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The Metrical Structure of Some Selected English Haiku Poems: A Phonological Study

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Abstract

The present study attempts to analyze word stress patterns and phrasal stress patterns of some English haiku poems according to Hayes's (1995) metrical theory. The use of this theory at the word and phrasal levels of numerous languages has demonstrated its universality. According to this theory, it is possible to show the rhythmic pattern of stressed syllables, feet, words, and phrases using the metrical grids and a number of principles and parameters. The study tries to answer the following two questions: Is the metrical theory applicable to the analysis of the syllables, stress and the rhythmic patterns of English haiku poems? What are the techniques that can contribute to the metrical and rhythmic aspects of the English haiku poems? Haiku is defined as "a Japanese verse form consisting of seventeen syllables in three lines of five, seven and five syllables respectively" (Cuddon, 1984, p. 300). This study analyzes four English haiku poems according to the parametric metrical theory, the first two poems are written by the American poet Ezra Pound in the modern style, and the other two are composed by the American poetess Amey Lowell in the traditional form. The study came out with the following findings: The parametric metrical theory can be used to analyze haikus by applying its stress alternation and adherence to metrical rules. In summary, this theory effectively demonstrates how the rhythmic flow of haiku lines can be illustrated using metrical grids that show stress alternation in each line and the implementation of specific metrical rules.

Keywords: *haiku, metrical theory, metrical grids, principles, parameters, stress, rhythm, Japanese verse.*

1. Introduction

This study is an attempt to analyze some haiku poems with reference to Bruse Hayes's (1995) parametric metrical theory to show the rhythmic patterns of stressed syllables, feet, words and phrases in each line of the four selected haiku poems. The universality of the parametric metrical theory has been established through its application to both literary and non-literary texts. Consequently, this study seeks to explore its relevance when applied to English haiku poems. The haiku, originating from Japan, traditionally comprises three lines with a syllable pattern of 5-7-5. However, certain American poets have adhered to this Japanese pattern in their haikus, while others have chosen to innovate by adopting different line numbers or syllable counts per line.

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2. The Origin of the Metrical Theory

The Metrical theory (henceforth MT) emerged in the 1970s, initially proposed by Liberman in his doctoral dissertation as a component of intonation theory. Subsequently, other linguists including Liberman and Prince (1977), Halle and Vergnaud (1978), Selkirk (1980), Hayes (1980), Prince (1983), Halle and Vergnaud (1987), Hayes (1995), and others further developed this theory.

Metrical phonology is defined by Pearl (2008) as “the system that determines which syllables in a word are stressed and how much stress each syllable receives compared to all the other syllables in the word” (p. 112).

Carr (1999, pp. 100-101) said that:

Metrical Phonology is a development in generative phonology which emerged in the early 1970s. Work in Metrical Phonology was chiefly concerned with suprasegmental phenomena such as word stress and rhythm. Metrical phonologists represented such phenomena using either grid-like visual representations or metrical trees. An example of a metrical grid follows:

```
        *
*       *
* *     *       *
* *     *   *   *
   Dundee marmalade
```

Figure (1): The Metrical Grid of the Phrase "Dundee marmalade" (Adopted from Carr (1999, p. 100))

The idea is to illustrate the varying levels of prominence assigned to each syllable within a phrase. More asterisks indicate higher salience of the syllable. In this specific example, the least prominent syllable is the penultimate syllable in the word "marmalade," which is unstressed. The most prominent syllable is the antepenultimate syllable in "marmalade." The second most prominent syllable is the one preceding the last syllable in "Dundee." The representation presented shows the outcome of applying the Iambic pentameter.

3. Parametric Metrical Theory (Hayes 1995)

Since the beginning of metrical theory, there has been a prevailing belief that stress serves as a linguistic manifestation of rhythmic structure. This belief has guided the work of metrical phonologists, including Liberman (1975) who attempted to confirm this claim by adopting specific metrical rules and notations. Among the pioneers in this field, Hayes developed a distinct version of metrical theory, initially was presented in his doctoral dissertation in 1980 and later it was refined and expanded upon in his 1995 book "Metrical Stress Theory". Hayes's theory is founded on the basis of a limited set of parameters capable of deriving four types of feet that are observed in a significant number of languages worldwide. These parameters are applied to metrically analyze the word stress patterns found in these languages.

4. Basic Parameters of Word Stress

This study examines parameters that determine the structure of metrical feet, including how they are formed and assigned, as well as the metrical organization above the level of feet. As stated by Hayes (1995, p.2), the foot is considered the smallest unit of metrical

structure. Consequently, Hayes introduces a set of parameters in his theory that specifically pertain to metrical feet. These parameters are examined in details below.

- Boundednesss (bounded, unbounded)

Boundednesss simply means “whether the language has feet with more than two syllables or not” (Frid, 2001, p. 2). In bounded systems, feet are limited to containing no more than two syllables, whereas unbounded systems have no restrictions on the size of feet (Kager, 1995, p. 370).

- Foot Dominance

According to Kager (1995, p.371), the foot dominance parameter, which is the second parameter related to foot shape, determines the placement of the head within the foot by using the concepts of dominant and recessive nodes. In left-dominant feet, the nodes on the left side are considered dominant, while the nodes on the right side are considered recessive. Conversely, in right-dominant feet, the nodes on the right side are dominant, and the nodes on the left side are recessive.

- Quantity Sensitivity

The third parameter of foot shape, known as quantity-sensitivity, influences the arrangement of light and heavy syllables within the terminal nodes of feet. In quantity-insensitive feet, no specific constraints are imposed, treating all syllables as light or equally heavy. Conversely, quantity-sensitive feet adhere to restrictions that prevent heavy syllables from occupying recessive positions, and such syllables are stressed. Quantity-determined feet are under the category of quantity-sensitive feet but additionally require dominant terminal nodes to dominate heavy syllables (Kager, 1995, pp. 371-372).

- Directionality and Iterativity

Directionality in metrical phonology refers to a parameter that specifies the direction for foot construction within the stress domain. This concept applies to both tree-based representations and metrical grids (Crystal, 2003, p. 146). According to Hayes (1985), words can be divided into feet in two different ways: starting either from the right edge and moving towards the beginning, or starting from the left and moving towards the right. This distinction becomes apparent when a word has an odd number of syllables.

