SELKIRK'S THEORY OF VERBAL COMPOUNDING:
A CRITICAL APPRAISAL

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1 Introduction

This paper presents a critical appraisal of the theory of verbal compounding proposed recently by Selkirk (1981).\(^1\) On her (1981:246) view, English verbal compounds are "endocentric adjective or noun compounds whose head adjective or noun (respectively) is morphologically complex, having been derived from a verb, and whose nonhead constituent is interpreted as an argument of the head adjective or noun."\(^2\) To illustrate this characterization of verbal compounds Selkirk (1981:247) furnishes examples such as the following:

\[
\begin{array}{ll}
\text{Nouns} & \text{Adjectives} \\
\text{time saver} & \text{hand woven} \\
\text{house cleaning} & \text{eye catching} \\
\text{slum clearance} & \text{water repellent} \\
\text{consumer protection} & \text{self-destructive} \\
\text{troop deployment} & \text{hand washable} \\
\text{property appraisal} & \text{disease inhibitory}
\end{array}
\]

Selkirk presents her theory of verbal compounding as part of a more general theory of compounding. The latter theory, in turn, is presented to illustrate basic assumptions of her still more comprehensive theory of word structure.

The discussion below is structured as follows. In §2 the basic assumptions of Selkirk's theory of word structure are presented and illustrated with reference to her theory of compounding. Against this background, her theory of verbal compounding is outlined in §3. What appears to be the more important questionable aspects of the latter theory are
discussed in some detail in §4. The concluding section, §5, contains a brief summary of the major findings of the discussion in §4.

2 The theories of word structure and compounding

In content Selkirk's general theory of word structure has much in common with other lexicalist theories of morphology/word formation. To begin with, she (1981:231) ascribes to her theory the conventional lexicalist aim of defining the well-formedness of morphological structures. And, in typical lexicalist vein, words are assigned a dual status (Selkirk 1981:230). On the one hand, they are introduced as basic units of phrase structure for the purpose of syntactic description. On the other hand, words represent the maximal units for the internal structure of which a morphological theory must account. Word structure, however, is independent from phrase structure and does not simply constitute the "lower" portion of a single homogeneous syntactic representation. Like other lexicalist morphologists, Selkirk (1981:231) provides for a lexical component which incorporates, among other things, an extended dictionary listing the unanalyzed morphemes — bound or unbound — and the words of the language. In addition, the lexical component contains a set of word structure rules characterizing the morphological structures of the language.

The distinctive property of Selkirk's theory of word structure, which sets it apart from other lexicalist morphological theories, is her basic hypothesis concerning the nature of the word structure rules. These are taken by Selkirk (1981:230, 233ff.) to be context free rewriting (or constituent structure) rules which assign labelled trees to all words of the language. In this way Selkirk attempts to account for (a) native speakers' intuitions about the internal structure of the words and, (b) the recursiveness evidenced by morphological structure.

The rewriting rules that generate the formal structures of English compounds are formulated as follows by Selkirk (1981:240):
Items from the extended dictionary are inserted by a (morpho)lexical transformation into structures generated by rewriting rules such as (2), in accordance with the lexically specified conditions imposed by the particular items. The rewriting rules and the insertion transformation jointly assign to compounds such as apron string, head strong and out live the following morphological structures:

(3) 

In addition to her "model" of the rule system for generating morphological structures, Selkirk (1981:235) requires two more theories for the further specification of the general properties of morphological structure. The first is a theory that has to specify the categories of morphological structure, stating among other things that morphological categories are formally identical to syntactic categories. The second is a theory of the possible relations between categories in morphological structure. This theory specifies among other things (a) that major constituents of the syntax do not appear within morphological structures generated by word structure rules, and (b) that a morphological category of a higher level does not appear in structures in which it is dominated by a category of a lower level. Crucial to this theory is the idea --- taken over from Williams (1981) --- that, like syntactic structures, morphological structures tend to be "headed". Selkirk (1981:237) assumes that a morphological constituent $X^n$ with a particular complex of category features will contain a constituent $X^m$, its head, which bears
the same features but which is one level lower in the structural hierarchy. The other immediate constituent of Xn is the nonhead. For example, in the adjectival compound head strong the adjective strong constitutes the head and the noun head the nonhead.

3 The theory of verbal compounding

Central to Selkirk's (1981:252) theory of verbal compounding are the following two interrelated hypotheses.

(4) (a) Verbal and nonverbal compounds are formally nondistinct.
(b) Verbal and nonverbal compounds differ semantically in that argument structure plays a role in the interpretation of the former but not of the latter compounds.

For Selkirk (1981:248), then, the term "verbal compound" "simply designates a group of compounds classified according to the type of semantic relation that obtains between head and nonhead". 3)

Selkirk (1981:252) formalizes the hypothesis of formal nondistinctness (4)(a) by assuming that both verbal and nonverbal compounds are generated by the same set of rewriting rules, represented as (2) above. Thus, the same formal structure --- i.e., $N[N N]N$ --- is assigned by the rule $N \rightarrow N N$ to both verbal compounds such as those of (5)(a) and nonverbal compounds such as those of (5)(b).

(5) (a) elevator repair
curch going
music lover
tennis coach
tree eater
(b) elevator man
elevator napping
fighter bomber
tree snake
tree eater

Tree eater is assigned to both the (a) and the (b) set by Selkirk (1981: 252). On the interpretation "an eater of trees", it is a verbal compound; on the interpretation "an eater who might habitually perform its characteristic activity in trees", it is a nonverbal compound. On both inter-...
interpretations, however, tree eater would have the same formal structure:

(6) 

\[ \text{N} \rightarrow \text{V} \rightarrow \text{Af} \]

\( \text{tree} \quad \text{eat} \quad \text{er} \)

In having both an interpretation in which tree is interpreted as argument (theme) and one in which it is interpreted as nonargument, tree eater contrasts with tree devourer. Selkirk (1981:253) claims that in the latter compound tree must be interpreted as the theme argument; it may not be assigned a locative or any other nonargument interpretation. She notes that syntactic phrases corresponding to tree devourer, which lack a complement satisfying the theme argument, are ill-formed.

