Compound stress in Nigerian English

ADESINA B. SUNDAY

An empirical study of stress placement in compounds in educated Nigerian English

Introduction

Of all the levels of linguistic analysis, it is at the phonological level that differences in the dialects of a language are more easily noticed (Ogu, 1992: 82). The phonology of a language can be investigated at two sub-levels: segmental and suprasegmental. Investigating the segmental micro-level entails looking at phonemes – the vowels and the consonants. Suprasegmentals are linguistically significant elements that go beyond individual segments, and include syllable, tone, stress, rhythm and intonation.

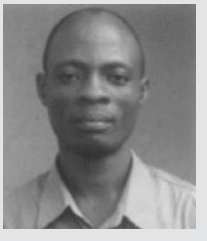
In English, stress – the degree of prominence given to a syllable – is very significant. It is phonemic, to some extent (Giegerich, 1992: 180); it contrasts meanings, to some extent. For instance, a shift in stress in *import* from the initial syllable to the last syllable changes it from a noun to a verb. Stress plays important roles in rhythm and intonation. For this reason, English is referred to as a stress-timed language (Roach, 1997), as opposed to most Nigerian indigenous languages which are syllable-timed.

The application of stress on each grammatical unit above the morpheme varies; word stress is different from phrasal stress and sentence stress. At the word level, grammatical words are unstressed. But at the sentence level, they may receive stress for emphatic purposes. Similarly, a syllable that receives a primary stress in other types of words may lose that stress when found in a compound. The only unifying factor for all stress types is that the stress, of whatever name, falls on a syllable.

Stress manifests differently in different dialects of English. Nigerian English (NE) shows some major differences in the way it marks stress from the way Standard British English (SBE), with Received Pronunciation (RP) as the standard for pronunciation, does. Among the grammatical units where stress is applied – word, phrase and sentence – it seems that in NE the word has received better attention than the rest. However, it is not all types of word that have been investigated fully (Jowitt, 1991; Banjo, 1996); scholars have focused attention on simple words more than on compounds. This work, therefore, looks at compound stress in NE and attempts to describe the regular patterns used by educated NE speakers. There have been various attempts to classify NE by various scholars, using parameters such as spoken English (Brosnahan, 1958), written English (Adesanoye, 1973), closeness to world standards (Adekunle, 1979: 36–9; Banjo, 1996). Jowitt (1991: 36–9) also identifies some varieties based on regions. Such varieties include Hausa English, Igbo English and Yoruba English.

The suprasegmentals of NE

Tiffen (1974), cited by Banjo (1995: 221), made the insightful comment that for Nigerians 'suprasegmentals constituted the main problems, whilst the lexical and syntactic components least' (cf.



Dr ADESINA B. SUNDAY is a lecturer in the Department of English, University of Ibadan, Nigeria. He is a neurolinguist and also teaches English Phonology, Syntax and Semantics. E-mail: sinadaybuk@yahoo.com

doi:10.1017/S026607841100037X
English Today 107, Vol. 27, No. 3 (September 2011). Printed in the United Kingdom

Akinjobi, 2002: 41). Banjo (1979) himself claimed that the suprasegmental aspect was the last hurdle which NE speakers find impossible to cross. The prosodic features of NE raise interesting issues that have engaged the attention of scholars. Some such issues are briefly summarised below. This is necessary so that the state of research on NE stress will be clearly seen in relation to RP (for which Daniel Jones' (2006) *English Pronouncing Dictionary* will be used as the standard).

Stress

The most striking feature of Nigerian pronunciation is its 'delayed primary stress' (Kujore, 1985). Simo Bobda (1995: 255; 2000) reports some of Kujore's findings (1985: 2ff) thus:

(a) The tendency for forward stress, e.g. *col'league, pe'trol* vs RP: *'colleague, 'petrol*.