5. Metrical Rules and Principles

During the process of constructing metrical feet, along with defining language-specific parameters, it is crucial to adhere to certain rules to ensure the formation of well-structured metrical patterns. This study focuses on five rules that play a significant role. The first two rules pertain to the proper formation of the metrical grid, ensuring its coherence and validity. The remaining rules are concerned with stress assignment during the foot construction process. These rules collectively contribute to the establishment of a well-formed metrical structure.

- The Continuous Column Constraint

The basic idea of this rule is to impose a constraint on the metrical representation to ensure that there are no gaps in any column of the grid. This constraint, which is known as the Continuous Column Constraint and abbreviated as (CoCoCo), was formulated by Hayes (1995) based on Prince's (1983) idea that every column should have entries at each level leading up to its peak. According to the CoCoCo rule, a grid is considered ill-formed if there is a column with a mark on layer n+1 but no mark on layer n. Phonological rules are prevented from generating such a configuration to maintain the integrity of the metrical structure (Hayes, 1995, p.34).

- The Priority Clause Principle

This principle is explained by Hayes (1995, p.95) as follows: “If at any stage in foot parsing the portion of the string being scanned would yield a degenerate foot, the parse scans further along the string to construct a proper foot where possible”. In Hayes's theory (1995), there is a restriction on the formation of degenerate feet. Degenerate feet refer to single light syllables in systems that respect syllable weight, such as iambs and moraic trochees, as well as single syllables in quantity-insensitive systems like syllabic trochees. These degenerate feet are considered the smallest possible feet within these systems. Hayes strongly avoids the use of degenerate feet in his theory.

- The Faithfulness Condition

This rule reads as follows: “grid marks must be in one-to –one correspondence with the domains that contain them” (Hayes, 1995, p.41). Hayes further emphasized that the Faithfulness Condition applies throughout all stages of derivation and serves as a constraint that prevents the application of any rule that would violate this correspondence between the grid and bracketing structures.

- The End Rule

The End Rule (henceforth ER) is a rule that determines prominence within the grid at various levels, including the word layer, phrasal layer, and sentence layer. The concept of the ER was initially proposed by Prince (1983, p.25) who suggested that instead of assigning prominence to every node, it is more efficient to focus solely on the terminal nodes in order to establish a direct correspondence between the surface structure and the grid, without the need for intermediate tree labeling and interpretation processes.

- Extrametricality

The concept of extrametricality involves the exclusion of the element it affects from the computations within the metrical grid (Roca & Johnson, 1999, p. 323). The presence of extrametricality is essential for enforcing a constraint that limits feet to two maximum sizes: binary and unbounded. To achieve this, extrametricality rules identify a specific prosodic constituent that is considered invisible when applying other rules. This means that the rules analyze the structure as if the extrametrical entity does not exist.

6. Phrasal Stress Operations

In Hayes's (1995) metrical theory of phrasal stress assignment, several rules, in addition to the CoCoCo and the Faithfulness Condition principles discussed earlier and others, form the basis of his framework. These metrical phrasal rules consist of distinct rules: ER, Move X, and Beat Addition (referred to as BA). According to Hayes (1995, p.372), these rules work in conjunction to achieve a specific rhythmic objective. They tend to create output configurations where stresses are neither too closely spaced nor too far apart.

- Move X

Hayes (1995, p. 370) stated that Move X is the “formal representation of the Rhythm Rule in bracketed grid theory”. The rhythm rule in English involves the leftward movement of stress when it is followed by a stronger stress. For instance, in the word "thirteen," the stress is placed on the second syllable (thirˈteen). However, in the phrase "thirteen `men," the stress is shifted to the first syllable (`thirteen ˈmen). Hayes (1995, p. 370) adopted Prince's (1983) terminology of Move X to describe this rule and he presents its general schema as follows: “Move one grid mark at a time along its row. Where Move X resolves a stress clash, movement must take place along the row where the clash occurs”. According to Goldsmith (1990, p. 192) the term stress clash refers basically to “a

situation in which adjacent vowels are stressed". Move X is demonstrated in the grid below using the bracketed grid theory:

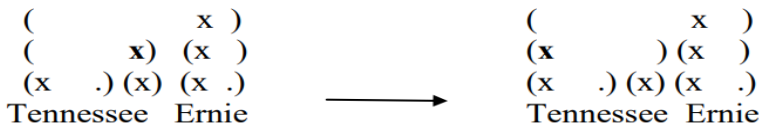

Figure (2) Adapted from Hayes (1995, p. 370): The Application of Move X to the English Phrase "Tennessee Ernie"

- Beat Addition (BA)

According to Hayes (1984), the presence of Beat Addition (BA) is necessary to improve rhythmic alternation within tree structures that exhibit right-branching patterns. It is explained by Hayes (1984, p.38) as "Freely add additional marks to the grid columns, provided the relative prominence relations specified in the tree are preserved".

7. Enjambment Vs Caesura

- Enjambment: This is the continuation or carrying-over of a poetic idea or sense from the end of one line of poetry to the beginning of the next line without a pause or punctuation. Enjambment often creates a sense of flow and continuity in a poem. (Yeung, 2022).

- Caesura: Caesura refers to a break or pause within a line of poetry, typically created by punctuation or a natural pause in the structure of the sentence. It is a deliberate interruption in the flow of the line and can be used for various effects in poetry, including emphasizing specific words or ideas (Yeung, 2022). Studies on English verses suggests that the placement of a pause (caesura) has a significant impact on determining their rhythm (Ishikawa & Miyakoda, 2015, p. 1)

8. What is Haiku?

One of the prominent characteristics of modern literature is its tendency towards experimentation. Hence, various foreign poetic forms, including Haiku and Tanka, have gained popularity in modern and contemporary American and English poetry, attracting numerous practitioners. In most widely recognized dictionaries of literary terms, Haiku is defined as "a Japanese verse form consisting of seventeen syllables in three lines of five, seven and five syllables respectively" (Cuddon, 1984, p. 300). According to Yasuda (1973, p. 179), the three lines of a Haiku correspond to the fundamental elements of time, place, and object, which are essential components of any Haiku. These three elements form the basis of a Haiku, and their presence is essential. For example, consider the Haiku given below by Basho, one of the most distinguished Japanese Haiku poets:

Spring Morning

Season of spring days!

There a nameless hill has Veils

Of soft morning haze

Quoted from Yasuda (1973, p. 186)

Here, the translator maintains a remarkable level of faithfulness by preserving the syllable count of 5-7-5, ensuring that the structure remains consistent with the original Haiku. In

addition, the translator goes even further by maintaining a rhyme between the first and third lines, capturing the essence of a Haiku and providing English readers with an authentic glimpse of its form and appearance.

