Rhythmic Foot Structures in Adjectives of English

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1. Introduction

Conventionally, it has been claimed that English utterances have regular timing of stressed syllables (Jones, 1918; Pike, 1945; Abercrombie, 1967). With the advance of technological progress in recent years, however, many linguists have used empirical methods to measure the intervals between successive stressed syllables. The results often show considerable variation among the duration of feet, leading many linguists to reject the validity of isochrony in English (Shen & Peterson, 1962; O’Connor, 1965; Lea, 1974; Nakatani, O’Connor & Aston, 1981). Nevertheless, there remain several reasons to suggest that it is unwise to completely reject the notion of isochrony in English. Isochrony in English is not only the object of acoustic study but can also be investigated from phonological, syntactic, and psychological points of view. In fact, the notion of isochrony in English has been supported by much scholarship in these fields.

The aim of this study is to provide a clear account of the notion of isochrony by considering some isochronal phenomena at the syntactic level.

2. Stress Placement

Suppose English is a stress-timed language in which stressed syllables are produced isochronously, then the intervals between feet should be either compressed or stretched in order for the stressed syllables to occur at regular intervals. Therefore, the question of English rhythm is that of stress placement. English speaking people have a tendency to avoid adjacent stressed syllables and to place stresses at regular intervals. This manipulation of stress placement is regarded as a key factor which supports the notion of isochrony in English feet. For example, adjectives with the prefix *a– are usually limited only to the predicative use and not used attributively (Kubozono & Mizokoshi, 2000). Accordingly, the following (b) examples are regarded as a wrong usage from the grammatical point of view:

(a) The bird was alive. *(b) It was an alive bird.

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(a) The brothers look alike. *(b) The brothers have alike looks.

In order to convey the meaning of the sentences above with attributive adjectives, these adjectives need to be replaced with different ones:

(C) It was a living animal.

(C) The brothers have similar looks.

These syntactic phenomena can be explained from the rhythmic point of view. Most of the adjectives with the prefix *- are disyllabic words and the stress of these words tends to be placed on the second syllable (Bolinger, 1965; Kubozono & Mizokoshi, 2000). Therefore, stress clash between the adjective and the following noun is very likely to occur.

A similar syntactic tendency can be observed in the case of past participle adjectives. For example, the verb “drink” has two past participle forms, “drunk” and “drunken,” and they have specific uses: “drunk” for predicative adjectives and “drunken” for attributive adjective (Cutler, 1980):

drunk:

(a) He is drunk.

*(b) He is drunken.

drunken:

*(a) Look at the drunk man.  (b) Look at the drunken man.

The use of two different past participle adjectives is logical from the rhythmic point of view. If “drunk” is used as an attributive adjective, there would be a stress clash between the adjective and the following noun. In the case of “drunken,” however, the risk of causing stress clash is eliminated because of the weak syllable “–en” lying between the two stressed syllables. Bolinger (1965:146) cited these examples of other past participle adjectives:

The case is proved: a proven case
They had hid(den) the treasures: hidden treasures
He had broke(n) the stick: a broken stick
His skin had shrunk: shrunken skin
The head was misshaped: a misshapen head
The garden was sunk ten feet below the surrounding area: a sunken garden

(Bolinger, 1965:146)

The –en suffix exhibits redundant forms. However, it impedes the stress clashes, yielding a more rhythmic pattern between feet.
Moreover, adjectives of the comparative degree and the superlative degree are also affected by English rhythm. There are two types of comparative and superlative adjectives: the inflectional comparison with the inflectional suffix \(-er\) and \(-est\), and the periphrastic comparison with the adverbs \(more\) and \(most\). Although there are some exceptions, the choice of an adjective’s form is usually determined by the number of syllables in the adjective. Adjectives with three or more syllables take the periphrastic comparative form and one-syllable adjectives take the inflectional comparative form. However, there is no readily applicable rule for two-syllable adjectives (Kubozono & Mizokoshi, 2000). The choice of the two different types above can also be explained by rhythmic analysis (Nakajima, 2005).