(7) 

She's an avid devourer

In the case of the ambiguous tree eater, however, both corresponding phrasal configurations are possible:

(8) 

Mary's an enthusiastic eater of pasta
Mary's an enthusiastic eater

To account for the interpretation of verbal compounds, Selkirk (1981: 253ff.) adopts the theoretical framework of lexical-functional grammar (LFG), as presented in (Bresnan ed. 1981). A central feature of LFG is the crucial role attributed to argument structure in grammatical description. To within the framework of LFG a word is assigned a lexical form which consists of a predicate argument structure and a designation of the grammatical function associated with each argument. The argument structure represents the thematic relations for the predicate and the grammatical functions --- e.g. subject, object, to-object, etc. --- serve as the links between syntactic structure and argument structure. Grammatical functions are assigned to surface phrase structure positions by
syntactic rules and to arguments of predicate argument structure by lexical rules.

The lexical forms associated with devouring and eating are represented as follows by Selkirk (1981:256):

(9) (a) 
    \[
    \text{devouring}_N : (\text{Agent}, \text{Theme})
    \]

(b) 
    \[
    \text{eating}_N : (\text{Agent}, \text{Theme})
    \]

These lexical forms are related to those of devour and eat, respectively, by means of a lexical rule and a principle of inheritance, the details of which are irrelevant here.

To give an account of the semantic interpretation of verbal compounds within an LFG framework, Selkirk (1981:255) has to assume, moreover, that the grammar assigns grammatical functions to the nonheads of compounds. According to Selkirk (1981:255), such function assignment makes it possible to invoke the general LFG assumption that "... a particular syntactic (or morphological) structure containing a lexical item with a particular argument structure is ruled as well-formed only if there is, in essence, a 'match' between the grammatical functions assigned to the syntactic structure and the grammatical functions associated with the lexical item's arguments". The required rule of function assignment is formulated as follows by Selkirk (1981:255):

(10) Grammatical functions in compounds

Optionally, in compounds, (i) a nonhead noun may be assigned any of the grammatical functions assigned to nominal constituents in syntactic structure, and (ii) a nonhead adjective may be assigned any of the grammatical functions assigned to adjectival constituents in syntactic structure.

This rule has to be optional because of the existence of compounds whose nonhead has no argument interpretation.
Selkirk (1981:255) illustrates the function of rule (10) with reference to (11)(a) and (b): in (a) an object function has been assigned to the nonhead, in (b) no function assignment has been made.

![Diagram](image)

Tree eater (and tree eating) can appear in both the compound structures (11)(a) and (b). In the (a) structure, the theme argument of eater is satisfied, resulting in the theme interpretation "eater of trees". However, the specification "/θ" in the lexical form of eater signifies that eater does not necessarily require satisfaction of its theme argument. Consequently, tree eater can also appear in the (b) structure, resulting in a nonargument interpretation such as "eater who might habitually perform its characteristic activity in trees".

The lexical form of devourer differs from that of eater, thus providing a means of accounting for the fact that no nonverbal interpretation for tree devourer is possible. If tree devourer occurs in the (a) structure, there is a match in grammatical functions, the theme argument of devourer is satisfied, and the compound is ruled well-formed on the interpretation "devourer of trees". If, by contrast, tree devourer occurs in the (b) structure, there is a mismatch in grammatical functions: the argument structure of devourer requires an obligatory theme argument. Since the (b) structure lacks an "OBJ" specification, this requirement cannot be satisfied and tree devourer is ruled ill-formed on a nonverbal interpretation. Given the different lexical forms of the deverbal heads of compounds, and given the options made available by rule (10), Selkirk (1981:256) believes that she has "the makings of an account of the interpretation of compounds with deverbal heads".

However, Selkirk herself (1981:256) judges this account to be incomplete. It has to be extended to explain two "important" generalizations about verbal compounds:

(12) (a) The SUBJ argument of a lexical item may not be satisfied in compound structure.
(b) All nonSUBJ arguments of the head of a compound must be satisfied within that compound immediately dominating the head.

We will return to generalization (12)(a) in §4.4 below. Selkirk's theory of verbal compounding has been outlined in sufficient detail to allow an appraisal of its merits.

4 Appraisal

My appraisal of the merits of Selkirk's theory of verbal compounding will concentrate, for obvious reasons, on what appear to be the problematic or questionable aspects of the theory.

4.1 The distinction "verbal" vs. "nonverbal compound"

Selkirk's distinction between verbal and nonverbal compounds is based on her contention that the range of interpretations of verbal compounds is grammatically characterizable in a way in which that of nonverbal compounds is not. Specifically, whereas the nonhead of a verbal compound is interpreted as an argument of the head adjective or noun, the nonhead of a nonverbal compound cannot be assigned an argument interpretation. Two aspects of Selkirk's characterization of the distinction between verbal and nonverbal compounds, however, have the effect of making it extremely difficult, if not impossible, to refute her theory.

