

Four Musical Factors for Syncopation*

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1. Introduction

Although there are lots of musicological and psychological studies which attempt to make musical structures clear, little attention have been paid to the relation between music and language. In such a situation, however, a few musicologists and linguists have proposed the musical and linguistic principles underlying their grammar in the respective fields¹. As the studies advance, some common features between music and language have been found (cf. Lerdahl and Jackendoff (1983), which is a key work in developing the view of music universals).

However, the previous studies have two problems. Firstly, they lack descriptive support because they focus on the formulation of principles and preference rules. Secondly, the studies have been conducted in either the musicological or the linguistic fields.

One of the ways to solve the problems is to make a thorough analysis of a wide range of song structure. A mass of song data make us possible to find what determine their surface forms. Moreover, songs must be analyzed both musicologically and linguistically, because it is a form of auditory expression in which music and speech are intrinsically related to each other. Therefore, song is an appropriate subject to clarify the relation between language and music.

In this paper, I will focus on syncopation in songs, which have been studied only from musicological viewpoints except for Temperley (2001) and Kodaira (2003). My aim of this paper is to describe it from musical viewpoints and construct a basis for clarifying the manner of interaction between linguistic and musical factors for syncopation.

This paper is organized as follows. Section 2 introduces a basic musical theory and a general correspondence rule between musical and linguistic meter proposed by Temperley (2001). They are necessary to understand the rhythmic structure of songs. Given the theoretical background, section 3 explains the nature of syncopation, which appears to be an exceptional correspondence between music and language. The question which we must consider here is what factors regulate syncopation. The factors are divided into two groups: linguistic and musical factors. Section 3.2 surveys the linguistic factors proposed by Kodaira (2003). Section 3.3 argues for the relevance of four musical factors in the occurrence of syncopation. Section 4 makes concluding remarks.

musical stresses is needed in song metrical structure in general.

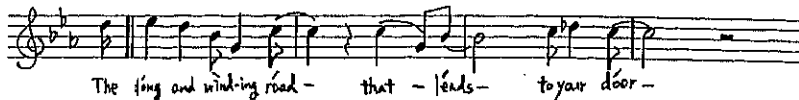
3. Syncopation

3.1 Overview

It is noteworthy that the correspondence between texts and melodies does not always follow the correspondence rule (1). There are actually cases where linguistically stressed syllables are not aligned to a strong beat in songs. This phenomenon is called *syncopation*. This is different from *inversion*, which has been a subject of controversy in verse metrics, in that the sounds that begin at the weak beats continue over the following strong beats in syncopation. The mismatch between texts and melodies occurs only at the weak beats. This phenomenon is often referred to only in the musicological literature.

Syncopation as defined above occurs frequently in rock and popular songs. For example, consider a passage from The Beatles's *The Long and Winding Road*.

(4)



(*The Long and Winding Road*:1)

Most interesting in the above passage is the fact that the monosyllabic words *road*, *leads* and *door* are aligned to the notes which begin at the musical weak position and continue to the following strong beats. These correspondence facts clearly violate rule (1) and might be expected to be unattested. In fact, however, such facts are often observed in popular songs.

It must also be admitted that syncopation, although often attested, is still seen to be an exceptional phenomenon for the following two reasons. First, as I stated above, syncopation violates the metrical preference rule in (1). Syncopation brings about some kind of conflict between linguistic and musical meter (cf. Temperley (2001)). The second reason is that syncopation does not follow the Event Rule in (5), where the term *event* roughly means sound. (Lerdahl and Jackendoff (1983) and Temperley (2001)).

(5) Event Rule: Prefer a structure that aligns strong beats with event-onsets.

(Temperley (2001:32))

When syncopations take place, strong beats do not correspond to event-onsets, as exemplified by the syncopation cases in (4). It follows, then, that syncopation brings about violations of the two basic rules postulated in musicology.

In spite of the above anomaly, syncopation often takes place in various

environments whose exact nature is still poorly understood. It is therefore not unreasonable to undertake investigations into environments where syncopation is allowed to occur.