As is shown in the following examples, the inflectional suffixes \(-er\) and \(-est\) in one-syllable adjectives typically avoid stress clash between stressed syllables:

For example, the one-syllable adjective \(big\):

(a) a bigger shoe

\[ \begin{array}{cccccccc}
  & & & & & & & \\
  & & & & & & & \\
  & & & & & & & \\
 \end{array} \]

*(b) a more big shoe

\[ \begin{array}{cccccccc}
  & & & & & & & \\
  & & & & & & & \\
  & & & & & & & \\
 \end{array} \]

(a) the biggest shoes

\[ \begin{array}{cccccccc}
  & & & & & & & \\
  & & & & & & & \\
  & & & & & & & \\
 \end{array} \]

*(b) the most big shoes

\[ \begin{array}{cccccccc}
  & & & & & & & \\
  & & & & & & & \\
  & & & & & & & \\
 \end{array} \]

On the other hand, the chance of causing stress clash between two stressed syllables is very small in the case of adjectives with three or more syllables. Thus it is not necessary for the adjectives to add the weak syllable \(-er\) or \(-est\) between stressed syllables in order to avoid stress clash. This is the reason why they take the periphrastic comparison with the adverbs “more” and “most.”

Here is an example with the three-syllable adjective \(beautiful\):

*(a) a beautifuler girl

\[ \begin{array}{cccccccc}
  & & & & & & & \\
  & & & & & & & \\
  & & & & & & & \\
 \end{array} \]

(b) a more beautiful girl

\[ \begin{array}{cccccccc}
  & & & & & & & \\
  & & & & & & & \\
  & & & & & & & \\
 \end{array} \]

*(a) the beautifulest girl

\[ \begin{array}{cccccccc}
  & & & & & & & \\
  & & & & & & & \\
  & & & & & & & \\
 \end{array} \]

(b) the most beautiful girl

\[ \begin{array}{cccccccc}
  & & & & & & & \\
  & & & & & & & \\
  & & & & & & & \\
 \end{array} \]

In the case of two-syllable adjectives, it can be assumed that the choice of adjective forms is not invariable, but is likely to be influenced by the surrounding foot structure. This point will be discussed further via a questionnaire survey in Chapter 3.

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1 Bolinger (1965: 154), stated that “if the adjective is placed after the noun, the form with \(more\) is preferred: I’ve never known a girl more lovely, I’ve never known a lovelier girl. The definite article with the superlative is probably selected partly on the basis of accent: \(Hé\) sailed (the) fárthest vs. \(He\) sailed the fárthest. The decision whether to accent \(hē\) or \(sāïled\) of course depends on information values in the sentence.” He also investigated the preference of comparative forms. Five listeners were tested with the following sentences:

- I’ve never known a more gay man.
- I’ve never known a man more gay.
- I’ve never known a man gayer.
- I’ve never known a gayer man.

Most of Bolinger’s subjects preferred the forms with separated stresses.
3. The Choice of the Adjective Comparative Form

Kamiya (2010) investigated the choice of two-syllable adjective comparative form via a questionnaire survey. The survey focused on three two-syllable adjectives – “friendly,” “stingy,” and “cruel” – and it was conducted with forty subjects: one Canadian, one New Zealander, two British, and thirty-six Americans. According to Nakajima (2005), these three words can take both forms (the inflectional comparative form and the periphrastic comparative form). It is assumed that the number of syllables of these adjectives does not change after adding the inflectional suffix –er to the original adjective forms. Moreover, it was assumed that one weak syllable is added to the preceding foot when the periphrastic comparative form is employed because the word “more” as the comparative degree is not likely to take sentence stress (Konishi & Minamide, 2001). The purpose of this questionnaire survey was to verify if the choice of the adjective comparative form is determined by the surrounding foot structure.

In the survey, subjects were asked to choose either the inflectional comparative form or the periphrastic comparative form as being natural or preferable (See Appendix 1). Two sentences, in which the inflectional comparative form and the periphrastic comparative form of the target adjectives could be appropriate in each sentence, were prepared and analyzed from the rhythmic point of view.

