REVIEW ARTICLE

Semantic structures. By RAY JACKENDOFF. (Current studies in linguistics, 18) Cambridge, MA: MIT Press, 1990. Pp. xiv, 322.

Reviewed by YOSHIKI NISHIMURA, *Jissen Women's University*
and

EIJIRO TSUBOI, *University of Electro-Communications**

1. INTRODUCTION. Recently there seems to have been a growing interest in cognition-oriented approaches to language, resulting in the International Cognitive Linguistics Association holding its founding conference in West Germany in 1989 and establishing its journal, *Cognitive Linguistics*. Among the leading linguists who have conducted research with the recognition that cognition is of essential importance and relevance to the study of human language is Ray Jackendoff (henceforth J). The book under review is designed to apply to a wide range of linguistic phenomena his Conceptual Semantics, whose groundwork was laid by *Semantics and Cognition* and *Consciousness and the Computational Mind*. In the Introduction J says that there are two basic problems we must confront to develop an adequate semantic theory: one is the Problem of Meaning, and the other is the Problem of Correspondence. The former problem is 'to characterize the phenomena that a theory of meaning is to account for, and to develop a formal treatment of semantic intuitions' (p. 1), and the latter problem is 'to characterize the relationship between the formal treatment of meaning and the formal structure of syntax' (ibid.). The book is accordingly organized into three parts, the first of which explains the basic machinery of Conceptual Semantics, in anticipation of the second and the third parts dealing with the Problem of Meaning and the Problem of Correspondence, respectively. Since most parts of this book have already been published or circulated, and there are articles outlining J's theory,¹ we assume the readers' general knowledge of Conceptual Semantics, and concentrate on critically examining

* This work was supported in part by a grant from the Ministry of Education. We are grateful to Joseph V. Lopresti and Andrew Jones for acting patiently as informants and for correcting stylistic errors. We also thank two anonymous reviewers for helpful comments and suggestions.

¹ See Iwata 1988, 1990, Urushibara 1989, and Inada 1991.

J's approach to the two problems mentioned above rather than waste the limited space paying further tribute to Conceptual Semantics, which has already earned due respect from various quarters.

2. SEMANTIC RELATEDNESS. Chapter four deals with the problem of unifying related uses of a lexical item into a single entry, thereby capturing the intuition of native speakers about the lexical unity of several different uses of a lexical item, and at the same time reducing the difficulty in learning which would follow if such related uses were treated separately as distinct items with no relationships to each other. In order to collapse various ways of realization of arguments, J employs three abbreviatory conventions. One is the traditional bracket notation:

- (1) Harry bought a yoyo <from Marcia>.
- (2) She drank <the martini>.

J holds that the constituent in the brackets functions as an implicit argument when they are not syntactically realized.

Second is the 'dashed underline notation' for optional outer functions. To take *over* for example, J recognizes four meanings in *over*, and represents them as follows:

- (3) The plane flew around over the city.
 $over = [_{Place} \text{ OVER } ([_{Thing} \text{ }])]$
- (4) The plane came over the city and started skywriting there.
 $over = [_{Path} \text{ TO } ([_{Place} \text{ OVER } ([_{Thing} \text{ }])])]$
- (5) The plane flew over the city towards the mountains.
 $over = [_{Path} \text{ VIA } ([_{Place} \text{ OVER } ([_{Thing} \text{ }])])]$
- (6) Bill's house is over the hill from here.
 $over = [_{Place} \text{ AT-END-OF } ([_{Path} \text{ VIA } ([_{Place} \text{ OVER } ([_{Thing} \text{ }])])])]$

J combines these four uses into the single lexical entry 7 with his newly introduced dashed underline notation:

- (7)
$$\left\{ \begin{array}{l} [_{Path} \text{ TO } \\ [_{Place} \text{ AT-END-OF } ([_{Path} \text{ VIA } \end{array} \right\} ([_{Place} \text{ OVER } ([_{Thing} \text{ }])])]$$

Each of the two pairs of dashed underlines indicates the optionality of the outer functions thus marked. In 7 the two sets of dashed underlines together with the two alternatives enclosed in the braces represent four ways of elaboration on what J calls the core meaning of *over*.

The third abbreviatory device is the curly bracket convention intro-

duced in Jackendoff 1985. *Climb* is used again in this volume as an illustrating example of this convention. One of the problems posed by *climb* is how to handle its multiple subcategorization:

- (8) Joe climbed (for hours).
- (9) Joe climbed the mountain.
- (10) Joe climbed down the rope.

