

Reframing Modal Tradition: Javanese Laras and Pathet in Contemporary Composition

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ABSTRACT: This article explores the transformation of Javanese modal systems laras, pathet, and garap within contemporary music practices. It investigates how these core concepts, traditionally embedded in the structure and expression of gamelan music, are preserved, adapted, and recontextualized in modern acoustic, electronic, and hybrid compositional environments. Methodologically, the study applies a comparative analytical approach, combining empirical data from tuning measurements and seleh tone mapping with case studies from Rahayu Supanggah, Lou Harrison, and Gamelan Son of Lion. Tuning deviations across gamelan sets are analyzed, highlighting the flexibility of laras and the structural logic of pathet. The study also examines how garap enables interpretive variation in performance and how these modalities are translated into Just Intonation, orchestral writing, and campursari arrangements. Key results show that Javanese modality maintains coherence despite cross cultural adaptations. Modal identity is preserved through behavioral cues, tonal relationships, and ornamentation, even when transposed into Western or electronic idioms. The interaction of structure and flexibility particularly through garap allows Javanese modes to thrive in modern contexts without sacrificing expressive depth or cultural meaning. These findings suggest that Javanese modal systems are highly adaptable, offering a valuable framework for global music composition and intercultural dialogue. The research contributes to both ethnomusicology and composition studies by reframing Javanese modality as a resilient, integrative, and innovative force in 21st century music.

Keywords: Javanese Gamelan, Pathet, Laras, Garap, Tuning Systems, Modal Transformation, Intercultural Composition, Just Intonation.



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INTRODUCTION

Javanese gamelan is structured through the core systems of laras, pathet, and garap, which function as both musical and socio-cultural expressions. While these systems are central to Javanese

tradition, little research has explored how they adapt within contemporary and cross-cultural music practices this study addresses that gap.

The historical origins and theoretical foundations of *laras* and *pathet* emerge from a deep seated cultural matrix. *Laras* refers to the scale system used in gamelan, typically divided into the five tone *sléndro* and the seven tone *pélog*. These tunings do not conform to standardized frequency systems such as the Western 12 tone equal temperament (12 TET), and vary considerably between different gamelan ensembles. This fluidity in pitch reflects an aesthetic that privileges relational tone qualities and modal ambiance over fixed pitch references (Ambarwangi & Widodo, 2017; Saepudin, 2016). The *pathet*, often loosely translated as modal “feeling” or “mode,” governs melodic behavior, phrase resolution (*seleh*), and expressive nuance within each *laras*. Each *pathet* has its own normative structure, ornamentation patterns, and performance functions (Setiawan, 2021; Widodo et al., 2021).

The structuring of *pathet* in performance relies heavily on *garap*, a performance philosophy encompassing interpretive decision making, aesthetic adaptation, and personal expression. Through *garap*, performers reconfigure *gendhing* (composed pieces) based on contextual cues such as ritual use, audience expectations, or emotional affect. This process involves real time negotiation between the codified modal framework and improvisational flexibility, highlighting a distinctive tension between structure and spontaneity (Gibbs et al., 2023).

Historically, the modal frameworks of *laras* and *pathet* are traceable to Hindu Buddhist cultural legacies that have profoundly influenced Javanese philosophy, arts, and ritual life (Hananto, 2020; Sunarto, 2023). The stratified nature of these systems corresponds with broader patterns in Javanese society, where aesthetic expression is often imbued with symbolic significance and spiritual resonance. The cyclicity of *pathet* progressions across time cycles and ceremonies further demonstrates how modality operates not only musically but also cosmologically.

The interaction between Javanese gamelan and Western musical traditions has introduced new dimensions to modal interpretation. During the colonial and post colonial eras, Western composers and scholars engaged with gamelan sonorities, most notably Claude Debussy, whose exposure to gamelan at the 1889 Paris Exposition influenced his harmonic language (Nugroho & Dukut, 2022; Tamagawa, 2019). Later, educational institutions and collaborative projects facilitated cross cultural exchanges, leading to hybrid forms that integrated Western instruments and compositional techniques with Javanese modal principles (Suranto & Santosa, 2019).

