowly. -->
(b) Some man walks.

'IN THE SCOPE OF A DE OPERATOR' VERSUS 'IN A DE CONTEXT': L. is not claiming that an NPI must occur in a DE context but that it must be in the scope of a DE operator. The sentences in (23) below demonstrate that being in a DE context is not what is relevant to NPI acceptability: by a 'DE context' I mean a context $\emptyset$ such that $\emptyset(a)$ entails $\emptyset(\alpha)$, where $\alpha$ is a subset of $A$.

(23)(a) He ate a green vegetable, or birds are birds. -->
(b) He ate brussels sprouts, or birds are birds.
(c) He ate any green vegetables, or birds are birds.

Since (23)(a) entails (23)(b), both being necessarily true, we might expect to find NPIs acceptable in such a context; as (23)(c) demonstrates, this is not the case. This is not a problem for L.'s account since there is no 'downward entailing operator' in whose scope we might expect to find NPIs.

NECESSARY VS. SUFFICIENT: L. claims (1979a) that 'the property of being a trigger is completely predictable from the truth-conditional meaning of an expression.' This claim is too strong, as will be demonstrated in section 6.3, given the great many cases of unacceptable NPIs in the scope of a DE operator. Recall from Chapter 3 that being in the scope of NOT is not sufficient to guarantee NPI acceptability. Thus I will consider only the claim that it is a necessary condition on NPIs that they occur in the scope of a DE
operator, not that their occurrence there is sufficient to guarantee acceptability.

Thus in both L.'s account and mine there linguistic conditions on NPIs (part (a)) and in addition there are extralinguistic conditions (part (b)): the distinction is that in my account part (a) is a sufficient but not necessary condition, and part (b) extends the class of acceptable sentences beyond part (a) to those that 'imply' a sentence with the NPI in the immediate scope of NOT. In L.'s account, on the other hand, 'part (a)' is a necessary but not sufficient condition which allows all sentences in which an NPI is in the scope of a DE operator, relying on 'part (b)' to filter out unacceptable sentences in this set in some as yet unspecified way. That is, L.'s part (a) allows, and my part (a) does not allow, NPIs in the following contexts (not an exhaustive listing): NOT Ø --, questions, antecedents of conditionals, after comparatives, in relative clauses headed by universals, in complements of adverbs like surprise, in sentences with too and only, after privatives. L. characterizes almost all of the relevant operators in these part (b) cases as DE.

Having attempted to determine more precisely what it is that L. is proposing, we can ask whether it works.

Unfortunately, it seems to me that L.'s theory has a number of very severe problems, which will be discussed below.

(1) Since many 'triggers' are themselves verbs of propositional attitude, e.g. surprise, doubt, regret, deny, L.'s account must incorporate a theory of entailment from opaque contexts. The sorts of entailments that the distribution of NPIs requires him to predict do not seem to hold. To save his view we must abandon the notion of
'truth-conditional' entailment of sentences and adopt a notion of entailment that incorporates assumptions about what the subject of a verb of belief actually knows, appreciates about the consequences of his beliefs, etc. Furthermore, L.'s arguments rely heavily on distinctions between the presuppositions or implicature of a sentence and its truth conditional meaning, and his attempts to ignore presupposition or implicature in giving an account of the entailments of sentences with affectives like surprise compounds the oddness of his notion of entailment. This is discussed in 6.1.

(2) Even if we grant him his odd theory of entailment, the sorts of entailments that L. must argue for in connection with adversatives like surprise interact in a devastating way with more general principles of entailment, as we see in 6.1.

(3) There are environments which tolerate NPIs but do not seem to be downward entailing; they are discussed in section 6.2.

(4) His theory is further weakened (and his claims to a truth-conditional definition of triggerhood destroyed) by the fact that there are many cases of unacceptable NPIs in the scope of a DE operator and the fact that their unacceptability hinges on extralinguistic matters. These cases are reviewed in section 6.3.
6.1 BELIEF CONTEXTS AND DOWNWARD ENTAILMENT

As noted above, there is a very large class of affectives which are themselves verbs of propositional attitude: surprise, amaze, doubt, regret, deny, resent, be unwilling, be averse to, be offended, refuse, forget, etc. In Baker's account, the ability of these verbs to trigger NPIs is explained by their ability to be used to make allusions to negative sentences: be surprised that $S$ can convey that one expected that NOT $S$, and so forth.

Ladusaw, however, attempts to account for the distribution of NPIs without invoking any such allusions to negative sentences: whatever licenses NPIs must be part of the 'truth conditional meaning' of the sentence. In the case of simple negative sentences or if clauses, it is clear that downward entailment is predictable on the basis of the truth conditional meaning of the sentence (via contraposition and simple implication). The adversatives, however, require great effort on L.'s part to be incorporated into his theory of NPIs. In section 6.1.1, I will examine the rather odd notion of entailment that L. proposes in order to account for them; in section 6.1.2, I will examine that problems that arise if we grant L.'s notion of entailment and examine it in connection with other entailments.
6.1.1 LADUSAW'S NOTION OF ENTAILMENT

Compare surprise, which L. designates as DE, with expect, which L. designates as upward entailing (UE); he argues for the entailments marked below.

(24)(a) Mary was surprised that John ate a green vegetable. -->?
(b) Mary was surprised that John ate brussels sprouts.
(c) Mary was surprised that John ate any vegetables.

(25)(a) Mary expects that John will eat brussels sprouts. -->?
(b) Mary expects that John will eat a green vegetable.
(c)*Mary expects that John will eat any vegetables.

(NOTE: '-->?' marks entailments claimed by L. but contested here; '--->??' marks entailments to which L.'s theory commits him but which I doubt that he would argue for.) Ignore the free choice reading for any in the (c) sentences above. He makes exactly the same argument for doubt (DE) versus believe (UE); that is, he argues for the entailments marked in (26) and (27) below.

(26)(a) Mary doubts that John ate a green vegetable. -->?
(b) Mary doubts that John ate brussels sprouts.
(c) Mary doubts that John ate anything.

(27)(a) Mary believes that John ate brussels sprouts. -->?
(b) Mary believes that John ate a green vegetable.
(c)*Mary believes that John ate anything.

Concerning the question of whether these are logical entailments, he says:
...[(27)(a)] at least leads us to expect that [(27)(b)] is true, and similarly for [(26)(a)] and [(26)(b)]... Whether we would want to say that the (a) sentences entail the (b) sentences is a question larger than the one we have set out to consider. I will assume for these verbs...that these intuitions of likelihood do justify calling believe [or expect] upward entailing and doubt [or surprise] downward entailing. (1979a)

Considering that a major result that he claims for his theory is its success in predicting the necessary conditions for the occurrence of NPIs on the basis of truth conditional meanings of sentences, the casualness of the above remarks is somewhat startling. If the (a) sentences don't truth conditionally entail the (b) sentences, then they don't entail them at all: they may in some way suggest them, but they do not entail them. Since L. seems to lean toward the view that in fact the entailments above are strictly logical (cf. his comment in the summary (1979a), quoted above, that 'the property of being a trigger is completely predictable from the truth-conditional meaning of an expression'), we will examine the consequences of his claim that such entailments exist.

What sort of claims and assumptions would we have to make in order to say that (24)(a) entails (24)(b)?

First, as L. himself argues, we must distinguish between the truth conditional meaning of surprise and its presuppositions or implicatures, notably its factivity. In order to avoid being confused by the presupposition or implicature that John actually did eat brussels sprouts in (24)(b), we must grant that he did when evaluating the relation between (24)(a) and (24)(b). So, for example, let us examine (24) in a world in which John ate brussels sprouts, spinach, and broccoli. Under those circumstances, L. claims, Mary could not be surprised that John ate a green vegetable without also being surprised
that he ate brussels sprouts. This seems like quite an unusual view of entailment, since it is certainly easy to imagine a world in which (24)(a) is true and (24)(b) is false, e.g. a world in which Mary is unaware that John ate brussels sprouts.

This leads to the second set of assumptions that we must make in connection with (24). We must assume at least the following: (1) Mary believes that John ate brussels sprouts. (2) Mary is attending to this belief at the moment that she feels surprise about his eating a green vegetable. (3) Mary believes that brussels sprouts are a green vegetable. (4) Mary is attending to this knowledge at the moment that she feels surprise about his eating a green vegetable. (5) Mary believes the consequences of her beliefs.

L. suggests (p.c.) that we must look at 'entailments' such as the one from (24)(a) to (24)(b) 'in a model consistent with the knowledge of' the subject of the verb of belief. 'The knowledge of' is insufficient; we would have to say 'in a model consistent with the knowledge and current beliefs of'. In other words, we must evaluate the entailment from 'Mary was surprised that John ate a green vegetable' to 'Mary was surprised that John ate brussels sprouts' only in a model in which Mary believes and attends to the fact that John ate brussels sprouts, believes and attends to the fact that brussels sprouts are a green vegetable, and knows and attends to the fact that eating brussels sprouts entails eating a green vegetable.