J subsumes these three subcategorizations under a single lexical entry with a clever use of this convention:

- (11)
$$\left[\begin{array}{c} \text{---} \langle \text{XP}_j \rangle \\ \text{[}_{\text{Event}} \text{GO (} \text{[}_{\text{Thing}} \text{J}_i \text{, [}_{\text{Path}} \{ \text{TO (} \text{[}_{\text{Place}} \text{TOP-OF (} \text{[}_{\text{Thing}} \text{J}_j \text{)]})} \} \text{]})} \text{]} \end{array} \right]$$

Curly brackets are meant to express mutually exclusive choices of indices or constituents containing indices and thus the Path constituent in 11 abbreviates the following two possibilities:

- (12) $\text{[}_{\text{Path}} \text{TO (} \text{[}_{\text{Place}} \text{TOP-OF (} \text{[}_{\text{Thing}} \text{J}_j \text{)]})} \text{]} \rightarrow 9$
- (13) $\text{[}_{\text{Path}} \text{J}_j \rightarrow 10$

These are the outlines of how J approaches the problem of lexical relatedness, and we now turn to some critical comments on it. First, it is to be noticed that the angle brackets around a possible implicit argument tell us nothing about the relation between the transitive use and the intransitive use of *drink*, for example, since the conceptual structures corresponding to the two uses are identical in relevant respects and in no way differentiated from each other. The angle bracket notation therefore just expresses the fact that it is used both transitively and intransitively, and nothing more. It fails to capture the relatedness since the difference between them is left uncharacterized in the first place and in effect there is supposed to be only one meaning for *drink*.² It takes more than one meaning to discuss relatedness.

It seems to us that one of the things left to be desired about this book is that J tends to content himself with coarse grained, makeshift representations where finer grained ones might afford an insight into the nature of the problems under discussion. For example, apparently J finds it unnecessary to delve more deeply into his 'core' meaning of *over* than just represent it as $\text{[}_{\text{Place}} \text{OVER]}$, probably in part because he is more concerned with its possible outer functions than its content, and in part be-

² The difference between the transitive and the intransitive uses of verbs like *drink* is in general more than the difference in the manner of the syntactic realization of the objects, and in some cases it defies the reduction to the implicitness or explicitness of the objects. For this point, see Tsuboi and Nishimura 1991.

cause he regards the various uses of *over* distinguished by Lakoff³ as semantically nondistinct ones. One may wonder, however, whether the possible range of elaboration on a concept can be fruitfully discussed independently of its content. For example, consider one of the possible outer functions, [_{Place} AT-END-OF (...)]. As Lakoff (1987: 441) points out, extension of path to end of path is not always possible:

- (14) Sam walked by the post office. (=path: *by* is analyzed by J as [_{Path} VIA ([_{Place} NEAR]))

- (15) Sam lives by the post office. (=near; ≠end of path)

The question to be asked here is whether this is an arbitrary lexical idiosyncrasy, for if it is, the possibility of the outer function added to *by* is independent of the meaning of *by* and then it may be justifiable to leave the meaning of *by* unspecified, as J will do. Although Lakoff tells us nothing more about it than that it is not fully productive, it does not seem to be a lexical idiosyncrasy, since one of the present reviewers had not been aware of the fact that *by* lacks the end of path use until made aware of the fact by Lakoff's book, but nevertheless readily understood the impossibility of such use without any prior negative evidence to that effect. This suggests that the lack of the end of path use in *by* is not an arbitrary, lexically idiosyncratic fact, but can be predicted or motivated by the meaning of *by*. Recalling the fact that OVER in [_{Place} OVER] is a meta-language expression, namely, its misleading resemblance to the actual English word *over* notwithstanding it is devoid of content unless defined, we think that it would be more profitable to consider the problem of possible outer functions in the light of the interaction between outer functions and inner arguments, with a view to deriving the phenomena as a consequence of some higher principles.

Over also suggests to us that we should not leave the 'core' meaning unanalyzed even if we ignore its possible outer functions. According to Lakoff (1987: 430), the central sense of *over* which combines 'above' and 'across' is extended to those which do not require 'above,' but only insofar as 'contact' is there:

- (16) Harry climbed all over the canyon walls.

- (17) *Superman flew all over the canyon walls.

(cf. Superman flew all over downtown Metropolis.)

Then, 'contact' is a relevant notion in considering possible uses of J's

³ Lakoff's case study of *over* is based on Brugman 1981.

'core' *over*, without which one will be forced to abandon the hope of accounting for the difference between 16 and 17.

A further problem with the optional outer functions is the combination of [_{Path} VIA (...)] with [_{Place} AT-END-OF (...)]. Intuitively, a path specifies the path traversed by a mover. Accordingly, in J's theory, Path is the second argument of GO-function, but then [_{Path} VIA (...)] should not be the argument of a Place function, as in 6. Moreover, it is not clear in the first place what moves along the path. It is surely not the subject, but then what else? It is far from being satisfactory just to employ the representation [_{Place} AT-END-OF ([_{Path} VIA ([...])]). It appears to make sense only because we know what it is intended to mean.

Closely related to this problem is the extent use of GO-verbs exemplified by 18:

(18) The sidewalk goes around the fence.

