Problems with Universal Metrics: Evidence from Chinese Recent-style Verse (*Jinti shi*) and Japanese Haiku

By

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Dedication

This dissertation is dedicated to my mother,
Zhang, Jian.

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Abstract

This dissertation aims to examine the problem of universal metrics developed with English sonnets by analyzing meter in Japanese and Chinese metrical verse (e.g., haiku and recent-style verse). Following Martin (2007), haiku in this study is defined as a traditional form of Japanese poetry consisting of three lines, with seventeen metrical units per verse arranged in a pattern of five, seven, and five units per line. It can stand alone as an independent verse or be a stanza within a longer verse. The data reveals that a system with metrical prominence cannot be applied to Chinese and Japanese metrical verse since linguistic prominence is missing in both of these languages. Moreover, the differences among metrical systems in English, Chinese, and Japanese further suggest a relationship between meter and language. Namely, although metrical hierarchy in verse is relevant to prosodic hierarchy in a language, the two should be distinguished, and different languages may have different metrical hierarchies. For languages that have linguistic prominence, the metrical structure in a verse is based on that particular language's metrical structure. However, for languages that lack metrical prominence, the metrical structure in a verse is based on the language's prosodic structure.

Chapter Two provides a detailed description of this study's methodology and the data obtained through an analysis of the metrical structure of Chinese and Japanese verse. In Chapter Three, I examine the meter of Chinese recent-style verse by analyzing data from recent-style verses written by four early Tang poets and comparing them with *Nineteen Ancient Poems*. Through this analysis, I confirm that the meter of Chinese recent-style verse has tonal contrast within both a line and a couplet and that the alternation of two tonal categories should involve at least four syllables. In Chapter Four, I discuss meter in Japanese early modern haiku and modern haiku by examining haiku from two poetic anthologies. The first is *The Classic Tradition of Haiku: An Anthology*,

which includes 231 poems by 48 poets whom Bowers labels as representative of the period from 1488 to 1902. The second is *Well-Versed: Exploring Modern Japanese Haiku*, which includes 300 haiku by 300 poets who lived from the end of the 19th century to the beginning of the 21st century. Through this examination, I discover that the main poetic unit in Japanese is still mora, and the distribution of special moras (or the pattern of heavy and light syllables) remains random. Then, in Chapter Five, I compare English metrical systems with those in Chinese and Japanese and explain why previous studies that apply universal metrics cannot account for the Chinese and Japanese datasets in this study.

In Chapter Six, I extend my discussion to the relationship between language and meter and focus on the following points. First, different languages should have different metrical structures, since a metrical foot exists only in English and Chinese, and a metrical colon only exists in English. Second, the metrical structure of a verse should be distinguished from the metrical structure and the prosodic structure of a language. Third, different rules in verses of different languages are associated with the properties of that language. Fourth, my analysis of Chinese, English, and Japanese meter reveals that a common feature shared by the three systems is that syllables in the three languages can be partitioned into two categories. The contrast between these two categories then contributes at some degree to the formation of each metrical system in verse.

Chapter Seven summarizes the main findings and limitations of this study. It also suggests two future research directions: 1) to identify the metrical units of verses in different languages and 2) to summarize the relationship between metrical and prosodic hierarchies, explore how they interact with each other, and verify whether there is a universal metrical hierarchy as Kiparsky (2020) proposes.

Chapter 0. Introduction

0.1 Background, Subject, and Aim of the Study

There are spaces of overlap between the study of literature and the study of linguistics. Febb (2003: 446) defines the branch of linguistics that deals with the application of linguistic theory to literature as "Literary linguistics." According to him, literary texts share the same regularity with verbal behavior, but the latter requires special rules that are not incorporated in the former, which he referred to as "literary rules."

Meter is one example of these "literary rules." According to the definition by Merriam-Webster, meter, when used in poems, is "systematically arranged and measured rhythm in verse." It can either refer to "a measure or unit of metrical verse," which is usually used in combination, or "a fixed metrical pattern" in verse form.[1] That said, it is important to note that literary texts are allowed to break the rules (e.g., syntactic or phonological rules) in ordinary language. Take the example below.

(1) "My mistress' eyes are nothing like the sun;
Coral is far more red than her lips' red;
If snow be white, why then her breasts are dun;
If hairs be wires, black wires grow on her head.
I have seen roses damasked, red and white,
But no such roses see I in her cheeks;
And in some perfumes is there more delight
Than in the breath that from my mistress reeks."

William Shakespeare "My Mistress' Eyes Are Nothing Like the Sun"

[1] "meter." *Merriam-Webster.com*. 2022. https://www.merriam-webster.com (27 September 2022).

This poem by William Shakespeare differs from ordinary language phonologically, since “lips” in the second line is pronounced as one syllable, although it consists of two syllables (‘lip is’) in ordinary language. This occurs due to the number of syllables per line being arranged to ten to meet the requirement of iambic pentameter. The poem above also differs from ordinary language syntactically, because, in the sixth line, the word order is object-verb-subject (e.g., roses see I) instead of the usual English subject-verb-object order.

This reveals the ways in which literary texts are adjusted to follow literary rules, such as meter or rhyme. However, to judge whether a line is metrical or not, according to Halle & Keyser (1971: 140), is a type of knowledge “much like the average speaker’s knowledge of his [own] language, is in general tacit rather than explicit.” For example, an experienced reader of English iambic pentameter may find (2a) to be metrical and (2b) to be unmetrical, while failing to be able to state the reasoning explicitly.

(2) Examples of a metrical line and unmetrical line in English sonnet (Kiparsky 1977: 241)

a. Can lay to bed forever; whiles you, doing thus

b. *Can lay to bed forever; whiles you, sitting thus

While it can be argued what kind of person qualifies as “an experienced reader,” there at least seem to be different levels of difficulty to judge whether a line is metrical or not, depending on the language. In my personal experience as a native speaker of Chinese who has studied English and Japanese, Japanese metrical verse is the easiest to identify, while English verse and Chinese verse both prove to be the most difficult to parse out of the three, regardless of my experience in reading countless metrical verses in these two languages. These varying levels of difficulty are due

to the fact that English requires a knowledge of lexical stress, Chinese requires a knowledge of dividing four tones into two tonal categories, and Japanese merely requires the act of counting sounds.

Meter is exclusive to metrical verse, which is also the subject of this dissertation. The opposite of metrical verse is non-metrical verse. Free verse is one type of non-metrical verse in which each line does not follow a consistent meter but rather has its own rhythmic structure. Therefore, metrical verse is more artificial in nature due to its preset rhythmic pattern, and free verse is more likely to preserve the rhythm patterns of natural speech. Another type of non-metrical verses, according to Febb & Halle (2008), are those in which lines are composed based on syntactic parallelism, or a repetition of lines or parts of lines that are not phonologically identified but have similar syntactic constituents.

Metrics is one field of poetics that deals with metrical structure, and generative metrics is one approach that shares the perspectives of generative grammar in the studies of metrical verse with the aim of distinguishing metrical lines from unmetrical lines. Lines (or verses), as indicated by Febb & Halle (2008), is the peculiar unit that distinguishes poetry from prose and therefore the basic unit of metrical verse. Intensive scholarship utilizing this approach has been implemented on stress languages, such as English (Halle & Keyser 1966, Kiparsky 1977; Hayes 1983). This approach works in the English case because English possesses metrical structures in its language; therefore, the metrical structure in verse can be developed based on them. Regardless of claims that meter should reflect some linguistic features of the language it is in (Jacobson 1960; Kiparsky 1973; Febb & Halle 2008), the metrical template of English verse (e.g., the alternation of weak and strong position, WS in iambic pentameter) is associated with universal principles of metrics (Hayes 1983; Kiparsky 1996; Febb & Halle 2008) and is applied to the analyzation of meter in

tonal languages, such as Chinese (Chen 1979; Yip 1980, Xue 1989; Duanmu 2004), and in pitch accentual languages, such as Japanese (Doi 1949; Kawamoto 2000; Asano 2002).

However, the metrical template of Chinese and Japanese verses varies among scholars, and how the "S" and "W" positions are represented in the two languages remains controversial. In the case of Chinese recent-style verse, there are supporters for both the trochaic (SW) or the iambic (WS) patterns.[2] Furthermore, it is not clear what linguistic properties correspond to the two positions, since Chinese and Japanese do not possess the same linguistic property of "stress" as English. Chen (1979) claims that Chinese recent-style verse follows the pattern of WS, which is based on iambic chanting style and tonal placement rules. More specifically, there are fewer restrictions on the "W" position (the first, third, and fifth positions) and more restrictions on the "S" position (the second, fourth, and the sixth positions). Duanmu (2004) claims that Chinese recent-style verse follows the pattern of SW, arguing that classical Chinese and standard Chinese are stress languages. Kawamoto (2000: 225) differentiates this metrical stress accent from lexical stress accent and claims that it is manifested when the reader reads it "in a rhythmically conscious manner." Therefore, "this accent (stress) may manifest itself in varying degrees of conspicuousness, ranging from barely perceptible to loud and thumping, but at all events, it is always presented in 'potential'- a latent resource to be drawn upon at will by the reader." Asano (2002), on the other hand, maintains that the metrical grid in Japanese is not based on stress, reasoning that the "S" position should be occupied by an overt mora, while the "W" position is filled with a covert mora or a metrical pause.

[2] Chinese recent-style verse (*jinti shi* 近體詩) is one major form of classical Chinese poetry that gains popularity during the Tang dynasty (618-907). Based on the length of the verse, it can be divided into three categories, *jueju* 絕句, *pailü* 排律, and *lüshi* 律詩. The target form of this dissertation is five-syllable *lüshi* and *jueju*. The former consists of eight lines of either five or seven syllables and follows strict rules of tonal regulation; the length of the latter is half of the former, which consists of four lines of either five or seven syllables.

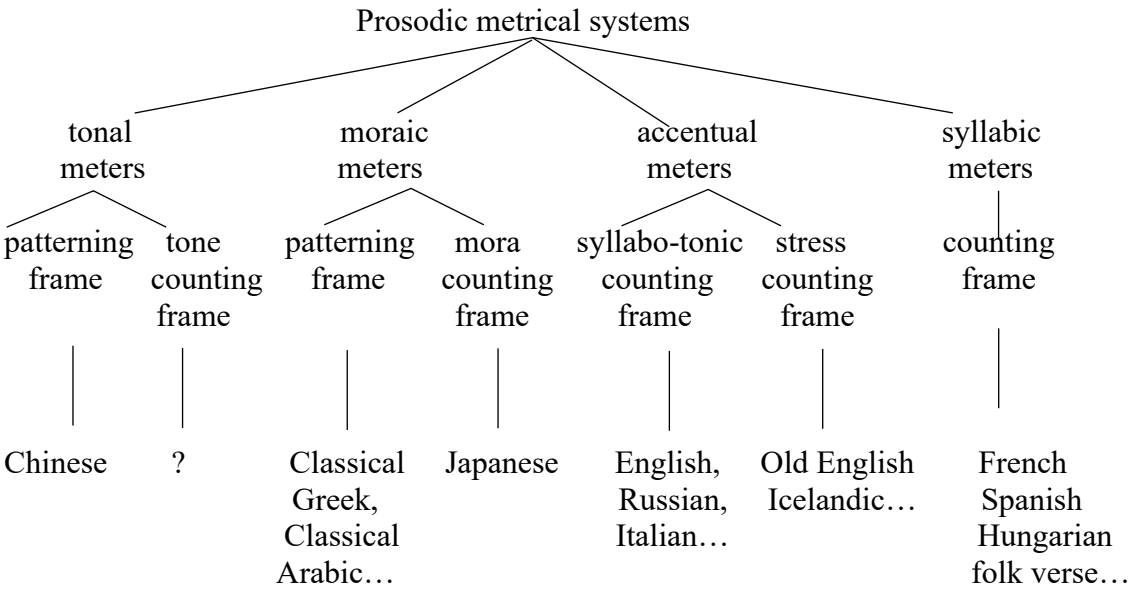
Although the rules of tonal arrangement in Chinese recent-style verse are well summarized, Japanese metrical rules remain in need of exploration or further examination. Currently, there are two main views in regard to the metrical structure of Japanese verse. The first view assumes that, underlyingly, Japanese metrics share the same template with English metrical forms – namely, possessing the "S" and "W" positions. Supporters of this view have advocated for an eight-mora template for each line (bimoraic foot and quadruple time) with metrical pauses (or rests) to account for the "W" positions. However, the location and type of these pauses remains controversial. Sakano (1978) argues for only fixed pauses without the ability to be moved, which exist at the end of a five-mora line. While Kawamoto (2000: 228) claims there are two types of pauses: movable pauses occur at the fourth, sixth, and eighth positions of a seven-mora line; fixed pauses occur " at the end of the full twelve-mora grouping (7+5)". Phonetical experiments (Sagara 1931; Cole and Miyashita 2006; Asano 2002; Kirikoshi 2011) were also conducted to seek supporting evidence for these claims, but their results still differ regarding the duration and location of pauses. The only agreement seems to be in regard to line length – namely, the fact that the duration of five-mora lines and seven-mora lines tends to be the same. Sagara (1931), however, argues that differences exist per individual. In other words, readers have control over the duration and location of pauses.

Another view assumes that a random distribution of moras exists in lines of Japanese verse, with the only restriction being on the number of moras per line. Aroui (2009) defines both Japanese and classical Greek as moraic meters, but the former lies under the mora-counting frame and the latter lies under the patterning frame. Furthermore, Ryan (2019: 134) defines Japanese as one type of quantitative meter. According to him, a quantitative meter "relates syllable weight or mora count to metrical strength." He therefore proposes a hierarchical structure of Japanese meter: a seven-mora line into two hemistichs, with each hemistich able to be divided into two metrons. However,

Ryan claims that there are no constraints regarding the alignment of metrical structure with prosodic structure. In other words, the boundary of phonological words and syllables can fall across metra or hemistichs.

Chinese and Japanese meters have been selected to compare with English meter precisely because they belong to different categories of metrical systems, according to Aroui (2009: 11). This is shown below in (3).

(3) Aroui's mode of prosodic metrical systems



The classification in here is based on the prosodic features of each language. As shown, Japanese lies under the category of moraic meters, Chinese lies under the category of tonal meters, and English lies under the category of accentual meters. The comparison between these three metrical traditions is meaningful in uncovering the nature of poetic meters, since it covers three out of four categories of metrical systems in the world.

Chinese recent-style verse has been selected for analysis in this dissertation to study the Chinese metrical system, because it has a fixed number of syllables per line and strict tonal regulations throughout the whole verse. As indicated by Chen (1979), since the Tang dynasty, Chinese recent-style verse has become very popular among the literati and has a unique status in Chinese literary history. Its metrical rules are also studied by many scholars, either via a linear (Wang 1958; Jakobson 1970) or generative (Chen 1979; Yip 1980; Xue 1989) approach.

For an analysis of Japanese metrics, haiku has specifically been chosen, because, unlike *waka* (classical Japanese poetry), it remains a robust genre of Japanese metrical verses in the current era. Before proceeding with this analysis, the definition of haiku needs to be clarified. Haiku, according to Kern (2018), was a term created by Masaoka Shiki (1867-1902) as a free-standing poetic form. Haiku's predecessor, *hokku*, is the first stanza in a sequence of linked-verse and refers to works such as those by Matsuo Bashō (1644-94). Although *hokku* is sometimes treated as "traditional haiku," it is associated with the context of linked-verse and is not a stand-alone poetic form in most instances. In addition, the term "haiku" was not even invented during Matsuo Bashō's time. Therefore, Kern (2018: xxxii) makes a pointed differentiation between haiku and *hokku*, defining them as two types of "haiku": the former is a "modern form of global poetry," while the latter is "one or more stanzas of witty linked-verse sequence, played as a literary word game, . . . with roots going back yet further into the mists of antiquity."

Following Martin (2007), haiku in this study is defined as a traditional form of Japanese poetry consisting of three lines, with seventeen metrical units per verse arranged in a pattern of five, seven, and five units per line. It can stand alone as an independent verse or be a stanza within a longer verse. To obtain a comprehensive picture of the meter of haiku in this study, I will compare

both haiku and its predecessor, *hokku*. For my purposes, the Meiji era marks a critical period to distinguish the two based on the following reasons.

First, the Meiji period was one in which Japan began its process of Westernization, and Shiki, who Kern (2018: xxvi) refers to as "Japan's foremost poetic modernizer" who created "the haiku as a form of modern standalone poetry," lived during this time. Second, according to Takayama (2006), a transformation in the way *waka* was recited occurred during the Meiji period. Namely, silent reading began to replace traditional oral performances in which the vowels of monomoraic word were lengthened. This change resulted in differences in the distribution of *jiamari* (hypermeter) in *waka* written before and after the Meiji period. As a poetic form that is derived from *waka*, the same tendencies may also be observed in *renga*, or linked-verse, which traditional haiku (*hokku*) is placed in. Third, the Meiji period marked an abundant borrowing of foreign words and a change of attitude toward incorporating those words in Japanese poetry. According to Frellesvig (2011: 408), during the Meiji period, Japan began to adopt technology, material culture, and ideas from Europe and the United States to "catch up" with Western civilization. This resulted in an impressive number of borrowed words during a period in which, "English dominated as a donor language of loanwords from the very beginning of the period of modernization." Frellesvig also points out that, at the same time, words that indicated abstract concepts or institutions were adopted into Japanese as Chinese translations rather than in the form of direct loans. Therefore, the Meiji period saw a great increase in both Western and Sino-Japanese words.

Ito & Mester (1995) claim the four Japanese lexical strata of diverse historical origins differ from each other in phonological constraints. It is, therefore, possible to assume that the two strata associated with foreign words – the Sino-Japanese and the Western strata – were influenced by

foreign prosodic systems. Since Chinese and English are syllable-based, syllable is perhaps a more critical prosodic unit in Sino-Japanese and Western strata (Starr and Shih 2017). If so, the avoidance or decreased usage of those kinds of words in traditional haiku and the absence of such avoidance or even increased usage of those words in modern haiku should cast doubt on mora's status as the main prosodic unit of Japanese metrics. For these reasons, comparing haiku that were composed before and after the Meiji period has significance. If the prosodic unit changed to the syllable after the Meiji period, a prominence-based metrical system is perhaps available in Japanese, consisting of the contrast between heavy and light syllables. In this dissertation, I will examine whether the distribution of the two types of syllables is random or not to see whether such a system stands.

If mora proves to be the prosodic unit for both types of haiku, this dissertation aims to examine the poetic data to see whether or not there is a pattern for the distribution of mora within the two types of haiku. Existing studies analyze the distribution of mora in *jiamari* lines in classical *Man'yōshū tanka*, imperial collections of *waka* (Sakano 2009; Yamaguchi 2004; Mōri 1998; Takayama 2006 & 2018), or modern *tanka* (Tawara 2021). However, it appears that there has yet to be a study that analyzes both modern haiku and traditional haiku. In addition, the methodology and findings on *waka* in the above studies can similarly be applied to haiku in order to examine whether or not there is a consistent pattern in the distribution of mora in these two representative genres of Japanese metrical verse.

To summarize, this dissertation will examine the metrical structure in Chinese recent-style verse and Japanese haiku to see whether a universal account of metrics based on English data can be applied. As will be revealed, my answer to this question is that English data may only be applied partially. In other words, a universal account of metrics may work in languages that have

prominence-based features, such as stress in English, but it does not work in languages that lack this kind of feature, such as Chinese and Japanese. I focus on two primary aspects when discussing English data applicability. The first aspect is the linguistic property that contributes to the formation of metrical verse, and the second aspect is the pattern of distribution regarding that property. Through my analysis, I further aim to uncover principles on the nature of metrical verse and reaffirm the relationship between language and poetry. My research questions are as follows: 1) Can the metrical patterns in English verse apply to cases of Chinese recent-style verse and Japanese haiku? 2) If not, what are the linguistic properties associated with Chinese and Japanese metrics, and how do they form the metrical structure of verses in the two languages? Especially in regard to the Japanese case, are there any metrical patterns? 3) Through the comparison made among English, Chinese, and Japanese poetics, what can we learn about the nature of metrical verse and its relationship to language?

0.2 Organization of the Paper

This dissertation is organized as follows. Chapter One is the literature review, which consists of three subsections: the major theories of poetic studies from a linguistic perspective; the development of universal metrics, which initiated as a result of the introduction of major theories in generative metrics, and their application in analyzing Chinese and Japanese metrical verses; and the reasoning behind theories in generative metrics in the case of English poetics, using English sonnets as an example. Chapter Two provides a detailed description of the study's methodology and data in analyzing the metrical structure of Chinese and Japanese verses. Chapter Three is a case study of Chinese recent-style verse, which explores the relationship between a poetic unit and metrical structure. Chapter Four is a case study of Japanese haiku. Here, I use two poetry

anthologies from the early modern and modern periods to identify the poetic unit and its distribution in Japanese haiku. Chapter Five discusses the differences and similarities regarding poetic unit and metrical system between English, Chinese, and Japanese metrical verses based on findings in the previous chapters. Chapter Six is an evaluation of previous studies on universal metrics. It concludes that a universal, English-based metrical system that has strong and weak positions proposed by previous studies cannot apply to cases of Chinese and Japanese verse. The only common feature shared by metrical verses between the three languages is the existence of a binary contrast, which is formed by partitioning syllables into two opposite classes. Finally, Chapter Seven summarizes the major findings of the dissertation and reaffirms the significance of this study.

Chapter 1. Background

1.1 Theoretical Background

1.1.1 Interaction between Language and Meter

When discussing the relationship between language and literature, Sapir (1921: 244-246) highlights that poetic prosody depends heavily on the features of language, or what he refers to as "dynamic features." As an example, he highlights that the adaptation of Latin and Greek poetic forms in English was never successful, since quantity is the basis of the former two languages, while stress is the basis of English.

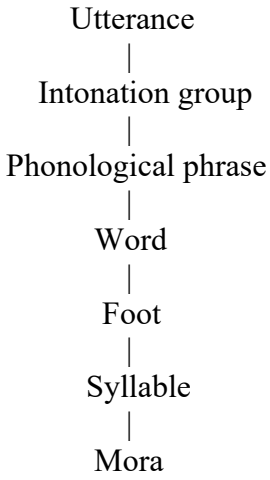
Like Sapir, Jacobson (1960) emphasizes the role of phonology in the study of metrics by claiming that phonological structure should be incorporated into the analysis of poetic prosody of the target language. This study serves as an introduction to the study of metrics from a linguistic perspective, in which he (1960: 357) further specifies that "the constitutive principle of verse" should include at least one binary contrast, consisting of relatively high and low prominence elements in the target language. In this vein, high and low prominence differs depending on the poetic tradition. In accentual verse, it is based on the "relative level of the peaks" (stressed and unstressed syllables); in quantitative (chronemic) verse, it is based on the "relative length of the syllabic peeps or entire syllables" (long and short syllables); and in syllabic verse, it is based on "the opposition of syllabic peaks and slopes" (strength or height of the vocal tone) (Jacobson 1960: 358).

Kiparsky (1973: 240) also argues for the important role that phonology plays in the study of metrics by stating, "It seems that rules of versification are based on facts which are bottom linguistic and that systems of metrics must be explained by phonology." Meanwhile, linguistic rules in poetry should make use of rules that are available in grammar. In addition, he claims that

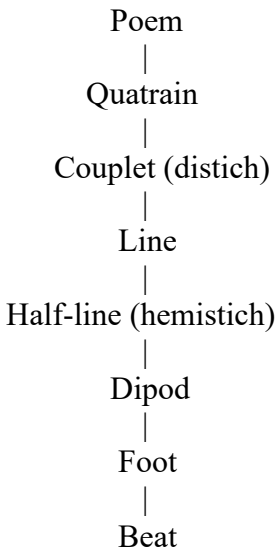
metric structure and linguistic structure share the same mechanism. Namely, they both have a deeper composition, while the surface structure is formed under transformation rules. The idea that phonology interacts with metrics inspired later studies to incorporate these findings into the study of metrics. For example, metrical rules should be derived from the domain of phonology (Hayes 1989; Golston & Riad, 2000; Febb 2003). Both Hayes (1989) and Kiparsky (2020) further claim is that metrical structure resembles phonological structure, in the sense that the prosodic hierarchy, or organization of prosodic units in language, corresponds to the metrical hierarchy in verse. Kiparsky's proposal is shown below.

(1) Kiparsky's proposal of the metrical hierarchy that corresponds to the prosodic hierarchy

a. Prosodic hierarchy in language (Kiparsky 2020: 3)



b. Metrical hierarchy in verse (Kiparsky 2020:3)



According to Kiparsky (2020: 3), the metrical hierarchy should be strictly binary, and, therefore, does not map onto the prosodic hierarchy. However, they are closely related in the sense that both hierarchies follow the Strict Layer Hypothesis (SLH) and linguistic constituents (words, phrases, and sentences) should be aligned with metrical constituents (feet, dipods, cola, lines, and stanzas). There is also another requirement for aligning linguistic prominence with metrical prominence, since, as Kiparksy notes, "All poetry avoids mismatches between metrical and linguistic prominence, but in ways that depend on the level of the hierarchy at which the mismatch occurs, and that vary between languages and periods."[3] In other words, phonological structure interacts with metrical structure in different ways dependent upon the language.

1.1.2 Generative Metrics

[3] According to SLH, there is no skipping of levels in the hierarchy: every node of an upper-level constituents must dominate its direct lower-level constituents.

1.1.2.1 Introduction of Major Theories

The branch of metrics that deals with the interaction between phonology and metrics is generative metrics, or the generative approach to metrics, which is developed mainly through the study of English metrics and indicates an association with stress theory in English. Through case studies of Old English alliterative verse and English iambic pentameter, Halle & Keyser (1971) propose this "generative metrics" to focus on deciphering sets of phonological rules that distinguish metrical lines from unmetrical lines. These rules match the prosodic feature of English (e.g., stress) with the underlying metrical pattern (e.g., the alternation of a weak and strong position, WS in iambic pentameter) and distinguish the two types of lines through a restriction, or a stress maximum (a syllable with the strongest stress when compared with adjacent syllables), which is prevented from occupying a weak position except ones that occur word-initially. Below is the abstract metrical pattern of English iambic pentameter that Halle and Keyser (1971: 169) propose.

(2) Halle & Keyser's proposal of English iambic pentameter
(a) Abstract Metrical Pattern
(W)* S WS WS WS WS (X)(X)
where elements enclosed in parentheses may be omitted and where each X position may be occupied only by an unstressed syllable.

(b) Correspondence Rules
(i) A position (S, W, or X) corresponds to a single syllable
OR
To a sonorant sequence incorporating at most two vowels (immediately adjoining or separated by a sonorant consonant)

Definition: When a fully stressed syllable occurs between two unstressed syllables in the same syntactic constituent within a line of verse, this syllable is a "stress maximum"

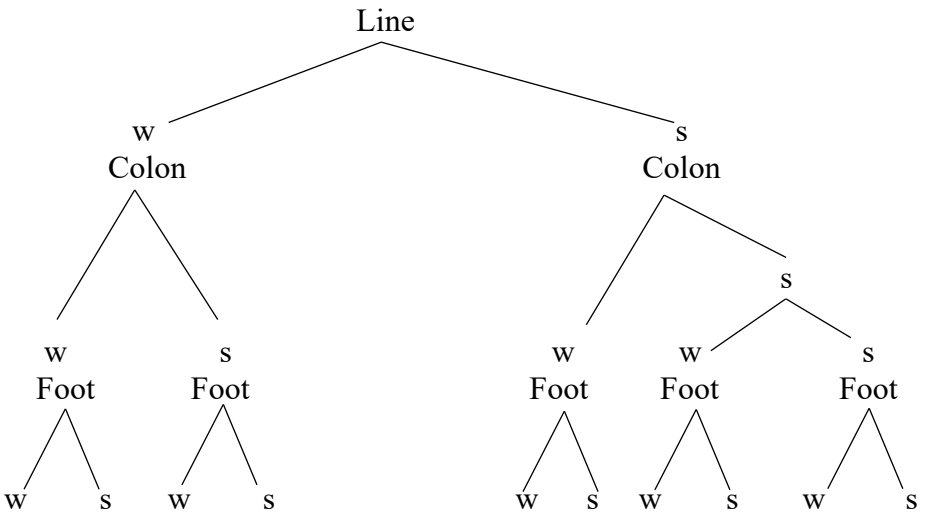
(ii) Fully stressed syllables occur in S positions only and in all S positions
OR
Fully stressed syllables occur in S positions only but not in all S positions
OR
Stress maxima occur in S positions only but not in all S positions.

Through this proposition, Halle & Keyser (1971) claim that, in a tacit way, poets and readers share the knowledge to distinguish not only between metrical lines from unmetrical lines, but also between the simplicity or complexity of the metrical structure. In other words, readers should be able to make judgments on the metricality and complexity of verse lines despite their inability to clarify what the rules of these structures are. The complexity or tension of a line increases when there is more deviation from the abstract metrical pattern. In (2a), an asterisk indicates a primary stress. Lines that follow the pattern in (2a) without the initial syllable receiving a primary stress is considered as having zero metrical complexity. The complexity of a line increases when later alternatives of correspondence rules in (2b) are used. A line is unmetrical if it violates the last alternative in (2bii), which is also the least strict rule.

Kiparsky (1977) further revises Halle & Keyser's metrical rules by claiming that it is lexical stress that is prevented from occurring in the W position. Kiparsky (1975) claims that the metrical rules in Halle & Keyser (1971) are too weak, since they cannot account for all the metrical lines. Their rules, he asserts, do not distinguish phonological rules from metrical rules, since they do not take the grammatical structures of verses (e.g., phrase and words) into consideration. In place of the lineal representation in Halle & Keyser's template seen in (2a), Kiparsky (1977: 230) proposes a hierarchical structure, which is based on the rules of English stress and takes a tree-like form inspired by Liberman (1975).

(3) Kiparsky's tree mode of the metrical structure of English iambic pentameter (Hayes 1988: 222).

(a) Metrical pattern



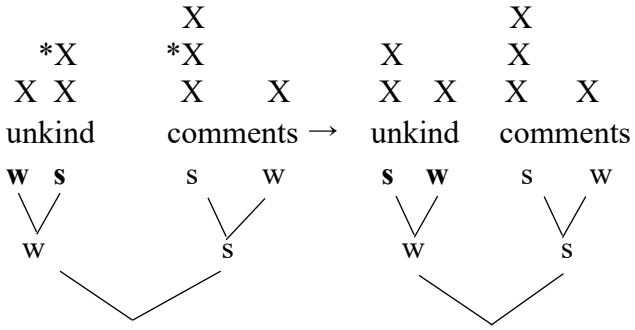
(b) Corresponding Rules
(1) Syllable count: Syllables correspond one-to-one with terminal nodes of the metrical pattern.
(2) Phrasing: Line boundaries must coincide with phonological phrase boundaries.
(3) Rules governing stress
a. The 'Monosyllable Rule'
A stressed syllable must occupy s position unless:
(i) it consists of a single, monosyllabic word; or
(ii) it immediately follows a phonological phrase boundary.
b. At the right edge of a phonological phrase, the sequence stressless-stressed must occupy ws position.

As the diagram above reveals, compared with the lineal structure in (2a), Kiparsky's structure is binary, hierarchical, and specifies that each line consists of two colons, which further consist of either two or three feet. The structure is hierarchical, since stress in English is hierarchical by nature – there are stressed syllables, but also lexical and phrasal stresses. Organizing the W and S nodes within a foot avoids the randomness of a lineal structure and therefore refines the metrical pattern. However, the evidence supporting the colon level appears less solid (Chen 1979: 371). In this pattern, the metrical complexity of a line is measured by the number of mismatches between the metrical and phonological trees. More mismatches indicate increased complexity in a line.

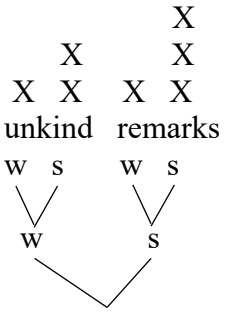
Hayes (1983), on the other hand, proposes a grid-based theory to account for English meter, which is based on the metrical grid developed by Liberman & Prince (1977) for English phrasal stress. In this metrical grid, an asterisk indicates whether a syllable bears stress or not, and the height of the column of asterisks represents the degree of stress. Unlike Kiparsky's tree structure, the metrical grid can represent phenomena, such as stress clash (when two stressed syllables are next to each other), which is illustrated below.

(4) Grid-based representation and tree-based representation of stress (Hayes 1983: 367-368)

(a) stress clash



(b) no clash



In this diagram, the grid-based representation is shown above the word, and the tree representation is below the word. The asterisks indicate where a stress clash has occurred. In (4a), the stress clash results in the shift of stress from the syllable of "kind" to "un," which is well

represented in the gird structure. However, Hayes (1983) argues that since the tree representation for “unkind” in (4a) and (4b) are the same, Kipsrsky’s tree structure cannot distinguish the different metrical structures of the two words here.

Hammond (1991) claims that neither a grid-based nor a tree-based theory is adequate to account for the poetic meter of James Thomson (1700-1748), and therefore proposes an arboreal grid that combines the two. He argues that both the tree-based theory and the grid-based theory have different interpretations of elements that are important to the poetic meter. In the tree-based theory, features encoded in trees (e.g., constituency and how to distinguish the S from the W node) are significant. In the grid-based theory, features encoded in the grid (e.g., whether or not the syllable is stressed and the relative level of stress).

Despite their differences, all of the above studies assume the existence of a metrical template. Golston & Riad (2000), however, reject a metrical template when analyzing Greek meters. In addition, rather than distinguishing metrical structure from phonological structure, they regard meter as a purely phonological issue in which prosodic patterns rank above syntactic patterns. This idea is inspired by the Optimality Theory (OT) in phonology proposed by Prince & Smolensky (1993). In this OT framework, there are language-universal constraints that interact with grammar, which are organized in a language-specific hierarchy. Then, a transformational process from the operational component of the grammar to the constraint component of the grammar generates the optimal member as the output of the grammar based on that grammar’s hierarchy of constraints. The optimal member of output is chosen based on the degree of violation of the constraints. For example, suppose there are three constraints, and their ranking is C1>C2>C3. Input 1 is the optimal output if it violates C1 less than Input 2 and Input 3. However, if Input 1 and 2 violate C1 to the same degree but less than Input 3, the optimal output is determined based on

the degree to which they violate C2. If Input 1 violates C2 less than Input 2, then Input 1 is the optimal output. In Golston & Riad's (2000) analysis, the idealized patterns are unmarked meters, and other meters are marked since they deviate from the former by violating constraints that regulate rhythm, binary, and faithfulness. For example, constraints that control the rhythm of lines include NOCLASH (there are no adjacent stressed syllables) and NOLAPSE (there are no adjacent unstressed moras). Constraint-based theories challenge the dominant status of template-based theories in the study of metrics. This change, according to Blumenfeld (2016), corresponds to the idea of deriving the metrical template through the interaction of phonological constraints in the recent literature on prosodic phonology. Although the two are conceptually different, they share similarities, such as binarity and prominence.