Syncopation has attracted no attention of linguists, but a few studies have ever tried to capture syncopation facts in songs from a musicological viewpoint. Even in musical studies, however, there are few profound studies of syncopation. The only study which is concerned with an in-depth consideration of syncopation is Temperley (2001). He attempts to characterize the phenomenon as a mapping between deep and surface musical representations, and proposes a rule, called Syncopation Shift Rule, which is formulated as follows:

- (6) In inferring the deep representation of a melody from the surface representation, any event may be shifted forward by one beat at a low metrical level.

(Temperley (2001:243))

This rule resolves the conflict problem. If the rule in (6) is correct, it is characterized as a transformational process of the sort that regularly occurs without exceptions when relevant conditions are met. The conflict between musical and linguistic stresses do not arise.

Temperley's characterization of syncopation receives support from our perceptual tendency. Cooper and Meyer (1960) say that, once a sense of beat has been established, it may continue in the mind of the listener even if the event train temporarily comes into conflict with the pulse series, or after the event train ceases. Hence, we can perceive the syncopated sounds shifting from the neighboring strong beats.

However, Temperley's account still has a problem. He does not refer to any exact environments where the shifting rule can apply. He assumes that syncopation in songs is not a mere musical phenomenon, but does not examine the possibility that it is regulated by a linguistic factor.

3.2. *Linguistic Factors*

As discussed above, syncopation is assumed to be a musical process which maps a deep musical representation to a surface musical representation in a regular manner. However, we cannot provide a full characterization of syncopation if we cannot identify a range of environments where it occurs. Given that songs are organized with melodies and texts, there are at least three possibilities for its characterization: (i) syncopation is a musical process whose occurrence is determined only by musical factors, (ii) syncopation is a musical process whose occurrence is determined only by linguistic factors, and (iii) syncopation is a

musical process whose occurrence is determined by a set of factors, both musical and linguistic factors. Therefore, it is necessary that the property of syncopation be examined from not only musical but also linguistic viewpoints.

Since syncopation is also viewed as a mismatch between a linguistic stress and a musical beat, it is worthwhile to examine whether its occurrence is regulated by a linguistic factor.³

I argue here that the occurrence of syncopation is constrained by the structure of Phonological Phrase (PPh), one of the prosodic categories in Prosodic Phonology. The basic descriptive generalization is that a syllable can be syncopated when the syllable and the immediately preceding syllable are not separated by a PPh boundary. Given this generalization, I propose rule (7).

- (7) In the sequence of words . . . X Y . . ., Y may be syncopated when both X and Y are contained in the same Phonological Phrase.

(Kodaira (2003:25))

In English, PPh is constructed by the following algorithm, which is a simplified version of Hayes's (1989) rules.

- (8) PPh Construction (English)
 In the configuration [_{XP} . . . X YP . . .],
- The sequence [_{XP} . . . X] obligatorily corresponds to a PPh.
 - YP may optionally adjoin to the PPh if it contains only one content word.
 - Function words cannot form a PPh alone but are incorporated into an adjoined PPh.

Rule (8a) says that X, the head of XP, forms a PPh with the elements in the left-domain of its maximal projection. Rule (8b) says that YP, which can form a PPh with X when it contains only one content word, and it cannot when it contains more than one content word to form a PPh by themselves. Rule (8c), which is added by Okazaki (1998), says that function words cannot form an independent PPh and are incorporated into the adjacent PPh, even if they are not in the maximal projection to which they are incorporated.

Let us see how the rules in (8) work. Consider the examples in (9) and (10).

- (9) [_{NP} The king][_{VP} gave [_{NP} the royal command]].

- (10) [_{NP} He] [_{VP} gave [_{NP} the royal command]].

Although the two sentences have the same syntactic structure, their prosodic structures are different from each other. (9) and (10) are mapped to the prosodic structures in (11) and (12), respectively.

- (11) [_{PPh} The king][_{PPh} gave][_{PPh} the royal command]

(12) [_{PPH} He gave][_{PPH} the royal command]

(11) consists of a subject NP, a verb, and an object NP containing two content words. The subject NP and the object NP are both capable of forming their own PPhs, according to rule (8a). The object NP which contains two content words *royal* and *command* and is prohibited from forming a PPh with the preceding verb *gave* by rule (8b). As a result, (11) contains three PPhs.