In a way similar to the end-point focus use of path expressions, "the sidewalk" does not move as it would if the verb were used in the ordinary way. J represents this use as follows:

(19) [_{State} EXT ([_{Thing}], [_{Path}])]

Simple and tidy though it is, essentially this is shelving the problem, since 19 does not make much sense unless we know what EXT is. These are not mere technical problems peculiar to J's theory, but a substantial one for everyone. We just note the existence of the problem in J's representation and refer the readers to Langacker 1986, 1990, where these interesting extensions are discussed in a wider perspective.

Apart from these points, there seems to be a rather fundamental question we may ask about his approach, namely, the question of whether collapsibility is an appropriate criterion of lexical relatedness. It seems that J tends to view the problem of lexical relatedness in the light of the singleness of the lexical entry achieved through the extensive use of his abbreviatory devices, but it is open to question whether relatedness is wholly captured in this fashion. The rationale for collapsing related uses of a lexical item into a single lexical entry is probably the belief that, in doing so, the common core shared by all the uses will be explicitly shown as such, and that the existence of the common core successfully expresses the intuition that they are related. The problem with this approach comes from cases where no such common core can be found but where relatedness does exist. In fact, as we mentioned above, J uses *over* to illustrate how the dashed underline notation works, but the detailed and extensive study by Lakoff 1987 shows that the polysemous structure

of *over* is not built tightly around some core but forms a network of relatedness that cannot be characterized in a revealing way by the supposed core.⁴ Though J claims in a note that the intransitive uses of *over* that will not fall within the scope of his 7 do 'not seem as systematically related as those discussed in the text,' what Lakoff calls reflexive use (e.g., *Roll the log over.*), excess use (e.g., *The bathtub overflowed.*), and repetition use (e.g., *Do it over*, though in this case with some noticeable degree of isolatedness as he points out) do not seem to be unrelated to other *overs*, especially after one has read his cogent exposition about how they are integrated into the networks of *over*.

Although J may be regarded as one of the first researchers who stressed the importance of metaphor and has been a proponent of the Thematic Relations Hypothesis, his interest in metaphor seems to be regrettably limited to the Thematic Relations Hypothesis, and he virtually neglects other aspects of metaphor, not to mention metonymy or synecdoche. As a consequence, J will have much trouble where such tropes are critically involved. Polysemous structures are one of such cases, where two pairs (or more) are sometimes linked to each other by metaphor. For ample evidence for the existence of such cases, see Lakoff and Johnson 1980, Brugman 1981, Lakoff 1987, and Norvig and Lakoff 1987.⁵

3. SYNTAX-SEMANTICS (NON-?)CORRESPONDENCE: ADJUNCT RULES. In Chapter 2 J introduces a mechanism called Argument Fusion, which serves to guarantee the correspondence between the syntactic arguments and the corresponding conceptual arguments in the head's lexical conceptual structure (LCS), and the Restrictive Modifier Rule, which integrates the readings of optional modifiers into the LCS of the heads of the modified constituents. One might think that these two correspondence rules exhaust the possibilities, since one can expect the subcategorized phrases of a head to be its conceptual arguments and the nonsubcategorized phrases to be modifiers. But J assumes that 'not all syntactic arguments are licensed by the head' (p. 158), and advances *adjunct rules* for these extralexically licensed arguments. It is to be kept in mind that the term 'adjunct' is not used in the sense of nonsubcategorized phrases as in

⁴ For a different view, see Vandeloise 1990.

⁵ For studies revealing the important role played by metaphor, see Sweetser 1990, ch. 3 and Nomura 1989. Also see Seto 1986 and Yamanashi 1988.

the usual usage of the term, but in the sense of phrases which are not licensed by the head but correspond to conceptual arguments rather than to modifiers. In other words, adjunct rules are postulated as a bridge between syntax and semantics necessitated by the assumed disparity between the two components. It is also important to note in this connection that the supposed necessity of adjunct rules is not a nuisance but a great boon to J, since the syntactico-semantic discrepancy entailed by such treatment will be a good case for his thesis of autonomy of syntax and semantics. Although the thesis is one of the major topics in the current literature, we will limit ourselves to taking a few of the specific constructions to which J applies adjunct rules and examine briefly whether it is necessary to invoke adjunct rules at the expense of efficient and natural correspondence between syntax and semantics.

3.1. LEXICAL OR EXTRALEXICAL? An instance of adjuncts is the *with* phrase which is often considered to mark the 'displaced Theme':

(20) *With*-Theme Adjunct Rule (version 2)

If V corresponds to [... BE ([X], ...) ...], with [X] unindexed, and NP corresponds to [Y], then [_S ... [_{VP} V ... [_{PP} with NP] ...] ...] may correspond to [... BE ([$\begin{smallmatrix} \text{X} \\ \text{Y} \end{smallmatrix}$], ...) ...], where [$\begin{smallmatrix} \text{X} \\ \text{Y} \end{smallmatrix}$] is the fusion of [X] and [Y]. (p. 161)

J holds that this rule is responsible for licensing the *with* phrase in the following sentence:

(21) We buttered the bread with cheap margarine.

