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A Study on the Use of Dissonance from the Perspective of Harmonic Function

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ABSTRACT
Harmony, as a combination of sounds formed by multiple notes sounding simultaneously, is a fundamental element in constructing the vertical structure of music. Traditional harmony theory emphasizes consonant sounds, such as perfect fifths and thirds, which play a central role in establishing tonal centers and chord functions. Dissonant intervals, such as the major and minor seconds, sevenths, and augmented fourths and diminished fifths, which create auditory tension, are often regarded in classical theory as transient phenomena that need to be resolved, with their structural value frequently overlooked. Therefore, this paper will focus on the functional perspective of harmony, starting from the essential attributes of intervals, and explore their functional mechanisms within tonal structures, aiming to reveal the dynamic value of dissonant elements within a comprehensive harmonic functional system.

KEYWORDS
Harmonic function; Dissonance

1 Introduction

In the musical system, harmonic function is established through the network of relationships between the tonic, dominant, and subdominant chords, imparting directionality and logic to the musical progression. This system has long relied on consonant intervals as the benchmark for functional determination, requiring dissonant intervals to adhere strictly to the linear rule of preparation, presentation, and resolution. This model yields two outcomes: dissonant sounds are defined as functionally dependent elements, and their inherent potential to create harmonic tension is simplified into a single dynamic process, from start to finish. Therefore, this paper will explore the implementation pathways of dissonant sounds in harmonic functional transitions and decorative expressions, aiming to establish a comprehensive framework for understanding their functional value.

2 Basic theory of harmonic function

2.1 Definition and classification of harmonic function

Harmonic function refers to the structural role of specific chords in establishing a tonal system. This role is manifested in their ability to guide the direction of musical movement, rather than merely reflecting the simultaneous combination of notes. When chords are assigned functional attributes, they become grammatical units that drive the logical development of music. In traditional theory, functional classification is defined based on the strength of the relationship between each chord and the tonal center. The tonic function represents the foundation and ultimate destination of tonality, possessing a sense of final stability, typically realized by the tonic triad. The dominant function is built on the fifth above the tonic, naturally possessing a tendency to return to the tonic. Its typical form, the dominant seventh chord, reinforces this tendency by adding a minor seventh note to create a dissonant effect, thereby forming an apparent functional tension. The subdominant function exists in the fifth below the tonic, providing support for the preparation of the dominant function and serving as an indirect contrast to the tonic function. For example, in the C central system, the F chord, as the subdominant function, can both serve as a precursor to the G dominant chord and form a coloristic connection with the C tonic chord. The tonic function provides a resting point, the dominant function generates propulsive momentum, and the subdominant function assumes the role of balancing transitions. Any chord organization deviating from this framework must return to the functional framework through resolution mechanisms to maintain tonal recognition [1].

2.2 The core role of harmonic function in music composition

The harmonic function system fundamentally supports the structural integrity of musical works, with its primary contribution being the establishment of a clear sense of tonal position, enabling listeners to perceive the reference point for the movement of sound. The tonic chord serves as the central point, the dominant chord creates a sense of displacement and anticipation through tension, and the subdominant chord expands the boundaries of the tonal range, collectively forming a hierarchical sound network with a directional structure. This network provides a vertical coordinate

system for melodic lines, enabling composers to design polyphonic logical relationships based on it [2]. Different functional progression patterns also generate distinctive structural rhythms. For example, in the typical tonic-subdominant-dominant-tonic sequence, the path from the stable point through the neutral transition zone to the conflict peak and back to stability constitutes the basic narrative model of music.Meanwhile, functional progression provides the encoding foundation for emotional symbols: the suspension and delayed resolution of the dominant chord accumulate anticipation, creating psychological anxiety; the unexpected replacement of the tonic chord by the subdominant chord produces a sense of unfulfilled expectation. Many 19th-century art songs precisely achieve the correspondence between poetic text and musical emotion by manipulating such functional expectations. The ability of the functional system to establish structural order, guide auditory expectations, and convey emotional information has become the core foundation for the continued existence of tonal music composition.

