

The Musical Expression of “san zu liang er”: New Explorations of Interval and Sonata Form in “鼎”

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Abstract

Yao Henglu is one of the most distinguished contemporary Chinese composers and educators. His work for Free Bass Accordion, “鼎”, Ding, (TRIPOD, Sonata No.1 for Free Bass Accordion), is a unique solo repertoire for the instrument. Yao Henglu employs a culturally informed approach to defining musical structures and organizes musical ideas through innovative Interval concepts. This piece reflects the composer’s integration of Chinese cultural elements into the framework of Western sonata form and explores innovations in interval relationships. This article examines “鼎” from three perspectives: an overview of the composer and the work, the “san zu liang er” (三足两耳) in sonata form, and an analysis of interval innovation. Through this exploration, the connection and fusion between Western modern compositional techniques and Chinese cultural traditions were revealed, highlighting Yao Henglu’s contributions and the uniqueness of “鼎”.

Keywords: 鼎, san zu liang er, interval, Sonata form, accordion

1. Introduction

At the end of the 19th century, Western music was introduced to China through missionaries and military forces. The integration of Chinese and Western music primarily manifested in the practice and experimentation of Western music theory and compositional techniques within Chinese music creation. In 1919, the May Fourth Movement catalyzed the New Culture Movement, fostering the emergence of various musical ideologies and marking the beginning of professional music composition in China. During the Reform and Opening-Up, the first generation of Chinese students who studied abroad returned home, bringing Western compositional theories to China. Pioneers such as Zhao Yuanren in Chinese art song composition and Liu Tianhua in instrumental music incorporated Western compositional techniques into their works. In 1920, Xiao Youmei introduced Western professional music education systems and compositional theories to China. The establishment of the National Conservatory of Music in 1927 signified the formal beginning of China’s professional music endeavors (Hu, 2020). The influence of Western modern compositional techniques on Chinese composers became evident in the works of Ma Sicong, Xian Xinghai, Tan Xiaolin, and Ding Shande during the 1930s and 1940s (Wang, 1986). In 20th-century musical compositions, many Chinese composers experimented with blending pentatonic and tonal music systems in their creative practices, such as the twelve-tone technique (Rao, 2002).

On August 24, 1956, Mao Zedong remarked in “*Talks with Music Workers*” that music could adopt reasonable principles from foreign sources and employ foreign instruments but must maintain national characteristics, unique styles, and originality. He argued against “*quan pan xi hua*” (全盘西化), advocating instead for creating works based on Chinese artistic traditions while selectively absorbing foreign elements. He emphasized the importance of learning extensively from foreign practices while preserving the individuality of Chinese art (Mao, 1996). Furthermore, under the influence of political policies such as the Reform and Opening-Up of 1978 and the “shang shan xia xiang” (上山下乡), the 1970s witnessed the emergence of “*Xin Chao*” (新潮) music, presenting a new musical trend that integrates Chinese and Western cultures (Wang, 1988).

In the context of China’s evolving musical landscape, Chinese composers and works have continued to emerge

with distinctive contributions. This paper is conducted through Yao Henglu's accordion work “鼎” to explore his innovative use of interval construction and the integration of musical structure with cultural meaning. It examines three aspects: the composer's academic background and engagement with contemporary compositional techniques; the culture of “鼎” and its structural correspondence with the Western sonata form; and the use of intervals as a structural device that bridges theory and practice in a solo accordion setting. Through this analysis, this article reveals the cultural significance and technical value of “鼎” as a landmark work in contemporary Chinese accordion music and highlights Yao's contribution to modern Chinese composition, the development of theoretical frameworks, and its growing international influence.

2. Yao Henglu

Yao Henglu (1951-2022) was a professor at the Central Conservatory of Music, and a renowned composer, music theorist, and educator. He was the first recipient of a Ph.D. in composition from the University of Leeds in the UK, where all eight of his compositions were included in the university library collection and designated as required references for postgraduate studies. Yao Henglu significantly contributed to promoting professional music theory and education in China. His diverse life experiences—including his family background, early music education, rural musical performances and compositions, diligent studies during university, work as a music editor, and studies at the University of Leeds—shaped his rich life experiences, fervent creative passion, and solid compositional foundation.

Upon his return to China in 1995, he initiated the “Modern Compositional Techniques” course at the Central Conservatory of Music. He led the Ministry of Education's project on the “Systematic Analysis of Contemporary Western Compositional Techniques” under the Cross-Century Talent Training Program. He creatively combined theoretical and practical approaches, pioneering the integration of Western modern compositional techniques with Chinese traditional music, significantly influencing contemporary Chinese music composition. Yao was an active scholar-composer who published several influential books. Over his lifetime, he composed more than 140 works, spanning symphonies, vocal music, orchestral works, piano pieces, and accordion compositions. He engaged in frequent academic and performance activities, fostering international exchange in countries such as China, South Korea, the UK, Germany, and Austria.

With an open and innovative mindset, many Chinese composers have approached the integration of Western modern compositional techniques with traditional Chinese elements. Some have developed unique systems blending Western techniques with Chinese philosophy, such as Zhou Wenzhong's Yijing system and Zhao Xiaosheng's Tai Chi system (Xue et al., 2023). Yao seized the opportunity to modernize national music, creating modern accordion compositions with distinct Chinese characteristics. His works serve as exemplary models for the continuation and innovation of traditional music in contemporary composition. Since 2001, Yao composed 16 accordion works, including solos, ensembles, and chamber music. These compositions, created during his golden period of creativity, exemplify his mastery of blending diverse cultural elements through his compositional techniques, ideas, and emotions.