First, for Selkirk's distinction between verbal and nonverbal compounds to have the required empirical import, the content of the notion "argument (type)" (or "thematic relation") must be sufficiently clear. However, Selkirk presents neither an explicit intensional definition of this notion nor an exhaustive list of the various argument types. She (1981:246) does no more than to state that: "By 'argument' I mean an element bearing a thematic relation such as Agent, Theme, Goal, Source, etc. to the head (cf. Jackendoff (1972), Gruber (1965) on thematic relations)". Notice the open-endedness of the list, an unfortunate state of affairs since both Jackendoff (1972) and Gruber (1965, 1976) postulate more thematic relations than the four included in Selkirk's list. Loca-
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tion is an example of a thematic relation provided for by both Gruber (1976:69ff.) and Jackendoff (1972:31), but explicitly denied the status of argument type by Selkirk (1981:248). Jackendoff (1972:31) states that: "Besides the Theme, Gruber works with several other thematic relations. I will discuss only four more here. The first three of these are the expression of Location, Source and Goal. Location is defined as the thematic relation associated with the NP expressing the location, in a sentence with a verb of location". Referring to the compounds party drinker, spring cleaning, concert singer, home grown, long suffering, hard working, Selkirk (1981:248), by contrast, claims: "The nonheads of these examples add a locative, manner or temporal specification to the head, but would not be said to bear a thematic relation to, or satisfy the argument structure of the head".

Selkirk presents no justification for her claim that Location is not an argument type. To take over Gruber's and Jackendoff's notion "argument type" (or, rather, "thematic relation"), while at the same time denying, without argument, one of their thematic relations the status of an argument type, is to create an obscure notion "argument type". Assignment of the predicate "is an argument of" (or "bears a thematic relation to") to nonheads in compounds within the framework of Selkirk's theory of verbal compounding, must therefore be regarded as an essentially arbitrary step. As a result, Selkirk's theory of verbal compounding is hard to refute, if not irrefutable. Suppose, for instance, that a class of compounds were to be presented in which the relation between the nonhead and the head was a thematic relation in terms of Gruber's and Jackendoff's views, whereas it did not appear on Selkirk's short and incomplete list of argument types. Given her treatment of Location, Selkirk could then, without argument, simply deny this relation the status of a thematic relation, thus protecting her theory from the impact of the putative counterexamples. This kind of protection is more harmful to a theory than any number of real counterexamples.

Second, the empirical content of Selkirk's notion "argument structure" is further eroded by a certain distinction which she invokes in her analysis of compounds such as hover craft and scrub woman. She (1981:248-249) contends that, even in the case of compounds such as these, the head noun does not satisfy the argument structure of the nonhead verb. Specifically, hover craft and scrub woman should not be assigned an analy-
sis in which the head noun is the "subject" --- in particular, agent or theme --- of the verb. In support of this view, she seems to argue that hovercraft and scrub woman "are simply cases where a general interpretation of \[ N \left[ V \hspace{1em} N \right] _{N} \] as something like 'N which has some relation to V-ing' can, pragmatically, be made somewhat more specific, and approach an argument-like interpretation for the noun".

However, Selkirk omits to explain how a principled distinction is to be drawn between "an argument-like interpretation for a noun" and "an argument interpretation for a noun". This is a serious omission, as the very same distinction can, by virtue of its vagueness, be invoked to argue that putative counterexamples to her theory of verbal compounding do not constitute real counterexamples because they are in fact nonverbal compounds with a nonhead whose interpretation merely "approaches an argument-like interpretation". It should be noted that Selkirk has nothing to say about the content of the theory of pragmatics in terms of which pragmatic considerations can play the role which she seems to assign to them.

4.2 Formal nondistinctness

We now turn to the first of the hypotheses central to Selkirk's theory of verbal compounding: verbal and nonverbal compounds are formally nondistinct. On this hypothesis, the formal structure of both the former and the latter compounds is generated by the same rewriting rules, viz. those in (2) above. Selkirk's hypothesis of formal nondistinctness, of course, yields the prediction that as far as categorical composition is concerned, verbal and nonverbal compounds will exhibit the same range of structural possibilities. But the data presented in Selkirk's paper do not bear out this prediction. Thus, she (1981:239) considers the forms of (14) to be compounds of the \( V \hspace{1em} N \) type and formulates the word structure rule (15) to account for their formal or categorial structure.

(14) swear word
    whet stone
    scrub woman
    rattle snake
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(15) \[ N \rightarrow V \] N

Quite remarkably, Selkirk does not consider --- at least not in this context --- the fact noted, for example, by Roeper and Siegel (1978: 209) that English does not have verbal compounds of the form \[ N \left[ V \ [ N \right] \ ]\left] N \]. Nor does she present examples of such compounds when she lists typical examples of verbal compounds. To illustrate the structural type \[ N \left[ V \ [ N \right] \ ]\left] N \] , she (1981:239) lists four compounds, viz. those of (14), none of which, on her own analysis (p. 248), is a verbal compound.

These omissions on Selkirk's part are all the more puzzling considering her (1981:267-268) criticism of Roeper and Siegel's theory of verbal compounding on similar grounds. According to Selkirk the latter theory fails to predict that "the category verb should be impossible on the left-hand position of a verbal compound adjective, e.g. *go starting (cf. starts to go), or that an adverb should be impossible in the lefthand position of a verbal compound noun, e.g. *beautifully dancing, or *beautifully dancer (cf. dances beautifully)". Selkirk (1981:268), moreover, commends her own theory for being successful where Roeper and Siegel's theory failed: that is, assuming that verbal and nonverbal compounds are generated by the same system of rewriting rules, and given the absence from this system of the rule \[ A \rightarrow V A \] , Selkirk's theory correctly predicts the impossibility of verbs as the first element of adjectival compounds, verbal and nonverbal. But shouldn't Selkirk's theory, by the same token, be criticized for incorrectly predicting --- assuming the hypothesis of formal nondistinctness and the rule \[ N \rightarrow V \ ] N --- that English has verbal compounds of the form \[ N \left[ V \ [ N \right] \ ]\left] N \] ?