1.1.2.2 Towards Universal Metrics

The above findings in generative metrics are applied to analyze other types of languages (e.g., tonal languages) in the hope of discovering universal principles of metrics. A specific mode that relates language typology with metrics can be found in a study by Hanson & Kiparsky (1996), which sets three parameters to account for meters of different languages. These parameters include "structure" and "realization." "Structure" refers to the number and headedness of feet. "Realization" incorporates three different aspects – the size of metrical position, which can be a mora, a syllable, a prosodic word, or a phonological phrase; the prominence site, which reveals how strong/weak positions are associated with the prominent or unprominent constituent; and the prominence type of the meter, which can be weight, stress, strength, or pitch accent. However, Hanson & Kiparsky's proposal largely relies on the standards of English meter, since it requires "S" and "W" positions, which may or may not be associated with prominent or non-prominent constituents.

Febb and Halle (2008) claim that the metrical grid of different poetic traditions can be generated from a set of iterative rules based on Idsardi's (1992) study on stress systems of different languages. A verse line is metrical if and only if its metrical grid is well-formed, and the conditions to make such a judgement include the projection of maxima (syllables that are marked) to the grid. The highest level of that grid must also have one asterisk (the head). The metrical grid could represent the meter in different languages, since the iterative rules accommodate a method for grouping syllables (e.g., foot structure and head location). For example, syllables are divided into two classes (marked and unmarked) based on the linguistic property of the language. In quantitative poetry, like that in Greek, these classes are heavy vs. light; in Chinese poetry, classes are based on tones. In addition, applying a metrical grid distinguishes meter from rhythm (e.g., the stress placement in English), and it can be adapted to languages based on their particular features.

For Febb and Halle, the contrast between the two classes of syllables is used to form meter in a certain language. As opposed to the traditional approach that favors a metrical template, it is the metrical grid, rather than the number of syllables, that is relevant to the metricality of a line. (5) highlights two lines from one poem that vary in the number of syllable per line, and (6) delineate a set of rules used to derive the metrical grid of the poem.

(5) One poem varies in the number of syllables per line (Febb & Halle 2008: 21)

Where music and moonlight and feeling

```
    *     *)* *     *)  *   *     *)*          0 ⇐
          *         *             *)           1 ⇐
                                  *            2
```

Are one.

```
*   *)                                         0 ⇐
    *)                                         1 ⇐
    *                                          2
```

(6) Rules to derive the metrical grid of the poem in (12). (Febb & Halle 2008: 21-22)
a. Gridline 0: starting just/one asterisk in at the R edge,
   insert a R parenthesis, form ternary groups, heads R.
   i. Incomplete groups are admitted.
   ii. Ungrouped asterisks are admitted.
b. Gridline 1: starting just at the R edge, insert a R parenthesis,
   form ternary groups, heads R.
   i. Incomplete groups are admitted.

According to Febb & Halle (2008), although the two lines in (5) contain a different number of syllables per line, they share the same meter. This is true, because they have the same number of Gridlines in the grid, which, in this case, is two.

Russom (2017: 28) also proposes rules that account for metrics across languages. His rules are more general, since they only associate linguistic units with metrical units. His proposal is shown below in segment (7).

(7) Russom's proposal of universal principles of metrics
   a. Metrical positions are abstracted from syllables.
   b. Metrical feet are abstracted from words, and any word-counting meter is a foot-counting meter.
   c. Metrical lines are abstracted from simple sentences.
   d. Norms for a metrical constituent are abstracted from norms for the corresponding linguistic constituent.
   e. A poetic meter must employ the line.

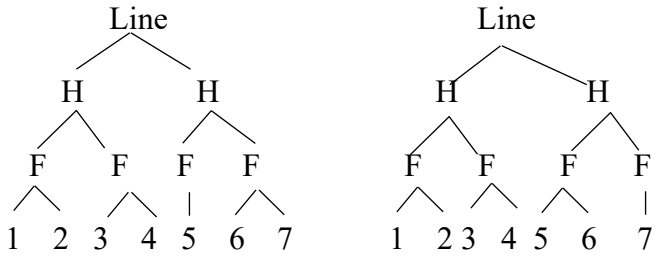
1.1.3 Cross-linguistic Metrics

The findings in generative metrics based on English verse were applied to the analysis of both Chinese and Japanese meters. Those studies provide evidence to support the theory and argue that either the metrical template or phonological constraints apply cross-linguistically or at least to languages other than English.

1.1.3.1 Application of Generative Metrics in Chinese Metrical Verse

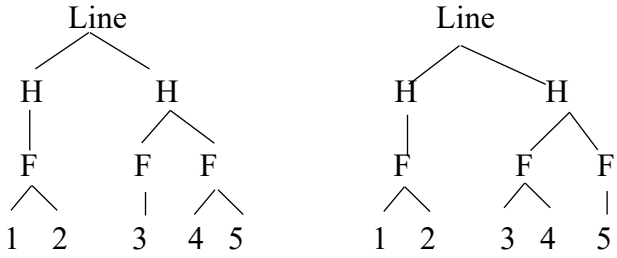
Chen (1979) claims that the metrical pattern of Chinese recent-style verse resembles that of English, as Kiparsky (1977) similarly proposes in segment (3a). Chen's analysis is a hierarchical and binary metrical structure. He divides a line into two hemistichs in a heptasyllabic line, where each hemistich consists of two metrical feet. In the second hemistich, there is only one foot with one syllable. Its location indicates whether it is a left- or right-branching subtree. Diagram (8) below depicts these structures.

(8a) Chen's two structures of heptasyllabic lines (Chen 1979: 380)



right-branching left-branching

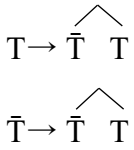
(8b) Chen's two structures of pentasyllabic lines (Chen 1979: 389)



right-branching left-branching

Chen then proposed a tone assignment rule and a tone specification rule, which are shown in diagram (9) and segment (10) (Chen 1979: 382-383).

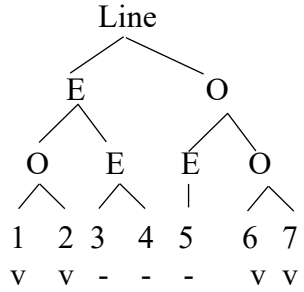
(9) Tone assignment: Opposite tones (T and $\bar{T}$) are assigned to sister constituents down to the level of the metrical foot in this fashion:



(10) Tone specification: T may assume the value of either E (even tone) or O (oblique tone), and $\bar{T}$ is opposite to T, which is subject to the Tonotactic Condition.

Under this rule, there is an opposition in tone in both the hemistich (half-line) and the foot level. More specifically, if the first hemistich maintains an even tone, the second hemistich automatically obtains the oblique tone. Therefore, in a right-branching structure, one example of the tone assignment can be as follows.

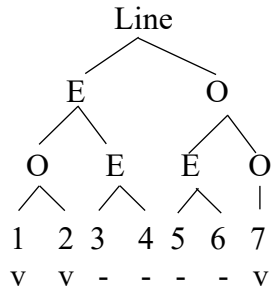
(11) The result after applying rules (8) and (9) (Chen 1979: 384)



"-" indicates an even tone, "v" indicates ab oblique tone

This generates one of the canonical tonal patterns. However, if one sets the first hemistich as E tone in the left-branching structure (the tree on the right side) in (8a), the result is (12), which cannot be found in the canonical tonal patterns (Chen 1979: 382).

(12)

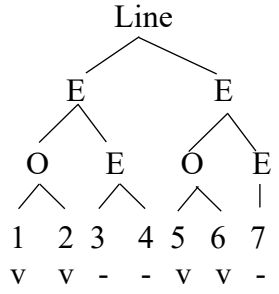


To convert this to the correct tonal pattern, Chen proposes tonotactic conditions. This is shown in (13) (Chen 1979: 383).

(13) Tonotactic condition: If tone assignment produces four consecutive syllables carrying an identical tone, the tones of the second half-line undergo alpha-switching (E to O, and vise versa).

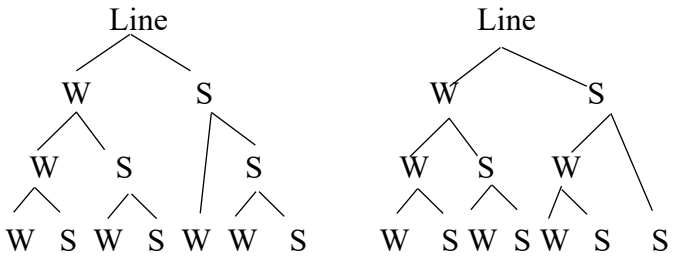
After applying (13), we obtain (14), a pattern found in Chinese recent-style verse (Chen 1979: 386).

(14)



Chen then applies the iambic structure in Kiparsky (1977) and assigns S and W nodes at each level.

(15) Chen's two structures (with S/W labeling) of heptasyllabic lines (Chen 1979: 395-396)



right-branching left-branching

Besides the notion of foot and S/W labeling, Chen argues that the mismatch between the metrical and syntactic trees indicates the metrical tension of a line. In other words, the most frequently observed pattern is the optimal line, in which the syntactic tree matches the prosodic tree. For example, the ideal tree of heptasyllabic lines has the syntactic patterns of [[2 2][2 1]] and [[2 2][1 2]], which match the prosodic trees in (8a). The deviation is measured by the number of nodes that differ between the ideal and actual trees. Chen's study suggests a strong similarity between the metrical structure of metrical verses in Chinese and English. The poetic foot in both languages follows the structure of WSWS. However, the English foot is based on stress, while the Chinese foot is based on tone.

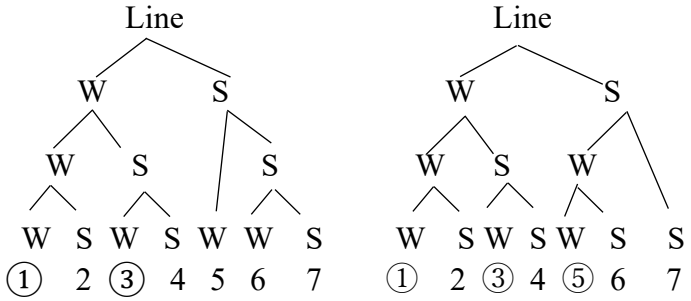
Following Chen, Yip (1980) also offers a metrical account of Chinese recent-style verse. Yip disagrees with Chen's tonal assignment rule by pointing out that the tonotactic condition is redundant. She believes that Chen's basic tonal assignment rules generate both good and bad lines, and the tonal condition is proposed only for fixing unaccepted patterns. She further highlights that the problem with Chen's study is its tendency to assign the same tones to two different structures,

as seen in (15). Alternatively, Yip proposes rules that assign different tones to the different structures of trees (1980: 189-190).

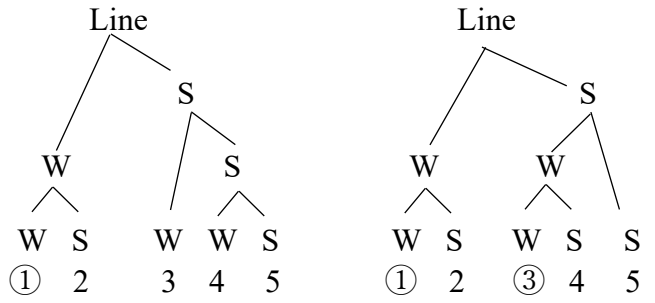
(16a) For Heptasyllabic lines: In a pair of sister nodes N1, N2, N1 is labelled T (or S, in a stress tree) if and only if it branches.
(16b) For Pentasyllabic lines: In a pair of sister nodes N1, N2, N2 are labelled T (or S, in a stress tree) if and only if it branches.

She also proposes metrical trees for both pentasyllabic and heptasyllabic lines, and she believes that the freest position is the weakest position in the tree structure (marked with a circle).

(17) Yip's two structures of heptasyllabic lines



(18) Yip's two structures of pentasyllabic lines



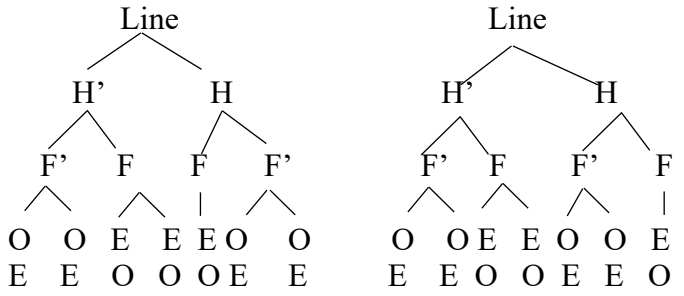
Yip's tree of pentasyllabic lines differs from Chen's in the sense that there is no contrast between S and W nodes on the half-line level. As for why she skips the half-line level, Yip maintains that no solid evidence shows that any labels should be placed above the foot level.

Xue (1989) argues against this foot structure that both Chen (1979) and Yip (1980) propose. In fact, he criticizes Chen for ignoring the following requirement in (19) since whether a foot is branching or not branching plays an important role in tonal assignments.

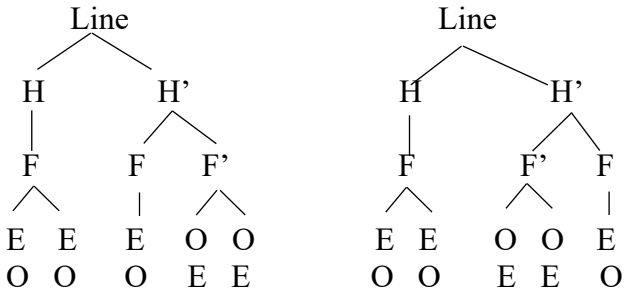
(19) The two adjacent non-sister feet (the second foot in the first half-line and the first foot in the second half-line) have the same tone if and only if the latter is monosyllabic; otherwise, they have contrasting tones.

In addition, Xue (1989: 693) reasons that Yip's structure of pentasyllabic lines does not following the principles of SLH, as mentioned previously, since "the independent status of half-lines is supported by the fact that adjacent feet within a half-line must have opposite tones, whereas the two adjacent feet across half-lines are not so constrained." Alternatively, Xue advocates the importance of distinguishing half-lines and foot as different prosodic constituents, which is indicated in his trees.

(20) Xue's two structures of heptasyllabic lines



(21) Xue's two structures of pentasyllabic lines



The structure of Xue's tree is well-formed since it simultaneously does not violate the SLH and reflects the metrical bifurcation at each level. Xue, however, does not include an analysis of free positions in his trees. Therefore, it is not clear how his trees account for free positions. That said, Xue's foot is different from Yip's and Chen's, since there is no binary contrast within the foot. This contrast seems to exist, instead, at the half-line level.

To test Chen's thesis regarding the role that syntax plays in poetic meter, Duanmu (2004) takes a statistical approach by analyzing 1460 lines of Chinese recent-style verse from "The 300 Tang Poems." His findings, however, are opposite to Chen's. Duanmu claims that the correlation between the frequency and metrical tension of a line is not statistically significant. He further attempts to explain why both [1 2] and [2 1] are metrically good in pentasyllabic lines, even though the former is far more frequent than the latter. According to his data, [2 [1 2]] shows a frequency of 53.81%, while [2[2 1]] only reaches 24.37%. By highlighting the fact that in Chinese, the most common sentence structure in SVO languages is [S[VO]], and most nouns are disyllabic while most verbs are monosyllabic, he concludes [2 [1 2]] is the most common pattern. Duanmu's results are shown in (22).

(22) Frequency of occurrence of trees with different syntactic structures (Duanmu 2004: 53)

Tree structure	Frequency	Percentage	Bad nodes
[[2 2][1 2]]	215	31.99	0
[[2 2][2 1]]	119	17.71	0
[2 **[**1 **[**1 [2 1]**]]**	63	9.38	2
[2 **[**2 [1 2]**]]**	47	6.99	1
[[1 **[**1 2**]**][1 2]]	43	6.40	1
[1 **[**1 **[**2 [1 2]**]]**	26	3.87	2
[**[**[2 2] 1] 2]	2	0.30	1
[**[**[2 2] 2**]** 1]	2	0.30	1
[2 **[[**2**]** 1**]**]	2	0.30	2

The above data reveals that although Chen (1979) claimed that [[2 2][2 1]] and [[2 2][1 2]] are the most ideal pattern, their frequency differs significantly. Another way that Duanmu's data conflicts with Chen's is that the pattern with the most deviant nodes does not occur least frequently as Chen claimed. While [[[2 2] 2] 1] has one bad node and [1 [1 [2 [1 2]]]] has two, the frequency of the former is lower than the latter. Therefore, Chen's argument that the Chinese metrical system resembles the English one in terms of metrical complexity is not tenable.

In contrast with previous analysis, Duanmu (2004: 55) argues that Chinese recent-style verse follows an SW metrical template, which is shown in (20).

(23) Duanmu's proposal of metrical template of Chinese recent-style verse

a. Five-syllable lines: SWSWSØ

b. Seven-syllable lines: SWSWSWSØ

Here, "Ø" indicates an empty beat, which can be either a pause or the lengthening of the final syllable. Duanmu's template is lineal rather than hierarchical since he believes that higher structures in the template "do not seem to play a role in [his] present corpus" (55). Duanmu also explains why the template should be SW instead of WS. For example, the first syllable bears the

main stress in Chinese disyllabic words, and rhyme (in the last syllable of a line) should occupy an S position.

Besides the tree-based structure, Febb & Halle (2008) propose a grid-based structure to account for the meter of Chinese recent-style verse. They apply the 1-3-5 rule to their analysis.[4] More specifically, since the fourth position of a seven-syllable line is different in tonal pattern from the second and the sixth position, they regard it as the head of the line. After applying sets of iterative rules in (24), the seven-syllable line and five-syllable line are given the following metrical grid seen in diagrams (25a) and (25b).

(24) Iterative rules to form metrical grid in Chinese recent-style verse
1.For idealized tonal patterns
a. Gridline 0: starting at the R edge one asterisk in, insert a R parenthesis, form binary groups, heads R.
b. Gridline 1: starting at the L, insert a L parenthesis, form binary groups, heads L.
i. 7-syllable line: skip the first asterisk encountered at Gridline1.
c. The syllable projecting to Gridline 2 must be of the opposite tonal class from other syllables projecting to Gridline 1.
2.For actual tonal patterns
d. The syllable projecting to the head of the verse must be of the same tonal class
(i) with the syllable immediately to its right and (ii) with one other syllable to its right.

(25) Metrical pattern of Chinese recent-style verse according to the analysis of Febb and Halle (2008: 257)

a. five-syllable lines

```
)*   *)  *  *)  *        0⇐
     (*      *(          1⇒
      *                  2
```

[4] According to the 1-3-5 rule, any tones can appear in the first and third positions of a pentasyllabic line, and in the first, third, and fifth positions of a heptasyllabic line. Conversely, the tonal regulations must be followed in the second and fourth positions of a pentasyllabic line and in the second, fourth, and sixth positions of a heptasyllabic line.

b. seven-syllable lines

```
)*    *)  *  *)  *  *)  *        0⇐
      *       (*      *(         1⇒
              *                  2
```

(25) shows that Febb & Halle (2008)'s approach derives the same metrical grid for a heptasyllabic and pentasyllabic line in recent-style verse. Febb & Halle (2008) are correct in stating that syllables need to be portioned into *ping* tones and *ze* tones. It is the contrast between these two tones that forms meter in Chinese recent-style verse. This would explain why Wang (1958) and Chen (1979) claim that the heptasyllabic line is derived from a pentasyllabic line – their argument coincides with the historical development of *qilü* 七律(the heptasyllabic recent-style verse). *Wulü* 五律 (the pentasyllabic recent-style verse) was established during the early Tang and soon gained popularity among literati. However, according to Huang (2020), *qilü* was primarily used as a form of court poetry during the time of Emperor Zhongzong 唐中宗 (656-710). With roots in the period of Kaiyuan 開元 (713-741) and Tianbao 天寶 (741-756), *qilü* began to be used among literati of lower status for social purposes, such as rewards and sending off gifts.

1.1.3.2 Application of Generative Metrics in Japanese Metrical Verse

In the case of Japanese metrical verse, Kawamoto (2000: 228) offers a lineal metrical template that incorporates both movable and fixed pauses. The template he proposes is as follows.

(26) Kawamoto's metrical template Japanese metrical verse

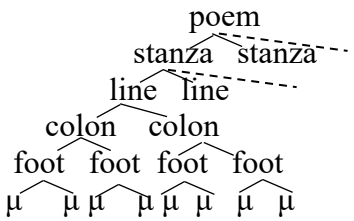
SW SW SW SW
○○/○★/○★/○★/
○○/○★/○★/●●/
○= a mora, ★= a movable rest, and ●= a fixed pause.

In Kawamoto's template, each line is divided into four bimoraic feet, which he argues is the basic unit that forms Japanese meter. Furthermore, he claims that those four feet equal a four-beat or a quadruple-time bar, and each of the four beats is equal in duration. It is this bar that forms the basic framework for the seven-five meter.

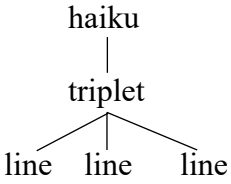
According to Kawamoto, the above framework (or the verse design) is an underlying one, and it is through recitation that it is revealed. Kawamoto (2000: 221) then refers to this recitation as an "exaggerated style of traditional recitation," which is an "ideal delivery design" that fully reveals the verse design of Japanese moraic meter. Although this traditional form of recitation is lost today, he assumes that contemporary recitation only has very minor variations from its traditional counterpart. There is a "metrical stress accent" on the first mora of each foot, and it is precisely because of the existence of this stress and the structure of bimoraic foot that a rest is inserted. This also explains the existence of free-standing mora (a foot occupies only one overt mora) in Japanese meter. Kawamoto (2000: 227) argues for the importance of distinguishing this "metrical stress accent" from the lexical accent in English, since it does not have any association with the lexical pitch accent of Japanese. In his words, metrical stress accent is a "subjective phenomenon," and "it often amounts to little more than a vague, subconscious notion in the individual reader or listener's mind."

Asano (2002) analyzes Japanese metrics using an OT approach. She argues that the five-mora and seven-mora lines result from the prosodic structure of the poetry interacting with a set of ranked constraints. As evidence, the pauses (or silent mora in her definition) in her phonetic experiments only appear in fixed positions, which indicates that the prosodic structure of Japanese poetry must be organized hierarchically instead of linearly.

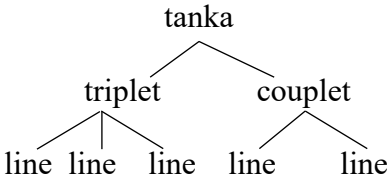
(27) The prosodic structure of Japanese metrical verse (Asano 2002: 74)



(28a) The prosodic structure of haiku



(28b) The prosodic structure of *tanka* (Asano 2002: 75)



Asano further analyzes various structures (e.g., 1+6, 4+3, 3+4, etc., and the *jiamari* 字余り and *jitarazu* 字足らず), proposes constraints within the OT framework, and ranks the hierarchy of constraints to account for her data regarding the location and duration of pauses at each prosodic level.[5] The most optimal output, therefore, is the pattern that most participants took when reciting that particular line structure.

The constraints for the foot level are as follows (Asano 2002: 77):

[5] In most cases of Japanese metrical verse, a line consists of seven mora or five mora. However, there are irregular lines that may include more than (e.g., six and eight moras, which is the case of *jiamari*) or fewer moras (e.g., four moras, which is the case of *jitarazu*). According to Asano, *jiamari* is a common phenomenon but *jitarazu* is rare.

(29) a. **FTBIN [μ]**: Feet must be binary under moraic analysis.
b. **DEPENDENCE**:
Every segment of the output must have a correspondent in the input (**DEP**).
c. **MINWD**: The minimal size of a prosodic word is two moras.

(29a) is based on former studies such as Itō (1990) and Poser (1990), in which foot in Japanese language is bimoraic. Due to this constraint, each line in Asano's structure consists of an even number of moras. It is also salient to note that the mora here refers to covert mora. Therefore, one overt mora, even if it forms a phonological word, does not account for one foot in this prosodic structure. To form a foot, the overt mora must be followed by one covert mora. (29c) summarizes this requirement. Asano clarifies that (29c) is not a requirement for poetry alone. It also applies to Japanese language as a whole. She argues that, in Japanese, there is a lack of monomoraic phonological words, which consist of a covert mora plus a monomoraic lexical word, and only monomoraic lexical words exist.

(29b), on the other hand, prevents the insertion of a pause and, therefore, can limit the number of covert moras. At the colon level, Asano (2002: 87) proposes another three rules seen below.

(30) a. **ALIGN (LXWD, COLON)**:
Every edge of a lexical word must align with an edge of a colon.
b. **CONTIGUITY**:
The portion of input standing in correspondence forms a contiguous string in the output.
c**. COLONBINARITY[FT]**: Colons must be binary under prosodic analysis.

(30b) prevents the insertion of a pause to interrupt the sequence of overt moras, since pauses located at the edges are accepted by most readers in Asano's study. (30c) is added to ensure that each line has an even number of moras.

At the line level, Asano (2002: 98 & 102) proposes the following constraints to account for phonetical data.

(31) a. **ALIGN (LXWD, L, LINE, L)**:
The left edge of every lexical word must align with the left edge of a line.
b. **CADENTIALITY**: a line must be cadential **(CAD)**

CADENTIALITY is evaluated according to the gradient scale.

Violations	Final pauses
√	trimoraic
*	bimoraic (a pause occurs elsewhere)
**	monomoraic (two-mora pauses occur elsewhere)
***	trimoraic pauses occur elsewhere

According to the above chart, a line that includes final pauses is the most optimal one. However, if a line has a bimoraic pause at the end and another pause that occurs elsewhere, it is not as qualified as the previous one. A line with a monomoraic pause at the end and a two-mora pause that occurs elsewhere has less degree of violation than one that does not have a pause at the end of a line and trimoraic pauses elsewhere. A seven-mora line that does not have a pause at the end, however, does not violate this requirement, since it is not a case described in the chart.

Lastly, Asano analyzes lines that have irregular moras, *jiamari* and *jitarazu*. Based on previous studies, such as Bekku (1977) and Yokoyama (1959), although *jiamari* is common, it is rare to have a line that is more than eight moras. Meanwhile, *jitarazu* as a whole is rare, which means that a line should have at least five moras. To account for cases of *jiamari* and *jitarazu*, Asano proposes the following constraints.

(32) a**. LINEBINARITY[COLON]**: lines must be binary under prosodic analysis (**LNBIN**)
b**. FILL STRONG POSITIONS**: fill the strongest positions in the line (**FILL**)

The first constraint, along with **FTBIN** and **CLNBIN**, ensures that every line consists of two colons, which in turn consist of four feet and, therefore, eight moras. This strong position, according to Asano, cannot be marked with stress, which is the case in English verse. Although the Japanese language does not have a metrical grid in which the highest level marks the strongest position, Asano argues that colons in the hierarchically organized structure are the strongest positions. Each colon must be filled with an overt mora. For a four-mora line, since the second colon consists of only covert moras, this is not an optimal output and therefore should be eliminated.

Asano's proposal of another level – the stanza level on top of the colon level – also extends from her phonetical experiment, which indicates that the third line in *tanka* is longer than the duration of nine moras, although native speakers perceive each line as an equal eight moras. The pause between the end of the third line and the beginning of the fourth line is longer than other lines as well, which coincides with Lehiste (1997)'s results. Therefore, Asano proposes a boundary between the third and fourth lines of *tanka*, which is the stanza level. Stanzas can consist of either two lines or three lines, depending on the total number of lines in the poem. In this line of thought, the rank of constraints is as follows. This rank of constraints, along with the prosodic structure proposal seen in (27), accounts for all of Asano's phonetical data.

(33) the rank of constraints in Asano's analysis

LNBIN/CINBIN/FTBIN/FILL/MINWD>
CONTIG/CAD>
ALIGN(LX.C)/DEP>
ALIGN (LX,LN)

Here, constraints that are separated by a dash, meaning that all of them are undominated at a certain level. Based on the hierarchy, **LNBIN/CINBIN/FTBIN/MINWD**, which are constraints to ensure the eight-mora template for each line, are ranked the highest. Ranked in the middle are constraints to ensure the location of pauses at the end of a line. Ranked at the lowest are constraints regarding the pauses within a line, either by controlling the pause itself (**DEP**), or the sequence of covert moras (**ALIGN(LX.C)**, **ALIGN (LX,LN)**). This constraint hierarchy indicates that the eight-mora template for each line is the most certain requirement in Japanese fixed verse, followed by the pauses at the end of the lines. However, since constraints that control pauses within a line are the most violable ones, it can be assumed that individual differences are most frequently observed for pauses within a line.

Asano's approach is based on actual phonetic data, therefore showing how some Japanese native speakers perceive poetic meter in the current era. However, because of the limited data, it is not clear if most Japanese speakers, especially those who undergo training in reciting haiku would follow this way of reciting. In fact, Asano proposed that reciting is based on the syntactic structure, which differs from Sakano (1992)'s argument. Although Asano's experiment was large in scale, with a total of twenty-five native speakers, it is still possible that there are disagreements or individual differences among native speakers. Even in terms of the aspects that most native speakers agree with, namely regarding the eight-mora template of each line, there was still one speaker who perceived this differently. In fact, he rejected the eight-mora template entirely, claiming that a pause exists after five-mora lines and is lacking after seven-mora lines. Despite the fact that he was only one person, this drastic difference in opinion suggest that further study is necessary.

Another problem is that Asano's approach is that it may not account for the duration of pauses (provided that the reader includes pauses) correctly for some *jiamari* lines, which turn into fixed lines under syllable-counting. For example, according to Asano, a *jiamari* line consists of two prosodic words in the 4+4 structure, as analyzed in (34).

(34) The analysis of a 4+4 structure consists of two prosodic words (Asano 2002: 113)

	/●●●●+○○○○/	**CIN BIN**	**FT BIN**	**MIN WD**	**CON TIG**	**ALIGN (LX.C)**	**DEP**	**ALIGN (LX,LN)**
a. ☞	[|●●|●●|][|○○|○○|]							****
b.	[|●●|●●|][|○○|○○|] [|××|××|]						*** *!	****
c.	[|●●|●●|][|○○|○○×|]		*!			*	*	****

This data reveals that (34c) contains one covert mora in the fourth foot following the two overt mora, therefore violates the requirement of **FTBIN**, which necessitates two moras per foot. In the sense that (34a) violates only a lower-ranked constraint (**ALIGN**) rather than the higher-ranked constraint **FTBIN**, it should be the optimal output. Therefore, this structure (4+4) is not expected to have a pause at the end of a line.

However, in the *jiamari* line (the second line of the haiku) below, the sequence /ii/ may be pronounced together to cause a contraction of the two sounds. Therefore, a native or near native speaker familiar with haiku may feel there is a pause at the end of the line even though the line consists of the 4+4 structure by two prosodic words. Alternatively, this same speaker may not consider this line to be *jiamari* at all. Here, "." Indicates a mora boundary.

(35) Na.su ya.i.te 'Eggplant roasting'
eggplant to roast

hi.ta.shi.te ta.ma.shi.i ‘cooling dead soul’
cool soul

no. ha.na.shi ‘talk’
the talk

(Ikeda Sumiko, *Well-Versed*: 205)

Clearly, Asano’s study assumes that metrical pause is the most important unit in Japanese poetry without considering other candidates. In fact, Asano goes as far as to claim that the strong metrical position in her poetic prosodic structure must be filled with an overt mora. However, even if metrical pauses do play a role in Japanese poetry, it is difficult to tell what role they play in Japanese language as a whole.

1.1.3.3 Other Proposals

A somewhat different proposal can be found in Zhang (2019). Zhang explores linguistic features that contribute to the formation of poetic meter through cross-linguistic comparisons of meters in different languages. He claims that most poetic meter in human language is achieved by artificially manipulating the suprasegmental features of the language to form a binary contrast. For example, in English, the contrast is a stressed syllable versus an unstressed syllable; in Russian, it is a long syllable versus a short syllable; in Sanskrit, it is a heavy syllable versus a light syllable. However, not all human languages possess an overt “linguistic property.” If a language lacks an overt property, a covert linguistic property can become overt in its stead through performance. Zhang (2009: 7) calls this a “performance of linguistic property.” He further argues that Chinese poetic meter is an example of this type of performance. Here, syllables are prolonged through

performance and forms contrast with normal syllables.[6] In Chinese recent-style verse, the tone contour of a level-tone syllable (or a *ping*-tone syllable) does not change after being prolonged. An oblique-tone syllable (or a *ze*-tone syllable), on the other hand, does change into a level tone after being prolonged.

Zhang further distinguishes two types of performance: reciting and chanting. Reciting is based on the syntactic structure, while chanting reflects the preset metrical template of the poem, or the underlying structure, exemplified for instance by the metrical grid proposed by Febb & Halle (2008). Zhang's proposal explains why the location and duration of pauses in Asano's experiment should correspond to the syntactic structure. Since native speakers nowadays recite poems rather than chant them, they end up with a syntactic rather than a prosodic structure of lines.

1.1.3.4 Meter and Performance

Incongruous with the Zhang (2019) and Kawamoto (2000) cases, in generative metrics, performance, such as recitation, is not incorporated into the metrical structure of a verse. For example, Jacobson (1960: 363) considers that patterns created by recitation are "variable delivery instances," which should be distinguished from "a variation of verse instanced within a given poem." The latter can be regarded as the rhythm of the verse, or deviations from the verse design, while still belonging to the poem. However, although performance is a singular event, a poem can be performed in many different ways.

When discussing the assignment of syllables to metrical weak or strong positions, Halle & Keyser (1971: 172) point out that those rules do not serve as instructions for poetry recitations.

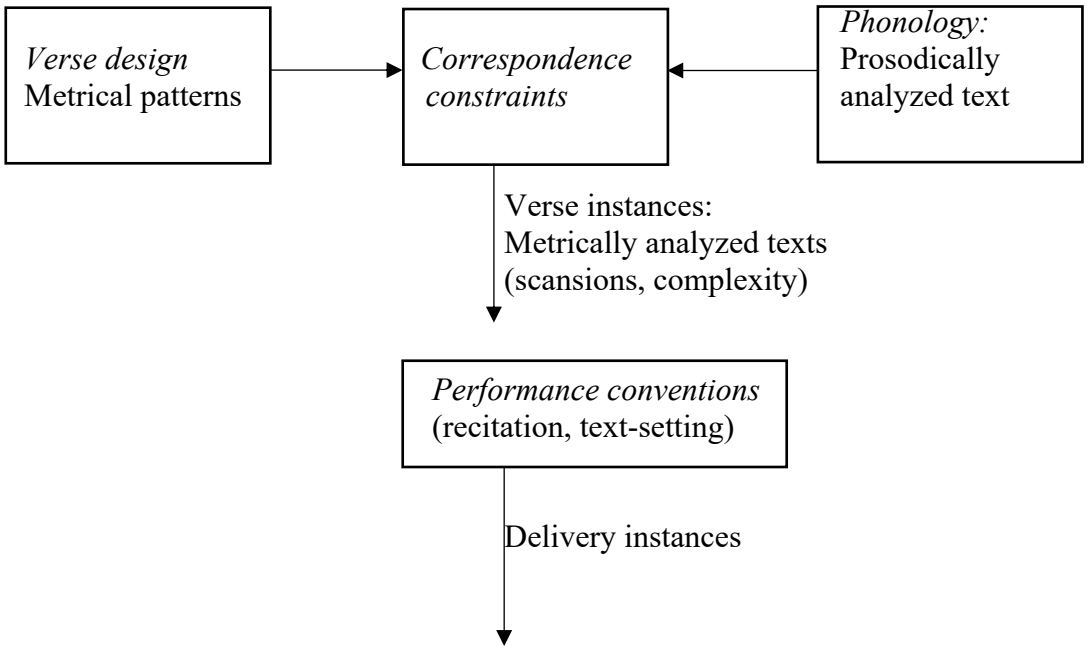
[6] Zhang claimed that it is important to distinguish different types of performance. The performance related to the poetic prosodic structure should include pauses after every two Chinese characters (or syllables). In contrast, the performance that refers to rhythm should insert pauses based on the syntactic structure.