3. “鼎”, TRIPOD, Sonata No.1 for Free Bass Accordion

“鼎” (Ding) was an ancient Chinese pottery vessel designed to meet various aspects of daily life, primarily used for steaming and cooking food (Guo, 1954). At the same time, the ding also served as a ritual object in ancient Chinese ceremonies and symbolized royal authority (Guo, 1976). (Figure 1)



Figure 1. “民族团结宝鼎” “min zu tuan jie bao ding” (photographed by Yao Qin, March 2023)

Ding (or tripod) represents the highest honor and the supreme social status of its owner, which symbolizes prosperity and a flourishing community. The name three pillars tripod comes from the three-foot and two “ear pieced” (handle) design, which metaphorically describes evenly matched three-way forces that are currently against each other. In ancient times, the tripod usually represents the lordship. In Chinese culture, there has always been a sense of Ding worship, because the character “Ding”, has also been given other meanings, such as “outstanding”, “noble”, and “grand”. This repertoire starts from this viewpoint and strives to show the national spirit of foundation, stocky and confident Connotations (Yao, 2013).

This repertoire was composed in January 2013 and later published in October 2015 “Music Composition”. It is a one-movement work, lasting approximately 7’55 minutes. This repertoire integrates modern compositional techniques with traditional Chinese culture, presented through the accordion. The work employs a compositional approach based on intervals, pioneering a new domain in Chinese accordion compositions. The overall structure of the piece is conceived concerning the physical form of the traditional “鼎” (Tripod), using its cultural significance to shape the musical themes and their development, thereby imbuing the structure with unique cultural meaning. This piece adopts a western sonata form structure to resemble the design of the three-pillar tripod. The changing development of the three partial main statements versus the two main themes gives rise to the piece’s A-B-A structure. The Western sonata form is aligned with the tripod’s “san zu liang er” (三足两耳) structure, achieving not only a formal resemblance but also a spiritual resonance. The “san zu” (三足) corresponds to the three sections of the Western sonata form: “exposition, development, and recapitulation”, the “liang er” (两耳) symbolizes the two primary themes. At the same time, the piece leverages the unique timbre of the accordion and its specialized playing techniques to vividly and powerfully convey this ancient, abstract, and profound cultural concept, making it a truly distinctive work.

The piece premiered in Russia on June 2nd, 2015, during the 18th “Friends of Oskolkov” International Arts Festival in Saint Petersburg, Russia. The performer, Sergey Tchirkov, excels at performing contemporary works. He is a renowned young accordionist in Russia and a faculty member at the St. Petersburg Conservatory. Tchirkov expressed his excitement and high expectations for the debut of “鼎”. He expressed his keen interest in the traditional Chinese cultural elements embedded in the work. He hoped his performance would enable the audience to experience and appreciate them (Wang, 2015). Before the performance, the famous Russian composer, and festival director, Oskolkov, introduced the cultural significance of the Chinese “鼎” to the audience. Tchirkov’s performance exceeded expectations, delivering a flawless interpretation of the composer’s musical vision and ideas (Wang, 2015). Tchirkov believes that this piece not only showcases the composer’s creative abilities but also represents an innovative practice of integrating Chinese traditional culture and modern compositional techniques into accordion. The festival director, Oskolkov, expressed high admiration for the harmonic applications of the piece and the charm of Chinese traditional culture it embodies. He described the work as having a sense of dignity and simplicity, and he hopes Professor Yao will continue composing accordion pieces with a distinctly Chinese style. Other artists also expressed their love and appreciation for this piece, noting that the “鼎” culture reflected in the work felt both wondrous and solemn, evoking strong visual and emotional resonance.

4. The Formal Structure of “鼎” (Tripod)

The work adopts the structure of the Western sonata form, corresponding to the “san zu liang er” (three legs and two ears) shape of the “鼎”. The three main sections—“Exposition, Development, and Recapitulation”—correspond to the “san zu” (three legs) while the primary and secondary themes correspond to the “liang er” (two ears). The structure of the work is shown in Table 1.

The composer employs the sonata form to structure the work, focusing on three key sections. Firstly, Introduction and Exposition. The introduction presents a powerful and mysterious theme, representing “the human visage” and “the course of history”. These themes are marked by energetic rhythmic activity, high clarity, and a richly textured soundscape. Secondly, The themes of the development are fragmented and explored through contrasts and unifications in interval structures, pushing harmonic boundaries. The increasing rhythmic complexity creates tension, symbolizing transformation. Thirdly, Recapitulation and Coda. The themes return in a more enriched and fuller texture, expressed through whole-tone intervals. This resolves the harmonic tension and provides a sense of closure. The coda features dramatic dynamic shifts and transitions, emphasizing the final balance.

