Notes on the Semantic Structure of English Adjectives

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The semantic structure of paired English adjectives is investigated, and the results are extended—or an extension of the result is suggested—to the vast lexicon of derived English adjectives. It is found that English adjectives are not semantic primitives, but rather are semantically based upon or derived from nouns or verbs. Categories of noun-based vs. verb-based adjectives are set up, and then contrasted with the categories of stative vs. active adjectives. It is claimed that the facts of semantic structure of English adjectives support the presence of lexical or pre-lexical transformations which map the deep semantic structure onto the surface lexical items called adjectives.

INTRODUCTION

1. The bulk of this study involves paired adjectives of quality and measure.[1] An attempt is made, however, to indicate how the results could be extended to other English adjectives, including those derived by affixation from nouns or verbs.[2]

The question of semantic primitives of nouns and verbs has been raised in a previous study (Givón 1967b), to which the present work is something of a sequel. Briefly, it was suggested there that at the core of the definitions of nouns and verbs lie other nouns and verbs, respectively. Thus the definition of a noun is a NOUN PHRASE, comprised of a HEAD NOUN and an (optional) modifying clause; while the definition of a verb is a VERB PHRASE, comprised of a MAIN VERB and an (optional) verb complement. The study of dictionary definitions of adjectives has revealed a certain parallelism with nouns and verbs, but this parallelism is at best partial, for reasons discussed below.

When one peruses the English dictionary,[3] one is struck by the fact that the lexical category ADJECTIVE has a large and potentially boundless membership. Further, of all adjectives in the dictionary, only a small number are ORIGINAL or OVERTLY UNDERIVED; the great bulk are morphologically derived from either nouns or verbs. It is proposed below that even the small number of overtly underived English adjectives are nevertheless semantically derived from or based upon either nouns or verbs.

The question of what constitutes proper empirical evidence will haunt the pages of this article. Initially, the work was based on the study en masse of dic-

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[1] I am indebted to John Olney, Frank Heny, Jeffrey Gruber, and James McCawley for valuable criticism of earlier versions of the manuscript. It is quite possible that none of them may agree with any or all of what is said below.

[2] The work reported here was supported in part by Systems Development Corporation and by Contract F1962867C004, Information Processing Techniques, with the Electronic Systems Division, Air Force Systems Command, for the Advanced Research Projects Agency, Information Processing Techniques Office.

[3] This study is based almost exclusively on the dictionary definitions found in *Webster's new international dictionary* (3rd ed.), or its off-shoot, *Webster's new collegiate dictionary* (7th ed.)

tionary definitions of adjectives. A monolingual dictionary such as *Webster's new international* (3rd ed., henceforth W3) is a collection of PARAPHRASES of senses of lexical items. Most senses are at least catalogued in it, but the dictionary relies upon traditional practices rather than a comprehensive theory of the lexicon. The underlying semantic structure can nevertheless become apparent from massive study of the paraphrastic formulas—at least one hopes so.

Like other studies of its kind, the present work is open to one major objection: How can one tell a CORRECT or SEMANTICALLY REVEALING paraphrase from others equally correct but somehow less revealing? No attempt will be made here to resolve this question directly. The difficulty involved in such endeavors is discussed by Gruber 1967 under the heading 'Representationally significant paraphrases'. Ideally, one may hope to demonstrate some syntactic or rule-governed behavioral consequences of semantic structures posited through the study of paraphrastic relations. Unfortunately, this is not always possible.

Further, the study of semantic structure should ideally be coupled at some point with the study of semantic change. A semantic theory cannot be considered adequate if, while accounting for the structure of existing senses, it is unable to also predict POSSIBLE—if still non-existent—senses and reject IMPOSSIBLE ones on some principled grounds. In this sense one may consider an adequate theory to be generative. Thus the results of synchronic semantic studies such as this cannot be considered final until coupled with diachronic studies of SENSE DEVELOPMENT.

THE NATURE OF THE PAIRING RELATION OF ADJECTIVES

2. Vendler 1963 has observed that an interesting relation of MARKEDNESS holds between members of measure adjective pairs in English. One member of the pair seems to always function as the UNMARKED or generic cover-term for the common quality involved in both members. Thus, for example, the question *How big is it?* may be answered by *It is very big* or *It is very small*, while the question *How small is it?* may only be answered by *It is very small*, never by **It is very big*. Similarly:

(1) a. How long is it?   b. How good is it?
          Very long.   Very good.
          Very short.   Very bad.
    c. How short is it?   d. How bad is it?
          Very short.   Very bad.
          *Very long.   *Very good.

We also have another indication of the unmarked or generic status of one member of each pair. Note that quality nouns such as *length, breadth, width, thickness* etc. cover the entire measurement range, while the corresponding *shortness, narrowness, thinness* etc. apply only to one of the extremes. Thus: *I am familiar with the length of* ... may imply any length on the scale, but *I am familiar with the shortness of* ... pertains only to something SHORT, never long.

Both pieces of evidence hint at the same point, namely, that the two members of an adjective pair SHARE A BASIC QUALITY, though they are somehow DIF-

FERENTLY ORIENTED with respect to that shared quality. The precise nature of that difference in orientation is our next concern.

2.1. THE NEGATIVE PAIRING TEST. It will be claimed below that the two members of adjective pairs are NEGATIVELY RELATED, in some sense, with respect to the same quality. Further, I hope to show that this is true regardless of whether the pairing does or does not involve an overt negative marker. Our first negative pairing test is adapted from Klima 1964. Note that two members of a pair may fit the test frame in 2 only if they are, in some sense, the negatives or antonyms of each other. The relative order is irrelevant for the test, as is the presence of an OVERT rather than INHERENT negative marker:

(2) a. He is WISE, and she is not UNWISE either.
    b. *He is WISE, and she is not WISE either.
    c. *He is UNWISE, and she is not UNWISE either.
    d. He is UNWISE, and she is not WISE either.
    e. He is WISE, and she is not STUPID either.
    f. He is STUPID, and she is not WISE either.
    g. He is BIG, and she is not SMALL either.
    h. *He is BIG, and she is not BIG either.
    i. *He is SMALL, and she is not SMALL either.
    j. He is SMALL, and she is not BIG either.

So far we have shown that paired adjectives are, in some sense, negatively related.[4] The test used above, however, is incapable of resolving an interesting question: Which member of the negatively related pair is the one incorporating the negative marker (when that marker is not overt)? One must also ask whether it is necessary to assume that one member of the pair and not the other carries the negative marker. In other words, need one go further than the assumption made in Katz 1964 about antonymous pairs or antonymous n-tuples?

2.2. THE NEGATIVE MEMBER TEST. The device or test used below has been described, in a different context, in Givón 1967b. Its usefulness is limited, mostly because it cannot be universally applied to all negatively related pairs of adjectives or verbs. Further, the semantic equations involved are often weak implications rather than true equations. Nevertheless, the test illustrates one important point: that it is possible, at least for the negative pairs which fit the test frame, to identify which member of the pair incorporates the negative marker, and which one is the positive member.