Instead, they are “abstract principles of verse construction whose effect on the sound of the recited verse is indirect.” Similar to Halle & Keyser (1971), Kiparsky (1975) argues that it is meaningful to distinguish the methods of reciting a poem from its metrical structure when analyzing stress-based verse. Kiparsky (1975: 585) attributes the reason for this to the nature of stress language, stating, “unlike syllabic quantity, stress and especially sentence stress are highly variable in speech. Stress-based verse can therefore be recited in many ways.” That said, Kiparsky (1975) also admits that recitation can affect its metrical structure. He claims that in the case of English iambic verse, a different metrical pattern derives from the convention of recitation. Metrical tension is created from the mismatch between the underlying metrical pattern and the pattern created by recitation, and the reader can discern the different degrees of metrical tension based on whether the poem follows a strict meter (e.g., Shakespeare and Donne) or a loose meter (e.g., Dryden and Pope).

Febb & Halle (2008) take the perspective that the recitation of a poem is the same as the assignment of a melody to a text. This is to say, the metrical grid of a poem is different from the metrical grid when it is recited, since the two grids are formed by applying different rules.

Kiparsky (2020: 5) further develops the idea in Jacobson (1960) and proposes a mode to account for the relationship between meter, linguistic feature, and performance, which can be seen below.

(36) Kiparsky’s mode of meter, linguistic feature, and performance.



In this diagram, abstract metrical patterns are associated with linguistic features and structures are represented by sets of ranked constraints, which differ from language to language, under the OT framework. The output is metrically analyzed texts, which show whether or not the texts follow an abstract metrical pattern and the degree of its deviation from that pattern, also known as metrical complexity. Ultimately, delivery instances are created as a variation of verse instances (or earlier output) through performance, such as recitation and text-setting.

1.2 Descriptive Background: The Meter of English Sonnet

1.2.1 Introduction

The history of English sonnets can be traced back to the year 1557, when a collection of poetry called *Tottel's Miscellany* was published, including translations of Petrarch's Italian sonnet and sonnets composed by Sir Thomas Wyatt, Henry Howard, and a wide array of anonymous poets.

According to Holton (2011: 374), this poetry collection is "the first mass dissemination of sonnets in English." The sonnet form was later on developed by Elizabethan poets, such as Sir Phillip Sidney (1554-1586), Edmund Spenser (1552-1599), Michael Drayton (1563-1631), and Samuel Daniel (1562-1619). Because of his superior achievement in prosodic consistency, the creative period of the sonnet form ended when William Shakespeare (1564-1616) began writing (Levý 1971). Shakespeare was able to establish a standard for the English sonnet, which is also known under his name as the Shakespearean sonnet. The meter of this type of sonnet is iambic pentameter, which means that each verse's line consists of five iambic units, or feet. These in turn consist of an unstressed syllable followed by a stressed syllable (See (37)). It is said that Geoffrey Chaucer (1340-1400) was the first person to use iambic pentameter in his verse. After Shakespeare, it was John Milton (1608-1674) and John Donne (1572-1631) who further made metrical innovations in iambic pentameter (Wright 1988). Due to the limited rhyme vocabulary in English in comparison with Romance languages, the English sonnet did not follow the original Italian structure. Italian sonnet structure consists of two parts: an octave (the first eight lines) and a sestet (the last six lines). Its rhyme scheme is ABBAABBA CDECDE. English sonnets, on the other hand, consist of three quatrains and a couplet with a rhyme scheme of ABAB CDCD EFEF GG.

(37) An iambic pentameter line from Shakespeare's *The Merchant of Venice* (Kawamoto 2000: 184) ˘ indicates an unstressed syllable, and ´ indicates a stressed syllable, and | indicates a foot boundary.

˘ ´ ˘ ´ ˘ ´ ˘ ´ ˘ ´

In sooth | I know | not why | I am | so sad.

1.2.2 English Stress and the Metrical System of Iambic Pentameter

1.2.2.1 Stress and the Stress Rules in English Language

Stress is a linguistic feature, which refers to the "intensity of utterance given to a speech sound, syllable, or word producing relative loudness," or "a syllable having relative force or prominence."[7] There are different types of prominence, according to Goedemans & Van der Hulst (2003), which can incorporate "great loudness, higher pitch, greater duration and greater accuracy of articulation (most notably in vowels)."

As pointed out by Liberman & Prince (1977), English is a stress language. Therefore, it is not appropriate to argue that one must limit stress only at the level of the word and treat "sentence stress" as a phenomenon of pitch-accent placement. Accordingly, Liberman & Prince argue that stress within and beyond the word level has a pattern that is different from intonation contours based on the results of their experiments in production and perception. In English, there are varying degrees of stress. Chomsky & Halle (1968) and Kiparsky (1975) describe that English stress has four different degrees, which are primary, secondary, tertiary, and quaternary (zero) stress. Numerals are used to mark different degrees of stress, with the number one standing for the primary stress, such as can be seen in (38).

(38) Examples of stress marking system of Chomsky & Halle (1968: 16)

a. $^{1\quad 3}$ blackboard

b. $^{2\quad 1}$ black board

[7] "stress." *Merriam-Webster.com*. 2022. https://www.merriam-webster.com (13 October 2022).

Chomsky & Halle (1968) provide a comprehensive set of rules on stress assignment in English. First, there are prerequisites for assigning stress to a word. Stress can only be put on a vowel, and each word can only have one primary stress. Second, phonology and syntax play a role in stress assignment in English. Stress assignment rules are associated with phonology, because the part of the word that can receive stress depends on its segmental feature. For example, the primary stress should be put on clusters that have heavier syllable weight, known as "strong clusters." Detailed definitions of "weak clusters" and "strong clusters" can be found in Chomsky and Halle (1968: 29): the former is "a string consisting of a simple vocalic nucleus followed by no more than one consonant," while the latter is "a string consisting of either a vocalic nucleus followed by two or more consonants or a complex vocalic nucleus followed by any number of consonants." An example can be seen below.

(39) Stress assignment in strong and weak clusters (Chomsky & Halle 1968: 29)

a. ^{1}
kəlæps

b. ^{1}
develop

In (39a), "kəl" is a weak cluster, and "æps" is a strong cluster, since the former has a vowel followed by a consonant, and the latter has a vowel followed by two consonants. As the latter is heavier in syllable weight, the primary stress is assigned to the second cluster instead of the first. In (39b), the word "develop" ends in a weak cluster, "lop." The primary stress is not assigned to that weak cluster (syllable) but to the vowel before it.

The ways that syntax affects stress assignments in English can be observed from many aspects. For example, words that attract primary stress belong to certain lexical categories, such as verbs, adjectives, and nouns. An example is shown in (40) (Chomsky & Halle 1968: 27).

(40) $V \rightarrow [1 \text{ stress}] / X\text{-}\ C_0]_{NAV}$

Here, only the final vowel of a string in a noun, adjective, or verb receives the primary stress. Therefore, in the phrase "the book," the word "book" receives more stress than "the," since the former is a noun. Furthermore, syntactic structures also affect stress assignment. For example, compounds and phrases have various stress assignment rules, including the Compound Stress Rule (CSR) and Nuclear Stress Rule (NSR), which can be seen below in (41) (Chomsky & Halle 1968: 18).

(41) The Compound stress rule and Nuclear Stress Rule

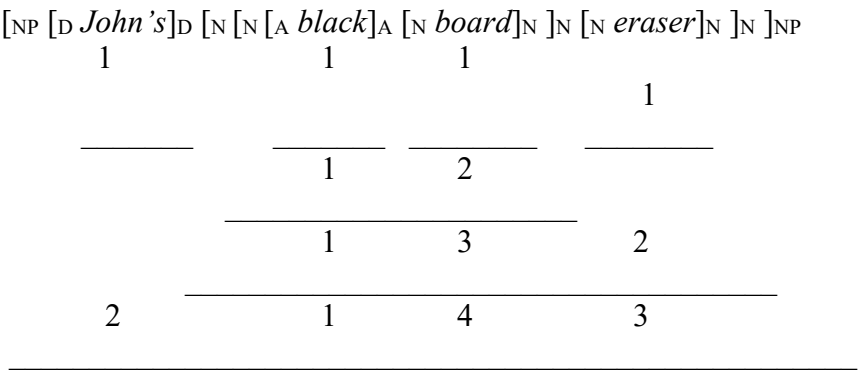
(a) compound rule
(b) nuclear stress rule

$$\begin{bmatrix} 1 \text{ stress} \\ V \end{bmatrix} \rightarrow [1 \text{ stress}] \left\{ \begin{array}{l} \underline{\quad\quad}\ldots \overset{1}{V}\ldots]_{NAV} \\ \overset{1}{V}\ldots\underline{\quad\quad}\ldots] \end{array} \right\}$$

This indicates that, in a compound, the primary stress is assigned to a primary-stressed vowel that is followed by another primary-stressed vowel (or the leftmost stressed vowel), such as in 41a). On the other hand, in a phrase, the primary stress is assigned to a primary-stressed vowel that is preceded by another primary-stressed vowel (or the rightmost stressed vowel), such as in (41b). According to Chomsky & Halle (1968), NSR and CSR are applied in a cyclic way. In other

words, they are first applied to the constituent that is embedded most deeply. After its application, the brackets surrounding that constituent are erased, and the rule reapplies to the next constituent that is embedded deeply. An example is shown in (42).

(42) How NSR and CSR are applied in a cyclic way (Chomsky & Halle 1968: 22)



Here, each cycle is indicated by different levels, and the first cycle is located at the uppermost position. The first cycle assigns the word stress. In the second cycle, the primary stress is put on "black" because of CSR, and the same rule applies to the most deeply embedded compound, "blackboard." After its application, the innermost brackets between "black" and "board" is erased. In the third cycle, since "blackboard eraser" is a noun, CSR applies again. The primary stress is placed on "black," and the other stresses are weakened by one, therefore generating the 132 contour. In the fourth cycle, the brackets between "blackboard" and "eraser" are erased. The whole structure counts as a Noun Phrase, which is preceded by the Determiner Phrase "John's." Therefore, NSR applies, and the rightmost primary-stressed vowel receives stress, and the contour becomes 2143. However, there are still some circumstances under which a segmental (or lineal) analysis applying NSR and CSR does not account for the stress assignment, such as in (43), which is caused by the English Rhythm Rule.

(43) Cases that can be accounted for by a segmental analysis applying NSR and CSR (Liberman & Prince 1977: 310).

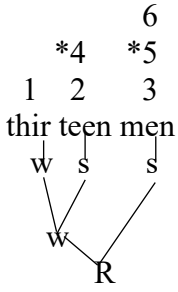
3 1
a. thirteen

2 4 1
b. thirteen men

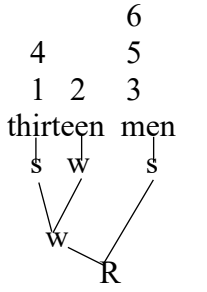
In (43b), the relative stress pattern is not preserved in the embedded structure. When in isolation, "teen" has prominence over "thir," but in (39b), "thir" becomes the more prominent syllable. Liberman & Prince (1977) provide a suprasegmental analysis to account for those exceptional cases. They argue that the representation of stress in English has a hierarchical structure, which is shown in (44).

(44) Liberman & Prince's analysis to account for the English Rhythm Rule (1977: 316)

a. input scansion



b. output scansion



Liberman & Prince (1977) argue that besides the first level of stress on "teen" and "men," there is another level (second level) of stress above them, which is represented by the numbers "4" and "5." In the input scansion, there are no interval elements on level one between "4" and "5." Therefore, a stress clash occurs, and in the output scansion, the secondary stress is retracted to the

first syllable of the word “thirteen,” and the first syllable of the word ends up having more prominence in stress over the second syllable.

In sum, as suggested by former studies (Chomsky & Halle 1968, Liberman & Prince 1977, Kiparsky 1975), syntax plays a significant role in stress assignments in English. For example, primary stress is limited to one per word; only the final vowel of a string in content words (e.g., noun, adjective, or a verb) receives the primary stress; and compounds and phrases have different rules of stress assignment (e.g., NSR and CSR). NSR applies in a cyclical way after the syntactic transformations at different levels. In addition, even within compounds, the main stress differs in compounds with different syntactic structures. For instance, the main stress falls on the head (e.g., headed) in an adjunct-head structure (e.g., big-headed), while the main stress falls on the argument (e.g., car) in an argument-head structure (e.g., car worker).

1.2.2.2 The Iambic Pentameter

It is important to note that, according to Kiparsky (1977), the pattern in (37) is only idealized and is relatively rare even in verses following the strictest verse. In most cases, lines deviate from the standard pattern in terms of both the number of syllables per line and the placement of stress. In English verse, there are four types of feet based on stress placement, which are iamb (weak-strong), trochee (strong-weak), anapest (weak-weak-strong), and dactyl (strong-weak-weak). An example of this can be seen below.

(45) iambic pentameter lines from Milton’s *Paradise Lost* (Kawamoto 2000: 184)

˘ ´ ˘ ´ ˘ ´ ˘ ´ ˘ ´
And God | said, Let | the wa | ters gen | erate
´ ˘ ˘ ´ ˘ ´ ˘ ´ ˘ ´
Reptile | with spawn | abun | dant, liv | ing soul |

˘ ´ ´ ´ ˘ ´ ˘ ´ ˘ ´

And let | fowl fly | above | the earth, | with wings

˘ ´ ˘ ˘ ´ ˘ ´ ˘ ´ ˘ ´ ˘

Displayed | on the o | pen fir | mament | of heav |en.

In (45), the second line begins with an inversion ("reptile"), in which the order of the unstressed-stressed syllables in the foot is reversed. Wright (1988: 9) claims that this inversion is "a standard variation for iambic pentameter," and Renaissance writers preferred to use this at the beginning of the line or in the middle, following a pause. The second foot in line three ("fowl fly") takes the structure of a spondee, which includes two strong beats. Since this is the second foot and the rest of the line consists of iambic foot, it does not interrupt the iambic feeling of the line. In the same vein, the second syllable of the spondee is not pronounced more strongly than the first syllable and fulfills the iambic requirement (Wright 1988). The second foot in the fourth line ("on the o") has one extra syllable and takes the structure of an anapest.

Wright (1988: 17) claims that iambic pentameter is complex in nature, since its use differs widely depending on the poet and that poet's stage in life. In fact, it may even vary in character from one literary era to another, resulting in more than one type. Therefore, to offer an account of English iambic pentameter proves difficult. Regardless, Kiparsky (1977: 189) argues that some deviations from the standard pattern in (37) are unacceptable. He claims that a distinction should be made between Shakespearean sonnets and those written by earlier poets, such as Wyatt and Surrey, who "experimented with other principles of versification than those came to prevail." To exemplify this, (46) shows the metrical variations in Wyatt's verse.

(46) Metrical variations in Wyatt's verse (Wright 1988: 33)

Trochees, some spondees and pyrrhics, a very occasional anapest; and some combinations that never became standard for iambic pentameter (for example, a monosyllabic third foot;

A pyrrhic foot followed by a trochee).[8]

To account for what is permissible and what is not in iambic pentameter then becomes important. Halle & Keyser (1971) point out that many former metrists, such as Bridges (1921) try to make such an account by proposing a definition of the norms and deviations that are allowed.

(47) Bridge's account for English iambic pentameter (Halle & Keyser 1971: 165-166)
a. A definition
A decasyllabic line on a disyllabic basis and in rising rhythm (i.e., with accents of stress of stresses on the alternate even syllables), and the disyllabic units may be called feet.
b. Three expectations that can be found in Milton's work
1) Expectations to the number of syllables being ten,
2) Expectations to the number of stresses being five,
3) Expectations in the positions of the stresses.
c. Allowable deviations
1) unstressed foot (pyrrhic)
2) heavy foot (spondee)
3) initial foot inverted (trochee)
4) verse-medial foot inverted (trochee)
5) extra slack syllable inserted verse-medially
6) dropping of verse-initial slack syllable (the W syllable, and the line becomes headless)

Halle & Keyser, on the other hand, argue that lines that include deviations in (47c) are sometimes not metrical. Take the following line (Halle & Keyser 1971: 167):

(48) Óde to the Wést Wínd by Pércy Bỳsshe Shélley
W S W S W S W S W S X

This line has an inversion at the beginning. It also has a spondee and two verse-medial trochaic substitutions, all of which are marked as permissible deviations in (47c). However, significantly, (48) is unmetrical. Halle & Keyser (1971) claim that the principles in (47) erroneously predict a line is metrical, because deviations in one foot are separated from deviations in adjoining feet. In

[8] A pyrrhic foot is a foot that consists of two weak beats or two unstressed syllables.

(48), it is the consecutive trochaic feet that make the line unmetrical. The line is only metrical if it has one trochaic inversion at the beginning of the line.

In addition to the permissible deviation in (47c), Jespersen (1933) observes that in most cases, major syntactic breaks (commas, semicolons, or periods) are associated with two types of admissible deviations. In most cases, a spondee is made up of two positions that are separated by a major syntactic break (see 49a, in which "ew" and "whi" forms a spondee). The internal trochaic substitution usually occurs after a major syntactic break, as in (49b). In (49b), there is an inversion that occurs after the period.

(49) Syntactic break and permissible deviations (Halle & Keyser 1971: 165&174)

a. Mapul, **tho**rn, bech, **hasel**, **ew**, whippeltree
W S W S W S W S W S

b. Appéare in pérson hére in cóurt. **Sílence.**
W S W S W S W S W S

Although stressed syllables can occur in a weak position, lines, such as the one in (48), remain unmetrical. Halle & Keyser (1971) argue that this is because in (48), there is a stress maxima (or "pércy," a stress syllable between two syllables that have lesser stress) occurring in a W position, which is not an admissible deviation. Therefore, they propose the rules in (2) to account for these deviations.

In contrast with Halle & Keyser (1971)'s proposal, Kiparsky (1977) points out that the location in which a word can occur in a metrical line is relevant to the rules of word boundaries, phrase boundaries, and stress assignment. Since it is only the lexical, or strongest, stress that can occur in the S position, metrical rules should refer to the word structure. Compared with

compounds and phrases formed by monosyllabic words, polysyllabic words have more restrictions on where they can occur in a verse line, as can be seen below.

(50) Metrical locations where words have different structures can occur (Kiparsky 1977: 191-192)

Word structure/type	example	Possible metrical position
Phrase formed by two monosyllabic words	tóngue-tied	WS or SW
Compound formed by two monosyllabic words	dark dáys	WS or SW
Polysyllabic words (including disyllabic words)	divine éye	WSW

For the three words in (50), “divine eye” can only occur in a WSW position, because the disyllabic word “divine” has a stronger stress on “vine.” This requires it to occupy the S position. On the other hand, since “tongue-tied” and “dark days” are composed of two monosyllabic words, it does not matter whether the lexical stress of each word occurs in an S position or not. Therefore, both words can occur in either a WS or SW position. Although WS is preferred for “dark days” since the primary stress occurs on the second syllable, SW is preferred for tongue-tied since the primary stress occurs on the first syllable. Based on the table above, although the lexical stress is required to occupy an S position, the metrically S position is by no means restricted. In fact, both stressed syllables and unstressed syllables can occur in this position.

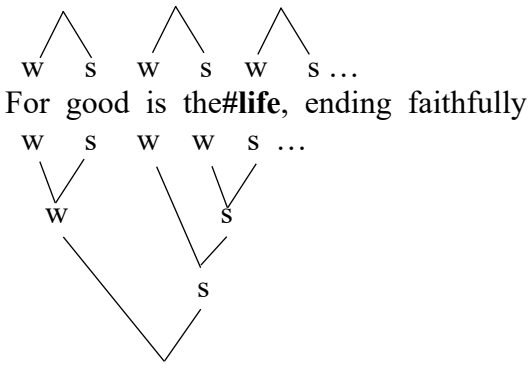
However, Kiparsky (1975: 583) argues that a metrically W position should be restricted by the following rules, which are also referred to as “the monosyllable rules.”

(51) Kiparsky’s Monosyllable rules

[4 stress] → [β stress] in env. { #___# (condition a); # P[#___ (condition b) }

According to the above rules, only under two conditions can a metrically W position be occupied by a stressed syllable. The first condition is when it is a monosyllable word (condition a). The second condition is when it is located at the beginning of a phonological word, or after a syntactic break located after a phrase boundary (condition b). In other words, a phrase can be a Noun Phrase, Verb Phrase, Adjective Phrase, or Prepositional Phrase. Based on the above restrictions, Kiparsky (1977) concludes that for a line to be metrical, its metrical structure must agree with its phonological structure, or the structure of stress, to some degree. In most cases, a line becomes unmetrical when the phonological representation is misbracketed or mislabeled. His structure shows that the boundaries of words and phrases play an important role when determining whether the line is metrical or not.

(52) a line that is avoided from Shakespeare's verse (Hayes 1983: 362)



In the above example, the syllable "life" occurs in a weak position. In the metrical tree, the bracket branches towards the right. In the phonological representation, the bracket branches

towards the left. Since there is only one word boundary between the syllable "life" and its preceding weak syllable "the," the line is perceived as unmetrical and is, therefore, missing from Shakespeare's verse. If there are two word boundaries between an S position and a previous W position, the line is perceived as metrical.

1.2.2.3 Iambic Pentameter and Historical Language Change

The emergence of iambic pentameter can be associated with the historical language change. In Middle English, there are some linguistic changes that occurred, one of them being the leveling of inflections. In Old English, nouns, adjectives, determiners, and verbs were inflected. According to Starr (1970), the loss of inflections in Middle English resulted in the obscured distinction between the primarily and secondarily accented syllables. In Starr's (1970: 5) words, this phenomenon encourages "the iambic pattern and alleviat[es] the need for distinguishing between primary and secondary accents within words." In short, due to the leveling of stresses, in which the distinction between the primary and secondary stress was lost, there emerged a need to compensate for the lost aesthetic. This is important to note, because it reveals a necessity for a system that can convey the proper reading and variations (e.g., distinguish word category by the location of stress) in order to achieve aesthetic effects. It is also salient to note that the Old English alliterative verse lost its popularity due to the linguistic change. Below is an example of such an alliterative verse:

(53) An example of alliterative verse in Old English (Cooper 2017: 19)
fēondes **f**ā̆cne, | **f**olcstede gumena
'by the enemy's deceit, | the dwelling-place of men'

In this example, | indicates a caesura, or a theoretical division in the line. On either side of the caesura, two prominent syllables must occupy strong metrical positions. The syllable in bold after the caesura is called the primary alliteration position, which controls the alliteration of the whole line. In this verse, the first three words show an alliteration of the first letter, “f.” At least one of the two prominent positions in the first half of the line must alliterate with the primary alliteration position.

The linguistic property of Old English was ideal for the composition of alliterative verse. In Old English, word order was flexible, providing poets the ability to shift words to fit different positions of a line without the risk of confusing meaning. In addition, an alliterated syllable always has the primary stress. In Old English, the primary stress always occurred on the first syllable of a word, therefore serving as the base to support this alliterative verse form.

The loss of inflections in Middle English, however, led to an increasingly strict word order. Furthermore, unlike in Old English, conveying meaning in Middle English was largely dependent on word order. Therefore, poets had less freedom in terms of the location in which they placed words.

Chapter 2. Methodology and Data

2.1. Methodology and Analytical Steps

As mentioned previously, the aim of this dissertation is to argue that the English metrical system cannot account for cases in Chinese and Japanese. This is because the English case makes use of a linguistic feature that forms a strong vs. weak contrast. However, a similar feature does not exist in Chinese language. As for Japanese, although a similar feature exists, it cannot be used to form its metrical system.

As the theoretical background for analyzing data, especially when discussing the formation of metrical systems in Chinese and Japanese, this dissertation largely refers to findings from generative metrics. According to Kiparsky (1975: 580), there are four components when forming a metrical system or the theory of English metrics, including "an inventory of basic patterns," "a set of metrical rules," "an index of metrical tension," and "a set of prosodic rules." Metrical rules indicate how the actual metrical patterns derive from the basic or idealized pattern, while prosodic rules state how derived metrical patterns match certain linguistic features. For example, although stress is relevant to the metrical structure in English, not all types of stress are treated as metrically significant. In fact, only the primary stress is counted for metrical purposes. Therefore, meter is different from phonology in the sense that it has its own rules. However, the formation of these metrical rules should be based on the phonological rules in the target language. In English, syntax also plays a role in meter, because it affects stress assignment in words, phrases, or sentences.

Besides generative metrics, or the generative approach to metrics, this dissertation also adopts the Russian method, which is a quantitative approach that has been frequently applied in studies of Russian verse (Blumenfeld 2016: 421). This method compares lines from verse and prose that fulfill undominated metrical requirements. In order to elicit the metrical norm of English

iambic verse, Tarlinskaja & Teterina (1974) compare lines from English verses with strict iambic meter and those with loose iambic meter and decasyllabic segments from English prose. According to Tarlinskaja & Teterina (1974: 65), "the norm is assumed to be those accentual line variants which are most frequent statistically." Besides this norm, there is a "deviation from the norm," which "allows a narrower and a broader understanding." While narrower deviations are still treated as metrical, broader deviations are treated as unmetrical. Tarlinskaja & Teterina argue that analyzing lines from metrical verse and prose helps identify the "marginal threshold of a particular metre," which can further determine whether a line is metrical or not. Therefore, in order to elicit the "marginal threshold," a comparison should be made between lines from metrical verses and baselines, which are a type of line that shares a common feature with metrical lines but does not follow metrical regulations. For example, in English, the norm could be a line from Shakespeare's sonnet, and the baseline could be a ten-syllable line from prose.

Overall, this dissertation consists of three analytical steps. The first step is a descriptive study of meter in Chinese recent-style verse and Japanese haiku. This step consists of two stages. The first stage is to identify and describe the poetic unit that contributes to the formation of meter in each language. This may include the origin of the poetic unit and what linguistic features are associated with that unit. The second stage is to identify the metrical norm and the deviation from the norm in Chinese and Japanese meter. Determining the metricality of a line in Chinese recent-style verse is a more complicated task than in English. As Hayes et al (2012) indicates, a native speaker of English should have some metrical intuitions, even if he is inexperienced in reading English poetry. This is because although stress rules in English have changed over time, they still exist in present-day English language. Therefore, meter based on stress is easier for native or near native English speakers to discern. On the other hand, Chinese recent-style verse was composed

mainly during the Tang dynasty (618-907) and based on Middle Chinese tones, which have been lost in modern Chinese due to tonal splitting and merging. Therefore, it is difficult for modern Chinese speakers' ears to judge whether a line is metrical or not. That said, studying metrical rules in Chinese recent-style verse is still possible with the use of poetic anthologies and dictionaries that mark Middle Chinese tones.

According to Duanmu (2005: 2), the actual data on Chinese recent-style verses shows great deviations from the canonical tonal pattern, or norm. His analysis of tonal patterns in *Three Hundred Tang Poems* 唐詩三百首 indicates that "only about 32% of the lines and 1% of the poems meet the strict version of the tonal requirements, according to which every syllable must use a designated tone."[9] On the other hand, "95% of the lines and 68% of the poems satisfy the relaxed version of the tonal requirements, according to which the tonal choices for the first, third, and fifth syllables of a line are more flexible." Therefore, although the norm can be derived from previous studies, identifying the "marginal threshold" of that norm can prove difficult. Following Song & Zhang (2015), if recent-style verse serves as the norm or the narrower deviation from the norm, the baseline for comparison should be ancient-style verse, which has the same structure as recent-style verse without any tonal regulations.

To explore the nature of meter in Chinese recent-style verse, I elicit the "marginal threshold" by analyzing the tonal patterns of recent-style verses composed by representative early Tang poets. The Tang period was a crucial time for Chinese recent-style verses, because it marked the beginning of the establishment of its meter. There are several reasons to focus on individual poets

[9] *Three Hundred Tang Poems* is composed by the Qing Dynasty scholar Sun Zhu 孫洙 (1722-1778). According to *"Three Hundred Tang Poems."* University of Virginia Library. 2022. https://cti.lib.virginia.edu/frame.htm (18 October 2022), it does not only present classical poetic forms equally (e.g., *guti shi* 古體詩 ancient-style verse, *yuefu* 樂府 folksong style, regulated verse, and *jueju* 絕句 quatrain) but also selects the best works written by the most prominent Tang poets.

rather than poetry anthologies, such as *Three Hundred Tang Poems*. First, intensive studies have focused on the idealized or standard patterns of Chinese as opposed to the meter of individual Tang poets. Second, discussing various poets' meter individually can provide a clearer picture of metrical variations. As revealed in studies of English meter, such as Kiparsky (1977) and Hayes (1983), different poets may have their own rules when composing metrical verses. Milton's sonnet, for instance, follows a stricter meter than Shakespeare's. While poems written by the four poets may be a small dataset, the aim of this study is not to exhaust all acceptable metrical patterns but to provide insight into the nature of metrical verse.

Then, Japanese verse is different from Chinese verse, since its poetic unit remains controversial. Therefore, this dissertation conducts a quantitative study that applies mora-counting and syllable-counting methodology following Starr & Shih (2019) on both early modern and modern haiku to confirm the prosodic unit that forms its meter. The "marginal threshold" in Japanese meter cannot be determined in the same way that it is in Chinese, since there is only one metrical requirement, namely the restriction on the number of prosodic units per line. Since any lines that fulfill this requirement are considered metrical, it is difficult to set a baseline for comparison. On the other hand, *jiamari* (hypermeter) lines deviate from the norm. If such lines appearing in haiku are examined, it is possible to determine to what degree Japanese meter permits deviation (e.g., the maximum poetic unit one metrical line can have).

Furthermore, this study examines the distribution of heavy and light syllables in *jiamari* (hypermeter) lines to continue the exploration of "marginal threshold." Through this examination, it is possible to confirm whether the Japanese metrical system (although limited to the case of *jiamari)* is formed by contrasting elements in various degrees of prominence. In Japanese, such a contrast is more likely established based on syllable weight (heavy vs. light syllables).

Significantly, *jiamari* lines tend to have heavy syllables and if a pattern in the distribution of the heavy and light syllables can be found, it is perhaps possible to compare the relationship between this system (at least as it applies with *jiamari*) to the English one.

After completing these two descriptive case studies, the second out of the three steps of this study is to summarize and discuss common and distinct features observed in English, Chinese, and Japanese cases, especially regarding the relationship between poetic unit and metrical system. This process will explore the questions, how does the poetic unit form the metrical system, and what linguistic feature of the language is significant for metrical purposes. Furthermore, the relationship between the metrical system and the prosodic system of each language is also discussed since they are closely related under the framework of generative metrics.

Utilizing the second step's findings, the last step involves evaluating the applicability of previous theories, especially those that apply a prominence-based (Weak vs. Strong) metrical template in the analysis of meter in different poetic traditions. The most significant of these theories belong to Febb & Halle (2008), Kawamoto (2000), Chen (1979), Duanmu (2004; 2016), and Kiparsky (2020). In addition, studies that take a slightly different approach, such as Zhang (2019), are also evaluated. Finally, an observation of the nature of metrical verse is made based on the linguistic facts in each of the three studied languages.

2.2 Data Description

Since intensive studies have been done on English sonnet, in this study, findings regarding metrical rules in English sonnet from previous studies are used when discussing the differences among English, Chinese, and Japanese metrical systems. According to Kiparsky (1977) and Hayes

(1983), the data available on English sonnets mainly extends from the analysis of major poets, such as Shakespeare, Milton, and Wyatt.

The Chinese poetic data in this study is derived from an online version of the *Anthology of Wang Bo,* the *Anthology of Luo Binwang,* the *Anthology of Shangguan Yi,* the *Anthology of Xue Daoheng,* and *Gushi shijiu shou* 古詩十九首 (*Nineteen Ancient Poems,* hereafter GSSJS).[10] This data includes pentasyllabic recent-style verses (both eight-line *lüshi* 律詩 and four-line *jueju* 絕句) from the following four poets: Wang Bo 王勃 (650-676), Luo Binwang 駱冰王 (640-684), Shangguan Yi 上官儀 (608-665), and Xue Daoheng 薛道衡 (540-609). Wang Bo and Luo Binwang are from the group called "the Four Paragons of the Early Tang," which abandoned the old *gongti*-style verse 宮體詩 and developed the recent-style verse. The poems of Xue Daoheng and Shangguan Yi are for reference purposes. Shangguan Yi created what is called *shangguan*-style verse 上官體 , a transitional style from the *gongti*-style to the recent-style verse. Following Song & Zhang (2015), GSSJS serves as baseline for comparison.[11] There are 19 poems in GSSJS, and 103 poems from the four poets. A more detailed description of the selection of poems is provided below in (1).

[10] Data is from https://ctext.org/searchbooks.pl?if=gb&remap=gb&searchu=%E7%8E%8B%E5%8B%83. Many thanks to professor Hongming Zhang, who provided notation of tones for poems of Wang Bo and Luo Binwang.
[11] GSSJS is an anthology of pentasyllabic verses that were most likely composed during the Han dynasty. According to Hsieh (1998), these verses are considered traditionally one of the earliest and finest examples of five-syllable verse. The authorship is anonymous.

(1) Chinese poets and poems selected for analysis.

Poets/anthology	Number of poems	Number of couplets	Number of lines
Wang Bo	53	180	360
Luo Binwang	36	132	264
Shangguan Yi	9	34	68
Xue Daoheng	5	14	28
GSSJS	19	127	254
Total	122	487	974

To check the tones of characters in Middle Chinese, this dissertation uses the following reference books: *Guangyun* 廣韻 *Kangxi Dictionary* 康熙字典, *Wangli guhanyu Dictionary* 王力古漢語字典(2000), and websites: www.zdic.net, https://xiaoxue.iis.sinica.edu.tw/zhongguyin, and https://ytenx.org/about. When checking the tones of characters in Middle Chinese, adjustments need to be made manually, because certain characters may have different readings based on the meaning or part of speech. For example, *qí* 騎 is marked with two different tones: a *ping* tone when it is used as a verb ('riding a horse') and a *qu* tone when it is used as a noun ('cavalry'). Therefore, its tone is determined by its part of speech based on the context.

To obtain a comprehensive picture of haiku meter, the Japanese data in this study incorporates two forms of haiku: early modern and modern. There are two reasons why these two types of haiku are selected. First, as mentioned previously, the modern Meiji period was both a period during which the distinguishment between two types of haiku was established and there was abundant borrowing of foreign words. Since foreign words (e.g., Chinese and English) are syllable-based, if incorporated into the composition of haiku, there may be a change in the poetic unit from early modern to modern haiku. In addition, the incorporation of foreign words into modern Japanese haiku may also change the patterns of syllable distribution in the two forms of haiku. Second, Takayama (2006) argues that the change in reciting *waka* before and after the Meiji

period led to changes in the distribution of *jiamari* lines in *waka*. To examine whether there is a distributional change of *jiamari* lines in early modern and modern haiku can verify the role that performance plays in Japanese metrics. Furthermore, this serves as evidence to argue that Japanese metrical systems are different from English, since performance is not incorporated into the metrical structure of a verse in English under generative metrics.