Butter is assigned by J the following lexical entry:

(22) [_{NP_j} [_{CAUSE} ([_j], [_{INCH} [_{BE} ([_{BUTTER}], [_{ON_d} [_j]])]])]]]

The subject corresponds to the argument [_j], and the object NP is co-indexed with the argument of ON_d. Since [_{BUTTER}] is an incorporated argument bearing no index and 21 meets the structural condition of 20, the reading of the object of *with* is successfully fused with [_{BUTTER}], with the resultant reading that 'we' caused it to happen that 'cheap margarine' was all on 'the bread.'

With-Theme Adjunct Rule is one of those adjunct rules which make crucial use of a particular lexical item in formulation, and has a problem common to some of such adjunct rules. The problem is the expletive-like status of the lexical items which trigger the adjunct rules. As for *With*-Theme Adjunct Rule above, it is not to be overlooked that in J's

analysis *with* is deprived of its meaning and is assumed to contribute nothing to the meaning of the sentence, and that 20 implies that it is an accident that the preposition is *with*: there is no reason in J's analysis that any other preposition should not substitute for *with*. We find this totally unacceptable, and argue that it should be provided with its share of meaning. More specifically, we agree with Pinker 1989 that *with* in question is basically an instance of ordinary *with*, used to express 'means'.⁶ J claims that *with* under discussion 'is evidently *not* an instrument' (p. 164), saying that 'cheap margarine is not what we put butter on the bread with' (ibid.). But this is an irrelevant sentence based on the wrong assumption that *to put butter on* can be substituted for *to butter*. The following example shows that it is a means expression:

(23) A: Which margarine did you use to butter the bread?

B: I buttered it with Borden.

A's question about the means (in p. 259 the object of *use* is considered to be Instrument by J.) is answered by a *with* phrase.

Deficiencies in some of the other adjunct rules which make specific reference to a particular lexical item are not so glaring, since, unlike *With-Theme Adjunct Rule* along with a few others, there is something added to the original conceptual structure after the application of each rule that can be interpreted as the meaning inherent in the triggering lexical item. This is a natural and reasonable interpretation, but if the triggering items are treated as full words with their own meanings, as we believe they should be, then it may well be doubted whether 'adjuncts' are so deviant as to require special extralexical treatment. In fact, in considering the proper treatment of the *for* phrase in *Bill sang a song for Mary*, J compares two ways of incorporating Mary's beneficiary role into the meaning of the whole sentence: one is the Restrictive Modifier Rule strategy, and the other is the *For-Beneficiary Adjunct Rule* strategy. In the former strategy, the partial conceptual structure representing Mary's beneficiary role is expressed by the preposition *for*, shown in 24, and is attached to the main conceptual structure by the Restrictive Modifier Rule, producing 25:

(24) — NP_j
[FOR [_{Event} AFF⁺ (, [l_j)]]]

(25) SING ([BILL], [SONG])

⁶ Iwata 1990 and Tsuboi 1990 criticize J's Theme analysis of the *with* phrase under discussion.

AFF ([BILL],)

[FOR [AFF⁺ (, [MARY])]]

p. 185

(Here '[FOR [_{Event} AFF⁺ (, [])]]' is roughly to be read as 'in order for NP_j to be affected favorably,' and 'AFF ([BILL],)' means that Bill is Actor.)

J points out, however, that the Restrictive Modifier Rule does not ensure that it is the subject who intends to affect *Mary* favorably, and on this ground J prefers to adopt the *For*-Beneficiary Adjunct Rule strategy, which explicitly states the binding relation between the first argument of the main AFF (to be realized as subject) and the first argument of AFF⁺ in the subordinate FOR clause:

(26) *For*-Beneficiary Adjunct Rule

If V corresponds to $\left[\begin{array}{c} \dots \\ \text{AFF} ([X], \dots) \end{array} \right]$

and NP corresponds to [Y],

then [_S ... [_{VP} V ... [_{PP} for NP] ...] ...] may correspond to

$\left[\begin{array}{c} \dots \\ \text{AFF} ([X]^{\alpha}, \dots) \\ [\text{FOR} [\text{AFF}^{+} ([\alpha], [Y])]] \end{array} \right]$

p. 186

The binder-bindee relation between $[X]^{\alpha}$ and $[\alpha]$ is secured here through the use of the same Greek letter.

There is a question, however, as to whether this is the proper way to establish the binding relation. Notice that if the meaning component for *Mary*'s beneficiary role is derived from *for* rather than out of thin air, we will in any case have 25 through the application of the Restrictive Modifier Rule to the preposition *for*, which has 24 as its lexical entry. In other words, there must be something to rule out the cases where the benefactor is not the actor even if one posits the adjunct rule, which means that the adjunct rule is superfluous and beside the point. We suggest that the reason for the identity of the benefactor and the actor should ultimately be traced to the fact that the person who intends to affect some other person favorably in some action cannot coherently be any other than the person who performs the action. In this sense, the binding relation belongs, so to speak, not in language, but in the situation.⁷ It is surely not an easy task to formulate the complicated interpretive processes involved in cases like this, but we think that the binding

⁷ Cf. Ladusaw and Dowty 1988 and Comrie 1984.

relation should not be regarded as an arbitrary idiosyncrasy to be attributed to a rule, and that we will in any case have to stop seeking a facile solution by stipulation and to squarely tackle the formidable task.

