NEGATIVE POLARITY: SCOPE AND CONTEXTS

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1. Introduction

Negation is unique to human language with no significant analogue in any system of animal communication. However, negation operates not only in natural language, but also in artificial systems such as first order logic and computer programming. This ubiquity has been a locus of inquiry which has brought out characteristic discrepancies of negation in logic and language which in turn reflect an array of pragmatic factors and the mode of human cognition of the world (Grice (1967), Horn (1972, 1989), Givón (1978), Ota (1980), Yamanashi (2000)). Properties of negation, and thus studies thereof, are expected to uncover the nature of human language systems (with hidden logical properties) as well as human cognitive capacities in general.

Negative polarity phenomena, or polarity sensitivity, are more restricted in nature. While it is pervasive in natural language, it does

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not find its analogue in artificial systems of logic and programming, let alone systems of animal communication. This suggests, as Hoeksema (2000: 117) puts it, that “polarity sensitivity is not logically necessary, but a deeply ingrained feature of natural language.” Viewed in this light, it is surprising to see that negative polarity items and their licensors, though not logically founded, have precisely those properties which can only be elucidated in terms of articulated concepts of logic, along with cognitive principles. It is this state of affairs that Yoshimura (1999), the book under review, unfailingly demonstrates before us.

In its most general terms, the phenomenon of negative polarity can be stated as in (1):

\[(1) \ \alpha \text{ is licensed by } \beta \text{ under condition } \gamma.\]

where \(\alpha\) is a negative polarity item (NPI), \(\beta\) a licenser, and \(\gamma\) a licensing condition. Given (1), the problems we face with are those in (2) (Kato (1998), Yoshimura (1999), Hoeksema (2000)):

\[(2) \]

\[a. \text{ To define the possible set of licensors} \]
\[b. \text{ To define the possible set of NPIs} \]
\[c. \text{ To determine the licensing condition(s), structural, logical and/or cognitive} \]
\[d. \text{ To uncover the mechanism(s) that is/are responsible for the licensing} \]
\[e. \text{ To explain why natural language has NPIs and their associated systems.} \]

As for (2a–d), we should consider both (i) their universal properties and (ii) the nature and possible range of variations across languages and/or within single languages.

It is mainly problems (2a–c) above which Yoshimura (1999) addresses and for which the most striking results are obtained. First, with respect to (2a), licensors of NPIs in English, just as in German and Dutch (Zwarts (1996), van der Wouden (1997)), fall into well-defined subtypes of a Boolean hierarchy which subsumes the notion of downward entailment (Ladusaw (1979)) as the weakest type. Secondly, with respect to (2b), NPIs are indirectly classified by reference to the type of licenser they are licensed by. Thirdly, NPIs share a procedural meaning (Sperber and Wilson (1986, 1995), Blakemore (1987)) in that they are to be processed in contrastive contexts. Fourth, with respect to (2c), NPIs are licensed, if and only if they appear in the scope of a licenser and meet the requirement of contrastive contexts.

The basic tenets are that the nature of negative polarity can only be
clarified by exploring its universal properties as well as its variations across languages and within single languages, and that their licensing is highly modular in nature in that licensing relies upon both semantic and cognitive-pragmatic principles.

The present review is organized as follows. In section 2, a brief outline of each chapter of the book will be presented, with special reference to the main results obtained and the principles proposed. Section 3 presents basic issues pertaining to the licensing system, those to be addressed in the latter half of this review. They include the c-command condition of licensing (section 4), the nature of contrastive contexts (section 5), and some of other theoretical problems that lie behind the theory (section 6). A summary is presented in Section 7.


From a historical point of view,1 the work by Yoshimura (henceforth Y) is best conceived as a synthesis and extension of two insightful streams of studies of negative polarity phenomena. Firstly, it inherits the view that the essential property of licensers of NPIs is “Affective” (Klima (1964)), which is formally defined as downward entailment (Ladusaw (1979)), the weakest type of the Boolean hierarchy of negation (Zwart (1996), van der Wouden (1997)). Secondly, it also adopts and extends the view that the licensing of NPIs is modular in nature in that licensing must meet at least two distinct requirements, i.e. structural condition of scope and logical or pragmatic condition of contexts (Baker (1970) and Linebarger (1980)). Y’s innovation is that she introduces a novel characterization of the cognitive-pragmatic condition (i.e. the Cognitive Structure of Negation) in terms of Relevance-theoretic concepts (Sperber and Wilson (1986, 1995) and Blakemore (1987)), and explores its empirical consequences to a vast range of phenomena in English and Japanese.