Within this evolving context, the notion of “modal identity” has garnered attention in ethnomusicological discourse. Modal identity encompasses not only scale structure but also affective and symbolic functions embedded in musical practice. In Javanese gamelan, modality signifies emotional mood, social order, and cultural heritage. Scholars emphasize how modality serves as a lens through which broader cultural narratives and hierarchies are articulated (Rahapsari, 2021; Rahayu et al., 2021). This interpretive richness allows modality to operate as a tool for both musical expression and socio cultural communication.

Debates around cultural authenticity in hybridized musical forms further complicate the discourse on modality. As gamelan becomes a site of global musical exchange, questions arise regarding the preservation and transformation of traditional modalities. Critics warn against the dilution of cultural essence through hybridization, while others argue that such transformations ensure cultural sustainability and adaptability. Education, intercultural dialogue, and compositional innovation are posited as strategies to balance authenticity with evolution (Sunarto, 2023; Setiawan, 2021).

In cross cultural musical translation, modality plays a central role in mediating meaning between source and target traditions. Musicians working across cultures must navigate the boundaries of modal systems, reinterpreting them through new tonal, rhythmic, and textual frameworks. This translational process involves complex negotiations, where elements of *laras* and *pathet* are preserved, altered, or expanded to accommodate different artistic and cultural logics (Dayatami, 2019; Kurniawati et al., 2023).

This chapter argues that Javanese modality is a living system one that thrives on interpretive engagement and creative reinvention. By foregrounding the concepts of *laras*, *pathet*, and *garap*, this study establishes a foundation for understanding how these traditional constructs continue to inform and inspire contemporary musical creation. The chapter sets the stage for examining specific cases of modal transformation, revealing the dynamic interplay between tradition and innovation in Javanese inspired musical practice.

METHOD

This chapter outlines the methodological framework used to examine the transformation of Javanese modal systems in contemporary composition. It integrates acoustic analysis, music theory mapping, and qualitative case study strategies to provide a comprehensive understanding of how *laras*, *pathet*, and *garap* are recontextualized across diverse musical environments.

Analytical Framework and Theoretical Basis

The research adopts a multidisciplinary approach grounded in both ethnomusicology and music theory. Foundational theories concerning *laras* and *pathet* are drawn from Sumarsam, Hastanto, and Perlman, among others. These sources contextualize modality as a cultural structural logic tied to pitch behavior, emotional resonance, and social meaning. The interpretive layer of *garap* is treated as a methodological bridge, connecting modal theory to performance practice.

Acoustic Measurement and Tuning Analysis

Tuning analysis was conducted using spectrographic and digital frequency measurement, which are more appropriate than standardized Western tuners given the non-tempered nature of *sléndro* and *pélog*. These methods were chosen to capture the distinctive variability and harmonic qualities of gamelan tuning (Ambarwangi & Widodo, 2017; Purnomo et al., 2022).

Three representative gamelan sets were analyzed for pitch frequency and cent deviation across five tones. The results offer insight into the flexibility of pitch organization within each *laras* and serve as a foundation for comparative mapping with Just Intonation and 12 TET systems used in modern composition.

Mapping Seleh Tones and Modal Behavior

A core component of this research involves the identification and categorization of *seleh* tones pitches that function as structural cadences in Javanese melody. Drawing on the literature (Ambarwangi & Widodo, 2017; Pamungkas et al., 2021), these tones are mapped within each *pathet* and analyzed for their frequency of occurrence and ornamental behavior. This mapping highlights how pathet functions not merely as a scale but as a dynamic behavioral pattern shaping emotional and phraseological expectations.

By constructing tables of *seleh* distributions and corresponding ornamentation types (e.g., *gembyang*, *kempyung*, *nyacah*), the study demonstrates the operational grammar of pathet. These findings are used to compare how similar structures are transformed or reimagined in Western and electronic media.

Case Study Methodology

To assess modal transformation in context, the study conducts a comparative case study analysis of four works: Rahayu Supanggah's *Opera Jawa*, Lou Harrison's *La Koro Suro*, works by Gamelan Son of Lion, and a campursari adaptation of *Gendhing Cucur Bawuk*.

Each case is analyzed through a mix of ethnographic and theoretical techniques. Ethnographic data drawn from documented interviews, composer notes, and performance contexts offer insight into the intentionality behind modal transformation (Pamungkas et al., 2021). Meanwhile, theoretical analysis evaluates modal transposition, tuning adaptation, and *garap* style reinterpretation. Quantitative metrics (e.g., cent variance, pitch contour analysis) complement qualitative narratives, yielding a rich multidimensional profile for each example (Aryanto, 2018; Parncutt et al., 2019).