3 The nature of dissonance and its role in harmonic function

3.1 Definition and interval characteristics of dissonance

Dissonance refers to the auditory conflict produced when two or more notes sound simultaneously. This conflict stems from the complex proportional relationship between the frequencies of the pitches. When the frequency ratio is a simple integer, the sounds blend into a consonant state; the more complicated the ratio, the more pronounced the conflict. Traditional harmonic theory classifies intervals into two categories: perfectly consonant intervals, such as the perfect fifth with a frequency ratio of approximately 3:2, and imperfectly consonant intervals, such as the major third with a ratio of roughly 5:4, which form the material foundation of tonal harmony; dissonant intervals include the major seventh with a ratio of approximately 15:8, the minor second with a ratio of roughly 16:15, and the tritone with a ratio of approximately 45:32, which create auditory tension when stacked vertically. Historically, the acceptance of dissonance has fluctuated. During the Baroque period, only brief dissonance was permitted, resolving from a weak beat to a strong beat. By Wagner's time, dissonant chords, such as the dominant ninth chord, were sustained on strong beats. Modern acoustic research has confirmed that dissonance has a physiological basis, as the human ear's basilar membrane possesses a mechanism for distinguishing complex frequency combinations, which leads to neural signal conflicts. However, the actual application of dissonance in music is always regulated by cultural conventions, and this auditory tension mechanism forms the fundamental premise of functional harmony [3].

3.2 The relationship between dissonance and harmonic function

Dissonance occupies a central position in the harmonic functional system. On the surface, dissonance must be resolved according to established rules, such as the minor seventh of the dominant seventh chord descending to the third of the tonic chord, or the tritone resolving in the opposite direction. However, the primal energy driving harmonic movement stems precisely from the tension created by this forced resolution. Suppose the dominant seventh chord G-B-D-F in C major is altered to the consonant form G-B-D-E. In that case, the chord loses its inevitable tendency to guide the music back to the tonic chord C. Similarly, the dominant ninth chord enhances the tension of the cadence precisely because it adds dissonant layers of the major second and minor ninth. However, as early as Beethoven's late works, unresolved diminished seventh chords began to exist as independent sounds. This trend formed a new logic in the late Romantic period, with Scriabin fixing the sharp sound of the dominant seventh augmented ninth chord as the foundational material for mystical chords. At this point, dissonant intervals no longer required immediate resolution but directly assumed the function of tonal color. This reveals the underlying patterns of functional harmony's development, evolving from transitional elements dependent on resolution procedures into constituent elements that determine the functional nature of chords. The expansion of modern tonality is achieved by altering the temporal existence of dissonance to transform functional mechanisms.

3.3 The role and manifestation of dissonance in harmonic structure

Dissonance plays a crucial structural role in both the vertical structure and horizontal progression of harmony, with its fundamental function being to establish cycles of tension and release along the temporal axis. Any complete functional phrase must alternate between stable and conflicted elements, such as the peak of tonal tension in the dominant seventh chord of a cadence, which provides structural meaning through its resolution to the tonic chord. Even within a single chord, the position of dissonance influences vertical tonal form; dissonances in the higher register, such as sevenths or ninths, create a sharp sensation, while those in the lower register produce a rumbling tension. Beethoven frequently sustained dominant seventh chords in the bass register in the development section of his sonatas to create an oppressive atmosphere, essentially reinforcing the dissonant effect through register selection. In larger-scale structural designs, the

sustained presence of dissonant notes can alter the temporal proportions of tonality, thereby influencing the overall musical structure. Wagner's overture to "Tristan und Isolde" delays the resolution of dissonant states for seventy-six consecutive measures, causing the traditional perception of tonality to pause. In modern harmonic practice, dissonance has evolved from a dynamic medium to a surface sonic quality in itself. For example, Bartók freely overlaps augmented fourth chord clusters in his string quartets, replacing functional logic with central symmetry as the organizing principle [4].