Table 1. The form structure of “鼎” (Tripod)

Section	Introduction		Exposition		Development		Recapitulation			coda	
	Motivic	Main Theme A	Bridge	Secondary Theme B	Development I	Development II	Main Theme A	Bridge Theme B	Secondary Theme B	Coda I	Coda II
Bars	1-13	14-28	29-41	42-67	68-82	83-95	96-118	119-124	125-145	146-153	.154-161
Tempo	Rubato	69	63		69	63		118			54
Interval	1,3,5	1,2,3,5,6			1,2,3,5		1,2,3,4,5,6		1,2,3,5,6	1,2,3,4,5,6	1,3,5/1,2,4,6/1, 3,5+6+2/
Material	Material Based on 5,3,1	Polyphonic Texture, Double Counterpoint	Pentatonic Counterpoint	Ground Bass	Primary, Secondary Material	Bridge Material	Semitonal Material Emphasizing 6,1	Material Based on 6,1,5	Recapitulation of Theme A	Return to Introduction	
Meter	4/4 3/2	7/8	2/2	4/4	4/4	3/4	3/4 4/4	4/4 5/4	5/4 4/4 7/8	4/4 7/8	3/4

5. The Correspondence between the Work's Structure and “san zu liang er”

The work adopts the Western sonata form, whose tripartite structure—“Exposition, Development, Recapitulation”—corresponds to the “san zu” (三足 Three legs) of the “鼎”. The two main themes of the piece represent the “human spirit” as well as the “progression in human history”. Throughout history, the Chinese nation’s spirit has been one of steadfast progress, resilience in the face of adversity, and continuous self-improvement and reform. The Chinese character “鼎” is classified with a “mu” (目) radical; this is derived from the pictographic form, which means “the eye”. This pictographically designed nature of the character depicts the determination to achieve end goals. The ultimate meaning of the piece is to declare that: in the cause of the continuous development of humanity, the goal has always been working towards all aspects of the revitalization of the “mu” while synchronizing with nature and the world (Yao, 2013).

The sonata form in Western music emphasizes structural harmony and balance, which aligns seamlessly with the cultural concept of the Chinese “鼎”. The “鼎” symbolizes stability, authority, and harmonies, while the sonata form achieves a similar aesthetic balance through the contrast and unification of primary and secondary themes. This structural parallel resonates with the Chinese cultural ideal of pursuing overall harmony.

The “san zu” (三足) of “鼎” provides stable support, ensuring it can stand firmly on the ground. Similarly, the “Exposition-Development-Recapitulation” structure of the sonata form offers stability and support for the entire movement. The “Exposition” is one of the Ding’s legs, establishing the core themes. The subsequent “Development” is another support point, allowing the music to undergo variations and growth, enhancing the movement’s tension and dynamic contrast. The “Recapitulation”, akin to Ding’s third leg, brings balance and resolution, revisiting the themes introduced in the Exposition and ensuring structural cohesion and harmony. The Ding’s three legs must rely on each other to maintain stability, without one, it cannot stand. Similarly, the three sections of the sonata form are interdependent and indispensable. The “Exposition-Development-Recapitulation” framework creates a unified musical narrative. Without the contrast and conflict introduced in the “Development”, the music loses its dramatic character. Likewise, without the “Recapitulation”, the movement would lack a satisfying conclusion. This interdependence highlights the alignment between the structural roles of the sonata form and “鼎”. Both demonstrate a dialogue and reconciliation between complexity and stability in their structural designs, achieving harmony in both form and function.

The two themes in the sonata form can be linked to the “liang er” (两耳) of “鼎” through their relationship of contrast and correspondence, illustrating structural similarities and deep cultural integration between East and West. The two ears of “鼎” are symmetrically positioned, both functional and decorative, symbolizing balance and a sense of wholeness. Similarly, the two themes create a striking musical contrast—one often characterized by strength and clarity, while the other conveys softness or contrasting emotions. Just as the two ears of “鼎” provide harmony and completeness to its overall design, the interplay between the two themes achieves coherence and richness in the movement, harmonizing their contrasts to form a unified and intricate musical narrative.

“鼎” embodies the rituals and history of Chinese culture, representing authority and traditional values. Meanwhile, the structure of the sonata form reflects Western culture’s exploration of reason and emotion. When these two structural concepts are interconnected, they reveal a dialogue and fusion between the East and the West. This fusion showcases the philosophical parallels between Eastern and Western art forms and offers a new perspective on the mutual influence and coexistence of music and culture.

The Exposition (Rehearsal Mark B, C, D, Bar 14–67) presents the primary and secondary themes, representing

the “human spirit” and “progression in human history” respectively. The primary theme (Rehearsal Mark B, Bar 14–28) portrays the “human spirit” marked by the composer’s indication of “*Allegretto energico*”. The melodic material incorporates accents, staccatos, sustained notes, and trills, with varied rhythms and strong dynamic contrasts (Figure 2).