The fact that English does not have verbal compounds of the form \[ N \left[ V \ [ N \right] \ ]\left] N \] may not be the only source of embarrassment for Selkirk's hypothesis of formal nondistinctness: there may be two additional ones:

First, there is Selkirk's category of \[ A N \] compound nouns. To account for forms such as (16), she (1981:239) sets up a category of \[ A N \] compound nouns to be generated by the rule (17).
In specifying the categorial structure of the compounds of (16), however, Selkirk (1981:239-240), fails to take into account the categorial distinction between Adjective and Adverb in English: a distinction argued for quite lengthily by Jackendoff (1977:23ff.). In other parts of her discussion, she does implicitly adopt this distinction, e.g. where she (1981:268) states that "an adverb should be impossible in the lefthand position of a verbal compound noun ...".

Given an explicit and well-motivated distinction between Adjective and Adverb, it may be argued that Selkirk's A N compounds of (16) in fact belong to two different structural types. On the one hand, there are the "true" N[Adj N] N compounds high school and small pox which are also nonverbal compounds. On the other hand, there are sharp shooter and well wisher which are verbal compounds of the form N[Adv N[V + er] N] N. This distinction ties in with Roeper and Siegel's (1978:206) analysis of forms such as (18) as verbal compounds that incorporate an adverb in the nonhead position.

The point, then, is that we may have a structural dissimilarity between verbal and nonverbal compounds: whereas there are no nonverbal compounds of the form N[Adv N] N, there are verbal compounds of this form. If this were indeed the case, Selkirk would have to argue that the formal nondistinctness embodied in her N[Adj N] N structural type is not a mere artefact that reflects her failure to take into account the distinction between Adjective and Adverb. \(^{11}\)
Second, Selkirk's category of P N compound nouns raises a problem similar to the one we considered in connection with A N compound nouns. Selkirk (1981:239) analyzes forms such as (19) as compounds of the form \( N \underbrace{[P \quad N]}_{\text{N}} \) \( N \) to be generated by the rule (20).

(19)  
\[ \begin{align*} 
\text{overdose} & \quad \text{onlooker} \\
\text{underdog} & \quad \text{afterthought} \\
\text{outbuilding} & \quad \text{upturn} \\
\text{uprising} & \quad \text{inland} 
\end{align*} \]

(20) \( N \rightarrow P N \)

Roepem and Siegel (1978:233) analyze onlooker and other similar forms --- e.g. those of (21) --- as verbal compounds having a particle as nonhead.

(21)  
\[ \begin{align*} 
\text{onlooker} & \quad \text{ongoing} & \quad \text{bygone} \\
\text{bystander} & \quad \text{oncoming} \\
\text{outsettler} & \quad \text{incoming} 
\end{align*} \]

Given a well-motivated distinction between the categories Preposition and Particle --- e.g. along the lines of Jackendoff (1977:32ff.) --- what we have here may be yet another formal dissimilarity between verbal and nonverbal compounds: nonverbal compounds have the formal structure \( N \underbrace{[\text{Prep} \quad N]}_{\text{N}} \), whereas verbal compounds have the formal structure \( N \underbrace{[\text{Prt} \quad V + \text{Af}]}_{\text{N}} \). Selkirk will have to exclude such an analysis, showing that the formal nondistinctness represented by her type \( N \underbrace{[P \quad N]}_{\text{N}} \) is more than the reflection of a failure to make an appropriate distinction between the categories Preposition and Particle.\(^{12}\)

As noted by Roeper and Siegel (1978:233), the rule for incorporating particles in verbal compounds is not productive. In Afrikaans, however, the formation of morphologically complex words consisting of a particle nonhead and a deverbal head is an extremely productive process.\(^{13}\) Consider the typical examples of (22) (in which the affixes are presented in capitals):
Form such as (22) cannot be analyzed as complex derivatives formed by means of affixation on the basis of compound verbs of the type \(N \text{[Prt V]}\): uit + sak, weg + sak, af + sak, in + sak lack the internal cohesion of compounds. As shown elsewhere (Botha 1980:131-132), the constituents of such combinations can be separated by intervening material and the order of these constituents is not fixed. Rather, the forms of (22) are compounds, specifically verbal compounds, the particle expressing Goal or Direction. But Afrikaans has no productive rule for forming nonverbal compounds of the type \(N \text{[Prt + N]}\). Thus, if Selkirk's hypothesis of formal nondistinctness were to be extended to Afrikaans, compounds such as those of (22) would pose a serious threat to it.

4.3 **Categorial status of the head**

Before discussing Selkirk's hypothesis of semantic distinctness (4)(b), let us dwell a little longer on the nature of the formal structure assigned by her theory to verbal compounds. Selkirk's (1981:261) theory "takes the deverbal noun or adjective head of the verbal compound as the entity whose lexical form determines the range of interpretations of the verbal compound. Specifically, it is denied that it is the lexical form (i.e. predicate argument structure and associated grammatical functions)
of the verb which is the base of the deverbal noun or adjective that determines the range of interpretations of the verbal compounds.\(^\text{16}\)

Should one wish to extend Selkirk's deverbal head hypothesis to the analysis of Afrikaans verbal compounds, this hypothesis is apparently contradicted by forms such as those of (22) above as well as those of (25) below. Consider first the forms of (22). On the deverbal head hypothesis, it is the deverbal head (and not the verb) that will determine the interpretations of these forms. Thus, on this hypothesis, the forms of (22) will have the interpretations of (23)(a). This prediction is incorrect, however: the forms of (22) in fact have the interpretations of (23)(b).

