The Rhythm-group and English Speech Rhythm

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1. Introduction

This paper aims to present and justify a theory of Rhythm-group, which is chosen as the basic unit of English speech rhythm between the two competing units: Foot and Rhythm-group. Although an approach to English rhythm based on Foot is widely popularized by the work of Abercrombie (1964a,b, 1968) and Halliday (1967, 1970), I have found supporting evidences for Rhythm-group's advantages over Foot from Kingdon (1958), O'Connor (1980), Jassem et al. (1984), and others. The assumption of Rhythm-group is based on the natural utterances, the distinction between the leading and the trailing syllables, the conflicts between the sound and the sense attraction, the interaction between the rhythm and the syntax, and the close relation between the rhythm and intonation, etc. Rhythm-group will also be examined in the prosodic phonology, and the results will provide enough evidences for Rhythm-group to enter into the prosodic hierarchy.

2. The Theory of Rhythm-group

2.1. The definition of Rhythm-group

A Rhythm-group (henceforth Rg) is usually defined as a group of syllables which belong together grammatically and contain one major stress. (Couper-Kuhlen 1986:59)

(1) The Characteristics of Rg
  a. An approximation to the natural utterances.
  b. Stress-group: At least one stressed syllable.
  c. A prosodic unit above the word: A word cannot be separated.
  d. Close to the grammatical unit or the sense-group: Taking grammatical boundary into considerations.
  e. Sound attractions: (i) The anacrusis is attracted to the following stress-group, rightwards. (ii) The unstressed syllables are attracted to

the stressed syllable, usually leftwards.

f. Closely related to Intonational phrase.

(cf. O'Connor 1980: 95-100; Thomson 1923: 142-4; Kingdon 1958
   161-4)

The following sentence will be divided into nine Rg's and three sense-groups
(Kingdon 1958: 161-3), thus:

(2) a. | The ˈstressed | ˈsyllables | do ˈnot | ˈall | ˈoccupy |
        the ˈsame | ˈrelative | poˈsition | in the ˈgroup. |

    b. | The ˈstressed ˌsyllables | do ˈnot ˈall ˌoccupy |
       the ˈsame ˈrelative poˈsition in the ˈgroup. |

2.2. Leading and Trailing Syllables

Consider, for instance, / ˈdount ˈweitəz ˈlɔŋ fərit /. In terms of Rg, the division
would be as follows:

(3) a. | Don't | wait | as long for it. |

    b. | Don't | waiters | long for it. |

To account for the rhythmic difference between (3a) and (3b), a distinction is
made between 'leading' and 'trailing' syllables. The syllable /əz/ would be leading
in (3a) and trailing in (3b). The general tendency in English is to produce leading
syllables with great speed than trailing syllables within the Rg; hence also such
syllables are extremely liable to be reduced. But the trailing syllables are usually
similar in length to the preceding stressed syllable. This will be explained that the
trailing syllables take the length from the stressed syllable. The experiments of
Hoequint (1985: 97-9) have found that the effect of the trailing syllables should be
considerably stronger than that of the leading syllables. In a word, the leading
and the trailing syllables are quite different in character. Therefore, we should
deal with them differently.

2.3. Abstract rhythmic alternation

In addition to being conditioned by the principles of isochrony and
stress-timing, English rhythm is characterized by the principle of rhythmic
alternation. Here, I will present the base form and the principles of abstract
rhythmic alternation in English as follows:

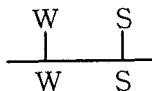(4) The Principles of the Abstract Rhythmic Alternation

    a. Base form: (W)S

    b. Principles of Rhythmic Alternation: (W)SWS...

    c. S-division: S (♩) → SW (♪ ♪) or SWW (♪ ♪ ♪)
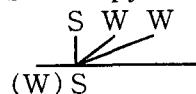
       W-division: W (♩) → WW (♫) or WWW (♬)

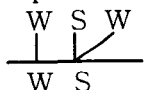(5) The examples of Simple Rhythm-group (cf. above(2))
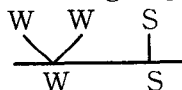

a. the stressed

b. occupy

c. position

d. in the group

2.4. The Secondary stress and the Complex Rhythm-group

In fast speech, two or more simple Rhythm-groups may be coalesced into one large rhythm unit. Such a combination comprises a complex Rhythm-group. (cf. Pike 1945: 37)
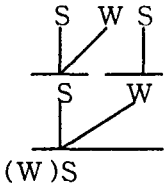
(6) Complex Rhythm-group

    a. Two or more simple Rhythm-groups, especially in fast speech.

    b. One primary stress and more than one secondary stress.

    c. No pause within the group.
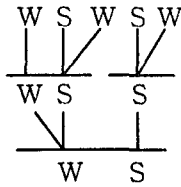
    d. Base form is also WS.

A secondary stress will be shown in the polysyllabic words and in the sentence with a sequence of function words.
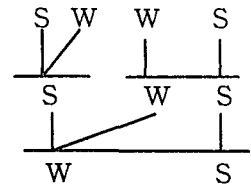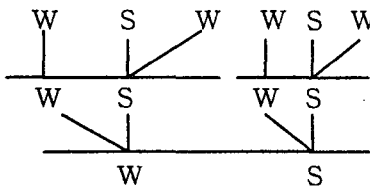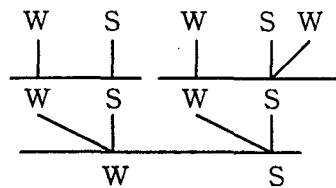
(7) Examples of Complex Rhythm-group

a. appetite
```
S W S
  S   W
 (W )S
```

b. examination
```
W S W S W
 W S   S
  W   S
```

c. over the hill
```
S W  W  S
  S    W   S
  W        S
```

d. He must be reminded
```
W  S  W  W S W
  W  S   W S
     W        S
```

e. a book of stories
```
W  S  W  S W
 W  S  W  S
    W     S
```

## 3. Rhythm-group and the Prosodic Hierarchy

The essential proposal of prosodic phonology is a hierarchy of prosodic units. The idea of the hierarchy is that each unit is made up of some number of units from the next lower level. Nespor & Vogel (1986: 16) propose a hierarchy of seven prosodic constituents as follows:

(8) The Prosodic Hierarchy
syllable = σ, foot = Σ, phonological word = W, clitic group = C, phonological phrase = $\emptyset$, intonaional phrase = I, phonological utterance = U

This hierarchy is considered as having some problems from the rhythmic point of view. Consider the metrical structure of the sentence *Lots of employers insist on word-processing experience*. Example(9) gives the metrical structures for this sentence up to the word level (Giegerich 1992: 262):

(9)

```
                                                              word
         S      S                               S            foot
       W  S  WW                        S           S
                                      W W W   W  S  W W
```
Lots of employers insist on word-processing experience
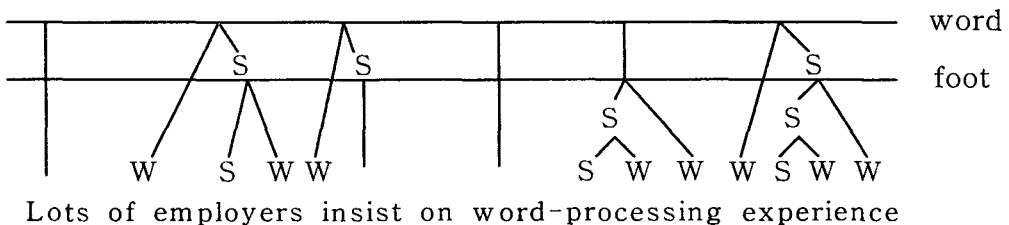
In this analysis, we will observe the violation of the Strict Layer Hypothesis (Selkirk 1984). The syllables are not exhaustively grouped into feet, nor the feet into words. Two problems are immediately apparent. Firstly, unstressed word-initial syllables are not represented on the Foot level, but are daughters of a Word-level node. And secondly, (9) contains two function words - *of* and *on* - that have no metrical structure at all: These are represented neither on the Foot level nor on the Word level. (Giegerich 1992: 262).

Solution of Giegerich is not satisfactory for the problems. The final metrical structure of the sentence by Giegerich(1992: 262) will be extended up to the Intonational Phrase as follows:

(10)
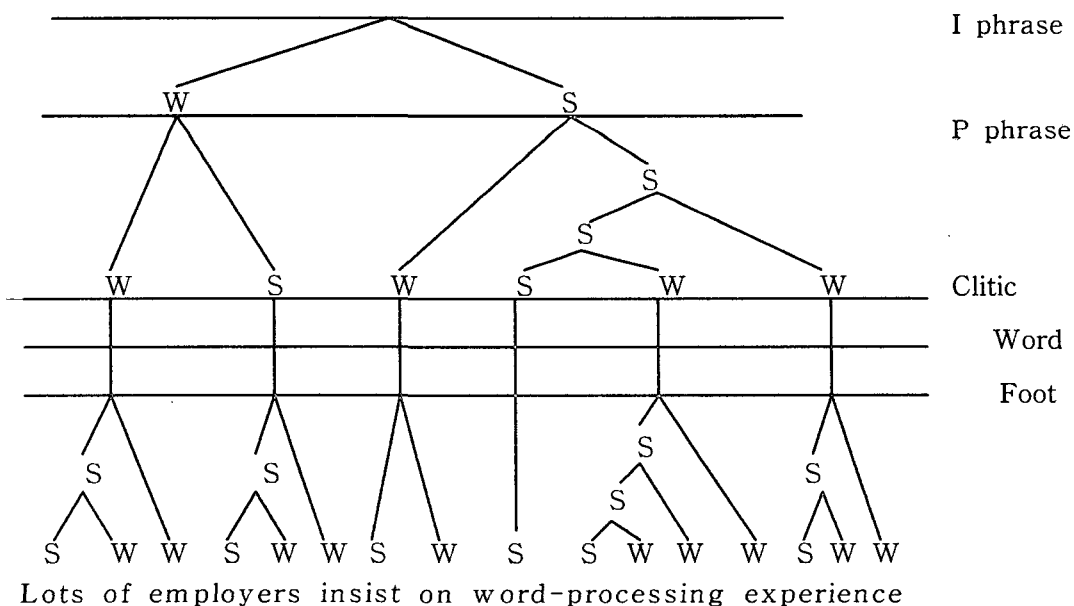
Here, Foot, Word, and Clitic levels are represented as the same. I think that the problems are originated from the Foot level. For some phonologists this means that the notion Foot doesn't play a role in the phrasal phonology and doesn't therefore, enter into the Prosodic Hierarchy (Spencer 1996: 287). Hayes(1989: 206) assumes that the lowest catagory on the Prosodic Hierarchy is the Word

level. Selkirk(1984: 31) hypothesizes that there is no prosodic constituent Foot, and says that in English the Phonological Phrase, the Prosodic Word, and the Foot are not units in the hierarchy.

Now I will propose the Prosodic Hierarchy of five levels for English speech rhythm: Utterance = U, Intonation-group = Ig, Phonological Phrase = Ph, Rg, and Syllable = Sy. The Rhythmic Alternation(=RA) will be a supplementary level for Rg.

For an example, the above sentence(9) will be represented in this system as follows:

(11)

4. Conclusion

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