3.1. Results and Discussion

Concerning the adjective “friendly,” the following two sentences were prepared (Sentence 1 & Sentence 4). It is hypothesized that for Sentence 1, the periphrastic comparative form should be chosen because if stress was placed on the word “looks,” it would cause stress clash, which English speakers psychologically avoid in order to maintain temporal rhythm. On the other hand, for Sentence 4 below, if the periphrastic comparative form is chosen, then the preceding foot would be a five-syllable foot, but for the inflectional comparative form, the preceding foot would be a four-syllable foot. Since a five-syllable foot is beyond the foot limits, it is hypothesized that the inflectional comparative form should be chosen for Sentence 4. Thus we can expect, based on foot structure, that the subjects should choose “more friendly” in Sentence 1 and “friendlier” in Sentence 4.

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2 Many dictionaries consider the words “friendlier,” “stingier,” and “crueler” to each have three syllables. However, it was assumed for the purpose of this experiment that these words each have only two syllables because when the suffix –er is added to a word which ends in a vowel, it results in forming a new diphthong, and as a result, the inflectional form can be considered to have only two syllables.

3 In this study, sentence stress is assumed to be placed on content words but not on function words. However, sentence stress could be placed on function words if they are emphasized or contrasted in spontaneous speech. Similarly, content words can be de-stressed when they are treated as old information.

4 In order to maintain temporal rhythm, the maximum number of syllables within a foot is four (Kamiya, 2009).
Sentence 1

He looks more friendly in his uniform.

He looks friendlier in his uniform.

Sentence 4

She answered in a friendlier way.

She answered in a more friendly way.

Figure 1 indicated that twenty-six out of forty subjects (65%) chose “friendlier” for the Sentence 4, and twenty-two out of forty subjects (55%) chose “more friendly” for the Sentence 1. Although for each sentence, the percentage of the comparative form which was predicted was higher than the other form, it is difficult to conclude that the subjects chose that comparative form based on the foot structure because one form was not overwhelmingly chosen over the other form. However, from an examination of these two sentences, we can confirm the tendency to shift from the periphrastic comparative form to the inflectional comparative form for the adjective “friendly.” This shift from “more friendly” to “friendlier” suggests that the foot structure could have influenced the subjects’ choice of the comparative form for the adjective “friendly.”

![Figure 1: The Choice of the Adjective Comparative Form (friendly)](image)

Concerning the adjective “stingy,” it is predicted that the inflectional comparative form should be taken for the Sentence 6. This is because the stresses in the sentence “Bob is getting stingier.” occur in a more regular rhythm than the stresses in the sentence “Bob is getting more stingy.” For the Sentence 2, it is predicted that the periphrastic comparative form should be chosen because by inserting the word “more” before the word “stingy,” the number of syllables per foot is manipulated
so that stress clash is avoided.

**Sentence 6**
Bob is getting stingier.

Bob is getting more stingy.

**Sentence 2**
He looks more stingy in rags.

He looks stingier in rags.

As we can see from Figure 2, thirty-five out of forty subjects (88%) chose “stingier” for the Sentence 6. On the other hand, for the Sentence 2, twenty-two subjects (55%) chose “more stingy.” The results of Sentence 6 show a strong tendency that subjects chose the comparative form based on the foot structure. But in the case of Sentence 2, it is difficult to state that subjects chose “more stingy” based solely on the foot structure because there was not a significant difference in the ratios between the two forms. However, we can confirm by comparing Sentence 2 and Sentence 6 that the choice of the comparative forms of the adjective “stingy” shifted from the periphrastic comparative form to the inflectional comparative form.

![Figure 2: The Choice of the Adjective Comparative Form (stingy)](image)

In the case of the adjective “cruel,” if “more cruel” is chosen for the Sentence 5, the preceding foot would have four syllables, but it would have only three syllables if the word “crueler” was used instead. Hence, it is expected that the inflectional comparative form will be used in this sentence because it results in more periodic stresses.
Sentence 5
She replied with a crueler smile.

Several dictionaries treat “cruel” as a two-syllable word (*LDCE*, 2003; *COB*, 2004), but others treat it as one-syllable word (*LPD*, 2008; *OALD*, 2007). This is because “cruel” is transcribed as /kruːəl/ and its syllabifications vary depending on dictionaries. When a dictionary treats the vowels of “cruel” as two consecutive vowels like [uː] + [ə], “cruel” is syllabicated as consisting of two syllables. On the other hand, if the vowels are treated as a diphthong like [uːə], then “cruel” is interpreted as a one-syllable word. If the subjects treated the word “cruel” as a one-syllable word, then stress clash would be caused between “cruel” and “smile.” This point also supports the prediction that “crueler” should be chosen in this sentence.