It seems that J generally places a relative emphasis on autonomous aspects of language, and has a tendency to provide purely linguistic accounts. The explicit stipulation of binding relations in the form of adjunct rules may be regarded as a reflection of this tendency. This is understandable considering that J attaches greater importance to the explicit algebraic way of representation, but we would like to see another example from J's adjunct rules where context-dependence of language seems to call for more attention. Consider *For-Exchange Adjunct Rule* below, and its application to the GO_{Poss} verb *obtain*:

(27) *For-Exchange Adjunct Rule*

If V corresponds to [... [GO_{Poss} (...) ...] ...]

and NP corresponds to [Y],

then [_S ... [_{VP} V ... [_{PP} for NP] ...] ...] may correspond to the fusion of the reading of V with

$$[... \left[\begin{array}{l} GO_{\text{Poss}} (... , \left[\begin{array}{l} FROM []^{\alpha} \\ TO []^{\beta} \end{array} \right]) \\ [EXCH [GO_{\text{Poss}} ([Y], \left[\begin{array}{l} FROM [\beta] \\ TO [\alpha] \end{array} \right])]] \end{array} \right] ...].$$

(28) Bill obtained \$5 for the book.

$$[CAUSE ([BILL]^{\alpha}, \left[\begin{array}{l} GO_{\text{Poss}} ([\$5], \left[\begin{array}{l} FROM []^{\beta} \\ TO [\alpha]^{\gamma} \end{array} \right]) \\ [EXCH [GO_{\text{Poss}} ([BOOK], \left[\begin{array}{l} FROM [\gamma] \\ TO [\beta] \end{array} \right])]] \end{array} \right])]$$

pp. 192-3

The subordinating function EXCH for the countertransfer Event is meant to incorporate the characteristics of exchange that the two transfers are judged to be equivalent in value, and that the two transfers need not be simultaneous (p. 189). (In fact, the 'exchange' sense itself is expressed in the Path constituents in the foregrounded and the backgrounded Events.)

According to this formulation, exchange *for* is possible only with GO_{Poss} verbs, but it is questionable whether GO_{Poss} is the definitive notion in the use of exchange *for*:

(29) He was forced to do the job for only \$10.

(30) Visitors may ascend the tower for £2.

J might claim that the *for* phrase in 29 is a different *for*, *for* of benefit, like

the one in *Bill sang a song for fun*, but it is arbitrary to draw a line between an exchange of a commodity for money and an exchange of labor for wages. Likewise, since 'visitors' in 30 do not intend to obtain £2, *for* in 30 cannot be seen as benefit *for*. In these cases, what is transferred in exchange for the object of *for* is not a thing but an activity expressed by the function itself, and thus the key notion of shift of possession should accordingly be generalized to subsume these cases, though it will require rather drastic changes in the conception of adjunct rules like 27.

Furthermore, observe that all the relevant information in 27 can be obtained from 31:

(31) I bought it *with* the \$100 I earned last year.

Here, instrumental *with* is used instead of *for*, but 'exchange,' 'equivalence,' 'no need of simultaneity' are all understood in 31. The same is true of 32:

(32) I bought a dollar's worth of bread from him.

If 'expressions at the level of conceptual structure simply are the meanings of utterances' (Jackendoff 1987, p. 123) and '(t)here can be no further step of (...) interpreting (representations) in terms of some deeper tacit understanding' (ibid.), the conceptual structures for these sentences must somehow contain the information in question, which seems to suggest that much of what J encodes explicitly as the meaning of exchange *for* in 27 is in fact effects of our cognitive model⁸ of exchange, and that the essential meaning of *for* is not specified with respect to the typical features of exchange. In typical exchange situations, A obtains X from B, and at the same time gives Y (or does Y), which is of the same value, to B. But in atypical cases, exchange *for* may lack some of the prototypical features:

(33) They were forced to sell their house for less than its original price. (COBUILD Dictionary)

(34) Esau traded his birthright to Jacob for a modicum of self-respect. (Faraci 1974, p. 94)

In 33 nonequivalence is asserted, and in 34, as Faraci points out, 'a modicum of self-respect' did not originate with Jacob. As for 'no need of simultaneity,' the main transfer and the countertransfer need not be simultaneous, as J himself says, but it is important to recognize that this is not

⁸ For a detailed account of the notion of (idealized) cognitive model, see Lakoff 1987.

prototypical, at least in our understanding of commercial scenes, which is why 'buy now, pay later' is so attractive. These considerations point to the need of incorporating in one's theory the recognition of 'the grounding of language in the speaker's world,'⁹ or, more generally, embodiment,¹⁰ which is lacking in J's Conceptual Semantics.