The test is based on seemingly algebraic properties of some syntactic constructions. It draws on the following facts concerning multiplication: plus × plus = plus; minus × minus = plus; minus × plus = minus. Now, of the examples

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[4] Here one may object and argue that our negative-pairing test does not show what it purports to, since constructions which do not seem to be negatively related are nevertheless accepted in the test frame, as in, say, *Bill came LATE, and John did not come ON MONDAY either*. However, this expression is accepted if and only if the underlying presupposition involved is *Monday is early*. Otherwise the statement is ungrammatical. Similarly, *Bill IS A FOOL, and John is not NOTED FOR HIS SENSE OF HUMOR either* is acceptable with and only with the presupposition *A mark of a wise man is having a sense of humor*. In short, when the underlying presuppositions are also taken into account, the contrast in the examples above is indeed between *early/late* and *foolish/wise*, respectively.

below, some may be actually ungrammatical, awkward, or strained. But they nevertheless illustrate the SEMANTIC point:

> (3) a. If one remembers to remember, then one remembers. $(+ \times + = +)$
>   b. If one forgets to forget, then one remembers. $(- \times - = +)$
>   c. If one forgets to remember, then one forgets. $(- \times + = -)$
>   d. If one agrees to agree, then one agrees. $(+ \times + = +)$
>   e. If one refuses to refuse, then one agrees. $(- \times - = +)$
>   f. If one refuses to agree, then one refuses. $(- \times + = -)$
>   g. If one succeeds in succeeding, then one succeeds. $(+ \times + = +)$
>   h. If one fails to fail, then one succeeds. $(- \times - = +)$
>   i. If one fails to succeed, then one fails. $(- \times + = -)$

Applying the test to paired adjectives is not always easy, since most of them may not predicate sentences in which they themselves serve as predicates. However, in the few cases where this is possible, the test again reveals, in spite of the rather weak implicational relations involved, the identity of the negative member of the pair:[5]

> (4) a. It is true that it is true = It is true. $(+ \times + = +)$
>   b. It is false that it is false = It is true. $(- \times - = +)$
>   c. It is false that it is true = It is false. $(- \times + = -)$
>   d. He's right about his being right = He is right. $(+ \times + = +)$
>   e. He's wrong about his being wrong = He is right. $(- \times - = +)$
>   f. He's wrong about his being right = He is wrong. $(- \times + = -)$
>   g. It is good to be good, so be good. $(+ \times + = +)$
>   h. It is bad to be bad, so be good. $(- \times - = +)$
>   i. It is bad to be good, so be bad. $(- \times + = -)$
>   j. It is illegal to act illegally, so act legally. $(- \times - = +)$
>   k. It is legal to act legally, so act legally. $(+ \times + = +)$
>   l. It is illegal to act legally, so act illegally. $(- \times + = -)$

Further, in some cases an INHERENTLY NEGATIVE verb or adjective becomes the POSITIVE member of the pair when an overt negative marker is added to it:

> (5) a. It is doubtful that it is doubtful = It is undoubtful. $(- \times - = +)$
>   b. It is undoubtful that it is undoubtful = It is undoubtful. $(+ \times + = +)$
>   c. It is doubtful that it is undoubtful = It is doubtful. $(- \times + = -)$
>   d. It is deniable that it is deniable = It is undeniable. $(- \times - = +)$
>   e. It is undeniable that it is undeniable = It is undeniable. $(+ \times + = +)$
>   f. It is deniable that it is undeniable = It is deniable. $(- \times + = -)$

It seems then that—although our negative member test is not universally applicable or free of problems—for those negatively related pairs to which it can be applied, the test can identify the negative members. Bearing in mind the risks involved, I shall assume until proven wrong that one may generalize from the pairs to which the test was applicable; and I shall hold that, for ALL negatively related adjectives, one member of the pair indeed incorporates a negative marker. I shall turn now to the paraphrastic definitions of negatively paired adjectives in the dictionary.

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[5] For the purpose of the discussion, 4g and 4j require the assumption of the following imperatives: *Do not do what is bad!* and *Do not do what is illegal!*

PARAPHRASES OF PAIRED ADJECTIVE SENSES

3. A fair number of variant paraphrastic formulas are used in the sense definitions of paired adjectives in W3. For some of them, the negative nature of the pairing is overtly manifest. For others, the negative relation holds only within the narrow confines of the particular construction used. Typical formulas are:

	PLUS	MINUS
(6) a.	'OF a certain quality$_i$'	'NOT OF a certain quality$_i$'
b.	'HAVING a certain quality$_j$'	'NOT HAVING a certain quality$_j$'
c.	'POSSESSING a quality$_p$'	'LACKING a quality$_p$'
d.	'MARKED BY a quality$_q$'	'FREE OF a quality$_q$'
e.	'CHARACTERIZED by a quality$_r$'	'NOT CHARACTERIZED by a quality$_r$'

All the emphasized pairs above can be shown to be negatively related by our negative pairing test, above.

The more common W3 paraphrases, however, involve the use of certain negatively paired adjectives within the definitional frames themselves, where their function seems to be primarily that of marking the positive vs. the negative members. Thus positive members are usually characterized by use of the adjectives *large*, *big*, *high*, *great*, while their negative counterparts are defined by *small*, *low*, *little*. Variants of this practice employ *abundant*, *extensive*, *numerous*, *voluminous*, or *excessive* on the positive side, as against *meager*, *limited* or *restricted*, on the negative side. Typical definitions are:

	PLUS	MINUS
(7) a.	'having GREAT size'	'having SMALL size'
b.	'marked by EXTENSIVE length'	'marked by RESTRICTED length'
c.	'possessing HIGH speed'	'possessing LOW speed'
d.	'marked by MANY exceptions'	'marked by FEW exceptions'
e.	'characterized by MUCH repetition'	'characterized by LITTLE repetition'
f.	'of LARGE expansion'	'of SMALL expansion'

Again, the emphasized pairs above are negatively related by our negative pairing test. Within the defining formula, they are used merely as indicators of the negative or positive member of the pair of adjectival senses. Thus the defining formulas of W3 strongly suggest what I have proposed above, namely that both members of an adjectival pair are characterized by a single quality noun,[6] but differ in the marker signifying the possession (positive) or non-possession (negative) of that quality. A rather similar formulation was used by Bierwisch 1967, who termed the two members of an adjectival pair the PLUS and MINUS POLES.

Superficially, adjectival definitions in W3 conform to what has been noted elsewhere (Givón 1967b) for nouns and verbs. That is, the definitions are syntactically ADJECTIVAL PHRASES (relative clauses, modifier clauses), just as noun definitions are noun phrases and verb definitions are verb phrases. However, while the CORE of noun or verb definitions contains a noun or verb, respectively, the core of an adjectival definition does not involve an adjective, but rather—for the NOUN-BASED adjectives discussed thus far—a noun of QUALITY. For these adjectives, therefore, the following hypothesis will be proposed concerning their

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[6] The discussion so far is limited to NOUN-BASED paired adjectives. It is not intended to imply that all adjectives are of this kind.

deeper semantic structure:

$$\text{being ADJECTIVE} = \text{having QUALITY}_N$$

The defining formula for noun-based adjectives can be now formalized as

$$\left[\text{having} \left[\left\{ {+\atop-} \right\}\right]_Q [\text{quality}]_N \right]_{ADJ}$$

where Q stands for QUANTIFIER SLOT, N for noun and ADJ for adjective. The paired adjectives around which the discussion has centered thus far can then be listed according to two variable parameters: Q $(+/-)$, and the quality noun involved. (This formula is, at best, minimal, and it is clear that other components will be added, as research probes deeper reaches of the semantic structure.) Examples are:[7]

	QUALITY NOUN		PLUS MEMBER	MINUS MEMBER
(8)	(physical)	length	long	short
	(physical)	height	tall	short
	(physical)	thickness	thick	thin
		weight	heavy	light
		width	wide	narrow
		breadth	broad	narrow
		temperature	hot	cold
		depth	deep	shallow
	(temporal)	duration	long	short, brief
		age	old	young, new
		position	high	low
		speed	fast	slow
		distance	far	near

The adjectives *great*, *big*, *large*, *small*, and *little* have been omitted on purpose. They are all based, in their various pairings, on the LEAST MARKED noun of measure, *size*. They all have several more marked senses, according to other dimensions further marking *size*. Their initial low markedness or NEUTRAL character probably accounts for the great number of different marked senses they have developed; and it may also account for their extensive use as the plus/minus polarity markers in dictionary definitions of adjectives: *having great weight, having large extension, having small weight*, etc.

