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A number of recent papers have claimed or assumed that the thematic relation *theme* plays a role in two lexical rules that form adjectives from verbs. I will argue here that this position is incorrect. This conclusion is of general theoretical importance in suggesting that no grammatical rule refers to thematic relations.

The two constructions to be discussed here are adjectival passives, as in (1), and *able*-adjectives, as in (2).

- (1) a. John seems very annoyed.
 b. Antarctica is uninhabited.
- (2) a. This vase is breakable.
 b. This book is unreadable.

Adjectival passives resemble verbal passives, taking the form of a past participle, but their adjectival status is well documented (Stiegel (1973), Hust (1977), Wasow (1977), Bresnan (1982)). The bulk of my examples of adjectival passives will also contain the adjective prefix *un-*, since, as the above authors show, this provides clear evidence for their adjectival status. Wasow (1977) observes restrictions on these two constructions, illustrated by the contrast in (3) and (4).

- (3) a. That story isn't tellable.
 b. *John isn't tellable.
- (4) a. The letter was unsent.
 b. *Sue was unsent the letter.

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Wasow proposes that these contrasts are due to a constraint that the subject of such an adjective be the direct object (but not the indirect object) of the verb from which the adjective is formed. Anderson (1977) suggests an alternative account: (3a) and (4a) are acceptable because their subjects are themes (as defined by Gruber (1965) and Jackendoff (1972)), whereas (3b) and (4b) are unacceptable because their subjects are goals, not themes. Anderson's suggestion has been accepted by Wasow (1980), Horn (1981), Williams (1981), and Bresnan (1982). Thus, the solutions proposed by these authors assume the following hypothesis:¹

Theme Hypothesis (TH)

The subject of an adjectival passive or *able*-adjective must be the theme of the verb from which the subject is formed.

I shall give evidence in this squib against this hypothesis.

1. Evidence against the Theme Hypothesis

The authors who have claimed that the notion of *theme* is relevant to adjectival passives or *able*-adjectives cite Gruber (1965) or Jackendoff (1972) as the basis for their understanding of that notion. But their use of the term often appears to be at variance with that of Gruber and Jackendoff, so it is worth summarizing Jackendoff's characterization. Something is a theme if it undergoes motion from one location to another, as in (5), or if it is in a particular location, as in (6).

- (5) a. Harry (*theme*) went from Bloomington (*source*) to Boston (*goal*).
 b. John (*agent, source*) gave the book (*theme*) to Mary (*goal*).
- (6) a. Harry (*theme*) is in Boston (*location*).
 b. Mary (*location*) has the book (*theme*).

The notion is then extended metaphorically to other semantic domains, as in (7).

- (7) a. Dave (*agent, source*) explained the proof (*theme*) to his students (*goal*).
 b. George (*theme*) got angry (*goal*).
 c. George (*theme*) is angry (*location*).
 d. Max (*location*) knows the answer (*theme*).

Given the criteria outlined by Gruber and Jackendoff, the verbs in (8) are ones whose objects are clearly locations and whose subjects are thus themes.

¹ Strictly speaking, although all these authors make this claim for adjectival passives, it is made explicitly for *able*-adjectives only by Williams (1981). It is implicit, however, in Anderson's (1977) discussion and in a note by Bresnan (1982, 82, note 8).

- (8) a. Penguins (*theme*) inhabit Antarctica (*location*).
 b. Tenants (*theme*) occupy the upper storey of his house (*location*).

The TH thus fails to account for the adjectives in (9).

- (9) a. Antarctica is *uninhabited*.
 b. The upper storey of his house is *unoccupied*.

Examples like these are precisely the type the TH predicts should not exist.

Similar arguments can be given for verbs whose objects are goals, like those in (10).

- (10) a. The tourists (*theme*) approached the policeman (*goal*).
 b. We (*theme*) attained our goals (*goal*).
 c. We (*source, agent*) informed Bill (*goal*) that Mary had left (*theme*).

Again, the TH incorrectly predicts that examples like those in (11) should not be possible.

- (11) a. The policeman was *unapproachable*.
 b. Our goals are *attainable*.
 c. Tom was *uninformed*.

The contrast between (11c) and (12) is particularly revealing.

- (12) *Tom was *untold*.

Tom clearly bears the same thematic relation in (11c) and (12), so the contrast must be due to something other than thematic relations.

A large class of verbs for which the assignment of thematic relations is unclear is the class of psychological verbs. Thus, it is not obvious which nominals are themes in (13).