(23) (a) (i) "sakker wat uit is" (b) (i) "iemand wat uitsak"
   dropper who out is                      someone who out drops
   (= lit. sinker)                        (= lit. sinks)

   (ii) "sakker wat weg is"               (ii) "iemand/iets wat weg sak"
sinker which away is                    someone/thing that away sinks

   (iii) "sakker wat af is"                (iii) "iemand/iets wat af sak"
sinker which down is                     someone/thing that down sinks

   (iv) "sakker wat in is"                (iv) "iemand/iets wat in sak"
sinker which in is                      someone/thing that in sinks

Two points emerge from a comparison of (23)(a) and (23)(b). First, the incorrect --- and largely incoherent --- interpretations of (23)(a) are determined by (the lexical form of) the deverbal noun. Second, the correct interpretations of (23)(b) are determined by (the lexical form of) the verb.

The same general point can be illustrated with reference to English forms such as (21). Thus, the interpretation of onlooker is not determined by the deverbal noun looker, as in (24)(a), but in fact by the verb look, or the verb + particle combination look on, as in (24)(b).
Recall, that an analysis in terms of which the forms of (22) have as their base a compound verb is impossible. Nor, as we have seen, can an argument against the verbal compound status of these forms be based on the arbitrary assumption that particles cannot bear thematic relations.

Now consider a second class of forms whose semantic interpretation appears to contradict the predictions of the deverbal head hypothesis.

The deverbal head hypothesis incorrectly predicts that these forms will have the interpretations of (26)(a), whereas they in fact have the interpretations of (26)(b). The latter interpretations are determined by the verb.
Whilst the deverbal interpretations of (26)(a) are not incoherent --- as is the case with those of (23)(a) --- they are clearly incorrect. The same general point may be illustrated with reference to English forms such as fast mover, slow worker, late bloomer, etc.

There are two obvious ways of attempting to defuse the threat which forms such as those of (25) pose to the deverbal head hypothesis. Both entail that these forms be denied the status of verbal compounds. On the one hand, it could be argued that these forms do not represent compounds at all: that they are complex derivatives formed on the basis of compound verbs by means of -er Affixation. This argument, however, would not hold: fyn maal, hoog spring, kort knip, and laat slaap cannot be analyzed as compounds. As shown elsewhere (Botha 1980:131-132), such forms lack the internal cohesion of compounds.17

On the other hand, it could be contended that the forms of (25) are not verbal compounds in Selkirk's restricted sense of the term.18 In support of this contention it could be claimed that the nonheads do not represent arguments of the head. An argument along these lines, however, would fail unless Selkirk's notion "argument (structure)" were to be replaced by one which is both nonobscure and nonarbitrary. Even if forms such as (25) could be shown to be nonverbal compounds, they would still pose a problem for Selkirk's theory of compounding. They would constitute a unique kind of nonverbal compound: nonverbal compounds whose meaning is not determined by the deverbal head, but by the verb underlying this head.

### 4.4 Semantic distinctness and function assignment

The second basic hypothesis of Selkirk's theory of verbal compounding, viz. (4)(b), is that of semantic distinctness: verbal and nonverbal compounds differ semantically in that argument structure plays a role in the interpretation of the former but not of the latter compounds. Recall that to account for this difference in semantic interpretation between verbal and nonverbal compounds Selkirk (1981:255) has to assume, among other things, that grammatical functions are assigned to the nonheads of compounds. The device which she adopts for this purpose is the rule of function assignment (10). It will be argued below that this rule has a number of undesirable properties.
First, Selkirk's rule of function assignment has to be the lexical counterpart of the syntactic rules that assign grammatical functions to surface phrase structure positions. However, it is not clear that, at a conceptual level, the functions assigned by the lexical rule (10) are significantly similar to the terminologically related functions assigned by the syntactic rules. The grammatical functions assigned by the latter rules are defined configurationally. Thus, Selkirk (1981:254) claims that "the NP daughter of S is specified as SUBJ". She does not present such a definition of OBJ, but such a definition, clearly, would have to invoke dominance (and presumably also order) relations in a similar manner. In a simplified form the definition of OBJ would be something like "the leftmost NP daughter of VP functions as OBJ".

The question, however, is how the functions of SUBJ and OBJ, as assigned by the lexical rule (10) to the nonhead in the following compound structures, are to be defined.

(27) (a) \[ N \rightarrow N \] (= OBJ) (b) \[ N \rightarrow N \] (= SUBJ)

The grammatical functions of OBJ and SUBJ as assigned by the lexical rule (10) to the structures of (27) should be compared with the "corresponding" functions assigned by syntactic rules to (presumably) such surface structure positions as those of (28).

(28) (a) \[ VP \rightarrow NP\] (= OBJ) (b) \[ S \rightarrow NP\] (= SUBJ)

Two points emerge from such a comparison. First, there is no real difference between the functions of OBJ and SUBJ as assigned by the lexical rule (10) to the structures of (27). The only difference exists at the level of terminology. Second, it is not at all clear what significant similarity exists between the lexically assigned OBJ in (27)(a) and the syntactically assigned OBJ in (28)(a), on the one hand, and between the lexically assigned SUBJ in (27)(b) and the syntactically assigned SUBJ...
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On the other hand, the only similarity, once again, appears to be at the level of terminology. Thus, it is hard to resist the conclusion that OBJ and SUBJ, as assigned by the lexical rule (10), are empty labels adopted for the sole purpose of making Selkirk's theory of (verbal) compounding work. This conclusion is strengthened by the fact that Selkirk does not seem to provide for the possibility that the adoption of the lexical rule of function assignment may have other, independent empirical consequences.