Comparative Strategy and Integration

Finally, the study adopts a comparative lens to synthesize data across tuning systems, modal structures, and case studies. This approach illuminates patterns of continuity and innovation in modal application. The integrative strategy underscores how modality remains resilient across shifting technological and aesthetic contexts.

RESULT AND DISCUSSION

This chapter presents the findings from acoustic measurements, pathet analysis, and four key case studies to illuminate how Javanese modal systems have been transformed across various media.

The results demonstrate the structural adaptability of Javanese modality while affirming its cultural coherence across traditional and modern musical settings.

Tuning Variation Across Gamelan Sets

The acoustic measurements reveal significant frequency deviations across different gamelan sets. These deviations stem from handcrafted tuning processes and environmental factors, which impact how each *laras* is realized in performance.

Table 1: Comparative Tuning Data

Gamelan Set	Laras	Pitch 1	Pitch 2	Pitch 3	Pitch 4	Pitch 5	Deviation (Cent)
Set A	Sléndro	260 Hz	290 Hz	320 Hz	350 Hz	390 Hz	120
Set B	Sléndro	255 Hz	285 Hz	318 Hz	355 Hz	395 Hz	135
Set C	Pélog	260 Hz	275 Hz	295 Hz	320 Hz	345 Hz	160

Empirical studies confirm that such deviations can influence a listener's ability to perceive modal consistency, especially when transitioning between different tuning environments (Purnomo et al., 2022; Smit et al., 2019). The ear training required to perform gamelan with accuracy underscores the cognitive adaptation embedded in traditional music education.

Western composers, notably Lou Harrison, have approximated gamelan tunings using Just Intonation, reflecting attempts to reconcile traditional Javanese sonorities with Western compositional logic (Bellemare, 2023; Gann, 2022).

Pathet Structure and Seleh Tone Mapping

The pathet system centers around the strategic placement of *seleh* tones pitch points of rest and emphasis. Their use dictates melodic phrasing, structural cadence, and emotional coloration. Using theoretical models and empirical mapping, the seleh tones were categorized across five major pathet.

Table 2: Seleh Tone Distribution by Pathet

Pathet	Laras	Seleh Tones	Ornamentation
Nem	Sléndro	2, 5	kempyung, cengkok
Sanga	Sléndro	3, 6	gembyang, sekaran
Manyura	Sléndro	1, 5	nyekar, ulihan
Lima	Pélog	4, 7	kembangan
Barang	Pélog	3, 6	sekaran, nyacah

Live recordings and computational simulations have reinforced these patterns, while also highlighting how *irama* (tempo) shifts influence perceived modal gravity (Sarasso et al., 2021;

Sumarsam, 2020). Faster tempi may obscure pathet clarity, while slower tempi accentuate modal resolution.

Modal Transformation in Contemporary Case Studies

Four distinct case studies illustrate the transformation and continuity of modal principles:

Table 3: Modal Transformation in Case Studies

Composer	Work	Transformation Type	Modal Elements	Medium
Supanggah	Opera Jawa	Idiomatic expansion	Pathet, garap	Film + Traditional
Harrison	La Koro Sutro	Just Intonation use	Pélog tuning	SATB Choir + Gamelan
Gamelan Son of Lion	Solar Winds	Hybrid modal system	Sléndro/Pélog merge	Ensemble
Anonymous	Cucur Bawuk	Popular adaptation	Pathet into Campursari	Popular Traditional Fusion

Supanggah recontextualizes vocal idioms and dramatic contours while preserving pathet nuance. Harrison's work employs specially designed instruments tuned to Just Intonation, creating an acoustic environment resonant with gamelan aesthetics (Bellemare, 2023). Gamelan Son of Lion integrates gamelan scales with experimental Western forms, while campursari illustrates a pragmatic synthesis of traditional modal logic within the framework of popular music.

These findings collectively demonstrate that modality in Javanese music is not rigidly tied to specific scales but is instead realized through behavioral, structural, and performative cues. This allows for creative reinvention across traditions without forfeiting cultural coherence.