3.2. ALTERNATIVES TO ADJUNCT RULES: MEANING CHANGING RULES. Is an adjunct rule the only way to describe (and explain) an 'extralexical' alternation? This is not a question to be taken lightly, since J's argument for the autonomy of syntax and semantics largely depends on the alleged existence of a set of adjunct rules, which constitutes a major part of 'the correspondence rule component.' This component is, by definition, intended to capture just those generalizations about the relationship between syntactic and conceptual structures that cannot be accounted for either by syntactic principles or in conceptual terms. Thus, the larger the number of correspondence rules, the more independence syntax gains from meaning, and vice versa.

Take the dative alternation for example. J argues that 'the so-called *to*-datives cluster into two distinct classes with different properties' (p. 197), thereby splitting the alternation itself into two distinct phenomena. Thus the syntactic reordering of arguments illustrated in 35 is said to 'follow automatically from the alternation in argument structure' (p. 267) given his *Linking hierarchy*, which places Beneficiary above Theme.

- (35) a. Harry gave a book to Sally.
b. Harry gave Sally a book.

The relevant alternation in argument structure is correlated with the optional appearance of the Goal argument in the second argument position of the AFF⁺ function. By contrast, it is one of J's adjunct rules, *Recipient NP Adjunct Rule*, that is responsible for the alternation observable in 36.

- (36) a. Harry sent a book to Sally.
b. Harry sent Sally a book.

The gist of this rule is to bind the indirect object, which shares the role of Goal with the corresponding *to*-phrase, to the additional role of intended

⁹ This is cited from Sweetser 1987, which shows the importance of this recognition in its restudying of the analysis of *lie* presented in Coleman and Kay 1981.

¹⁰ See Johnson 1987 and Amagasaki 1990 for stimulating discussions about the profound relevance of this notion for language.

possessor.

We cannot help wondering if J's analysis of dative alternation does full justice to its formal integrity, which we feel strongly has more to it than J seems to believe. Let us put our question this way: would it not be more revealing to simply posit a pair of semantic structures like the following to motivate the change in syntactic form in terms of a change in meaning? (For a detailed analysis along this line, see Pinker 1989. Cf. also Langacker 1987, ch. 1)

(37)	NP ¹ V NP ² to NP ³	NP ¹ V NP ³ NP ²
	X CAUSE [Y GO TO Z]	→ X CAUSE [Z HAVE Y]
	X: Agent/Actor	X: Agent/Actor
	Y: Theme/Patient	Y: Theme
	Z: Goal	Z: Possessor/Patient

It should be noted that this is in no way incompatible with J's observation that the alternation in question applies to two distinct classes of verbs.¹¹ Some verbs (e.g. *give*) are required by their inherent meanings to appear in either of the syntactic frames: the semantic structures symbolized by these syntactic frames (roughly represented in 37) constitute the very core of the semantics of such verbs. With other verbs (e.g. *send*), their inherent semantic structures are allowed by convention to be further specified in a way that qualifies them to appear in either or both of the syntactic frames in question: the semantics of those verbs can be extended on a principled basis to match the semantic structures underlying the syntactic frames. Specifically, what is happening can be schematized as follows:

(38)	<i>send</i> : X CAUSE [Y GO [_{path}]]	→ X CAUSE [Y GO TO Z]
	(original)	(extension: Path specified)
		↓
		X CAUSE [Z HAVE Y]
		(further extension)

In either way, however, the dative alternation itself is a unified phenomenon based on an operation that maps one semantic structure onto another. Moreover, it is arguable that the correspondence between the seman-

¹¹ This should not be taken to mean that we subscribe to this distinction unconditionally. We believe that it is a moot point whether such a clear line of demarcation can be drawn.

tic arguments and the syntactic relations in 37 is well motivated on independent grounds,¹² requiring no further rule specific to this alternation, let alone a special correspondence rule like *Recipient NP Adjunct Rule*.

Similar remarks can be made on J's analysis of the resultative construction. J argues that there are two types of resultatives, which, while sharing the causative component, differ from each other as to whether or not the referent of the object is affected by the action denoted by the main verb. The following pair is a case in point.

- (39) a. The gardener watered the tulips flat.
b. Charlie laughed himself silly.

According to J, while the object in 39a is Patient of the act of watering, Charlie's laughter did not affect Charlie himself in 39b. This distinction is based on the difference in acceptability between 40a and 40b.

- (40) a. What the gardener did to the tulips was water them.
b. *What Charlie did to himself was laugh.

Thus, 'the reflexive resultative allows a somewhat freer choice of verbs than the nonreflexive version' (p. 231). If valid, this analysis would justify J's *Resultative Adjunct Rule*, whose integrity as a single rule is crucially dependent on the curly bracket notation, which is a device to unify otherwise distinct semantic structures. This in turn would be taken to mean that some aspects of the syntax-semantics correlation cannot be motivated in purely semantic terms.