By contrast, (12) contains only two PPhs. It is different from (11) in only one respect. The subject pronoun *he* is incorporated into the PPh formed by the adjacent verb *gave*. The reason for its PPh-phrasing is that a pronoun cannot form an independent PPh by (8c). As a result, the example contains two PPhs.

Returning to the main stream of discussion, we consider how rule (7) works. It explains the occurrence of syncopation in various linguistic contexts. For example, consider the lines in (13) - (16), where the shaded syllables indicate the syncopated elements.

(13) Oh, [_{PPH} we danced through the **night**] (*I Saw Her Standing There*:14)

(14) [_{PPH} Whisper **words** of wisdom], let it be (*Let it be*:18)

(15) [_{PPH} When I'm **home**] [_{PPH} everything seems to be **right**]
(*A Hard Days Night*:15)

(16) Why she had to go [_{PPH} I **don't** know] (*Yesterday*:7)

In (13), the pronominal subject *we* is included in the PPh which the verb *danced* forms, for (8c) prohibits function words from forming a PPh. The whole sentence is mapped to a single PPh. The syncopation of the noun *night* takes place within a PPh, as rule (7) predicts.

In (14), syncopation occurs in the noun *words*, and this can be captured by rule (7). The relevant part of the example consists of a verb and its object NP. The verb and the head noun of its object form a single PPh, and the complement PP in the NP adjoin to the PPh for it contains only one content word *wisdom*. The point is that *words* and *whisper* are contained in the same PPh, as rule (7) predicts.

The syncopation fact in (15) also indicates the validity of rule (7). The syncopated adverb *home* and the adjective *right* form the PPhs with the preceding verbs. The same applies to example (16). The auxiliary *don't* is contained in a PPh with both the subject pronoun *I* and the verb *know*. The fact that *don't* is syncopated is correctly predicted by rule (7).

The rule in (7) applies to the major portion of the syncopation facts in 55 songs of *the Beatles*. However, there are cases which rule (7) cannot explain. Even if the two syllables and words satisfy the rule and the other linguistic requirements, syncopation does not always occur. It means that the linguistic

factors are not enough to explain the occurrence of syncopation. In the next section, we will argue that musical factors and their interactions with linguistic factors should be taken into consideration.

3.3. Musical Factors

The previous section has argued that the range of the possibility of occurrence of syncopation is characterized by PPh-structure. That does not deny the possibility of the relevance of musical factors to its occurrence. In fact, it seems highly likely that some musical factors are related to the occurrence and nonoccurrence of syncopation.

3.3.1. Basic Rhythm and Tempo

One of musical factors relevant to syncopation is the basic rhythm consisting of the regular beats. The rhythm, which produces the stability of the tune, should be kept throughout it. Whether the keeping of the rhythm is possible or not affects the occurrence and nonoccurrence of syncopation. When it is possible, syncopation takes place in environments where rule (7) prohibits it from occurring. The most illustrative example is seen in the difference between two versions of *When you Wish upon a Star*. There are two versions of the song, one being an original version, whose passage is given in (17), and the other being a Eurobeat version, whose passage is given in (18).

(17) Original version

When you wish up - on a star, makes no difference, who you are,
an - y - thing your heart de-sires, will come to you.

(*When you Wish upon a Star*:1-4)

(18) Eurobeat version

$\text{♩} = 150$

When you wish up - on a star, makes no diff-erence who - you are
an - y - thing - your heart - de-sires - will come - to you.

(ibid.)

These two versions exhibit different distributions of syncopation, as shown in

(19) and (20). The former represents the syncopation facts in the original version, and the latter the syncopation facts in the Eurobeat version.

- (19) [PPh When you wish upon a star],
 [PPh Makes no difference] [PPh who you are],
 Anything [PPh your heart desires]
 [PPh Will come to you].

(ibid.)

- (20) [PPh When you wish upon a star],
 [PPh Makes no difference] [PPh who you are],
 [PPh Anything] [PPh your heart desires]
 [PPh Will come to you].

(ibid.)