THE QUANTIFIER SLOT AND THE SEMANTICS OF MEASURE PHRASES

4. There seems to be no purely linguistic reason for some paired adjectives of quality to have also become measure adjectives. Given the proper CULTURAL context, one could expect any pair of quality adjectives to be capable of developing the appropriate MEASURE UNIT. Thus, for example, the development of a speed measure DISTANCE PER TIME has postdated by many centuries the adjectival pair *fast/slow*. In former days, further, one might have received a variety of non-standard answers to the question *How fast did he ride?*, such as *Very fast;*

[7] There are some grounds for suggesting that these pairs in 8d are VERB-BASED, and that the core noun listed for them in the table is in fact a NOMINALIZATION. It can perhaps be argued that the verbs *stay* (duration), *live* (age), *stay/be* (location), and *move* (speed) are involved. Verb-based or adverbially-derived adjectival senses will be discussed below.

Quite slow; As fast as a horse could gallop; or *Fast enough to cover the distance from London to Glasgow in three days*. Similarly, measure units of temperature, Centigrade or Fahrenheit, are relatively recent innovations. And in pre-colonial Africa, the question *How hot is the water?* was likely to have been answered by *Very hot; Cold; As cold as the stream water in the spring*; or *As hot as fire*. The cultural or technological necessity for the development of a precise measure unit for temperature had not yet arisen.

Conversely, there is no purely linguistic reason why measure units of LOUDNESS, LIGHT INTENSITY, or ENERGY, which were developed long ago within the confines of the particular sciences dealing with these phenomena, should not have spread further into everyday use. Culturally, of course, these facts are quite significant, as are facts concerning the popular use of measure units for MASS/WEIGHT or VOLUME.

The purpose of this seeming diversion is to suggest that precise quantification and measure phrases may be an extension of some sub-component long before they are present in the semantic structure of quality adjectives. This sub-component may indeed be our (plus/minus) QUANTIFIER SLOT, discussed above.

Note now how the paraphrases of measure queries, unquantified answers, and quantified answers all suggest the relation between the adjectival measure phrase and the quantification of the quality noun underlying the adjective:[8]

    (9) a. Query:
          How LONG is the table?
          What is the LENGTH of the table?
          What LENGTH does the table have?
      b. Unquantified answer:
          The table is ([very]$_Q$) LONG.
          The LENGTH of the table is [(very) great]$_Q$.
          The table has [great]$_Q$ LENGTH.
      c. Quantified answer:
          The table is [five feet]$_Q$ LONG.
          The LENGTH of the table is [five feet]$_Q$.
          The table has a LENGTH of [five feet]$_Q$.

Further, note that in the quantified answer, the PLUS adjective (*long*) is used in its generic or unmarked capacity, so that it may cover any range of length, while the MINUS adjective (*short*) cannot be used this way. The same is also true when the paraphrases employ the quality noun, where *length* is used as the generic term, while *shortness* cannot be similarly used:[9]

    (10) a. The line is ten feet long.
         b. The line is three millimeters long.
         c. *The line is three millimeters short.

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  [8] In discussing the quality nouns involved throughout, it is not suggested that all of them are necessarily semantic primitives. Obviously, even relatively simple ones, such as *length, weight, height*, or *width*, may in turn be based upon yet more primitive semantic constructs. The present discussion does not proceed beyond a certain point of semantic depth, and it is conceded that the cut-off point may seem to some arbitrary.

  [9] Sentence 10c is of course acceptable under another interpretation, viz. 'The line falls short of the mark by three millimeters.'
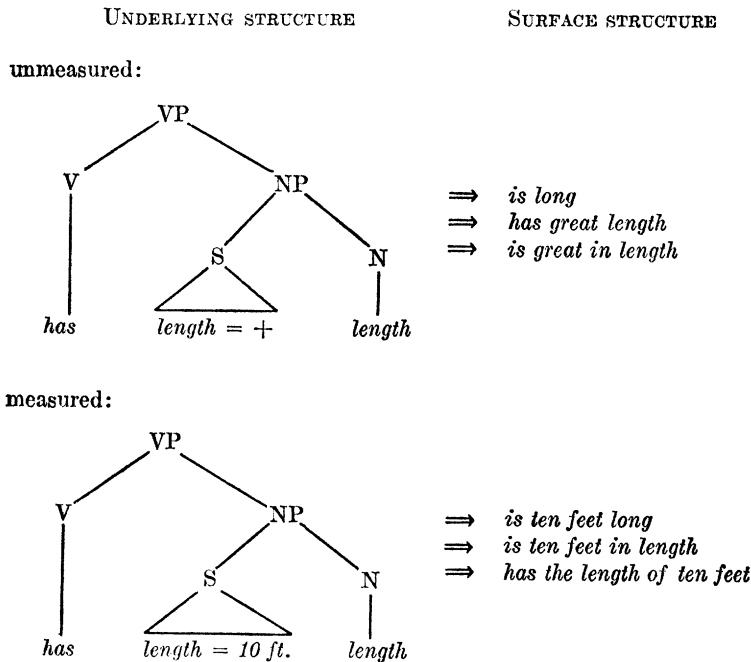
UNDERLYING STRUCTURE   SURFACE STRUCTURE

unmeasured:

$\Rightarrow$ *is long*
$\Rightarrow$ *has great length*
$\Rightarrow$ *is great in length*

measured:

$\Rightarrow$ *is ten feet long*
$\Rightarrow$ *is ten feet in length*
$\Rightarrow$ *has the length of ten feet*

FIGURE 1

    d. The length of the line is ten feet.
    e. The length of the line is three millimeters.
    f. *The shortness of the line is three millimeters.

In terms of currently available syntactic models for characterizing deep semantic structure, our suggestion at this point may be summed up as Figure 1.

    Finally, one should also note paraphrases obtained for comparative measure phrases, such as:

  (11) a. Table A is LONGER THAN table B.
       b. Table A surpasses table B in (its) LENGTH. .
       c. The LENGTH of table A exceeds that of table B.
       d. Table A is 10 FEET LONGER THAN table B.
       e. Table A surpasses table B BY 10 FEET in (its) LENGTH.
       f. The LENGTH of table A exceeds that of table B BY 10 FEET.