(b) The recurrence of forward stress in compounds with final obstruents, e.g. *fire'wood, proof'read vs* RP: *'firewood, 'proofread*. Jowitt (1991: 91) gives examples of hyphenated and open compounds which are given special stress marks: *sitting-'room, grammar 'school* vs RP: *'sitting-room, 'grammar school*. He notes, however, that NE may have the same pattern as RP in the examples just given.

(c) The self-stressing property of certain suffixes: *-ate (v), -ise (v), -fy e.g*: *indi'cate, recog'nise, diversi'fy* vs RP: *'indicate, 'recognise, di'versify*.

(d) The tendency of some suffixes to carry stress forward to the syllables preceding them: *-able, -ible* for example: *indo'mitable, e'ligible* vs RP: *in'domitable, 'eligible*.

(f) The tendency of strong clusters to pull stress forward to the preceding syllable, e.g. *an'cestor, ca'lendar* vs RP: *'ancestor, 'calendar*. Kujore notes, however, that there are some exceptions to the patterns given above, such as: *'success, 'extreme* vs RP: *suc'cess, 'extreme*.

(g) NE, according to Kujore, also reverses the order of primary stress and secondary stress in words such as *'education, 'federation* vs RP: *edu'cation, fede'ration*. This claim is highly contestable, and may in fact be limited to a few NE speakers. What seems to generally apply is the avoidance of secondary stress; the primary stress still remains intact, such that we have *edu'cation* and *fede'ration*.

The findings on stress in NE above were not always backed up with field work. There is, therefore, a need to empirically determine the pattern of, particularly, compound stress in NE.

Metrical Phonology

Metrical Phonology was a reaction to, and an offshoot of, Generative Phonology pioneered by Liberman (1975) and extended by Liberman and Prince (1977). Metrical Phonology discarded the numbering of stress levels and indefinite lowering of syllables found in mainstream Generative Phonology. Instead, 'stress is defined on a tree structure in which nodes divide (only binarily) into **s**(strong) and **w**(weak) branches' (Cruttenden, 1986: 30). According to scholars like Halle and Idsardi (1995: 439) stress can be reconceptualised as follows:

> . . .stress in language is a reflection of the groupings that speakers impose on sequences of linguistic elements. Once these groupings have been established, greater prominence is supplied to certain elements in the group than to the others. The prominence is thus a by-product of the grouping of the elements into constituents.

In addition, stress is: **culminative** (content words contain at least one stressed syllable); **hierarchical**; **delimitative** in some languages where stressed and unstressed syllables alternate and where clashes (adjacent stresses) are avoided; and **enhanced segmentally** through vowel lengthening or by gemination (Goldsmith, 1990: 2; Kager, 1995: 367). Halle and Idsardi (1995: 439) emphasised that units of prosody are not strictly layered hierarchically: rather 'stress and syllable structure are represented on different planes'.

The metrical tree

Metrical trees show the hierarchical structure in the syllables of a word in a binary branching structure as strong-weak (sw) or weak-strong (ws). Stress is, thus, seen as a relational property; the relationship a node has with its sister node determines its status (Kager, 1995: 368). For a word, the prosodic hierarchy is as shown below, as per Napoli (1996: 101):

Pw = Prosodic word
F = foot
σ = syllable
μ = mora

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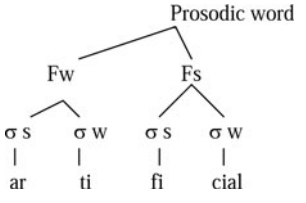
A prosodic word is the word at the rhythmic level. A foot is the next larger rhythmic unit after the syllable; it contains two syllables, one of which is strong and the other weak. A syllable is the smallest pronounceable unit of the word. A mora is the element in the rhyme of a syllable; if the nucleus has one element, it has only one mora; if the rhyme has two or more elements, it then has two moras (Napoli, 1996 : 81, 101). Let's now consider the metrical tree for the word *artificial*

Pw	[ɑ: ti: fi ʃl]
F (two feet)	[ɑ: ti: fi ʃl]
σ (four syllables)	[ɑ: ti: fi ʃl]
μ (four moras)	[ɑ: ti: fi ʃl]

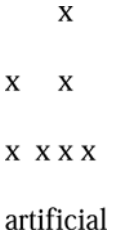
For each of the levels of representation, the transcription of the word is given; it is the same for all levels. From this transcription, it could be seen that *artificial* is a prosodic word with two feet, four syllables and four moras. The metrical tree below presents this more graphically:



This shows that *artificial* is a prosodic word with two feet, four syllables and four moras.