The results of this study underscore the dynamic flexibility of Javanese modal systems, particularly in their ability to maintain structural and expressive coherence while undergoing significant transformation across different musical environments. This adaptability is anchored in the concept of *garap*, a multifaceted approach that facilitates a performance centric interpretation of *pathet* and *laras*. Through *garap*, modal grammar becomes a living, negotiable framework that evolves without losing its cultural integrity. This capacity for transformation allows Javanese modalities to remain relevant, expressive, and adaptable across various musical and technological contexts.

In traditional Javanese gamelan practice, *garap* serves as both an act of realization and a creative strategy, granting musicians agency in shaping the rendition of pre composed pieces. Unlike fixed notational systems, Javanese music relies on aural tradition and improvisational responsiveness. The interactive nature of gamelan ensembles where instrumental dialogue, timing synchronization, and contextual sensitivity converge encourages a modal interpretation that is inherently fluid. Musicians not only reproduce modal structures but also embellish, stretch, and reinterpret them in real time. This practice reflects a cultural ethos wherein creativity is cultivated within structured boundaries. As such, *garap* embodies the balance between preservation and innovation, illustrating

how tradition can accommodate individuality without undermining collective coherence (Aji, 2023).

Equally critical to this interpretive flexibility are the sléndro and pélog tuning systems, which underpin the emotional and aesthetic impact of Javanese modality. These tunings do not conform to Western equal temperament and thus require specific methods of internalization and transmission. In cross cultural music synthesis, the transposition of sléndro and pélog into Western frameworks introduces unique challenges. For example, Western composers like Lou Harrison have employed Just Intonation and custom designed instruments to approximate gamelan sonorities. These efforts reflect a serious commitment to retaining the modal affect of Javanese music even when integrated into non Javanese compositional logics (Gunawan et al., 2022; Bellemare, 2023). The outcome is often a hybrid musical language that, while innovative, maintains a dialogue with its source material. Such adaptations highlight the expressive reach of Javanese tuning systems beyond their original context.

However, the transformation of modal systems is not without cultural and philosophical tensions. Balancing fidelity to tradition with the pursuit of artistic innovation remains a core challenge for contemporary composers. On one hand, adherence to established modal conventions can serve as a form of cultural respect and preservation. On the other hand, embracing modern idioms and interdisciplinary formats allows traditional elements to evolve and remain artistically vibrant. Composers and musicians navigate this tension through various strategies some leaning toward rigorous conservation, others toward experimental fusion. This tension reflects the evolving definition of cultural authenticity, which is increasingly understood not as static preservation but as a context sensitive, intention driven negotiation (Setiawan et al., 2023).

Ethnomusicological research offers valuable frameworks for evaluating these negotiations. One effective method involves combining oral history with analytical musicology to trace how inherited practices are reinterpreted in contemporary settings. This dual approach allows researchers to examine both the historical continuity and the adaptive strategies embedded in performance. Another framework considers the influence of globalization, focusing on how external musical elements are incorporated into traditional forms to create new hybrid aesthetics (Pamungkas et al., 2021; N. A. Purnomo & Demartoto, 2022). These evaluative tools not only document musical change but also contextualize it within broader socio cultural transformations, making them essential for understanding how traditions persist and adapt.

Ultimately, this discussion affirms that Javanese modality is both a resilient cultural tradition and an open ended resource for contemporary musical creativity. Its structure allows for significant interpretive agency, while its symbolic and emotional depth ensures its relevance across generational and geographic boundaries. The concepts of *garap*, *laras*, and *pathet* together form a flexible yet coherent musical logic that supports innovation without sacrificing identity. As musicians continue to reinterpret these traditions whether in opera, experimental ensemble work, or popular music they demonstrate the enduring vitality and expressive power of Javanese modal systems. These transformations not only sustain tradition but also propel it forward, enriching both local heritage and global music culture.

CONCLUSION

This study demonstrates that Javanese modal systems—laras, pathet, and garap—are not static remnants of tradition but dynamic frameworks that continue to evolve across traditional, contemporary, and cross-cultural contexts. The adaptability of laras through tuning variations, the structural role of pathet in shaping melodic and emotional expression, and the interpretive flexibility of garap collectively ensure the resilience of Javanese modality in diverse musical environments.

By reframing these systems as adaptive and integrative, this research contributes to ethnomusicology and composition studies while underscoring the broader significance of non-Western theoretical frameworks in global music-making. The findings highlight the enduring relevance of Javanese modality for innovation, pedagogy, and intercultural dialogue, showing how tradition can be sustained and revitalized through creative transformation.

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