If these paraphrases are at all revealing or appropriate, then they once more seem to suggest that what is compared is NOT the extent of the adjective, but rather the extent of the quality noun underlying it.[10]

    [10] Fillmore 1965 has suggested that measure adjectives such as *tall* are inherently relational; that is, they are two-term predicates. In his words: 'Semantically the relational notion "taller than" is more basic than the notion "tall" ...' (p. 64). Thus, the expression *John is taller than Bill* is viewed by Fillmore as representing the normal, two-term predicate usage of the adjective: 'The sentence *John is tall*, on the other hand, will be interpreted as *John is taller than the average*' (65). In the present study no attempt is made to extend the

NOUN-BASED ADJECTIVES AND SELECTIONAL RESTRICTIONS

5. In current transformational literature it has been customary to assert that nouns select adjectives and verbs; that is, the SELECTIONAL restrictions of adjectives and verbs are defined in terms of the INHERENT features of nouns which they predicate or modify. What has been largely disregarded, it seems, is the wide range of instances in which selectional restrictions are observed between nouns and nouns. One instance of these involves selectional restrictions across the copula, in generic expressions such as:

(12) a. This woman is somebody's wife.
 b. *Somebody's wife is a woman.
 c. This horse is a mare.
 d. *This mare is a horse.
 e. Men are mammals.
 f. *Mammals are men.
 g. Horses are living creatures.
 h. *Living creatures are horses.
 i. My uncles are (good) men.
 j. *(Good) men are my uncles.

I have suggested elsewhere (Givón 1967a) that these restrictions may arise from the hierarchical nature of the noun system, where certain nouns play a role in the definitional hierarchy of other nouns.

More pertinent for the present discussion, however, are selectional restrictions between nouns and nouns across the verb *have* or *possess*. What is particularly revealing, in the examples below, is the close parallel between noun-noun restrictions across *have* and noun-adjective restrictions across *be:*

	NOUN-NOUN	NOUN-ADJECTIVE
(13) a.	The table has great size.	The table is large.
b.	*The great size has a table.	——
c.	The dress has green color.	The dress is green.
d.	*The green color has a dress.	——
e.	The length of the rope is ...	The rope is ... long.
f.	*The rope of the length is ...	——
g.	The judge has great wisdom.	The judge is wise.
h.	*The great wisdom has a judge.	——
i.	*The table has great wisdom.	*The table is wise.
j.	*The idea has green color.	*The idea is green.
k.	*The chair lacks morals.	*The chair is immoral.

I noted earlier that certain English adjectives, termed noun-based, can be paraphrased by nouns of quality, following the general equation *be*-ADJECTIVE = *have*-QUALITY$_N$. This by itself suggests that the two constructions may share much

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analysis of the semantic structure of adjectives beyond a certain depth, but it is obvious that most of them have a more complex semantic structure than that provided here. Fillmore's analysis does not conflict with mine, except that he seems to imply (65) that *short* is somehow not as relational (two-term predicate) as *long*. While I have noted that the positive member of adjective pairs is normally used as a generic term covering the entire measurement range, my analysis would predict that *John is short* means 'John is shorter than the average' just as much as *John is tall* means 'John is taller than the average.'

of their deep semantic structure. The fact that they also seem to share their selectional restrictions, with respect to the subject noun, is strong support for our hypothesis. Thus, if be-ADJECTIVE is not related to a have-QUALITY construction, seemingly identical selectional phenomena will have to be stated twice in the grammar. If my hypothesis is adopted, however, selectional restrictions will be stated here only once: between nouns and quality-nouns they may possess (i.e., between nouns and their possible ATTRIBUTES). The selectional restrictions between nouns and quality adjectives may then be predicted from the particular quality nouns those adjectives are based upon.

In §8 below a similar argument will be advanced concerning VERB-BASED adjectives, where it will be shown that noun-adjective selectional restrictions parallel noun-verb restrictions.

INTERMEZZO: THE SEMANTIC STRUCTURE OF SOME ENGLISH ADVERBIALS

6. The following section is somewhat of a digression, deemed necessary in anticipation of the discussion of adjectival senses derived from adverbial clauses. Much of the discussion may also be relevant to the subject of verb-based adjectives, developed in §8.

The overwhelming majority of English words listed in the dictionary as ADVERBS are derived from adjectives with the suffix -ly. The source adjective may be either underived, or overtly derived from a noun or a verb. Dictionary paraphrases of -ly adverbs almost invariably follow the first of the two formulas shown below:

(14) a. wisely $= \begin{cases} \text{in a WISE manner} \\ \text{with WISDOM} \end{cases}$

b. greedily $= \begin{cases} \text{in a GREEDY manner} \\ \text{with GREED} \end{cases}$

c. harmoniously $= \begin{cases} \text{in a HARMONIOUS manner} \\ \text{with HARMONY} \end{cases}$

d. presumptuously $= \begin{cases} \text{in a PRESUMPTUOUS manner} \\ \text{with PRESUMPTION} \end{cases}$

e. bitterly $= \begin{cases} \text{in a BITTER manner} \\ \text{with BITTERNESS} \end{cases}$

If the first paraphrastic formula is taken to be, in some sense, more basic or more revealing, then the general deep structure of -ly derived adverbs can be given as Figure 2.[11]

One may of course argue that, regardless of strictly ETYMOLOGICAL facts, the SEMANTIC derivation in English follows the path of

$$[\text{stem-}ly]_{\text{ADV}} \Rightarrow [\text{stem}]_{\text{ADJ}} \text{ (de-affixation)}$$

rather than

$$[\text{stem}]_{\text{ADJ}} \Rightarrow [\text{stem-}ly]_{\text{ADV}} \text{ (affixation).}$$

[11] For the purpose of the discussion here, we shall disregard the fact that the adjective involved may itself be noun-derived or verb-derived. We will also disregard several questions that might be raised as to the actual identity or function of the CLASSIFIER noun used (manner).

But aside from the seemingly universal lack of evidence for derivation by sub-traction, there are strong semantic grounds for deeming de-affixation here rather unlikely. Elsewhere (Givón 1967b) I have suggested that the process of lexical derivation, including sense extension, is a TRANSFORMATIONAL process involving deletion or contraction on the surface, but preservation of the underlying se-mantic structure. For the case cited above, the transformation involved can be given as the compression shown in Figure 3.

While it is possible to specify a (recoverable) deletion, it would be quite im-possible to specify, in any principled way, the reverse process of expansion or TREE BUILDING. In other words, transformational rules cannot expand structures in a principled way, but can only deflate or permute them. Expansion can of course be achieved by phrase structure rules; but then ADVERB could not possibly be a semantic primitive, since it is a dominating category:

$$\text{ADV} \to \text{PREP NP}$$

$$\text{NP} \to \text{(ADJ) N}$$

Gruber 1967 has also noted that rules of lexical derivation are transformations of a specific kind, operating DURING the process of LEXICAL ATTACHMENT. More recently they have been referred to as PRE-LEXICAL TRANSFORMATIONS.