In the Sentence 3, the periphrastic comparative form should be chosen because by inserting “more” before “cruel,” the number of syllables is manipulated in order to maintain temporal rhythm. Moreover, if “cruel” is regarded as a two-syllable word, then “more cruel” also should be more likely to be chosen in order to add a syllable to the preceding foot, which would cause the number of syllables per feet to be more regular.

Sentence 3
He was becoming crueler to his pets.

According to Figure 3, thirty-four out of forty subjects (85%) chose “more cruel” for the Sentence 3, but for the Sentence 5, thirty-two out of forty subjects (80%) chose “crueler.” Therefore, the results in both sentences highly correlate with the predictions that are based on foot structure. In other words, most subjects shifted their choice from the periphrastic comparative form to the inflectional comparative form for the adjective “cruel.” This result strongly supports the hypothesis that the choice of adjective comparative form is affected by the surrounding foot structure.
Note that for the Sentence 1 (“friendly”) and the Sentence 2 (“stingy”), the relative percentage of the inflectional comparative form to the periphrastic comparative form is 45% to 55% for both of these sentences. For these two sentences, this slight difference suggests that the choice of adjective comparative form may not be affected by the surrounding foot structure. The fact that the results for these two sentences did not accord with the prediction based on the foot structure can be explained by the stress assignment rule. In this survey, the stress assignment rule was based only on sentence stresses. It was assumed that every content word took stress, but function words did not take stress. Hence, “looks,” a content word, was predicted to take stress. Consequently, the periphrastic comparative form was predicted to be chosen in order to avoid a stress clash, and henceforth produce more isochronal feet in both sentences. The frequency of the word “looks” in everyday life is very high, and a subjective complement follows “looks” in these sentences. Therefore, there is a chance that “looks” might not take stress in the target sentences (Takebayashi, 1996; Watanabe, 1985). If “looks” is not stressed, then the words which precede “friendly” and “stingy” could be interpreted as an anacrusis 5 and then the foot would start with the stressed syllable of “friendly” and “stingy,” respectively. If that is the case, then the choice between the inflectional comparative form and the periphrastic comparative form does not cause any isochronal differences between the feet because the resultant number of syllables between the feet is same in both comparative forms.

4. Conclusion

In this study, some phenomena at the syntactic level were cited to support the existence of isochrony in English. The questionnaire survey conducted for this study has confirmed that native English speakers tend to choose adjective comparative forms based on the foot structure, which implies that native speakers of English are psychologically inclined to maintain temporal rhythm

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5 “Anacrusis” is defined as one or more unstressed syllables at the beginning of an utterance. In English, such syllables are often pronounced very rapidly and strongly reduced (Trask, 1996).
between feet. Although the results of this study were not perfectly consistent with the hypotheses, there was a clear tendency to shift from the inflectional comparative form to the periphrastic comparative form for the target adjectives, which suggests that the choice of adjective comparative form is affected by its surrounding foot structure.

Many phonologists have found significant differences between the duration of feet in an utterance when the foot duration is precisely measured acoustically (Shen & Peterson, 1962; O’Connor, 1965; Lea, 1974; Nakatani, O’Connor & Aston, 1981). However, it was observed in this survey that most subjects psychologically chose the more isochronal form. This means that we showed the nature of isochrony between English feet from the syntactic point of view.

References


**Dictionaries**


Appendix 1: Material which was used in this experiment.

**Nationality**

There are two sentences for each of the adjectives listed below. Which sentence sounds more natural or preferable to you? Please check the box next to the sentence you think sounds more natural or preferable.

**Sentence 1**
- He looks more friendly in his uniform.
- He looks friendlier in his uniform.

**Sentence 2**
- He looks stingier in rags.
- He looks more stingy in rags.

**Sentence 3**
- He was becoming crueler to his pets.
- He was becoming more cruel to his pets.

**Sentence 4**
- She answered in a friendlier way.
- She answered in a more friendly way.

**Sentence 5**
- She replied with a crueler smile.
- She replied with a more cruel smile.

**Sentence 6**
- Bob is getting more stingy.
- Bob is getting stingier.