Second, suppose that it were possible to show that the lexically assigned functions OBJ and SUBJ are substantively similar to the syntactically assigned functions OBJ and SUBJ to such an extent that it is justified to use the same labels for denoting them. This would undoubtedly result in loss of generalization and conceptual redundancy. To see this, consider the verbal compound (29)(a) and the sentence (29)(b).

(29) (a) tree eater
(b) An elephant eats trees.

In the case of the verbal compound, the lexical rule (10) assigns the function OBJ to the nonhead position into which tree is to be inserted. A distinct syntactic rule, however, assigns the function OBJ to the surface structure position of tree in the sentence (29)(b). The fact that the two rules are distinct indicates a loss of generalization: on this account, the fact that tree in tree eater and trees in An elephant eats trees have the same function is purely accidental. Moreover, the ill-formedness of both the verbal compound (30)(a), whose nonhead has been assigned the function OBJ, and the sentence (30)(b) is, similarly, accidental.

(30) (a) *tree sleeper
(b) *An elephant sleeps the tree.

The use of distinct devices for assigning functions in verbal compounds and related sentences (or syntactic phrases) precludes the possibility of formally expressing the (linguistically significant) similarities between such compounds and sentences. Viewed from a different angle, it
may be said that to include a lexical rule for assigning grammatical functions in a system that already incorporates syntactic rules for assigning the same functions is to create a conceptual redundancy in the system.

Third, the formulation of Selkirk's lexical rule of function assignment appears to be problematic. Notice that, in terms of case (i) of the rule, a nonhead may be assigned ANY of the grammatical functions assigned to nominal constituents in syntactic structure. "Any" obviously includes SUBJ. But in a later section of her discussion, Selkirk (1981:256) formulates (12)(a) --- repeated here as (31) --- as an important generalization about English verbal compounds.

(31) The SUBJ argument of a lexical item may not be satisfied in compound structure.

The question, of course, is how case (i) of the function assignment rule (10) is to be reconciled with the generalization (31). What would be the point of allowing the assignment of SUBJ to nonheads by means of one device only to forbid its realization by means of another device? That is, what would be the point of generating structures such as (32) if verbal compounds whose nonhead functions as SUBJ cannot be formed in English under any circumstances?

(32)

There seems to be no reason for not considering the use of "any" in case (i) of (10) to express a false generalization.

4.5 Semantic interpretation and formal structure

We now turn to two properties of the semantic interpretation of verbal compounds not dealt with by Selkirk. The first concerns the way in which the semantic interpretation of a verbal compound is composed on the basis of the meanings of its constituents. Consider the examples (33), where
(b) represents the semantic interpretation of the verbal compound crowd thriller in (a), whereas (d) represents the semantic interpretation of the nonverbal compound J.G. Benson thriller in (c).

\[(33) \]

(a) Borg is a real crowd thriller.

(b) "someone who thrills the crowds"

(c) Borg is reading a J.G. Benson thriller.

(d) "a thriller written by J.G. Benson"

The semantic interpretation (33)(b) of the verbal compound crowd thriller is predicted by a configuration such as (34) in which crowd and thrill together form an immediate constituent of the category X of which the affix -er is the other immediate constituent:

\[(34) \]

Given an analysis such as (34), the semantic interpretation of the verbal compound crowd thriller is composed as follows: the meaning of the affix -er is brought to bear on the meaning of the nonsurface phrase crowd thrill (or the meaning that the combination crowd thrill has when realized in a surface phrase such as thrills the crowds).

The semantic interpretation of the nonverbal compound J.G. Benson thriller, however, is composed in a different way. The interpretation (33)(d) is predicted by a configuration such as (35) in which J.G. Benson and thriller are the immediate constituents of X.

\[(35) \]

Given an analysis such as (35), the interpretation of J.G. Benson thriller
is composed as follows: the meaning of J.G. Benson is brought to bear on that of thriller. Clearly, the meaning of J.G. Benson thriller cannot be composed by bringing the meaning of the affix -er to bear on that of the phrase (or combination realized in the surface phrase) J.G. Benson thrill(s). By virtue of its lexicalized meaning, thriller has to figure as an immediate constituent in the composition of the semantic interpretation of J.G. Benson thriller.

In terms of Selkirk's hypothesis of formal nondistinctness, the verbal compound crowd thriller and the nonverbal compound J.G. Benson thriller must be assigned the same formal structure:

(36)

\[
\begin{array}{c}
N \\
/ \ \ \\
V \\
/ \ \\
\{ \text{crowd} \} \\
/ \\
\{ \text{J.G. Benson} \} \\
/ \\
\text{thrill} \\
/ \\
\text{er} \\
\end{array}
\]

If the bracketing (branching) in the formal structure of compounds is to serve as a basis for the composition of their meanings, the structure (36) incorrectly predicts that the semantic interpretations of the verbal compound crowd thriller and of the nonverbal compound J.G. Benson thriller are formed in exactly the same way.

There is a second kind of semantic difference between verbal and nonverbal compounds which appears to be related to the first. It has been noted by Allen (1978:147) for English and by Botha (1980:123) for Afrikaans that, whereas nonverbal compounds, typically, are variable in meaning, verbal compounds are not. Thus, whereas the verbal compound crowd thriller has the fixed meaning of (37), the nonverbal compound J.G. Benson thriller can have various meanings, including those of (38).