Clearly, what we have here cannot possibly be called entailment from truth conditional meaning. And the great number of assumptions involved brings to mind the French proverb, 'With an *if* you can put Paris in a bottle.'
The problem for L.'s theory posed by opaque contexts is virtually identical to the problem which these contexts pose for the representation of polarity \textit{any} as a universal quantifier (discussed in Chapter 8): when $\emptyset$ is a predicate of belief, there must be some way to represent $\text{NOT} \emptyset(\ldots \text{any} \ldots)$ as something other than $\forall x \text{NOT} \emptyset(x)$. And, of course, truth-conditional semantics generally, not just L.'s theory of NPIs, comes to grief in connection with these contexts.

We have seen that the adversatives require L. to hold that sentences like (24)(a) 'entail' sentences like (24)(b); we have also seen that whatever the relation between (24)(a) and (24)(b) is, it simply cannot be one of entailment. Thus L. cannot claim to have stated the necessary conditions on the occurrence of NPIs in terms of entailments of the truth conditional meanings of sentences.

It seems worthwhile to recall from Chapter 4 that NPIs appear to be licensed by \textit{surprised that} $S$ only when there is the implicature \textit{expected that NOT} $S$. The relevant sentences ((46)(a)-(d)) are repeated below:

(28)(a) She was surprised that there were any buffaloes in the dining room.

(b) She had expected that there wouldn't be any buffaloes in the dining room.

(c) She was surprised that there were buffaloes in the dining room, although she had never considered the possibility of such an infestation.

(d) She was surprised that there were any buffaloes in the dining room, although she had never considered the possibility of such an infestation.

The acceptability of (28)(c) shows that (28)(b) is not part of the meaning of (28)(a), but only an implicature. That is, one can be
surprised at S without ever having considered the possibility of S or expected that NOT S. The unacceptability of (28)(d) shows that it is not simply the truth-conditional meaning of surprise that licenses NPIs, but the implicature expected NOT S.

As noted earlier, L. is only attempting to formulate a necessary condition on NPI acceptability, not a sufficient one. So the unacceptability of (28)(d), in which an NPI is embedded under an allegedly DE expression surprise, is not in itself fatal for him. But it is not clear how he can rule out (28)(d) without invoking some sort reduction to negation of the sort that he is trying so hard to avoid. What is wrong with (28)(d) is that it does not have the implicature (28)(b), i.e. the implicature expected that not S. (The question of unacceptable NPIs in the scope of DE operators will be discussed further in section 6.3.)

6.1.2 INTERACTION WITH OTHER ENTAILMENTS

In addition to committing him to an untenable theory of entailment, L.'s claim that there is downward entailment from (24)(a) to (24)(b) and upward entailment from (27)(a) to (27)(b) has devastating consequences for the theory of entailment in general. That is, if we were to grant that there were such entailments, his problems would only just begin.

Consider first the consequences of the DE from (24)(a) to (24)(b), repeated below.

(24) P--->Q ?
(a) Mary was surprised that John ate a green vegetable. (P)
(b) Mary was surprised that John ate brussels sprouts. (Q)
(29) \(Q \rightarrow R\)
If Mary is surprised that John ate brussels sprouts \((Q)\),
then Mary must believe that John ate brussels sprouts \((R)\).

(30) \(P \rightarrow R\)
If Mary is surprised that John ate a green vegetable \((P)\),
then Mary must believe that John ate brussels sprouts \((R)\).

It follows from the most basic principles of entailment that if \(P\) implies \(Q\), and \(Q\) implies \(R\), then \(P\) implies \(R\). And (30) is false even in a world (1) in which John ate brussels sprouts and (2) which is consistent with Mary's beliefs. However, it is obvious that (30) is false. And even if we say that it's a presupposition or implicature of surprise in (24) that Mary believes the complement \(S\) of surprise, there is absolutely no way that we could claim that this presupposition or implicature has been inherited in (29) and (30).

A similar argument can be constructed on the basis of the claimed upward entailment from (27)(a) to (27)(b). To make the argument clearer, (27) is recast slightly in (31) below.

(31) \(P \rightarrow Q\)
(a) Frank believes that a quadraplegic criminal was involved. \((P)\)
(b) Frank believes that a criminal was involved. \((Q)\)

(32) \(Q \rightarrow R\)
If Frank believes that a criminal was involved \((Q)\),
then he must be a good detective \((R)\).

(33) \(P \rightarrow R\)
If Frank believes that a quadraplegic criminal was involved \((P)\),
then he must be a good detective \((R)\).

Once again, the entailments that L. is forced to argue for have devastating effects when tied to a chain of other entailments. Thus
in (31)-(33), we are forced to the absurd conclusion (33) by the following chain of reasoning: P→Q, Q→R, hence P→R. That (33) can in no way be concluded from (32) is obvious: he may be astute to detect a criminal touch to some event, but if, for example, the event involved mountain climbing a quadraplegic criminal would not be likely to be involved, and one could certainly not conclude that Frank was a good detective if he believed that a quadraplegic had been involved.

SUMMARY OF SECTION 6.1. In order to account for the large number of verbs of propositional attitude which license NPIs, L. is forced to claim entailments like the alleged entailment from (24)(a) to (24)(b). Two problems arise in connection with this claim. First, a huge set of assumptions about the knowledge, current awareness, rationality, and consistency of the believer must be made, and we are clearly outside the realm of truth conditional entailment: a severe weakening of L.'s theory. Second, the proposed notion of entailment, when embedded in a chain of reasoning, leads to indisputably false conclusions.
6.2 ACCEPTABLE NPIs NOT IN THE SCOPE OF A DE EXPRESSION

A difficulty with the characterization of the affective environment as 'the scope of a DE expression' is that NPIs sometimes seem to be acceptable in environments which cannot possibly be said to be in the scope of a DE expression. In this section I will examine four such environments: (1) in the complement S of a verb or noun of incorrect belief; (2) in the complement S of a verb or noun of loss and forgetfulness; and (3) in sentences with only.

6.2.1 INCORRECT BELIEF: Consider the following sentences.

(32)(a) I attribute it to his delusion that he knows anything about physics.

(b) X has a delusion that he ate a green vegetable.->

(c) X has a delusion that he ate kale.

As we see in (32)(a), NPIs may sometimes occur in the complement of delusion. Clearly, however, having a delusion that one has eaten a green vegetable does not entail that one has a delusion that one has eaten kale. Thus there seems to be no explanation in L's account for the acceptability of the NPI in (32)(a).

It has been suggested to me that delusion might have as its 'truth-conditional' meaning simply the falsity of the belief; the existence of the belief would be simply a presupposition. (If this were the case, delusion would of course be DE: (32)(b) would in fact entail (32)(c) because they would be equivalent to (33)(a) and (b):

(33)(a) x didn't eat a green vegetable -->

(b) x didn't eat kale
I find this quite implausible on its own merits, and such a suggestion is completely contradicted by (34):

(34) If he has a delusion that he has a car, he will invite us to the drive in.

Clearly, the conditions under which he will invite us to the drive in include a belief that he has a car, not only the falseness of such a belief. That is, (34) will not be false if he simply lacks a car and does not invite us to the drive in.

Delusion, that is, presents slightly different problems than the problems posed by other affectives of propositional attitude (discussed in the preceding section), because there is so clearly an entailment of belief: there is no way that the element of belief can be merely a presupposition of delusion.

6.2.2 LOSS, FORGETFULNESS: NPIs are often acceptable in S complements of verbs and nouns denoting loss and forgetfulness:

(35)(a) He forgot that he had eaten anything.

(b) He forgot that he had eaten a green vegetable.

(c) He forgot that he had eaten kale.

(36)(a) He lost the ability to do anything with his hands.

(b) He lost the ability to fold paper.

(c) He lost the ability to construct origami peacocks.

The (b) sentences entail the (c) sentences only if previous possession is not part of the truth-conditional meaning of forget and lose but is rather presupposition or implicature; that is, if forget is roughly equivalent to not know and lose is roughly equivalent to not have.
But consider (37) and (38): in both cases the consequent is contingent upon not merely failing to have the relevant knowledge or ability, but upon having had it and lost it.

(37) If someone forgets where $1 million is buried, he is crazy.

(38) If someone loses $1 million, he is irresponsible.

(37) and (38) don't seem to be asserting that the mere lack of $1 million or of the knowledge of where it was buried would be sufficient grounds to be judged insane or irresponsible: that is, (37) is not proved false by the existence of sane people who are not in possession of the knowledge of where $1 is buried. In other words, (37) is not truth conditionally equivalent to (39):

(39) If someone doesn't have the knowledge of where $1 million is buried, he is crazy.

So some sort of prior possession or access seems to be part of the 'truth conditional' meaning of such expressions. As a result, they cannot be DE for the same reasons that delusion cannot be, no matter how many assumptions we make about the rationality and knowledge of the believer.