So far we have concerned ourselves with adverbs overtly derived from adjec-tives with the suffix -ly. This leaves out an (admittedly small) group of seemingly non-derived English adverbs. A survey of the paraphrases used in their dictionary definitions reveals that most of them conform to the pattern of deep semantic structure described above; that is, they are structured semantically as PREPOSI-TIONAL PHRASES, with optional modification of the core noun (classifier) involved.
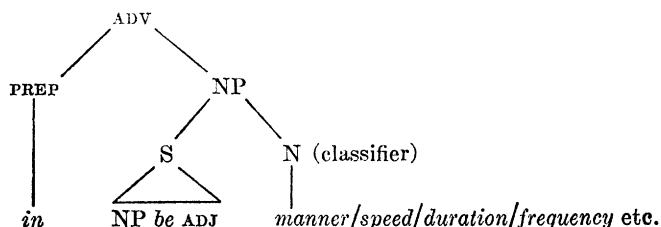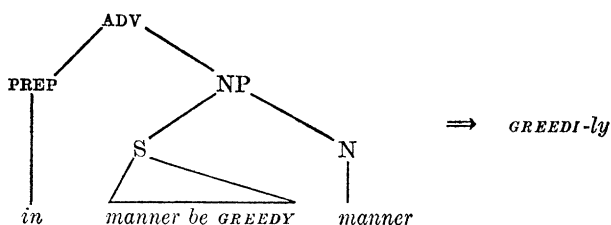

FIGURE 2

FIGURE 3

Some random dictionary examples are:

(15) a. up   = from a lower place, in a higher direction, to a higher place, to a higher degree, on a higher position, from a lower condition.

    b. down = from a higher place, in a lower direction, to a lower place, from an earlier period, at a lower position, to a lower amount.

    c. in   = from an outside point, to an inside place, to an enclosed location, at an enclosed location.

    d. out   = away from a place, away from the interior, into conclusion, from one state, beyond a normal surface.

    e. here = at this place, to this place, in this place, at this point in action.

    f. there = in that place, at that place, towards that place, at that point of action, in that respect, at that moment.

    g. now = at the present time, at this moment, at a time very close, at the time referred to.

    h. then = at that time, at another time, in that case, next in order, next in time.

Finally, of interest too are paraphrases given to four pairs of AMBIGUOUS adjective-adverbs: *fast* vs. *slow*, *near* (*close*) vs. *far*, *early* vs. *late* and *high* vs. *low*. It will be argued in §8 that their interpretation as adjectives cannot be understood without assuming the existence of some VERB; in other words, they will be characterized as VERB-BASED. The same relationship observed above between adverbial and adjectival senses is suggested here again by the paraphrases given to these adverbs in the dictionary:

(16) a. fast = rapidly, in a rapid manner, with great speed.

    b. slow = slowly, in a slow manner, with little speed.

    c. near = at a relatively short distance, at a near place.

    d. far   = at/to a distant place, at/to a distant time.

    e. early = at an early time, in the near future, at the beginning of a period.

    f. late = after the expected time, toward the end of a period, at a late time.

    g. high = in/to a high place/level/degree.

    h. low   = in/to/toward a low position/level/degree.

These paraphrases suggest that the semantic structure of these ambiguous adverbs, much like -*ly* derived adverbs, involves a prepositional phrase in which the semantically related adjective participates as the modifier to the core (classifier) noun.

ADVERBIAL SOURCES OF ADJECTIVAL SENSES AND VERB-BASED ADJECTIVES

7. Bolinger 1967 criticizes the way some generative grammarians have handled pre-noun adjectives, i.e. by deriving them from embedded sentences. The aspect of his criticism which most concerns this work involves the argument that adjectives cannot be derived from embedded sentences (relative clauses) because in a great many instances the presumed sentences in these clauses are not merely ungrammatical but also meaningless. To illustrate Bolinger's objections, the following examples are cited from his work:

EXAMPLES	UNGRAMMATICAL SENTENCES
(17) a. The chief reason ...	*The reason is chief.
b. A total stranger ...	*The stranger is total.

EXAMPLES	UNGRAMMATICAL SENTENCES
c. His main argument ...	*His argument is main.
d. A true poet ...	*The poet is true.
e. The regular champion ...	*The champion is regular.
f. This particular spot ...	*This spot is particular.
g. His former wife ...	*His wife is former.
h. A poor liar ...	*The liar is poor.
i. A poor typist ...	*The typist is poor.
j. Your present friend ...	*Your friend is present.
k. The criminal lawyer ...	*The lawyer is criminal.
l. An electrical worker ...	*The worker is electrical.
m. A rural policeman ...	*The policeman is rural.
n. A daily newspaper ...	*The newspaper is daily.
o. The only man there ...	*The man is only.
p. A personal manager ...	*The manager is personal.

Bolinger is correct, of course, in claiming that the starred sentences above, even when grammatical, could not have served as sources for the particular adjectival senses under consideration. This does not rule out, however, an embedded source for these adjective senses. Rather, it suggests that a VERB-PLUS-ADVERB construction, rather than a COPULA-PLUS-ADJECTIVE one, may have been involved in all the embedded structures above. Note that the verb-plus-adverb paraphrases suggested below seem to capture the semantic interpretation of the great majority of Bolinger's examples:[12]

(18) a. ——
    b. He was totally a stranger.
    c. He argued mainly that ...
    d. He was truly a poet.
    e. He was regularly the champion; He won regularly.
    f. ——
    g. She was formerly his wife.
    h. He lied poorly.
    i. She typed poorly.
    j. He is at present your friend.
    k. The lawyer specializes in criminal cases.
    l. He worked in a factory producing electrical appliances.
    m. He policed a rural district.
    n. The newspaper was published daily.
    o. ——
    p. He managed him himself, personally.

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[12] Items 18a, 18f, and 18o present problems of different kinds. *Only* (18o) may not be an embedded adjective, but rather a quantifier arising from non-recursive rules of the noun phrase. Alternatively, its pre-noun adjectival sense may be derived from the adverb *alone*, so that the appropriate paraphrase for 17o is *He was present there alone. Chiefly* (18a) may perhaps arise from the adverbial paraphrase *The reason that is chiefly emphasized here ...,* although the bindingness of this paraphrase is somewhat questionable. *Particular* (18f) may have arisen, in this particular sense, from the paraphrase *The spot was chosen for the particular reason (with the particular purpose in mind) ...,* which is again an adverbial source, although its validity is somewhat shaky. The source of the problem may be, in all three instances, in the fact that ACCIDENTS OF LEXICALIZATION and SENSE SHIFTS have occurred, upsetting originally neat lexical correspondences, so that a pre-noun modifier may sometimes be paired semantically with an adverbial adjective which is morphologically quite unrelated to it.

While it is true that there does not necessarily exist a lexical adjective corresponding to each of the *-ly*-suffixed adverbs used in these paraphrases (see fn. 12 concerning *mainly, particularly,* and *only*), this fact should at best be considered an accident of LEXICALIZATION in English. This surface phenomenon of lexicalization should in no way obscure the facts of semantic interpretation, i.e. that the adjectival senses cited by Bolinger are almost all derived, if their interpretation is to be trusted, from adverbial clauses associated with embedded sentences. Further, it can be shown for most of them that the particular *-ly*-suffixed adverb involved can be paraphrased to reveal the corresponding ADJECTIVE. Thus, what we are faced with is a much-used transformation of embedding in English, by which adjectives from adverbial clauses can be embedded as pre-noun modifiers. Indeed, it is not an accident that so many of Bolinger's examples are either overtly or semantically (for the particular senses involved) NOMINALIZATIONS. This is precisely the type of construction where noun complementation or modification of this kind is most common. Consider the following examples:

(19) a. An early arrival   Someone arrived early.
     b. An angry refusal   Someone refused angrily.
     c. A fast decision   Someone decided fast.
     d. A high probability   Something is highly probable.
     e. A shocked silence   Someone was silent as if shocked.
     f. An indignant response Someone responded indignantly.
     g. A brave defense of ... Someone defended ... bravely.
     h. His usual evasiveness He is usually evasive.
     i. An adamant denial   Someone denied ... adamantly.

