

Ethnomusicological Perspectives on Aksak Rhythm

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Abstract: *Aksak rhythm constitutes one of the central concerns of ethnomusicological research devoted to asymmetric metric systems, representing a defining feature of Balkan and Eastern European traditional musics. The evolution of scholarship on this phenomenon illustrates a gradual transition from the structural model formulated by Constantin Brăiloiu and the typological developments proposed by Simha Arom toward the perceptual and cognitive reevaluations advanced by Jérôme Cler. At the same time, contemporary empirical research has demonstrated the interpretative complexity of aksak rhythm through the identification of microtemporal variation and synchronization mechanisms characteristic of musical performance practice. In this context, understanding the phenomenon requires an interdisciplinary approach integrating structural, perceptual, and interpretative dimensions.*

Keywords: *Aksak, ethnomusicology, asymmetry, traditional music, rhythm, metric structures, comparative analysis;*

Introduction

The study of aksak rhythm occupies a central position within ethnomusicological research on asymmetric metric systems, representing one of the most extensively debated topics in the scholarly literature dedicated to the traditional musics of the Balkan, Anatolian, and Eastern European cultural spheres. In its established meaning, the term *aksak*, derived from Ottoman musical terminology and literally signifying “limping,” “halting,” or “irregular,” designates a rhythmic system characterized by the organized succession of unequal temporal units structured through the alternation of short and long values within recurrent metric patterns². This fundamental definition has been consolidated in modern scholarship through the contributions of Simha Arom, who describes aksak as a modular system based on the juxtaposition of binary and ternary groupings within repetitive cyclic structures.

The scientific establishment of the concept within European ethnomusicology is inseparably linked to the work of Constantin Brăiloiu, whose study *Le rythme aksak* (1951) constituted the first systematic theoretical attempt to define, classify, and conceptualize this rhythmic phenomenon within rigorous analytical parameters³. Through his theoretical formulation, Brăiloiu proposed that aksak rhythm should not be understood as a mere deviation from regular metric periodicity, but rather as an autonomous structural system governed by its own principles of temporal organization and auditory perception. This perspective subsequently laid the methodological foundation for an entire line of inquiry into unequal temporal rhythms in European and extra-European folklore.

In subsequent decades, the paradigm inaugurated by Brăiloiu was expanded, refined, and in certain respects challenged by numerous scholars who reconsidered both the theoretical

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² Simha Arom. 2004. „L’aksak Principes et typologie”. *Cahiers d’Ethnomusicologie*, vol. 17, p. 12.

³ Constantin Brăiloiu. 1951. „Le rythme Aksak”. *Revue de Musicologie*, vol. 33, nr. 99–100, p. 71.

foundations of the concept and its applicability to the diversity of traditional repertoires. Among the most significant contributions are the studies of Simha Arom, focused on the development of a systematic typology of aksak structures; the research of Jérôme Cler, who critically reassesses the limitations of the traditional arithmetic model and proposes a reconsideration of the relationship between theoretical subdivision and perceived sonic reality⁴; and the recent empirical investigations conducted by Filippo Bonini-Baraldi and Martin Clayton, who introduce contemporary experimental methods of temporal measurement and performance synchronization analysis into the study of aksak rhythm.

Moreover, scholarly literature emphasizes that aksak rhythm constitutes one of the defining characteristics of Balkan musical traditions, being regarded by numerous researchers as an identity marker of Southeastern European rhythmic-melodic expression. Nicolae Fracile explicitly underscores the distinctive character of this metric system within Balkan folklore, noting both its frequency and structural stability across the traditional repertoires of the region⁵. Consequently, the study of aksak extends beyond strictly analytical concerns and becomes relevant to broader investigations of cultural circulation, stylistic transfer, and identity formation within regional traditional music cultures.

In light of this methodological and conceptual diversity, a comparative analysis of the principal ethnomusicological perspectives on aksak rhythm emerges as a scholarly necessity, as it enables the tracing of the concept's historical evolution, the identification of methodological divergences among various schools of research, and the examination of how the understanding of the phenomenon has shifted from classical structuralist paradigms toward contemporary empirical and interpretative models. Accordingly, the present study aims to undertake a comparative investigation of the principal theoretical contributions devoted to aksak rhythm, identifying convergences and divergences among the explanatory models formulated in the scholarly literature and assessing their relevance in relation to current ethnomusicological research.

1. The Conceptual Foundation of Aksak Rhythm in Constantin Brăiloiu's Research

1.1. The Emergence of Brăiloiu's Theory of Aksak Rhythm

The first rigorous scholarly attempt to conceptualize aksak rhythm within European musicology and ethnomusicology belongs to Constantin Brăiloiu, whose study *Le rythme aksak*, published in 1951 in *Revue de Musicologie*, represents the foundational moment in the modern theorization of this metric phenomenon. Through this contribution, the Romanian scholar established for the first time a coherent methodological framework intended for the description and classification of asymmetric rhythmic structures encountered in the traditional repertoires of Southeastern Europe and the broader Oriental sphere, proposing an explanatory model that would decisively influence all subsequent research on the subject.