6.2.3 ONLY. Sentences with only tolerate NPIs, although with considerable variation (see Chapter 4); L. includes only in his class of proposed DE expressions. While I don't object to his argument that only NP is DE with respect to the VP in its scope, his argument that only is DE with respect to a nominal in its scope seems weak.

(40)(a) Only John ate anything.

(b) Only John walked.-->?
(c) Only John walked slowly.

(41)(a) No one who was not John walked. -->

(b) No one who was not John walked slowly.

(42)(a) Only people who have ever been to Paris will be admitted to the lecture.

(b) Only people who know a language will be admitted to the lecture. --> ??

(c) Only people who know a Romance language will be admitted to the lecture.

(40)(a) demonstrates that NPIs are acceptable in the part of the sentence which is not the focus of only, and (40)(b) is argued by L. to entail (40)(c). He argues for this entailment on the grounds that the assertion of (40)(a) is roughly as in (41)(a), it being merely a presupposition or implicature that John actually walked. Since (41)(a) does entail (41)(b), it follows from this representation of only that (40)(b) entails (40)(c).

To clarify this suggestion, a sentence with only can be construed as a conditional of the following form:

(43) \(\forall x (\neg (x \in \{\text{focussed item}\}) \rightarrow \neg (\emptyset(x)))\)

\(\emptyset\) above represents the non-focussed part of the sentence. This way of representing sentences with only seems plausible enough, and if it is correct then only does seem to be DE with respect to \(\emptyset\).

But what about the focus of only? As (42)(a) demonstrates, NPIs are (sometimes) acceptable in a relative clause which is part of the focus of only. But even if we ignore implicature, how can we say that (42)(b) entails (42)(c)? Following the above way of representing only, we can represent (42)(b) as in (44):
(44) \( Ax (\neg (x \in \{ \text{people who know a language} \}) \rightarrow (\neg (x \text{ will be admitted to the lecture}))). \)

How can (44) possibly entail (45) below? L. suggests that only can be paraphrased, with less interference from implicature, by at most; but there still doesn't seem to be DE.

(45) \( Ax (\neg (x \in \{ \text{people who know a Romance language} \}) \rightarrow (\neg (x \text{ will be admitted to the lecture}))). \)

(46)(a) At most people who speak a language will be admitted. \( \rightarrow ?? \)

(b) At most \text{people who speak a Romance language will be admitted.}\n
The problem, then, is this: as demonstrated by (42)(a), NPIs may occur in relative clauses in the focus of only. Representing (42)(b), in accordance with L.'s suggestion, as in (44), it is clear that (44) does not entail (45): that is, it is clear that only is not DE with respect to its focus. Therefore L. has no way to explain the acceptability of NPIs in relative clauses in the focus of only, as in (42)(a).

I think that the problem with only is that it licenses NPIs by the relation to if not: that is, the sentences in (42) could be paraphrased as below:

(47)(a) If someone hasn't ever been to Paris, he will not be admitted.

(b) If someone doesn't speak a language, he will not be admitted. \( \rightarrow /> \)

(c) If someone doesn't speak a Romance language, he will not be admitted.

(48) below demonstrates that the antecedent clause of (47)(c) doesn't
entail the antecedent clause of (47)(b); thus there is no UE for IF to reverse, and the failure of (47)(b) to entail (47)(c) presents no problem for the characterization of IF as a DE expression.

(48)(a) X doesn't speak a Romance language-

(b) X doesn't speak a language

(NOTE: Ignore specific readings of a language in the above examples.)

But since only is to be treated as a single expression, to claim that it is DE is to claim that IF (NOT 0--) is a DE context, i.e. a context in which upward entailments should be reversed. But clearly it is not; and only is not DE with respect to its focus, although it may be decomposed into IF (NOT 0--), which contains two DE expressions. Therefore the acceptability of NPIs in the focus of only presents a problem for L.'s account.

SUMMARY OF SECTION 6.2. We have seen in this section that NPIs are sometimes acceptable in non DE environments. Since L. is attempting to define the necessary conditions for the occurrence of NPIs, such contexts are a very serious problem for his account.
6.3 UNACCEPTABLE NPIs IN THE SCOPE OF A DE OPERATOR

In this section I will examine some cases of unacceptable NPIs which are in the scope of a DE operator. Such cases are not in themselves counterexamples to L.'s fairly restricted proposal, as he is only attempting to describe the necessary conditions for an operator to be a trigger; these conditions may not be sufficient to guarantee NPI acceptability. However, the range and extensiveness of this set of cases raises some questions about the characterization of affectives as DE operators. We will note the following cases: intervening logical elements (6.3.1), promises (6.3.2), comparatives (6.3.3), NPI squishiness (6.3.4), and queclaratives (6.3.5).

6.3.1 INTERVENING LOGICAL ELEMENTS.

In Chapter 3 I showed that when quantifiers, predicates like CAUSE or TRUE, or other logical elements intervene between NOT and the representation of the NPI in semantic representation the NPI is frequently unacceptable, despite that such contexts are DE.

Consider external negation (treated, for simplicity's sake, as the intervention of the operator TRUE) and intervening quantifiers.

(49)(a) *He didn't give everybody a red cent.
   (b) NOT Ax (he gave x a red cent)

(50)(a) He didn't give everybody a book. -->
   (b) He didn't give everybody a blue book.

(51)(a) *It is not the case that he holds a candle to John.
   (b) NOT TRUE (he holds a candle to John)
(52)(a) It is not the case that he gave me a book.

(b) It is not the case that he gave me a blue book.

(NOTE: Ignore the wide scope readings for a book and a blue book in (50) and (52).) Despite the unacceptability of NPIs in the above sentences, DE is possible in the same contexts. NOT, that is, is functioning as a DE operator in these sentences.

6.3.2 PROMISES

The second example of an environment which permits DE but not NPIs comes from promises introduced by if. In Chapter 4 it was observed that for apparently pragmatic reasons NPIs are unacceptable in the antecedent clauses of such sentences. Of course, IF is a DE operator in L.'s account. For example:

(53)(a) If you contribute a red cent, I'll slap you. THREAT

(b)*If you contribute a red cent, I'll give you five dollars. PROMISE

Since the if clauses appear to be equally DE in promises or threats, the DE theory has no explanation for the difference in acceptability between (53)(a) and (b). (Of course, the DE theory is not disproved by it, either.)

6.3.3 COMPARATIVES

The case of promises shows that if does not automatically license NPIs. Similarly, comparatives do not automatically render NPIs acceptable, as was demonstrated in Chapter 4 in connection with
sentences such as the following.

(54)(a) Cows fly more often than John lifts a finger to help Louise.
(b) I breathe more often than John lifts a finger to help Louise.

The difference between (54)(a) and (b) was seen to be determined by real world context; during a contest to see who can hold his breath longest, (54)(b) might sound more acceptable. But more is equally DE in both cases, as the entailment from (55)(a) to (55)(b) demonstrates.

(55)(a) It rains more often than I eat bread.
(b) It rains more often than I eat whole wheat bread.

Clearly (55)(a) entails (55)(b). So we find another case of NPIs unacceptable in the scope of a DE operator.
6.3.4 NPI SQUISHINESS

It has long been noted that NPIs vary greatly among themselves with respect to the contexts in which they are acceptable. The list of triggers in Chapter 4 should make this clear.

This squish raises some questions about L.'s account. First, it creates additional cases of DE environments which are not uniformly hospitable to NPIs. Some account must be given of the unacceptability of the (d) sentences in the list of triggers in Chapter 4. Although such an account is hardly available in our theory either, the rough correlation between the 'strength' of an NPI and the semantic 'distance' from negation that it can tolerate offers at least the beginnings of an explanation for these cases. But how can one operator be more or less downward entailing than another? And in fact, since NPIs do not even have to be in a DE context at all, but only in the scope of a DE operator, they can't be all that sensitive to 'degrees of DE-ness', were there to be such a thing. That is, it's rather suspicious that all NPIs are acceptable in the immediate scope of NOT and that it is only in the other contexts that their acceptability varies.

6.3.5 QUECLARATIVES

The tendency of NPIs to force the queclarative interpretation of questions containing them, noted in Borkin (1975), will have to be dealt with in L.'s 'part (b)'. Given that he claims NPIs to have no particular affiliation with negation, it is not clear how his theory can explain this fact.
SUMMARY OF SECTION 6.3

We have seen that there is a large residue of 'part (b)' cases for L.'s account; they are presumably assigned interpretations by the grammar (since an NPI is in the scope of a DE operator) and filtered out later on the basis of use. But what do these unacceptable sentences have in common that can be described without reference to negation? Do they 'allude' to non-downward-entailing environments? Having banished implicature (as distinct from entailment from truth-conditional meaning) from part (a) even at the cost of claiming that speakers judge NPI acceptability on the basis of such extremely unnatural 'entailments' as that claimed for (56) below, it seems awkward to bring it back in to rule out the bad sentences.