As indicated by Sato (1999), while it is challenging to provide a precise definition of Haiku, numerous descriptions of this poetic form have emerged. Haiku has been characterized in various ways, such as a "one breath poem," a reflection of a particular way of life or mindset, a moment keenly observed and captured, a concise arrangement of words, a brief poem that encapsulates a moment of insight, or a short poem that utilizes images of nature or the changing seasons to evoke complex emotions and intuitions within a fleeting moment (Verhart, 2007). Haiku has gained immense popularity, even becoming one of the most widely written and appreciated international literary forms, as evident in its online presence (Higginson, 2001; Barlow & Lucas, 2005). The global reach of Haiku has made it a multicultural phenomenon.

9. Haiku in English: Adaptation and Evolution

Haiku, the traditional form of Japanese poetry, has been adapted and evolved in English-speaking cultures. When Haiku first gained popularity in English literature, there was an attempt to adhere strictly to the 5-7-5 syllable structure. However, as the form has become more established, poets have embraced greater flexibility, recognizing that the syllable count in Japanese and English languages differs in terms of structure and rhythm.

As indicated by Ross (1993), Japanese Haiku poetry has captured the interest of numerous English-speaking poets in countries such as America, England, Canada, and Australia. This phenomenon is reminiscent of the sonnet's introduction to the English language, which occurred through translations of Italian poetry by figures like Thomas Wyatt, Henry Howard, and Sir Philip Sidney. The sonnet form was subsequently refined by Shakespeare, eventually becoming one of the prominent verse forms in English literature. Similarly, Japanese haiku has significantly influenced global poetry as a whole, particularly the American poetry, and has been embraced by English-speaking poets.

Over time, haiku poets in North America have recognized that conveying the same amount of information within 17 English syllables offers more flexibility and room for expression compared to the 17 Japanese syllables. As a result, many haiku poets have adopted a style of writing haiku in fewer syllables, often structured in three segments following a short-long-short pattern, without a strict adherence to syllable counts. This style is sometimes referred to as the "free-form" haiku (Imaoka, 1996, p. 2). According to Addiss et al. (2009), this departure from syllabic restrictions is particularly evident in contemporary haiku composed in languages other than Japanese. These changes are not surprising, as English, for instance, possesses a distinct rhythm different from Japanese. English is considered "stress-timed," while Japanese is "syllable-timed." Consequently, the same content can be expressed using fewer syllables in English due to its stress-based rhythm (p. 2).

10. Formal features of haiku

Moon (2001), as cited by Santillan Iniguez (2018, p. 49-50), says that haiku may appear deceptively simple in length, but they are actually intricate in their semantic and structural complexity. These poems adhere to three key formal features, as outlined by Iida (2010):

- Syllabic meter: Haiku consist of seventeen syllables arranged in three lines following a 5-7-5 pattern. The first and third lines contain five syllables each, while the second line consists of seven syllables (Moon, 2001& Iida, 2010).

- Kigo or seasonal reference: Kigo refers to words or phrases associated with specific seasons. For example, terms like "robin," "blossomed daisy," and "strawberries" evoke images of spring, while "palm tree," "green grass," and "blue jay" represent summer. However, Iida (2010) notes that the inclusion of kigo is not always observed in English haiku.
- Kireji: This formal feature pertains to a cutting word or punctuation mark at the end of the second line of the haiku. According to Iida (2010, 2011), the use of kireji divides the haiku into two sections: a scene and a message, creating a creative gap between them. It is worth noting that the cutting word or punctuation mark helps readers grasp the essence of the poem (Iida, 2010).

11. Review of Literature

A number of studies have used the parametric metrical theory to analyze the rhythmic structure of different data. Bing (1980), Hayes and Puppel (1985), Graf (1999), Jameel (2016), and Gatta and Hassan (2021) are among the best examples of metrical studies. Bing (1980) is recognized as a notable example of metrical studies. In her research, she provides a partial analysis of the stress patterns found in nouns and noun phrases in Dari, a Persian dialect spoken in Afghanistan. Drawing on the works of Liberman (1975) and Liberman and Prince (1977), Bing's study focuses on the application of the rhythm rule within the hierarchical metrical tree construction of Dari nouns and noun phrases. Notably, she highlights that there is no clear distinction between the rules governing stress assignment to individual words and those governing stress assignment to phrases. In Dari, the primary stress is typically placed on the final word of both single words and noun phrases. Bing finds this lack of differentiation between lexical and phrasal stress intriguing within the dialect under investigation. However, she acknowledges the existence of exceptional cases where stress patterns deviate from the established rules due to certain morphological influences (Bing, 1980, p. 437).

The second study is conducted by Hayes and Puppel (1985). In their study, they explore the domain of rhythmic phonology in both Polish and English, despite the clear differences between the two languages. Polish is classified as a syllable-timed language with a regular stress pattern, while English is considered a stress-timed language with an irregular, semi-free stress pattern. Despite these disparities, Hayes and Puppel identify certain similarities between the two languages within the realm of rhythmic phonology (Hayes & Puppel, 1985, p. 77).

The third study to mention is made by Graf (1999). In her MA thesis, she conducts an analysis of the metrical structure of nominals in Modern Hebrew. Graf's study on assigning stress to Modern Hebrew words within the framework of metrical theory faces challenges due to the unique foot structure found in Modern Hebrew. Specifically, the syllabic iambic foot structure in Modern Hebrew is not a part of the universal foot inventory in the asymmetrical metrical theory. This type of foot structure is relatively rare, with only a few languages in the world, including Modern Hebrew, exhibiting it. Therefore, incorporating the phonological stress patterns of Modern Hebrew into metrical theory requires modifications to the theory, such as the imposition of specific constraints to prevent the construction of degenerate feet in weak positions within iambic analysis (Graf, 1999, p. 61). In conclusion, metrical theory can still be utilized to account for stress patterns in Modern Hebrew, albeit the necessary modifications due to the uncommon nature of its foot structure.