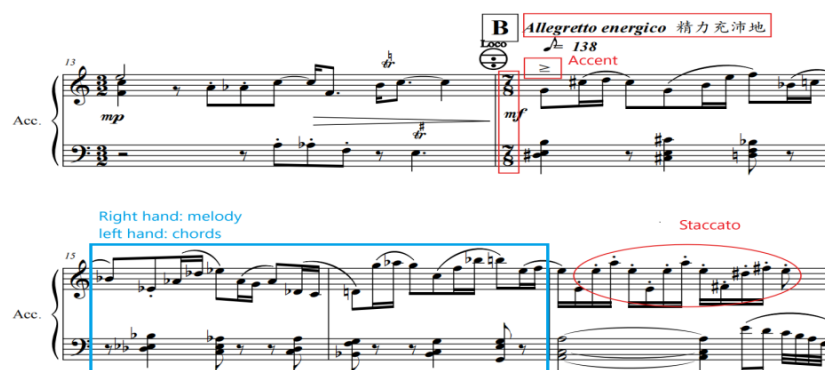


Figure 2. Main Theme A (Rehearsal Mark B, Bar 14-17)

This theme is set in 7/8 time signature. Although the time signature remains constant, the grouping of beats changes frequently, accompanied by continuous syncopation, which brings variability and an unconventional character to the accentuation. Meanwhile, the two voices alternate between the higher and lower registers of the right and left hands, forming a contrapuntal relationship through varied imitation. This section exudes a vibrant energy and rich musical tension, vividly portraying the distinct “human spirit” (Figure 3).



Figure 3. Main Theme A (Rehearsal Mark B, Bar 18-25)

The secondary theme B (Rehearsal Mark D, Bar 42–67) symbolizes “progression in human history”. Set in 4/4 time, the composer employs the “Ground Bass” technique in the lower register, using sixteenth notes as a continuous rhythmic foundation to create a steady and powerful stride. This rhythmic foundation interacts with the upper voice’s rhythms, which feature eighth and sixteenth-note patterns, syncopations, and triplets. Together, they drive the music’s energy and establish a sustained sense of tension and momentum, portraying the grand and unstoppable progress of history’s wheel (Figure 4).

In the primary theme A and the secondary theme B, the composer employs polyphonic textures, primarily two-part and three-part writing, to enhance the vivid expression of both themes. Regarding intervals, the music predominantly features combinations of seconds, fourths, and fifths. According to the time signature, the primary theme is set in 7/8, while the secondary theme is in 4/4; however, the music maintains a sense of rhythmic coherence without excessive metrical disruption. The musical style of the primary theme conveys a robust and vigorous character, while the secondary theme portrays a driving, forward-moving image. These two themes

correspond to the “liang er” of “鼎”, embodying characteristics of contrast and unity.

The image shows a musical score for Secondary Theme B, starting at Rehearsal Mark D, Bar 42. The score is in 4/4 time, marked 'Andante' and 'mp'. It features a piano (p) part and an accordion (Acc.) part. A red box highlights the piano part from bar 42 to 44, labeled 'Ground Bass'. A green box highlights the piano part from bar 44 to 46, labeled 'syncopation'. A green box highlights the piano part from bar 46 to 48, labeled 'tercet'.

Figure 4. Secondary Theme B (Rehearsal Mark D, Bar 42-46)

6. Intervals

According to Asafyev, intervals represent a primitive form of music. When people begin to express melodies, they establish stable pitch points (nodes) and the connections between them (arched structures) to convey the “stability” or tension of the melody. In a particular period, the predominance of an interval is due to its selection under the influence of social consciousness, becoming a reflection of the musical style of that time (Asafyev; Zhang, 1995). From Asafyev’s perspective, it is evident that “intervals” form the foundation for constructing musical works.

The understanding of intervals varies across different historical periods and musical contexts. We can interpret and explain intervals from the following two perspectives, firstly, intervals within the framework of scales. In the context of scales, the understanding and perception of intervals originate from “scale degrees”. Tonal music often situates intervals within the framework of various scales, where the two notes forming an interval are understood as two degrees separated within the scale. The name of an interval is derived from both the difference in scale degrees and the relative size of that difference within a specific context. Even in tonal music, the understanding and perception of intervals are multifaceted. When two notes occupy different scale degrees, they exhibit different tendencies and evoke distinct auditory impressions. Secondly, intervals within the Framework of Sets. In this context, notes assume roles different from their traditional positions within a scale. They no longer represent scale degrees, but instead become part of a larger whole—a set. In the absence of a scale to serve as a backdrop, the characteristics of intervals are determined by how they combine to form sets (Mead, 1997). Therefore, intervals are not only present in traditional melodies, scales, and chords but also form the basis of serialism and serve as a measure within pitch-class sets. Consequently, the function of intervals is highly versatile. It is not an exaggeration to say that intervals form the foundation of musical works. The use of various compositional techniques gives rise to diverse musical styles, which, in turn, shape both the role and the perception of intervals (Yao, 2020).

6.1 Interval Class

Atonal Set Theory breaks away from traditional tonal relationships and provides a framework for describing various new musical structures. The novelty of atonal music structure has compelled theorists to reconsider fundamental musical elements such as pitch and interval. Based on this reevaluation, the concept of set emerged—a new theoretical approach sufficiently flexible to sufficiently flexible to describe non-tonal musical structures (Straus, 1991).

In 1908, as Arnold Schoenberg began composing his “George Song”, Op. 15, the musical world witnessed a profound transformation. In this work, Schoenberg abandoned the traditional tonal system, which provided the basis for musical grammar in the past years. Subsequently, Schoenberg and several other composers produced a substantial repertoire of what became known as atonal music (Forte, 1973). Looking at Schoenberg’s works from 1908 and the following years, a significant reason these compositions have drawn the attention of analysts is that they represent an experimental phase—one in which traditional tonal methods had already been broken but serial music had not yet fully materialized. Dean summarized Schoenberg’s creative characteristics during this period as a complex interplay of retrospection and anticipation. In Schoenberg’s Op. 15, No. 6, we can observe compositional thinking that embodies the characteristics of interval-based creation. In other words, as early as

1908, Schoenberg experimented with a new method of organization, one that simultaneously controlled *Interval Class* (IC) content in both vertical and horizontal planes (Dean, 1973; Yao, 2008).