We would like to propose an alternative analysis that will greatly reduce the apparent discrepancy between meaning and form, while keeping J's insight intact. The relationship between the resultative construction and its nonresultative counterpart (e.g. 39a and 'The gardener watered the tulips.') can best be regarded as another syntactic alternation based on a semantic operation. This time, the operation in question is a semantic extension which, in informal terms, can be stated as follows:

- (41) X acts (on Y). → X acts on Z in such a way that Z undergoes a change of some sort (specified by the AP or PP)

In other words, underlying the formal alternation is a causativization of a verb of action (either inherently transitive or intransitive) through intensification of its transitivity (e.g. the Actor's control over the Patient) (Cf. Ikegami 1981). As in the case of the dative alternation, details (particularly the identity of Z) may vary according to the properties of individual

¹² For detailed discussion, see Langacker 1987, 1991.

verbs. Thus, if the verb is a prototypical transitive verb, that is, if the verb in itself has the notion of affecting an entity (Y) built into it, Z will most likely be identical to Y. If, on the other hand, the verb inherently has no such notion, that is, if the existence of a Patient (Y) is not implied by the kind of action typically associated with the verb, there will be a greater degree of semantic extension where X performs the action in question in an extraordinary way (e.g. excessively) that affects some entity (Z). The identity of Z in the latter case may not be 100 percent predictable, especially in such idioms as *drink someone under the table* and *talk someone's ear off*. It is not, however, completely arbitrary as J's analysis might suggest. In fact, given our analysis, the 'freer choice of verbs' allowed by the reflexive resultative is highly motivated. The reason why only the reflexive pronoun is permissible in 39b, for instance, is that the laughing person himself is much easier to imagine being made silly by his excessive laughter than anyone else; it would require quite a stretch of imagination to think of someone's laughing too much as capable of making anyone other than himself silly. In short, in performing certain actions, a person can affect himself without acting on anyone else.

It should be obvious now that the unacceptability of 40b does not contradict our analysis, which maintains that the referent of the object of the resultative construction is affected by the action denoted by the main verb, irrespective of the transitivity of that verb used outside of the construction. In fact, on our account the verb *laugh* appears in 39b precisely because the action associated with this verb, which usually is not directed to anyone, can be performed, under special circumstances, in such a way as to make the actor himself its Patient. The unacceptability of 40b only indicates the obvious fact that *laugh* in isolation is an intransitive verb. In this connection, another serious inadequacy of J's analysis should perhaps be pointed out. If J were right in claiming that, unlike the object of 39a, the object of 39b is not a Patient of the act of laughing, he would be hard put to explain the nature of the act of causation¹³ described by 39b. As J himself assumes, an act of causation must have a Patient as one of its participants. But isn't it exactly the main verb *laugh* that specifies what kind of causative action Charlie is a Patient of in 39b? Thus employing Langacker's 1987 terminology, we can characterize the verb in the resultative predication as elaborating the schema of causation (expressed

¹³ For a revealing analysis of causation, see Lakoff and Johnson 1980, ch. 14.

by such schematic verbs as *make* and *get*). All this follows naturally from our alternative account. J's analysis, in contrast, is not quite as revealing and is very likely misguided.

It is to be noted that the alternative analysis outlined above not only allows us to account for the apparent peculiarity of the reflexive resultative without recourse to the curly bracket notation, whose sole purpose here is to make a pair of otherwise unrelated semantic structures look alike.¹⁴ It also paves the way for us to view the whole spectrum of resultative constructions in its proper perspective, that is, to uncover the semantic principle that makes their forms converge in spite of the diversity of verbs participating in them.

4. **CONCLUDING REMARKS.** In the Introduction of the book J laments over the general neglect of semantics in current generative grammar, and seemingly tries to consolidate the foundation of semantics to show its richness in the first half of the book, and then introduces in the second half a variety of adjunct rules, which serve to secure the autonomy of semantics from syntax. However, despite his statement in the Introduction that he will put an emphasis on description at the present stage of development of his theory, we regret to say that there are not a few instances of representations the employment of which does not seem to reveal much more than what we already know, and that what he should have done was make an in-depth investigation like Pinker 1989, Pinker et al. 1987, Gropen et al. 1989, Tanaka 1988, and Dixon 1991 within his framework before wondering about the niceties of the theory. As for the adjunct rules, what is to be rectified about the syntactico-centrism is its negligence of the symbolic nature of language,¹⁵ and therefore it would be misguided to try to preserve the territory of semantics by regarding syntax and semantics as two unrelated components which do not correspond to each other unless mediated by the adjunct rules.

¹⁴ The original intuition behind the curly bracket notation in the analysis of *climb* is undermined by J's unconstrained use of the notation. For this point, see Tsuboi and Nishimura 1991.

¹⁵ See Langacker 1987 for a comprehensive framework based on this view. His cognitive grammar gives due consideration to conventional aspects of language, despite J's misconceived allegation that it assumes that syntax is totally determined by semantics. For further discussion, see Nishimura 1990, 1991, and Tsuboi and Nishimura 1991.