The fourth study is written by Jameel (2016). This study aims to analyze the patterns of word stress and phrasal stress in the Qur'anic language, which is a part of Classical Arabic (CA), using Hayes's metrical theory (1995). In this study, stress is assigned to the words in eight short Qur'anic Chapters following McCarthy's (1979) rules for stressing CA

words. Then, metrical feet are constructed over these words according to the rules and parameters of CA. The analysis of word stress and phrasal stress in the eight investigated Qur'anic Chapters demonstrates that the construction of metrical feet over Qur'anic words was achieved by establishing the rules and parameters of the CA word stress system. Additionally, assigning phrasal stress to Qur'anic verses using the bracketed grid model, along with metrical rules, results in well-formed and rhythmically organized grids. As a result, this study shows that the rhythmic structure of Qur'anic words and verses can be effectively represented by using Hayes's (1995) theory of word and phrasal stress.

The last study to be reviewed is carried by Gatta and Hassan in 2021. This study focuses on the analysis of metrical patterns found in Iraqi Arabic Nursery Rhymes, utilizing Hayes's metrical theory from 1995 as a framework for analysis. The study's findings indicate that among the analyzed Iraqi Arabic nursery rhymes, the most common types of metrical patterns observed are disyllabic lines and dimeter lines. This suggests that these specific metrical structures are prevalent within the context of these nursery rhymes (Gatta and Hassan, 2021, p. 82).

12. The Data

The data being analyzed according to the parametric metrical theory includes four haiku poems. Starting with Ezra Pound, he demonstrated his creativity by writing haiku poems in the modified form. In this style, he disregarded the traditional restrictions on the number of syllables per line and the total number of lines in each poem. “Alba” and “Epitaph” are among the best of his modern poems. “Alba” is a poem of three lines and has the 7-7-8 syllable pattern. Pound, in this poem, compares the presence of a person lying in the early morning to the coolness of pale wet leaves from a lily-of-the-valley flower. His second poem to describe is “Epitaph”; it contains only two lines and a 10-9 syllable pattern. In this haiku, "Leucis" undergoes a transformation that alters the perception of his romantic intentions. The notion of a "Grand Passion" grants him nobility, agency, and the authenticity of heartfelt emotions. However, "willingness-to-oblige" shifts the focus away from Leucis, rendering him passive and making his role seem more ridiculous than heroic. Pound also uses caesura which is indicated by the comma that separates the first line from the second to enhance the metrical and rhythmic aspects of the poem.

Amy Lowell, on the other hand, achieved a great recognition and won the Pulitzer Prize for Poetry in 1926. Among her works are several haiku poems, two of them are chosen to be described and both of them without titles as Lowell maintains the features and the structure of the traditional style of the Japanese haiku which is the 5-7-5 syllable pattern. The first haiku presents an image of someone offering a white rose to another person, along with a reassurance about the safety of touching the rose's thorny stem. This poem touches upon themes of trust, safety, and the tenderness of human interaction. The act of giving a rose, often symbolizing love or friendship, is made even more significant by the speaker's assurance that there is no danger in holding the stem. The haiku captures a moment of reassurance, where the speaker seeks to convey both the beauty of the rose and the care they have for the person receiving it. In this haiku, the caesura occurs at the end of both the first and the second lines, creating a pause and allowing the reader to absorb the action before moving on between the lines. The second haiku presents a moment of intimacy and connection between two individuals, where one seeks comfort and the other willingly provides it with tender affection. In addition, the comma after "weakness" and the line breaks after "above my head" create caesurae, allowing the reader to pause and reflect on the meaning.

13. The Steps of Analysis

In accordance with Hayes's (1995) parametric grid model, the process of analyzing the chosen haiku poems can be outlined as follows:

- Assigning syllabification, primary stress, and metrical feet to each lexical word of the haiku poems.
- Segmenting a haiku line into distinct lexical phrases which involves categorizing it into various components: MiP (Minor phrase), MaP (Major phrase), IP (Intonational phrase), and U (Utterance).
- Assigning varying degrees of prominence to strings of words (lexical phrases) which is achieved by considering their morphological and syntactic structure. This process involves maintaining an equal distance between primary stresses within each layer and ensuring there are no stress clashes.
- Employing some metrical rules to preserve the coherence and harmonious rhythm within each metrical grid.
- Interpreting the findings of the metrical analysis of the English haiku poems, analyzing them mathematically by using numbers and percentages and then discussing accordingly.

14. Data Analysis

The English haiku poems selected and described above are analyzed according to Hays's last version of the parametric metrical theory. To perform this analysis, various principles and rules should be applied as shown below.

The First Haiku "Alba"

As cool as the pale wet leaves

of lily-of-the valley

She lay beside me in the dawn.3 (Ezra Pound)

Although the poem is composed of three lines, but it does not follow the traditional structure. Obviously, the first and the second lines contain seven syllables and the third is composed of eight syllables. The poem's metrical analysis begins with constructing metrical feet over each lexical word in each line, then moves progressively up the hierarchical scale to the word level, the phrase level (Mip (Minor Phrase), Map (Major Phrase), IP (Intonational Phrase)), and finally the sentence level (Utterance).

The first line consists of four lexical words 4. The first word is (cool) which is a monosyllabic word transcribed as /ku:l 5/. Accordingly, this syllable is stressed /ˈku:l/ and only one metrical foot can be constructed over this sole syllable. Similarly, the remaining three lexical words (pale, wet and leaves) are all monosyllabic words transcribed as /peɪl/, /wet/ and /li:vz/. Thus, these syllables are stressed as follows: /ˈpeɪl/, / ˈwet/ and / ˈli:vz/ and only one metrical foot can be constructed over each of these syllables as shown below:

(x) ER/Right	(x) ER/Right	(x) ER/Right	(x) ER/Right
(x)	(x)	(x)	(x)
1ku:l	1peɪl	1wet	1li:vz

As for the phrasal stress, the analysis of this first line starts by identifying the syntactic constituents to map their prosodic constituents. The first MiP is represented by the adjectival phrase (wet leaves). The second MaP is represented by another adjectival

phrase with two adjectives before the noun (pale wet leaves). The final syntactic constituent is (As cool as the pale wet leaves) which stands for the bigger MaP constituent.