In chapter 1, “Introduction,” are presented basic problems of negative polarity phenomena and the organization of the book. In chapter

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1 For a more detailed introductory review on studies of negation, see Horn and Kato (2000).
“General Features of the Negative Polarity Problem” [translation by YK], Y begins her discussion with exploring the diversity of NPI licensers and NPIs themselves, both of which exhibit on independent grounds different degrees of strength. The two independent scales of strength interact, so that some NPIs can occur and others cannot even within a context created by a single licenser. Thus, the following squish (see Y’s (2-26)-(2-28)):

\[
\begin{array}{ccc}
\text{any} & \text{a bit} & \text{half bad} \\
\hline
\text{not} & + & + & + \\
\text{no+N, against} & + & + & - \\
\text{if, at most} & + & - & - \\
\end{array}
\]

Furthermore, even a single pair of an NPI and a licenser may be acceptable in a given context but not in others (Y’s (2-29)):

(4) If he ever drinks any water from that well, he will get dysentery/ # better.

The facts in (3) and (4) indicate that some lexical and cognitive-pragmatic factors intervene in licensing, factors formulated respectively as the hierarchy of negation (chapter 4) and as the Cognitive Structure of Negation (chapter 5). Y also notes, referring to von Bergen and von Bergen (1993), that NPIs of the form “a+noun” such as a word, a syllable constitute “an open class with fossilization” (p. 21). This means that not all of the NPIs can be marked as such in the lexicon, raising essentially the same problem as idioms and collocations in general (van der Wouden (1997)).

Chapter 3, “Previous Studies Examined,” is devoted to a detailed critical examination of previous studies from Klima (1964) and Baker (1970) through Ladusaw (1979) to Linebarger (1980) and Progovac (1994). Especially noteworthy are the arguments that (i) the property of downward entailment (DE, Ladusaw (1979)) is context-dependent, (ii) Linebargers (1980) criticisms of the DE approach are largely untenable, (iii) Linebarger’s notion of negative implicatum possesses internal inconsistencies or lacks explanatory value, and (iv) Progovac’s (1994) proposal on null operators in Comp position fails on both theoretical and factual grounds. These arguments suggest the correctness of a theory in which the functioning of DE properties is supplemented by cognitive-pragmatic factors.

Chapter 4, “NPI Licensing Expressions,” introduces the logical basis
of Boolean algebra, drawing mainly on Zwart (1996) and van der Wouden (1997). Decomposing the notion of negation as defined in classical logic, we obtain the hierarchy of negation, which comprises monotone decreasing as the weakest type, antimultiplicative and anti-additive as the middle, and antimorphic as the strongest, as in (5):

\[
\text{(5)} \quad \text{monotone decreasing} \supset \{\text{antimultiplicative, anti-additive}\} \supset \text{antimorphic}
\]

Both NPIs and PPIs (positive polarity items) are classified on the basis of this hierarchy. The resulting picture shows that NPIs and PPIs are not in complementary distribution as has often been suggested in the literature, but exist instead in a mirror-image relation which predicts correctly the existence of bipolar elements such as Ducht ooit ‘ever’ (van der Wouden (1977)).

In the latter half of the chapter, it is shown that, while Japanese NPIs are sensitive to the antimorphic property, English NPIs are not sensitive to the above mentioned subtypes but to the property of double negation. Finally, a critical assessment of the Ladusaw/van der Wouden line of research is presented, with emphasis on their inability to deal adequately with the unacceptability of sentences with NPIs in particular contexts and the context-sensitivity of inference that NPIs support (see also chapter 7).

In chapter 5, “Negative Polarity Items,” a central claim is advanced that NPIs in general have both cognitive and procedural meanings in the sense of Relevance theory (Sperber and Wilson (1986, 1995) and Blakemore (1987)), and that their shared procedural meaning serves as a cognitive constraint on the distribution of NPIs themselves. Based on the examination of conceptual meanings of typical NPIs and procedural meanings of ever and any as they appear in before clauses, Y demonstrates convincingly that the procedural approach is superior to the negative implication approach of Linebarger (1980, 1987) which Y shows does not work at all in the relevant cases. The argument as a whole converges upon the basic claim of the book that the distribution of NPIs is subject to two independent conditions as in (6) and (7),

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2 Yoshimura (2000) demonstrates that such words as itteki demo, ichido demo in Japanese exhibit the bipolar property in the sense of van der Wouden (1997).
where the latter is a formulation of procedural meaning of NPIs, employing the notion (8):

(6) **The DE Condition**
An NPI is acceptable only if it is interpreted in the scope of a DE expression. (p. 172)

(7) **The Condition of the Cognitive Structure of Negation**
An NPI is acceptable only if the proposition of the utterance containing it is processed in the cognitive structure of negation. (p. 186)

(8) **The Cognitive Structure of Negation (CSN)**
\[ \langle \phi, \{ \ldots \psi \ldots \} \rangle \] where (i) the logical forms \( \phi \) and \( \psi \) lead to a contradiction \((\neg (\phi \land \psi))\), and (ii) \( \phi \) is a logical form processed in the central system and \( \psi \) is inferred from context. (p. 183)

As Y notes, (8) incorporates the insight of Givón (1978) concerning the figure-ground reversal of negation. This in turn makes it possible for Condition (7) to capture an isomorphic property between cognitive constraint on negation, the use of *but* (Blakemore (1987)), and the distribution of NPIs (see section 6.3 below).