Forte simplifies the twelve intervals into six interval classes, with each pair of intervals forming an equivalence class. Just as Pitch Class is abbreviated as PC, Interval Class is abbreviated as IC (Forte, 1973). Straus outlines four ways to describe and represent intervals: ordered pitch interval, unordered pitch interval, ordered pitch-class interval, and unordered pitch-class interval. Here, we use unordered pitch-class intervals, also known as Interval Classes (Straus, 1991). Yao Henglu introduced the concept of “Interval-class Number” (abbreviated as I.C. Number), which aligns with Allen Forte’s concept of Interval Classes (IC). Yao Henglu uses numbers 1–6 to correspond to specific intervals: Minor second, Major second, Minor third, Major third, Perfect fourth/fifth, and Tritone (Yao, 2000). Yao elaborated on his “Interval Thinking” (Interval Composition Method). He stated: that structuring music according to interval classes generally involves categories of 2–5 types, such as 2, 3, 5, or 1, 4, 5, 6. If all six intervals are present, covering all interval classes, it is called “all intervals”. Unlike traditional serial composition, this method does not require composing strictly according to a preordained sequence of twelve tones, nor does it rely on the order of segments in a twelve-tone series. The method is unaffected by rhythm or meter, with the interval relationships of a set becoming the primary focus. Regardless of how the order is changed, the strict interval relationships within the set remain constant. This unique analytical approach organically transforms set theory into an interval-based compositional method, allowing it to exist as an independent technique. The method represents a departure from traditional row and scale-based thinking, implementing compositional steps solely based on the characteristics of interval thinking. Here, the interval content within a set is elevated as the primary compositional resource (reduced to the semitone interval relationships 1–6) (Yao, 2008; 2020). Song introduces Yao’s “Interval Thinking” and analyzes how Yao employed this method in works such as “Mountain Song” and others (Song & Sornyai, 2023).

The pitch-class numbers of the twelve-tone chromatic scale begin with “0”, with its octave equivalent being “twelve”. In Table 2, the sum of each pair of intervals equals twelve, signifying the relationship of intervals within the semitone range of the twelve-tone equal temperament system.

Table 2. Notation for the correspondence between numbers and intervals

Minor second	Major second	Minor third	Major third	Perfect fourth	Tritone
1	2	3	4	5	6
11	10	9	8	7	6
Major seventh	Minor seventh	Major sixth	Minor sixth	Perfect fifth	Tritone

These twelve intervals can be simplified into six interval classes, with each interval class encompassing several individual intervals. The six interval classes can be represented using the numbers 1–6, corresponding to: Minor second/Major seventh, Major second/Minor seventh, Minor third/Major sixth, Major third/Minor sixth, Perfect fourth/Perfect fifth, and Tritone. For example, the interval class “1” (IC 1) includes minor second intervals, the inversion of the minor second interval (major seventh), and compound intervals such as the minor ninth. Interval classes will be abbreviated as IC (Forte, 1973; Straus, 1991; Yao, 2000).

6.2 Interval Vector

Among the methods for analyzing intervals, Forte’s twelve-tone pitch-class set analysis (Forte, 1985) is significant. Forte’s idea in *The Structure of Atonal Music* (1973) includes the “Name”, “Pc. Set”, and “Interval Vector” for each set. The “Interval Vector” is typically presented as a sequence of six consecutive numbers, representing the distribution of six interval classes within a pitch-class set. The six positions of the vector correspond to the following interval classes in order: Minor second (1), Major second (2), Minor third (3), Major third (4), Perfect fourth/fifth (5), and Tritone (6), including their inversions. In an interval vector, the first number indicates the frequency of interval class 1, the second number indicates the frequency of interval class 2, and so on. For example, in sets 4-11, the “Interval Vector” is “121110”, which indicates the presence of one minor second, two major seconds, one minor third, one major third, one perfect fourth/fifth, and no tritones.

6.3 The Construction of Intervals

Yao Henglu’s concept of three types of pitch thinking—“scale”, “row”, and “interval” thinking—represents an exploration and extension of pitch organization theory. It further explores how traditional and modern compositional techniques are integrated—an approach Yao has developed and refined in his compositions. These three approaches to pitch organization reflect the fundamental forms of pitch systems in contemporary music

composition (Yao, 2008). In practical application, this method neither relies on modal scales nor adopts the techniques of rows or series. Instead, it uses intervals themselves as the driving force of the pitch system. Interval classes serve as the fundamental means of differentiation, constructing unique soundscapes based on the distinct characteristics of *Interval-Class* (IC) combinations (Yao, 2020).

In the specific compositional process, the development of “*Interval concept*” occurs through the following steps: segmentation-derived serialism → set formation (where the interval content relationships within the set become the primary focus). At this stage, the interval vector within the set is transformed into a compositional resource, simplified into the semitone interval relationships 1–6 (IC 1-6).