- (13) a. The music pleased John.
 b. John enjoyed the music.

But whatever the thematic relations in (13a), presumably they are reversed in (13b), since the two sentences describe essentially the same situation: if *John* is the theme in (13a), then *John* is also the theme in (13b). But then the pair of examples in (14) presents a problem for the TH.

- (14) a. John was *very pleased*.
 b. The music was *very enjoyable*.

The TH could account for (14a) or (14b) but not both. To account for (14a), the TH would require that *John* be the theme in (13a). But if *John* is the theme in (13b), then *the music* is not the theme, so (14b) presents a problem. To account for (14b), the TH would require that *the music* be the theme. But then (14a) is unaccounted for. Note that a solution referring to ob-

jects or to argument structure would appear to account for such examples straightforwardly.

For some psychological verbs, one can construct arguments that the direct object is not the theme. Consider the examples in (15).

- (15) a. Mary fell in love with John.
 b. Mary loved John.
 c. John was lovable.

In (15a) Mary is the one who is undergoing a change of state; John may be quite unaffected by the event. Thus, *Mary* would appear to be the theme in (15a). But since (15b) describes the state that results from the change in (15a), *Mary* would appear to be the theme in (15b) as well. Presumably *John* is therefore the goal in (15a) and the location in (15b). But then (15c) constitutes a further problem for the TH.

Many of the arguments that have been given in this section may seem weak due to the intuitive nature of judgments about what is theme. But that in itself demonstrates a problem inherent in the TH. As long as judgments regarding thematic relations are highly intuitive and subject to variation between individuals, the TH lacks empirical content in being difficult in principle to falsify.

2. Evidence against the Subject Theme Hypothesis

Bresnan (1982, 30) makes the following claim in addition to the TH.

Subject Theme Hypothesis (STH)

An adjectival passive can be formed from an intransitive verb that takes a theme subject.

The adjectival passives in (16) cited by Bresnan (p. 30) might seem at first to support the STH, since in each case the subject of the adjective is also the subject of the verb from which the adjective is formed.

- (16) a. *elapsed* time
 b. a *fallen* leaf
 c. a widely *travelled* man
 d. an *undescended* testicle
 e. a *risen* Christ
 f. a *stuck* window
 g. the *drifted* snow
 h. a *lapsed* Catholic
 i. a *collapsed* lung
 j. a *failed* writer

There is reason to believe, however, that these examples are irregular exceptions. Note first that many of the adjectives

in (16) are subject to severe idiosyncratic constraints. Some of them do not occur naturally with other nouns, even in semantically appropriate contexts.

- (17) a. ?*an *undescended* curtain
 b. ?the *risen* sun
 c. ?a *lapsed* generative semanticist

Many of them do not occur predicatively.

- (18) a. ?Many who call themselves Catholics are actually *lapsed*.
 b. *Twenty minutes is *elapsed*.
 c. *Many would-be writers become *failed*.
 d. *The snow is *drifted*.

Stronger evidence for the exceptional nature of these adjectives derives from contrasts like the one in (19).

- (19) a. ?John managed to get across the minefield *unkilled*.
 b. *John managed to get across the minefield *undied*.

I assume that there is a distinction between *actual* words, *possible* words, and *impossible* words (see Aronoff (1976)). Since word formation rules are not in general fully productive, there will exist forms that could be derived by a word formation rule but are not, due to accidental lexical gaps. Such forms are possible but nonactual. However, forms will be impossible if they are nonactual and could not be derived by any word formation rule. Forms like *readable* and *breakable* are actual words; *killable* and *throwable* are possible but nonactual; *diatable* and *sleepable* are impossible. The contrast between possible non-actual words and impossible words is revealed in a contrast between marginally acceptable sentences and unacceptable sentences. Note, for example, the contrast in (20).

- (20) a. ?Mosquitoes are *killable/throwable*.
 b. *Mosquitoes are *diatable/sleepable*.

Consider now the contrast in (19). Neither sentence is fully grammatical because neither *unkilled* nor *undied* is an actual word. We can account for the contrast, however, if we assume that *unkilled* is a possible nonactual word, whereas *undied* is an impossible word. But according to the STH, both are possible words, since the subject of *die*, like the object of *kill*, is a theme. We can achieve the desired result if we assume (following other authors like Williams (1981)) that adjectival passives can only be formed from transitive verbs.

Other examples further support this position: novel adjectival passives formed from transitive verbs are marginal, whereas those formed from intransitive verbs are completely unacceptable, even though these verbs take theme subjects.