(56)(a) He was surprised that she had a dog.-->
(b) He was surprised that she had a dog worth $3 million.

Thus part (b) seems to present problems for L.'s account, because the unacceptable sentences that his theory must filter out do not form as natural a class (on the face of it) as the class of part (b) cases which in our account have at least a common allusion to negation, whatever its mechanics. And in any event it is important to take note of how much is still left outside sentence grammar in L.'s account; this is of course not a weakness of his theory, but it makes his claim that 'the property of being a trigger is completely predictable from the truth conditional meaning of a sentence' appear somewhat inflated.
6.4 SUMMARY OF CHAPTER 6

In this chapter I have examined Ladusaw's attempt to characterize NPI triggers in terms of the entailments of the sentences in which they occur. Such a characterization of 'affective' would be quite desirable and much more satisfying than the hand-waving that I have argued for in the preceding chapters. Unfortunately, even L.'s highly restricted proposals (requiring that NPIs be 'in the scope of a DE operator' but not necessarily in a DE context, stating this requirement as a necessary but not sufficient condition on NPIs, and restricting the entire account to scalar endpoint NPIs) seem beset by serious problems.

The first set of problems arises in connection with the large class of adversatives of propositional attitude, e.g. surprise. They force L. to make claims about entailments from opaque contexts which (1) require so many additional assumptions that we are no longer talking about entailment at all, and (2) lead to false conclusions when embedded into a chain of other entailments.

The second set of problems arises from expressions which trigger NPIs but are not DE: expressions denoting wrong ideas, loss, and forgetfulness; and only.

A third set of facts which to some extent weaken L.'s theory are the cases that he will have to treat as part (b). The characterization of part (b) in his theory may turn out to be quite problematic on account of his claim that NPIs have no special connection with negation.
FOOTN~TES

1. NPIs are not generally acceptable in the focus of only, however, as demonstrated by (i) with holds a candle to as the focus.

   (i)•He only holds a candle to us, he isn't BETTER.
CHAPTER 7: SURFACE STRUCTURE RESIDUE

In Chapter 3 it was suggested that the only restriction placed on NPIs by sentence grammar is the Immediate Scope Constraint, which marks as unacceptable <SS,LF> pairs if the representation of an NPI is not in the immediate scope of negation in LF. It was claimed that the sensitivity of NPIs to their surface structure relation to the trigger (demonstrated by sentences (1)-(7) in Chapter 1, for example) is not statable in terms of any explicit surface structure restriction on NPIs. Rather, certain configurations are unacceptable because (1) they result, when they are input to the SS-->LF mapping rules sketched in Chapter 3, in <SS,LF> pairs which fail the ISC; and (2) these sentences not only fail the ISC but on account of the logical structure that they have as a result of these mapping rules also fail to give rise to appropriate implicature for part (b).

In this chapter I consider in more detail the possibility of eliminating explicit reference to surface structure constraints on NPIs. Section 7.1 concerns the desirability of such a move; section 7.2 is a review (and expansion) of the evidence presented in Chapter 3 that independently motivated SS-->LF mapping rules are sufficient to predict the varying NPI acceptability in sentences like (1)-(7) in Chapter 1. Section 7.3 is an examination of some problems associated with this position; specifically, of unacceptable sentences (1) which contain NPIs preceding the negative in surface structure, and (2) for which the SS-->LF mapping rules might be expected to produce LFs of the form X NOT NPI Y. Do such sentences constitute evidence that there are surface structure restrictions on NPIs in addition to the ISC?
7.1. THE DESIRABILITY OF ELIMINATING SPECIFIC SURFACE STRUCTURE RESTRICTIONS ON NPIs

The first reason for attempting to eliminate such restrictions is, of course, the simplicity of having only one rule of sentence grammar (the ISC) governing the distribution of NPIs. And the surface structure restrictions on NPIs are not simple to state. Recall from Chapter 3 the restriction on adversatives that they may not be commanded by the NPI they trigger unless the NPI occurs in an expression that receives a propositional interpretation. This restriction, which renders (1) unacceptable, does not apply to not, as demonstrated by (2).

(1) I dislike any linguists.

(2) I don't like any linguists.

Thus there would have to be, in addition to the ISC, at least two distinct sentence grammar restrictions on NPIs, depending upon whether or not the trigger is an adversative. This clearly complicates the task of the language learner.

The second reason for attempting to eliminate explicit surface structure restrictions on NPIs is that the same restrictions apply to a wide variety of part (b) triggers, not merely to not and the neg-incorporated words.

(3)(a) Only John ate any bagels.

(b) Nobody but John ate any bagels.

(c) *Any bagels were eaten only by John.

(4)(a) About one person in a million shows any interest in the subject.
(b) Nobody shows any interest in the subject.

(c) Any interest in the subject is shown by about one person in a million.

(d) Nine out of ten people show any interest in the subject.

The (a) sentences above contain NPIs acceptable by virtue of part (b), with implicature along the lines of the (b) sentences above. The (c) sentences show that the NPI may not precede and command such a part (b) trigger. ((4)(d) demonstrates that about one person in a million is in fact the trigger in (4)(a).) Thus if there is a specific surface structure restriction on NPIs, it will presumably also apply to the relationship between NPIs and part (b) triggers, i.e. expressions that are identifiable as triggers only at the level of 'complete semantic representation'. Thus if there is such a surface structure restriction we will have to say that notions like 'precede and command in surface structure' play an explicit role well beyond sentence grammar.

Third, it is not always clear that there is a specific lexical item or items that can be identified (for the purposes of the surface structure restriction) as the trigger. For example, what is the trigger in (5) below? (This sentence was discussed in Chapter 4.)

(5) Lift a finger and I'll shoot!
7.2. SS-->LF MAPPING RULES AND NPIs: THE EASY CASES

In Chapter 3 I sketched a rough scope component along the lines of the proposals in Kroch (1974) in which the basic surface order of quantifiers, negatives, and other logical elements is followed, with readjustment rules such as the following: A E-->E A, E A--->A E, NOT E-->E NOT, A NOT--->NOT A. (A, E, and NOT may have various lexical representations; many he treats as a manifestation of E.) Roughly, then, order is almost free, with a conspicuous exception being that E NOT cannot be readjusted to NOT E. Thus (6)(a) is first mapped onto (6)(b), but readjustment rules allow the reading (6)(c). (Notice that no special intonation is required in order to effect this switch.) Sentence (7)(a), however, can be assigned only the LF (7)(b), although (8)(a) can be assigned (8)(b) or (8)(c).

(6)(a) Everybody didn't answer question 5.
   (b) [Ax: x is a person] NOT (x answered question 5)
   (c) NOT [Ax: x is a person] (x answered question 5)

(7)(a) Many people didn't answer question 5.
   (b) [MANYx: x is a person] NOT (x answered question 5)

(8)(a) He didn't answer many questions.
   (b) NOT [MANYx: x is a question] (he answered x)
   (c) [MANYx: x is a question] NOT (he answered x)

If the additional rules needed for structures with focus and external negation (whose relevance to NPIs was discussed in Chapter 3) are added to these rules, and if it is also assumed that at least some adverbials are assigned scope analogously to quantifiers (since they exhibit scope ambiguities with respect to NOT and quantifiers), then
perhaps it is possible to account for the distribution of NPIs without any more specific reference to surface structure.

Of course, scope is much more constrained by surface structure than this rough set of rules reflects. And clearly additional rules are required to assign the correct scope to the negation operator in sentences like *I never hope to see a purple cow*, where the negative seems to fuse with the verb. But these rules seem to cover the scope phenomena most relevant to NPIs.

Below, six surface structure configurations of NPIs and their triggers are exemplified, and their unacceptability (or acceptability) is seen to be determined by this rough scope component, with no specific reference to NPIs. For each configuration there is given (a) an example sentence, (b) the LF of that sentence, with a paraphrase in some cases, and (c) a possible implicature derivable from the LF, for those sentences which are acceptable.

(9) NPI PRECEDING AND COMMANDING **NOT**:

(a) *Anybody didn't laugh.*

(b) [Ex. $x$ is a person] NOT ($x$ laughed) 'There is someone who didn't laugh.'

(c) ?
(10) NPI COMMANDING ADVERSATIVE TRIGGER (NO PROPOSITIONAL INTERPRETATION):

(a) *I dislike any linguists.

(b) [Ex: x are linguists] (I dislike x)
   'There is a linguist whom I dislike.'

(c) ?

(11) NPI IN COMPLEMENT CLAUSE OF ADVERSATIVE:

(a) I dislike having to invite any linguists.

(b) I dislike ([Ex: x are linguists] (I have to invite x))
   'I dislike the situation in which I have to invite a linguist or linguists.'

(c) I want (NOT [Ex: x are linguists] (I invite x))
   'I want there to be no linguists invited by me.'