To construct music based on interval classes, one can use combinations of the six interval classes. For example, intervals 2, 3, and 5 (using major second, minor third, and perfect fourth/fifth) or 1, 4, 5, and 6 (using minor second, major third, perfect fourth/fifth, and tritone). A set that contains all six interval classes is termed an “all-interval set”, as it spans the complete range of interval relationships. Firstly, in the specific compositional process, a non-serial approach is adopted, eliminating the need to compose strictly according to the limited twelve tones of a series. Secondly, there is no requirement to follow the order of segments in a twelve-tone series, and the process is unaffected by rhythm or meter. The internal interval structure of the set becomes the primary focus of compositional thinking. Furthermore, this structure remains invariant regardless of how the set is ordered. Due to these factors, set analysis can be organically transformed into an interval-based compositional method. By focusing solely on the characteristics of intervals to guide the compositional steps, this technique achieves independence as a distinct creative approach.

After listing the interval classes used in a composition, an important step is to summarize the structural patterns of their occurrence. Each combination of one or two interval classes represents a distinct “*Harmonic Field*” (和声场) with its sonic characteristics. Contrasting combinations of intervals create sonic contrasts and distinctions, enhancing the work’s auditory depth. In Classical and Romantic music, the focus of understanding polyphonic music lies in recognizing its choice of chords, harmonic, and contrapuntal motion. In modern music, however, the construction of polyphony requires special attention to “*Interval Classes*” and their structural organization, from which the polyphony emerges.

Yao Henglu’s compositional practice of using “intervals” to construct music is reflected in several of his works. For example, in the introduction of “*Poetry of Music*” (Yao, 2013), the intervals used are 2, 3, and 5 (major second, minor third, and perfect fourth/fifth). Whether in their original form or inverted, intervals 2, 3, and 5 exhibit a “pentatonic” sonic characteristic (Figure 5).

樂 賦 Poetry of Music
for Solo Flute
Heng-lu Yao
姚 恆 璐

The image shows a musical score for a solo flute piece titled 'Poetry of Music' (樂賦) by Yao Heng-lu. The score is written for a solo flute in G major (one sharp) and 4/4 time. It consists of three staves. The first staff has a red rectangular box highlighting a specific melodic line. Within this box, three intervals are circled and labeled: a major second (2), a minor third (3), and a perfect fourth/fifth (5). The tempo and dynamics markings include 'Ad. lib.' (Ad libitum), 'pp' (pianissimo), 'mf' (mezzo-forte), and 'p' (piano). A section marked 'B' with the tempo 'Largo' and a quarter note equal to 48 is also indicated.

Figure 5. Poetry of music

A representative example is Yao Henglu’s piano work “*Sonic Track of The Origin*” (Yao, 1992), which explores the fusion of Chinese musical elements and modern Western compositional techniques. The piece is built on a *Three-note Group*, at the beginning of section A, the first *Three-note Group* is introduced (Figure 6): 1, 4, 5 (minor second, major third, perfect fourth/fifth). At the beginning of section B, the second *Three-note Group* appears (Figure 6): 1, 2, 4 (minor second, major second, major third). In section E, the third *Three-note Group* is used: 2, 3, 5 (major second, minor third, perfect fourth/fifth). A shared interval connects the musical ideas between sections, while differing intervals create contrast, achieving contrast and unity in the sonic landscape (Figure 6).



Figure 6. Sonic track of the origin

7. The Construction of Interval Relationships in “鼎” (TRIPOD)

In this piece, the composer explicitly utilizes intervals as structural and compositional tools—a method consistently applied throughout the work. The composition is entirely based on interval structures. Yao Henglu’s application of this compositional method in accordion repertoire represents a pioneering advancement in the development of accordion works.

The opening section begins with a powerful tone (Bar 1–3), using interval classes 1, 3, and 5, which include minor second and its inversion, minor third and its inversion, and perfect fourth/fifth (Figure 7, Bar 1). F–C corresponds to interval class 5 (perfect fifth), C–C# corresponds to interval class 1 (minor second), and C#–E corresponds to interval class 3 (major sixth). In bar 4, the interval classes are 1, 4, and 5, including minor second and its inversion, major third and its inversion, and perfect fourth/fifth (Figure 7, Bar 4). F–A corresponds to interval class 4 (major third), A–Bb corresponds to interval class 1 (minor second), and Bb–Eb corresponds to interval class 5 (perfect fourth).

This section is characterized by its strength, resilience, and vitality. The theme is angular and dynamic, featuring frequent leaps and syncopations. Trills and transitions involving minor seconds enhance the momentum and sense of mystery, leading to dramatic changes in the second measure. Both the second and fourth measures are in free rhythm (注 1, Note 1) and accelerate gradually (注 2, Note 2). Bar 1–2 and 3–4 form a parallel structure with antiphonal responses, featuring dynamic contrasts between forte and piano, crescendos and decrescendos, linear statements, “Bellows Shake” techniques on block chords, and accelerating tempos. This design effectively conveys a sense of power, mystery, and grandeur (Figure 7).

Figure 7. Introduction (Rehearsal Mark A, Bar 1)

The second theme (Bar 5–10) features a three-phrase parallel structure. The interval classes are 1, 3, 4, and 5, incorporating the IC from bars 1-5, with a modern tonal quality (Figure 8).