REFERENCES

- AMAGASAKI, AKIRA. 1990. *Kotoba to shintai*. Tokyo: Keisou shobo.
- BRUGMAN, CLAUDIA. 1981. *Story of over*. MA thesis, University of California, Berkeley.
- COLEMAN, L., and P. KAY. 1981. Prototype semantics. *Lg.* 57.26–44.
- COMRIE, BERNARD. 1984. Subject and object control: Syntax, semantics, pragmatics. *BLS* 10.450–64.
- DIXON, R. M. W. 1991. *A new approach to English grammar on semantic principles*. Oxford: Clarendon Press.
- FARACI, R. A. 1974. *Aspects of the grammar of infinitives and for-phrases*. Ph.D. Dissertation, MIT.
- GROPEN, J.; S. PINKER; M. HOLLANDER; R. GOLDBERG; and R. WILSON. 1989. The learnability and acquisition of the dative alternation in English. *Lg.* 65.203–57.
- IKEGAMI, YOSHIHIKO. 1981. Activity-accomplishment-achievement. *Linguistic Agency University of Trier, Series A no. 87*.
- INADA, TOSHIKI. 1991. Ray Jackendoff: Leading figures in current linguistics 2. *Gengo* 20.2.82–9.
- IWATA, SEIJI. 1988. Cross-field generalization: Conceptual structures for *strike* and *impress*. *English Linguistics* 5.111–29.
- . 1990. On Jackendoff's conceptual structure. *Tsukuba English Studies* 9.135–68.
- JACKENDOFF, RAY. 1985. Multiple subcategorizations and the θ -criterion: The case of *climb*. *NLLT* 3.271–95.
- . 1987. *Consciousness and the computational mind*. Cambridge, MA: MIT Press.
- JOHNSON, MARK. 1987. *The body in the mind*. Chicago: University of Chicago Press.
- LADUSAW, W. A., and D. R. DOWTY. 1988. Toward a nongrammatical account of thematic roles. *Syntax and semantics* 21, ed. by Wendy Wilkins, 61–73. San Diego: Academic Press.
- LAKOFF, GEORGE. 1987. *Women, fire, and dangerous things*. Chicago: University of Chicago Press.
- LAKOFF, GEORGE, and MARK JOHNSON. 1980. *Metaphors we live by*. Chicago: University of Chicago Press.
- LANGACKER, R. W. 1986. Abstract motion. *BLS* 12.455–71.
- . 1987. *Foundations of cognitive grammar: Vol. 1*. Stanford: Stanford University Press.
- . 1990. Subjectification. *Cognitive Linguistics* 1.5–38.
- . 1991. *Foundations of cognitive grammar: Vol. 2*. Stanford: Stanford University Press.
- NISHIMURA, YOSHIKI. 1990. Prolegomena to cognitive linguistics: Possibilities of semantics 1. *Annual Reports of Studies* 32.47–68. Jissen Women's University.
- . 1991. Prolegomena to cognitive linguistics: Possibilities of semantics 2. *Annual Reports of Studies* 32.155–72. Jissen Women's University.

- NOMURA, MASUHIRO. 1989. A semantic study of the nouns that take a content clause. MA thesis, University of Tokyo.
- NORVIG, PETER, and GEORGE LAKOFF. 1987. Taking: A study in lexical network theory. *BLS* 13.195-206.
- PINKER, STEVEN. 1989. Learnability and cognition. Cambridge, MA: MIT Press.
- PINKER, STEVEN; D. S. LEBEAUX; and L. A. FROST. 1987. Productivity and constraints in the acquisition of the passive. *Cognition* 26.195-267.
- SETO, KEN-ICHI. 1986. *Retorikku no uchu*. Tokyo: Kaimeisha.
- SWEETSER, E. E. 1987. The definition of lie: An examination of the folk models underlying a semantic prototype. *Cultural models in language and thought*, ed. by Dorothy Holland and Naomi Quinn, 43-66. Cambridge: Cambridge University Press.
- . 1990. *From etymology to pragmatics*. Cambridge: Cambridge University Press.
- TANAKA, SHIGENORI. 1988. Cognitive semantics. *Bulletin of the department of liberal arts, Ibaraki University*, 20.237-74.
- TSUBOI, EIJIRO. 1990. A note on the conceptual structure of R. Jackendoff. *Bulletin of the University of Electro-Communications* 3-1.165-72.
- TSUBOI, EIJIRO, and NISHIMURA YOSHIKI. 1991. Cognitive semantics and conceptual semantics. *Jissen Eibungaku* 39.23-37.
- URUSHIBARA, SAEKO. 1989. Issues in the lexicon. *Current trends in overseas linguistics vol. 5*, ed. by Masaru Kajita and Félix Lobo, 86-100. Tokyo: Taishukan shoten.
- VANDELOISE, CLAUDE. 1990. Representation, prototypes, and centrality. *Meanings and prototypes*, ed. by S. L. Tsohatzidis, 403-37. London: Routledge.
- YAMANASHI, MASAOKI. 1988. *Hiyu to rikai*. Tokyo: Tokyo Daigaku Shuppan-kai.