With regard to the first MiP (wet leaves), the second word /1liːvz/ is stressed as the main stress in English syntactic phrases goes to the second word, accordingly an X mark is added on this monosyllabic word. In the second MaP (pale wet leaves), the last word is stressed /1liːvz/ because it is the rightmost word in this adjectival phrase. Thus, an X mark is added on this syllable and for the second MaP (As cool as the pale wet leaves), the last word is also stressed with an X mark that is placed on it as shown below in figure (3):

MaP	(						x)
MaP				(			x)
MiP					(		x)
PWd	(x)			(x)	(x)		(x)
Ft	(x)			(x)	(x)		(x)
	əz	1kuːl	əz ðə	1peɪl	1wet		1livz

Figure (3): The Bracketed Grid of / əz 1kuːl əz ðə 1peɪl 1wet 1livz /

Although the figure above is well formed as it obeys the two phrasal stress rules important for the well-formedness of metrical grids, that is, the Faithfulness Condition and the CoCoCo, but it is not eurhythmic. As this grid is an example of making the taller taller; thus, the BA rule is applied by placing one grid mark over /peɪl/ and two grid marks over /kuːl/. Accordingly, the grid becomes eurhythmic as it has an alternating stress pattern and assigns a prominence relation between its columns as shown below:

MaP	(						x)
MaP	(x)			(			x)
MiP	(x)			(x)	(		x)
PWd	(x)			(x)	(x)		(x)
Ft	(x)			(x)	(x)		(x)
	əz	1kuːl	əz ðə	1peɪl	1wet		1livz

Figure (4): The Bracketed Grid of /əz 1kuːl əz ðə 1peɪl 1wet 1livz/ after the Application of the BA rule

The second line includes two lexical words. The first lexical word is (lily) transcribed as /lɪli/. This is a disyllabic word with a first strong syllable followed by a weak one. The main stress is placed on the first syllable leaving the second syllable unstressed /ˈlɪli/ and that the metrical foot construction rules build only one foot over the first strong syllable and the following weak one. The second word is (valley) transcribed as /1væ li/. This is also a disyllabic word with one strong syllable and a weak one. Thus, the main stress is put on the first syllable and that the metrical foot construction rules build only one foot over that strong syllable and the following one as shown below:

(x .) ER/Left	(x .) ER/Left
(x .)	(x .)
ˈlɪ li	ˈvæ li

According to the phrasal stress analysis of this line, there is only one syntactic phrase that represents an MiP, MaP and an IP which is (of lily-of-the valley). The first stressed

syllable of the last word / 1væ li / receives the main stress; thus, an X mark is added over this syllable, as shown below:

MiP, MaP, IP		(				x	)	
PWd		(x	.)			(x	.)	
Ft		(x	.)			(x	.)	
	əv	ˈlɪli	əv	ðə		ˈvæli		

Figure (5): The Bracketed Grid of / əv ˈlɪli əv ðə ˈvæli/

The grid above is well formed as it keeps the CoCoCo in the last column. It is also eurythmic for having an alternating stress pattern between its main stresses.

The third line of the haiku poem includes three lexical words (lay, beside and dawn). The first word is the monosyllabic word /1leɪ/ on which a metrical foot is constructed. The second word is / bɪˈsaɪd /. It consists of two syllables, the second of which is strong and it carries the primary stress. Thus, a metrical foot is built over the second stressed syllable and the unstressed one. The third word is another monosyllabic word /1 dɔ:n / in the line, it has only one stressed syllable; hence, a metrical foot is built over this sole syllable as shown below:

(x) ER/Right	(. x) ER/right	(x) ER/Right
(x)	(. x)	(x)
1leɪ	bɪˈsaɪd	1dɔ:n

As far as the phrasal stress analysis is concerned, this line can be mapped into two layers. The first layer is represented by the adverbial phrase (beside me in the dawn) which is an MiP. In this layer the rightmost element /1 dɔ:n / takes the primary stress with an X mark added on this single stressed syllable of this word, while the second layer is represented by the sentence (She lay beside me in the dawn) which is an Map, an IP and U. Thus, the primary stress goes to the word /1 dɔ:n / with an X mark added on it as shown in the grid below:

MaP&IP&U		(					x)	
MiP			(				x)	
PWd		(x)	(.	x)			(x)	
Ft		(x)	(.	x)			(x)	
	ʃi	1leɪ	bɪˈsaɪd		mi	ɪn	ðə	1dɔ:n

Figure (6): The Bracketed Grid of / ʃi 1leɪ bɪˈsaɪd mi ɪn ðə 1dɔ:n/

The grid above is well formed as it is in line with the CoCoCo and the Faithfulness Condition, but it is not eurythmic, because this grid is an instance of making the taller taller; thus, the BA rule can be applied by adding one grid mark over /leɪ/. In this way the grid gains eurhythmy by having an alternating stress pattern and showing a prominence relation between its columns as shown below:

MaP&IP&U	(						x)	
MiP		(x)	(				x)	
PWd		(x)	(.	x)			(x)	
Ft		(x)	(.	x)			(x)	
	ʃi	1leɪ	bɪˈsaɪd		mi	ɪn	ðə	1 dɔ:n

Figure (7): The Bracketed Grid of / ʃi 1leɪ bɪˈsaɪd mi ɪn ðə 1dɔ:n/ after the Application of the BA Rule

The Second Haiku "Epitaph"

Leucis, who intended a Grand Passion,

Ends with a willingness to oblige. (Ezra Pound)

This poem is a modified form of a haiku poem that consists of just two lines with ten syllables in the first line and nine syllables in the second. The first line consists of four lexical words that can be analyzed metrically. The first word is (Leucis) transcribed as / lu:sɪs /. It is a disyllabic word with first strong syllable followed by a weak second syllable. The main stress is placed on the first syllable leaving the second syllable unstressed /ˈlu:sɪs/. Metrical construction rules build a foot over the first strong syllable and the weak one rendering the final consonant of the second syllable extrametrical. The second word is (intended) /intendɪd/, it is a trisyllabic word that is composed of a weak-strong-weak syllable pattern. The second strong syllable is the syllable that takes the primary stress leaving the first and the third syllables unstressed /in 1tendɪd/. A metrical foot is built over the second stressed syllable and the first unstressed one and the third syllable is rendered extrametrical. The third lexical word is (Grand) which is a monosyllabic word transcribed as /grænd/. This one syllable is stressed /ˈ grænd / and only one metrical foot can be constructed over it. The last word is (Passion) transcribed as /pæʃən/, it is a disyllabic word with one strong and weak syllables. The primary stress is carried by the first syllable /ˈpæʃən/ and a metrical foot is constructed over this stressed and the unstressed syllables rendering the final consonant of the second syllable extrametrical as explained below:

(x .) ER/left	(. x) ER/left	(x) ER/Right	(x .) ER/left
(x .)	(. x)	(x)	(x .)
1lu:sɪ<s>	in 1ten<dɪd>	1grænd	1pæʃə<n>