What is to be noticed is the fact that rule (7) is violated in (20), while it is not in (19). In (20), syncopation takes place across a PPh boundary: the syncopation of the interrogative pronoun *who* and the possessive pronoun *your*. These syncopation cases are not expected to occur, as far as rule (7) is considered.

There is no linguistic difference between (17) and (18). Thus, there is no conceivable linguistic factor which can explain this difference in the occurrence of syncopation. It is therefore natural that we assume musical factors contribute to the difference between the two versions.

A question now arises: what kind of musical factor brings about the relevant difference? The crucial musical difference between the two versions lies in rhythm and tempo. Eurobeat music is peculiar particularly in the following respects: loud bass and uptempo. Loud bass emphasizes every beat, so that we can keep the regular beats even if syncopation or the movement of a beat occurs in a melody. Uptempo makes the difference between strong and weak beats smaller than slow tempo music does. All beats are emphasized in uptempo music and the shifting from *strong* beats to *weak* beats in uptempo music is less peculiar than that in slow tempo music. In such musical characteristics of Eurobeat music, syncopation does not disturb consistent beats. Therefore, syncopation tends to occur in Eurobeat music.

The basic musical rhythm of songs is also relevant to the nonoccurrence of syncopation. This is exemplified in *Grandfather's Clock*. The relevant part of the songs is given in (21).

- (21) My grandfather's clock was too large for the shelf
 So it stood ninety years on the floor
 It was taller by half than the old man himself

Though it weighed not a pennyweight more.

(Grandfather's Clock:1-5)

We cannot find syncopation in the song at all. Although syncopation is sometimes permitted only in a climax melody, it does not occur in that position. The nonoccurrence of syncopation is due to the nature of the underlying basic rhythm. The basic rhythm of this song is very similar in nature to the regular rhythm of clock. That is because the theme of this song is a *clock*. The regular rhythm of clock is directly manifested in the second line of (22).

(22) Ninety years without slumbering
Tick Tock Tick Tock
His life seconds numbering
Tick Tock Tick

(Grandfather's Clock:12-15)

The clock rhythm restricts the rhythm of the song to a single kind and bans the occurrence of syncopation. It is for this reason that syncopation is not permitted in the song.

3.3.2. Positions in a Melody and a Tune

The second case of the relevance of musical factors to syncopation includes cases where positions in a tune enter into its distribution. A typical case is seen in *In the Mood*.

(23)

Who's the liv- in' dol- ly with the beau- ti- ful eyes— What a pair o' lips, I'd like to
First I held her tight- ly and we start- ed to dance— Then I held her tight- ly what a

try 'em for size— I'll just tell her, "Ba- by, won't you swing it with me"—
dream- y re- an- ce— And I said "Hey, in- by, it's a quar- ter to three—

Hope she tells me may- be, what a wing it will be—
There's a mea- of moon- light won't- cha share it with me—

So I said pu- lite- ly, "Dar- lin' may I in- ter- upe"— She said—
"Well she was- wered "Ma- ter, don't- cha know that it's rude— To keep—

— Don't keep me wait- in' when I'm in the mood—
— my low lips wait- in' when they're

(In the Mood:1-5)

(24) Who's the livin' dolly [pPh with the beautiful eyes]
What a pair o' lips, I'd like to try 'em [pPh for size]
I'll just tell her, "Baby, [pPh won't you swing it with me]"

Hope she tells me maybe, [PPh what a wing it will be]
 So, I said politely "Darlin' may [PPh I intrude]"

(ibid.)

Most characteristic of (22) is the fact that syncopation occurs only in line-final position. At first glance, the fact does not seem to be peculiar. It obeys rule (7) in a strict way, for the syncopated syllables and the syllables preceding them are contained in the same PPh. However, the coherence of the position of the occurrence of syncopation deserves more careful consideration.

The reason for the peculiar distribution of syncopation is that the regular beats are established in the position. The score in (23) is a good illustration of realization of the regular beats. The words and syllables in the lines is assigned to a series of eighth notes (♪) at regular intervals. The beats are all realized as onset-events except for those in the line-final position. According to Coover and Meyer (1960), once we establish the regular rhythm, we can keep the rhythm in our mind. Therefore, we can say that a technique of syncopation, which provokes the movement of (strong) beats, is used when the keeping of regular beats is required. The realization of regular beats from line-initial to a position near the end of the line makes it possible for players and listeners to keep the regular beats.