Chapter 6, “Extensions of the Cognitive Structure of Negation,” extends the theory of licensing to the analysis of NPIs in adversative and comparative constructions and argues that in either case the Condition of CSN is crucially involved. In due course, Y articulates the framework of structured data base as part of cognitive environment, in which CSN for adversative predicates emerges. Also discussed is the contrast of (9a) and (9b), which leads Progovac to postulate a null operator in Comp position.

(9) a. I doubt that John understood anything.
   b. *I doubt anything. (Progovac (1994))

Without having recourse to the null operator, whose basis Y argues is untenable (chapter 3, see also Chiba (1997)), Y argues that anything in (9b) does not express any assumption whatsoever, so that it simply cannot induce any contradiction, and thus fails to meet condition (7) above (pp. 208–209). As for the case of comparative constructions, Y critically reexamines Ladusaw’s (1979) DE analysis and Linebarger’s (1987) negative implicatum analysis, and shows that their inadequacies are also overcome by the CSN approach.

In chapter 7, “The Relation between NPIs and their Licensers,” Y first demonstrates that the semantic-cognitive approach along the line
of Ladusaw (1979) and van der Wouden (1997) is inadequate in that it not only fails to explicate the effects upon the acceptability of NPIs induced by pragmatic factors or the internal structure of scope (which is defined by semantic terms), but also lacks explicit means to deal with parametric variations of NPIs across languages. With these observations in mind, Y examines previous syntactic approaches to NPIs, including Klima (1964) and Kuno and Takami (1992) on English, Mahajan (1990) on Hindi, Progovac (1994) on Serbian/Croatian, and Duffield (1993) on Hiberno-English. Her final suggestion on the licensing condition is:

(10) Universal Condition on the NPI Licensing (Semantic Scope)
An NPI must be in the scope of licenser at the level of semantic representation. (p. 263)

In (10), however, what is left open is the exact formulation of properties of semantic representation and whether the notion of scope be defined by c-command at LF or by the function/argument relation (Ladusaw (1979)). Coupled with (10), a parameter is suggested as to the S-structure c-command condition, which applies in Standard English but not in Hindi or Hiberno-English (p. 265).

In chapter 8, “Conclusion,” is presented a succinct summary. This is followed by a bibliography and two indexes of subjects in Japanese and English.

As we have seen, the bulk of the main arguments Y presents are bifurcated into two categories: those that concern (i) the nature and structure of variability of licensors and NPIs across languages or within single languages, and (ii) the invariant system of NPI licensing that consists of semantic and cognitive-pragmatic conditions. In the latter half of this review, I will concern myself exclusively with the licensing problem that pertains to category (ii).

3. The Licensing System and its Empirical Problems

The system of NPI licensing reviewed so far consists of two conditions, repeated here as in (11) and (12), and a principle (13), where DE stands for downward-entailing and CSN for Cognitive Structure of Negation as is defined in (8) above.

(11) The DE condition: An NPI is acceptable only if it is interpreted in the scope of a DE expression. (=6)

(12) The CSN condition: An NPI is acceptable only if the prop-
osition of the utterance containing it is processed in the CSN. (=7)

(13) The Licensing Principle: An NPI is acceptable (if and) only if it meets both conditions of DE and CSN. (cf. p. 52, 189, 219)

Principle (13) states that, for an NPI to be acceptable in context, the two necessary conditions (11) and (12) must be simultaneously satisfied, i.e., that well-formed cases fall under the intersection of the two conditions. It is not clear, however, whether principle (13) is still a necessary condition for NPIs to be acceptable or whether it instead qualifies as a necessary and sufficient condition (cf. p. 52, 189, 219). To make our argument explicit (and falsifiable at least), we will assume in what follows that principle (13) is a necessary and sufficient condition.

Given this structure of the licensing system (11)–(13), at least the following points will have to be considered to check whether the system as a whole works properly. First, as to the DE condition, we will have to check (i) the universality and validity of the notion of downward-entailment, (ii) the definition of the notion of scope, to be defined in syntactic terms (say, c-command) or in semantic terms (say, function-argument structure), and (iii) the validity of the c-command domain as a licensing condition. Secondly, as to the CSN condition, we will examine (i) the definition of CSN, with special reference to (ii) the accessibility to logical forms \( \phi \) and \( \psi \) in (8) and the nature of the contradictory relation to be held between them, and to (iii) the element(s) and the manner pertaining to CSN (or contrastive context). Thirdly, as to the Licensing condition, basic problems are (i) the validity of the intersection requirement, i.e., whether NPIs can be acceptable, if either condition fails to hold, and (ii) the overall architecture of grammar, especially the nature of the syntax-pragmatics interface. In what follows, I will consider a few topics concerning these problems, and attempt to suggest tentative solutions where possible.