The Japanese data in this study is selected based on three requirements. The first is to ensure that the data can be regarded as representative examples of haiku. The two anthologies in this study were selected, because they are collections containing poems regarded by many scholars as representative in the sense that these poems were selected by renowned scholars and poets. Moreover, the two anthologies cover an assortment of poems and poets. The early modern haiku in this study were sourced from Faubion Bowers's compilation, *The Classic Tradition of Haiku: An Anthology*, published in 1996. Unlike other haiku anthologies, the haiku in Bowers' book were selected and translated by a variety of top-tier scholars in the field, including both American and Japanese scholars studying haiku as well as haiku masters who published influential books about introductions of Japanese haiku and Japanese literature. The modern haiku in this study are sourced from Minoru Ozawa's book, *Well-Versed: Exploring Modern Japanese Haiku*, published in 2021. This book includes 300 haiku by 300 different poets who lived from the end of the 19th century to the beginning of the 21st century. The haiku were selected by Ozawa himself, who is currently a leading haiku poet in the field and serves as the editor for the haiku journal, *Sawa*. The translator of these haiku is Janine Beichman, who is a scholar specializing in Japanese poetry and has published biographies of renowned poets, such as Masaoka Shiki and Yosano Akiko. Moreover, Ozawa (2021: 6) strove to select a variety of haiku in his book that differ from each other in length and content. In terms of length, Ozawa includes both the orthodox 5-7-5 form, and even "free form

haiku," which is either shorter or longer than the orthodox form. In terms of content, Ozawa's compilation makes space for both "haiku with seasonal images (*yūki haiku*)" and "haiku without seasonal images (*muki haiku*)."

The second requirement that this study's Japanese data is based on involves the time span of the haiku that were selected. For early modern haiku, the data should cover the specific time period from its embryonic stage to its establishment in order to examine how its poetic form consisting of three lines and seventeen units evolved. When the first stanza of a linked verse was inverted, the predecessor of modern haiku, the early modern haiku, or *hokku*, was not considered an independent poetic form at its inception as in the case of the modern haiku. However, *hokku* became independent during the second half of the seventeenth century. The 231 poems by 48 poets included in Bowers' book covers a broad time span from the time immediately after linked verse is created (1488) until the death of the Japanese poet Shiki (1902), who invented the term haiku. That said, modern haiku data must additionally cover the time period after Meiji and up to the present era, since, as Shibata (2018) has observed, the Japanese rhythmic unit may have shifted to the syllable instead of the mora among younger poet generations (born in the Heisei 平成 period, 1989-). Therefore, it is important to select haiku by young poets, as well. Ozawa's book perfectly fulfills this requirement, since it is published in 2021 and includes recent poems.

Furthermore, to analyze the syllable distribution in *jiamari* lines, it is important to identify where these lines begin and end, which is difficult in some haiku anthologies. Both Bowers' anthology and Ozawa's book contain romanized Japanese of the original haiku with line breaks. Therefore, it is easy to identify the pronunciation of each word and where a *jiamari* line occurs. I will further discuss why the two anthologies were specifically chosen by making a comparison to other possible candidates in Chapter Four later.

Since a haiku is defined as a three-line verse, any verse that does not fulfill that requirement is not incorporated in this dissertation's dataset. 230 haiku are incorporated in the dataset from *The Classic Tradition of Haiku*, given that one of its verses (in the pattern 7-7) does not follow this requirement. In *Well-Versed*, there are three verses that are composed with either more than three lines or fewer than three lines (patterns 7-3-4-5, 3-4-7-5, and 9). Therefore, only 297 haiku from this compilation are incorporated in this dissertation's dataset.

This dissertation first analyzes all 527 haiku using only a mora-counting method, only a syllable-counting method, and a combination of the two to identify the poetic unit. Moreover, only *jiamari* lines that have five units in the first and third lines, seven units in the second lines are elicited under a syllable-counting method[12]. In addition, this dissertation analyzes the heavy-light syllable distribution patterns of poems. A syllable-counting method is applied to select *jiamari* lines, because the heavy-light contrast is only available when the counting unit is a syllable. There is no such difference under a mora-counting method, since a heavy syllable is treated as having two moras and a light syllable is treated as having one. However, this contrast only exists among the number of moras, not regarding prosodic prominence. As the inconsistency in poetic units results in inconsistencies in how prosodic prominence is defined under the combination of mora-counting and syllable-counting, this combined counting method should be avoided. Lines that become regular under a syllable-counting method are the final examined component, since only those lines are considered haiku lines, based on the definition of this study.

Although the Chinese and the Japanese data are derived from different periods, the two data sets are comparable, because they both cover the period during which meter of a metrical verse began to be established. In addition, as mentioned previously, both Chinese and Japanese

[12] *Jiamari* lines in this study are defined as lines with extra units when under a mora-counting method, which is the most widely shared definition among scholars.

data sets are regarded as representative works of their meter. Like the English data set, the Chinese data set incorporates the works of four major poets, since these individual poets' practices contributed to the formation of Chinese recent-style verse. The Japanese data set, on the other hand, incorporates both major and minor poets, since individual poets did not invent metrical rules (e.g., the 5-7-5 meter). Rather, metrical rules were a shared consensus among various poets, though these poets may have perceived poetic units differently. For example, according to Shibata (2018), due to linguistic changes, younger generations (born after 1989) have different perceptions of the poetic unit in comparison with older generations.

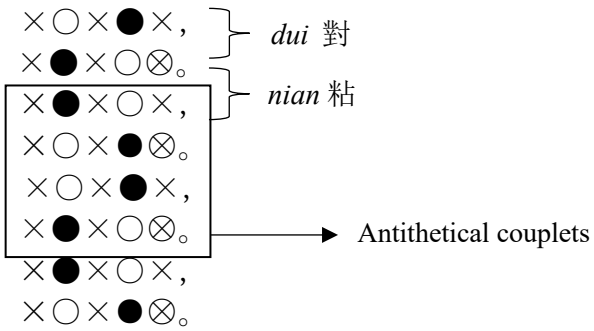
Chapter 3. The Meter of Chinese Recent-style Verse: *Jinti shi*

3.1 Introduction

Chinese recent-style verse is a highly schematized poetic form that emerged in the Tang dynasty, which takes the form of five or seven characters per line, and strict tonal regulations for each character. Since each Chinese character corresponds to one syllable, a five-character line is also referred to as a pentasyllabic line, and a seven-character line is referred to as a heptasyllabic line. Based on the number of lines per verse, the recent-style verse can be divided into three categories: *jueju* 絕句, which is made of four lines, *pailü* 排律 is made of more than eight lines, and *lüshi* 律詩, which is made of eight lines. The ancient-style verse, or *guti shi* 古體詩, also consists of eight lines per poem and five or seven characters per line, but does not contain tonal regulations.

The eight lines of *lüshi* 律詩 can be further divided into four couplets, or two quatrains. The four lines in the middle of an eight-line poem then must form two antithetical couplets. This entire structure is indicated in (1).

(1) The structure of *lüshi* (○and ● indicate different tonal categories, and ⊗ indicates a rhyme)



Here, each line of the verse follows a fixed tonal pattern, which consists of the alternation of a level *ping* 平 tone and an oblique *ze* 仄 tone. A consistent rhyme (usually utilizing characters with a *ping* tone) is implemented at the end of the second, fourth, sixth, and eighth lines. The second, fourth, and sixth characters within the same couplets have opposite tones, which is the requirement of *dui* 對. Meanwhile, the second, fourth, and sixth characters in the last line of a prior couplet and in the first line of the following couplet should have the same tones, which is the requirement of *nian* 粘.

In an antithetical couplet, two lines form a symmetrical structure at three levels. The first is the level of tonal pattern, which is fulfilled by the requirement of *dui* and *nian*. The second is the level of rhythmic pattern, in which two lines should have the same syntactic structures. The third is the level of lexical antithesis, which can be observed in two aspects. These aspects include the fact that the corresponding characters have the same part of speech and that characters are selected from "the same category as prescribed by tradition" (Barnstone & Chou 2005: lxiii). An example of this can be seen in (2).

(2) Example of an antithetical couplet (Barnstone & Chou 2005: lxiii):

感	時	//	花	/	濺	淚	A time so bad, even the flower rain tears.
touched(by)	time		flowers		splash	tears	
恨	別	//	鳥	/	驚	心。	I hate this separation, yet birds startle my heart.
Hate	separation		birds		startle	heart	
Verb	Noun		Noun		Verb	Noun	

Here, the syntactic patterns are indicated by //, which divides the line into two different sentences, and /, which separates the subject from the predicate. Besides having the same syntactic

structures, the lexical antithesis can be observed in characters, such as *lei* 淚 (“tears”) and *xin* 心 (“heart”), which are both nouns that describe human feelings.

As indicated in (1), tonal regulations are the dominant metrical requirement in Chinese recent-style verse. There are four tones in Middle Chinese, which are the level *ping* 平 tone, the rising *shang* 上 tone, the departing *qu* 去 tone, and the entering *ru* 入 tone. The *ping* tone belongs to the *ping* (level) tonal category, while the other three tones belong to the *ze* (oblique) tonal category. The alternation of the two categories in a fixed pattern fulfills the metrical requirement of Chinese recent-style verse.

This chapter focuses on 1) a description of the linguistic features of Middle Chinese that are associated with the poetic unit in Chinese recent-style verse and 2) the elicitation of the “marginal threshold” through a data analysis of recent-style verses written by four early Tang poets and their comparison with GSSJS.

3.2 The Poetic Unit and Its Formation

3.2.1 Establishment of Four Tones

As indicated in previous studies, tone is the poetic unit in Chinese recent-style verse. In Mandarin, or Standard Chinese, syntax plays a more limited role in tone assignment. This is because tones are assigned individually to each character or syllable. In some special cases, the original tone changes when combined with other tones, and the change is discussed by referring to syntactic structures. For example, the third tone sandhi is under intensive discussion.

The third tone sandhi refers to the case when two third tones are put together and the first tone changes into the second tone. This is shown in (3).

(3) The third tone sandhi rule in Mandarin (Zhang 2017: 105)

T3→ T2 / ____ T3

However, when more than two third tones are put together, the output tonal patterns are not always the same. This is shown in (4).

(4) different tonal patterns when three third tones are put together (Zhang 2017: 106)

a. ling-dao dang [[領導]黨]
lead party
'to lead the party'
T3 T3 T3 →
T2 T2 T3

b. dang ling-dao [黨[領導]]
party lead
'the party leads'
T3 T3 T3 →
T3 T2 T3

According to Zhang (2017), the difference between (4a) and (4b) is that (4a) is a syntactic phrase while (4b) is a syntactic word. It is important to identify the domain in which rule (3) applies to explain why the two ended up in different tonal patterns.

It is obvious that (4a) and (4b) differ in syntactic structures. Provided "[ ]" indicates the domain that rule (3) applies, this explains why the tonal patterns in (4a) and (4b) vary. In (4a), rule (3) first applies in the embedded structure [領導], therefore generating the T2+T3 pattern. The rule then applies again in an entire phrase, therefore changing [導] into T2. On the other hand, in (4b), rule (1) first applies in the domain [領導] and generates a T2+T3 pattern. However, since the

second T3 changes to a T2 and the first T3 is no longer in front of another T3, the original tone is preserved. Therefore, the tonal pattern ends up being T3+T2+T3.

According to Zhang (2017), the different tonal patterns are generated because rule (3) applies in different modes (e.g., cyclic mode and from left to right) in different phonological domains. The cyclic mode applies to prosodic word, clitic group, and phonological phrase, and the left-to-right mode applies to intonational phrase. As mentioned previously, phonological domains are spaces in which phonological rules apply. These domains are organized in a hierarchical way that forms a phonological hierarchy, which differs from language to language. For example, the foot is not a prosodic unit in Mandarin (Zhang 2019), but it is included in the prosodic hierarchy of English. According to Hayes (1989), the prosodic hierarchy refers to the bracketing of the syntax, but it is not completely identical. Based on the above, tones in Mandarin do not seem to significantly rely on syntax when compared with English stress, provided the accuracy of the statement that syntax plays a role in English stress assignment.

The second, and perhaps the most significant, difference between stress and tone is whether there is a prominent syllable (stress) in each word. As a tonal language, syllables in Mandarin (or standard Chinese) do not possess the same features as English, which has a prominent syllable (e.g., stressed syllable) and a non-prominent syllable (e.g., unstressed syllable). However, Duanmu (2004) argues that both Mandarin and Classical Chinese are stress languages. In fact, he claims that the two languages share the same rules of stress assignment as English, as shown in (5) (Duanmu 2004: 56).

(5) Duanmu's two assumptions about stress in Chinese.

a. As in English, Chinese grammatical words have less stress than content words.

b. Classical Chinese has the same compound and phrasal stress rules as Modern Chinese or English (because there is no literature on stress in classical Chinese).

Here, Duanmu claims that Mandarin shares the same stress rule as English for compound and phrasal stress. An example he (2004: 73) provides for this is "contrastive stress," which places emphasis on "a syntactic constituent that carries more information than its neighbor(s)." Due to this principle, which Duanmu calls "the Information-Stress Principle", the syntactic non-head should carry stress, since it holds more information than its syntactic head. With phrasal stress, if there is a word in a phrase that carries special focus or emphasis, it is stressed. This stress can override the non-head stress rule mentioned previously. However, since whether or not there is a special focus or emphasis depends on the phrase, Duanmu claims that phrasal stress should be flexible.

Duanmu's "Information-Stress Principle" possesses several problems. Even if it can be agreed upon that Chinese words bear stress, it is not clear how non-head stress is represented phonetically. Second, because of its nature to stress the special focus or emphasis of a phrase, the phrasal stress seems more pragmatic than inherent. It is therefore doubtful whether this stress can be used to form Chinese poetic meter, since every speaker may stress phrases differently based on his understanding.

In addition, Duanmu claims that the first syllable bears the main stress in Mandarin disyllabic words. He provides these disyllabic words with a neutral tone at the second position (e.g., luóbo 'radish') as evidence to argue that word stress in Chinese is put on the first syllable instead of the second. However, disyllabic words with a neutral tone at the second position occupy only a very small portion of the Chinese lexicon.

In terms of Classical Chinese, it is not clear whether or not a tone sandhi existed in Middle Chinese and whether the change of tones due to this existence is taken into consideration when composing Chinese recent-style verse. Mei (1977) claims that the third tone sandhi can be traced back to 16th-century Pekingese (or Northern Mandarin) using evidence from Korean language. Whether his argument is reliable or not is a topic beyond the scope of this dissertation. However, the lack of literature that discusses tone sandhi during the Tang dynasty and its relationship with recent-style verse perhaps suggests that this phenomenon is not an issue for poets. It is more likely that these poets use the original tone of each character when composing Chinese recent-style verse.

According to Mei (1970), the features of the four tones in Middle Chinese are described as follows:

(6) The characteristics of the four tones in Middle Chinese (Mei 1970: 104)

a. *Ping* 平 level tone: long, level, and low, with a higher and a lower allotone.
b. *Shang* 上 rising tone: short, level, and high, its lower allotone having merged with the departing tone.
c. *Qu* 去 departing tone: slightly drawn out and hence longish, and probably high in pitch and rising in contour
d. *Ru* 入 entering tone: short, with uncertain pitch and contour

The four tones emerged from the loss of final laryngeals, which is a process of tonogenesis.

Although Old Chinese was toneless, there was a consonantal distinction at the end of each syllable. When this distinction was lost, it resulted in the emergence of tones. The loss of voiced final syllables led to the level tone, the loss of the final [-ʔ] and glottalized sonorants led to the rising tone, the loss of the final [-h] led to the departing tone, and the loss of the final [-p],[-t],[-k] led to the entering tone, which was developed at a much later stage. According to Boer (2010), a glottal stop [-ʔ] causes a rise in pitch, and a [-h] causes a fall in pitch on the preceding vowel, which

occurs in Arabic. Therefore, it is fair to assume a similar phenomenon explains the formation of rising and falling tones in Chinese. Below are descriptions of the four tones in Middle Chinese (Boer 2010: 339).

(7a) 平聲者哀而安[13] The level tone is sad and calm
上聲勵而挙 The rising tone is fierce and rises
去聲清而遠 The departing tone is clear and distant
入聲直而促 The entering tone is straight and abrupt

(7b) 平聲平道莫低昂[14] The level tone is said level without low/fall or high/rise
上聲高呼猛烈強 The rising tone is called out high/loud, fierce and strong
去聲分明哀遠道 The departing tone is said clear, sad and distant
入聲短促急収蔵 The entering tone is short and quick and suddenly stored up

From (7a) and (7b), it is clear that the difference between the four tones is their tone contour, which is a suprasegmental variance. There is a segmental variance between the entering tone and other three tones, since the former is described as "short." However, from Mei's description in (6), there is clearly a length, or segmental, variance. Namely, the level and departing tones are long, but the rising and entering tones are short. Another variance, specifically suprasegmental, appears in the tone height. In other words, the level tone is low, the rising and departing tones are high, and the entering tone is unknown.

3.2.2 The Level and Oblique Tonal Categories

[13] Shi, Chuzhong 釋處忠, *Yuanhe yunpu* 元和韻譜(Mid Tang dynasty).
[14] Shi, Zhenkong 釋真空, *Yu yaoshi* 玉鑰匙 (Ming dynasty).

Although there are four tones in Middle Chinese, only two of them (*ping* and *ze*) are relevant to the metrical system of Chinese recent-style verse. This said, why is the contrast made between *ping* and non-*ping*, rather than *ru* and non-*ru, shang* and non-*shang*, or *qu* and non-*qu*? What are the linguistic features that make it possible to distinguish between tones?

A few researchers attempt to distinguish the level and oblique tones based on tone contour and syllable length. For example, Lorentz (1980: 86) highlights the controversies on the exact phonetic basis for the distinction of the two tones, while also suggesting that "the level tone, *ping*, [may have been] distinguished from the 'oblique tone, *ze*, by both the opposition long vs. short and level vs. contour at some time during the development of the language." More specifically, Chen (1979: 372) postulates that the level tone "has a steady-state pitch throughout the syllable," while the oblique tone exhibits "a rising and/or falling contour." In terms of long and short distinctions, level and oblique syllables "were used with a high degree of consistency to transcribe the long and the short vowels in the Sanskrit original, respectively" (Chen 1979: 372-373).

Boer (2010: 38) claims that level and oblique tones are marked by a difference in syllable length. The level tone is unchecked (CV), while the rising tone (CVʔ), departing tone (CVh), and entering tone (CVp, CVt, CVk) are checked. This is consistent with the act of transcribing Sanskrit into Chinese, since the level tone was originally "the favored indicator of vowel length." The rising tone was then favored for transcribing short vowels, although at times the entering tone was used for short vowels, as well.

On the other hand, Zhang (1987a) claims that the correspondence between the long and short distinction of the four tones and the transcription of Sanskrit vowels is not as solid as Chen (1979) suggests. Due to the different linguistic properties of Sanskrit and Middle Chinese, it is difficult to establish a consistent way of transcribing Sanskrit vowels using the four Middle

Chinese tones. For instance, Sanskrit vowels differ from each other in length and pitch accent, while Middle Chinese vowels differ from each other in tonal categories. With Sanskrit vowels, there are four combinations derived from the two differences: a short vowel with a high pitch, a short vowel with a low pitch, a long vowel with a high pitch, and a long vowel with a low pitch. However, the four tones in Middle Chinese cannot perfectly match these four combinations. Characters with level tones were used to transcribe both Sanskrit short and long vowels with different pitches. More specifically, the raising tone and entering tones were used for short vowels with different pitches, while the departing tone were used in the same way with level tones.

Zhang claims that the level vs. oblique opposition in Middle Chinese was established as a result of tone contour. According to him, poetic theories from the Middle Chinese period contain a detailed description of tone contours rather than the long and short distinction. Even when the long and short distinction was mentioned, such as in (7a) and (7b), it occurred between the entering and non-entering tone rather than the level and oblique tone. In addition, the length distinction is a subsidiary feature caused by the difference in final syllables, since only the entering tones are placed on final syllables ending in a stop (e.g., -p,-t,-k). Zhang, therefore, concluded that the four tones are either divided based on tone contour (level tone vs. oblique tone), which indicates a suprasegmental variation, or syllable length (entering tone vs. non-entering tone), which indicates a segmental variation.

Zhang (1987b) further summarizes the features of the four tones in Middle Chinese by listing the segmental and suprasegmental variations (which he names “overt features”) and the covert features. As he later further explains in Zhang (2019: 7), the overt features correspond to a “linguistic property,” while the cover features correspond to a “performance of a linguistic property.”

(8) Properties of the four tones in Middle Chinese (Zhang 1987b: 54)

linguistic classification								
feature / tone / value / class / contour			overt features					
			segmental features		suprasegmental features		covert features	poetic prosodic classification
			duration	syllable structure	contour	pitch		
ping		low-level	long	live syllable	level intonation	low	whether can be prolonged	
sha ng		High-rising			non-level intonation	high	can be prolonged	*ping*
qu		High-falling					cannot be prolonged	*ze*
ru		mid-high-rising, checked- tone	short	dead syllable				

As Zhang's chart indicates, the contrasts between level and oblique tones consist of three different types. The first type is a covert feature, which indicates whether or not a sound can be prolonged without changes in tone contour. Only a level tone can be prolonged while maintaining its original tone contour since it is flat. Oblique tones, on the other hand, cannot be prolonged without changing their tone contours since they are not flat initially. The other two types of contrasts consist of overt suprasegmental features, which juxtapose tone contour and tone height. Zhang further mentions that the distinctions between level and oblique tones are made on a suprasegmental level, which differs from the categorization of the four tones. In a four-tone system, the differences between tones are made on both segmental and suprasegmental levels.

Based on the above studies, syllable length should not be the only element used to distinguish the level tone from the oblique tone. If syllable length must be used as the standard to distinguish two tones, as Chen, Boer, and Lorentz claim, the distinction should instead be made between entering and non-entering tones. In addition, it is salient to highlight that this type of segmental feature is not related to the poetic meter. As Zhang (1987: 55) claims,

(9) 因此,可以構成聲律模式的語言要素往往是能夠控製整個音節聲音形狀的超音段成分,
而非只影響音節中某一部分音色的音段成分。

Therefore, the linguistic property that contributes to poetic prosody is only the suprasegmental element that can control the shape of the entire syllable; not the segmental element that only influences part of the syllable.

According to Gu (1987), the counters of level and oblique tones in Chinese rhyme dictionaries are described as follows:

(10) 平，正也[15]。 "*Ping* is flat, not slanted"
仄，側傾也[16]。"Ze is slanted"

Gu states that the alternation of the sound's flat and slanted shape creates a fluctuating effect, which forms the metrical structure of Chinese recent-style verse. It is through the distinction between level and oblique tones that this effect is achieved.

3.3 Metrical Structure of Chinese Recent-style Verse

3.3.1 The Canonical Patterns

The canonical tonal patterns of Chinese recent-style verse, according to Wang (2009), can be seen in the chart below. Wang points out that the basic or idealized patterns are epitomized by patterns 1 and 3 of pentasyllabic verse and patterns 2 and 4 of heptasyllabic verse. All other patterns are derivations of these two sets of patterns.

(11) The canonical tonal patterns of Chinese recent-style verse (Wang 2009: 25-27)

[15] *Guangyun* 廣韻, 1007-1008.
[16] Xu, Shen 許慎, *Shuowen jiezi* 說文解字, Eastern Han dynasty (202 BC-220).

	Pentasyllabic verse	Heptasyllabic verse
Pattern 1	- - - v v v v v - - v v - - v - - v v - - - - v v v v v - - v v - - v - - v v -	v v - - - v v - - v v v - - - - v v - - v v v - - v v - v v - - - v v - - v v v - - - - v v - - v v v - - v v -
Pattern 2	- - v v - v v - - v v v v - - - - - v v - - v v - v v - - v v v v - - - - - v v	v v - - v v - - - v v - - v - - v v v - - v v - - - v v v v - - v v – - - v v - - v - - v v v - - v v - - - v v
Pattern 3	v v - - v - - v v - - - - v v v v v - - v v - - v - - v v - - - - v v v v v - -	- - v v - - v v v - - v v - v v - - - v v - - v v v - - - -v v - - v v v - - v v - v v - - - v v - - v v v - -
Pattern 4	v v v - - - - - v v - - v v - v v - - v v v v - - - - - v v - - v v - v v - - v	- - v v v - - v v - - - v v v v - - v v - - - v v - - v - - v v v - - v v - - - v v v v - - v v – - - v v - - v

Here, “v” indicates a *ze* tone and “-” indicates a *ping* tone. The two patterns on the left side indicate the canonical tonal patterns of pentasyllabic verse, while the two tones on the right side indicate the canonical tonal patterns of heptasyllabic verse.

Wang (2009) claims that the above four patterns are derived from the combination of four basic tonal patterns of lines, which are shown in (12).

(12) The four basic tonal patterns of a line in Chinese recent-style verse (Wang 2009: 24 &27)

	Pentasyllabic line	Heptasyllabic line
Type 1	v v - - v	- - v v - - v
Type 2	v v v - -	- - v v v - -
Type 3	- - v v -	v v - - v v -
Type 4	- - - v v	v v - - - v v

According to Wang, the patterns of heptasyllabic lines are an extension of pentasyllabic lines. Namely, two extra characters are added in front of pentasyllabic lines. These two characters belong to the same tonal category but differ from the tonal category of the following two characters.

Ye (1987), on the other hand, claims that that both pentasyllabic and heptasyllabic recent-style verses exist, although one idealized pattern is used more frequently than the other. The more frequently used pattern differs in the two types of recent-style verse. Namely, the pentasyllabic verse begins with a *ze* tone, while the heptasyllabic verse begins with a *ping* tone, as can be seen below in (13a) and (13b).

(13a) Frequently used canonical pattern of pentasyllabic recent-style verse

v v - - v
- - v v -
- - - v v
v v v - -
v v - - v
- - v v -
- - - v v
v v v - -

(13b) Frequently used canonical pattern of heptasyllabic recent-style verse

- - v v v - -
v v - - - v v
v v - - v v –
- - v v - - v
- - v v v - -

v v - - - v v
v v - - v v -
- - v v - - v

3.3.2 The "Marginal Threshold" of Meter in Chinese Recent-style Verse

Duanmu & Stiennon (2005) have analyzed the tonal distribution of heptasyllabic recent-style verses in *Three Hundred Tang Poem*s. Their findings indicate that instead of following the strict tonal patterns seen in (12), most lines from the anthology follow the 1-3-5 rule to some degree, which allows tones in the first, third, and fifth positions to occur freely. Ripley (1989) has also conducted a corpus study to check the effectiveness of the 1-3-5 rule in pentasyllabic verses. While this study yields similar results as Duanmu & Stiennon (2005), Ripley's corpus is bigger in size and includes 464 poems by five Tang poets: 78 poems by Song Zhiwen 宋之問 (?-713), 84 poems by Zhang Yue 張悅 (667-730), 84 poems by Zhang Jiuling 張九齡(673-740), 134 poems by Meng Haoran 孟浩然 (689-740), and 84 poems by Wang Wei 王維 (699-759). The results of the two studies are shown in (14).

(14) Duanmu & Stiennon (2005) and Ripley (1989)'s studies regarding the match of line pattern

a. without the 1-3-5 rule (Duanmu & Stiennon 2005: 19)

Line pattern	Duanmu & Stiennon's corpus		Line pattern	Ripley (1980)'s corpus	
- - v v - - v	51	7.6%	v v - - v	480	12.9%
v v - - v v -	83	12.4%	- - v v -	744	20.0%
v v - - - v v	23	3.4%	- - - v v	249	6.7%
- - v v v - -	59	8.8%	v v v - -	385	10.4%
No match	456	67.9%	No match	1854	49.9%
Total	672	100%	Total	3712	100%

b. with the 1-3-5 rule (or if the 1-3-5 rule applies)

Line patten	Duanmu & Stiennon's corpus		Line patten	Ripley (1980)'s corpus	
- - v v - - v	117	17.4%	v v - - v	815	22%
v v - - v v -	199	29.6%	- - v v -	937	25.2%
v v - - - v v	100	14.9%	- - - v v	713	19.2%
- - v v v - -	194	28.9%	v v v - -	994	26.8%
No match	62	9.2%	No match	253	6.8%
Total	672	100%	Total	3712	100%

Duanmu & Stiennon's data further shows that the first, third, and fifth positions are not equally free. (15) shows the evidence for this (Duanmu & Stiennon 2005: 28).

(15) Rate of tone change in each position when compared to the canonical tonal patterns

Line pattern	S1	S2	S3	S4	S5	S6	S7	Lines
- - v v - - v	35.8%	1.7%	29.2%	2.5%	7.5%	1.7%	0.8%	120
v v - - v v -	43.0%	3.7%	2.8%	3.3%	15.4%	2.8%	0.5%	214
v v - - - v v	36.9%	4.9%	48.4%	3.3%	16.4%	13.9%	0.0%	122
- - v v v - -	45.4%	3.7%	58.8%	4.2%	2.8%	3.7%	0.5%	216
All	41.4%	3.6%	33.8%	3.4%	10.1%	4.9%	0.4%	672

After comparing the percentage of tone change in the first, third, and fifth positions, Duanmu & Stiennon (2005) claim that the first position is free, but the third and fifth position have some restrictions, which only allow them to change their tones freely as long as a pair of level tones are preserved. The bold numbers in the chart indicate positions that can have relatively flexible tones. None of these positions form a pair of level tones together with the following syllable. An exceptional case occurs with the third position in the pattern "v v - - - v v." Although it does form a pair of level tones with the following syllable, the rate of tone change is high because another level tone follows the level tone in the fourth position.

While tones are free to change in some positions, one type of line, called "Lone Even" or *guping* 孤平, is not considered metrical in Chinese recent-style verse. According to Wang (2009:

33), *guping* refers to having only one level tone (with the exception of a rhyme) in a single line. An example of *guping* in a pentasyllabic line is "v - v v -." An example of *guping* in a heptasyllabic line is "v v v - v v -." Although Duanmu & Stiennon (2005) did not find cases of *guping* in their corpus at all, Ripley (1980)'s corpus reveals 62 out of 3712 lines (1.67%) are *guping* lines. The tonal pattern distribution of *guping* lines found in Ripley's study is shown in (16).

(16) Tonal pattern distribution of *guping* lines in Ripley's corpus (1980: 133-135)

Guping tonal pattern	Canonical tonal pattern	Count
v - v v -	- - v v -	2
v v v - v	v v - - v	47
v - v v v	- - - v v	13
Total		62

Duanmu & Stiennon (2005) and Ripley (1980)'s findings assist in determining the "marginal threshold" of meter in Chinese recent-style verse. However, without comparing the tonal patterns of recent-style verse with verses that do not follow tonal regulations, it is difficult to separate the "verse-specific phenomena of recent-style tonal prosody" from the "language-conditioned phenomena" and "verse-specific phenomena of ancient-style poems" (Gasparov 1987: 337). For example, if *guping* lines are missing from both recent- and ancient-style verse, it proves challenging to argue that this is a restriction that specifically applies to recent-style verse alone. Comparing both ancient-style verse and recent-style verse should therefore provide a more comprehensive picture of the "marginal threshold" of its meter.

This said, the data in the two above studies cannot be considered representative of the rules of Chinese recent-style verse. First, Duanmu & Stiennon (2005) only examine tonal prosody in general using a poetry anthology. While it is possible that individual poets follow different metrical rules when composing recent-style verse, the distribution of data in Duanmu & Stiennon's corpus

is not balanced. For instance, they select more poems by some poets than others from *Three Hundred Tang Poem*s, which makes it possible to conclude that the overall metrical rules do not represent individual metrical variations. Second, Ripley (1980)'s data only includes poets who lived during the prosperous Tang period (713-766), although the rules of Chinese recent-style verse were invented by poets who lived not in this period, but in the early Tang period. Third, Duanmu & Stiennon's data is limited to heptasyllabic verses, regardless of the fact that pentasyllabic recent-style verse was established earlier than its heptasyllabic counterpart.

3.3.2.1 Tonal Distribution per Position

In order to examine whether each poet's line matches the canonical tonal patterns with and without the 1-3-5 rule, this study follows Duanmu & Stiennon (2005)'s method. I also follow Song and Zhang (2015)'s method to examine the percentage of level and oblique tones per position and to identify the tonal patterns in the works of the four poets. The results can be seen below.

(17) The number of *ping* and *ze* tones in each position within a couplet

		T1	T2	T3	T4	T5	T6	T7	T8	T9	T10
Wang Bo	*ping*	100	115	152	71	11	141	61	23	118	161
	ze	80	65	28	109	169	39	119	157	62	19
Luo Binwang	*ping*	49	74	110	63	4	98	50	8	78	129
	ze	83	58	22	69	128	34	82	124	54	3
Shangguan Yi	*ping*	13	15	26	21	5	25	22	16	18	21
	ze	21	19	8	13	29	9	12	18	16	13
Xue Daoheng	*ping*	5	10	12	6	0	8	5	2	9	14
	ze	9	4	2	8	14	6	9	12	5	0
GSSJS	*ping*	67	71	73	62	58	71	47	54	66	54
	ze	60	56	54	65	69	56	80	73	61	73

(18) The percentage of *ping* and *ze* tones in each position within a couplet

Poet/ anthology	Tonal category	T1	T2	T3	T4	T5	T6	T7	T8	T9	T10
Wang Bo	*ping*	55.5	63.8	84.4	39.4	6.1	78.3	33.8	12.7	65.5	89.4
	ze	44.4	36.2	15.6	60.6	93.9	21.7	66.2	87.3	34.5	10.8
Luo Binwang	*ping*	37.1	56.1	83.3	47.7	3.0	74.2	37.8	6.1	59.0	97.7
	ze	62.9	43.9	16.7	52.3	97.0	25.8	62.2	94.9	41.0	2.3
Shangguan Yi	*ping*	38.2	44.1	76.4	61.7	14.7	73.5	64.7	47.0	52.9	61.7
	ze	61.8	55.9	23.6	38.2	85.3	26.5	35.3	53.0	47.1	38.3
Xue Daoheng	*ping*	35.7	71.4	85.7	42.8	0.0	57.1	35.7	14.2	64.2	100.0
	ze	64.3	28.6	14.3	57.2	100.0	42.9	64.3	85.8	35.8	0.0
GSSJS	*ping*	52.7	55.9	57.4	48.8	45.6	55.9	37.0	42.5	51.9	42.5
	ze	47.3	44.1	42.6	51.2	54.4	44.1	63.0	57.5	48.1	57.5

The data in charts (17) and (18), which analyze recent-style verses written by the four poets, reveals large gaps between the percentages of the *ping* and *ze* tones that occur in the T3, T5, T6, T7, and T10 positions. Here, the data displays that T5 and T10 are the rhyming positions, and a frequent *ping* tone occurs in the T10 position. This latter element, in fact, coincides with a rule in recent-style verse, which requires the last character in a couplet to carry a *ping* tone. Furthermore, due to the requirement of *dui* mentioned in (1), it makes sense that most characters in the T5 position carry a *ze* tone in the data.

