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## SOME OBSERVATIONS ON WORD STRESS IN ENGLISH

### O. Introduction

In the present paper an attempt is made to account for the assignment of primary stress in English words in a non-cyclic way. Within the non-cyclic approach, some of the formal devices applied by Chomsky and Halle in *The Sound Pattern of English* (henceforth referred to as SPE) need no longer be employed. Thus, no syntactic nesting is required in the case of homophonous verbs and nouns of the type *import* vs. *import*, if it is assumed that neither the noun is derived from the verb, nor the verb is derived from the corresponding noun. The SPE version makes the former assumption, while Ross (1972) contends that the noun is basic and that the verb is derived from it. One may observe at this point that if one maintains that either of the lexical forms is more basic and more 'natural' for the assignment of primary stress, then one is likely not to be able to abstain from the use of some kind of cycle. Consequently, an assumption is made that in order to derive properly the stress contours in homophonous nouns and verbs, the native speaker does so by applying a different rule (or a set of rules) to nominal and verbal forms separately. In this way, the excessive formalism of the SPE version is somewhat reduced.

The other formal device that is dispensed with in the present paper is an abbreviatory notation (=) which is specified by the following set of features: [-segment, -FB, -WB] (cf. SPE: 94). Ross rejects (=) as an artificial and totally unjustified device. However, it is contended here that what native speakers indeed do require is grammatical and morphological information such as whether they are dealing with a noun or a verb, or where morpheme boundaries should be located. The incorporation of grammatical and lexical information is permitted; in some instances it is even mandatory to provide additional ad hoc information. As Kenstowicz and Kisseberth (1977:114) put it: "this information is to be included in the lexicon, whose role is that of the repository of all of the unpredictable, idiosyncratic features determining the phonological (as well as syntactic and semantic) behavior of a morpheme". Moreover, we agree with Garde (1968) and Fudge (1975) in assuming that the placement of primary stress in free-stress languages is largely determined by (a) the accentual properties of morphemes, and (b) the relative strengths of morphemes, and that affixes are pivotal clues to the

native speakers in the situation in which they have to decide where stress is placed in a new and unfamiliar word. We therefore agree with Fudge (1975:287) that the "accentual properties of morphemes must form a part of a descriptively adequate grammar of English". In accordance with Fudge's suggestion, we assume that suffixes can be most generally sub-divided into three major types with respect to their accentual properties:

- (1) 'stress-neutral' suffixes which, upon embedding, do not affect the assignment of primary stress: -en, -er, -ess, -ful, -ing, -ish, -less, -ly, -ment, -ness;
- (2) 'auto-stressed' suffixes which have the power to attract the assignment of primary stress to themselves: -ade, -ean, -ee, -eer, -ere, -ese;
- (3) 'pre-stressed' suffixes which are able to locate primary stress either on the penultimate syllable (if the suffix is monosyllabic and if the penultimate syllable is specified as quantitatively strong), on the antepenultimate syllable: (a) if the suffix is disyllabic and the antepenult is strong, and (b) if the suffix is monosyllabic and the penult is weak, or even on the preantepenultimate syllable (when the suffix is disyllabic): -al, -an, -ance, -ant, -ar, -ary, -ence, -ent, -ery, -ial, -ian, -iar, -iary, -ic, -ience, -ient, -iery, -ion, -ious, -ist, -ive, -ory, -ous.

#### 1. The assessment of syllable quantity

The present treatment of word stress differs from the SPE approach in that it is based on the explicit requirement of syllabification that precedes stress assignment. The view stems from the conviction that syllabification can no longer be ignored, and that it is relevant to the operation of phonological rules (cf. Kenstowicz and Kisseberth 1977). The principle of syllabification accepted for the present analysis is that expressed by Hooper's (1972) Syllable-Boundary Insertion Rule, perhaps completed by the 'minimalist' syllabification principle proposed by Anderson and Jones (1977). The only problem that requires a tentative solution is that of geminate intervocalic consonants. It is proposed here that these be regarded as perfectly ambisyllabic. Thus, *collate* is syllabified as *col. late*. The point does have some bearing on the issue of stress placement in many lexical forms.

As a result of the application of the syllabification principle, one may arrive at two types of syllables:

- (4) 'weak' syllables whose segmental structure may be expressed as

$$c_0 \ V \ C_0^1$$

- (5) 'strong' syllables which may be expressed by means of the following formula:

$$\begin{array}{c} V \ C_2 \\ C_0 \ V \ C_0 \end{array}$$

The formula has the following two expansions:

$$(6a) \quad C_0 \ V \ C_2$$

$$(6b) \quad C_0 \ V \ C_0$$

In the present paper, the 'weak' syllable is denoted by the symbol 'W', while the 'strong' syllable is rendered by 'S'.