4. C-Command Problems

Consider first the DE condition (11), with special reference to the notion of scope and its proper formulation. Though it is not clear whether the notion of (semantic) scope in (11) is to be defined in terms of c-command (Reinhart (1976)), we will assume that it is, and proceed to consider cases where the c-command requirement is apparently
4.1. Evidence for C-Command

A good deal of evidence has been accumulated in the literature for the c-command requirement on the distribution of NPIs (Klima (1964), Reinhart (1976), Barss and Lasnik (1986), Larson (1988), Laka (1990), Acquaviva (1997), Benmamoun (1997), Hoeksema (2000), among others). Some illustrative examples are given below:

(14) a. No one has hit anybody.
   b. *Anybody has been hit by no one. (Klima (1964))

(15) a. Mary didn’t see anything.
   b. *Anybody didn’t come. (Laka (1990))

(16) a. Scarcely anybody hit anyone.
   b. *Anybody scarcely hit anyone. (Klima (1964))

(17) a. I gave no one anything.
   b. *I gave anyone nothing. (Barss and Lasnik (1986))

(18) a. Nobody mentioned any problems.
   b. *Any problems, nobody mentioned. (Hoeksema (2000))

The contrasts shown in (14) and (15) are well-known cases of subject-object asymmetry in English. Assuming the standard clausal structure, (16) shows that the relative height of an licenser and an NPI is crucial. (17) illustrates a case of VP-internal asymmetry. (18) shows that an NPI may not be topicalized in English, thereby c-commanding its licenser.3 From these facts, let us assume that the c-command condition is operative at the core of the NPI licensing.

4.2. C-Command Violations

It has also been well-attested in the literature that under certain circumstances NPIs are not subject to the c-command condition at S-structure: an NPI may be acceptable even if it is not c-commanded by its licenser (Klima (1964), Ross (1967), Linebarger (1980), Branigan (1992), Kuno and Takami (1992), Uribe-Echebarria (1993), Hoeksema

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(2000), among others. See also Yoshimura (1999: 225–227, 265–266)). Some of the illustrative examples include the following, which are by no means well-ordered nor exhaustive.

(19) a. Even then the writers of none of the reports thought that any rain had fallen anywhere else. (Klima (1964))
b. Nobody’s articles ever get published fast enough. (Kayne (1994))
c. That anyone might do anything like that never occurred to John. (Laka (1990))
d. A doctor who knew anything about acupuncture was not available/*intelligent. (Linebarger (1980), Uribe-Echebarria (1993) for *)

(20) a. A solution that is any better I have not been able to find. (Hoeksema (2000))
b. A fireman who has ever used this equipment, we don’t have available right now. (ibid.)
c. *Any problems, nobody mentioned. (ibid.)

(21) a. The DA demonstrated nothing to be certain during any of his speeches. (Branigan (1992))
b. We gave Peter no help before any exam. (Branigan (1992))

(22) a. You need say no more. (Hoeksema (2000))
b. Carla could stand it no more. (ibid.)

(23) a. *Nobody and/or anybody’s dog chased Mary. (Progovac (2000))
b. *Mary chased nobody and/or anybody’s dog. (ibid.)

The examples in (19) contain complex subjects, across whose boundaries the licensing takes place. In (19a) and (19b), the negative within the subject NP licenses NPIs in VP; conversely in (19c) and (19d), the negative within VP licenses NPIs within the subject. In neither case does a c-command relation obtain between them. (20a) and (20b) are cases where complex NPs containing NPIs are topicalized out of the c-command domain of the negative. Note that this is in sharp contrast to (20c), where a simple NP containing an NPI cannot be topicalized as is predicted by the c-command condition. In (21), the negative as a direct object licenses NPIs within adjunct phrases which are in higher positions at least at S-structure. When NPIs are verbal elements as in (22), the c-command violation is the norm: verbal NPIs, need and can stand, occupy arguably higher positions than their licensing element no
more. It should also be noted that the malfunctioning of the c-command condition is also attested in the opposite direction. As (23) shows, "a negative quantifier in the first conjunct cannot license an NPI in the second conjunct, although it seems that (...) the first conjunct c-commands the second (...)" (Progovac (2000: 88)).

Although various proposals have been made to overcome the violations in question, including LF reconstruction of clausal subjects (Hoekstra (1991), due to Hoeksema (2000)), Case-driven LF movement for object phrases (Branigan (1992)), and LF movement for tense interpretation (Uribe-Echevarria (1994)), there still remain cases where no remedy has been proposed. This in turn undermines the feasibility of the licensing system (11)–(13) above, if the notion of scope is defined in terms of c-command. With its potential theoretical impact in mind, I will leave this problem open for further research.