The phrasal stress analysis of the first line starts with determining the syntactic constituents to map their prosodic constituents. There are three syntactic phrases in this line. The first one is a MiP (Grand Passion), the second is a MaP (intended a Grand Passion), and the last is represented by the clause (Leucis, who intended a Grand Passion) which is also a MaP, IP and U. In the MiP (Grand Passion), the first syllable of the second word /ˈpæʃən/ carries the primary stress; thus, an X mark is added over this stressed syllable of this disyllabic word. The MaP (intended a Grand Passion) has the primary stress over the first syllable of the third word /ˈpæʃən/; so, the metrical rules put an X mark over this stressed syllable. Similarly, the first syllable of the rightmost disyllabic word / ˈpæʃən / takes the main stress in the clause MaP, IP and U (Leucis, who intended a Grand Passion) with an X mark being placed over this stressed syllable /ˈpæʃən/ as shown in the grid below:

MaP& IP&U	(								x	)
MaP				(					x	)
MiP							(		x	)
PWd	(x	.)		(.	x)		(x)		(x	.)

Ft (x .) (. x) (x) (x .)

1lu:sɪ<s> hu in 1ten<dɪd> ə 1grænd 1pæʃə<n>

Figure (8): The Bracketed Grid of / 1lu:sɪ<s> hu in 1ten<dɪd> ə 1grænd 1pæʃə<n>/

The figure above is well formed as it obeys the two phrasal stress rules important for the well-formedness of metrical grids, namely the Faithfulness Condition and the CoCoCo, but it is not eurhythmic, as this grid is an example of making the taller taller. Accordingly, the BA rule is applied by placing one grid mark over / -tend-/ and two grids over /lu:- /. The grid becomes eurhythmic as it has an alternating stress pattern and assigns a prominence relation between its columns as shown below:

MaP& IP&U (x)

MaP (x) (x)

MiP (x) (x) (x)

PWd (x .) (. x) (x) (x .)

Ft (x .) (. x) (x) (x .)

1lu:sɪ<s> hu in 1ten<dɪd> ə 1grænd 1pæʃə<n>

Figure (9): The Bracketed Grid of / 1lu:sɪ<s> hu in 1ten<dɪd> ə 1grænd 1pæʃə<n>/ after the Application of the BA rule

The second line includes three lexical words. The first word is the monosyllabic word /1 endz / with the main stress placed on this sole syllable and a metrical foot is constructed over it. The second word is /ˈwɪlɪŋnəs/. It consists of three syllables (a trisyllabic word), the first of which is strong and it carries the primary stress. One metrical foot is built over the first stressed syllable and the following unstressed one. The third word is a disyllabic word /əˈblaɪʤ/ with one weak and strong syllables. The main stress is carried by the second syllable and a metrical foot is constructed over the second strong syllable and the first weak one as displayed below:

(x) ER/Right (x .) ER/Left (. x) ER/right

(x) (x .) (. x)

1endz ˈwɪlɪŋ<nəs> əˈblaɪʤ

The phrasal stress analysis of this line starts by identifying two syntactic phrases. The first is a MiP (willingness to oblige) while the bigger phrase, a MaP, is represented by the phrase (Ends with a willingness to oblige). In the first MiP / ˈwɪlɪŋnəs tu əˈblaɪʤ /, the main stress goes to the second syllable of the rightmost word /əˈblaɪʤ/ and an X mark is added on the second syllable of this word. Regarding the bigger MaP / 1endz wɪð ə ˈwɪlɪŋnəs tu əˈblaɪʤ/, the stress also goes rightmost to the second syllable of the word / əˈblaɪʤ / and thus one grid mark is added on the stressed syllable of this word as appears in the grid below:

MaP (x)

MiP (x)

PWd (x) (x .) (. x)

Ft (x) (x .) (. x)

1endz wɪð ə ˈwɪlɪŋ<nəs> tu əˈblaɪʤ

Figure (10): The Bracketed Grid of / 1endz wɪð ə ˈwɪlɪŋnəs tu ə ˈblaɪʤ/

The grid above is well formed as it agrees with the CoCoCo in the last column that contains the DTE (Designated Terminal Element) / əˈblaɪʤ /. But, in order to make the

grid more eurythmic, an X mark should be added on /1endz/ to have an alternating stress pattern and assigns a prominence relation between its columns as represented below:

MaP	(						x)
MiP	(x)			(			x)
PWd	(x)			(x .)		(.	x)
Ft	(x)			(x .)		(.	x)
1endz	wɪð	ə	ˈwɪlɪŋ<nəs>	tu	əˈblaɪʤ		

Figure (11): The Bracketed Grid of / 1endz wɪð ə ˈwɪlɪŋ<nəs> tu əˈblaɪʤ/ after the Application of the BA rule

The third Haiku

Take it, this white rose.
Stems of roses do not bleed;
Your fingers are safe. 6 (Amy Lowell)

This haiku follows the traditional structure in three lines and seventeen syllables. The first line of the haiku poem includes three lexical words. These words are all monosyllabic words. Obviously, stress falls on these single syllables of each word, which are /1teɪk/, /1waɪt/ and /1rəʊz/. Furthermore, a metrical foot is formed on each of them as illustrated below:

As far as the phrasal stress analysis is concerned, this line can be mapped into two layers. The first layer is represented by the adjectival phrase (white rose) which is an MiP. In this layer the rightmost element /1rəʊz/ takes the primary stress with an X mark added on this single stressed syllable of this word, while the second layer is represented by the entire line (Take it, this white rose) which is a Map and an IP. Thus, the primary stress goes to the word /1rəʊz / with an X mark added on it as shown in the grid below:

MaP&IP	(						x)
MiP					(		x)
PWd	(x)			(x)		(x)	
Ft	(x)			(x)		(x)	
1teɪk	ɪt	ðɪs	1waɪt		1rəʊz		

Figure (12): The Bracketed Grid of / 1teɪk ɪt ðɪs 1waɪt 1rəʊz/ before the Application of the BA Rule

The grid above is well structured as it obeys the CoCoCo and the Faithfulness Condition, but it is not eurythmic, since this grid is an example of making the taller taller; thus, the BA rule can be applied by adding one grid mark over /teɪk/. In this way the grid gains eurhythmy by having an alternating stress pattern and showing a prominence relation between its columns as seen below:

MaP&IP	(						x)
MiP	(x)				(		x)
PWd	(x)			(x)		(x)	
Ft	(x)			(x)		(x)	
1teɪk	ɪt	ðɪs	1waɪt		1rəʊz		

Figure (13): The Bracketed Grid of /1teɪk ɪt ðɪs 1waɪt 1rəʊz/ after the Application of the BA Rule

The second line contains three lexical words. The first word is a monosyllabic word and stress falls on its single syllable /1stemz/ with only one metrical foot formed on it. The second word is (roses) transcribed as /1rəʊzɪz/. It is a disyllabic word with one strong syllable and a weak one. Thus, the main stress is put on the first syllable and the metrical foot construction rules build only one foot over that strong syllable and the following weak one leaving the final consonant of the second syllable extrametrical. The last word is a monosyllabic word in which stress falls on its single syllable /1bliːd/ with only one metrical foot constructed over it as can be noted below:

(x) ER/Right	(x .) ER/right	(x) ER/left
(x)	(x .)	(x)
1stemz	1rəʊzɪ<z>	1bliːd

Two prosodic units mapped from syntactic constituents are identified from the phrasal stress analysis of this second line. The first MiP is identified by the phrase (Stems of roses). The second MaP is designated by the sentence (Stems of roses do not bleed). Therefore, in the first MiP, the main stress goes rightward to the word /1rəʊzɪz/ with an X mark being placed on this syllable. The MaP, on the other hand, receives the primary stress on the last word /1bliːd/and an X mark is placed on this sole strong syllable as illustrated in the grid below:

MaP&IP&U	(		x)
MiP	(	x)	
PWd	(x)	(x .)	(x)
Ft	(x)	(x .)	(x)

1stemz əv 1rəʊzɪ<z> də nɒt 1bliːd

Figure (14): The Bracketed Grid of /1stemz əv 1rəʊzɪ<z> də nɒt 1bliːd/ before the Application of the DG Rule

The grid above is not well formed as it violates the CoCoCo for having a gap in the last column. Therefore, the DG rule is applied as this case is called making the shorter taller. To overcome this gap, a grid mark is added above the grid mark in the last column to obey the CoCoCo as represented below:

MaP&IP&U	(		x)
MiP	(	x)	x)
PWd	(x)	(x .)	(x)
Ft	(x)	(x .)	(x)

1stemz əv 1rəʊzɪ<z> də nɒt 1bliːd

Figure (15): The Bracketed Grid of /1stemz əv 1rəʊzɪ<z> də nɒt 1bliːd / after the Application of the DG Rule

The grid above looks good since it obeys the CoCoCo and the Faithfulness Condition but it is not eurhythmic. To get eurhythmy, one metrical phrasal rule should be applied which is the Move X rule which moves the grid mark over /1rəʊzɪz/ leftward to /1stemz/ to avoid the stress clash between the main stresses in the MiP level as seen below:

MaP&IP&U	(		x)
MiP	(x	)	x)
PWd	(x)	(x .)	(x)
Ft	(x)	(x .)	(x)

1stemz əv 1rəʊzɪ<z> də nɒt 1bliːd

Figure (16): The Bracketed Grid of /1stemz əv 1rəʊzɪ<z> də nɒt 1bliːd / after the Application of the DG Rule and the Move X rule

The third line includes two lexical words. The first lexical word is (fingers) transcribed as /ˈfɪŋgəz/. This is a disyllabic word with a first strong syllable followed by a weak one. The main stress is placed on the first syllable leaving the second syllable unstressed and the metrical foot construction rules build only one foot over this strong syllable and the following weak one with considering the final consonant of the second syllable extrametrical. The second word is a monosyllabic word in which stress falls on its single syllable /1seɪf/ with only one metrical foot constructed over it as illustrated below:

(x .) ER/Left	(x) ER/Left
(x .)	(x)
ˈfɪŋgə<z>	1seɪf

Regarding the phrasal stress analysis of this line, there is only one syntactic phrase that represents an MiP, MaP and an IP which is (Your fingers are safe). The sole stressed syllable of the last word /1seɪf / receives the main stress; thus, an X mark is added over this syllable, as shown below:

MiP, MaP, IP	(	x)
PWd	(x .)	(x)
Ft	(x .)	(x)
	jɔː ˈfɪŋgə<z> ə 1seɪf	

Figure (17): The Bracketed Grid of / jɔ ˈfɪŋgə<z> ə 1seɪf/

The grid above is well structured as it keeps the CoCoCo in the last column. It is also eurythmic for having an alternating stress pattern between its main stresses.

The Fourth Haiku

Knowing my weakness,

Spread your hands above my head.

See only your hands. (Amy Lowell)

This haiku poem is a traditional one in which the first line consists of two lexical words. Both of them are disyllabic words /1nəʊɪŋ/ and / 1wiːknəs / in which stress goes to the first strong syllables. In addition, one metrical foot is built over each of these stressed syllables and their weak ones and the final consonants of the second syllables of each word are considered extrametrical as can be seen below:

(x .) ER/left	(x .) ER/left
(x .)	(x .)
1nəʊɪ<ŋ>	1wiːknə<s>

The analysis of stress within this line starts with identifying one syntactic phrase that serves as an MiP, MaP, and an IP. This phrase is (Knowing my weakness) in which stress is placed on the first syllable of the final disyllabic word, which is / ˈwiːknəs /. The primary stress is carried by this strong syllable with an "X" mark being positioned above the stressed syllable, highlighting its significance within the phrase.

MiP, MaP, IP	(	x)
PWd	(x .)	(x .)

Ft	(x .)		(x .)
	ˈnəʊɪ<ŋ>	maɪ	ˈwiːknə<s>

Figure (18): The Bracketed Grid of /ˈnəʊɪ<ŋ> maɪ ˈwiːknə<s>/

As can be seen in the last column of the grid above, it adheres to the CoCoCo rules. Additionally, it is eurythmic because the main stresses alternate between each other.