The metrical grid

A metrical tree only shows the relative prominence of nodes; it does not show rhythmic alternation between strong and weak syllables; it also does not show 'clash' – a situation that happens when adjacent syllables are stressed (Kager, 1995: 369). A metrical grid caters for these. The rhythmic structure of *artificial* according to such a grid is shown below:



The lowest row of x represents the syllable level, the middle row shows the foot level, while the third and highest row represents the word level. In this word, the third syllable is more prominent than the first syllable; the second and the fourth syllables are the least prominent. The metrical grid shows that the height of the grid columns corresponds to the degree of prominence. This means that the topmost x is the most prominent syllable. The next prominent syllable will be found at the row of x below the topmost row; this is the second x after the most prominent syllable (Kager, 1995: 369).

Methods of data collection and analysis

The data were collected using a tape-recorder. Fifty subjects, equally divided by sex, were asked to read structures and passages that contain the compound features being investigated. In all, 25 males and 25 females were used. A British citizen, the Head of the British High Commission Office in Bodija, Ibadan, Nigeria, was used as control subject. In addition, casual conversations among NE speakers at the University of Ibadan, Nigeria, and a radio discussion programme among NE speakers were also recorded. This was done to see how the features being examined were used in casual conversations.

In analysing the data, tokens of occurrence of stress patterns were counted. Then, using simple percentages, the frequency of occurrence of each pattern was determined, to ascertain the regular patterns. Thereafter, using phrase markers, metrical trees and metrical grids, in line with the tenets of Metrical Phonology, the regular stress-marking patterns of compounds observable in NE were illustrated.

NE compound stress patterns

This section focuses on analysis and interpretation of the data. For each compound, the commonest pattern found in NE is indicated. This is then compared with the pattern of the native speaker used for this study.

Compound nouns

For compounds with two bases, *house-fly, post office, all-star, mealtime, passbook, foul play, gold medallist, local government, national anthem, life history, love-letter* and *boyfriend* were tested. All these words had the first base stressed by all the subjects. The only exceptions are *post office* and *pass book*. 11 males and 9 females stressed

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the second base of the former, while 6 males and 5 females stressed the second base of the latter. The native speaker used as the control subject assigned primary stress to the first base of each of the words.

Table 1 below presents the overall stress-marking patterns found in the speech of the subjects, for 2-base compound nouns.

As table 1 shows, for compound nouns that have 2 bases, the primary stress falls on the first element in NE. Altogether, 94.5% of the tokens follow this pattern. There is no marked difference between the pattern observable in males and that of females. The implication of this is that the pitch contour for both NE and RP is rise-fall, as shown below:

house- fly

This contour shows that the pitch on *house* is higher than that on *fly.* Therefore *house* is more prominent than *fly.*

The metrical tree for *mealtime* below further illustrates the stress pattern of NE compound nouns:

mealtime

According to this tree, *meal* is a strong foot, while *time* is a weak foot; thus, *meal* is more prominent than *time.* Here is its metrical grid:

x
x x
x x
mealtime

The grid shows that the first syllable is more prominent than the second syllable. This is because the highest x is on *meal.*