⁴ Jérôme Cler. 1994. *Pour une théorie de l'aksak*, *Revue de Musicologie*, vol. 80, nr. 2, p. 182.

⁵ Filippo Bonini-Baraldi. 2016. „Measuring Aksak Rhythm and Synchronization in Transylvanian Village Music by Using Motion Capture”. *Empirical Musicology Review*, vol. 11, nr. 3–4, 2016, p. 202; Martin Clayton. 2016. „Aksak Patterns and Entrained Interaction in Transylvanian Village Music”. *Empirical Musicology Review*, vol. 11, nr. 3–4, p. 188.

1.2. Structural Principles of Brăiloiu's Theoretical Model

The point of departure for Brăiloiu's theory lies in his rejection of the superficial interpretation of asymmetric rhythms as mere deviations from regular Western metric organization. In opposition to the traditional perspective of classical musicology, which treated unequal rhythmic formulas as anomalies or departures from the binary and ternary norms of European meter, Brăiloiu argues that aksak rhythm must be understood as an autonomous organizational system governed by its own internal principles and by a distinct structural logic. In his view, the specificity of this rhythmic type does not derive from a lack of regularity, but rather from the existence of an alternative regularity founded upon the controlled alternation of temporal units of differing duration.

The central element of Brăiloiu's theoretical model is the definition of aksak as a periodic succession of short and long values arranged in a fixed order within repetitive cycles. Brăiloiu demonstrates that aksak structures are not arbitrary but rather adhere to a strict internal organization based on the combination of elementary units of unequal duration into recognizable and repetitive metric formulas. In this regard, he emphasizes that the specificity of aksak rhythm resides precisely in the stable proportional relationship between these values, a relationship that generates the auditory sensation of a "limping" or "broken" pulse, from which the phenomenon derives its established designation.

One of Brăiloiu's most important contributions lies in his rigorous distinction between aksak rhythm and other apparently similar forms of rhythmic organization. He specifies that not every succession of unequal durations may be classified as aksak, but only those structures in which temporal inequality manifests itself within a periodic and systematic framework. Through this clarification, the scholar excludes from the definition of aksak both expressive rubato and accidental agogic deformations or individual interpretative fluctuations, limiting the concept exclusively to rhythmic formulas possessing structural and normative character.

To illustrate these principles concretely, Brăiloiu identifies and classifies several fundamental aksak organizational patterns, the most common of which correspond to meters such as 5/8, 7/8, 8/8, 9/8, and 11/8, conceived as aggregations of binary and ternary subdivisions. These structures may be schematically represented as follows:

Metric Form	Internal Subdivision	Numerical Structure
5/8	short–long	2+3
5/8	long–short	3+2
7/8	short–short–long	2+2+3
7/8	short–long–short	2+3+2
7/8	long–short–short	3+2+2
9/8	combined	2+2+2+3 / 2+3+2+2
11/8	extended combined	2+2+3+2+2 etc.

Table 1. *Aksak Rhythmic Formulae*

These formulas, regarded by Brăiloiu as paradigmatic expressions of aksak rhythm, demonstrate that the internal organization of asymmetric meter does not imply the absence of order

but, on the contrary, the existence of a higher symmetry resulting from the regular combination of unequal subdivisions.

1.3. The Impact and Limits of Brăiloiu's Structuralist Paradigm

Another essential aspect of Brăiloiu's theory is the association of aksak rhythm with bodily movement and choreographic function. Brăiloiu observes that a large portion of the repertoires in which this type of metric organization appears is linked to traditional dance, suggesting the existence of a direct relationship between rhythmic structure and the mechanics of bodily movement. From this perspective, aksak rhythm is not merely an abstract formula of temporal organization, but also reflects a specific mode of kinesthetic internalization of musical pulse, in which the alternation between long and short subdivisions corresponds to functional differentiations in the dynamics of dance steps.

Despite the foundational importance of Brăiloiu's theory for subsequent scholarship, his model did not remain exempt from criticism. Research conducted during the second half of the twentieth century highlighted certain limitations of the structuralist paradigm he proposed, particularly with regard to the rigidity of classification and the tendency toward excessive abstraction of concrete musical phenomena. Some scholars argued that reducing aksak to simple arithmetic formulas does not always adequately capture the actual complexity of performance and the temporal variability observable in authentic interpretative practice. These critical reevaluations would become the starting point for subsequent theoretical developments, especially in the works of Simha Arom and Jérôme Cler, both of whom sought to reformulate the concept in a more flexible manner more closely aligned with sonic reality.

Consequently, Constantin Brăiloiu's contribution remains fundamental to the history of ethnomusicological rhythm studies, insofar as it established the first coherent theoretical model for the structural explanation of asymmetric meter and defined the conceptual framework within which all later research would position itself, whether in continuity with his approach or in critical revision of it.