The second line includes four lexical words. The first two words are both monosyllabic ones and they attract the primary stress. The words transcribed as follows: /1 spred / and /1 hændz / and on each word a metrical foot is constructed. The third word is a disyllabic word / ə 1bʌv/ with one weak and strong syllables. Thus, the primary stress is carried by the second syllable and a metrical foot is constructed over this stressed syllable and the preceding unstressed syllable. The last word is another monosyllabic word /1hed/on which the primary stress is placed and a metrical foot is constructed over it as illustrated below:

(x) ER/left	(x) ER/right	(. x) ER/right	(x) ER/right
(x)	(x)	(. x)	(x)
1spred	1hændz	əˈbʌv	1hed

The phrasal stress analysis of this line has three syntactic units to map its prosodic constituents. The first MiP is represented by the adverbial phrase (above my head). The second MaP is represented by the noun phrase (hands above my head). The last syntactic unit is represented by the entire line (Spread your hands above my head) which stands for the MaP and the IP constituents. As for the first MiP, the second word /1hed/ is stressed; thus, an X mark is added on this word. In the second MaP, the primary stress is also put on the last word /1hed/ as it is the rightmost word in this phrase with an X mark being added on it. For the MaP and the IP constituents, the last word /1 hed/ is also stressed and an X mark is put on it as displayed below:

MaP&IP	(					x)	
MaP		(				x)	
MiP			(			x)	
PWd	(x)	(x)	(. x)			(x)	
Ft	(x)	(x)	(. x)			(x)	
	1spred	jɔː	1hændz	əˈbʌv	maɪ	1hed	

Figure (19): The Bracketed Grid of /1spred jɔː 1hændz əˈbʌv maɪ 1he d/

The presented grid conforms to both the Faithfulness Condition and the CoCoCo. But it does not have eurhythmic qualities in its current state. To rectify this, the BA rule can be used. This requires putting one grid mark over / hændz/ and two marks over /spred /. By implementing the BA rule in this way, the grid achieves eurhythmy by establishing an alternating stress pattern and establishing a prominence relation between its columns, resulting in a more harmonious rhythm. The following grid visually demonstrates this adjustment:

MaP&IP	(					x)	
MaP	(x)	(				x)	
MiP	(x)	(x)	(			x)	
PWd	(x)	(x)	(. x)			(x)	
Ft	(x)	(x)	(. x)			(x)	

1spred jɔ: 1hændz əˈbʌv maɪ 1hed

Figure (20): The Bracketed Grid of /1spred jɔ: 1hændz əˈbʌv maɪ 1hed/ after the Application of the BA rule

The last line comprises three lexical words. The first word is a monosyllabic word transcribed as /1si:/ and it attracts the primary stress. Accordingly, a metrical foot is constructed over it. The second word is a disyllabic word transcribed as /1əʊnli / and the primary stress lies on the first syllable with one metrical foot being constructed over this stressed syllable and the second unstressed one. The last word is a monosyllabic word /1hændz/ and the primary stress is placed on this single syllable. As a result, one metrical foot is constructed over this stressed syllable as indicated below:

(x) ER/right	(x .) ER/left	(x) ER/right
(x)	(x .)	(x)
1si:	ˈəʊnli	1hændz.

The phrasal stress analysis of this line starts by identifying two syntactic phrases. The first is an MiP which is represented by the adverbial phrase (only your hands) while the bigger phrase, which is a MaP, is represented by the verb phrase (See only your hands). In the first MiP, the main stress goes to the rightmost word /1hændz/, thus an X mark is added on this word. Regarding the second MaP, the stress also goes rightmost to the word /1hændz/ and thus one grid mark is added on it as shown in the grid below:

MaP	(			x)
MiP		(		x)
PWd	(x)	(x .)		(x)
Ft	(x)	(x .)		(x)
	1si:	ˈəʊnli	jɔ:	1hændz.

Figure (21): The Bracketed Grid of / 1si: ˈəʊnli jɔ: 1hændz. / Before the Application of the BA rule

The above grid is well-formed because it agrees with the CoCoCo. However, to make the grid more eurythmic, an X mark should be added to the word / 1si:/to have an alternating stress pattern and to impart a prominent relation between its columns, as seen below:

MaP	(			x)
MiP	(x)	(		x)
PWd	(x)	(x .)		(x)
Ft	(x)	(x .)		(x)
	1si:	ˈəʊnli	jɔ:	1hændz.

Figure (22): The Bracketed Grid of / 1si: ˈəʊnli jɔ: 1hændz/ After the Application of the BA rule

15. Conclusions

After conducting a metrical analysis of the four chosen haiku poems, the following conclusions are arrived to:

- The application of the metrical stress theory reveals the rhythmic patterns, specifically the horizontal rhythm within each line of the haiku poems, even though these poems are characterized by their brevity in terms of line length and syllable count. This addresses the initial question posed in this study.

- As for the second question of this study, regarding the techniques that can contribute to the metrical and rhythmic aspects of the English haiku poems; one can notice that Pound in his two poems uses both enjambment and caesura. The first and the second lines of the first poem exhibit enjambment, as the phrase "of lily-of-the valley" flows into the second line without a pause or punctuation, creating a sense of continuity and connection between the two lines. In contrast, the second poem contains caesura, the comma after "Ends" at the end of the first line creates a caesura, indicating a pause within the line. This pause adds a sense of rhythm and emphasis to the words that follow, "with a willingness to oblige." Amy Lowell, on the other hand, in her two poems uses only caesura. In the first haiku, the caesura occurs at the end of both the first and the second lines, creating a pause and allowing the reader to absorb the action before moving on between the lines. Caesurae are used strategically in this haiku to control the pacing, emphasize certain phrases, and create a rhythmic flow that complements the meaning and emotions conveyed in the poem. Moreover, in the second poem, it also occurs at the end of the first line indicated by the comma after "weakness" and the line breaks after "above my head" at the end of the second line, allowing the reader to pause and reflect on the meaning.

- In terms of syllable count, 22 monosyllabic words indeed form the majority, constituting approximately 66.666% of the analyzed lexical words in the four haiku poems. Furthermore, 12 disyllabic words make up about 36.363%, and 2 trisyllabic words represent roughly 6.060% of the total lexical words in the haikus.

- Syllable extrametricality is employed only twice within the four poems, while consonant extrametricality occurs seven times. These rules are utilized to maintain adherence to the metrical rules present in the poems. In addition, ER/right is applied to every lexical word.

- In this study, all the grids examined can be categorized as either inherently eurhythmic (three grids) or made eurhythmic through the application of phrasal stress rules. The DG rule, which is responsible for maintaining the well-formedness of the grid, is applied to only one specific grid, as indicated in figure no. 15. Additionally, the Move X rule is implemented on this same grid to achieve eurhythmy, as illustrated in figure no. 16. However, the remaining grids, although initially well-formed, lack eurhythmy. To rectify this, the BA rule is applied to these grids to establish an alternating stress pattern and make them eurhythmic.

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