(12) NPI PRECEDING BUT NOT COMMANDING NO:

(a) That he had stolen anything was never proved.
   (Ross (1961))

(b) ([Ex (He stole x)) was never proved.

(c) POSSIBLE NOT Ex (he stole x)
   'Quite possibly, there is nothing that he stole.'

(13) NON-QUANTIFIER NPI PRECEDING AND COMMANDING NEGATIVE INCORPORATED WORD:

(a) He gives a damn about no one but himself.
   (or: She can help doing NONE of those things.)

(b) NOT [Ex: x is a person and x≠him](he gives a damn about x)
   'There is nobody who he cares about.'

(c) [Ax: x is a person and x≠him] NOT (he gives a damn about x)

(14) QUANTIFIER NPI PRECEDING AND COMMANDING NEGATIVE INCORPORATED WORD:

(a) *I gave any pictures to no one.
(b) [Ex: x is a picture] NOT Ey (I gave x to y)

'There is a picture which I didn't give to anybody.'

(c) ?

The configurations (9)-(11) were discussed in Chapter 3, and the reasons for acceptability or unacceptability are self-evident from the LFs that the scope component assigns in each case. Similarly, although (12)(b) does not satisfy the ISC, it is clear that there is an implicature as in (12)(c) derivable from this LF. The difference between (13) and (14) can be attributed to the fact that *give a damn about* is not a quantifier: since it is not assigned scope, it is in the scope of NOT in the LF (13)(b): the intervening existential quantifier violates the ISC (it was argued in Chapter 3) but there is clearly an implicature (13)(c) derivable from this LF. But in (14), the existential quantifier *any* precedes the negative *no one* (which, incidentally, must be treated as a negative rather than as an existential quantifier in terms of the readjustment rules) in surface structure and hence the LF (14)(b) must be assigned: as with (9) and (10), this LF not only violates the ISC but does not seem to give rise to any appropriate implicature.

So for at least the basic cases (9)-(14) we can rely on the scope component to generate, for the acceptable sentences only, LFs which either allow the <SS,LF> pair to satisfy the ISC or give rise to implicatures that do.
7.3. PROBLEMS

Some difficulties with the proposal made above will be discussed briefly here.

7.3.1 NONSPECIFIC NPs

It is perhaps a problem for this analysis that indefinite NPs preceding not in surface structure can sometimes be assigned a nonspecific interpretation. Thus in (15) a doctor has as its most natural reading the nonspecific one; it has often been suggested that indefinite NPs can be represented by the existential quantifier, and that in sentences with negation the specific reading is to be distinguished from the nonspecific one by the fact that the latter is in the scope of negation. Following this suggestion, (15) would be represented by (16)(a) or (16)(b), with the former the specific reading and the latter the nonspecific reading.

(15) A doctor wasn't available.

(16)(a) [Ex: x is a doctor] NOT (x was available)

'There was a doctor who was not available.'

(For example, in answer to the question 'What was the complaint about?')

(b) NOT [Ex: x is a doctor] (x was available)

'There was no doctor available.'

NPIs, of course, are not acceptable in the same position, as (17) shows:

(17) Any doctors weren't available.
The SS--&gt;LF mapping rules discussed in section 7.2 can only assign to (17) an LF like (16)(a) above; similarly an existential quantifier like many--let us follow Kroch in treating it as existential, although it is not indisputably so--cannot readjust its scope with NOT, as demonstrated by the lack of ambiguity of (18).

(18) Many doctors weren't available.

That is, (17) and (18) can only be assigned LFs with the scope order E NOT, while (15) does have a reading in which the order is NOT E.

I don't have any explanation for this difference between indefinite NPs on the one hand and any/many on the other. Kroch (1974) notes that only certain predicates permit the subject NP to be nonspecific (and hence a meaning-blind readjustment rule could not account for the difference between surface and interpreted order of the indefinite article and NOT in (15)). For example, compare (15) above, which has as its preferred reading that in which the subject is nonspecific, with (19):

(19) A doctor didn't know what to do.

In (19), a doctor must be specific; there simply isn't the reading 'there wasn't a doctor who knew what to do.'
Kroch makes the following suggestion:

In forming the initial semantic representation for a sentence all existential quantifiers that correspond to simple indefinite plural [or singular] NP's should be placed to the right of all auxiliary operators in the sentence (i.e., not, modals).

In any event, the fact that indefinites seem to differ systematically from indisputable quantifiers like MANY and ANY suggests that (15) is not necessarily fatal for our account: that is, the fact that an indefinite NP preceding the negative can receive a nonspecific interpretation does not mean that any preceding not in the same position has the possibility of being assigned narrow scope with respect to NOT. (If this were the case, there would be a serious problem since the unacceptability of such sentences (e.g. (17)) would have to be attributed to the surface structure configuration of any and not rather than to the LF onto which the sentence is forced by its surface structure to be mapped.

Note that this difference between indefinite NPs and quantifiers like many affects the acceptability of NPIs in relative clauses preceding the negative:

(20)(a) I couldn't find many doctors there who knew anything about acupuncture.

(b) I couldn't find a doctor there who knew anything about acupuncture.

(21)(a) A doctor who knew anything about acupuncture was not available.

(b) *Many doctors who knew anything about acupuncture were not available.
(22) A doctor who knew anything about acupuncture did not agree with the diagnosis: in fact, he called Dr. Smith a 'despicable quack'.

The generalization about (20)-(22) is, as widely noted, that NPIs are acceptable in relative clauses headed by existentially quantified NPs only if the NP is nonspecific (conditioned by negation). Since in (20) the head of the relative clause (whether it is many doctors or a doctor) follows the negative, it can be nonspecific; NPIs are therefore acceptable in the relative clause by part (b), as discussed in Chapter 4. But if the head precedes the negative then only relative clauses headed by indefinite NPs are acceptable, as (21) demonstrates. If the head is many, NPIs are not acceptable in the relative clause. This of course follows from the fact that the indefinite NP, but not many, can be interpreted as taking narrow scope with respect to NOT: thus only the former can be nonspecific and therefore able to trigger NPIs in the relative clause. ((22) demonstrates that if the head is specific NPIs may not occur in the relative clause.)

Thus even if the relative clause with the NPI follows not the NPIs are unacceptable if the head is many NP:

(23)(a) A doctor wasn't available who knew anything about acupuncture.

(b) Many doctors weren't available who knew anything about acupuncture.
7.3.2 RAISED QUANTIFIERS

The scope rules proposed in section 7.2 would predict that (24)(a) has only the interpretation (24)(b), whereas in fact it has a reading in which many is in the scope of NOT. Let us tentatively represent this reading as in (24)(c).

(24)(a) Mary people aren't likely to arrive on time.

(b) [MANYx: x is a person] NOT LIKELY (x arrive on time) 'There are many people who are unlikely to arrive on time.'

(c) NOT LIKELY ([MANYx: x is a person] (x arrive on time)) 'It's not likely that many people will arrive on time.'

But NPIs are still unacceptable in the same position as many:

(25)(a)*Any linguists aren't likely to arrive on time.

POSSIBLE LFs OF (25)?

(b) [Ex: x is a linguist] NOT LIKELY (x arrive on time)

(c) NOT LIKELY([Ex: x is a linguist] (x arrive on time))

(26) It's not likely that any linguists will arrive on time.

Notice that NPIs are acceptable (by part (b), since LIKELY intervenes) in (26), which is the paraphrase of (25)(c).

So there is a problem: if many in (24) can be interpreted as being in the scope of negation, why can't any in (25)? Since the most obvious difference between the acceptable (26) and the unacceptable (25)(a) is that not precedes any in the former but not in the latter, some alternative explanation must be found if specific surface structure restrictions on NPIs are to be eliminated.

The only explanation that I can offer for this is that (24)(a)
seems to require, in order to receive the interpretation (24)(c), that it be in response to some suggestion that many people WILL arrive on time. That is, it is difficult to interpret (24)(a) as introducing the fact that there will be few people arriving on time, i.e. (24)(c); (27) below seems to be a more felicitous way of introducing this fact:

(27) It's not likely that many people will arrive on time.

That is, it's possible that (24)(a) receives the interpretation (24)(c) only if it is a denial or external negation: certainly (24)(a) must be spoken with a fair amount of stress on aren't in order to get the reading (24)(c). Thus we can say that (24)(a) and (25)(a) do not actually receive the interpretations (24)(c) and (25)(c) respectively, but rather (28) and (29) below. As noted in Chapters 3 and 4, NPIs are generally unacceptable in sentences which are interpreted as denial or external negation. That is, (29) will be unlikely to give rise to an appropriate implicature and (25)(a) is therefore unacceptable.

(28) NOT TRUE (LIKELY ([MANYx: x is a person] (x arrive on time)))

(29) NOT TRUE (LIKELY ([Ex: x is a person] (x arrive on time))

This is not, of course, a particularly satisfying story.