5. On the Nature of Contrastive Contexts

Let us now proceed to examine the way the CSN condition is invoked, with special reference to its central notion of contrastive contexts (henceforth, CC). We will see that the requirement of CC has noteworthy properties. For one thing, CC may be required in terms of more than one factor pertaining to the NPI licensing, thus inducing a sort of redundancy. For another, its functioning is not restricted to the domain of negation, but to the domain of (emphatic) affirmation as well. In due course, I suggest a possibility that the system of CC is formulated independently of the NPI licensing.

5.1. Functional Redundancy

One of the innovative proposals of the theory under review is that NPIs share a procedural meaning in that they are processed in contras-

4 Progovac's (2000) conclusion is that the coordinate structure contains "the obligatory presence of (usually non-overt) conjunction head," (ibid., p. 90) which blocks the c-command relation.

5 See Kato (1999a), for an attempt to deal with c-command violations by redefining the notion of c-command itself along the line of Epstein et al. (1998) and Chomsky (1998).

6 For an earlier exposition of the argument in this section, see Kato (1999b).
The crucial evidence comes from the contrasts shown in (24)-(25):

(24) a. #He brushed his teeth before he ever went to bed. (= her (5-47))
    b. John claimed to have finished up his washing in bed. But he brushed his teeth before he ever went to bed. (= (5-66))

(25) a. #If you ever come this way, be sure to visit me. (= (5-68a))
    b. Now that you have to move to a town far away, it may be hard for you to make it over this way. But if you ever come this way, be sure to visit me. (= (5-68c))

Given that the before clause and if clause are downward entailing (DE) expressions (chapter 4, pp. 119–128), one may predict that NPIs freely appear in these contexts. As (24a) and (25a) show, however, NPIs are not always acceptable in these contexts, a fact that the DE condition alone fails to explain. Notice, however, that (24a) and (25a) become acceptable if NPIs do not appear, and that NPIs can appear in these contexts if proper contrastive contexts are supplied as in (24b) and (25b). These observations led Y to conclude that it is NPIs themselves, but not before or if, that require contrastive contexts (CC).

The CC requirement, however, is not characteristic of negative sentences with NPIs, but of negative sentences in general. To quote Givón (1978):

(26) (...) a felicitous discourse context for the negative is the previous mention of the corresponding affirmative, or alternatively the belief by the speaker that the hearer has heard of the possibility of that corresponding affirmative being true, and in fact has tipped his belief toward the truth of that corresponding affirmative (ibid., p. 80).

Under this view, which we will assume henceforth, an affirmative sentence can be felicitously used without any backgrounding supposition, functioning as the figure by itself. In contrast, a negative sentence may only be used with a figure-ground reversal, thereby converting the figure (previously expressed as affirmative) into the ground, against which the negative itself serves as the new figure. To put it differently, a negative sentence is appropriate in contexts only when its corresponding affirmative functions as background, a typical case of contrastive context (CC).
These observations show that (i) as is seen in *before* and *if* clauses, NPIs themselves require CC to be licensed properly, and (ii) regardless of whether they contain NPIs or not, negative sentences in general require CC. It follows from (i) and (ii) that, when NPIs appear in negative sentences, CC is required by two independent sources, i.e. by NPIs and sentence negation, as in (27):

(27) Elements that require CC

<table>
<thead>
<tr>
<th>licenser</th>
<th>NPI</th>
</tr>
</thead>
<tbody>
<tr>
<td>if/before ... NPI</td>
<td>-</td>
</tr>
<tr>
<td>not</td>
<td>+</td>
</tr>
<tr>
<td>not ... NPI</td>
<td>+</td>
</tr>
</tbody>
</table>

The pattern in (27) shows that at the core of the distribution of NPIs, where they appear in negative sentences, a specific kind of redundancy inevitably arises with respect to the functioning of licensing conditions on NPIs. We will refer to this type of redundancy as *functional redundancy*.

5.2. Functional Symmetry

The fact that functional redundancy inevitably arises at the core of the NPI licensing may raise theoretical problems, especially from the methodological point of view (Chomsky (1965, 2000)). Notice, however, that the redundancy is not inherent in formal aspects of the relevant principles, but in the way in which the relevant principle of CC is invoked. We will not go into examining here whether this type of redundancy is permissible in the theory of grammar, nor whether it reflects some implausible properties of the system as a whole. We will examine instead another essential property of CC that it is not confined to the domain of negation, but it traverses both domains of negation and affirmation, leading to a sort of functional symmetry.

Chomsky (1955 = 1975, 1957) sets up two transformations, $T_{not}$ and $T_A$, which generate strings as (28a–c) and (29a–c), respectively, where the italics in (29) indicate contrastive stress (Chomsky (1957: 65)):

(28) a. John doesn’t arrive
    b. John can’t arrive
    c. John hasn’t arrived

(29) a. John *does* arrive
    b. John *can* arrive
c. John has arrived

He then claims that:

(30) (...) $T_A$ is a transformation of ‘affirmation’ which affirms the sentences “John arrives,” “John can arrive,” “John has arrived,” etc., in exactly the same way as $T_{not}$ negates them.