For 3-base compound nouns, *senior common room, post office box, one-man show, video cassette recorder* and *network news* were used. All the subjects assigned primary stress to the first base of *network news.* All the male subjects also assigned primary stress to the first base of *one-man show*; but only 23 females assigned primary stress to its first base; while 2 females assigned primary stress to its second base. For *senior common room*, 24 males and 23 females assigned primary stress to its first base; 1 male and 2 females assigned primary stress to its second base; but no subject assigned primary stress to its third base. *Post office box* behaved differently: only 1 male and 1 female assigned primary stress to its first base; 21 males and 22 females assigned primary stress to its second base; while 4 males and 2 females assigned primary stress to its third base. For *video cassette recorder*, 23 males and 23 females assigned primary stress to its first base; only 2 females assigned primary stress to its

Table 1: Stress-pattern of 2 base-compound nouns in NE

				f		%	
	s	n	t = sn	1	2	1	2
Males	25	12	300	283	17	94	6
Females	25	12	300	286	14	95	5
Total	50	24	600	569	31	94.5	5.5

Key:
s - number of subjects
n - number of tokens per speaker
t - total tokens per group
f - frequency of occurrence
1 - initial base of compound
2 - second base
3 - final base

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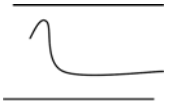
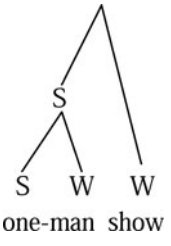
second base; and only 2 males assigned primary stress to its third base; no male and no female assigned primary stress to its second and third bases, respectively.

Table 2 below captures how NE stress-marks compound nouns with three bases.

From this table, we can see that for 76.8% of tokens, the primary stress was on the first base; for 20% of them the primary stress was on the second base, while 3.2% of the tokens had primary stress on the third base. This means that only 3.2% of them (1 subject out of 50) followed the Compound Prominence Rule. This implies that, generally, the primary stress falls on the first lexical item. This is a radical deviation from the Compound Prominence Rule. The native speaker followed a similar pattern; she assigned primary stress to the first base of all the words. The pitch contour for 3-base compound nouns in NE is shown below:



As seen in this pitch contour, *one* has the highest pitch; thus it is more prominent than the other two words. Here is the metrical tree:



According to this metrical tree, the foot that contains *one* (made up of *one-man*) is strong, while the second foot (made up of *show*) is weak. Therefore, that strong foot is more prominent than the weak one. The metrical grid below shows that the first syllable is more prominent than the third syllable; the second syllable is the least prominent:

x
x x
x x x
one-man show

In this metrical grid, there are two prominent syllables (words) – *one* and *show* – as seen in the middle row of x. But *one* is the most prominent syllable, because the highest x is on it. Therefore, *one* is stressed.

Based on these patterns, we therefore assert that in NE, for compound nouns, whether those with 2 bases or 3 bases, the primary stress usually falls on the first base. Thus, NE obeys the Compound Prominence Rule, which states that 'In a pair of sister nodes [N_1 N_2]L, where L is a lexical category, N_2 is strong if it branches above the word level' (Giegerich, 1992: 256).

Compound verbs

To determine the stress pattern of compound verbs in NE, *backfire, backslide, spearhead, stage-manage* and *mass produce* were tested. 7 males and 9 females assigned primary stress to the first base of *backfire*, while 18 males and 11 females assigned primary stress to its second base. 4 males and 5 females assigned primary stress to the first base of *backslide*, while 21 males and 20 females assigned primary stress to its second base. 7 males and 14 females assigned primary stress to the first base of *spearhead*, while 18 males and 20 females assigned primary stress to its second base. 13 males and 21 females assigned primary stress to the first base of *stage-manage*, while 12 males and 21 females assigned primary stress to its second base. 20 males and 25 females

Table 2: Stress-pattern of 3-base compound nouns in NE

				f			%		
	s	n	t = sn	1	2	3	1	2	3
Male	25	5	125	97	22	6	77.6	17.6	4.8
Females	25	5	125	95	28	2	76	22.4	1.6
Total	50	10	250	192	50	8	76.8	20	3.2

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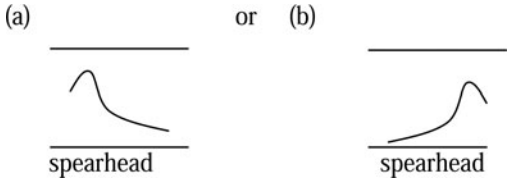
assigned primary stress to the first base of *mass produce*, while only 5 males assigned primary stress to its second base. Table 3 below shows the general pattern for stressing verbs in NE.