It is also interesting to note that, in the T3 position, there is a frequent occurrence of a *ping* tone, forming a contrast with the T5 position. This contrast can also be observed between the T8 and T10 positions, although the contrast is proportionally bigger in T3-T5 cases. Similarly, a contrast in tonal category can be observed for T2 and T4 positions, although this contrast is not as proportionally dramatic when compared with the contrasts between T5-T10 and T3-T5 cases. A contrast in tonal category can be observed between the T7 and T9 positions from all three poets' works, except those of Shangguan Yi. In Shangguan's case, a *ping* tone is more likely to occur in both T7 and T9 positions. In addition, Shangguan Yi appears to prefer a *ping* tone in the T7 position, while the other three poets show a preference for a *ze* tone here.

In terms of tonal distribution within a couplet, T3 forms a contrast with T8 in the tonal category. The same contrast can be observed between T2 and T7 and T5 and T10. A contrast between T4 and T9 can also be observed in all poems except those of Shangguan Yi. Since Shangguan's poems are transitional from the *gongti*-style to the recent-style verse, it can be said that the requirement of *dui* is followed in all positions except for the first position in most recent-style verses in the dataset.

On the other hand, in the case of GSSJS, pair-wise contrasts within a line are not observed at all. Here, the T7 position has a large gap in percentage between the *ping* and *ze* tones. Meanwhile, the distribution of *ping* and *ze* tones in all other positions are even. The T1, T2, and T3 positions demonstrate a preference for *ping* tones, while the T4 and T5 positions contain more *ze* tones. Furthermore, the T6 and T9 positions also prefer *ping* tones, and the T7, T8, and T10 positions prefer *ze* tones. The occurrence of more *ze* tones in the T10 and T8 positions and more *ping* tones in the T9 position suggests that GSSJS prefers *guping* (a *ping* tone occurs between two *ze* tones), which coincides with the patterns of ancient-style verse. At the couplet level, a contrast in tonal category can be observed between T2 and T7, as well as T3 and T8. However, this does not fulfill the requirement of *dui* in recent-style verse.

In sum, a pair-wise contrast in tonal category can be observed between the T2 and T4 and the T3 and T5 positions in recent-style verses from the dataset. In addition, the tonal distribution follows the requirement of *dui* within couplets. Different from the rules in (1), the positions that follow the *dui* requirement are extended to include the second, third, fourth, and fifth positions. While the T3 and T10 positions demonstrate a preference for a *ping* tone in recent-style verses, such pair-wise tonal contrast is observed only in the T2-T7 and T3-T8 positions in GSSJS. Finally,

although the tonal distribution within a couplet does not usually follow the *dui* requirement, a *ping t*one does tend to occur between two *ze* tones, which exemplifies a *guping* pattern.

3.3.2.2 The Pair-wise Contrast and 1-3-5 Rule

Based on the 1-3-5 rule, the second and fourth positions within a line should differ in tonal category. In this section, the T2-T4 contrast is further examined to see if this rule can be observed from the data of the four poets and compared with GSSJS.

(19) Pair-wise contrast T2-T4

Poet/anthology		T2≠T4	T2=T4
Wang Bo	upper	160 (88.9%)	20 (11.1%)
	lower	170 (94.4%)	10 (5.6%)
	Overall	330 (91.6%)	30 (8.4%)
Luo Binwang	upper	120 (90.9%)	12 (9.1%)
	lower	122 (92.4%)	10 (7.6%)
	Overall	242 (91.7%)	22 (8.3%)
Shangguan Yi	upper	28 (82.3%)	6 (17.7%)
	lower	28 (82.3%)	6 (17.7%)
	Overall	56 (82.3%)	12 (17.7%)
Xue Daoheng	upper	12 (85.7%)	2 (14.3%)
	lower	14 (100%)	0 (0%)
	Overall	26 (92.9%)	2 (7.1%)
GSSJS	upper	69 (54.3%)	58 (45.7%)
	lower	71 (55.9%)	56 (44.1%)
	Overall	140 (55.1%)	114 (44.9%)

According to Song & Zhang (2015: 84), when tones are randomly selected, the probability of different tones occurring in any two given positions is 66.29%. However, for the works of all four poets, the percentage of T2≠T4 exceeds 66.29%. This suggests that the pair-wise contrast between T2 and T4 is perhaps intentionally manipulated rather than the result of random selection.

On the other hand, the percentage of T2≠T4 in GSSJS is below 66.29%, which indicates a random selection of tones.

(20)

a. lines without the 1-3-5 rule [17]

Line pattern	Wang Bo	Luo Binwang	Shangguan Yi	Xue Daoheng	GSSJS
v v - - v	38 (10.5%)	42 (15.9%)	11 (16.2%)	3 (10.7%)	11 (4.3%)
- - v v -	45 (12.5%)	37 (14.0%)	5 (7.3%)	4 (14.3%)	5 (2.0%)
- - - v v	58 (16.1%)	21 (8.0%)	11 (16.2%)	2 (7.1%)	11 (4.3%)
v v v - -	29 (8.1%)	31 (11.7%)	6 (8.8%)	4 (14.3%)	9 (3.6%)
No match	177 (49.2%)	121 (45.8%)	28 (41.2%)	14 (50%)	122 (48%)
guping	9 (2.5%)	11 (4.2%)	2(2.9%)	0 (0%)	64 (25.2%)
sanping	4 (1.1%)	1 (0.4%)	5 (7.4%)	1 (3.6%)	32 (12.6%)
Total	360	264	68	28	254

b. lines with the 1-3-5 rule

Line pattern	Wang Bo	Luo Binwang	Shangguan Yi	Xue Daoheng	GSSJS
v v - - v	65 (18.0%)	52 (19.6%)	15 (22%)	4 (14.3%)	28 (11%)
- - v v -	57 (15.8%)	46 (17.4%)	10 (14.7%)	5 (17.9%)	21 (8.3%)
- - - v v	102 (28.3%)	65 (24.6%)	17 (25%)	8 (28.6%)	33 (13.0%)
v v v - -	102 (28.3%)	76 (28.7%)	14 (20.6%)	8 (28.6%)	17 (6.7%)
No match	21 (6.0%)	13 (5.1%)	5 (7.4%)	2 (7%)	59 (23.2%)
guping	9 (2.5%)	11 (4.2%)	2(2.9%)	0 (0%)	64 (25.2%)
sanping	4 (1.1%)	1 (0.4%)	5 (7.4%)	1 (3.6%)	32 (12.6%)
Total	360	264	68	28	254

Based on the data in (20a) and (20b), only when canonical patterns are counted without the 1-3-5 rule, can it be seen that lines not matching the canonical patterns are around 50% in each poet's works. However, when the 1-3-5 rule is taken into consideration, this percentage decreases to around 7%. In contrast, no such dramatic change can be observed from the percentage of lines

[17] I included *sanping* (三平 or "three consecutive *ping* tones") in my list for comparison, as noted by Wang (2009: 75), who states that this is the most prominent feature of ancient-style verse.

that do not match both with and without the 1-3-5 rule in GSSJS. In addition, in terms of the patterns of *guping* and *sanping*, the former is more frequently observed in GSSJS than recent-style verses.

3.3.2.3 Tonal Patterns

As seen in the previous section, the 1-3-5 rule that requires the second and fourth positions within a line to have opposite tones also applies to the current data. This section discusses the tonal patterns found in this study's data. Here, I follow Song& Zhang (2015)'s criteria to divide lines into four different types: the first/upper line of a *ping* rhyme couplet, the second/lower line of a *ping* rhyme couplet, the first/upper line of a *ze* rhyme couplet, and the second/lower line of a *ze* rhyme couplet. I further compare tonal patterns and their frequency of occurrence among the four poets' works and GSSJS.

(21) The tonal patterns of the first line of a *ping* rhyme couplet

Tonal patterns	Number/percentage of occurrence				
	Wang Bo	Luo Bingwang	Shangguan Yi	Xue Daoheng	GSSJS
v v v - -	0	2	3	0	0
- - v v -	3	1	0	0	3
- v v - -	1	0	0	0	5
- - - v -	3	0	1	0	7
v - - v -	1	0	0	0	4
v - v v -	0	0	0	0	3
v - v - -	0	0	0	0	5
- v - v -	1	0	0	0	4
- - v - -	0	0	0	0	2
v v - v -	2	0	0	0	2
- v v v -	0	0	0	0	2
v v v v -	0	0	0	0	3
v v - - -	0	1	1	0	9
- v - - -	0	0	0	0	2
v - - - -	0	0	0	0	4
- - - - -	0	0	0	0	3
Total	11	4	5	0	58

(22) The tonal patterns of the second line of a *ping* rhyme couplet

Tonal patterns	Number/percentage of occurrence				
	Wang Bo	Luo Bingwang	Shangguan Yi	Xue Daoheng	GSSJS
v v v - -	29	29	3	4	9
- - v v -	42	36	5	4	2
- v v - -	72	45	4	4	3
- - - v -	7	6	4	0	5
v - - v -	1	1	0	1	0
v - v v -	0	2	0	0	2
v - v - -	1	0	1	0	4
- v - v -	1	0	0	0	2
- - v - -	0	3	0	0	3
v v - v -	1	0	0	0	4
- v v v -	3	6	0	0	5
v v v v -	0	1	0	0	1
v v - - -	1	0	3	1	5
- v - - -	3	0	0	0	5
v - - - -	0	0	0	0	1
- - - - -	0	0	1	0	3
Total	161	129	21	14	54

(23) The tonal patterns of the first line of a *ze* rhyme couplet

Tonal patterns	Number/percentage of occurrence				
	Wang Bo	Luo Bingwang	Shangguan Yi	Xue Daoheng	GSSJS
- - - v v	55	20	5	2	7
v v - - v	32	42	10	3	4
- v - - v	19	8	2	1	1
v - - v v	34	33	4	5	4
v v v - v	5	1	1	0	4
- - v v v	6	10	1	1	8
v - v v v	0	1	0	0	3
- v v - v	1	0	0	0	5
v - v - v	3	0	0	0	1
- v - v v	1	1	1	0	4
v v - v v	3	2	1	0	8
v - - - v	0	1	1	1	5
- - v - v	9	6	3	1	6
- - - - v	1	2	0	0	6

- v v v v	0	1	0	0	2
v v v v v	0	0	0	0	1
Total	169	128	29	14	69

(24) The tonal patterns of the second line of a *ze* rhyme couplet

Tonal patterns	Number/percentage of occurrence				
	Wang Bo	Luo Bingwang	Shangguan Yi	Xue Daoheng	GSSJS
- - - v v	3	1	6	0	4
v v - - v	6	0	1	0	7
- v - - v	0	0	1	0	2
v - - v v	0	0	0	0	5
v v v - v	0	1	0	0	5
- - v v v	4	1	1	0	5
v - v v v	0	0	0	0	3
- v v - v	2	0	0	0	9
v - v - v	0	0	1	0	2
- v - v v	0	0	0	0	4
v v - v v	0	0	0	0	5
v - - - v	0	0	0	0	1
- - v - v	4	0	3	0	6
- - - - v	0	0	0	0	1
- v v v v	0	0	0	0	12
v v v v v	0	0	0	0	2
Total	19	3	13	0	73

(25a) Numbers of commonly found patterns in a *ping* rhyme couplet among four poets

location	First-line				Second-line			
poet / tonal pattern	Wang Bo (11)	Luo Binwang (4)	Shangguan Yi (5)	Xue Daoheng (0)	Wang Bo (161)	Luo Binwang (129)	Shangguan Yi (21)	Xue Daoheng (14)
v v v - -	0	2	3	0	29	29	3	4
- - v v -	3	1	0	0	42	36	5	4
- v v - -	1	0	0	0	72	45	4	4
- - - v -	3	0	1	0	7	6	4	0
v - - v -	1	0	0	0	1	1	0	1
v - v - -	0	0	0	0	1	0	1	0
v v - v -	2	0	0	0	1	0	0	0
- v v v -	0	0	0	0	3	6	0	0
v v - - -	0	1	1	0	1	0	3	1
v - v v -	0	0	0	0	0	2	0	0

- - v - -	0	0	0	0	0	3	0	0
- v - v -	1	0	0	0	1	0	0	0
v v v v -	0	0	0	0	0	1	0	0
- v - - -	0	0	0	0	3	0	0	0
- - - - -	0	0	0	0	0	0	1	0

(25b) Percentage of commonly found tonal patterns in a *ping* rhyme couplet among four poets

location	First-line				Second-line			
poet / tonal pattern	Wang Bo (11)	Luo Binwang (4)	Shangguan Yi (5)	Xue Daoheng (0)	Wang Bo (161)	Luo Binwang (129)	Shangguan Yi (21)	Xue Daoheng (14)
v v v - -	0	50.0	60.0	0	18.0	22.5	14.3	28.6
- - v v -	27.3	25.0	0	0	26.1	27.9	23.8	28.6
- v v - -	9.0	0	0	0	45.0	34.9	19.0	28.6
- - - v -	27.3	0	20.0	0	4.3	4.7	19.0	0
v - - v -	9.0	0	0	0	0.6	0.7	0	7.1
v - v - -	0	0	0	0	0.6	0	4.8	0
v v - v -	18.4	0	0	0	0.6	0	0	0
- v v v -	0	0	0	0	1.8	4.7	0	0
v v - - -	0	25.0	20.0	0	0.6	0	14.3	7.1
v - v v -	0	0	0	0	0	1.6	0	0
- - v - -	0	0	0	0	0	2.3	0	0
- v - v -	9.0	0	0	0	0.6	0	0	0
v v v v -	0	0	0	0	0	0.7	0	0
- v - - -	0	0	0	0	1.8	0	0	0
- - - - -	0	0	0	0	0	0	4.8	0

(26a) Numbers of commonly found tonal patterns in a *ze* rhyme couplet among four poets

location	First-line				Second-line			
poet / tonal pattern	Wang Bo (169)	Luo Binwang (128)	Shangguan Yi (29)	Xue Daoheng (14)	Wang Bo (19)	Luo Binwang (3)	Shangguan Yi (13)	Xue Daoheng (0)
- - - v v	55	20	5	2	3	1	6	0
v v - - v	32	42	10	3	6	0	1	0
- v - - v	19	8	2	1	0	0	1	0
v - - v v	34	33	4	5	0	0	0	0
v v v - v	5	1	1	0	0	1	0	0
- - v v v	6	10	1	1	4	1	1	0
v - v v v	0	1	0	0	0	0	0	0
- v v - v	1	0	0	0	2	0	0	0

v - v - v	3	0	0	0	0	0	1	0
- v - v v	1	1	1	0	0	0	0	0
v v - v v	3	2	1	0	0	0	0	0
v - - - v	0	1	1	1	0	0	0	0
- - v - v	9	6	3	1	4	0	3	0
- - - - v	1	2	0	0	0	0	0	0
- v v v v	0	1	0	0	0	0	0	0

(26b) Percentage of commonly found tonal patterns in a *ze* rhyme couplet among four poets

location	First-line				Second-line			
poet / tonal pattern	Wang Bo (169)	Luo Binwang (128)	Shangguan Yi (29)	Xue Daoheng (14)	Wang Bo (19)	Luo Binwang (3)	Shangguan Yi (13)	Xue Daoheng (0)
- - - v v	32.5	15.6	17.2	14.3	15.8	33.3	46.2	0
v v - - v	18.9	32.8	34.5	21.4	31.6	0	7.7	0
- v - - v	11.2	6.2	6.9	7.1	0	0	7.7	0
v - - v v	20.1	25.7	13.6	35.7	0	0	0	0
v v v - v	3.0	0.8	3.5	0	0	33.3	0	0
- - v v v	3.6	7.8	3.5	7.1	21.0	33.4	7.7	0
v - v v v	0	0.8	0	0	0	0	0	0
- v v - v	0.6	0	0	0	10.6	0	0	0
v - v - v	1.8	0	0	0	0	0	7.7	0
- v - v v	0.6	0.8	3.5	0	0	0	0	0
v v - v v	1.8	1.6	3.5	0	0	0	0	0
v - - - v	0	0.8	3.5	7.1	0	0	0	0
- - v - v	5.3	4.7	10.3	7.1	21.0	0	23.0	0
- - - - v	0.6	1.6	0	0	0	0	0	0
- v v v v	0	0.8	0	0	0	0	0	0

(27) Tonal patterns divided by level of frequency among four poets

Category	Most frequent	frequent	Least frequent	Not observed
ping rhyme couplet	v v v - -	v - - v -	- v v v -	v - - - -
	- - v v -	v - v - -	v - v v -	
	- v v - -	v v - v -	- - v - -	
	- - - v -		- v - v -	
	v v - - -		v v v v -	
			- v - - -	
			- - - - -	

ze rhyme couplet	- - - v v	v v v - v	v - v v v	v v v v v
	v v - - v	v v - v v	- v v - v	
	- v - - v	v - - - v	v - v - v	
	v - - v v		- v - v v	
	- - v v v		- - - - v	
	- - v - v		- v v v v	

(28a) Numbers of commonly found tonal patterns in a *ping* rhyme couplet in GSSJS.

Tonal pattern	First-line (58 in total)		Second-line (54 in total)	
	number	percentage	number	percentage
v v v - -	0	0	9	16.3
- - v v -	3	5.2	2	3.7
- v v - -	5	8.6	3	5.6
- - - v -	7	12.1	5	9.3
v - - v -	4	6.9	0	0
v - v v -	3	5.2	2	3.7
v - v - -	5	8.6	4	7.4
- v - v -	4	6.9	2	3.7
- - v - -	2	3.4	3	5.6
v v - v -	2	3.4	4	7.4
- v v v -	2	3.4	5	9.3
v v v v -	3	5.2	1	1.9
v v - - -	9	15.6	5	9.3
- v - - -	2	3.4	5	9.3
v - - - -	4	6.9	1	1.9
- - - - -	3	5.2	3	5.6

(28b) Numbers of commonly found tonal patterns in a *ze* rhyme couplet in GSSJS

Tonal pattern	First-line (69 in total)		Second-line (73 in total)	
	number	percentage	number	percentage
- - - v v	7	10.1	4	5.5
v v - - v	4	5.8	7	9.6
- v - - v	1	1.3	2	2.7
v - - v v	4	5.7	5	6.8
v v v - v	4	5.7	5	6.8
- - v v v	8	11.6	5	6.8
v - v v v	3	4.3	3	4.1
- v v - v	5	7.2	9	12.3
v - v - v	1	1.3	2	2.7

- v - v v	4	5.7	4	5.5
v v - v v	8	11.6	5	6.8
v - - - v	5	7.2	1	1.4
- - v - v	6	8.7	6	8.2
- - - - v	6	8.7	1	1.4
- v v v v	2	2.8	12	16.7
v v v v v	1	1.3	2	2.7

(29) Tonal patterns divided by level of frequency in GSSJS

Category	Most frequent	frequent	Least frequent
ping rhyme couplet	- - - v -	- - v v -	v - - v -
	v - v - -	- v v - -	v v v v -
	- v v v -	v - v v -	
	v v - - -	- v - v -	
	- v - - -	- - v - -	
		v v - v -	
		v - - - -	
		- - - - -	
		v v v - -	
ze rhyme couplet	- - - v v	v - - v v	- v - - v
	v v - - v	v v v - v	v - v v v
	- - v v v	- v - v v	v - v - v
	- v v - v	- v v v v	v - - - v
	v v - v v		- - - - v
	- - v - v		v v v v v

(30) Tonal patterns divided by level of frequency in GSSJS and the four poets' work

Category	Most frequent		Frequent		Least frequent	
	poets	GSSJS	poets	GSSJS	poets	GSSJS
ping rhyme couplet	v v v - -	- - - v -	v - - v -	- - v v -	- v v v -	v - - v -
	- - v v -	v - v - -	v - v - -	- v v - -	v - v v -	v v v v -
	- v v - -	- v v v -	v v - v -	v - v v -	- - v - -	
	- - - v -	v v - - -		- v - v -	- v - v -	
	v v - - -	- v - - -		- - v - -	v v v v -	
				v v v - -	- v - - -	
				v v - v -	- - - - -	
				- - - - -		
				v - - - -		
ze rhyme	- - - v v	- - - v v	v v v - v	v - - v v	v - v v v	- v - - v
	v v - - v	v v - - v	v v - v v	v v v - v	- v v - v	v - v v v

couplet	- v - - v	- - v v v	v - - - v	- v - v v	v - v - v	v - v - v
	v - - v v	- v v - v		- v v v v	- v - v v	v - - - v
	- - v v v	v v - v v			- - - - v	- - - - v
	- - v - v	- - v - v			- v v v v	v v v v v

(31) Tonal patterns vary in level of frequency in GSSJS and among the four poets' works

Pattern type 1	Four poets	GSSJS
v v v - -	70 (20.3%)	9 (8.0%)
- - v v -	91 (26.4%)	5 (4.5%)
- v v - -	126 (36.5%)	8 (7.1%)
v - - v v	76 (20.3%)	9 (6.3%)
Pattern type 2		
- v v v -	9 (2.6%)	7 (6.2%)
v - v - -	2 (0.6%)	9 (8.0%)
- v - - -	3 (0.9%)	7 (6.2%)
v - - v -	4 (1.2%)	4 (3.4%)
v - v v -	2 (0.6%)	5 (4.5%)
- v - v -	2 (0.6%)	6 (5.4%)
- - - - -	1 (0.3%)	6 (5.4%)
- v v - v	3 (0.8%)	14 (9.9%)
v - - - v	3 (0.8%)	6 (4.2%)
v v - v v	6 (1.6%)	13 (9.2%)
- v - v v	3 (0.8%)	8 (5.6%)
- v v v v	1 (0.3%)	14 (9.9%)
Pattern type 3		
v - - - -	0	5 (4.5%)
v v v v v	0	3 (2.1%)

Pattern type 1 are patterns that occur frequently among the four poets' works but less frequently in GSSJS. Pattern type 2 are those patterns that rarely occur among the four poets' works but are favored in GSSJS. Pattern type 3 are patterns that never occur among the four poets' works but do occur in GSSJS. The numbers in the parenthesis indicate the percentage of each pattern that occurs in a *ping* rhyme or *ze* rhyme line. The patterns in yellow in (30) are excluded from comparison, since they occur frequently among the four poets' work and in GSSJS, which cannot reveal the distinctiveness of the meter of Chinese recent-style verse. From this comparison

of the three patterns, it is possible to conclude that tonal patterns favored among the four Tang poets possess the following features:

1. A tonal contrast at the second and fourth position, the third and fifth position.
2. Alternating *ping* and *ze* tones within a line.
3. At least one consecutive *ping* pair and *ze* pair (three consecutive *ping* tones are only acceptable at the beginning of a line).
4. A tonal distribution within a couplet that follows the *dui* requirement except for the first position.

Chapter 4. The Meter of Japanese Haiku

4.1 Introduction

While the rules of Japanese metrical verse remain controversial, they are not as complex as the rules of Chinese and English metrical verse. More specifically, although it is widely accepted that the two representative forms of fixed-syllable Japanese verse, *waka* and haiku, consist of a certain number of poetic units, how to define these poetic units differs among scholars.[18] For example, some claim that the poetic unit of *waka* and haiku is the mora (Asano 2002; Cole & Miyashita 2006; Aroui 2009; Ryan 2019), while others claim that it is the syllable (Halle & Keyser 1999, Kawamoto 2000 & 2009). As mentioned previously, Ryan (2019: 134) claims that Japanese verse belongs to the category of the quantitative or moraic meter, in which metrical strength is based on syllable weight or mora count.

On the other hand, Halle & Keyser (1999) and Kawamoto (2000; 2009) claim that Japanese verse is one type of syllabic meter. According to Kawamoto (2009), Japanese metrical verse and Chinese metrical verse are both based on *onsūritsu* 音数律 ("syllabic meter" as per his translation), which should be distinguished from the quantitative meter of classic Greek and Latin. Furthermore, Kawamoto (2009) contends that the metrical rules of qualitative meter consist of a regular combination of sounds that differ in length (e.g., the combination of a long sound and a short sound, where the long sound is twice the length of the short sound). He indicates that in Japanese, the contrast between long and short syllables also exists and is also used to distinguish the meanings of words (e.g., *ojisan* "uncle" VS *ojiisan* "grandfather"). However, this contrast is not a suitable

[18] *Waka* (or *tanka*) and haiku are different forms of Japanese metrical verse. The former consists of five lines, and there are five, seven, five, seven and seven poetic units per line. According to Asano (2002), in *waka*, the first three lines form a triplet, and the last two lines form a couplet; haiku consists of three lines, or a triplet, and there are five, seven, and five poetic units per line.

candidate for metrical purposes since such pairs of words are limited to a select few in the Japanese lexicon. The long syllable was introduced in Japanese during the Heian period (794-1185) through the interaction with Chinese language and *onbin* 音便 (euphonic change).[19] Halle & Keyser (1999: 131) argue that counting the number of syllables applies to Japanese metrical verse, while also pointing out an important difference between English and Japanese: in English, "every syllable counts as one metrical unit;" in Japanese, "syllables with short vowels count as one metrical unit, but syllables with long vowels count as two metrical units."

In addition to the above perspectives, Mehl (2022) argues that instead of mora or syllable, *moji* 文字 (written character) should be the poetic unit that poets count when composing metrical verse in Japanese. He suggests that the prosodic unit in Japanese poetry should be a graphical unit (*moji*) instead of an auditory one, since it is said from ancient times that *waka* was composed using thirty-one *moji*. For Mehl, although there are relationships between the graphical unit and the phonetic kana, how the verse is pronounced does not have metrical significance. In addition, he contends that word syllables can only be applied in discourse on Japanese poetry in a limited sense, since the structure of the syllable differs by language and other major factors, such as era, genre, and poetic form. As Mehl suggests, *moji* may play a role in Japanese traditional poetry. However, it is a unit that belongs to the writing system. The writing system is not the same as language itself, since a single *moji* can at times represent one syllable (e.g., こ for the syllable 'ko'), but, at other times, more than one *moji* is needed to represent one syllable (e.g., ちゃ for the syllable 'cha'). Since this study focuses on language, or linguistic property, only a linguistic unit can be considered

[19] *Onbin*, or "euphony," according to Shirane (2005: 339), is a "historical sound changes in a word." There are two types of *onbin*, which generates either a consonant or a vowel. In the following case, a vowel is generated due to the drop of the consonant "k": *shiroki* > *shiroi*.

as a poetic unit. Therefore, the quandary as to whether *moji*, which is limited to a unit of writing, is a poetic unit or not is beyond the scope of this study.

Overall, mora is not favored as the leading poetic unit of Japanese verse due to the differences between Japanese and Greek (or Latin) prosodies and the unfamiliarity of this term among Japanese scholars.

4.2 Poetic Unit

4.2.1 Pitch Accent

Although Japanese verse is either regarded as a syllabic meter or moraic meter (or quantitative meter), it is rarely regarded as an accentual meter as is the case with English verse. Even Kawamoto (2000), who argues for an abstract strong and weak template in Japanese verse, admits that the contrast between strong and weak syllables is absent in Japanese language (2009: 7). On the other hand, given that Japanese is a pitch accent language, there is a contrast of high and low *pitches* in words. However, the contrast between high and low pitch cannot be manipulated in a regular manner, as in the case of English. Therefore, pitch is not practical for metrical adaptation.

In standard (Tokyo-based) Japanese, two rules determine pitch contours phonetically: the Initial Lowering Rule and the Accentual Fall Rule. The Initial Lowering Rule states that the pitch of the first vowel of the word is low unless the accent is placed on that vowel. The Accentual Fall rule states that the accented vowel and those preceding it receive high pitches, while the vowels following it receive low pitches. This rule results in an abrupt H-L fall in f0. The pitch contours of Japanese, according to Ito & Mester (2016: 474), begin with a boundary % Low and then proceed on a phrasal High until they reach an accented syllable, if present.

Significantly, words without pitch drops, called unaccented words, also exist in Japanese. In such words, every mora except the first receives a high pitch. According to Sato (1999), a word with n tone-bearing units (in most cases, a mora) usually has n+1 possible pitch patterns. However, Kawahara (2015) argues that accent cannot fall on a "deficient (or non-head) mora," which refers to a mora that is 1. the second part of a diphthong (e.g., the second "i" in *shiai* "competition"), 2. the first half of a geminate (e.g., the first "g" in *baggu* "bag"), 3. the second part of a long vowel (e.g., the third "e" in *sensee* "teacher"), or 4. a coda nasal (e.g., "n" in *kan* "(metal) can"). An example of a noun with three tone-bearing units is shown below. (Here, H represents a high pitch and L represents a low pitch.)

(1) Pitch patterns of nouns that have three tone-bearing units

a. inochi HLL "life"
b. kokoro LHL "heart"
c. atama LHH "head"
d. miyako LHH "capital" (unaccented)

In (1a), the accent is placed on the first mora. Therefore, the pitch pattern is HLL. In (1b), the accent is placed on the second mora because of the Initial Lowering Rule, which lowers the pitch of the first vowel. Therefore, the pitch pattern of the word is low-high-low. In (1c), the accent is placed on the third mora and, again, the application of the Initial Lowering Rule lowers the pitch of the first mora; hence the pitch pattern of the word is LHH. (1d) represents an interesting case since there is no accent marker on the word, which means every vowel receives a high pitch and there is no pitch fall. However, since the Initial Lowering Rule applies to the first mora here, the pitch pattern is LHH, making it identical to the one in (1c). However, as Tsujimura and Saito both claim, when a particle marker is added after (1c) and (1d), the pitch patterns become different. The following examples show how pitch patterns change with the topic marker particle "*wa*."

(2) Pitch patterns of noun+particle
a. atama wa LHH L
head TOP
b. miyako wa LHH H
capital TOP

Since the accent is placed on the third mora in (2a), the following vowel receives an L tone, creating an LHH L pattern. However, in (2b), all the vowels except the first receive an H tone because the word is unaccented, creating an LHH H pattern.

These above examples in (1) and (2) demonstrate that, even within one word, the pitch can fluctuate from low at the beginning, high at the middle, and low again at the end. In addition, there can be several continuous moras that have high pitches within one word, although none of them is the strongest. This is very different from English, where the strongest (or primary) stress occurs only once in a single word. It is, therefore, easier for English to create an up-and-down effect (or strong-and-weak sequence) to form a metrical foot. In Japanese, it is extremely complex to do so. In addition, because of the variation in pitch patterns across different dialects, a speaker of Osaka dialect may have difficulties pronouncing the correct pitch of words in Tokyo Japanese. Therefore, it may prove difficult for Osaka dialect speakers to compose metrical verses based on Tokyo Japanese pitch. All of these above factors suggest that poetic meter cannot be based on pitch in Tokyo Japanese.

According to Kawamoto (2000: 188), while there are poets who have conducted experiments to substitute pitch in Japanese for stress in English, "the extreme difficulties involved make any such attempt more reminiscent of solving crossword puzzles or playing Scrabble than of writing poetry." An example of such practice is illustrated in (3).

(3) Yamada Bimyō's pitch-accentual verse in a trochaic heptameter (Kawamoto 2000: 189)

Oki/ NO ka/ MO me/ NI ko/ TO zu/ TE ta/ No mu
"Bobbling gulls upon the waves, I pray you pass these words on"
KAta/ WAre/ BUne/ TO mi/ O na/ SHI ha/ Tete.
"Wrecked, alone I sit and wait, a boat upon the shoreline."

Kawamoto (2000: 189) claims that this verse "can only be described as a bizarre specimen of Japanese," with a strongly imposed "trochaic" metrical pattern. He further argues that Bimyō's experimental verses show an "unnatural wrenching of normal Japanese intonation."

4.2.2 Syllable and Mora

Although in his book in Japanese, Kawamoto (2000) claims that "syllable"(*onsetsu* 音節) is the basic unit in Japanese poetry, Collington (2000: 293) translates this as "mora," claiming that it is the most crucial concept for understanding Japanese poetic meter. Similar to Collington's claim, Mehl (2022: 180) points out that in the recent discussion of Japanese prosody written in English, the term "mora" is preferred over "syllable." In Japanese, most phonograms consist of one mora, although exceptions exist (see (4) below).

(4) Moras and their phonograms (* marks the exceptional case in which one mora equals two phonograms)

a. CV	ma	ま (a consonant and a short vowel)
b. V	a	あ (a vowel)
c. CC	ky in 'kya'	きゃ (a consonant cluster)*
	t in 'katta'	っ (the first 't' in double consonant 'tt')
d. C	n	ん (a nasal coda)

According to Kubozono (1999) and Ito & Mester (2003), a syllable in Japanese can be either light or heavy. A light syllable contains one mora, while a heavy syllable contains two moras. This is shown in (5a) and (5b). Labrune (2012) further claims that there are super-heavy syllables

in Japanese, which contain three moras. However, Kubozono (1999) contends that super-heavy syllables are only permitted in recent loan words.

(5) Syllables in Japanese (Labrune 2012: 116)[20]

a. light syllables

V	i	'stomach'
CV	te	'hand'
CyV	cha	'tea'

b. heavy syllables

VV	oo	'king'
VC	an	'idea'
CVC	yon	'four'
CVV	tai	'seabream'
CyVV	jyoi	'joy'
CyVC	chan	'suffix to address a close person'

c. super heavy syllables

CVVN	sain	'sign'
CVRQ	kaat in kaatto	'blow one's top'

Although the syllable is perceived as a universal unit that is incorporated into the prosodic hierarchy of various languages, it plays limited roles in Tokyo Japanese when compared with mora (Kubozono 1998 & 2009, Haraguchi 1996, McCawley 1968). For example, Kubozono (2009) claims that although Tokyo Japanese is classified as a mora language, the syllable is also necessary in Japanese prosody. In other words, in different types of word formation processes, there is a preference for heavy-light over light-heavy syllabic structures, which is relevant to the syllable instead of the mora. When discussing the minimal abbreviated loan words in Japanese, Ito & Mester (1992) also refer to the syllable instead of the mora, since they claim that the structure of loan words consists of at least one binary foot, a foot and a syllable, or at most two feet. McCawley

[20] For the CVV structure, according to Starr & Shin (2017), if VV represents either a long vowel or Vi sequences, it is counted as one syllable. If VV represents different vowels (e.g.., *Kao*), the first vowel along with its consonant (e.g., *ka)* counts as one syllable and the second vowel (e.g., *o*) forms a separate syllable. Although it is still controversial on whether Vi should be treated as the rime of a single syllable or two separate syllables, it tends to be considered as forming a single syllable compared to other VV sequences that consist of different vowels.

(1968) goes as far as to claim that Japanese is a "mora-counting syllable language." Evidence for this comes from accent rules in Japanese that state that an accent cannot fall on a "deficient (or non-head) mora," such as the "N" in "hoN." In such an example, the fact that the accent can only fall on the first mora "ho" indicates that the syllable should be the unit to account for this accent rule. Therefore, the syllable is certainly needed in Japanese prosody.