We can find the syncopation facts in the climax of a tune. *Climax* is the most exciting part of a piece of music, which usually happens in positions near the end.⁴ The following example serves as an good example:

(25) One by one it seems [PPh they're comin' true]
 Here's a morning that my heart had seen
 Here's a morning that just had [PPh to come through]
 Same old stage but what a change of scene

(*Those Good Old Dreams*: 13-16)

These lines correspond to the climax of the tune. It is noteworthy that syncopation occurs in the words at the left edge of the PPhs: *they're* and *to*. The two instances in this subsection clearly illustrate that musical factors can have priority over linguistic factors in the position corresponding to the climax of a tune and in line-final position.

3.3.3. *Song Memory*

The third case which supports the relevance of musical factors to syncopation can be seen in the fact that syncopation is avoided in folk songs in general. Hayes and Kaun (1996) point out that the requirement of stress matching between the linguistic and music stresses is obeyed rather strictly in the vast majority of folksongs. The stress-matching rule explains why (26) is an absurd.

(26)

			x			x			x			x		
	x	x		x	x		x	x		x	x		x	x
	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	**Lòng		time		I've		ploughed		the ó-		cean			

(Hayes and Kaun (1996:254))

A series of the underlined grids shows a continued event. It violates the stress-matching rule in (1). The four musical strong positions indicated by three grids all correspond to mere event-continuations. The weak beat indicated by one or two grids corresponds to an inception of an underlined event. The stressed syllables correspond to the weak beats where events are initiated. Hayes and Kaun (1996) note that this mismatch, or syncopation is forbidden from occurring in folk songs. Folk songs have a simple rhythmic structure in this regard.

One of the reasons for the nonoccurrence of syncopation in folk songs is difficulty in memory. Patel and Peretz (1997) observe that, while music and language are autonomous, melody and text are inseparable in song memory. This explains the simplicity of folk and children songs. They have been passed down as oral tradition. Oral traditions demand simplicity for the sake of memory. Moreover, their rhythms are like natural speech rhythm. We can find the stress-matching between music and language much more than non-oral songs. Simple and natural rhythms in speech and reading of the texts are required in order to memorize in folk and children songs. The common reflection of rhythms is the very reason that folk songs have been succeeded while the shape has changed little by little.

Typical examples are given in (27) and (29) which show the nonoccurrence of syncopation in folk songs. The text in (27) is cited from the famous American folk song *Michael Row the Boat Ashore* and that in (28) from *London Bridge*, which is a playing song for children in England.

(27)

Mi·chael row the boat a - shore Hal - le -
lu - jah Mi·chael row the boat a -
shore Hal - le - lu - jah

(*Michael Row the Boat Ashore*:1-4)

(28) Michael row the boat ashore

Hallelujah
 Michael row the boat ashore
 Hallelujah

(ibid.)

(29)

Lon-don bridge is fall-ing down, Fall-ing down, fall-ing down,
 Lon-don bridge is fall-ing down, My fair la-dy.

(London Bridge:1-4)

- (30) London bridge is falling down,
 Falling down, falling down,
 London bridge is falling down,
 My fair lady.

(ibid.)

In (27), syncopation does not occur all over. However, syncopation occurs only in the stanza-final syllable in (29). Hayes and MacEachern (1998) observe that such syncopation sometimes occurs in folk songs. A line with syncopation is called a feminine-ending line. The syncopated syllable in line-final position is longer than the stressed syllable.⁵ Such a *long-last* construction is preferred in folk songs (Hayes and MacEachern (1998)). The syncopation which forms the long-last construction seems to be different in nature from the syncopation which produces a musical effect, emphasizing the normal weak beat.

3.3.4. Human Behavior

The final case that indicates the relevance of musical factors to syncopation comes from songs which are related to human behavior. It is a factor which has an indirect relation to music, for it is not always necessary for music. When it goes with music, however, it affects the rhythm of the tune and restricts the occurrence of syncopation.

Typical examples involve march songs. Consider the march song *When the Saints Go Marching In*.