7.3.3 PART (B) TRIGGERS

As noted above, there seem to be surface structure restrictions on the configuration of NPIs and part (b) triggers.
In (30) below, *less than .001% of the population* functions as a pragmatic negative, allowing NPIs by part (b), while *less than 100%* does not. In (31), NPIs are unacceptable because passivization reverses the surface order of the NPI and the pragmatic trigger.

(30)(a) Less than .001% of the population made any progress.

(b) Less than 100% of the population made any progress.

(31) Any progress was made by less than .001% of the population.

(32) Almost nobody made any progress.

(30)(a) is presumably acceptable because it implies (32). Note that there is an acceptable reading of (31), where the *any* is interpreted as heading an implied relative clause: 'Any progress that was in fact made was made by .001% of the population.'

These sentences pose a problem for any attempt to dispense with specific surface structure restrictions on NPIs since the most obvious difference between the acceptable (30)(a) and the unacceptable (31) is that the quantificational expression functioning as a pragmatic negative precedes *any* in the former but not in the latter. The scope rules proposed above account for the unacceptability of NPI quantifiers preceding an actual negative, since NPI quantifiers are uniformly existential and there are no readjustment rules to derive NOT E from E NOT. But in (31) the expression *less than .001%* is not an explicit negative so it might be expected to be able to switch scope ordering.

Again, I can only appeal to the parallel behavior of *MANY*. As (33) and (34) demonstrate, the scope ambiguity that is possible
between MANY and a quantifier like SEVERAL does not seem to be possible between MANY and FEW or LESS THAN .001%. Perhaps the semantic 'topicalization' effect associated with reassigning wide scope to the righthand quantifier in surface structure is inappropriate if the meaning of the quantifier is roughly FEW. This inappropriateness is perhaps paralleled by the oddness of (35)(c) as contrasted with (35)(b).

(33)(a) Many people agreed with several of his suggestions.

POSSIBLE LFs:

(b) [MANYx: x is a person] [SEVERALy: y his suggestions]  
   (x agreed with y)  
   'There were many people who agreed with several suggestions.'

(c) [SEVERALy: y his suggestions] [MANYx: x is a person]  
   (x agreed with y)  
   'There were several suggestions which met with widespread approval.'

(34)(a) Many people agreed with less than .001% of his few of suggestions.

(b) [MANYx: x is a person] [LESS THAN .001%y: y his suggestions]  
   [FEWy:  
   (x agreed with y)  
   'There were many people who agreed with (only) .001% of/few of his suggestions.'

(c) NOT AVAILABLE?

[LESS THAN .001%y: y his suggestions] [MANYx: x is a person]  
   [FEWy:  
   a person (x agreed with y)  
   'Less than .001% of/few of his suggestions met with widespread approval.'
(35)(a) Few of his suggestions many people agreed with.
   (b) A few of his suggestions many people agreed with.

If there is such a reading as (34)(c), it has a strong flavor of denial.

7.3.4 WH-WORDS AND NPIs

It is suggested in Lawler (1971) that there is a surface structure requirement on NPIs in wh-questions: that the wh word, prior to being extracted, precede (and of course command) the NPI. He cites sentences like the following:

(36)(a) Who ate anything?
   (b) What did anybody eat?

He suggests that (36)(b) is unacceptable and cites it as evidence of such a surface structure restriction on NPIs and the 'trigger', which restriction must apply before the wh word moves.

If this were true, it would be a problem for the attempt to eliminate specific reference to surface structure and NPIs, for the following reason. Let us assume that in such questions the wh word prior to movement is to be regarded as the 'trigger': why else would there be such a surface structure restriction on it and the NPI? The problem is that since the wh-word is almost always assigned widest scope in LF, such a restriction on surface order could not be explained by saying that the surface order simply resulted in a certain order in LF. No matter which surface order they occur in, the wh-word should generally end up with wider scope than any in LF.
In fact, there does not seem to be any such restriction. (36)(b), for one thing, would be acceptable as a rhetorical question in the right context (Lawler in the same article observes the tendency of NPIs in wh-questions to force the rhetorical reading; see Chapter 4); furthermore, the following sentences seem to be indisputably acceptable, hence a counterexample to his claim that the wh-word must precede the NPI prior to wh-movement.

(37) What have any of them ever done for you?

(38) Which books have any students complained about?

(38) does not have to have a rhetorical interpretation; it would be appropriate as a true question if, for example, I am making up a reading list for a course and want to know which books have elicited complaints in the past.

This concludes the summary of problems raised by the attempt to eliminate specific reference to surface structure restrictions on NPIs.
FOOTNOTES

1. Ignore the reading 'any bagels that there might have been...'


4. See Chapter 3, section 3.2.4, on the question of NP specificity and the scope of negation.
CHAPTER 8: WHAT ARE NPIs?

Since the Immediate Scope Constraint applies only to NPIs, they must be lexically marked as such. The problems associated with the attempt to demarcate such a class within the lexicon are examined in this chapter, along with the more general question of why NPIs exist at all.

Let us take the set of NPIs to comprise only those expressions whose presence can cause the \langle SS, LF \rangle pair of the sentence in which they occur to be marked as unacceptable by the ISC. While it is obvious that the class of NPIs must include ever or hold a candle to, what about a thing? Consider (1)-(3) below.

(1) I don't want a thing.
(2) I want a thing.
(3)(a) I want a thing--a toy, a book, something concrete.
   (b) He wrote a thing up for L yesterday.

Despite the extreme oddness of (2), thing is obviously not an NPI, as the sentences in (3) demonstrate. Expressions like a thing are cited in Schmerling (1971) in a discussion of the difficulties associated with simply labelling lexical items as NPIs.

Thus it is necessary to distinguish between certain uses of non-NPI expressions in negative contexts, e.g. the use of not ... a thing in (1) to mean nothing, and expressions which can only occur with NOT, e.g. ever. In this chapter I examine three ways in which regular lexical items may come to be used habitually in the immediate scope of NOT, and argue that there are NPI subsets of these classes of habitually negated expressions: the NPIs, that is, are the frozen
forms. These classes are: (1) 'scalar endpoints', (2) 'understaters', and (3) habitually negated verbs. The point at which an expression has become an NPI, i.e. when it must occur in this negative environment, is of course hard to fix. For each of the three types of habitually negated expressions there can be distinguished, on the basis of their degree of dependence upon NOT, three subclasses: (1) 'independents', (2) 'near NPIs', and (3) 'true NPIs'.

In section 8.1 the first class of habitually negated expressions, the scalar endpoints, is examined. In section 8.2, the three degrees of dependence upon NOT are defined upon this class. In section 8.3 the second class of habitually negated expressions, the understaters, is examined; in section 8.4, some habitually negated verbs are examined.

The purpose of the following discussion, then, is to determine whether it is possible to lexically mark the NPIs, i.e. those expressions which must (in the paradigm case) occur in the immediate scope of NOT. It is argued that only if we clarify the distinction between the habitual occurrence an expression in the environment of NOT and its restriction to that context will we be able to mark NPIs as NPIs, and hence to constrain their distribution by the ISe.
8.1 SCALAR ENDPOINTS

Recall from Chapter 6 the observation of Fauconnier that many NPIs, e.g. *lift a finger*, are expressions which are appropriate as scalar endpoints. From the failure of someone to lift a finger, for example, one can reasonably conclude that he hasn't moved at all. *Hold a candle to* is another example: to be unable to hold a candle to someone is to be unfit even to perform the subordinate's duty of holding up a candle to provide light; thus if one isn't even fit to be someone's subordinate, one cannot possibly be superior to him.

Clearly in the class of scalar endpoint NPIs are all those NPIs which have an existential interpretation: any, a red cent, a hope in hell, a soul, etc.

It was demonstrated in Chapter 6 that logical 'downward entailment' does not seem to play a role in the distribution of NPIs. We will see here that it also does not correlate with the pragmatic DE described by Fauconnier (henceforth 'DE' to distinguish it from logical DE).

Consider, for example, the simplest problem in (4): it can function as the upper endpoint of the scale associated with the proposition schema *Albert can solve X* and thereby induce 'downward entailment' of the truth of the proposition for all values of X lower on the scale. That is, since the simplest problem is the most likely problem to be solved, there is downward implicature that Albert can solve no problems whatsoever.

(4) Albert can't solve the simplest problem.
What is interesting is that the simplest problem cannot necessarily be taken as such an upper endpoint if it is not in the immediate scope of NOT. Thus consider the following sentences (with the readings given): the simplest problem does not seem to function as an upper endpoint in those readings in which it is not in the immediate scope of NOT.

(5)(a) It's not true that Albert can solve the simplest problem
   (b) NOT TRUE (Albert can solve the simplest problem)

(6)(a) Albert CAN NOT solve the simplest problem. (DENIAL)
   (b) NOT TRUE (Albert can solve the simplest problem)

(7)(a) All my friends can't solve the simplest problem.
   (b) Reading in which 'DE' is impossible:
       NOT [Ax: x is a friend of mine] (x can solve the simplest problem)
       'It's not the case that each of my friends can solve the simplest problem.'
   (c) Reading in which 'DE' is possible:
       [Ax: x is a friend of mine] NOT (x can solve the simplest problem)
       'It's true of each of my friends that he can't solve the simplest problem.'