To sum up, we are dealing here with a large group of seemingly adjectival constructions whose interpretation cannot be understood unless a relatively specific verb is assumed to be present in the deep semantic structure. In many instances, that verb is manifested on the surface as the nominalized head noun modified by the adjective.

VERB-BASED ADJECTIVES AND THEIR SELECTIONAL RESTRICTIONS

8. In an earlier section I argued that, by viewing certain adjectives of quality as NOUN-BASED, one is able to correlate the selectional restrictions between those adjectives and subject nouns with seemingly identical restrictions holding between subject nouns and nouns of quality which they can possess. A similar argument is made below for the concept of VERB-BASED adjectives. As an example, consider the four pairs designated above as verb-based:

	ADJECTIVE CONSTRUCTION	VERBAL PARAPHRASE
(20) a. *fast/slow*	The car IS FAST; a FAST car	The car DRIVES/CAN BE DRIVEN fast.
	His decision WAS FAST.	He DECIDED very fast.
	A FAST horse	The horse RUNS fast.
	A SLOW curve ball	The curve ball was THROWN slowly.
		The curve ball FLEW slowly.
	A FAST withdrawal	They WITHDREW fast.
	*The idea WAS FAST.	*The idea MOVED/RAN/GALLOPED fast.
	*The FAST tree	*The tree CAME/WENT/RAN fast.

	ADJECTIVE CONSTRUCTION	VERBAL PARAPHRASE
b. *early/late*	The guests WERE LATE.	The guests ARRIVED/CAME late.
	A LATE departure	He DEPARTED late.
	An EARLY arrival	He ARRIVED early.
	An EARLY decision	They DECIDED early.
	*The house WAS EARLY.	*The house CAME/ARRIVED/LEFT early.
	*Stupidity WAS EARLY.	*Stupidity CAME/LEFT early.
	*The tree WAS LATE.[13]	*The tree CAME/LEFT late.
c. *near/far*	The city WAS FAR.	The city WAS LOCATED AT a far place.
	The street IS NEAR-BY.	The street IS LOCATED near-by.
	*The wisdom IS FAR.	*The wisdom IS LOCATED far.
	*My idea IS NEAR-BY.	*My idea IS LOCATED near-by.
d. *high/low*	HIGH tide	The tide REACHED a high spot.
	LOW clouds	The clouds HANG at a low level.
	*The idea IS HIGH.	*The idea REACHED a high place.
	*Mercy IS LOW.	*Mercy HANGS at a low level.

The data suggest that a noun can be modified by the adjectives *fast/slow* only if it can be the subject of some rather specific MOTION VERBS which can take the adverbials *fast/slowly*. It can be modified by *early/late* only if it is a nominalization of a verb that can take the adverbials *early/late*, or if it can be the subject of a verb that can take them. It can be modified by *high/low* and *near/far* only if it can be the subject of *be-at*-LOCATION. In short, the full parallelism in selectional restrictions supports the claim, initially arrived at by observing the appropriate paraphrases, that the paired adjectives in question are VERB-BASED. It is not an accident that they show great similarities to the adjectival senses discussed by Bolinger, since in both cases the PRE-NOUN adjective is derived from the modifying adjective present in the ADVERBIAL CLAUSE of the embedded sentence. Nor is it an accident that both types show great propensity for modifying nominalizations, again a typical feature of pre-noun adjectives derived from adverbial clauses.

STATIVE AND ACTIVE VS. NOUN-BASED AND VERB-BASED ADJECTIVES

9. A few years back, Ross & Lakoff 1967 observed that English adjectives, much like English verbs, seem to divide into STATIVE and ACTIVE ones. After showing great parallelism in the syntactic behavior of the two classes, using various test frames, Ross & Lakoff concluded that there existed 'strong evidence for the assertion that what traditional grammarians called adjectives and verbs are really members of the same major grammatical category ...' (15). In this

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[13] Note that *The tree was late* is acceptable if interpreted by the verbal paraphrase *Someone brought the tree late*, and *late Christmas packages* is easily interpreted as *Christmas packages which were sent/received/mailed late*. Note also that *The Christmas packages left the post office late* must mean *Someone sent them out late*, and *The Christmas packages arrived early* must mean *Someone brought them early*. But we never have *The packages left the post office very late all by themselves* or *The packages arrived late on their own*. In short, a lexical transformation of ellipsis may be involved in all these usages, but the adjectives *early/late* are appropriate not only because the verb involved is a verb of MOTION, but rather because is it a verb of ACTIVE MOTION, or MOTION ACTIVELY INITIATED.

section I shall investigate the possible convergence of the distinctions STATIVE vs. ACTIVE and NOUN-BASED vs. VERB-BASED adjectives. Of the test frames used by Ross & Lakoff, we will employ only one, but the rest are worth mentioning:

(21) a. Imperative test:
      active: BE CAREFUL, will you!   RUN, will you!
      stative: *BE RICH, will you!   *KNOW the answer, will you!
    b. *Do* test:
      active: What he did to annoy me, was to BE NOISY.
              What he did to please her, was to LOOK AT her.
      stative: *What he did to annoy me, was to BE STUPID.
              *What he did to please her, was to HEAR the music.
    c. *Remind* test:
      active: I reminded him to BE VERY BRIEF.
              I reminded him to COME early.
      stative: *I reminded him to BE TALL.
              *I reminded him to UNDERSTAND everything.

I shall first attempt to demonstrate that adjectives which have been characterized above as noun-based all fall into the STATIVE category, while those characterized as verb-based—if based on active verbs—fall into the ACTIVE category. Since the tests described in 21 apply only to adjectives which predicate human-agentive nouns, we shall use below another test-frame: NP *is being* ADJ, which excludes stative adjectives:

(22) Noun-based adjectives:
    a. *The crowd is being very large/small today.
    b. *The lecture is being very long/short today.
    c. *The river is being very wide/narrow here.
    d. *Our loads are being very heavy/light.
    e. *The water is being very hot/cold this time.
    f. *The lake is being very deep/shallow at this spot.
    g. *The baby is being very tall/short today.
    h. *Susan is being very fat/skinny these days.
  Verb-based adjectives:
    i. He is being very fast/slow today.
    j. He is being very early/late today.
    k. *The clouds are being very high/low today.
    l. *The troops are being very far from/near to base today.