However, other studies challenge the universal status of the syllable (Labrune 2012 and Sato 2013) and argue that it plays no role in Tokyo Japanese. In opposition to McCawley, Labrune claims that Tokyo Japanese is a "mora-counting mora language," while also arguing that the two types of mora (regular CV mora and weak or deficient mora) should be distinguished. Sato (2013) supports Labrune's view by arguing that the prosodic hierarchy in Tokyo Japanese contains the mora, foot, and phonological word but not the syllable. The commonplace idea is that mora plays a significant role in Japanese prosody, since it is the basic prosodic unit of Japanese. As Labrune (2012: 115) puts it, mora is "the unit of rhythm and of prosodic measurement of the Japanese language" and "the metrical unit of Japanese in poetry and singing." Mora is also considered an isochronous unit, or a unit of timing, and each mora takes the same length of time. For example, according to McCawley (1965: 55), "the two morae (moras) of a 'long syllable' are each at least as long as a 'short syllable.'"

According to Starr & Shih (2017: 2), when discussing the prosodic unit in Japanese, it is also salient to consider "potential differences among the strata of the Japanese lexicon." Ito and Mester (1995) point out that there are four lexical strata of Japanese based on their historical origins: "Yamato," "Mimetic," "Sino-Japanese," and "Foreign." Starr and Shih state that the first two strata are of Japanese origin, the third is of Chinese origin, and the fourth is primarily of English origin. Because English and Chinese are syllable-based languages, they claim that the

influence of the syllable as a prosodic unit could be stronger in Sino-Japanese and Foreign words when compared with words from the Yamato strata. As one piece of supporting evidence, Ito and Mester (1996) offer the fact that words (or stems) from the Sino-Japanese strata show different properties than the Yamato strata. Specifically, the prosodic size of the Sino-Japanese stem is limited to a maximum of two moras. Furthermore, in a structure $C_1V_1C_2V_2$, V_2 is predictable, and a radical neutralization of consonantal features occurs in C_2. These features are "rooted in the canonically monosyllabic shape of the Chinese source words, and in the nativization strategies at work in Old Japanese and in the subsequent history of the language" (Ito & Mester 1996: 14).

On the other hand, an analysis of linguistic art forms, such as poetic structure and text-setting (when text is arranged to fit into the rhythmic structure of a song), demonstrates that in Japanese, the syllable is a metrically relevant unit (Starr & Shih 2017; Takayama 2018; Shibata 2018). After analyzing data from English-translated and native Japanese songs, Starr & Shih (2017) found that although syllabic setting is found in all strata of the Japanese lexicon, it is more preferred in translated songs and foreign words.[21] There is also an increase observed in syllabic setting over time, which may suggest the rise of the salience of the syllable in Japanese. Takayama (2018) claims that both moras and syllables can be the prosodic unit in Japanese modern *tanka*. Take the following example in (6) (Takayama 2018: 22). Here, "." Indicates the boundary of moras, and words in bold consist of two moras but are counted as one metrical unit.

(6) i.ma i.ch.**ban**
now the most
i.ki.+ta.i to.ko.**roo**
go+ want place
i.t.te.+go.**ran**
say+ try to

[21] A syllabic setting indicates when a syllable consisting of multiple moras is assigned to only one note. A moraic setting indicates when a mora (including a special mora) is assigned to one note. For example, a moraic setting assigns two notes to the word hoN (ho-N), while a syllabic setting assigns one note to the word hoN.

i.ki.+ta.i to.ko.**ro+wa**
go+want place+is
a.na.ta.+no to.ko.ro
you+'s place

"Try to say, now the place, you want to go the most,
The place I want to go, is your place."

According to Takayama (2018), a sequence of two vowels (e.g., *roo*) and a regular mora followed by a special mora (e.g., *ran*) can be counted as one metrical unit. However, both the syllable and the mora are metrical units in this poem, which is indicated from the third line of the poem. Here, similar to *ran*, *tte*, which is also a regular mora followed by a special mora, consists of only one syllable. However, if *tte* and *ran* are both counted as one syllable instead of two moras and one syllable, this line only has four metrical units. Therefore, it does not fulfill the metrical requirement, which is five units for this line.

Shibata (2018), who has researched the perception of *jiamari* lines in Japanese *senryū*, claims that the Japanese rhythmic unit may have shifted to the syllable instead of the mora among younger generations (born in the Heisei period 平成, 1989-).[22] Her findings indicate that these younger generations do not perceive special moras in the same way. Specifically, they tend to perceive syllables with long vowels (e.g., *roo*) and syllables consisting of a regular mora and consonant coda (e.g., *ran*) as long syllables with two moras. On the other hand, they tend to perceive syllables, including double consonants (e.g., *tte*), as short syllables with only one mora.

Historically, according to Frellesvig (2010: 184), the introduction of mora (or "the distinction between short (or light) and long (or heavy) syllables and the emergence of bound

[22] According to Kern (2018), *senryū* "was the predominant mode of haiku," which is also a "seventeen-syllabet verse." Opposite to the case of haiku, which is "a serious poem by a named poet about nature," *senryū* is "an anonymous comic verse about human nature, with no season word or cut."

moraic phonemes which occurred after a free mora to form a long syllable") into Japanese occurred during the period of Early Middle Japanese (800-1200). Before this period, the syllable structure in Old Japanese (700-800) was (C) (G) V. Frellesvig claims that the source of long syllables is the *onbin* sound changes, or euphony, that occurred between the late eighth and early tenth century. There are four types of *onbin* that generate differently bound moraic phonemes, including I-*onbin*, U-*onbin*, N-*onbin,* and Q-*onbin*. According to Shibata (2018), the /U/ sound, generated from the U-*onbin*, later on became the second part of a long vowel. Meanwhile, the N-*onbin* and Q-*onbin* introduced new syllable structures /CVN/ and /CVQ/, in which Q indicates the first part of a double consonant, to Japanese language. On the other hand, it is controversial whether the /I/ sound generated through I-*onbin* forms an individual syllable or not.

(7) Four types of *onbin* sound change (Frellesvig 2010: 195)

Source syllable	Moraic vowel		Moraic consonant	
	Oral	Nasal	Oral	Nasal
-pi, -pu>	U		Q	
-bi, -mi, -mu, -gu>		Ũ		N
-ni, -nu>				N
-bu>		Ũ		
-ki>	I			
-ku>	U			
-gi>		Ĩ		

The *onbin* sound changes seen above can sometimes be described as "segment loss (e.g., *takume* > *taume*) and consonant assimilation (e.g., *omopite*> *omotte*)," or "phonemic reinterpretations of a phonetically reduced or weakened realization of a CV syllable as the realization of a single segment" (Frellesvig 2010: 196).

Haiku and its predecessor, *hokku*, were established after mora was introduced to Japanese. However, compared with *waka*, no previous work has statistically examined the prosodic unit and

patterns (e.g., distribution of heavy and light syllables) of haiku and *hokku*. In fact, most studies assume the prosodic unit of haiku and *hokku* to be the same as in *waka* (namely, the mora), although the introduction of long syllables in Early Middle Japanese and the phonological changes that occurred in the Heisei period may challenge the significant status of the mora as the prosodic unit. Even if the prosodic unit proves to be the mora, the incorporation of *jiamari* lines in haiku and *hokku* may show distributional patterns of heavy and light syllables. For *waka*, Tawara (2021) found that it is frequent for the diphthong /ai/ to appear at the end of *jiamari* lines in modern *tanka*. *Hokku* and haiku may have different patterns. A comparison of the two may show phonological and lexical changes from the early modern to the modern period, therefore providing a comprehensive view of the meter of haiku.

4.3 Metrical Pattern from the Data

4.3.1 The Uniqueness of the Two Anthologies

In Chapter Two, the selection criteria for the Japanese data were discussed. In this section, I will compare the two chosen anthologies with others to specifically further review the reasons for choosing them and explore their unique qualities.

First, as mentioned in Chapter Two, it was important that the anthologies selected should include romanized Japanese of the original haiku with line breaks, which excluded haiku anthologies published only in Japanese. This specific criteria was established, because very few known haiku anthologies published in Japanese include line breaks. It is also rare for haiku anthologies to include romanized Japanese that marks the pronunciation of *kanji* (Chinese characters) within the haiku. If the pronunciation of *kanji* is unknown, it becomes difficult to count the number of mora or syllables in that line, since the same kanji can sometimes be pronounced in

various ways (e.g., 秋風 "autumn wind" can either be pronounced as *akikaze* or *shūfū*). On the other hand, if the location of a line break is not provided, it is difficult to identify where a *jiamari* line begins and ends. This is also noted by Tawara (2021) in his analysis of *jiamari* lines in modern *tanka*. Tawara's data derives from a *tanka* anthology in Japanese, but since the line breaks were not provided, different scholars may have different interpretations of where a line break occurs. Tawara's solution to work around this conundrum, although time-consuming, is to send the *tanka* he uses to different poets all over Japan and summarize where most poets would insert a line break. This said, to select anthologies that already have romanized Japanese of the original haiku with line breaks provides a more efficient and reliable solution.

Second, when selecting anthologies, it was important for me to ensure that their subjects, or poetic forms, match with the subject of this study. In other words, early modern haiku should be the classical type and modern haiku can have more variety but are still limited to a three-line verse. For early modern haiku, it was crucial to make a distinction between classical haiku and *senryū*, or other types of the "seventeen-syllabet verse," as mentioned in Kern (2018). According to Kern (2018), the classical type is "a serious poem by a named poet about nature," which includes a season word that is missing in other types of "seventeen-syllabet verse." The classical haiku is *hokku*, or the traditional type of haiku created by Bashō and his followers, which is widely considered as the predecessor of modern haiku. Although Kern (2018)'s compilation contains almost a thousand verses from the early modern period, being that it covers a broad range of the "seventeen-syllabet verse" and examples that are not *hokku*, some of this selection is beyond the scope of this study and was therefore not selected. A similar issue arose for books about modern haiku. For example, Sawa & Shiffert (2012)'s book, *Anthology of Modern Japanese Poetry,* included a selection of 49 widely acknowledged poets consisting of 27 free-verse poets, 9 tanka

poets, and 13 haiku poets. Sawa even introduces 13 haiku of the 13 different poets. However, since Sawa's focus is Japanese poetry overall, rather than haiku alone, it was not selected for the current study.

In addition to the anthologies selected, there are a few other anthologies about *hokku* and modern haiku published in English that have romanized Japanese and line breakers. These anthologies can be divided into two main types. The first type is a book that incorporates poems that are limited to a biography of only a few poets, like the four great haiku masters (Bashō, Buson, Issa and Shiki), or an anthology of a single poet. Ueda (1998)'s book, *Path of Flowering Thorn: The Life and Poetry of Yosa Buson*, and Mackenzie (1957)'s book, *The Autumn Wind: A Selection from the Poems of Issa* fall into this category. Additionally, in terms of modern haiku, Yamaguchi (1993)'s anthology, *The Essence of Modern Haiku: 300 Poems by Seishi Yamaguchi*, includes 300 modern haiku written only by himself.

The second type of anthologies consist of translations of poems that focus on different poets. For example, some early modern haiku examples include Hass (1994)'s book, *The Essential Haiku*, which focuses on the works of Bashō, Buson, and Issa; Henderson (1958)'s book, *An Introduction to Haiku: An Anthology of Poems and Poets from Bashō to Shiki*, includes a selection of haiku from various poets writing over a broad time span; Miyamori (2002)'s book, *Classic Haiku: an anthology of poems by Basho and his followers*, includes a total of 249 haiku, 174 of which are written by the great master Bashō, while others are written by his eight followers Saikaku, Sodō, Raizen, Gonsui, Onitsura, Kikaku, Ransetsu, and Jōsō. Finally, Blyth (1963 & 1964) compiled a two-volume haiku anthology, *A History of Haiku*, which traces the history of haiku from its inception as part of *renga* to contemporary haiku (up to 1960s). Miyamori (1970)'s book*, An Anthology of Haiku Ancient and Modern*, is very similar to Blyth's and includes a

selection of 973 haiku before Bashō's time until the contemporary war time by poets, such as Kikaku, Joso, Ransetsu, Sampu, Kyoroku, etc. In terms of modern haiku, Ueda (1976) published an anthology on modern Japanese haiku, which includes 20 different poets and 20 haiku each. Ueno specifies that his selection was made to represent the different trends that gained popularity over the last hundred years.

Some of the above candidates were eliminated from consideration for the current study because of the second selection criteria mentioned in Chapter Two. Namely, the data should be regarded as representative examples of two types of haiku (*hokku* and haiku). The first type of the above anthologies was eliminated, because they only represent one poet and, therefore, cannot be regarded representative of *hokku* and haiku. Unlike the Chinese case, the meter of Japanese traditional poetry was not developed by a select few poets. Rather, it was a consensus shared by variety of poets. This is indicated from the composition of the most famous poetic anthologies, *Man'yōshū* 万葉集 (*Collection of Ten Thousand Leaves*) and *Kokinshū* 古今集 (*Collection of Japanese Poems of Ancient and Modern Times*). The former anthology incorporates poets from different social classes, including the emperor, aristocrats, officials, *sakimori* soldiers, street performers, peasants from *Togoku* (an area in Japan). Although the poets in the latter anthology are mostly from the aristocratic group, it still includes a whopping 31 poets in total. In addition, haiku anthologies that focus on only a few poets (e.g., Hass (1994)'s book which focuses on three main haiku poets and Miyamori (2002)'s book that focuses only on Bashō and his followers) are also excluded from the current study.

Bowers (1996) was chosen for this study, because his collection can be regarded as the most representative of classical haiku compared with the other possible candidates, Henderson (1958), Blyth (1963), and Miyamori (1932). This is because the haiku in Bowers' book are selected

by a variety of top-tier American and Japanese scholars in the field, while the haiku in the other possible candidates' anthologies are selected by the author himself. In addition, although the other possible candidates include a variety of poet and poems, Bowers' book includes the largest number of poets.

The modern haiku data included in this study is from Ozawa (2021) mainly because of the third selection criteria regarding time span. Since the modern haiku data in this study must cover the time period after Meiji and up to the present era, only Ozawa's book is currently able to fulfill this requirement, since it was published in 2021 and includes the most recent haiku. For modern haiku, there does not currently appear to be an anthology that includes romanized Japanese of the original haiku with line breaks that were also selected by top scholars in the field. Therefore, although Ozawa's book incorporates only his personal selection, it can be considered representative due to the variety of poets and haiku that it incorporates, at least in comparison with Ueda (1976)'s work. Although Ueda (1976) includes 400 haiku by 20 poets, Ozawa (2021) includes 300 haiku by 300 poets. Moreover, Ueda (1976) only includes haiku in the traditional sense (the 5-7-5 form with season words). Ozawa (2021), on the other hand, incorporates not only haiku in the traditional style, but also those that differ from each other in length and content.

4.3.2 Poetic Unit

Aligning with previous studies, the poetic units in both *The Classic Tradition of Haiku: An Anthology* (poems composed from 1488 to 1902) and *Well-Versed: Exploring Modern Japanese haiku* (poems composed from the end of the 19th century to the beginning of the 21st century) are confirmed to be the mora. Compared with syllable-counting, the percentage to get a regular 5-7-5

pattern is much higher when conducting a mora-counting: 78.4% and 81.4% of total poems in the two anthologies, respectively. These results are shown in table (8).

(8) Results of conducting a syllable-counting and a mora-counting in *The Classic Tradition of Haiku* and *Well-Versed*

Pattern	*The Classic Tradition of Haiku*		*Well-Versed*	
	Mora-counting	Syllable-counting	Mora-counting	Syllable-counting
Regular (5-7-5)	181 (78.7%)	82 (35.6%)	242 (81.4%)	84 (28.2%)
Irregular	49 (21.3%)	148 (64.4%)	55 (18.6%)	213 (71.8%)

The results of mora- and syllable-counting methods do not show any differences when counting syllables consisting of only one mora (e.g., CV structure). The results only differ when counting multi-moraic syllables or syllables that include special moras. Following Starr & Shih (2017) and Kubozono (1999), a special mora in this study includes the following cases: a nasal coda, the second part of a long vowel, the first half of a geminate consonant, and /i/ in a Vi sequence. In addition, a VV sequence that consists of the same vowel is also counted as one syllable because of the similarity it shares with a long vowel. Lastly, Vi and VV sequences across word boundaries are also treated as one syllable if pronouncing the two vowels together does not change the meaning of the line. (9a) shows such an example of a VV sequence and (9b) shows an example of a Vi sequence.

(9) Examples of Vi and VV sequences across word boundaries but counted as one syllable (Ozawa 2021: 342&58)

a. fōku chū **ni i**tsu
fork mid-air in frozen

b. aozame ga kit**e i**ru
sharks have come

When a mora-counting is conducted, irregular patterns that go against the regular 5-7-5 patterns and the locations in which a *jiamari* line occurs in the two anthologies are shown in (10) and (11).

(10) Irregular moraic patterns in *The Classic Tradition of Haiku* and *Well-Versed*.

Patterns	*The Classic Tradition of Haiku*	*Well-Versed*
Jiamari		
8-7-5		1
7-8-5		2
7-7-5	3	5
6-7-6	2	
6-8-5	2	2
6-7-5	**21**	**16**
5-11-5	1	
5-9-5	1	2
5-8-8		1
5-8-7	1	
5-8-5	**10**	5
5-7-6	3	**13**
Total	44 (89.7%)	47 (85.4%)
Jitarazu		
5-6-5	2	1
4-7-5		1
Total	2 (4%)	2 (3.6%)
Special		
10-5-6		1
8-7-4		1
8-5-6		1
7-7-4		1
5-8-4		1
5-5-9	1	
5-5-7	1	1
5-5-5	1	
Total	3 (6.3%)	6 (11%)

(11) Location of *jiamari* lines in verses

	The Classic Tradition of Haiku			*Well-Versed*		
Number of moras per line	First line	Second line	Third line	First line	Second line	Third line
6	25		5	18		14
7	3		2	8		1
8	0	13	0	3	11	1
9	0	1	1	0	2	0
10	0	0	0	1	0	0
11	0	1	0	0	0	0
Total	**28**	**15**	**8**	**30**	**13**	**16**

Among irregular patterns*, jitarazu* lines are the fewest in both anthologies. For *jiamari* lines, the 6-7-5 pattern is the most frequent in both anthologies, which indicates a preference for a *jiamari* line to appear in the first line of a verse. However, the second most frequent pattern differs in the two anthologies. The 5-7-6 pattern is the second most frequent in *Well-Versed,* while the 5-8-5 pattern is the second most frequent in *The Classic Tradition of Haiku.* This reveals that the third line is more likely to be a *jiamari* line in modern haiku, whereas the second line is more likely to be a *jiamari* line in classic haiku, which is mainly *hokku*. This difference may or may not suggest a fundamental difference between haiku and *hokku*, considering the limited data in this study. However, the tendency of the first line as a *jiamari* line in both modern and classic haiku coincides with Takayama (2006) and Tawara (2021)'s studies, which claims that the first line in both early modern and modern *tanka* tends to be *jiamari*. On the other hand, Takayama (2006) found that the pattern of distribution of *jiamari* lines in early modern *tanka* is lost in modern *tanka*. In early modern *tanka*, the first, third, and fifth lines are more likely to be *jiamari* lines, but the second and fourth lines are not. Takayama attributes this change to the differing reciting methods in the early modern and modern periods.

Overall, although haiku takes the form of the first three lines of a *tanka*, the distribution of *jiamari* lines does not undergo a similar change in the case of the classic and modern haiku from

the two anthologies. Rather, the first line in both classic and modern haiku tends to be a *jiamari* line. Then, the second line in classic haiku tends to be a *jiamari* line, while the third line in modern haiku tends to be a *jiamari* line. That said, modern haiku seems to have more special patterns that do not fit into the framework of either *jiamari* or *jitarazu*. Some examples include the 10-5-6 pattern, the 8-5-6 pattern, and the 7-7-4 pattern. None of these patterns contain even one regular line in the corresponding location as in the 5-7-5 pattern. Ozawa (2021: 6) states in his preface to his book that "one of the salient features of modern haiku is its great variety." Furthermore, "experimental, free form haiku, sometimes shorter and sometimes longer, also has a strong presence." Given his fascination with varied and experimental haiku, it is possible that he intentionally selected unique forms of the verse that supported his interest. Nonetheless, the selection of such modern haiku suggests that their form may have become freer than those of the early modern period.

4.3.3 Syllable Structure and Distribution of Special Moras

Although both Bowers's and Ozawa's anthologies take mora to be the basic poetic unit, it would be interesting to explore whether or not *jiamari* lines could be treated as regular lines if a syllable-counting is conducted. As indicated by Starr and Shih (2017), in translated songs, there are more syllabic settings than in original songs. This suggests that the syllable may play a key role in Japanese text-setting. In that case, is it possible that the syllable also plays a role in Japanese metrical verse?

(12) A syllable-counting of *jiamari* lines and word category

	The Classic Tradition of Haiku	*Well-Versed*
Lines in total	690	891
jiamari lines in total	48 (6.9%)	62 (6.9%)
Regular lines under syllable-counting	18 (37.5%)	14 (17.7%)
Regular lines under syllable- and mora- counting	5 (10.4%)	6 (9.6%)
jiamari lines consist of *yamato* words only	38(79.1%)	41(66.1%)
jiamari lines contain Sino-Japanese/ Foreign words	10 (20.8%)	21(33.9%)

The results from the two anthologies seem only to suggest a very limited status of the syllable as a poetic unit in Japanese metrical verse. Even after conducting a syllable-counting, at the most, 37.5% of *jiamari* lines in *The Classic Tradition of Haiku* became regular, while only 17.7% of *jiamari* lines in *Well-Versed* became regular. The same trend can be observed when combining a mora-counting and a syllable-counting. Since the overall percentages of *jiamari* lines in the two anthologies are the same (6.9%), provided the role that the syllable plays in Japanese poetry does not change, the decrease from 37.5% to 17.7% perhaps is likely due to the fact that the number of moras per line in Japanese metrical verse became more flexible in modern haiku.

It is also important to highlight that, in both anthologies, *jiamari* lines containing Sino-Japanese words and foreign words are few. However, the use of Sino-Japanese words in *Well-Versed* is slightly higher than *The Classic Tradition of Haiku*. That said, the vocabularies used in Japanese metrical verse are still mostly native Japanese, at least as indicated by the data collected from the two anthologies. The reason why mora keeps playing a dominant role in Japanese poetry is perhaps because it is the prosodic unit of native Japanese vocabulary, which consists of the majority of vocabulary in both classical haiku and modern haiku. On the other hand, the prosodic unit of foreign words and Sino-Japanese words is the syllable, and a special mora is usually

incorporated into the previous syllable of these words. However, only a few of these words are used in both classical haiku and modern haiku, which results in the minor role that the syllable plays in both types of haiku.

In the case of the lines that change to regular patterns when a syllable-counting method is conducted, the distinction between heavy syllables and light syllables should still be made. It is then salient to ask, can any patterns (e.g., the location they occur) be observed? In regard to *waka*, after analyzing data from *Man'yōshū* 万葉集(after 759), *Kojiki* 古事記 (712), and *Shika wakashū* 詞華和歌集 (1115), Sakano (1998) found that there is a tendency for a special mora (a single vowel) to appear in a *jiamari* line. Mori (1998) also observed such a tendency through his analysis of *waka* from *Man'yōshū* alone. Both of these scholars' findings are summarized in (13).

(13) Location of a single vowel occurs in *jiamari* lines and non *jiamari* lines

	5-sound line (+*jiamari)*	5-sound line (-*jiamari*)	7-sound line (+*jiamari*)	7-sound line (-*jiamari*)	Last line (+*jiamari*)	Last line (-*jiamari*)
Mōri (1998)			6,7	1,2,3,4,5	6,7	1,2,3,4,5
Sakano (1998)	4	3		4,5	5	4

Mōri found that *jiamari* lines usually have a single vowel occurring at either the sixth or the seventh position, while Sakano's results indicate that in a seven-sound *jiamari* line where a single vowel usually occurs at the fifth position and in a five-sound line, *the jiamari* line occurs at the fourth position. (14) shows the location where a special mora occurs in regular lines under a syllable-counting method and the location of those lines that occur within a single verse.

(14) Distribution of special mora in regular lines undergoes a syllable-counting method

The Classic Tradition of Haiku						*Well-Versed*						
Type	Location					Location						
Second part of a long vowel	2	3	4	5	6	2	3	4	5	6	7	8
First line		**2**									1	
Second line			1									
Third line						1			1			
The Classic Tradition of Haiku						*Well-Versed*						
Type	Location					Location						
Nasal coda	2	3	4	5	6	2	3	4	5	6	7	8
First line	1		1	1	**2***	1						
Second line	1					1						
Third line					1*				1			
The Classic Tradition of Haiku						*Well-Versed*						
Type	Location					Location						
First part of a double consonant	2	3	4	5	6	2	3	4	5	6	7	8
First line	1							1				
Second line						1	1				1*	
Third line												
The Classic Tradition of Haiku						*Well-Versed*						
Type	Location					Location						
/i/ in a /Vi/ sequence	2	3	4	5	6	2	3	4	5	6	7	8
First line	1			**2**			1	1		**2***		
Second line			1				1	1				
Third line												
The Classic Tradition of Haiku						*Well-Versed*						
Type	Location					Location						
Second vowel in a VV sequence	2	3	4	5	6	2	3	4	5	6	7	8
First line	1	1	1					1				
Second line					1		1					1*
Third line		1						1			1	

Here, "*" indicates that the mora occurs at the end of a line. Based on data from *The Classic Tradition of Haiku*, in a five-sound line (the first and third line), a special mora occurs at the second position (4 tokens), the third position (4 tokens), the fourth position (2 tokens), the fifth position (3 tokens), and the sixth position (3 tokens). In a seven-sound line (the second line), a special mora

occurs at the fourth position (2 tokens), and the sixth position (2 tokens). However, the data from *Well-Versed* indicates that, in a five-sound line, a special mora occurs at the second position (2 tokens), the third position (1 token), the fourth position (3 tokens), the fifth position (2 tokens), the sixth position (2 tokens), and the seventh position (1 token). Then, in a seven-sound line, a special mora occurs at the second position (2 tokens), the third position (3 tokens), the fourth position (1 token), the seventh position (1 token), and the eighth position (1 token). Based on this data, the distribution of a special mora appears random and does not reflect the relatively regular pattern observed by Mōri and Sakano. However, in the two anthologies, there is a tendency for the special mora to occur slightly more frequently in an even position than an odd position. There are 9 tokens in total that occur in the second position (5 tokens in *The Classic Tradition of Haiku* and 4 tokens in *Well-Versed*), 9 tokens in the fourth position (4 tokens in *The Classic Tradition of Haiku* and 5 tokens in *Well-Versed*), 6 tokens in the sixth position (4 tokens in *The Classic Tradition of Haiku* and 2 tokens in *Well-Versed*), and 1 token in the eighth position. However, there are 8 tokens in total that occur in the third position (4 tokens in *The Classic Tradition of Haiku* and 4 tokens in *Well-Versed*), 5 tokens in the fifth position (3 tokens in *The Classic Tradition of Haiku* and 2 tokens in *Well-Versed*), and 3 tokens that occurs in the seventh position in *Well-Versed*.

Overall, compared with classical haiku, the distribution of special mora in a seven-sound line in modern haiku seems more flexible, since it occurs at most positions except the first, fifth, and sixth positions. Furthermore, although the locations where a special mora occur is random in the two anthologies, there is some consistency in terms of the most frequently occurring special mora in a *jiamari* line. For example, the most frequently occurring long vowel in general is /ō/, and, among different /Vi/ structures, /ai/ occurs most frequently. A more detailed summary of this is provided in (15). These results coincide with findings in Tawara (2021), who studied vowel

sequences in modern *tanka*. He observes that the frequency ranking of vowel sequences in modern *tanka* is as follows: /ō/>/ai/> /ei/> /ii/.

(15) Details of syllables including special moras in *jiamari* lines in prototypically 17-syllable verse

Second part of a long vowel		
	The Classic Tradition of Haiku	*Well-Versed*
/ō/	**6**	**9 (*2)**
/ū/	1	1
/ī/	0	0
Nasal coda		
	The Classic Tradition of Haiku	*Well-Versed*
/in/	5(2*)	2
/an/	**6 (1*)**	2
/un/	0	1
/on/	1	3 (*1)
/en/	0	**4**
First part of a double consonant		
	The Classic Tradition of Haiku	*Well-Versed*
/kk/	1	2
/tt/	**2**	**5**
/pp/	1	2
/i/ in a /Vi/ sequence		
	The Classic Tradition of Haiku	*Well-Versed*
/ai/	**3**	**4 (1*)**
/ui/	1	2 (1*)
/ei/	1	3 (2*)
Second vowel in a VV sequence		
	The Classic Tradition of Haiku	*Well-Versed*
/oo/	**3**	1
/aa/	1	1
/ii/	1	**3 (1*)**

In sum, although some changes occurred in modern Japanese poetic forms in part as a result of Western influences (e.g., the modern haiku is less restricted to the 5-7-5 pattern and a special mora occurs more flexibly in a seven-sound line), Japanese poetic meter remains the same to this day. In other words, its dominant poetic unit does not change, the distribution of special moras

remains random, and the 5-7-5 pattern is consistently mainstream. Japanese poetic meter, therefore, has not in any way changed into an accentual-syllabic one like English. The main reason behind this is that Japanese and English languages belong to completely different types and categories of languages.

Chapter 5. Discussion

5.1. Comparison between English and Chinese

This section focuses on the comparison of metrical systems in Chinese and English since both the poetic unit of the two languages and their features are identified in previous studies. As mentioned previously, the poetic unit is stress in English and tone in Chinese. Syntax plays a significant role in stress assignments in English but only has a limited role in determining tonal assignments in Chinese. Unlike the English case, Chinese words are not required to have a prominent syllable, which is due to the difference between tonal languages (e.g., Chinese) and stress languages (e.g., English).

Based on the data analysis of Chinese recent-style verse in Chapter Three, this study has found that the similarity that Chinese metrical verse (e.g., recent-style verse) shares with English metrical verse (e.g., sonnet) is the contrast of two types of syllables, and a regulated alternation of the two types of syllable forms in their metrical systems. In Chinese, this contrast is made between syllables carrying *ping* and *ze* tones, while in English, the contrast is made between stressed and unstressed syllables.

However, dependent on the language, this contrast can be observed at different levels and the pattern of alternation varies. In English, a contrast is mainly observed in the foot level. A foot is divided into two positions with a W note and a S note. Within a foot, the position with a W note is usually occupied by an unstressed syllable, while the position with a S note is usually occupied by a stressed syllable. Some studies argue for a contrast in the line level and the colon level: a line is divided into two colons that are marked with a W note and a S note; a colon is divided into two feet that are marked with a W note and a S note. However, for the colon and the line levels, the evidence for arguing a contrast in S and W notes is not that significant. In Chinese (e.g., in a

pentasyllabic line), there are three types of tonal contrast: within a line, tones in the second and fourth positions form a contrast and there is at least one consecutive *ping* pair and *ze* pair; within a couplet, the character in the upper line (e.g., in the first position) forms a tonal contrast with the corresponding character (e.g., the character in the sixth position) in the lower line.

In terms of an alternation pattern, previous studies show that English meter consists of five iambic feet (a WS sequence), which is a fixed template for each line. Therefore, a regular alternation is made between the W and S metrical positions. Syllables in English are divided into two categories: stressed and unstressed. Furthermore, they ideally follow the underlying metrical pattern (WS WS WS WS WS) in order for a stressed syllable to occur immediately after an unstressed syllable. Although some deviations from the idealized pattern exist in actual cases, such as (1), the alternation of stressed and unstressed syllables is still maintained. Lines consisting only of stressed syllables or unstressed syllables only are not considered metrical. In addition, the alternation of the two syllables should correspond to their metrical patterns and follow restrictions (e.g., a lexical stress cannot occur in a weak metrical position).

(1) Different types of metrical inversion

a. after a phrase boundary

´ ˘ ´ ´ ´ ˘ ´ ´ ˘ ´

Mapul, **tho**rn, bech, **hasel**, **ew**, whippletree. (Halle & Keyser 1971: 165)

W S W S W S W S W S

b. at the beginning of a line

´ ˘ ˘ ´ ˘ ´ ˘ ´ ˘ ´

Reptile | with spawn | abun | dant, liv | ing soul | (Kawamoto 2000:184)

W S W S W S W S W S

c. after a word boundary

˘ ˘ ˋ ˘ ˘ ˋ

In the **visions** of god: It was a hill (Hayes 1983: 364)

W S W S W S

In Chinese recent-style verse, as demonstrated in the data analysis in Chapter Three (table 2), there is no fixed metrical template for each line, and syllables are divided into *ping* and *ze* tonal categories. Their alternation adheres to the following rules: *ping* and *ze* tones alternate within a line; there should be at least one consecutive *ping* pair and *ze* pair; three consecutive *ping* tones are only acceptable at the beginning of a line; and 4. A tonal distribution within a couplet that follows the *dui* requirement except for the first position.

(2) Tonal patterns vary in level of frequency in GSSJS and among four poets

Pattern type 1	Four poets	GSSJS
v v v - -	70 (20.3%)	9 (8.0%)
- - v v -	91 (26.4%)	5 (4.5%)
- v v - -	126 (36.5%)	8 (7.1%)
v - - v v	76 (20.3%)	9 (6.3%)
Pattern type 2		
- v v v -	9 (2.6%)	7 (6.2%)
v - v - -	2 (0.6%)	9 (8.0%)
- v - - -	3 (0.9%)	7 (6.2%)
v - - v -	4 (1.2%)	4 (3.4%)
v - v v -	2 (0.6%)	5 (4.5%)
- v - v -	2 (0.6%)	6 (5.4%)
- - - - -	1 (0.3%)	6 (5.4%)
- v v - v	3 (0.8%)	14 (9.9%)
v - - - v	3 (0.8%)	6 (4.2%)
v v - v v	6 (1.6%)	13 (9.2%)
- v - v v	3 (0.8%)	8 (5.6%)
- v v v v	1 (0.3%)	14 (9.9%)
Pattern type 3		
v - - - -	0	5 (4.5%)
v v v v v	0	3 (2.1%)

The major difference between English and Chinese meter is that the former is a prominence-based system (Halle & Keyser 1971, Kiparsky 1975 &1977, Hayes 1983) while the latter lacks features that indicate such prominence. In English, stressed and unstressed syllables alternate following a regular metrical template: WSWSWSWSWS. This is a template that has metrical prominence. Actual metrical patterns are generated due to the mismatch between the node and the stress feature of the corresponding syllable following certain rules. However, while English sonnets alternate stressed and unstressed syllables one after another, *ping* and *ze* tones in Chinese are more likely to alternate in pairs. For pattern 1, which is the most frequent among the four poets and the least frequent in GSSJS, two consecutive *ping* tones and two consecutive *ze* tones can appear at any location within a line. This structure does not seem to follow an underlying metrical pattern, although Febb & Halle (2008), following Wang (1958), claim that in a pentasyllabic verse, tonal patterns follow two templates, × - × v × and × v × - ×, where "×" indicates a syllable that can be either a *ping* or *ze* tone. They further claim that the second position in a pentasyllabic recent-style verse serves as the head of the verse, and it should be (i) of the opposite tonal class from other syllables projecting to Gridline 1. In addition, they claim that in an actual tonal pattern, there is one more requirement for the head: (ii) it must be of the same tonal class with the syllable immediately to its right and one other syllable to its right.