The adherence to the principle of proper syllabification of the word seems necessary in all those instances where primary stress can be assigned to a syllable solely on the

grounds of its quantity. Notwithstanding, the consequent recognition of the quantity of syllables that make up a given word, i. e., the division of syllables into strong and weak, does not necessarily imply that stress is invariably linked with the occurrence of strong syllables only. Generally speaking, it is argued here that the assignment of primary stress can in many English words be resolved on the basis of syllabification and the resultant 'syllable strength assessment'.

## 2. The assignment of primary stress

In what follows, we shall be essentially concerned with examining some selected types of disyllabic and polysyllabic words, and we shall present a set of rules for the assignment of [1 stress].

Consider the following examples:

- (7) roulade    pulsate    append  
      ordain    stagnate    submit  
      gyrate    tattoo    pretence

In these forms, primary stress falls on the final syllable which seems to be due to its quantitatively strong nature. The rule, operative in this group of words, may be formulated as follows:

### (8) Final Stress Rule (FSR)

Syll → [1 stress]/Syll. [S]

where (.) denotes the syllable boundary.

An exemplary assignment of 1stress to the words in (7) is given in (9).

### (9) gyrate

gy.rate	syllabification
S    S	syllable strength
1	FSR

There are forms, however, viz., **igloo**, **cuckoo**, where primary stress is not assigned to the final syllable, and which are therefore violations to the above presented FSR. The stress assignment in these forms may be accounted for by means of a stress-shifting mechanism, the Alternating Stress Rule (cf. SPE: 77). The rule may have the following form:

### (10) Alternating Stress Rule (ASR)

Styll → [1 stress]/-(Syll), Syll]

The rule is required to follow the application of the FSR, as is demonstrated in (11).

- (11) cuckoo  
      cuc.koo    syll.  
      w. S    syll. str.  
      1    FSR  
      1    ASR

Since no two equally strong stresses can occur closely together, the weakening of one of them is secured by the Detail Rule (cf. Schane 1975) which is of the form:

### (12) Detail Rule (DR)

	[1 stress]	
[1 stress]/→		-...
	[3 stress]	

where '...' means any number of stressless syllables, and which reads: the rightmost [1 stress] not on the final syllable remains [1 stress]; then all the remaining [1 stress] are converted into [3 stress].

The final derivation of the stress contour in **cuckoo** is thus as follows:

(13)	cuckoo	
	cuc.koo	syll.
	W . S	syll. str.
	1	FSR
	1	ASR
	1 3	DR

The procedure of applying a mechanism such as the Alternating Stress Rule seems justified on the grounds that the final syllable in **cuckoo** and **igloo** remains unreduced whereby retaining a degree of stress higher than [0 stress.] Another partial justification for the ASR comes from the fact that English exhibits a tendency to locate primary stress on the initial syllable, whenever it is possible.

Quite a number of disyllabic and polysyllabic words are claimed to have their primary stress assigned solely in accordance with the quantitative division of the syllables that comprise them. Consider the form in (14):

(14)	China	Africa
	extra	America
	human	hydrogen
	pencil	plausible
	devil	definite
	hamlet	minimum

In terms of syllable quantity (i. e. strength), the words in (14) may be divided into the following sequences:

(15)	S.W	e.g. <b>China</b>
	W.W	<b>pencil</b>
	W.W.W	<b>Africa, basilica</b>
	S.W.W	<b>hydrogen</b>

The obtained sequences of syllable quantities and the placement of stress strongly resemble the relationship between syllable quantity and stress which holds in Classical Latin (cf. Allen 1969). The rule that locates primary stress on an appropriate syllable in accordance with syllable quantity will be tentatively called the Syllable Quantity Stress Rule and will assume the following shape:

(16) The Syllable Quantity Stress Rule (SQSR)

	[S]	(a)
	W	(b)
	[ <closed > ]	W
Syll → [1 stress]/	[s]	(c)
	[W] W	(d)

Notice that in constructing a rule such as (16), a claim is made to view word accentuation as essentially a scansion process which has a specific direction, i.e., it runs from right to left. The assignment of primary stress in accordance with syllable quantity is presented in (17).