- (21) a. The dollar bill that I dropped on the sidewalk last night was still there this morning. ?*unstolet*? ?*unremoved*? ?*ungone*? ?*undisappeared*.
 b. He lay in bed all night ?*unbothered*? ?*unstept*.

Other examples, with verbs that can be used either transitively or intransitively, provide evidence against both the STH and the TH. Given the thematic relations indicated in (22a) and (22b), the STH incorrectly predicts that (22c) should have a reading corresponding to (22b), and the TH incorrectly predicts that it should not have a reading corresponding to (22a).

- (22) a. John (*theme*) entered the boat (*goal*).
 b. The boat (*theme*) entered.
 c. ?The boat sat outside the harbor, *unentered*.

Similarly, given (23a), the TH incorrectly predicts that (23b) should be unacceptable, and the STH incorrectly predicts that (23c) should be marginally acceptable.

- (23) a. John (*theme*) has not swum the Torres Strait (*location*).
 b. ?The Torres Strait remains *unswum*.
 c. *John remains *unswum*.

It appears, then, that the adjectives in (16) formed from intransitive verbs are exceptions to the productive word formation rule for adjectival passives. The contrasts illustrated in (19) through (23) must be due to the nature of the word formation rules themselves, since none of the adjectives are actual lexical items. Since the examples in (16) involve actual lexical items, however, their exceptional behavior can be attributed to their being lexical exceptions. Nonactual words provide stronger evidence than actual words for the nature of word formation rules, just as novel sentences provide stronger evidence than do idioms and proverbs for the nature of syntactic rules.

3. Conclusion

Given the evidence cited here against the TH and the STH, we can apparently conclude that the subject of an adjectival passive or *able*-adjective must be an object of the verb from which the adjective is formed, and need not be a theme.² Hence, some alternative account is needed for the unacceptability of examples like those in (3) and (4) that originally motivated the TH.

² The STH refers only to adjectival passives and not to *able*-adjectives because Bresnan's claim is restricted to adjectival passives. However, arguments parallel to those given for adjectival passives can be given showing that the subject of an *able*-adjective must also be the object of the verb from which the adjective is formed. Examples like those in (20) provide the basis for one such argument.

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REDUPLICATION AND CV
SKELETON IN KAMAUURÁ
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Kamauurá, a Tupi-Guarani language spoken by approximately 150 individuals in the Xingu Park of central Brazil, has a reduplication process that expresses plurality, intensity, and repetitive action. Under the autosegmental theory of reduplication developed in Marantz (1982), the reduplicative morpheme can be expressed as a suffix consisting only of the CV skeleton /-CVVCV/. The phonemic melody of the stem is mapped onto

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the skeleton from right to left, giving partial derivations like those in (1):¹

- (1) a. o - mo - tumu →
3 - it - shook
'He shook it'
o m o t u m u g - o m o t u m u g
| | | | | | | | | | | | | | | |
V C V C V C V C C V C V C
'He shook it repeatedly'
- b. o - mo - kon →
3 - it - swallow
'He swallowed it'
o m o k o n - o m o k o n
| | | | | | | | | | | | | | | |
V C V C V C C V C V C
'He swallowed it frequently'
- c. o - huka → o h u k a - o h u k a
| | | | | | | | | | | | | | | |
3 - laugh V C V C V C V C V C V C
'He laughed' 'He kept laughing'
- d. o - je - 2apah^{at} →
3 - refl. - roll up
'He rolls himself up'
o j e ʔ a p a h ^{at} - o j e ʔ a p a h ^{at}
| | | | | | | | | | | | | | | |
V C V C V C V C V C C V C V C
'He rolls himself up repeatedly'
- e. je - umirik → j e u m i r i k - j e u m i r i k
| | | | | | | | | | | | | | | |
I - tie-up C V V C V C V C C V C V C
'I tie up' 'I tie up repeatedly'
- Assuming with Marantz that phonemes unassociated to the prosodic template do not surface, we derive the forms in (2):
- (2) a. omotumutumu 'He shook it repeatedly'
b. omokomokon 'He swallowed it frequently'
c. ohukahuka 'He kept on laughing'
d. oje2apah^{at}apah^{at} 'He rolls himself up repeatedly'
e. jeumirikmirik 'I tie up repeatedly'

¹ Briefly, the unmarked mapping procedure for suffixation suggested by Marantz is leftward from the first [+vocalic] segment to the first V and from the first [-vocalic] segment to the first C, etc. (see McCarthy (1982) for the feature [vocalic]).