Based on this study's data, v - - v v is a frequent pattern among the four poets of early Tang, while v - - v - and - v v - v are rarely used. If we follow Febb & Halle's rule, then all of the above patterns fulfill the requirement of (i). On the other hand, v - - v - and - v v - v meet the requirement of (ii), but v - - v v do not. Therefore, v - - v - and - v v - v should be regarded as actual tonal patterns and can be considered metrical although v - - v v is not. However, this is not consistent with what we observed from this study's database. The reason is that the tonal patterns Febb and

Halle used to derive the set of rules and metrical grids do not reflect the nature of Chinese recent-style verse. Since the first, third, and fifth positions are not free in all cases, it should be maintained under the prerequisite that there is one pair of two consecutive *ping* tones and one pair of two consecutive *ze* tones.

Similar to Febb and Halle (2008), Chen (1979) and Duanmu (2004) also proposed a template that has metrical prominence for Chinese recent-style verse. Chen's template is iambic, while Duanmu's is trochaic. Chen claims that the meter of Chinese recent-style verse resembles English iambic meter in that it has the same tree structure with S and W nodes. The motivation for assigning S and W nodes, according to Chen, extends from the desire to explain the degree of tonal variations that can occur at a certain position. The different level of nodes above each position forms a combination of S and W nodes, which can be used to explain why some positions are more restricted while other positions are allowed tonal variations. S positions that are more rigid do not allow tonal variations, but W positions are relatively freer. The level of S nodes also differs in their degree of rigidness. A terminal S node is assigned a big value (e.g., +3), a higher S has a small value (e.g., +2), and the degree of tonal variation is calculated by adding up all the numbers of different nodes at different levels. Chen, however, is not consistent with what can be counted as S or W in his metrical trees. For example, in explaining why the fifth position in a left-branching tree with an oblique tone is the second free position in a pentasyllabic line when compared with the third position, he (1979: 398) claims that "the value of syllable weight could be added into the value of the metrical 'strength.'" He believes that, in Middle Chinese, a *ping* tone goes with a long syllable nucleus and a *ze* tone goes with a short vowel. Therefore, a *ping* tone carries a heavier syllable weight than a *ze* tone. Put whether the distinction between a *ping* and a *ze* tone in Middle Chinese is based on syllable weight or not aside, it is not clear how the features of tones or syllables

that define a S or a W position in Chinese recent-style verse are partitioned. If syllables are partitioned into two classes, the standard should be clear and consistent, as indicated in English.

Another piece of evidence that Chen uses to argue for an iambic metrical structure comes from the iambic recitation rhythm of Chinese verse, as in (3).

(3) How a four-foot line of a Chinese poem is recited (Chen 1979: 396)
a. ♬/♬/♬/♪
b. ♬/♬/♪/♬

According to Chen (1979: 396), this agogic rhythm can be "perceived as a sequence of end-stressed or iambic feet." Therefore, "it is quite natural, then, to represent the rhythmic pattern as a succession of W-S beats." The problem with this evidence is that if the reciting rhythm tends to be iambic, it should be independent of the tonal prosody of the verse. In other words, the metrical structure of recent-style verse does not need to be iambic, since the iambic pattern is achieved through reciting.

On the other hand, the foot in Duanmu (2004)'s template consists of trochaic rather than iambic feet. He proposes that a pentasyllabic line has the structure of SWSWSØ, while a heptasyllabic line has the structure of SWSWSWSØ. According to Duanmu, the odd positions are in S positions because of the following evidence: it is the first syllable that bears the main stress in Chinese disyllabic words and a rhyme should occupy an S position. Although Duanmu's theory associates linguistic prominence with metrical prominence, as we will see, his proposal is problematic and is not in line with the linguistic features of Chinese language.

The difference in the metrical templates has its root in the linguistic differences between English and Chinese languages. More specifically, English is a stress language, which makes a distinction between stressed and unstressed syllables, while Chinese is a tonal language with no

features that make one tone more prominent than the others. The meter of Chinese recent-style verse divides the four tones into *ping* and *ze* tonal categories. However, this categorization is made due to the unique feature of the *ping* tone, which does not change its tone contour when prolonged (Zhang 2019: 7). Even if it is argued that the unique feature of the *ping* tone makes it more prominent than the *ze* tone, the metrically prominent and non-prominent position (or strong position) in Chinese recent-style verse is still different from the positions in English sonnets, as seen below.

(4) a metrically strong and weak position in English and a hypothesis regarding the two positions in Chinese

	English (Kiparsky 1975 &1977)		Chinese (the author's hypothesis)	
	Strong position	Weak position	Strong position	Weak position
Linguistic feature	stressed syllable	unstressed syllable	a syllable has a *ping* tone	a syllable has a *ze* tone
Predictability of its location	most time predictable (WS)	most time predictable	sometimes predictable (rhyme)	not predictable
Requirements	must be a stressed syllable, can be an unstressed syllable when it occurs at a syntactic break	must be an unstressed syllable, can be a stressed syllable when it is a monosyllable word or occurs at a syntactic break	Occupy by a *ping* tone	Occupy by a *ze* tone

This chart shows that the weak position in English sonnets is restricted by specific requirements to prevent most stressed syllables from occurring in this position. This indicates that in English, the feature of stress is carried over into its poetic meter, therefore resulting in establishing a metrical system that has a strong and weak position. In addition, the features of the

language are associated with different metrical positions: an inversion, or a stressed syllable that occurs at a weak position, is avoided except in some special cases to ensure a line is metrical. There is no such feature that indicates prominence in the Chinese language, and it is difficult to find a rule that associates tones with metrical positions. Although there are different standards one can use to define a metrically strong position, neither strong or weak positions are predictable and the nature of tone is not taken into consideration. For example, in (4), a syllable with a *ping* tone is considered a prominent syllable, which one may argue is due to the unique feature of the *ping* tone. In addition, most syllables that occur at the end of a line have a *ping* tone. However, except for the last position, it is difficult to determine the number and location of strong positions within a line.

Due to the 1-3-5 rule, one may argue that the second and fourth positions are strong, since they are more controlled in the sense that a tonal contrast is required at the two positions to ensure a line is metrical. The first, third, and fifth positions have more tonal variation and therefore can be regarded as weak positions. However, this categorization still fails to associate a single tone with a specific position. In other words, either *ping* or *ze* tones can occur at both strong and weak positions. Instead of relating to the nature of the tone, this requirement prevents a tone from occurring at a certain position by referring to another tone at a different position. If a *ping* tone occurs at the second position, a *ze* tone needs to occur at the fourth position.

Another difference this study has found between English and Chinese meter is the degree to which they rely on the information of syntax. According to Halle & Keyser (1971), Kiparsky (1975) & (1977), and Hayes (1983), in the case of English meter, syntax does not only play a role in the stress assignment of words but is also associated with a metrical inversion (e.g., a stressed-unstressed syllable sequence occurs at a WS position). In fact, it is usually at the syntactic break,

such as word or phrase boundary (e.g., at the beginning of a phrase or after any clause boundary), that an inversion occurs. In Chinese recent-style verse, on the other hand, the syntactic structure of a line does not always match its prosodic structure. Lines that share the same syntactic structures can have different tonal patterns, and lines that differ in syntactic structure may have the same tonal patterns. Some examples are shown in (5).

(5) 王勃 「杜少府之任蜀州」
Farewell to vice-prefect Du setting out for his official post in Shu Wang Bo[23]

[城闕][輔][三秦],
- v v - -
'By this wall that surrounds the three Qin districts',

[風煙][望][五津]。
- - v v -
'Through a mist that makes five rivers one',

[與君][離別][意],
v - - v v
'We bid each other a sad farewell',

[同是][宦遊][人]。
- v v - -
We two officials going opposite ways....

[海內][存][知己],
v v - - v
And yet, while China holds our friendship,

[天涯][若][比鄰]。
- - v v -
And heaven remains our neighborhood,

[無為][在][岐路],

[23] The English translation is from Witter Bynner. 1929. *The Jade Mountain: A Chinese Anthology, Being Three Hundred Poems of the T'ang Dynasty, 618-906*. New York: Knopf. An online pdf version can be found here: https://www.aoi.uzh.ch/dam/jcr:ffffffff-c059-cfbc-0000-00007065080a/TangPoems.pdf.

- - v - v
Why should you linger at the fork of the road,

[兒女][共][霑巾]。
- v v - -
Wiping your eyes like a heart-broken child?

Du (2016) attributes the tonal contrast between the second and fourth position of recent-style verse to the increase in the 2-2-1 sentence structure, which has a syntactic pause after the second and fourth position. He believes that the syntactic structure of a line is the main reason why poets intentionally choose different tones for the second and fourth positions of a line. On the other hand, the 2-1-2 structure is associated with a T2-T5 contrast. According to Du, a pentasyllablic line could have four different syntactic structures, which are shown in (6). Here, // indicates a boundary between sentences, / indicates a boundary of prosodic words, and' indicates a boundary between a modifier and its head.

(6) Different syntactic structures of a pentasyllabic line (Du 2016: 138-139)

a. 2/2/1: 珠 殿 / 秋 風 / 回.
gem palace autumn wind circulates
Autumn wind circulates in the palace decorated with gem

b. 2/2'1: 從 君 / 千 裏' 外
follow you thousand miles away
(my heart) follows you a thousand miles away

c. 2//2/1:天 高 // 秋 月 / 明
sky high autumn moon bright
The sky is high and the autumn moon is bright

d. 2/1/2: 池 塘/ 生 / 春 草
pond grows spring grass
The spring grass grows in the pond

Du claims that the syntactic structure of 2//2/1 and 2/2/1 gained more popularity over 2/2'1 because it can convey more information. Especially 2//2/1 divides the line into two sentences and is used to express two things or scenes. This change in syntactic structure resulted in the change of tonal contrast between the second and the fifth position in Yongming style verse (the predecessor of recent-style verse) to the second and the fourth position in recent-style verse.

In (5), "[]" shows the syntactic structure of each line, which is followed by its tonal pattern. While the last line [兒女][共][霑巾] (2/1/2) has the same tonal pattern as the fourth line [同是][宦遊][人] (2/2/1), their syntactic structures are different. On the other hand, the second-last line [無為][在][岐路](2/1/2) and the last line have the same syntactic structure, but their tonal patterns are different. If the increase in the 2/2/1 structure ([同是][宦遊][人]) resulted in an increase in a T2-T4 contrast, Du may have to explain why the 2/1/2 structure [兒女][共][霑巾], which should show a T2-T5 contrast, ends up featuring the same tonal pattern as the 2/2/1 structure. At the same time, there are also 2/1/2 structures like [無為][在][岐路] that do not show a tonal contrast between T2-T4 at all.

A relatively reasonable explanation for this phenomenon is to claim that Chinese meter does not share the same features with English, since syntactic breakers do not have metrical significance in Chinese recent-style verse. In Chinese meter, the metrical rules refer to phonological information rather than syntactic information. This can be convincing if one observes the linguistic features of the two languages. To reiterate, English meter clearly refers to syntactic information, because it is based on stress and rules of stress assignment depend on syntactic information. Meanwhile, Chinese mater does not refer to syntactic information, because it is based on tones. Furthermore, tone sandhi rules do not refer to syntactic information. It is also possible

that tone sandhi is not even a factor that needs to be considered when composing Chinese recent-style verse.

5.2. Comparison between English and Japanese

5.2.1 Poetic Unit

As revealed by the data analysis in Chapter Four, the main poetic unit in Japanese haiku is still mora, despite the ongoing influence of foreign languages, such as Chinese and English. The syllable, on the other hand, is a supplementary poetic unit that only applies when the line does not fulfill the requirement of featuring the pattern seven, five, and seven units per line.

Since mora plays a dominant role in Japanese meter and, unlike Chinese, pitch accent is an irrelevant factor, syllable weight—the feature that mora measures—should be the main concern of Japanese meter. As mentioned in Chapter Four, a syllable that contains only one mora is a light syllable, while a syllable that contains more than one mora is a heavy syllable. In Japanese, there is one type of mora called a "special mora," which cannot stand alone but must be incorporated into the previous CV structure to form a syllable. A special mora may be one of the following: a nasal coda, the second part of a long vowel, or the first half of a geminate consonant. With the exception of a sequence with a long vowel, most vowel sequences do not always form one syllable. /i/ in a Vi sequence especially is less independent than other vowel sequences (e.g., au). In fact, in Japanese, this /i/ is treated as one syllable instead of two. On the other hand, a word like *au* 会う ("to meet") is treated as formed by two light syllables.

This syllable-forming feature in Japanese influences how these structures are treated in Japanese meter, just as how the shift of stress in word formation is reflected in English meter. However, unlike English stress, whether two moras (e.g., vowels) can be put together to form one

syllable is a phonological issue that is independent of syntactic information. This is shown in the following examples.

(7) tarai kara ‘Tub to tub’
tub from

tarai n**i** **u**tsuru ‘The whole journey’
tub to move

chimpunkan ‘Just hub-dub!’
nonsense

(Kobayashi Issa, *The Classic Tradition of Haiku*:120)

(8) kum**o** **o**riori ‘Clouds now and again’
clouds sometimes

hito ni yasumuru ‘give a soul some respite from’
people to rest

tsukimi kana ‘moon-gazing- behold’
moon-viewing I wonder

(Matsuo Bashō, The Classic Tradition of Haiku: 43)

(9) y**aa** shibaraku ‘Hey there, wait a moment,’
Hey awhile

hana ni taishite ‘at the cherry blossoms’
flower towards

kane tsukukoto ‘before you strike the temple bell’
bell strike

(Matsue Shigeyori [Ishū], *The Classic Tradition of Haiku*: 28)

As seen above, the second line in (7) contains the vowel sequence /iu/, the first line in (8) contains the vowel sequence /oo/, and the first line in (9) contains the vowel sequence /aa/. Since

/iu/ is treated as two separate syllables in Japanese, /u/ cannot be incorporated into the previous structure, /ni/, to form a heavy syllable. Therefore, the line consists of seven units and is metrical. On the other hand, /oo/ in (8) can be treated as a long vowel in Japanese, therefore, the second /o/ can be incorporated into the previous /mo/ to form a heavy syllable. The same situation applies to /aa/ in (9), which forms a heavy syllable /yaa/. (8) and (9) are cases in which both syllables and moras serve as poetic units of the line. If we conduct a mora-counting alone, the first line in (8) is unmetrical with its six units. However, if syllable-counting and mora-counting are combined (and /moo/ is counted as a single unit), then the same line appears metrical with five units. In addition, (8) and (9) indicate that syntactic information is not relevant when determining whether a segment can be incorporated into the previous syllable, since there is a word boundary between the first and the second /o/ in (8), but the first and the second /a/ in (9) are within the same word. What matters is the number of units per line. This is also shown in the first line in (7). Here, /rai/ can only be treated as two mora instead of one heavy syllable, since if it is treated as one heavy syllable, the line risks containing four units and becoming unmetrical.

Therefore, defining when a segment can be incorporated into the previous syllable is significant for Japanese poetic meter. As illustrated in the above examples, phonological information rather than syntactic information is relevant, which is fundamentally different from English stress.

5.2.2 Metrical System

The rules regarding what structure counts as a syllable are important in Japanese meter, because it is considered in tangent with the rule that regulates the number of units per line to ensure a line is metrical. Based on these metrical rules, it is unlikely that Japanese shares the same

prominence-based metrical system with English. Since the mora is the main prosodic unit of Japanese, if there is any feature that can indicate prominence, it should be syllable weight. Namely, heavy syllables and light syllables should alternate to occur within a line, and there should be rules to prevent heavy syllables from occurring in a weak metrical position. However, based on the analysis of the two anthologies in Chapter Four, the distribution of heavy syllables within a *jiamari* line that becomes regular under a syllable-counting is quite random. A special mora in *The Classical Tradition of Haiku* can appear at the second, third, fourth, fifth, and sixth position, and the frequency of its occurrence in each position is almost even. The same is also true of those lines in *Well-Versed*. The only difference is that in *Well-Versed*, there are special moras that occur in the seventh and eighth positions, perhaps because modern haiku became freer in its metrical pattern. In addition, rules that determine whether a structure (e.g., /rai/) count as a heavy syllable or two light syllables (mora) depends on the number of units per line, making them less consistent than the metrical rules in English. In this sense, Japanese meter is less regulated when compared with its English equivalent.

Kawamoto (2000: 228), however, argues for a lineal template with metrical prominence, consisting of trochaic feet and pauses. This can be seen below.

(10) Kawamoto's metrical template Japanese metrical verse

SW SW SW SW
○○/○★/○★/○★/
○○/○★/○★/●●/

○= a mora, ★= a movable rest, and ●= a fixed pause.

According to Kawamoto, weak and strong metrical positions are based on recitation. It is then through recitation that "a metrical stress accent," which occurs at the strong metrical position, is generated. However, this accent should be distinguished from the lexical accent in English. In addition, the metrical stress accent is not related to the lexical pitch accent of Japanese. Instead, it varies in the individual reader or listener's mind and does not seem capable of being measured phonetically, since it is subjective and can vary in degrees of conspicuousness.

Kawamoto (2000: 225-226) argues that regardless of being subjective, "[metrical stress accent] is hardly arbitrary, at least in verse," since the listener or the reader can break the long sequence of moras into a "smaller and cognizable unit (a bimoraic foot)," and "mentally add a stress at the beginning of each [of these units] to distinguish it from those coming before and after." Kawamoto's template only consists of a trochaic foot, because when reciting a line, according to Sakano (1992), a lengthened vowel always appears at the even positions of a line. This concept is illustrated in (11b).

(11) a. the principle of performing traditional Japanese poetry from Heian to Edo period (Sakano 1992:18)
Form a two-sound group. For the single sound that cannot form a group, it should be lengthened to the duration of two sounds.
b. the pattern
five-sound lines
◯◯/◯◯//◯－/－－
seven-sound lines
◯◯/◯◯//◯◯/◯－
◯◯/◯◯//◯－/◯◯
◯◯/◯－//◯◯/◯◯

In the pattern above, ◯ indicates a sound, ー indicates a lengthened mora, / indicates the boundary of a sound group (or foot), and // indicates the boundary of two feet. In Sakano's model, both five-sound lines and seven-sound lines consist of an eight-sound template.

Kawamoto also claims that a trochaic structure also solves the problem of a free-standing mora. In this case, the free-standing mora can only occur at the beginning of a foot, therefore avoiding the mismatch between the syntactic and prosodic structure. For example, the word *mukashi-mukashi* can be divided into two smaller morphemes, as seen below.

(12) lines with and without rest (Kawamoto 2000:226)
a. MU ka-/ SHI mu-/KA shi 'once upon a time'
b. MU ka-/SHI—/ MU ka-/SHI—
long long

It is only in the analysis in (12b) that the boundary corresponds with the phonological boundary, which Kawamoto claims is natural for Japanese speakers.

Another piece of evidence that Kawamoto presents comes from the *jiamari* lines in traditional Japanese poetry of the classical and pre-modern periods. He (2000: 230) argues that in the poetry from those two time periods, an extra mora "never falls upon the initial accented position of a beat either," which indicates that "the distinction between the accented head and the unaccented tail of the bimoraic beat was already understood and generally observed as metrical common sense from the very beginnings of seven-five meter." Like Chen (1979) and Duanmu (2004), the major problem Kawamoto needs to solve involves identifying the source in the language on which a metrically weak and strong position of meter can build. Furthermore, the "metrical stress accent" he proposes is problematic. Although he distinguishes it from the lexical stress of English, he does not explain its nature clearly. Provided it is subjective and can vary

among speakers or listeners, he admits that this stress is more a pragmatic one than an inherent one. Even if it is agreed upon that metrical pattern is achieved through recitation, the stress generated by recitation should be based on some feature of the mora that occupies a strong position in a way that distinguishes it from one that occupies a weak position.

A weak position in Kawamoto's template can either be a lengthened vowel or a metrical pause, which is not a consistent feature. Although the dataset shows that a special mora occurs slightly more frequently in an even position, this phenomenon only makes up a very small portion in the dataset. In addition, based on Sakano (1998) and Mori (1998)'s analysis, it is not true that an extra mora cannot fall upon the initial accented position of a beat in a *jiamari* line. In fact, an extra mora (or single vowel) frequently falls on the fifth and seventh position of a seven-sound line. Moreover, Kawamoto does not mention why the syntactic boundary should always match the prosodic boundary. In Chinese recent-style verse, it is not rare to have a mismatch between the two structures. Based on the example in (7) and (8), it is obvious that Japanese meter (e.g., in haiku) does not rely on syntactic information. If two segments can be joined together to form a syllable, it does not matter whether there is a syntactic boundary between them or not. Therefore, the supporting evidence Kawamoto provides is not convincing enough to argue that Japanese meter has metrical prominence. If this is in fact the case, the next question becomes whether or not Japanese meter is based on a contrast, which is formed by dividing syllables into two categories (e.g., by type of tone in Chinese). Provided the syllable is a prosodic unit in Japanese, partitioning syllables based on syllable weight seems to be the most plausible way to form the Japanese meter.

Oral performance of traditional Japanese poetry after the Meiji period (1868-1912) was largely replaced by silent reading. According to Sakano (1992), unlike an oral performance, such as that seen in (11), silent readers do not lengthen the vowels of sounds in the middle or at the end

of a line. Instead, they tend to only place a pause at the beginning of a line and then read the entire line in one breath, as can be seen below.

(13) The silent reading (Sakano 1992: 17)
a. five-sound lines
◯◯/◯◯//◯×/× ×

b. seven-sound lines
◯◯/◯◯//◯◯/◯×
×◯/◯◯//◯◯/◯◯
Here, × indicates a pause.

Provided Sakano's claim is correct, even within a non-*jiamari* line, there should be at least one heavy syllable formed by a sound and its lengthened mora, at least before the Meiji period. For a *jiamari* line that includes a special mora, there should also be at least one heavy syllable formed by the special mora and previous syllable.

However, there are also cases in which a *jiamari* line does not contain a special mora. The percentage of this type of line in *The Classical Tradition of Haiku* is 45.8% among all the *jiamari* lines. In *Well-Versed*, the percentage decreases to 40.3%, perhaps due to the increased usage of foreign words in modern haiku, which contain more special moras. Therefore, it is difficult to argue that there are heavy syllables and light syllables in both non-*jiamari* and *jiamari* lines. Even if one only considers non-*jiamari* lines, a line containing both heavy syllables and light syllables is limited to the period before the Meiji period, due to the decline of oral performance after the Meiji period.

Compared with Chinese and English meter, Japanese meter is less regulated. It is based on the number of poetic units per line. Zhang (2019) claims that metrical verses in different languages make use of their linguistic properties to form a binary contrast in their metrical systems. This is

true in both English and Chinese. In Japanese, however, syllables can be partitioned into two categories based on syllable weight in some types of lines, but this is not what meter is based on. In other words, while the contrast between heavy and light syllables can be observed in Japanese metrical system, this does not mean that every line is required to follow that contrast. This tendency is only observed in *jiamari* line that includes a special mora, or fixed lines before the Meiji period when the factor of oral performance can be taken into consideration. Moreover, without considering oral performance, this contrast is not generally observed from the database. In fact, *jiamari* lines that incorporate special moras are few, and there is no pattern that displays the distribution of heavy and light syllables. The status of contrast in syllable weight is perhaps similar to the status of the syllable in Japanese metrical system—it is a poetic unit that only plays a limited role in Japanese metrical verse. In the future, it is possible that the contrast between heavy and light syllables will emerge again if the main poetic unit changes to the syllable.

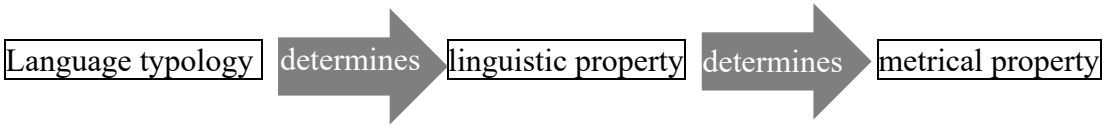
Chapter 6. Theoretical Implication

Thus far, I have evaluated previous theories that apply universal metrics to the analysis of either Chinese or Japanese meter. In this chapter, based on my findings, I summarize the relationship between language and poetics, discuss the common issue of previous studies, and suggest future research directions.

6.1 Language Typology and Metrical Property

In Chapter Five, I evaluated some theories on cross-linguistic metrics. The metrical pattern of English sonnets cannot be applied to Chinese and Japanese, since the two languages lack a linguistic property associated with a strong or weak metrical position. Syllables in different languages can be partitioned into two contrastive classes based on the linguistic property of that language, which can be either observable in the language or manifest through performance. In the case of Chinese and English, the metrical system is based on the following contrast:

(1) The relationship between language typology, linguistic property, and poetic property



In stress languages, there is relative prominence assigned to a certain syllable in a word or a certain word in a phrase. Since English is a stress language, the features of a stress language are reflected in the linguistic features and metrical system of English. Syllables can be partitioned into two classes based on prominence, and the rules of stress assignment are carried over into English's metrical system. This is the reason why metrical property refers to syntactic information. In tonal

languages, such as Chinese, each syllable is assigned a different pitch (or tonal pattern) to distinguish individual words or the grammatical form of words. Given that this is not a linguistic property that has prominence, the Chinese metrical system, in turn, is not based on prominence. In Chinese, the poetic unit is a contour tone, since some tones (except the *ping* tone) involve a rising or falling tonal pattern. This contrast in tone contour is further incorporated into the metrical system of recent-style verse and serves as the basis to form its meter.

The comparison between the English and Chinese cases highlights the problem of universal metrics, as it is crucial to differentiate between the metrical structures in verses of different languages based on their unique linguistic properties. For example, Duanmu (2016) further revised his Chinese stress rules and metrical requirements, as seen in (2) and (3), to emphasize that linguistic prominence should be associated with metrical prominence. However, his proposal still did not distinguish the metrical structure in English verse from that in Chinese verse. [24] Furthermore, he assumes that there is no distinction between metrical structures in a language and metrical structures in a verse, positing that both S positions in language and verse are associated with a stressed syllable while W positions are associated with an unstressed syllable. According to Duanmu (2016:12), metrical structure is encoded in the Chinese language and exists in both poetic and non-poetic languages. In other words, Duanmu's metrical requirements shown in (3) apply not only to metrical verse but also to language, free verse, and other forms of poetry. These

[24] Duanmu (2016: 41) claims the rules that associate linguistic prominence with metrical prominence are the same in both English and Chinese. However, he revised his previous statement on Chinese stress by noting two differences between Chinese and English stress: 1) Chinese only has a few polysyllabic words but many compounds, and 2) Chinese disyllabic words have stress on the first syllable when it is not line-final and on the second syllable when it is line-final. He also revised the rules on metrical requirement proposed by Halle & Keyser (1971:169), which state that "When a fully stressed syllable occurs between two unstressed syllables in the same syntactic constituent within a line of verse, this syllable is a 'stress maximum.'" In Duanmu's proposal, a stress maximum is a stressed syllable occurring between two unstressed syllables, but it is not necessarily within a syntactic constituent.

requirements thus indicate that metrical structure is not unique to metrical verse but also exists in free verse and other poetic forms.

(2) Chinese stress rules (Duanmu 2016: 41)

a. In a disyllabic or polysyllabic word, the first syllable has stress.
b. In a disyllabic word at the end of a line (or before a caesura), its stress could occur on the second syllable.
c. Stress in a compound word that has 1+2 structure is the same as a polysyllabic word.
d. A disyllabic grammatical unit can be treated the same way as a disyllabic word.
e. (For phrasal stress) the syntactic non-head has stress.

(3) Metrical requirements in Chinese (Duanmu 2016: 41& Duanmu 2004: 62)
a. A syllable is a stress maximum if it is stressed and is between two unstressed syllables. A stressed syllable is also a stress maximum if it is line-initial or line-final and is next to an unstressed syllable.
b. A stress maximum must occur in S.

It is unclear whether Duanmu is referring to the metrical or rhythmic structure of a verse in this context, since he claims that his rules can judge the quality of rhythm. However, it is important to distinguish the rhythm of a verse from the meter of a verse, since the former refers to syntactic structure while the latter refers to metrical structure (Zhang 2019). In addition, it remains controversial whether Chinese language has metrical structure in the first place, since metrical structure mainly exists in languages with stress or stress rules and there is little evidence to support that Chinese words have stress. Even if we assume that Chinese does have stress and the metrical structures of poetic language and non-poetic language are comparable, Duanmu's rules in (2) are still in need of more clarification and explanation. For example, if (2a) and (2b) are considered in tandem, a line-final disyllabic word can either have stress on the first or second syllable. However, this rule seems to be quite arbitrary, and Duanmu does not provide any reason regarding why stress can shift flexibly. An example of this is shown in (4).

(4) Duanmu's analysis of sentence-final disyllabic words (2016: 43)

Here, "**X**" indicates a stress maximum, "X" indicates a stressed syllable, and "0" indicates an unstressed syllable.

	S	W	S	W	**S**	**W**
	X	0	**X**	0	**X**	0
a.	桃	紅	複	含	宿	雨
	peaches	red	again	hold	night	rain

"The peaches' red holds the nights' rain"

	S	W	W	S	W	**W**	**S**
	X	0	0	**X**	0	0	**X**
b.	多	年	後	重	返	故	裏
	many	years	later	again	return	old	home

"Returning to [one's] hometown after many years"

In (4a), the last word "宿雨" (night rain) should have stress on the first syllable, while the last word "故裏" (old home) has stress on the second syllable. Otherwise, there would be no explanation as to why the former word corresponds to the metrical nodes "SW" and the latter word corresponds to "WS." However, this difference in the location of stress requires more explanation, especially since the two words have the same syntactic structure. Based on Duanmu's stress assignment rule in (2a), the stress should fall on the first syllable of the two words above and generate the same stress pattern in both. Even if we follow the rule in (2b), which shifts the stress to the second syllable when the word is line-final, the stress in both of the two above words should still be placed on the second syllable.

In fact, if the line-final disyllabic word does not have a stress on the second syllable, it may not be able to support Duanmu's SW patterns of Chinese verse. For example, in the following pentasyllabic line (Du 2016: 138-139).

(5) Metrical analysis based on Duanmu's stress rules in (18).

	S	W	S		W	S
	X	0	0		**X**	0
a.	池	塘/	生	/	春	草
	pond		grows		spring	grass

"The spring grass grows in the pond"

	S	W	S		W	S
	X	0	0		0	**X**
b.	池	塘/	生	/	春	草
	pond		grows		spring	grass

"The spring grass grows in the pond"

If we follow Duanmu's stress rule in (2a) but ignore rule (2b), the first syllable "春" (spring) would receive stress and therefore generate an incorrect pattern in (5a), in which a stress maximum (春) occurs in a W position. This is a pattern that Duanmu claims to avoid since it violates the metrical requirement in (3b). However, if we apply rule (2b), then the stress would be shifted to the second syllable in (5b), therefore fulfilling the metrical requirement in (3b). More specifically, rule (2b) is needed especially when a disyllabic word occurs at the end of a line and that line consists of an odd number of syllables.

On the other hand, when the line-final unit is a disyllabic phrase with the structure [N N], it is very similar to the case in (5a). As shown in (6), according to Duanmu (2004), a disyllabic phrase should have stress on the second syllable, and only a [N N] disyllabic phrase places its

stress on the first syllable. If the syllable before the [N N] disyllabic phrase is unstressed, the stress pattern would be 0 **X**0, which cannot correspond to SWS, as in the case seen in (5a). However, if a disyllabic phrase is treated the same as a word (see rule in 2d), the stress can shift to the second syllable, as demonstrated in (5b), therefore solving the problem.

(6) The location of the syntactic head in disyllabic phrases that have different structures (Duanmu 2004: 57), in which "_" indicates the location of a head. The characters in bold are the ones that receive stress.

Syntax	Example
[V N]	買(buy) **車** (car) 'buy a car'
[P N]	在(at)**家** (home) 'at home'
[N N]	**東**(east)西 (west) 'east and west'
[D N]	他(his)**家** (house) 'his house'
[A N]	紅 (red)**花** (flower) 'red flower'

Furthermore, a close examination of (2) reveals that, like disyllabic words, the stress of disyllabic phrases is also very flexible. (2a) and (2b) suggest that stress in disyllabic words can be placed on either the first syllable (when it is not line-final) or the second syllable (when it is line-final). Then, (2d) suggests that the stress assignment of disyllabic phrases is the same as disyllabic words, since both disyllabic phrases and disyllabic words are treated the same.

As seen below, stress assignment flexibility can fit lines to the SW template that Duamu proposes, regardless of their stress patterns. The heptasyllabic line with a [[22][12]] syntactic structure below serves as an example of this. This structure, according to Duanmu (2004), is the most frequent type of heptasyllabic line in *Three Hundred Tang Poems* 唐詩三百首. The possible stress patterns of this structure are summarized in below in (7).

(7) Possible stress patterns of a [[22][12]] syntactic structure and their correspondence with the SWSWSWS pattern (provided there is only one stress in a disyllabic structure, "/" indicates the boundary of a word or a phrase, and "[ ]" indicates the location of a metrical violation).

Metrical patterns	Location of words/phrases	Stress patterns
a. Patterns can be analyzed as SWSWSWS		**X**0/**X**0/**X**/0**X**, **X**0/**X**0/X/X0, **X**0/**X**0/0/0**X**, **X**0/0X/X/0**X**, 0X/X0/**X**/0**X**, 0X/X0/X/X0, 0X/X0/0/0**X**
b. Patterns cannot be analyzed as SWSWSWS	When words/phrases are line-internal	X0/0[**X**]/0/0**X** 0[**X**]/0**X**/0/0**X** 0[**X**]/0X/X/0**X** 0[**X**]/0X/X/X0
	When word/phrases are line-final	**X**0/**X**0/0/[**X**]0 **X**0/0X/X/[**X**]0 0X/X0/0/[**X**]0
	When words/phrases are both line-internal and line-final	X0/0[**X**]/0/[**X**]0 0[**X**]/0[**X**]/0/[**X**]0

As we can observe in (7b), the first metrical violation is due to a stressed syllable occurring in an even position (or the second syllable) when the word or phrase is line-internal. The second metrical violation is due to a stressed syllable occurring in the second to last position when the word or phrase is line-final. However, the first violation is avoided due to rule (2a), which shifts the stress to the odd position (or the first syllable). In other words, the stress pattern changes to **X**0 and fits the SW pattern. The second violation is also avoided due to rule (2b), which shifts the stress to the last position of a line. Specifically, the stress pattern changes to 0**X** and fits the WS pattern.

Moreover, the stress patterns below in (8) and (9) indicate that the non-head stress rule does not function when a phrase occurs line-internal.