(8)(a) ALBERT can't solve the simplest problem. (AtF)
   (b) NOT (the x such that (x can solve the simplest problem) = Albert)

In (5)-(8) above, the inability of the simplest problem to function as an upper endpoint, i.e. the impossibility of pragmatic 'DE', is in contrast to the possibility of logical DE. That is, if a problem is substituted for the simplest problem in the above sentences, and if the entailment in (9) holds, then a simple problem is substitutable for a problem salva veritate.

(9)(a) Albert can solve a simple problem. -->
(b) Albert can solve a problem.

The reader can verify that expressions like *even problem* 3 and *1 plus 1* behave like *the simplest problem* in (5)-(8): that is, they behave like upper endpoints inducing pragmatic 'DE' primarily in the immediate scope of NOT.

Pragmatic 'DE' seems to have a part (b), as demonstrated by (10):

(10) I didn't hire him because I think he can solve

\[
\begin{align*}
&\text{the simplest problem.} \\
&\text{all that many problems.}
\end{align*}
\]

Sentence (10) seems to have the implicature (11), as discussed in Chapter 4.

(11) I think that he can't solve

\[
\begin{align*}
&\text{the simplest problem.} \\
&\text{all that many problems.}
\end{align*}
\]

Thus *the simplest problem* functions as an upper endpoint in (10) by virtue of the same implicature which licenses the NPI *all that many*.

That is, pragmatic 'DE' seems to have roughly the same distribution as NPIs: given an expression which is pragmatically appropriate as an upper endpoint, a sufficient condition on 'DE' is that this expression occur in the immediate scope of NOT. Like NPIs, 'DE' can occur in other environments given appropriate implicature.

Those NPIs which denote scalar endpoints, then, may be seen as frozen forms in the much larger class of expressions which induce 'DE' in the immediate scope of NOT: the Immediate Scope Constraint simply encodes this fact.

As Fauconnier observes, both polarity *any* and free choice *any* denote scalar endpoints, although at opposite ends of the scale. Thus their homonymity and mirror-image 'Immediate Scope Constraints' are
far from coincidental. The 'Immediate Scope Constraint' for free choice any (discussed in Chapter 3) may well have pragmatic analogues; this is a question still to be pursued.
8.2 DEGREES OF DEPENDENCE UPON NOT

NPIs like *lift a finger*, then, represent a subset of the class of expressions which can be used as scalar endpoints if they occur in the immediate scope of NOT. Only the NPIs, however, MUST occur in the immediate scope of NOT (or in a sentence with the appropriate implicature). But it is not always clear when an expression is an NPI and restricted to this environment or simply an expression that tends to be so used but is free to occur elsewhere. In the attempt to bring some order into the discussion, I will set up three rough classes based upon the extent to which an expression is restricted to the immediate scope of NOT. These three classes are (1) independents, (2) near NPIs, and (3) true NPIs.

(1) INDEPENDENTS. In this class are expressions which may be used as scalar endpoints but occur freely, with their literal meaning, outside the immediate scope of NOT. An example of an independent is *a verse*, which acts as an endpoint in (12) but not in (13):

(12) He hasn't read a verse of the Bible.
(13) He read a verse of the Bible yesterday.

Clearly, the independents are not lexically marked as NPIs and their specialized functioning in the immediate scope of NOT can be predicted from the meaning of the sentence and the relevant facts about the world.

The use of the independents as scalar endpoints by virtue of a kind of 'part(b)' for scalar endpoints is not very common. In (14), for example, it is difficult to take *a verse* as a scalar endpoint.
(14) I didn't realize that he had read a verse of the Bible.

Since the independents are not in any way marked, they would be expected to be less likely than marked NPIs to trigger a part(b) reconstrual.

(2) NEAR NPIs. These are expressions which have been used so frequently with their specialized meaning in the environment of NOT that they have begun to sound odd in non-negative contexts. They still can occur in some such contexts, however; thus they cannot be said to be only NPIs and the question of whether or not they are lexically marked is thorny. For example, a thing in (1) above is functioning as a scalar endpoint, but is a perfectly respectable English word in non-negative contexts, as seen in sentence (3) above. However, it sounds sufficiently odd unadorned by modifiers that it triggers a part (b) reconstrual more easily than, say, a verse, which has a more robust literal meaning.

(15) I didn't realize that he knew a thing about the Bible.

By 'trigger a part (b) reconstrual' I mean that the occurrence of a thing in (15) forces one to search for an implied sentence in which it is in the immediate scope of NOT. (See Chapter 4.)

(3) True NPIs. These are expressions which are unacceptable in non-negative environments, and whose occurrence out of the immediate scope of NOT triggers a part (b) reanalysis. This reanalysis need not be successful in order for an expression to be an NPI; for instance (18) is unacceptable or at least very marginal but it nevertheless conveys the 'need' for an appropriate implied sentence.
(16) His paper doesn't hold a candle to Mary's.
(17) His paper holds a candle to Mary's.
(18) He doesn't realize that her paper holds a candle to his.

Thus we have established three rough subgroups of expressions associated with NOT: the independents, the near NPIs, and the true NPIs; they represent differing degrees of dependence upon negative contexts.

As noted above, there has been considerable confusion about the meaning of the term 'NPI'. The most general interpretation includes in the class of NPIs all three of these subgroups; includes, that is, any expression dependent upon NOT for a particular use or interpretation. The most specific interpretation includes only the expressions whose presence can cause the <SS,LF> pair associated with the sentence in which they occur to be marked as unacceptable by the ISC. The NPI environment is the same under both interpretations of the term NPI, of course: it is the immediate scope of NOT.

The independents and near NPIs in the class of scalar endpoints have been cited as a problem for any theory of negative polarity which requires that NPIs be marked in the lexicon. Most notably, Schmerling (1971) observed the open-ended nature of the class of scalar endpoints of the form a(n) NP, as in (19) below:

(19) I didn't do a thing.
     hear a sound.
     see a soul.
     eat a bite.
     say a word.
     move a muscle.
     sing a note.
     see a gray hair on his head.
     pay a cent.
Noting the difficulties associated with trying to mark all the members of this class as NPIs, she raises the possibility that NPIs cannot be marked in the lexicon. However, it seems reasonable to make a distinction, as above, between a certain pragmatic use of expressions like a sound above and true NPIs, since only the latter are unacceptable outside of a negative environment. The class of scalar endpoint NPIs is drawn from the constantly changing pool of pragmatic scalar endpoints. In the list in (19) above, only a soul strikes me as a true NPI, given the outright unacceptability of (20) below, with the reading in which soul means 'person' (as in 'a town of 2,000 souls').

(20) I saw a soul at the party.

SUMMARY OF 8.2. In this section I have attempted to answer, for the class of scalar endpoint NPIs, the question of whether or not NPIs are marked as such in the lexicon. If we take the term 'NPI' in its most general sense, i.e. as comprising all the lexical items or particular uses of these lexical items which require the immediate scope of NOT, then the answer is clearly 'no': the ability of expressions to function as scalar endpoints is predictable by pragmatic principles and it would be absurd to mark these expressions as possible scalar endpoints in the lexicon. Everything is a possible scalar endpoint.

If, however, we use the term NPI in a more restricted sense to include only those expressions which must occur in the immediate scope of NOT or in a sentence with the appropriate implicature, then the answer is clearly 'yes'. The difficulties noted by Schmerling apply
only to the attempt to mark as an NPI any lexical item which ever enters into one of the constructions which requires the immediate scope of NOT.
8.3 UNDERSTATERS

In this section I will examine a second pragmatic phenomenon which gives rise to NPIs; again, the NPIs can be characterized as a subset of frozen forms in a larger class of expressions which are used in a certain way in the immediate scope of NOT.

These expressions include *that* in its nonreferential usage (as in 'I don't know that much about it', where *that* refers to no previously established degree), unstressed *much*, *too* not in the sense of excessively (as in 'I don't know too much about it') and other expressions whose meaning is roughly MANY rather than E. (Thus they are not scalar endpoints.) These may loosely be called 'understaters' because they seem in many cases like a way of softening by MOST NOT by understatement, with an analogue in the use of *thrill* in (21) to convey 'I'm actually displeased.' That is, the full extent of one's displeasure is understated by the denial that one is thrilled, just as in (22) one is understating the extent of one's displeasure by simply denying excessive delight. Such a usage might also be termed sarcastic.

(21) I'm not thrilled by your suggestion.
(22) I'm not too pleased.

Is there any reason to actually mark these expressions as NPIs? (That is, are they true NPIs, near NPIs, or independents?) After all, *too* has a literal meaning in non-negative contexts and its use in (22) parallels the use of *thrill* in (21). It is clear that this use of expressions like *thrill* or *too* requires the immediate scope of NOT or some allusion to it:
(23) I didn't realize that she knew too much about it.
     was (too) thrilled about it.
     knew anything about it.