(17)	basilica		China
	ba.si.li.ca syll.		Chi.na syll.
	W.W.W.W syll. str.		S.W syll. str.
	1 SQSR case(d)	1	SQSR case (a)

In still another large group of words, primary stress may be assigned due to the occurrence of 'accentually loaded' suffixes. It seems appropriate at this point to propose a tentative division of all stress-sensitive, 'pre-stressed' suffixes into the following major classes:

- Class I: monosyllabic suffixes which place [1 stress] two syllables to the left from the end of the word, i. e., on the antepenultimate syllable. The following suffixes belong to the group: -al, -an, -ance, -ant, -ence, -ent, -ist, -ive, -oid, -ous;
- Class II: disyllabic suffixes which locate primary stress on the pre-antepenultimate syllable and which comprise the following: -ary, -ery, -ory;
- Class III: monosyllabic suffixes which place [1 stress] invariably on the penultimate syllable. The following suffixes are members of this group: -ic, -ial, -ian, -iar, -ience, -ient, -ion, -ior, -ious;
- Class IV: Disyllabic suffixes, such as -iary, -iery, -ity, which place primary stress invariably on the antepenult.

It should be observed at this point that the first two classes of suffixes, i.e., Class I and Class II, place primary stress as described only if the preceding syllable happens to be weak, and which, upon syllabification, turns out to be a weak open syllable. Otherwise, [1 stress] is placed on the penultimate and antepenultimate syllables, respectively.

One assumes, then, that the disyllabic and polysyllabic words listed in (19), and which contain any of the above mentioned accentually loaded suffixes, have their primary stress assigned by means of the following rule.

(18) Affix Stress Rule (AffSR)

	[[Syll]] + V C <sub>1</sub> <sup>2</sup> ] Affix Class I	(a)
	[[Syll]] + V.C <sub>1</sub> <sup>1</sup> V] Affix Class II	(b)
Syll → [1 stress]		Z
	[Syll] + V C <sub>1</sub> <sup>2</sup> ] Affix Class III	(c)
	[Syll] + V C <sub>1</sub> <sup>1</sup> V] Affix Class IV	(d)

where 'Z' is a string, possibly null, consisting of nothing but stress-neutral affixes (cf. Fudge 1975).

(19)	action	acceptance	magician
	basic	accordance	sedition
	drastic	abundant	dynastic
	bumptious	proposal	dramatic

algoid	universal	oblivion
absence	erroneous	colonial
duteous	adherence	familiar
missive	exponent	peculiar
famous	concretive	inferior
dentist	conductive	superior

Chomsky and Halle (1968:81) propose to treat the monosyllabic suffixes as formatives preceded by the formative boundary (+). Accepting their standpoint, we assume that (+) must be properly incorporated into the complex Affix Stress Rule (18), where the monosyllabic suffixes have the over-all form  $C_0VC_0$ . In support of the selection of the above string as representing the suffixes in question, one should state that it is not always possible to express the monosyllabic suffix simply by means of the [syllable], since the boundary (+) does not necessarily coincide with the syllable boundary (.). Thus, it is assumed here that primary stress is assigned to the appropriate syllable of any word in (19) before 'resyllabification' is carried out, i. e., before the affix is properly incorporated into the syllabic structure of the string under consideration. The application of the AffSR is demonstrated in (20).

(20)	act + ion		accept + ance	
	1	AffSR case (a)	1	AffSR case
	ac. tion	syll.	ac.cep.tance	syll. (a)
			fa.mil + iar	
			1	AffSR case (c)
			fa.mi.liar	resyll.

### 3. Conclusions

The aim of the present short paper was to show the ways of assigning primary stress to some selected major types of English disyllabic and polysyllabic words. Thus, [1 stress] may be assigned by means of the following rules: the Final Stress Rule, the Alternating Stress Rule, the Syllable Quantity Stress Rule, and the Affix Stress Rule. The four rules are claimed to constitute the major bulk of word-stress assignment rules, although quite a number of low-phonetic, 'detail' modifications are required in many lexical forms which do not quite conform to the application of the afore-mentioned rules.

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## KILKA UWAG O AKCENCIE WYRAZOWYM W JĘZYKU ANGIELSKIM

### Streszczenie

W artykule pt. "Some observations on word stress in English" staram się przedstawić system reguł fonologicznych, które umieszczają akcent główny w wyrazach dwusylabowych i poli-sylabowych. Proponowany przeze mnie system, a raczej zbiór reguł, składa się z reguł niecyklicznych, które derywują akcent główny w zależności od struktury sylabicznej wyrazu, a także w zależności od typu sufiksu, który pojawia się w strukturze wyrazu. W niecyklicznym ujęciu przedstawiam dwa podstawowe procesy, które towarzyszą stosowaniu reguł akcentu tj. wyprzedzają ich zastosowanie.

Są to : a) właściwa sylabifikacja wyrazu

b) odpowiednie określenie 'siły sylaby', tj. czy sylaba jest 'słaba' czy 'mocna'.

Dopiero wtedy, zdaniem moim, aktywizuje się odpowiednia reguła akcentu prymarnego.