(31)

Oh, when the Saints go march-in! In —
 — Oh, when the Saints go march-in' in —



(*When the Saints Go Marching In:1-4*)

- (32) Oh, when the Saints go marchin' in
 Oh, when the Saints go marchin' in
 Oh I want to be in that number
 When the Saints go marchin' in

(*ibid.*)

Notice that in (32) syncopation does not occur except for the second syllable of *number* in line-final position.

The nonoccurrence of syncopation in march songs is due to their fundamental nature. March songs are made for marching in general, and their rhythm is constructed based on the manner of marching, one of the typical human behavioral patterns. In fact, we march to the music, stepping on first and third beats. If syncopation occurs in the music, we must get out of step. The motion in marching requires the realization of regular beats. For this reason, syncopation cannot occur except for in the climax.

There is an evidence in support of the close relation between human's motion and music. Direct evidence comes from dance music, in which syncopation occurs frequently. In cha-cha, for example, syncopation occurs frequently. Cha-cha music usually has a heavy accent on a second beat. Dancing to the music, we count "1 2 3& 4" (bold numbers indicate more stressed beats). The third beat is divided into two. We step on the divided beat twice. The steps on the third beat is light because the third beats have less heavy stress than the second and forth beats. Moreover, the steps on the third beats take the half time of the steps on the second or forth beats for the division into two.⁶ While the second beat in 4/4 beat is normally a weak beat, it is counted as strong in cha-cha. Therefore this stressing is syncopation. Dancing motions such as steps are related to rhythms of the music as daily human motions are related to its traditional music.

3.2.5. Summary

A close look at several syncopation facts will reveal that musical factors can affect the occurrence or nonoccurrence of syncopation. What is more important is that some musical factors can be determining factors for syncopation. Whether syncopation can occur or not is determined by the interaction between linguistic and

musical factors.

4. Conclusion

Syncopation has been taken as a musical phenomenon. However, it is natural that syncopation is affected by not only musical but also linguistic factors when it is utilized in songs. Kodaira (2003) discusses the subject of syncopation occurrence from linguistic points of view. In this paper, I have attempted to view the phenomenon from not only linguistic but also musical viewpoints. The combination of linguistic and musical factors determines the occurrence and nonoccurrence of syncopation. However, the linguistic and musical factors I have given are not enough to clarify the whole picture of the mechanism of syncopation. Moreover, what factor is principal is left open. Actually, it is difficult to analyze musical surface forms, because various factors are always related to each other.

NOTES

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¹ We must try to clarify some terms used frequently. *Music* is the art with vocal or instrumental sounds (or both). We can use it as a meaning of sounds either with words and without them. However, *music* in this paper also has a meaning opposed to *language*. Thus I use the term mainly as instrumental sounds or with no words. I will use the term *tune* as the art with both vocal and instrumental sounds.

² Inversion is changing the order of a weak and strong positions.

³ Other linguistic factors also affect the occurrence of syncopation. Firstly, the prosody of verse. In the examples in (i) and (ii), syncopation occurs in the line-final syllables, which rhyme with the syllables of the adjacent lines.

- (i) And lose the beauty [pPh of the melody],
Until they sound [pPh just like a symphony]

(*Rock And Roll Music*:10, 11)

- (ii) Don't care [pPh to hear 'em play a tango],
I'm in the mood [pPh to hear a man]o]
It's way too early [pPh for a congo],

(*Rock And Roll Music*:41- 43)

The rhyming syllables are emphasized by syncopation although they are not originally stressed.

Secondly, an illocutionary factor of a text enters into the occurrence of syncopation. Line boundaries of verse usually correspond to sentence boundaries. Sentence boundaries usually

correspond to boundaries of PPhs. Therefore line boundaries can be seen typically as boundaries of PPh. We can predict that syncopation cannot occur when two elements are parted across a PPh boundary. Contrary to prediction, however, syncopations at a line boundary, though rare in occurrence, are observed. The line-initial syncopation has three kinds of cases: the verbs in the imperative sentence and exclamation sentence (iiia - b) and the vocative in (iiic).