(24) I thought that she didn't know too much about it.
     wasn't (too) thrilled about it.
     didn't know anything about it.

(25) She wasn't (too) thrilled about it because she had any desire to actually go there...

(26) I doubt that she's thrilled about it.
     she knows too much about it.

This 'sarcastic' usage seems absent from (23); that is, it is not--unlike (24)--ambiguous between the sarcastic and non-sarcastic use of too and thrilled. And in (25) the intervening predicate CAUSE separates too and thrilled from NOT, making this 'sarcastic' usage unavailable. Some part (b) cases exist, however, as (26) demonstrates.

The situation with NPIs of this class is similar to that of the scalar endpoints: there is a pragmatic phenomenon ('DE' in the first case, sarcastic understatement in the second) which requires the immediate scope of NOT. We have seen that the first class of NPIs contains some true NPIs which have to be marked in the lexicon, but what about the second? Too, much, that, etc. all have some sort of corresponding non-sarcastic meaning outside of negative contexts, although since destressed much is unacceptable elsewhere it should perhaps be marked. Otherwise, this class of NPIs seems to be predictable on some sort of pragmatic principles and does not require marking in the lexicon.

Thus we have discovered another breeding ground of NPIs, another environment in which pragmatic rules apply to certain expressions if they are in the immediate scope of NOT in LF. A subset of these
expressions must be lexically marked as NPIs.
8.4 NEGATED VERBS

In the preceding sections I have sketched two sources of NPIs, i.e. two usages that occur primarily in the immediate scope of NOT. In this section I will merely take note of a third source of NPIs: verbs which are very often negated and certain subcategorizations of which become NPIs. The reasons for the frequent negation of these verbs are clearly pragmatic; since I have no common principle to propose, this class might as well be labelled 'other'. That only certain subcategorizations of these verbs must be negated is obvious from the following examples. The (a) sentences contain the NPI variant negated; the (b) sentences contain the NPI variant unnegated and unacceptable; the (c) sentences contain the non-NPI variant.

(27)(a) She can't help telling George lies.
    (b) She can help telling George lies.
    (c) She can help George.

(28)(a) She didn't bother helping George.
    (b) She bothered helping George.
    (c) She bothered George.

(29)(a) She didn't believe how many books they had.
    (b) She believed how many books they had.
    (c) She believed what he told her.

(30)(a) You needn't stay.
    (b) You need stay.
    (c) You need money.

(31)(a) I don't care to stay.
    (b) I care to stay.
(c) I care.

(32)(a) I didn't dare leave.
(b) I dared leave.
(c) I dared to leave.

That the true NPIs in this group require the immediate scope of the negative is demonstrated by the unacceptability of sentences like (33)(b), where the universal quantifier intervenes between NOT and can help.

(33)(a) He can't help complaining.
(b) Everybody can't help complaining.
(c) With the reading:
   NOT [Ax: x is a person] (x can help complaining)

I would characterize verbs like can stand as independent, given the acceptability of sentences like 'Go ahead, he can stand it!'. That is, they tend be negated (for reasons having to do with the real world: one is more likely to report on untolerability than on tolerability, perhaps) but don't have to be. Mind seems like a near NPI, since it can only sometimes occur independently of NOT ('I really mind his presumptuousness'). Thus the class of negated verbs contains expressions with all degrees of dependence upon NOT.
1. Recall from Chapter 6 that the upper endpoint on a scale $S$ associated with a proposition schema $P$ is equivalent to the lower endpoint on a scale $S'$ associated with the proposition schema NOT $P$.

2. The term 'endpoint' is used rather loosely here, since 'DE' is possible from any value for $X$ higher on the scale than another value for $X$. Thus (i) below may have the implicature that he would eat absolutely nothing, but the most delicious food does not necessarily denote what he is most likely to eat. He might be more likely to eat food high in protein if it were his last meal for a week.

   (i) He wouldn't eat the most delicious food.

3. In what sense is a thing a scalar endpoint? That is, is there a scale associated with do on which thing is an endpoint? Many of these expressions of the form a(n) NP seem to be endpoints not by virtue of the meaning of the NP but because (as argued in Schmerling (1971)) the indefinite article there has the interpretation 'one': not one NP can be used to convey 'no NPs'.

4. I am not suggesting that all NPI verbs be treated as forming a single class. Hold a candle to and hudge at least originated as 'scalar endpoint' NPIs.
CONCLUSION

It may be useful to recall the observation of Bolinger that the distribution of NPIs 'lies precisely athwart the lines of transform grammar and idiom grammar ... [and is] an interesting problem in itself but a transcendent one when we view it as an illustration of the confusion of the two grammars.' The sensitivity of NPIs to various kinds of syntactic and semantic information, taking these terms in their broadest sense, has been used by some linguists to argue for the semantic conditioning of syntactic rules. Similarly, Ladusaw (1979) proposes that the distribution of NPIs argues for the inclusion into sentence grammar a full account of meaning, or at least of entailment.

The primary concern of this study, therefore, has been to determine the grammatical constraints on the distribution of NPIs. It has been demonstrated that a sufficient condition on NPI acceptability is occurrence in the immediate scope of negation in logical form. This condition, the Immediate Scope Constraint, encodes the sensitivity of NPIs to a purely structural relation to negation. Other aspects of sentence meaning appear to be irrelevant to NPI acceptability in this paradigm case.

The paradigm case must be stated on LF rather than on surface structure because the Immediate Scope Constraint cannot be stated on surface structure. NPIs therefore provide evidence for the existence of such a level of representation, and for a particular representation of its syntax. Thus, for example, the sensitivity of NPIs and other quantifiers (including 'free choice' any to immediate scope relations with other operators argue for predicate calculus like representation in which logical elements are assigned scope with
respect to one another. Further evidence about the syntax of logical form is provided by the sensitivity of NPIs to propositional interpretations of NPs and by the behavior of NPI any, which suggests that it should be represented as an existential rather than as a universal quantifier.

It has been argued that the role of the grammar in the distribution of NPIs is restricted to the Immediate Scope Constraint, since the apparent surface structure restrictions on NPIs are simply the effects of independently motivated SS-->LF mapping rules.

The role of semantics in the distribution of NPIs seems to be to determine the acceptability of sentences with NPIs which are not in the immediate scope of NOT. A sentence with such an untriggered NPI may still be acceptable if the literal meaning assigned to its LF may be construed as 'alluding' to some proposition in whose logical form the representation of the NPI is in the immediate scope of NOT.

This suggestion, that untriggered NPIs require the sentence in which they occur to be taken as 'alluding' to X NOT NPI Y, may sound misleadingly exotic. The dependence of such a sentence upon a semantic relationship to some other representation may be compared to a discourse rule like VP deletion: in both cases the acceptability of a given sentence can only be determined for particular occurrences of that sentence. Another analogue to part (b) is furnished by expressions like wh- on earth, which force the sentence in which they occur to allude to some other linguistically defined representation (in this case, a direct question), or by metaphor.

The possibility of there being an implicature X NOT NPI Y in a well-formed <S,I> pair must be distinguished from the 'availability'
of this implicature in the context of a given utterance. It seems likely that the conditions on availability of the implicature may be stated in terms of Gricean conversational maxims.

Thus it is possible to distinguish quite distinct syntactic, semantic, and conversational systems affecting the acceptability of sentences with NPIs.

Many problems remain to be solved. The semantic and conversational constraints on NPIs have yet to be precisely formulated, as do the relevant SS-->LF mapping rules. The question of why NPIs exist at all remains unanswered, although it seems likely that they are the frozen forms in certain classes of expressions used as scalar endpoints, 'understaters', and so forth in the immediate scope of NOT.
REFERENCES


Carlson, G.N.: 1980, 'Polarity Any is Existential', manuscript, Wayne State University.


Chomsky, N.: 1975, 'Conditions on Rules of Grammar', manuscript, MIT.

Chomsky, N.: 1979, Pisa lectures, manuscript, MIT.


Fraser, B.: 1971, 'An Analysis of Even in English', in Fillmore and Langendoen.


Horn, L.: 1970, 'Ain't it Hard (Anymore)', in *Papers from the Sixth Regional Meeting of the Chicago Linguistic Society*, University of Chicago, Chicago, Ill.


Jesperson, O.: 1917, 'Negation in English and Other Languages', in *Selected Writings*, London.

Karttunen, L.: 1974, 'Until', in *Papers from the Tenth Regional Meeting of the Chicago Linguistic Society*, University of Chicago, Chicago, Ill.


Kayne, R.S.: 1979, 'Two Remarks on the NIC', manuscript, Universite de Paris 8.


Ladusaw, W.: 1979a, Polarity Sensitivity as Inherent Scope Relations; Doctoral dissertation, University of Texas at Austin.