That *high/low* and *near/far* are stative can be predicted from the fact that they are based on the construction *be located at*, which is also stative. Note further that it is not enough to simply designate an adjective as stative or non-stative. Rather, one must show that a particular SENSE of that adjective is stative/non-stative or noun-based/verb-based. Thus, the adjectives shown in 23 are normally considered stative (or noun-based, in our terminology), though some of their senses can be demonstrated to be active (or verb-based)—and they are indeed paraphrasable with active verbs:

(23) a. He is being very GOOD today (He is BEHAVING very good today.)
    b. What he did to please her, was to BE GOOD to her (... TREAT her well.)
    c. They persuaded him to BE GOOD to her (... TREAT her well.)

    d. He is being very BIG about it (He BEHAVES magnanimously.)

    e. What he did to please them, was to BE BIG about it (... BEHAVE magnanimously about it.)

    f. I persuaded him to BE BIG about it (... BEHAVE magnanimously ...)

    g. He is being very COLD to her (He TREATS her coldly.)

    h. What he did to annoy her, was to be VERY COLD (... TREAT her coldly.)

    i. I persuaded him to BE COLD to her (... TREAT her coldly.)

    j. He is being very WISE about it (He is ACTING wisely.)

    k. What he did to annoy me, was TO BE VERY STUPID about it (... ACT stupidly.)

    l. I persuaded him not to be so STUPID (... not to ACT so stupidly.)

    m. He is being rather UGLY about it (... BEHAVES in an ugly manner.)

    n. What he did to annoy me, was to BE VERY UGLY about the whole thing (... BEHAVE in a very ugly way about the whole thing.)

    o. I dissuaded him from BEING UGLY about it (... from BEHAVING in an ugly manner.)

Similarly, one could argue that the active adjectives cited by Ross & Lakoff, such as *polite* or *careful*, are verb-based in our sense, since their interpretation requires a verb-based paraphrase with *act* or *behave*. Further, notice that the selectional restrictions of nouns to adjectives seem to have a strong correlation with those operating between the same nouns and the verbs claimed here to underlie those adjectives; note examples l–m below:

(24) a. He is being very careful about it.   He is acting very carefully about it.

     b. He is being very polite to her.   He is treating her very politely.

     c. He is being very cautious.   He is moving very cautiously.

     d. He is being very patronizing to me.   He is treating me patronizingly.

     e. He is being very repressive to his dog.   He is treating his dog repressively.

     f. He is being very jealous.   He is behaving very jealously.

     g. He is being insulting to her.   He is insulting her.

     h. He is being very convincing.   He is talking in a very convincing way.

     i. He is being vindictive.   He is acting vindictively.

     j. He is being evasive.   He is acting evasively.

     k. He is being furtive.   He is acting furtively.

     l. John is being very good today.   John is behaving very well today.

     m. *The table is being very good today.   *The table is behaving very well today.

Again, in a grammar aiming to capture significant generalizations about the language, it seems undesirable to describe the two phenomena—the selectional restrictions with adjectives and those with verbs—as unrelated. Further, it seems that there exists a consistent use of the ELLIPTIC construction with *be* as surface representation of a VERBAL construction in which the adjective is part of the adverb clause, as in Figure 4. Thus the feature [+active] of the adjective in the *be* ADJ construction must have been derived from the feature [+active] of the underlying deep-structure verb.
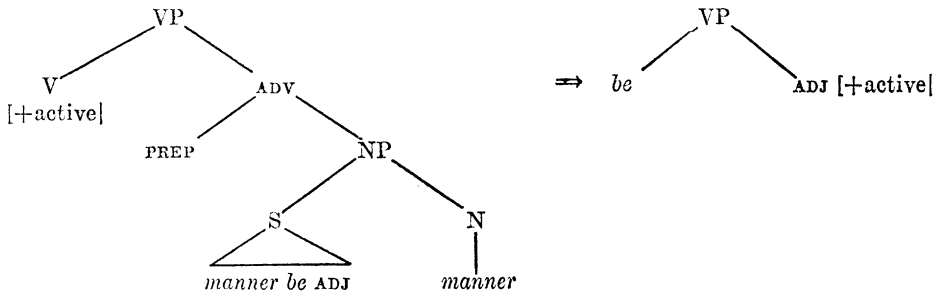
FIGURE 4

ACTIVE AND STATIVE DERIVED ADJECTIVES

10. We observed earlier that, of the long list of adjectives in the English dictionary, the overwhelming majority are overtly derived (by affixation) from noun or verb stems. In the sections above, some rather strong claims were made concerning the semantic structure of non-derived English adjectives. Among other things, it was claimed that adjectives semantically based on (active) verbs will behave as active adjectives according to the tests given in Ross & Lakoff. Although this paper has concerned itself primarily with underived adjectives, our claims would lose much of their validity if it could not be shown that adjectives which are OVERTLY based on nouns or verbs—etymologically, morphologically, or historically—abide by similar principles. The difficulties involved in handling the derived adjective lexicon in English are considerable. Historical semantic changes have in many instances destroyed the correlation between the morphological process and the underlying semantic derivation. The data cited below are only a preliminary suggestion as to the lines an eventual investigation might follow. We will first briefly consider adjectives derived from verbs with the suffixes -ive, -ing, -able. For those, it can perhaps be shown that when the BASE verb is active, the derived adjective is also:[14]

(25) a. He is being very COÖPERATIVE.   He is COÖPERATING ...
     b. He is being very NEGATIVE.   He is DENYING ...
     c. He is being very ABUSIVE.   He is ABUSING ...
     d. He is being very EVASIVE.   He is EVADING/AVOIDING ...
     e. He is being very SUGGESTIVE.   He is SUGGESTING ...
     f. He is being very VINDICTIVE.   He is AVENGING ...
     g. He is being very ASSERTIVE.   He is ASSERTING himself.
     h. He is being very PROTECTIVE.   He is PROTECTING ...
     i. He is being very OBJECTIONABLE. He is ACTING objectionably.
     j. He is being very REASONABLE.   He is ACTING in a reasonable man-
                                         ner.

[14] In 25i–k, semantic change is probably responsible for the fact that the equation [being [——]v -ive] = [be [——]n -ing] is often destroyed. It is claimed here, however, that the underlying verb involved in the semantic derivation remains active. This is confirmed by the appropriateness of paraphrases using act or behave as a PRO-VERB.

k. He is being REPULSIVE.   He is ACTING repulsively.

l. ?He is being very UNDERSTANDING.   ⌠ He is ACTING very understandingly.
                                             ⌡ *He is UNDERSTANDING her very well.

m. ?He is being very CONVINCING.   ⌠ He is TALKING very convincingly.
                                             ⌡ *He is CONVINCING HER THAT ...

n. ?You are being very REASSURING.   ⌠ You are ACTING reassuringly.
                                             ⌡ *You are REASSURING me that ...

o. ?You are being very PERCEPTIVE.   ⌠ You are TALKING very perceptively.
                                             ⌡ *You are PERCEIVING that ...

p. *He is being very KNOWING.   *He is KNOWING that.
q. *He is being very KNOWLEDGEABLE.   *He is KNOWING that ...
r. *It is being very REGRETTABLE.   *One is REGRETTING that ...

Many *-able* derived adjectives seem to be of a different nature.
Their semantic derivation apparently involves an underlying *can* or *be able to*,
which are by themselves stative. This accounts for the derived adjectives' being
stative as well:

(26) a. He is unbeatable.   No one can beat him.
     b. *He is being unbeatable.   *No one is being able to beat him.
     c. She is unforgettable.   No one is able to forget her.
     d. *She is being unforgettable.   *No one is being able to forget her.
     e. It is undeniable.   No one can deny it.
     f. *It is being undeniable.   *No one is being able to deny it.
     g. She is unmanageable.   No one can manage her.
     h. *She is being unmanageable.   *No one is being able to manage her.
     i. He is incorrigible.   No one can correct him (his behavior).
     j. *He is being incorrigible.   *No one is being able to correct him.
     k. It is unforgivable.   No one can forgive it.
     l. *It is being unforgivable.   *No one is being able to forgive it.
     m. She is unacceptable.   They cannot accept her; They don't accept
                                              her.
     n. *She is being unacceptable.   ⌠*They are not being able to accept her.
                                              ⌡*They are not accepting her.
     o. It is questionable.   One can question it (its validity).
     p. *It is being questionable.   *One is being able to question it.