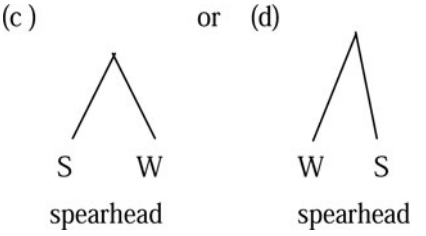
This table shows that male NE speakers put the primary stress on the second element of compound verbs (59.2% of tokens) more often than on the primary element. For the female group the converse held: 59.2% of the tokens produced by females had primary stress on the *first* base. However, both groups lack consistency in the way they stress-mark compound verbs generally. The word *stage-manage* created problem for most females. Some of them interpreted it as a noun. In all, what obtains in NE is that for a compound verb either the first or second base is assigned a primary stress; half of the subjects assigned a primary stress to the first base while half of them assigned it to the second base. This is a radical departure from the pattern observable in the speech of the native speaker, who assigned primary stress to the first base of each of the words tested.

The above analysis shows that compound verbs in NE behave differently from compound nouns. While some of them behave like phrases, others behave like compounds. Some obey the Compound Prominence Rule while others obey the Phrasal Prominence Rule, which states that in a pair of sister nodes [N_1 N_2]P, where P is a phrasal category, N_2 is strong (Giegerich, 1992: 253). For NE compound verbs, the pitch contour is either:



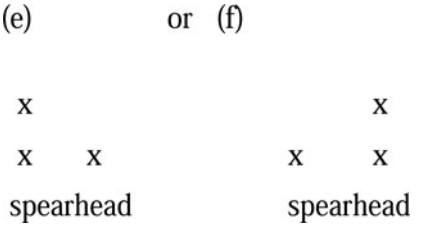
The pitch contour in (a) shows that *spear* has pitch that is higher than *head.* This implies that it is stronger than *head*. However, the reverse is the case with the pitch contour in (b).

The metrical tree is either:



The metrical tree in (c) indicates that *spear* is a strong foot, while *head* is a weak foot; this is why *spear* is stressed. But the opposite is the case with the metrical tree in (d).

The metrical grid, showing prominence relation, is either:



There are two levels of x here because there the syllable level is coterminous with the foot level. The grid shows that in (e) the first syllable is more prominent than the second syllable, since the highest pitch is on it; while the reverse is the case in (f).

Table 3: Stress pattern of compound verbs in NE

				f		%	
	s	n	t = sn	1	2	1	2
Males	25	5	125	51	74	40.8	59.2
Females	25	5	125	74	51	59.2	40.8
Total	50	5	250	125	125	50	50

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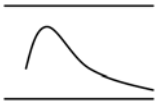
Compound adjectives

The compound adjectives *work-shy, bullet-proof, crystal clear, narrow minded* and *part time* were used for analysis. 18 males and 22 females assigned primary stress to the first base of *work-shy*, while 7 males and 3 females assigned primary stress to its second base. 11 males and 15 females assigned primary stress to the first base of *bullet proof*, while 14 males and 10 females assigned primary stress to its second base. All the subjects assigned primary stress to the first base of *crystal-clear.* All the males and 24 females assigned primary stress to the first base of *narrow minded*, while only 1 female assigned primary stress to its second base. 11 males and 10 females assigned primary stress to the first base of *part-time*, while 14 males and 15 females assigned primary stress to its second base.

In NE, compound adjectives behave like compound nouns, in that the primary stress usually falls on the first base. This is shown in Table 4 below.