(iii) a. [_{PPh} Say] you don't need no diamond rings (Can't Buy me Love:8)

b. Oh, when I saw her standing there

[_{PPh} Ah]

(I Saw Her Standing There:19, 20)

c. Well work it on out, [_{PPh} honey]. (Twist And Shout:5)

These elements attract listener's attention. Speakers attract listeners by emphasizing the words in uttering the lines. In singing songs, syncopation has the same function as intensification (with loudness) in speech.

Thirdly, according to Okazaki (2004), a pragmatic peculiarity of a text also has an influence on the occurrence of syncopation. Examining the occurrence of syncopation in Bob Dylan's *Blowin' in the Wind*, Okazaki proposes the following generalization:

(iv) In *Blowin' in the Wind*, the words which have semantic prominence in various senses exhibit two types of mismatches simultaneously: the W-S mismatch in linguistic structure and syncopation in musical structure.

(Okazaki (2004:402-403))

The W-S mismatch means the mismatch between the template of poetic rhythm and the actual linguistic rhythm. The examples are given in (v), where the italicized words indicate the places where the mismatches occurs.

(v) How many *roads* must a *man* walk *down*
Before you call him a *man*?

(Okazaki (2004:401))

The verse is consists of nine questions and their answers. In (v), the focus of the question is on the sentence-initial *wh*-element *how many roads*, and the other elements in the sentence function as background for posing the question. In addition to the contrast, there is a distinction of semantic prominence in the background domain. The subject NP *a man* and the predicate *walk down* serve as a topic and a focus, respectively. The important point to note is that the rule in (7) also applies to these syncopation facts affected by the phonological and pragmatic factors.

⁴ The peak in a musical phrase, which corresponds to a line of the text, also comes near the end. The pitch structure in music resembles to the intonational contour of speech because the contour also have the peak in a position near the end (cf. Patel (1997)). The meter and pitch have deep relation in both music and language. The pitch structures and the commonalities and distinctions between music and language would offer a hint to clarify the relation between them.

⁵ In music, a metrical structure in which relatively strong beats occur at the inception of notes of relatively long duration is preferred (Hayes and MacEachern (1998:80)). Likewise, the linguistically stressed syllables tend to be longer than unstressed syllables in speech.

⁶ Rhythmic theory states that the degree of length and stress are closely related to each other (Meyer and Cooper (1960), Lerdahl and Jackendoff (1983)).

DATA

Sony Music Publishing ed. (2003) *The Best of The Beatles 1962-1970*, Sony Music Publishing, Tokyo.

Disney, W. (2000) *Eurobeat Disney 1*, Avex Trax, Tokyo.

REFERENCES

Cooper, G. and L.B. Meyer. (1960) *The Rhythmic Structure of Music*, University of Chicago Press, Chicago.

Hayes, B.P. (1983) "A Grid-Based Theory of English Meter," *Linguistic Inquiry* 14, 357- 393.

Hayes, B.P. and A. Kaun. (1996) "The Role of Phonological Phrasing in Sung and Chanted Verse," *The Linguistic Review* 13, 243-303.

Hayes, B.P. and M. MacEachern. (1998) "Quatrain Form in English Folk Verse," *Language* 74, 473-507.

Kiparsky, P. (2003) A Modular Metrics of Folk Verse, ms. Stanford University.

Kodaira, M. (2003) *The Rhythms of English Songs: At the Music-Language Interface*, Unpublished M.A. thesis, University of Tsukuba.

Lerdahl, M. and R. Jackendoff. (1983) *A Generative Theory of Tonal Music*, MIT Press, Cambridge.

Okazaki, M. (1998) *English Sentence Prosody: The Interface between Sound and Meaning*, Kaitakusha, Tokyo.

Okazaki, M. (2004) "The Form and Meaning of Bob Dylan's *Blowin' in the Wind*," *Tsukuba English Studies* 22, 391-406.

Patel, A. D. and I. Peretz. (1997) "Is Music Autonomous from Language? A Neuropsychological Appraisal," *Perception and Cognition of Music*, 191-215, Psychology Press, New York.

Temperley, D. (2001) *The Cognition of Basic Musical Structures*, Cambridge, MIT Press, Cambridge.

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