4 The use of dissonance from a harmonic perspective

4.1 The guiding function of dissonance in harmonic progressions

The fundamental function of dissonance lies in creating a strong sense of movement. When music is in a stable state, the deliberate introduction of chords containing dissonant intervals forces the listener to anticipate specific subsequent chords. In traditional harmony, the combination of dissonant intervals within the dominant seventh chord creates a natural tendency toward the tonic chord, stemming from the tension formed by the minor seventh and the third. If the seventh is removed to create a consonant triad, the initially clear directionality weakens into an alternative transitional element. In actual phrase construction, the guiding function is often strengthened through delayed resolution, such as adding a ninth or augmented eleventh extension chord before the cadence, thereby extending the duration of dissonance to accumulate greater resolution potential. This principle applies not only to single chords but also underpins the operational framework of large harmonic sequences. For example, 14th-century polyphonic music utilized the collision of second intervals between upper and lower voices to stimulate horizontal interval changes. At the same time, the 18th-century Viennese School established functional loops through the forced connection of dominant seventh chords to tonic chords. The essence of modern musical innovation lies in reconfiguring the resolution system of dissonance, such as the suspended fluidity of the suspended seventh in jazz blues, transforming traditional functional tension into a sustained foundation of tension [5].

4.2 The role of dissonance in harmonic function transitions

The process of tonal transition in harmonic function necessarily relies on the external intervention of dissonance. The original functional order has a natural stability, and only the introduction of pitch elements missing from the current context into the target key chord can break the inertia of the original structure. For example, at the critical moment of transitioning from the tonic to the dominant key, it is essential to introduce a new leading chord structure to establish a functional interface. The effectiveness of this chord depends on its ability to simultaneously terminate the gravitational pull of the old key center and stimulate the tendency toward the new key. The core technique for achieving this dual effect is the introduction of conflicting intervals. When the tritone and seventh intervals of the dominant seventh chord are placed in the original key environment, the sharp collision between these intervals and the original functional harmony directly causes the tonal center to be forcibly displaced. Historical records of functional evolution document the strengthening of this mechanism: the Classical period relied on temporary dominant seventh chords for transitions, the Romantic period frequently used diminished seventh chords with multiple interpretive spaces to break boundaries, and Shostakovich directly employed multiple dissonant intervals in parallel to create layers of tonal ambiguity. Even when traditional resolution rules are abandoned, the operational logic of dissonant intervals persists. Modern composers grant dissonant intervals permanent functional status by pre-establishing artificial modal matrices.

4.3 The modifying and embellishing function of dissonant notes

When the fundamental tonality is established and stable, additional dissonant intervals are not used to drive the progression of the sequence, but rather to add a new dimension of sound to the existing functional harmony. The realization of this function requires strict conditions: all dissonant elements must maintain a clear subordinate status and must not undermine the foundational function of the root note. For example, in the extension of the ninth degree of the tonic chord, the minor dissonance introduced by the additional interval paradoxically reinforces the balance of the core triad through contrast; similarly, in cadences, the use of suspended fourth chords highlights the purity of the triad by delaying the return of the third degree. This decorative mechanism establishes a layering principle in vertical harmonic expansion, where lower intervals maintain the stability of the functional framework, while higher intervals carry the fluctuations of dissonant tension. Ravel's chord configuration techniques demonstrate that even complex primary chords containing major sevenths and minor ninths effectively maintain tonal center, provided that the lower register's pure fifths sustain a stable foundational sound layer. Modern decorative harmonic design further emphasizes this principle. When Bartók overlays multiple augmented fourth intervals on the central chord, the conflicting sounds transform into a unique vibrational texture. At the same time, the root note's fixed rhythmic cycle ensures the continuity of functional

recognition.

5 Conclusion

This article explores the role of dissonance in functional harmony, which drives harmonic movement by creating auditory tension, breaks tonal boundaries to achieve functional shifts, and enriches the internal logic of steady-state harmony. From the forced resolution of classical cadences to the independent sound construction of modern music, dissonant elements have always served the fundamental purpose of triggering subsequent sound events. Current music research must transcend traditional consonance-based evaluation systems, delve into the actual functional capacity of dissonant intervals in diverse musical contexts, and explore the associative patterns between vibration frequency combinations and tonal perception. By systematically analyzing the harmonic progressions of multi-style classical works, one can map the energy transformation trajectory of dissonant intervals from their emergence to resolution. Concurrently, auditory experiments can be conducted to measure the perceptual efficacy of different resolution pathways. These findings will provide contemporary creators with explicit technical references, enabling them to maintain internal logical coherence and sound organization while breaking free from traditional frameworks, thereby offering direct guidance for practical explorations in expanding tonal language.

About the Author

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