Another instance involves adjectives derived from nominalizations (i.e., verbs
first yield nouns, then the adjective is derived from the noun) with the suffix
-ful or its negative counterpart *-less*. If the source verb was an active one, the
derived adjective seems to be active; if the source verb was stative, the derived
adjective seems to be stative:

(27) Stative:
     a. I am hopeful that ...   I hope that ...
     b. *I am being hopeful that ...   *I am hoping that ...
     c. It is regretful that ...   I regret that ...
     d. *It is being regretful that ...   *I am regretting that ...
     e. He is fearful of ...   He fears that ...
     f. *He is being fearful of ...   *He is fearing that ...
     Active:
     g. He is helpful to them.   He helps them.
     h. He is being helpful to them.   He is helping them.
     i. He is deceitful to her.   He deceives her.

j.	He is being deceitful to her.	He is deceiving her.
k.	He is harmless.	He doesn't harm anyone.
l.	He is being harmless.	He is not harming anyone.

The study of material of this kind is forever complicated by the fact that SENSE EXTENSION from more stative adjectival senses (*be* ADJ) to more active senses (*act in an* ADJ-*ly manner*) is a much used lexical transformation in English. This in no way destroys our central assumption about the deep phenomena underlying the stative-active distinction, but only makes judgment about the validity of data more difficult. In general, one could almost predict that, given the appropriate context, HUMAN-AGENTIVE subject nouns in English may condition the derivation of active (*act in an* ADJ-*ly manner*) senses for almost any stative (noun-based) English adjective. This underscores again the necessity for dealing, in studies of this kind, with SENSES of lexical items rather than with the ill-defined lexical item as a whole.

SOME CONCLUDING REMARKS

11.1 PARAPHRASTIC FORMULAS AND SEMANTIC STRUCTURE. Trivially, at least, paraphrastic definitions of adjectives in the dictionary conform to the generalization reported earlier (Givón 1967b) for nouns and verbs: i.e., the formula is an adjectival phrase or relative clause. However, since these are HEADLESS constructions, the parallel ends here. In noun and verb definitions, the head noun or main verb is in some very real sense central to the semantic structure of the given noun or verb, respectively. The fact that the definition of an adjectival sense cannot be likewise headed by an adjective may underscore the claim made throughout this work: that at the core of the semantic structure of adjectives lie nouns or verbs. That is, ADJECTIVES ARE NOT SEMANTIC PRIMITIVES, WHILE NOUNS AND VERBS ARE.

11.2 NEGATIVE PAIRING. We have shown that many underived adjectives in English are paired in such a way that one member of the pair is negatively related to the other, while both of them are defined upon the same nominal or verbal CORE. Can this generalization be extended to the vast lexicon of overtly derived adjectives? This often seems to be the case, with overt negative markers applied to unpaired (derived) adjectives. Thus, the suffix -*less* seems to pair with— and replace—the derivational suffix -*ful*. The prefix *un*- seems to be used for deriving negative counterparts of many adjectives derived from verbs by the suffixes -*ive* or -*able*. Similar pairing is achieved with the help of the prefix *non*-, which also marks many negative counterparts of adjectives derived from nouns by the suffixes -*al*, -*ar*, -*an*, or -*ic*. The assimilating prefix *IN*- (*im*-, *il*-, *ir*-, *in*- etc.) seems to perform a similar function. In short, throughout the vast lexicon of derived adjectives in English, negative pairing is a morphologically marked process of great universality. The fact that overtly underived adjectives seem to abide by the same rule semantically is therefore not at all surprising, but rather conforms to the general semantic pattern.

11.3 FIELD ADJECTIVES. A conspicuous exception to negative pairing appears in the case of adjective sets covering FIELDS, such as COLOR or SHAPE. Forms

such as *unred, *unblue, *untriangular, or *unsquare seem definitely odd. However, one could show that, at least with respect to our negative pairing test, adjectives of the same field behave as contraries or antonyms of each other. Thus:

(28) a. This book is blue, and that one is not red either.
   b. This wall is white, and that one is not purple either.
   c. This structure is spherical, and that one is not conical either.
   d. This house is square, and that one is not round either.

Thus, while most adjectives in the lexicon involve BINARY pairing, in which the pair share the same core noun or verb but are distinguished from each other by a BINARY quantifier slot, field adjectives indeed share the same core noun (*color*, *shape, consistency, texture*), but their quantifier slot is N-ARY rather than binary.[15]

11.4 ADJECTIVES AND THE TOTAL GRAMMAR. The most convincing piece of evidence in support of our concept of noun-based and verb-based adjectives arises from selectional restrictions. Nouns show the same selectional restrictions with noun-based adjectives as they do with the quality nouns underlying them (across *have*), and the same selectional restrictions with verb-based adjectives as they do with the verbs underlying them; these facts must lead one to seek the source of such parallelism in the deep semantic structure involved. This paper is an attempt to suggest some of the properties of that deep semantic structure.

If one adopts the concept of the deep semantic structure of adjectives, one must also adopt the concept of lexical (or pre-lexical) transformations as developed in Gruber and in Givón 1967b, since it seems clear that the surface constructions of *be*-ADJ must arise through rules which map MORE EXPANDED, ELABORATE tree structures into them. Since these rules clearly map trees onto trees, they are transformational. Further, it has also been shown in Givón 1967b that rules of SENSE-EXTENSION (sense development, sense shifting) are transformational in precisely the same way.

11.5 ADJECTIVES AND UNIVERSAL GRAMMAR. It is quite likely that claims made here about the semantic structure of English adjectives will apply to adjectives of most other Indo-European languages as well. It is also worth noting that the status of the lexical category ADJECTIVE in other language families is equally controversial. In some (Nilo-Hamitic), there are no adjectives at all, only stative or active verbs. In others (Bantu), the lexicon of underived adjectives is extremely small; most of its members can be shown to be historically derived from nouns or verbs, and most adjectival senses may be expressed with stative verbs. In still others (Semitic), the category ADJECTIVE is indistinguishable from the stative or participial form of the verb, and the morphology furnishes clear derivational channels for obtaining all adjectives from (or tracing

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[15] A roughly identical position has been expressed by Katz 1964. He writes: 'the majority of antonymous lexical items are not sets of pairs but sets of n-tuples' (p. 532). Of our field adjectives, Katz says: 'These form an antonymous n-tuple because the path associated with each is identical except for the distinguisher which differentiates the color adjectives from each other' (532). In our terminology, read CORE NOUN COLOR for Katz's PATH, and N-ARY QUANTIFIER SLOT for Katz's DISTINGUISHER (in this particular case).

them to) noun stems or verb stems. In short, we are dealing with a lexical category whose universality is open to doubt, and whose membership arises primarily through overt derivation even in languages where it does exist. It is therefore perhaps no accident that even the relatively few underived adjectives of English are semantically based on nouns or verbs.

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