(37) "someone/thing that thrills the crowds"
There appears to be a correspondence, on the one hand, between invariability in meaning and a semantic composition in which the meaning of an affix is brought to bear on that of a phrase and, on the other hand, between variability in meaning and a semantic composition in which the meaning of the nonhead constituent is brought to bear on that of the deverbal head. As both Allen (1978) and Botha (1980) have observed, this ties in with the variability of the relation between the head and nonhead of primary/root compounds vis-à-vis the invariability of the relation between an affix and the base to which it is attached. Selkirk does not deal with the issue of the (in)variability of the meaning of compounds. Within her theory, (in)variability of meaning does not appear to be related to other properties of morphologically complex words. 22)

4.6 Non-verbally based synthetic compounds

In Afrikaans, verbal compounds constitute but one of the subtypes of the more general morphological category of synthetic compounds. The language has various types of non-verbally based synthetic compounds which are systematically related --- in terms of semantic interpretation, co-occurrence restrictions, etc. --- to syntactic phrases of which the head is neither verbal nor deverbal. The following illustrative examples are taken from (Botha 1980):

(39)

<table>
<thead>
<tr>
<th>Compound</th>
<th>Corresponding Phrase</th>
</tr>
</thead>
<tbody>
<tr>
<td>dik - lip - IG</td>
<td>(Hy het) dik lippe.</td>
</tr>
<tr>
<td>thick lip ed</td>
<td>he has thick lips</td>
</tr>
<tr>
<td>&quot;having thick lips&quot;</td>
<td></td>
</tr>
<tr>
<td>vyf - week - LIKS</td>
<td>(Hy kom om) die vyf weke.</td>
</tr>
<tr>
<td>five week -ly</td>
<td>he comes after the five weeks</td>
</tr>
<tr>
<td>&quot;five-weekly&quot;</td>
<td>&quot;he comes every five weeks&quot;</td>
</tr>
<tr>
<td>bo - grond - S</td>
<td>(Die pyp loop) bo die grond.</td>
</tr>
<tr>
<td>above ground affix</td>
<td>the pipe runs above the ground</td>
</tr>
<tr>
<td>&quot;above the ground&quot;</td>
<td></td>
</tr>
</tbody>
</table>
Forms such as those in (39) share a number of properties with Afrikaans verbal compounds. It is on the strength of these shared properties that the non-verbal compounds in (39) are considered to be synthetic compounds.

(40)  
(a) Both types of compounds are morphologically complex words of which one (immediate) constituent is an affix.

(b) Corresponding to both types of compounds there are well-formed simple derived words. If the simple derived word is ill-formed, the corresponding synthetic compound is ill-formed as well.

(c) Corresponding to the non-affixal part of both types of compounds there are well-formed syntactic phrases. If the syntactic phrase is ill-formed because of the violation of a subcategorization restriction, the corresponding synthetic compound is ill-formed as well.

(d) The semantic interpretation of both types of compounds is formed by bringing the meaning of the affixal constituent to bear on that of the phrasal constituent.

(e) Both types of compounds have invariable meanings.

In Afrikaans, verbal compounds and nonverbally based synthetic compounds such as those in (39), thus, constitute a natural morphological class. This generalization --- which accounts for the various similarities
between the former and the latter forms --- should, of course, be expressed formally in the analyses assigned to these forms. An approach in terms of which Afrikaans verbal compounds and nonverbally based synthetic compounds such as those of (39) receive non-unified analyses will fail to do so.

Suppose now that the basic assumptions of Selkirk's theory of verbal compounding are adopted for Afrikaans. The question, then, would be whether or not these assumptions allow for a unified analysis of verbally and nonverbally based synthetic compounds. The answer to this question has to be in the negative, it seems. A crucial notion in Selkirk's account of verbal compounds is the notion "(the satisfaction of) argument structure". In terms of this notion she attempts to account for the interpretation of verbal compounds, their well/ill-formedness, and their relatedness to certain syntactic phrases. But, it is not at all clear that this notion can be applied to an analysis of nominally and adjectivally based synthetic compounds. Consequently, in terms of this notion, verbal compounds --- i.e. verbally based synthetic compounds --- and nominally and adjectivally based synthetic compounds do not constitute a natural class and cannot receive a unitary analysis. As we have seen, the similarities between verbally and nonverbally based compounds stated in (40) point in the opposite direction. These similarities can only be accounted for by a theory of which "synthetic compound" is a fundamental notion and within the framework of which "verbally based", "nominally based" and "adjectivally based compounds" constitute derivative notions.24)

5 Summary and conclusion

In the preceding section a number of questionable aspects of Selkirk's theory of (verbal) compounding have been isolated:

1. Selkirk's distinction between verbal and nonverbal compounds --- as well as the claims couched in terms of this distinction --- lacks the required empirical content because of the fact that both (i) her notion "argument (type)" (or "thematic relation") and (ii) her distinction between an "argument-like interpretation" and
an "argument interpretation" of a noun are unclear and are used in an arbitrary manner.

2. Selkirk's hypothesis of formal nondistinctness is questionable owing to the fact (i) that English does not have verbal compounds of the type $N \left[ V \ N \right] N$, and (ii) that, in formulating her rules of compounding, she ignores (at least) two categorial distinctions, viz. that between Adjective and Adverb, and that between Preposition and Particle.

3. Selkirk's deverbal head hypothesis, when extended to Afrikaans, incorrectly predicts that the interpretation of all verbal compounds is determined by the deverbal head and not by the verb underlying this head.

4. Selkirk's rule for assigning grammatical functions to the nonheads of compounds is problematic in that (i) the functions assigned by it do not appear to be significantly similar, at a conceptual level, to the terminologically related functions assigned by syntactic rules to surface structure positions, (ii) if the required similarity of functions does exist, the rule is conceptually redundant and there is a loss of generalization, (iii) the "any" formulation of the rule appears to conflict with the generalization that the SUBJ of a lexical item may not be satisfied in compound structure.

5. Selkirk's proposals regarding the semantic interpretation of verbal compounds provides no account of (i) the differential way in which the interpretations of verbal and nonverbal compounds are formed on the basis of the meanings of their constituents, and (ii) the difference in regard to variability in meaning between verbal and nonverbal compounds.