This implies that NE applies Compound Prominence Rule. 74.4% of tokens had primary stress on the first lexical item in a compound adjective. In all the instances of compound adjectives tested, the native speaker assigned primary stress on the first lexical item.

The general pitch contour for compound adjectives in NE is:



crystal clear

In this contour, *crystal* has the highest pitch; this makes it to be more prominent than *clear.*

The general metrical tree is illustrated below with *work shy*:

work shy

The triangle above shows that the foot covers the entire word on which it is put. In this tree, *work* is a strong foot, while *shy* is a weak foot; thus, *work* is stronger than *shy.*

The metrical grid in NE for *narrow-minded* is shown below:

x
x x
x x x x

narrow minded

According to this grid, the first syllable is the most prominent; the third syllable is more prominent than the second and the fourth syllables.

Compound adverbs

Single-mindedly, *half heartedly, half hourly, light heartedly* and *sober-mindedly* were used to test how NE stress marks compound adverbs. All the subjects stressed the first base of each of these words. The only exceptions are *single-mindedly* and *sober-mindedly*, while 1 female each stressed the second base of each.

The stress pattern obtainable in compound adverbs is not different from that found in compound adjectives, as shown in Table 5.

From this table, it could be seen that 99.2% of the tokens had primary stress on the first lexical item, thus obeying the Compound Prominence Rule. The pattern in NE corresponds to that found in the speech of the native speaker, who stressed

Table 4: Stress-pattern of compound adjectives in NE

				f		%	
	s	n	t = sn	1	2	1	2
Males	25	5	125	90	35	72	28
Females	25	5	125	96	29	76.8	23.2
Total	50	10	250	186	64	74.4	25.6

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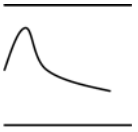
Table 5: Stress-pattern of compound adverbs in NE

				f		%	
	s	n	t = sn	1	2	1	2
Males	25	5	125	125	_	100	-
Females	25	5	125	123	2	98.4	1.6
Total	50	10	250	248	2	99.2	0.8

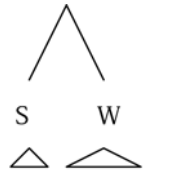
the first base of each of the words tested. Therefore, the pitch contour for compound adverbs in NE is:



half-way

Here, *half* has pitch that is higher than *way*; this is why the former is more prominent than the latter.

The metrical tree for *single-mindedly* is shown below:



single-mindedly

According to this metrical tree, *single* is a strong foot, while *mindedly* is a weak foot. Therefore, *single* is assigned the primary stress. For *sober-mindedly*, below is the metrical grid, showing prominence relations among the syllables:

x

x x

x x x x x

sober-mindedly

The grid indicates that the first syllable is more prominent than all others; the third syllable is more prominent than the remaining three syllables.

Comments and conclusion

With the exception of compound verbs, all compounds have a rise-fall pitch contour; compound verbs may have either a rise-fall or fall-rise pitch contour. This shows that NE speakers invariably make the first lexical item prominent. It is as if they always contrast the first lexical item with other lexical items. Even if other lexical items are added to the compound, as in the case of compound nouns, the stress pattern remains unchanged. In essence, NE obeys the Compound Prominence Rule, which assigns a primary stress to the first node except if it branches at the word level. This is also the case in casual conversations and the radio programme used as data for this work. Thus, NE has a regular pattern, unlike RP, in which some compounds behave like phrases (Giegerich, 1992: 257). Surprisingly, the highly educated native speaker used in this study constantly followed the Compound Prominence Rule. Her realisations were: *foul play*, *gold medallist* and *national anthem*, in contrast to the RP of Daniel Jones' (2006) *Cambridge English Pronouncing Dictionary* which assigns primary stress to the **second** lexical item of each. It could be that we are dealing with ongoing changes in RP stress assignment in compounds, since Daniel Jones' original work is of the early 20th century. Clearly, there is much work to be done on compound stress in Nigeria and beyond.

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https://doi.org/10.1017/S026607841100037X Published online by Cambridge University Press