(ibid., p. 65)

Though the argument is concerned exclusively with the syntactic derivations of these sentences (or with their polarity values), we may arguably seek its functional counterpart. It may be the case that, just as negation takes its corresponding affirmative as background (Givón (1978)), affirmation takes its corresponding negative as background. Specifically, we can predict that, given appropriate contexts, either an (emphatic) affirmative or its corresponding negative is construed as a denial to the other. Ota’s (1980) observation is a case in point. He argues that emphatic affirmatives such as (31b) are used in contexts of something like “echo negation” (ibid., p. 281) of the corresponding negative in (31a). The same applies to (32a–b):

(31) a. John didn’t go.  
    b. John did go.  

(Ota (1980: 281–282))

(32) a. “You know very well you’re not real.”  
    b. “I am real,” said Alice.

(Carroll, Through the Looking-Glass ...)

These observations lend a piece of support for a symmetrical view of negation and affirmation (Horn (1989)) in that CC is required not only by negation and NPIs, but also by (emphatic) affirmatives.7

5.3. Local Dependency

We are then led to a rather paradoxical situation. That is, (i) both NPIs and sentence negation require CC, so that a specific sort of functional redundancy arises at core cases of NPI licensing, (ii) the requirement of CC is specific not only to NPIs and negation in general, but

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7 This situation fills a logical gap of the CSN system, where a logical form inferred from the context is negative, and a logical form processed in the central system is positive. This possibility is permitted, for the CSN itself does not specify which logical forms are negative or positive. For a further unification of CC, see section 6.3 below.
also to certain sorts of affirmatives, and (iii) affirmatives do not license NPIs (by definition). Furthermore, (iv) emphatic stress that induces CC in (29a–c), (31b) and (32b) is not itself a lexical item pertaining to negation. This situation suggests a possibility that CC is not only required by lexical properties (as in the case of NPIs) but also by some non-lexical factors. With this in mind, let us summarize again the contexts that require CC:

<table>
<thead>
<tr>
<th>Context</th>
<th>CC</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. if, before, etc.</td>
<td>−</td>
</tr>
<tr>
<td>b. if, before ... NPI</td>
<td>+</td>
</tr>
<tr>
<td>c. NEG</td>
<td>+</td>
</tr>
<tr>
<td>d. NEG ... NPI</td>
<td>+</td>
</tr>
<tr>
<td>e. contrastive stress</td>
<td>+</td>
</tr>
</tbody>
</table>

Based on the contrast between (33a) and (33b), as we have seen, Y concludes that it is NPIs that require CC. This analysis, however, causes redundancy (whether it is implausible or not) in the most central case (33d) and cannot capture the essential property shared by (33c), either. Note that the typical cases in (33b) and (33d) involve local dependency between licensers and NPIs. This suggests that the presence of a specific sort of local dependency may also induce CC. Let us consider how this applies to cases (33c) and (33e), where NPIs are not involved.

In an attempt to overcome some of the inherent problems of the Neg-criterion approach (Haegeman and Zanuttini (1991), Haegeman (1995)), I proposed elsewhere (Kato (1997a, 2000)) an interpretive principle for sentence negation as in (34):

(34) Interpret the configuration of ‘P [... neg ...]’ as sentence negation, where P(olarity) is (a) negative and (b) c-commanding neg. (Kato (1997a: 410))

The basic claim is that the formal property that corresponds to the meaning of sentence negation in natural language is not the mere presence of negative elements (Klima (1964)) or negative projection (Pollock (1989), Laka (1990)), but the local agreement of features (i.e. feature identity) between polarity and negative elements. Sentence negation rests upon local dependency in this sense. Furthermore, the parallelism with emphatic affirmatives (Chomsky (1957)) is readily obtained if in (34) P takes a positive value and neg is replaced by emphatic ac-
cent. It follows from this line of argument that some, if not all, of the contexts that require CC in (33) are those that contain local dependency of some sort. Assuming further that the dependency in question is responsible for the CC requirement, we may conclude that NPIs do not require CC by themselves. If it is the case, no functional redundancy arises in case (33d), and the essential parallelism with (emphatic) affirmative is also captured in a natural way.

6. Further Conceptual Problems

In this final section, I will take up some of the remaining problems that deserve careful consideration in further development of the theory of NPI licensing.

6.1. Procedural Meaning

As is seen in sections 3 and 5, the licensing system under review is entirely dependent upon the functioning of the CSN condition, which is formulated within a relevance-theoretic framework incorporating the notion of procedural meaning (Blakemore (1987)). Let us now reconsider the logic behind the proposal, and show that it needs to be supplemented with independent motivation if the whole system is to have explanatory value.