6. Selkirk's theory of verbal compounding appears not to allow for a natural way of analyzing nonverbally based synthetic compounds in Afrikaans because of the fact that "verbal compound" and not "synthetic compound" is the basic notion or explicandum of this theory.
NOTES


2. For Selkirk's notion "argument" cf. §4.1 below.

3. Selkirk's term "verbal compound", thus, apparently designates a much more restricted class of morphologically complex words than Roepner and Siegel's (1978) term "verbal compound". But see §4.1 below.

4. Williams (1981) has his own variant of this view but Selkirk (1981: 255) argues that Bresnan's variant provides for a better analysis of verbal compounds.

5. Jackendoff proceeds as follows: "It [i.e., the NP expressing Location --- R.P.B.] is often, but not always in a PP: (2.20) [= The rock stood in the corner --- R.P.B.] , (2.21) [= John clung to the window sill --- R.P.B. ] , (2.22) [= Herman kept the book on the shelf --- R.P.B. ] , and (2.24) [= The book belongs to Herman --- R.P.B.] have a preposition, and (2.23) [= Herman kept the book --- R.P.B.] (Herman), (2.25) [= Max owns the book --- R.P.B.] , and (2.26) [= Max knows the answer --- R.P.B.] (Max) have none. Adjectives can function as abstract locations, as if they meant 'in the abstract domain (of 'quality space') containing those things which are Adj'. For example, stay can express either a physical or an abstract location.

(2.29) John stayed in the room.
(2.30) John stayed angry."

6. Selkirk (1981:246), thus, concludes that party drinker, spring cleaning, etc. are not verbal compounds.
7. Williams (1981:81) admits that for the purpose of characterizing the function that will relate the old argument structure of a lexical item to the new argument structure of an item derived by a morphological rule from the former item, he "must have a theory of exactly how many argument types (thematic relations) there are". He (1981:83) proceeds, however, without presenting such a theory, merely stating "We will use the labels proposed by Gruber (1976), which are Actor, Theme, Goal, Source, etc.". (The italics are mine — R.P.B.) Notice, incidentally, that Gruber (1976) uses the label "Agent" instead of Williams's "Actor".

8. Selkirk appears to provide a second reason for not accepting an argument interpretation of the head noun of hover craft and scrub woman, a reason which is not easy to understand. She (1981:248) appears to deny the head of these compounds an argument interpretation because "there exists a fair number of cases where such an interpretation is not available, as with punch card, think tank, tow path, and so on ..." Why the interpretation of the former compounds should be (co-)determined by that of the latter is not at all clear. Why the compounds under consideration cannot have different kinds of interpretation is particularly puzzling considering that Selkirk has no problem in allowing for two kinds of interpretation — viz. an argument and a nonargument interpretation — in the case of compounds consisting of a deverbal head and a nominal nonhead. In fact, she allows for two kinds of interpretation even in the case of compounds with the same morphemic make-up, e.g. tree eater.

9. Roep and Siegel (1978:209) state that "... verbs, which are single lexical items and not phrases, are also excluded from compounding" and "... we do not find verbal compounds of the form [V + verb + affix]."

10. Notice, incidentally, that she does this without attempting to refute Allen's (1978:98) view — based on (Marchand 1969:63ff.) — that English does not have a productive process for the formation of such compounds.
11. Given the vagueness of her notion "argument type", it would be possible (but unfortunate) for Selkirk to claim that the nonhead of compounds such as hard shooter, well wisher, fast mover, slow worker, late bloomer does not represent an argument type, say Manner, and that these compounds, consequently, are not verbal compounds.

12. It would not be possible to merely claim that forms such as (21) cannot be considered verbal compounds because particles cannot bear thematic relations: on Gruber's (1976:89) analysis thematic relations such as Goal and Source can be associated with particles.


14. Both of these points are illustrated by the following expressions:

(i) Hy glo dat Jan waarskynlik sal uit sak
he believes that John possibly will out drop

(ii) Jan sak waarskynlik uit
John drops possibly out

15. Reanalyzing the nonhead constituent as an adverb will not remove this threat. Afrikaans does not productively form nonverbal compound nouns of the type Adv'N.

16. Selkirk notes that in these assumptions her theory differs from Roeper and Siegel's theory.

17. It is clear from the following expressions that other material can intervene between, for example, fyn and maal, and that the order of these two constituents can be reversed:

(i) Hy vra of die masjien die koffie fyn maal
he asks whether the machine the coffee fine grinds

(ii) Die masjien maal die koffie fyn
the machine grinds the coffee fine
18. These forms are verbal compounds in terms of the theories of Roeper and Siegel (1978), Allen (1978), and Botha (1980).

19. For such a definition cf. e.g., Jackendoff 1977:71-72.

20. **thriller**, in turn, is analyzable as **thill** and the affix **-er**.

21. Botha 1980:124 argues that the difference in semantic composition under consideration represents a fundamental difference between Afrikaans synthetic compounds --- verbally and non-verbally based --- and primary/root compounds. Notice, incidentally, that the expression J.G. Benson thriller can also be analyzed as a verbal compound with the meaning "someone/something who/which thrills J.G. Benson". The expression crowd thriller, in turn, can be analyzed as a nonverbal compound with the predicted meaning 'thriller written for/by(?)/about, etc. a crowd".


24. English may also have synthetic compounds which are not verbally based. Thus, Meys (1975:135) speculates about the possibility that forms such as short-circuiting, hot-gospelling, grand-touring, and perfect-fitting are derived by means of **-ing** suffixation from "adjective-noun combinations" which also underlie (a) short-circuit, (a) hot-gospeller, (the) grand tour, and (a) perfect fit respectively.
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