Figure 8. Rehearsal Mark A (Bar 5-10. Three Parallel Phrases, Interval Classes 1, 3, 4, 5)

The interval classes in the Exposition theme (Rehearsal Mark B) are primarily 1, 3, 5, and 6, with appearances of interval classes 2, 3, 5; 1, 3, 4, 5; and 1, 2, 3, 5, 6. At bar 26, near the end of the theme, interval classes 1, 2, 3, 5, and 6 are introduced, adding interval classes 2 and 6 compared to the Introduction. This serves as a transitional link. Beginning with the transition section (Rehearsal Mark C) and extending into the Development, the composition centers on interval classes 1, 2, 3, and 5, as illustrated in Figures 9, 10, and 11; this usage continues until the Recapitulation.

Figure 9. Rehearsal Mark C (IC: 1, 2, 3, 5)

Figure 10. Rehearsal Mark D (IC: 1, 2, 3, 5)

Figure 11. Rehearsal Mark E (IC: 1, 2, 3, 5)

The Recapitulation (Rehearsal Mark F) unfolds with all intervals (1–6), encompassing all previously introduced interval classes (Figure 12). This section reprises and synthesizes the overall work, achieving structural and thematic unity.

Figure 12. Recapitulation (Rehearsal Mark F) IC: 1, 2, 3, 4, 5, 6

The analysis above demonstrates how Yao Henglu redefined intervals, treating them as the fundamental units of musical logic. This approach moves beyond the traditional “Scale-based” framework, directly constructing musical structures based on interval classes (IC). It represents a shift from the conventional “Scale thinking (scale-based concept)” (yin jie si wei) to modern “Interval thinking (interval-based concept)” (yin cheng si wei). In this transformation, intervals are redefined as core creative tools, rather than merely the constituent pitch cells of motives or the building blocks of harmony and melody. Intervals in this context serve not only in the design of melodic lines, harmony, and counterpoint but also in constructing the overall structure of a composition. Intervals thus become not just compositional tools but a new paradigm of compositional thought, reflecting a paradigm shift from tradition to modernity.

The analysis also emphasizes the contrast and unity of interval relationships across sections of the piece. In the construction of the entire musical structure using interval classes, the process involves both contrast and inclusion. Identical interval classes generate similar sonic characteristics, while differing interval classes create sonic contrasts, embodying the principle of contrast and unity. This approach, which uses six interval classes to construct musical motives and develop materials, exists independently without dependence on rows or scales and does not require specific ordering. This applies to both tonal and atonal music.

When constructing interval classes, it is essential to consider the relationships between sound textures or sections and their contrasts to achieve the composer’s creative intent. This method provides greater flexibility in both compositional thinking and analytical approaches. It not only serves as a model for the practice and analysis of modern Chinese compositional techniques but also opens new possibilities for the composition style of Chinese accordion repertoire, introducing innovative forms and perspectives.

8. Discussion

This article explores the intricate fusion of Eastern and Western music and how the architecture of “鼎” is reflected in music composition. The fusion of national style with Western compositional techniques remains a constant source of inspiration for Yao Henglu. His artistic objective was to preserve national characteristics while practicing new compositional skills creatively reimagining musical language to produce music with a contemporary spirit.

The development of the “Interval concept” follows this pathway: **Segments of a Series** (derived into→) **Sets** (interval content transformed into→) **Interval concept**. Intervals inherently possess structural power for organizing musical sounds (harmonic fields). Following the principle of contrast and unity, a logical structural organization can be achieved. Emerging from Western atonal music, the interval concept offers cross-cultural possibilities but challenges composers to reconcile its logic with the linear expressiveness of traditional Chinese music. Successfully doing so requires high-level skills and creative vision. Improper handling may lead to overly technical works that lack emotional appeal. Additionally, complex interval relationships and structural designs impose higher technical demands and interpretative challenges on performers.

Yao Henglu’s accordion repertoire “鼎” not only demonstrates his unique compositional concept through the application of the “Interval concept”, but also pioneers a new field of accordion music repertoire by integrating elements of traditional Chinese culture. By analyzing its interval structure, we can compare it with Yao’s other works to further explore the evolution, application, and deeper meaning of the “Interval concept” in different compositions.

Yao Henglu consistently explores and applies the “Interval concept” throughout his works. In “Sonic Track of The Origin” (1992), Yao combined motif thinking with set theory, constructing the core material of the piece using interval relationships between three-note groups (such as minor second, major third, and perfect fourth and fifth). In “FANTASIA, The State Of Angel” (2001, accordion solo), the composer employed truncated segments of a symmetrical twelve-tone series to explore interval relationships within three-note groups, further showcasing the expressive potential of interval thinking in atonal music. In “Twining Around Plate and Silk” (2003, for free-bass accordion and cello), the use of core pitch sets resembles that in “FANTASIA, The State Of Angel”. However, this piece does not derive its three-note groups from a twelve-tone series; instead, it employs the cello’s tuning in perfect fifths to form the core four-note set D-E-G#-A [0,1,5,7], which is then divided into three-note groups with varying interval content: [0,1,6], [0,2,5], and [0,2,7]. In “Poetry of Music” (2013), Yao utilized intervals of 2, 3, and 5 (major second, minor third, and perfect fourth/fifth), demonstrating the characteristics of pentatonic sonority and highlighting the innovative application of the “Interval concept” in folk music styles. The “Interval concept” reached further development in “鼎” (2013), where the composer directly employed six types of IC (1-6) to construct the musical structure, breaking away from traditional scales and tone-row frameworks to create a unique compositional technique. These works collectively reflect Yao’s continuous exploration and innovation with the “Interval concept”. Notably, in “鼎”, the “Interval concept” not only shapes melodic and harmonic structures but also plays a crucial role in organizing the overall structure of the piece. From “Sonic Track of The Origin” to “鼎”, the “Interval concept” has evolved from a combination of the motif and set theory into an independent compositional technique.