Working within the framework of relevance theory (Sperber and Wilson (1986, 1995)), Blakemore (1987) proposes a fundamental distinction in lexical meanings: conceptual and procedural meanings. Conceptual meaning is "a contribution to propositional content" (p. 141), which is "part of the level of semantic representation called 'logical form'" (p. 144). Concepts are "constituents of propositional representations that undergo computations" (p. 144). Procedural meaning, on the other hand, serves as "constraints on the relevance of the proposition that has taken to be expressed" (p. 141), which are not part of logical form, i.e., "grammatically specified constraints on pragmatic computation" (p. 144). Consider, as an illustrative example, (35):

(35) [A and B are discussing the economic situation and decide that they should consult a specialist in economics.]
A: John is not an economist. (We shouldn't consult him.)
B: But he is a businessman. (We should consult him.)

If *but* is not present in B, it is possible to interpret the utterance to imply that B agrees with A. It is the presence of *but*, therefore, that
causes the hearer to interpret B’s utterance so that its implications are contradictory to those of A’s utterance. To capture this contrast, Blakemore (1987: 130) proposes that “the hearer is instructed to process the proposition but introduces in a context in which she can derive a proposition logically inconsistent with one assumed to have been derived from the proposition expressed by the utterance of the first clause.” It is this aspect of the meaning of but that is formulated as its procedural meaning, i.e. as an instruction to hearers, a distinct component from its ordinary conceptual meaning (for details, see Yoshimura (1999: 158–161)).

To recapitulate, it is claimed that (i) an utterance containing but is interpreted in the specific manner described above, because (ii) but lexically requires that an utterance containing it be interpreted as such. As one may notice, to the extent that clause (i) is solely dependent on (ii), the whole argument falls short of attaining a genuine explanation.

The innovation of Y’s theory is that she extends the notion of procedural meaning to the analysis of NPIs, but the above mentioned defect is carried over to Y’s analysis. First, Y claims that “NPIs such as any or ever are words that have both conceptual and procedural meanings just like but does” (p. 161). Specifically, she proposes that:

(36) (...) the procedural meaning of an NPI is that it requires that an utterance containing it is to be processed in the Cognitive Structure of Negation (CSN). (p. 161)

In other words, given (36) as part of lexical property of NPIs, we could explain why NPIs felicitously appear in contexts that meet the CSN condition (for more details, see ibid., pp. 165–189). The logic of the whole argument is that: (i) NPIs are appropriate, only if they are processed in CSN, because (ii) NPIs have the lexical property of procedural meaning that require utterances containing them be processed within CSN. As is seen, to the extent that clause (i) is solely dependent upon (ii), the whole argument may not attain an explanatory value.

Essentially the same point is attested in Y’s discussion on why NPIs can appear in complements of regret/be sorry. The argument goes that it is because regret/be sorry induce lexically the sort of contexts that license NPIs (cf. pp. 203–206). What we need is some independent motivation for the procedural meaning as is described above.

6.2. Computing Contradictions

The CSN states that two logical forms $\phi$ (being processed in the cen-
tral system) and $\psi$ (inferred from context) are contradictory to each other; and the CSN condition states that NPIs be processed in the contexts where the CSN holds. Then the problem we are faced with is to devise procedure(s) to ascertain whether or not the given two logical forms are in fact contradictory to each other. In the book under review, however, the necessary procedure(s) is/are left implicit. What makes the situation more opaque is that, while formulating the notion of CSN in terms of logical negation, i.e., $\neg \phi \land \psi$, Y adds that "$\phi$ is not necessarily $\neg \psi$, but it applies beyond the analysis of explicit negation." (p. 183)8 Hence, we are left with two problems:

(37) (i) to formulate procedure(s) for determining when the contradiction arises, and (ii) to make clear the empirical content of the notion of "contradiction."

Though a full exposition capable of covering the relevant cases or of providing even tentative answers to the above problems is beyond the scope of the present review, a brief survey of major cases reveals that the source of two propositions to be evaluated varies from one case to another. Thus, a logical form $\phi$ (processed in the central system) may be its propositional content or an implication contextually induced by its subsequent utterance (for but), literal meaning/proposition of the utterance without ever (for before [... ever ...] construction), a proposition of the utterance containing it (for NPIs any and if), an expression of the speaker's preference for a possible world in which $\phi$ does not hold—and thus has undergone minimal modification—over the actual world in which $\phi$ does hold (for regret and be sorry), or a complement clause proposition (for doubt and be surprised). On the other hand, a logical form $\psi$ (inferred from the context) may be its propositional content or an implication contextually induced from a preceding utterance (for but), a contextually supplied meaning of the utterance, with replacing before with after (for before [... ever...] construction), a contrastive context or context of the sort that is introduced by but (for any and if), a contextually induced meaning specified by a procedural meaning (for regret and be sorry), or a lexically induced meaning that gives rise to contradiction when combined with $\phi$ (for doubt and be surprised) (for details, see chapter 6).