(8) Duanmu's metrical analysis of a complete revision of *On Homecoming* 回鄉偶書 by He zhizhang 賀知章(659-744) (Duanmu 2016:43)

S W W S W W S
X 0 0 **X** 0 0 **X**
多 年 後 重 返 故 裏 “Returning to [one’s] hometown after many years”
many year later again return old home

S W W S W W S
X X 0 **X** 0 0 **X**
音 如 舊 髮毛 全 衰 “Local accent does not change, but hair grows grey”
accent as old hair complete decline

S W W S W W S
X 0 0 **X** 0 0 **X**
兒童 们 **含** **笑** 相 問 “Children ask with smiles”
child plural with smile each-other ask

S W W SW W S
X 0 0 **X** 0 0 **X**
客 人 從 何處 赶 來 “From where did the guests come in a hurry?”
guest person from where rush come

(9) Duanmu’s metrical analysis of *On Homecoming* 回鄉偶書 by He Zhizhang 賀知章
(Duanmu 2016: 42)

S W S W S W S
X 0 **X** 0 **X** 0 **X**
少 小 **離** **家** 老 大 回 “I left home young, but come home old”
young little left home old big return

S W S W S W S
X 0 **X** 0 **X** 0 **X**
鄉 音 無 改 鬢毛 衰 “My accent unchanged, hair grows grey”
old accent no change hair decline

SW S W S W S
X 0 **X** 0 0 0 **X**
兒童 相 見 不 相 識 “Children want to know who I am”
children each-other meet no each-other recognize

S W S W SW S
X 0 **X** 0 **X** 0 **X**
笑 問 客 從 何處 來

laugh ask guest from where come “Ask with a smile, where is the guest from?”

For example, “含笑” (with a smile) in the third line of (8) could be analyzed as having stress on the second syllable so that the head of the preposition phrase, “含” (with), does not receive stress. The same situation occurs in the verb phrase, “離家” (left home), in the first line of (9). Since the head of this phrase is “離” (left), the stress could be placed on the non-head, “家” (home). According to the non-head stress rule, both above phrases should have the stress pattern “0X”. Therefore, instead of **X** 00 **X**0 0**X**, the stress pattern for the third line would be **X** 00 0**X** 0**X** in (8). Similarly, instead of **X** 0 **X**0 **X** 0**X**, the stress pattern of the first line in (9) would be **X** 0 0X X 0**X**. However, if this is so, the metrical patterns of the two lines do not match the patterns of the rest of the verse. More specifically, the metrical pattern of the third line in (8) could be analyzed as SWSWSWS, and the metrical pattern of the first line in (9) could be analyzed as SWWSWWS. In addition, the non-head stress rule does not function when a phrase is line-final. For example, in the phrase “全衰” (completely decline) in (8), “衰” (decline) is the head. Therefore, the stress should be placed on the first syllable. However, in Duanmu’s analysis, it is placed on the second syllable.

The satisfied metrical template would not be generated if the non-head stress rule were not blocked in the above two cases. Duanmu (2004: 62) calls the block of the non-head stress rule “foot shelter,” in which “the syntax inside a foot can be ignored.” Under this rule (2d), the stress of disyllabic phrases and words becomes identical. Namely, it ensures that the third line in (8) has the stress pattern X 00 **X**0 0**X** and cannot be analyzed as SWS**W**SWS. It also ensures that the first line in (9) has the stress pattern **X** 0 **X**0 **X** 0**X** and can only be analyzed as SWSWSWS, therefore being consistent with the metrical patterns of the rest of the verse.

Even if we assume Duanmu's stress rule and metrical requirements in Chinese are correct, it does not always generate the trochaic metrical pattern (e.g., SWSWSWS) as he claimed. This is reflected in his own analysis seen in (8) and (9), which reveals different metrical templates. In (8), this template is SWWSWWS, while in (9), it is SWSWSWS. However, Duanmu (2016: 43) does not see this as a problem, since he claims that if every line in a verse follows the same metrical template, its rhythm is still considered "good." In addition, although (8) and (9) show that two verses have a consistent metrical pattern throughout, the metrical requirements in (3b) only put restrictions on the W position. Therefore, it is possible to analyze those lines with different metrical templates. For example, the second line in (9) has the stress pattern X X0 **X**0 0**X**. Therefore, other than SWWSWWS, this line could also be analyzed as WSWSWSS or WSWSSWS.

After analyzing the issues with Duanmu's (2016) stress rule and metrical requirements, I have come up with the following main points. First, there is no distinction made between the metrical structure of language and verse. Second, the rules governing stress assignment in disyllabic phrases and words (which generate stress on the first syllable when the word or phrase is not line-final, but on the second syllable when it is line-final) are too powerful and lack an explanation for their motivation. Compared with other stress rules, the non-head stress rule is less powerful and does not function in some cases. The application of the stress rules is arbitrary, self-contradictory, and there is no fixed order. Since no rule is ranked higher than another, it is not clear why one rule is blocked at some times but another rule works at other times. This is very different from English stress rules, where stress assignment is associated with the segmental feature of a syllable and the lexical categories of a word. In addition, English stress rules apply in a fixed way (e.g., cyclic).

Finally, the stress rules and metrical requirements outlined by Duanmu do not always generate the trochaic metrical pattern SWSWSWS, which Duanmu claims to be universal in both Chinese verse and language. Even if we accept the metrical template in Chinese recent-style verse as SWSWSWS, it is difficult to identify what linguistic property is associated with the S and W positions based on our findings from the current dataset. (10) is a representative verse marked with tonal categories (*ping* or *ze*), which Duanmu claims to have the SWSWSWS metrical pattern.

(10) Tonal patterns of *On Homecoming*

v v - - v v -
少 小 離 家 老 大 回 "I left home young, but come home old"
young little left home old big return

- - - v v - -
鄉 音 無 改 鬢 毛 衰 "My accent unchanged, hair grows grey"
old accent no change hair decline

- - - v v - v
兒 童 相 見 不 相 識 "Children want to know who I am"
children each-other meet no each-other recognize

v v v - - v -
笑 問 客 從 何 處 來
laugh ask guest from where come "Ask with a smile, where is the guest from?"

The example above is a heptasyllabic *jueju*, a form of recent-style verse, which contains half of the lines of the classic *lüshi*. Since tone is the poetic unit in Chinese recent-style verse and the metrical pattern is based on the contrast between *ping* and *ze* tones, there are two possibilities --

an S or W position could associate with either a *ping* tone or a *ze* tone. (11) and (12) indicate what these two possibilities would look like.

(11) Reanalysis of Metrical patterns of *On Homecoming*
S position = *ping* tone (a prominent syllable) and W position =*ze* tone (a non-prominent syllable).

W	W	S	S	W	W	S	
0	0	X	X	0	0	**X**	
v	v	-	-	v	v	-	
少	小	離	家	老	大	回	“I left home young, but come home old”
young	little	left	home	old	big	return	

S	S	S	W	W	S	S	
X	X	X	0	0	X	X	
-	-	-	v	v	-	-	
鄉	音	無	改	鬢	毛	衰	“My accent unchanged, hair grows grey”
old	accent	no	change	hair		decline	

S	S	S	W	W	S	W	
X	X	X	0	0	**X**	0	
-	-	-	v	v	-	v	
兒	童	相	見	不	相	識	“Children want to know who I am”
children	each-other	meet	no	each-other	recognize		

W	W	W	S	S	W	S	
0	0	0	X	X	0	**X**	
v	v	v	-	-	v	-	
笑	問	客	從	何	處	來	
laugh	ask	guest	from	where		come	“Ask with a smile, where is the guest from?”

(12) Reanalysis of Metrical patterns of *On Homecoming*
S position = *ze* tone (a prominent syllable) and W position =*ping* tone (a non-prominent syllable).

S	S	W	W	S	S	W	
X	X	0	0	X	X	0	
v	v	-	-	v	v	-	
少	小	離	家	老	大	回	“I left home young, but come home old”
young	little	left	home	old	big	return	

W	W	W	S	S	W	W	
0	0	0	X	X	0	0	
-	-	-	v	v	-	-	
鄉	音	無	改	鬢	毛	衰	“My accent unchanged, hair grows grey”
old	accent	no	change	hair		decline	

W	W	W	S	S	W	S	
0	0	0	X	X	0	**X**	
-	-	-	v	v	-	v	
兒	童	相	見	不	相	識	“Children want to know who I am”
children		each-other	meet	no	each-other	recognize	

S	S	S	W	W	S	W	
X	X	X	0	0	**X**	0	
v	v	v	-	-	v	-	
笑	問	客	從	何	處	來	
laugh	ask	guest	from	where		come	“Ask with a smile, where is the guest from?”

From (11) and (12), it is difficult to observe an SWSWSWS pattern. Moreover, the entire verse does not share the same metrical pattern. Rather, different lines follow different metrical patterns. For example, in the first line of (11), the first two positions are W positions, but they become S positions in the second line. In the third line, the first two positions are again S positions, but they switch back to W positions in the last line. S positions do not always occur in the first, third, fifth, and seventh positions as suggested by the template. In (11), two lines have an S position at the first position, three lines have a S position in the third and seventh positions, and only one line has an S position in the fifth position. In (12), two lines have an S position at the first position,

three lines have an S position in the fifth position, and only one line has an S position in the third and seventh positions.

Even if we only count the stress maximum, ignoring all other syllables, the SWSWSWS pattern cannot be observed. This is because the stress maximum can appear in the locations other than the first, third, fifth, and seventh positions, which are marked as S positions in the SWSWSWS template. For example, if we assume the *ping* tone is a prominent syllable and the *ze* tone is a non-prominent syllable, as in (11), a stress maximum would occur in the sixth position in the third line. On the other hand, if we assume the opposite is true and the *ze* tone is a prominent syllable and the *ping* tone is a non-prominent syllable, as in (12), a stress maximum would occur in the sixth position in the fourth line. It is clear from the analysis in (11) and (12) that the contrast between *ping* and *ze* tones do not correspond to the contrast between S and W positions.

The tonal patterns in (10) reflect that instead of a metrical template that has prominence (SWSWSWS), contrasts of *ping* and *ze* tones at different levels of a verse form the metrical system of recent-style verse. At the line level, the contrast is made among the second, fourth, and the sixth positions. The second, fourth, and sixth syllables within the same couplets also have opposite tones (as explicated by the requirement of *dui* 對). Furthermore, the second, fourth, and sixth syllables in the last line of a prior couplet and in the first line of the following couplet possess the same tones (as explicated by the requirement of *nian* 粘). Finally, the last syllable in the second and the fourth line has rhyme and a *ping* tone.

However, in English, the contrast between stressed syllables and unstressed syllables is made within a foot. The mismatch, or inversion, between the metrical position in a verse and stress in syllables is permissible. In other words, a stressed syllable can occur in a weak position as long as it is not a stress maximum, and an unstressed syllable can occur in a strong position. The metrical

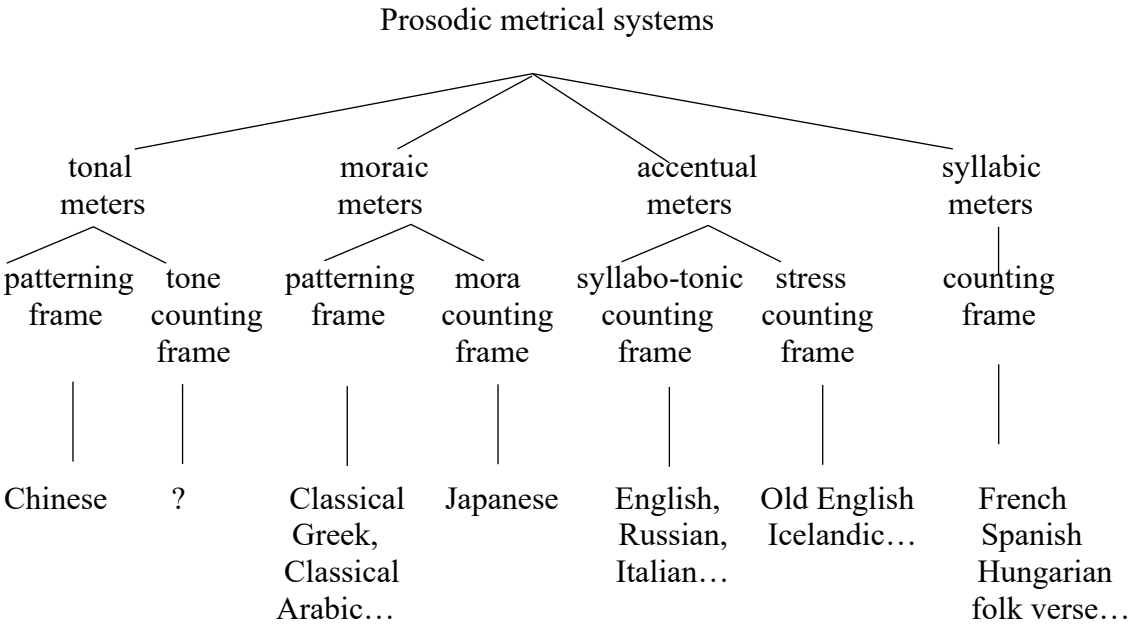
system in verse is based on the particular metrical structure in a language, and this is also why it is possible to identify and summarize those mismatches.

Duanmu's (2016) problem, despite his revisions, is that he simply applies English metrical templates and stress rules to Chinese. However, these rules are self-contradictory, questionable, and lack supporting evidence. Moreover, they do not always generate the trochaic metrical pattern SWSWSWS that Duanmu argued for, because stress is not a feature that exists in the Chinese language. Additionally, the Chinese metrical system includes contrasts at various levels within a verse, which cannot simply be captured by a fixed template at line level. Even within a line, the English template requires an odd position to be a W position and avoids a stress maximum occurring there, but Chinese does not have such restrictions. Instead, the Chinese metrical system is based on contrast rather than prominence. Namely, the metrical requirements are fulfilled as long as the tones in certain positions (e.g., the second and fourth positions) are different, or whether they are a *ping* or a *ze* tone.

Although in pitch-accent languages, such as Japanese, there is only one syllable in a word that is more prominent than the others by possessing an accent, the high pitch spreads to its left and right and eventually has multiple consecutive H tones. The alternation of an H tone and an L tone is difficult to achieve. Therefore, pitch accent is not a helpful candidate to form Japanese metrics. The syllable and mora are incorporated into the Japanese metrical system as poetic units. Rules regarding what structure counts as a syllable and what counts as a mora, therefore, have become important to Japanese's metrical system.

In terms of metrical systems, Aroui (2009) proposes the following representation that shows the typology of prosodic meters.[25]

(13) Aroui's proposal of different types of prosodic metrical systems (2009: 11)



Aroui's model captures the difference between relatively regular metrical systems (e.g., Chinese and English) and less regular metrical systems (e.g., Japanese). Furthermore, Chinese and English meter here are categorized under the patterning frame, while Japanese meter belongs to the counting frame. Although such points have also been revealed by this study, I have also made findings thus far that suggest a need for modification in Aroui's model. For example, the information on whether a metrical system has metrical prominence should be considered. From

[25] "Prosodic meter", according to Aroui (2009:5), is a type of meter that its metrical structure is based on the way the linguistic material is organized. In addition, in those forms, "at a basic level, the meter includes equivalences and/ or contrasts based on prosodic aspects of language (accent, mora, syllable, tones)."

the case study of Japanese and Chinese compared with English, it has been proven that some prosodic meter incorporates metrical prominence (e.g, English) but some do not (e.g., Chinese and Japanese). In addition, sub-categories of certain languages may also need to change due to linguistic transformation. For example, it is possible that the main poetic unit in Japanese will change from the mora to the syllable in the future. If this occurs, Japanese meter may change into a patterning frame due to the contrast in syllable weight, in which case it would no longer fit the counting frame.

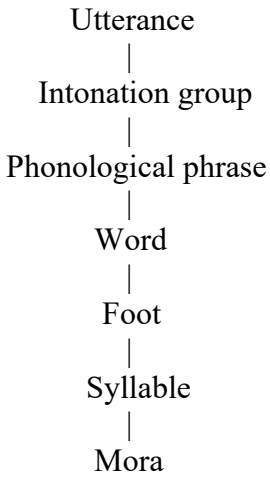
Lastly, I would like to consider a hypothesis suggested by both Aroui's model and the findings of this study. Namely, the possibility that the poetic meter of languages under certain main categories (e.g., tonal meter, moraic meter, accentual meter) may undergo a transformation from a counting frame to a patterning frame due to linguistic modification. As indicated in Aroui's model, this has already occurred with the transition of Old English, which consists of meter under the counting frame, into English, consisting of meter under the syllabo-tonic counting frame.[26] Although Aroui does not list any meter under the tone counting frame, Chinese ancient-style verse could fit in the category of tonal meter. In Chinese ancient-style verse, there is no tonal regulation; only the number of tones per line is regulated. This Chinese case also suggests a meter change under the counting frame (e.g., Chinese ancient-style verse) to the patterning frame (e.g., Chinese recent-style verse). In terms of moraic meters, as mentioned previously, Japanese also fits this tendency. If the poetic unit of Japanese is the mora, it belongs to the mora-counting frame. In the future, if the poetic unit changes to the syllable, then a patterning frame that makes the contrast between the heavy and light syllable (e.g., as seen in Classical Greek) may emerge.

[26] Although Aroui (2009: 12) listed English meter under the syllabo-tonic counting frame, he states it is for "the sake of theoretical prudence," and is "something quite similar to a patterning meter."

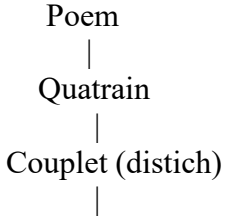
6.2 Relationship between Prosodic Structure and Metrical Structure

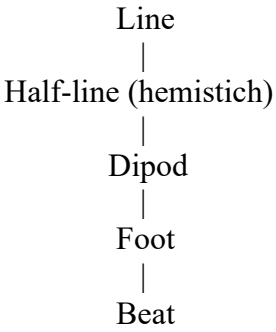
The findings of this study also suggest a relationship between prosodic and metrical structures. Previous studies, such as Kiparsky (2020: 3), have suggested the importance to distinguish the two by arguing that "all poetry avoids mismatches between metrical and linguistic prominence, but in ways that depend on the level of the hierarchy at which the mismatch occurs, and that vary between languages and periods." Below, (14a) demonstrates the prosodic hierarchy in language while (14b) pictures the metrical structure, referred to as the "metrical hierarchy in verse," that Kiparsky (2020) proposes.

(14a) Prosodic hierarchy in language (Kiparsky 2020: 3)



(14b) Metrical hierarchy in verse (Kiparsky 2020:3)

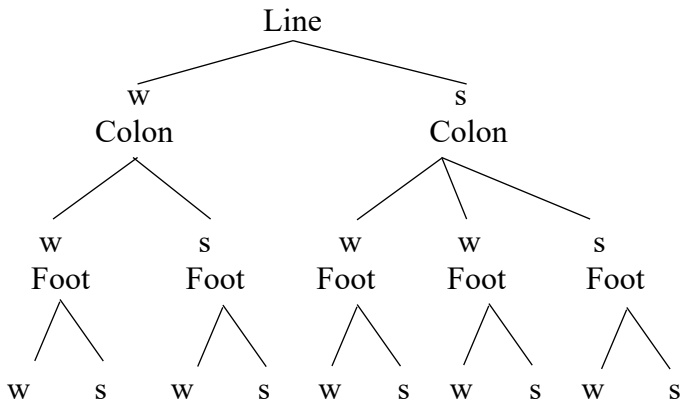




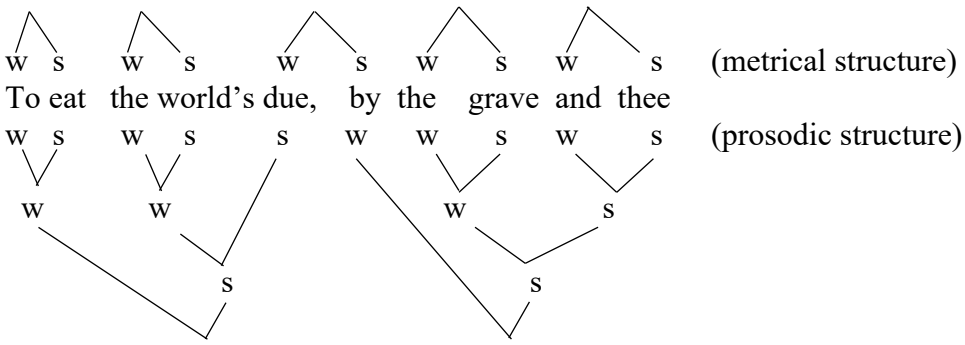
Based on the current study's findings, Chinese and Japanese meter, again, are not metrical systems that have prominence. Therefore, Kiparsky's proposal of a universal feature of all poetry that avoids the mismatch between linguistic prominence and metrical prominence does not stand, at least in the case of Chinese and Japanese.

In English iambic verse, the prosodic hierarchy does incorporate foot as one prosodic unit. The metrical tree of English iambic pentameter is shown in (15a), and the correspondence between the metrical and prosodic structure is shown in (15b).

(15a) The metrical tree of English iambic pentameter (Kiparsky 1977: 230)



(15b) Metrical structure and corresponding linguistic structure (Hayes 1983: 358)



As apparent in (15b), the metrical and prosodic feet should be distinguished, although it is not always the case that the metrical foot matches the prosodic foot. According to Hayes (1989: 256), higher-level metrical units, such as the colon, came from different sources. Therefore, many poets tend to place the strongest phrasal break at a colon boundary and avoid inversion in the second or fifth foot. Moreover, the rightmost position of colons and lines are usually filled with stressed syllables.

In English iambic meter, metrical rules are associated with the bracketing of the metrical units (e.g., colon, line, and foot). However, in some cases, metrical structure goes as far as overriding the linguistic bracketing in different poets' practices. For example, although inversions usually occur at the beginning of a line, Milton places inversions that would not be allowed freely at the line boundary, while Shakespeare only places inversions to phrasal breaks rather than at the beginning of a run-on line (Kiparsky 1975; 1977).

Based on the findings of the current study, the metrical foot in Chinese is different from that in English. In Chinese, the most frequent patterns from the database are v v v - -, - - v v -, - v v - -, and v - - v v, and one consecutive *ping* pair and *ze* pair are required in a metrical line. Therefore, a metrical foot that has a contrast between a *ping* and *ze* tone should at least incorporate four syllables. In English, on the other hand, a metrical foot consists of at least two syllables. That

said, it is important to note that Febb and Halle consider that metrical foot in Chinese recent-style verse consists of at least two syllables, which echoes the English case. This can be seen below.

(16a) The metrical grid of Chinese recent-style verse (Febb & Halle: 258)

kōng shān xīn yǔ hòu
- - - v v
)* *) * *) * 0⇐
(* *(1⇒
* 2

(16b) The metrical grid of English iambic meter (Febb & Halle 2008: 27)

To spin a web out of thyself
)* *) * *) * *) * *) 0 ⇐
)* *) * *) 1 ⇐
)* *) 2 ⇐
* 3

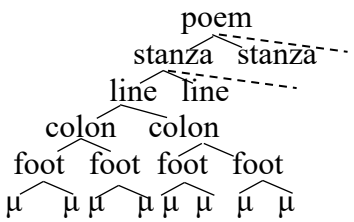
In Febb and Halle (2008)'s analysis, syllables with stress are projected to the metrical grid in English, while syllables that have a distinct tonal category are projected to the metrical grid in Chinese. More specifically, syllable projects to Gridline 2 should be of the opposite tonal category from the ones projecting to Gridline 1. In this proposal, there is no difference between the prosodic and metrical foot, nor are there any differences regarding the hierarchy of metrical verse in different languages, such as was seen in (14b). Overall, the metrical systems in Chinese and English appear identical in their theory.[27] Nevertheless, from the dataset, the current study did not confirm that syllables are partitioned into two contrastive categories to form the metrical system

[27] This idea was inspired by the discussion with Prof. Hongming Zhang on 01/28/2023 during a Zoom meeting.

in Japanese. As mentioned previously, Japanese should belong to the counting frame, which Aroui (2009: 16) argues has "no need for a 'foot' constituent, at least theoretically."

Conversely, in Asano (2002)'s proposal, Japanese's metrical system incorporates foot as a metrical unit, which derives from the bimoraic foot in Japanese prosodic hierarchy. Yet, it is still controversial whether or not the bimoraic foot is a prosodic unit in Japanese due to the difference between Japanese and languages that contain lexical stress and alternating patterns of relative strength (Fujikawa 2020). Furthermore, even if the bimoraic foot is a prosodic unit in Japanese, since Japanese meter does not have prominence and is only a counting meter, it does not equal the metrical foot in Japanese verse as Asano proposes below in (17).

(17) The prosodic structure of Japanese metrical verse (Asano 2002: 74)



Chapter 7. Conclusion

7.1 Summary of Major Findings

This dissertation has examined the problem of applying universal metrics to the meters of Chinese recent-style verse and Japanese haiku. Through thorough data analysis and literature review, it has also answered the following questions: (1) What are the linguistic properties that contribute to the formation of metrical verse in English sonnets, Chinese recent-style verse, and Japanese haiku? (2) What are the metrical patterns in Chinese recent-style verse and Japanese haiku? (3) To what degree can the meter of English sonnets apply to Chinese and Japanese cases? The major findings of the dissertation are summarized below.

First, the main linguistic property in forming the meter of English sonnets is stress, while it is tone in Chinese recent-style verse and mora in Japanese haiku. The rules associated with these properties are carried over into and affect each language's metrical system. For example, in English, the stress assignment rule refers to syntactic information. Therefore, its metrical system relies on that information to determine the metricality of a line. In Chinese, rules of tone assignment do not depend on syntactic information. Therefore, the metricality of a line is purely a phonological issue. This is also the case in Japanese.

Second, through a comparison between the 720 lines from four poets of the early Tang period and the 254 lines from *Nineteen Ancient Poems*, this study has found the following metrical patterns in recent-style verse: (a) the presence of a tonal contrast in the second and fourth positions, as well as in the third and fifth positions (b) the alternation of *ping* and *ze* tones within a line, (c) the occurrence of at least one consecutive *ping* pair and *ze* pair, while three consecutive *ping* tones are only acceptable at the beginning of a line, and (d) a tonal distribution within a couplet that follows the *dui* requirement except for the first position.

Third, this study was not able to identify a pattern in the distribution of heavy syllables in *jimari* lines through a comparison between the 690 lines in *The Classical Tradition of Haiku* and the 891 lines in *Well-Versed* alone. However, the data does indicate that modern haiku demonstrates a departure from the traditional form of haiku in the following two aspects: its form has become freer with certain numbers of mora per line that were not previously observed (e.g., 7-3-4-5, 3-4-7-5, 9), and its vocabulary has incorporated more Sino-Japanese words than before.

Fourth, provided Sakano (1992) is correct in terms of the method of performance of traditional Japanese verse, the only common feature shared among the meter of English sonnets, Chinese recent-style verse, and the fixed lines in the traditional form of Japanese haiku is perhaps the existence of a contrast between two types of syllables. This contrast is formed by partitioning syllables into two opposite classes. In English, it is the contrast between stressed and unstressed syllables; in Chinese, it is the contrast between a syllable carrying a *ping* tone and a syllable carrying a *ze* tone; and in Japanese, it is the contrast between a light and heavy syllable, which consists of a light syllable and its lengthened mora. However, this contrast lacks solid supporting evidence in the Japanese case, as it is only limited to two cases. In the first case, the contrast is achieved by performing fixed lines in classical haiku or *waka*, and in the second case, the contrast is found in *jiamari* lines in early modern and modern haiku that become regular under a syllable-counting method. Moreover, this second case, only occupies a very small percentage of poems in the dataset – 2.6% from *The Classic Tradition of Haiku* and 1.6% from *Well-Versed*.

Fifth, the major problem regarding the application of English meter to Chinese and Japanese cases lies in the lack of a linguistic property associated with a strong or weak metrical position in the latter two languages. Since metrical system is based on linguistic property, it should reflect each language's features. Metrical system may also be influenced by other factors, such as

poetic form. For example, the meter of modern Japanese haiku became freer perhaps due to the influence of free verse from the West. Still, the lack of a stress feature in Chinese and Japanese make it impossible to develop a stress meter that resembles the meter of English sonnets.

Sixth, in English, Chinese, and Japanese verses, the metrical hierarchies (or units) are different. More specifically, English metrical foot has at least two syllables, although metrical foot in Chinese often involves four syllables and does not even exist in Japanese. Moreover, metrical colons may exist in English sonnets but are not present in Chinese verses and Japanese haiku.

The findings of this study suggest that metrical hierarchy should be distinguished from prosodic hierarchy in different languages, as indicated by Kiparsky (2020). This is because metrical rules are not always associated with a prosodic unit (or domain). In the case of English, metrical rules are associated with syntactic boundaries, which define units that form the prosodic hierarchy. However, in Chinese, metrical rules, or contrasts in tones (e.g., the tonal contrast in the second and the fourth positions in a pentasyllabic verse), are not associated with syntactic boundaries. In the case of Japanese, the occurrence of a contraction of two mora into one syllable depends on the value of the sounds rather than their location (e.g., whether they are located at a syntactic boundary or not).

7.2 Limitations and Future Research Directions

There are also some limitations to this study. The first is whether the data is representative of the meter under examination. This study selected *The Classical Tradition of Haiku* to represent the traditional form of haiku (or the predecessor of modern haiku) and *Well-Versed* to represent modern haiku. However, besides *hokku*, other poetic forms can also be considered as the predecessor of modern haiku, such as *hiraku*, *zappai*, *senryū*, *bareku*. In fact, Kern (2018) argues

that instead of *hokku*, *senryū* is more suitable to be considered as the predecessor of haiku since it is read as a 'standalone verse'. Therefore, the patterns extracted from this anthology may not be as representative as expected. A similar consideration can also be applied to *Well-Versed* due to the limited amount of data. In addition, since the focus of this study is metrical verse, extreme forms of haiku are excluded from the dataset, such as those that have four lines or only one line. However, this does not mean that these extreme forms cannot be classified as haiku, despite their freer structure. The same possible problem exists for the Chinese data. Since only a limited number of lines were examined, the metrical pattern extracted from these lines may not be the most representative one.

The second limitation of this study is the lack of substantial English sonnet data. For the English analysis of this study, I extracted metrical rules from previous studies without conducting as close of a data analysis as was conducted on the Chinese and Japanese data. Therefore, it is possible that rules described in the literature and rules obtained through data analysis may differ.

One direction that future research could take would be to identify the metrical units of verses in different languages. As suggested by Hayes (1989) and Kiparsky (2020), the metrical hierarchy in verse shares a common feature with the prosodic hierarchy in language in the sense that it is subject to SLH (the Strict Layering Hypothesis). It is, therefore, possible that the metrical hierarchy may incorporate different metrical units in different languages, just as the prosodic hierarchy does (e.g., mora is one prosodic unit in Japanese but not in Chinese). In addition, it is also possible that the relationship between different metrical units differs in languages. In fact, Aroui (2009: 16) proposes a model in which lines, half-lines, and metrical feet do not overlap with each other but develop independently. This is because according to him, a word boundary, or a

cæsura in some languages (e.g., Greek), can occur inside a metrical unit, such as a foot. However, this is not the case in English.

In order to accomplish this kind of research task, extensive analysis of poetic data in different languages would be necessary. In addition, since different poets follow metrical rules in different ways, it also proves crucial to create a summary of general metrical rules in different languages. This second task is an especially difficult one, since even within one poet's work, the metrical patterns may not be completely identical due to the following reasons: the record of the poet's work may not be accurate, the historical language change makes it difficult to discern the underlying metrical pattern, it may be difficult to identify which works are matured metrical verses of the poet and which works are only experimental, and the metrical pattern may be associated with various cultural factors or aesthetic values (e.g., the symmetrical feature of Chinese recent-style verse and a Chinese preference for the concept of harmony), but it is difficult to argue to what degree culture affects metrical patterns. In addition, what historical records say about a certain poet's work may also not be accurate, since it perhaps reflects the perceptions of later generations instead of the sensibilities of the poet's contemporaries.

Another possible direction for future research is to identify the relationship between metrical and prosodic hierarchies and how they interact with each other. In doing so, it may be viable to verify whether there is a universal metrical hierarchy, like Kiparsky's proposal reflects in (14b). Currently, all we know is that metrical and prosodic hierarchies are different, and that the metrical system interacts with prosodic structure since some metrical phenomena can be explained using prosodic hierarchy (e.g., inversion in English iambic meter can perfectly be explained to occur at the beginning of a phonological phrase). Compared with linguistic competence, or the prosodic hierarchy in language, the nature of metrical competence (or the metrical hierarchy in

verse) is less explored. Hayes (1988: 245) is suspicious about whether there is even a field of universal metrics since linguistic competence and metrical competence are different. For example, a person who can speak a language may or may not be able to compose a metrical verse in that language. In other words, metrical competence is an overlaid function, "which has something to do with 'rhythmic competence.'" Hayes perhaps has a point, since judging whether a line is metrical (in the field of universal metrics) or not is much more difficult than judging whether a sentence is grammatical (in the field of universal grammar) or not. Zhang (2019) claims that most poetic meter in human language shares one common feature: artificially manipulating suprasegmental features of a language—both linguistic property and performance of linguistic property—to form a binary contrast. However, it is still not clear how this binary contrast can be arranged to make one line that is "good to hear," or more well-formed, than another. Investigating this is also a daunting task, because it requires a collaboration between linguists and psychologists. Ultimately, there may not be any purely metrical rules, since these rules are associated with how humans perceive rhythm, a feature which belongs to the field of psychology.

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Appendix

Chinese recent-style verses analyzed in this dissertation

1. Wang Bo 王勃

上巳浮江宴韻得址字
春日宴樂遊園賦韻得接字
山亭夜宴
詠風
聖泉宴
尋道觀
散關晨度
別薛華
重別薛華
遊梵宇三覺寺
麻平晚行
送盧主簿
餞韋兵曹
白下驛餞唐少府
杜少府之任蜀州
仲春郊外
郊興
郊園即事
觀佛迹寺
山居晚眺贈王道士
八仙徑
春日還郊
對酒春園作
觀內懷仙
秋日別王長史
上巳浮江宴韻得遙字
長柳
羈遊餞別
易陽早發
焦岸早行和陸四

深灣夜宿
傷裴錄事喪子
晚留鳳州
羈春
林塘懷友
山扉夜坐
春莊
春遊
春園
林泉獨飲
登城春望
他鄉敘興
夜興
臨江二首
江亭夜月送別二首
早春野望
山中
冬郊行望
始平晚息
扶風晝屆離京浸遠
普安建陰題壁
九日
九日懷封元寂
有所思

2. Luo Binwang 駱冰王

在軍登城樓
於易水送人一絕
挑燈杖
詠塵
玩初月
泳照
於紫雲觀贈道士
在獄詠蟬
途中有懷
出石門
至分陝

北眺春陵
久客臨海有懷
游衮部逢孔君自衛來，欣然相遇若舊
賦得白雲抱幽石
秋日餞陸道士陳文林得風字
秋日送尹大赴京
秋夜送閻五還潤州
初秋於竇六郎宅宴得風字
送鄭少府入遼共賦俠客遠從戎
送費六還蜀
秋日送別
別李嶠得勝字
游靈公觀
春夜韋明府宅宴
冬日宴
鏤雞子
詠雲酒
詠美人在天津橋
憲台出縶寒夜有懷
月夜有懷簡諸同病
送宋五之問得涼字
冬日過故人任處士書齋
詠雪
渡瓜步江
王昭君

3. Shangguan Yi 上官儀

早春桂林殿應詔
奉和潁川公秋夜
謝都督挽歌
王昭君
詠雪應詔
奉和山夜臨秋
江王太妃挽歌
故北平公挽歌
從駕閬山詠馬

4. Xue Daoheng 薛道衡

從駕天池應詔詩
梅夏應教詩
人日思歸詩
歲窮應教詩
詠苔紙詩