In addition to its compositional innovations, “鼎” also resonated strongly on the international stage. Its premiere at the 18th “Friends of Oskolkov” International Arts Festival in Russia was met with enthusiastic acclaim from both performers and audiences. Accordionist Sergey Tchirkov praised the work for blending traditional Chinese elements with modern techniques, calling it a bridge between cultures. Festival director Oskolkov highlighted its dignified and solid character, emphasizing its emotional depth. Many audience members noted that the performance evoked vivid visual and cultural associations. These responses suggest that “鼎” not only stands out for its structural and technical achievements but also serves as a vital medium for cross-cultural dialogue and the expression of Chinese musical identity, reinforcing its artistic and cultural significance on the global stage. “鼎” draws audiences with its rigorous structure, while its rich sound, melodic tension, and culturally rooted expression further enhance its artistic impact. This aesthetic experience is grounded in the intricate organization of intervals and the distinctive timbre expression of the accordion. Its solemn, weighty, and uplifting musical character amplifies the cultural resonance and artistic appeal, highlighting its vitality and potential as a medium for cultural transmission and aesthetic engagement.

Yao Henglu’s compositional ideas not only represent theoretical innovation but also drive practical transformations suitable for modern music teaching and practice. His sixteen accordion repertoires warrant further analysis and discussion. These works serve as references for Chinese accordion music creation, exploring new techniques and musical forms, expanding expressive possibilities, and opening novel pathways for original accordion compositions in China. They also contribute to exploring the charm of accordion art within a broader cultural context.

9. Conclusion

Yao’s exploration of harmony could be seen in a few phases. From the exploration of pentatonic harmony in IMPRESSION ON YAN BEI (Note 1) (without abandoning modality and tonality), to the composition of FIVE PRELUDE AND FUGUE, for piano (Note 2), inspired by Hindemith’s compositional techniques, in which the emphasis on abandoning modality, focusing on the equality of twelve tones while still adhering to a tonal tonic, and finally to SONIC TRACK OF THE ORIGIN, for Piano (Note 3) (interval relationships determine style, completely atonal), his creative journey reflects a trajectory of exploring modern Western compositional techniques (Zhang, 2009). The work TRIPOD, constructed purely through intervals without reliance on scales or sets, further highlights Yao’s increasingly mature compositional methods and his gradual development of a distinctive personal style.

Through the analysis of the structure and compositional techniques of TRIPOD, Yao’s contributions to the sinicization of compositional techniques and the art of the accordion can be affirmed. First, in terms of academic and practical significance, his work advances the development of music theory. Structuring music directly through interval relationships represents a critical shift in compositional thinking from modality-centered to atonal systems. This method demonstrates that intervals not only serve melodic and harmonic functions but also play a structural role. Yao Henglu’s redefinition of the role of intervals in composition introduced the “Interval concept” as a distinctive method of utilizing interval relationships in creative processes. By integrating Western

techniques with Chinese cultural elements, he achieved a dual fusion of tradition and modernity, as well as technique and culture. This approach provides a new theoretical and practical model for contemporary music composition and offers new perspectives and possibilities for atonal and cross-cultural works. It holds milestone significance in compositional practice.

Second, his work holds educational value. The “Interval concept” offers a new methodology for teaching compositional techniques, enabling students to grasp modern compositional methods through a more logical and structured approach. This approach enhances compositional pedagogy and promotes a more profound engagement with contemporary music practices. Finally, Yao absorbed international modern musical languages and sinicized these techniques by integrating them with the iconic dying culture. He created accordion works with a distinctly Chinese style. By expanding the artistic boundaries of the accordion, Yao Henglu contributed significantly to its development and helped solidify its status as a serious concert instrument. His original Chinese accordion works have gained increasing recognition on the international stage, enhancing the global influence and competitiveness of the accordion in contemporary music composition.

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Notes

Note 1. Piano suite: IMPRESSION ON YAN BEI 10'40" (1981).

1. 《乡间行》 A WALK IN THE COUNTRYSIDE 1'03".
2. 《恒山高》 HENG MOUNTAIN 3'13".
3. 《嬉戏》 PLAYING 1'59".
4. 《山村小唱》 SINGING IN THE MOUNTAIN VILLAGE 2'48".
5. 《闹红火》 CARNIVAL 2'46".

Note 2. FIVE PRELUDE AND FUGUE, for piano 10'21" (1990)

C 3'34"; F 2'52"; G 2'29"; E 2'18"; Ab 2'35".

Note 3. SONIC TRACK OF THE ORIGIN, for Piano 7'30" (1992).

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