8 The phrase "$\phi$ is not necessarily $\neg \psi$" is to be read as "$\phi$ does not necessarily take the form of $\neg \psi$," due to Y (personal communication).
Though the list is not exhaustive, it will suffice to note that to develop a general procedure to check whether the CSN is met or not is by no means a simple matter. In particular, we would have to develop full theories of possible worlds for the case of *regret* and *be sorry*, and of the belief systems of subjects for the case of *doubt* and *be surprised* (for preliminary, but fairly intricate attempts, see chapter 6). These are some of the most fundamental problems which would have to be addressed in order to explore the consequences of the licensing theory advocated in this book.

6.3. The CSN, Economy, and Dissonance

As the label of CSN (Cognitive Structure of Negation) indicates, Y takes the structure of contrastive contexts in question as one unique to negation. To the extent that it is unique to negation, however, it remains less explanatory in that it may apply only to the domain that the notion is designed to account for. A nontrivial task, then, is to pursue a possibility that CSN is subsumed under (or unified with) other principles that are independently motivated. I will suggest that Horn's (1984, 1989, 1993) notions of economy and pragmatic dissonance are what one should look for.

On the basis of his earlier works, Horn (1993) explores conditions under which the speaker-oriented least effort economy (i.e. "Make your contribution necessary." (p. 39), see also Grice (1967)) is felicitously overridden, so that a certain amount of induced redundancy is licensed. Two major cases of felicitous overriding are attested. The first category is what he calls informational override of least effort. Included here are redundant affixation (such as *fastly*, *reduplicate*, and *encage*) and the double (such as *dessert desserts*, *doctor doctor*), where speaker-oriented least effort considerations are overridden by the hearer-based economy (i.e. "Make your contribution sufficient." (p. 39)). Another case of overriding is non-informational in nature. Included here are reinforcement or reaffirmation of implicature and rhetorical opposition (see Horn (1993: 51-56)), where the least effort principle is overridden by social and/or rhetorical considerations. Horn suggests that the latter case is subject to a condition as (38):

(38)  Concession/Affirmation structure

I concede P and (then) I affirm Q, where Q may follow logically from P, but contrasts rhetorically with it.

(Horn (1993: 54))
To see its effect, observe (39) (= his (25)), which includes a kind of "rhetorical opposition between the two conjuncts" (p. 54).

(39) a. I'm {unhappy/# happy} they fired him, but fire they did.
   b. I'm {sorry/# glad} I said it, but say it I did.

He also notes that "the same opposition renders but rather than and the appropriate conjunction" (p. 54) as in (40) (= his (26)):

(40) a. It's unfortunate that you failed, but fail you did
   (... and there's nothing you or I can do about it).
   b. #It's fortunate that you passed, {and/but} pass you did.
   c. It's pure luck that you passed, but pass you did
   (... and that's all that matters).

He states that "in (26a) [= (40a) above] I concede that a certain state of affairs is unfortunate, against which I portray myself as forced to insist that this state of affairs does obtain (despite the negative face I incur in so insisting; ...); the dissonance sparks the adversative but and the acceptability of the affirmation" (pp. 54-55, italics added). In the same vein, the contrast between (40b) and (40c) is reduced to the absence or the presence of "social dissonance" (p. 55).

As one might notice, the rhetorical opposition or dissonance that licenses the overriding of the economy principle of least efforts, i.e. the redundant affirmation in this case, is isomorphic to what motivates the Cognitive Structure of Negation. Specifically, they both license the use of (adversative) but which Y also deploys as a diagnostic for CSN. A natural conclusion is that Cognitive Structure of Negation is not unique to negation, but shares essential properties with Concession/Affirmation structure (38). If this line of argument is on the right track, which also meshes with Chomsky's (1955, 1957) symmetrical view on negation and affirmation (see section 5.2 above), it will serve as a basis to reconsider the nature of negative polarity phenomena from a rather different perspective.

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9 The symmetrical view on negation and affirmation is also advocated by Nakau (1994: 22, 444-445) within his framework of hierarchical semantic model.
7. Conclusion

The book under review puts forth the view that the nature of negative polarity phenomena can only be elucidated by exploring both the variations of NPIs and licensers themselves and invariant principles for licensing. As we have seen, this view is not only intuitively appealing, but also turns out to be quite productive and fruitful on empirical grounds. Especially noteworthy is the result that licensing involves in fact a complex interplay between lexical, syntactic, and pragmatic factors. The conditions and principles proposed in this work will remain as tokens of serious efforts in this domain of inquiry.

While the work solves many longstanding problems in this field, it also uncovers a series of issues that deserve future careful investigation. It is for some of these future issues that I have attempted to formulate and suggest quite tentative solutions. These considerations, together with the results of the book, may well provide a basis from which we could address the last problem on NPIs listed above in (2e): why natural language has NPIs and their associated systems.

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