2. The Typological Expansion of Aksak Theory in Simha Arom's Research

2.1. The Theoretical Development of Brăiloiu's Model

In the evolution of scholarly research dedicated to aksak rhythm, the contributions of Simha Arom mark one of the most significant stages in the refinement and theoretical expansion of the conceptual model previously proposed by Constantin Brăiloiu. While Brăiloiu's approach had the indisputable merit of formulating the first systematic definition of aksak rhythms and conceptually delimiting the phenomenon in relation to other forms of temporal organization, Arom's subsequent research sought to deepen the understanding of the internal mechanisms governing this metric system and to elaborate a more precise typology capable of reflecting the structural complexity of the traditional repertoires in which it appears.

Arom's fundamental study, *L'aksak Principes et typologie*, constitutes one of the most relevant post-Brăiloiu contributions to the subject, being oriented toward a systematic reconsideration of the concept of aksak from a classificatory perspective⁶. At the center of his reflection lies the notion that Brăiloiu's theoretical model, although revolutionary for its time,

⁶ Simha Arom. 2004. „L'aksak Principes et typologie”. *Cahiers d'Ethnomusicologie*, vol. 17, p. 11.

requires greater terminological rigor and more detailed internal differentiation of aksak organizational types. Arom thus seeks not merely to validate his predecessor's observations, but also to reformulate them within a more elaborate taxonomic system allowing for a more precise classification of the diverse rhythmic manifestations subsumed under the concept.

2.2. The Modular and Typological Structure of Aksak Rhythm

One essential aspect of Arom's contribution lies in his emphasis on the modular character of aksak rhythm. Whereas Brăiloiu had described the phenomenon in general terms as an alternation between long and short durations, Arom refines this observation by demonstrating that aksak structures may be understood as the result of combining elementary binary and ternary rhythmic modules organized within a rigorous combinatorial system⁷. In his view, the essence of aksak lies not exclusively in the inequality of durations, but in the specific way in which this inequality is constructed through the controlled aggregation of distinct rhythmic cells.

This perspective leads to a clearer formalization of the structures under examination, which Arom expresses through mathematical and structural representations more detailed than those found in Brăiloiu's work:

Type of Aksak Formula	Modular Structure	Principal Characteristic
Binary + Ternary	2+3	Elementary simple form
Ternary + Binary	3+2	Structural inversion
Binary + Binary + Ternary	2+2+3	Tripartite expansion
Binary + Ternary + Binary	2+3+2	Ternary centering
Ternary + Binary + Binary	3+2+2	Extended initial accent
Extended Forms	2+2+3+2 / 3+2+2+2 etc.	Composite developments

Table 2. *Typology of Aksak Structures*

Through this systematization, Arom transforms the initial descriptive model into a genuine morphological typology of aksak rhythms, providing ethnomusicological research with a more precise and flexible analytical instrument⁸.

2.3. Perceptual Nuances and Structural Limits in Arom's Theory

Another point of divergence from Brăiloiu lies in the emphasis Arom places on the structural perception of pulse. Whereas the classical Brăiloiu model privileges the objective interpretation of durational relations, Arom underlines that the organization of aksak must be understood not only mathematically but also perceptually, in relation to the way listeners and performers internalize the succession of unequal pulses. In this regard, he introduces an important nuance: aksak rhythm should not be viewed solely as an abstract reality representable in notation, but also as a cognitive phenomenon dependent upon the perception and metric experience of the musical community that employs it.

This observation brings Arom's research closer to modern directions in music psychology and the anthropology of sonic perception, insofar as it suggests that the understanding of aksak

⁷ Simha Arom. 2004. „L'aksak Principes et typologie”. *Cahiers d'Ethnomusicologie*, vol. 17, p. 14.

⁸ *Ibidem*, p. 18.

cannot be reduced merely to notation-based or mathematical analysis, but must be integrated into a broader context of cultural reception and collective assimilation of rhythmic structures.

Nevertheless, despite its analytical refinement, Arom's model largely preserves the structuralist foundation inherited from Brăiloiu. Although it extends and details the classification of aksak rhythms, it continues to treat the phenomenon predominantly as an abstract structure, privileging internal organization and formal systematization at the expense of the interpretative or expressive dimensions of musical performance. For this reason, his research would later be criticized by scholars such as Jérôme Cler, who argued that both the Brăiloiu and Aromian models remain excessively dependent on a mathematical conception of rhythm insufficiently adapted to the realities of living musical practice⁹.

From a comparative perspective, the relationship between Brăiloiu and Arom may be summarized as follows:

Analytical Aspect	Constantin Brăiloiu	Simha Arom
Definition of Aksak	Periodic alternation between long and short durations	Modular system of binary–ternary aggregation
Methodological Focus	Descriptive and foundational	Typological and classificatory
Analytical Approach	General structural	Detailed structural and taxonomic
Emphasis on Perception	Limited	Moderate, cognitively integrated
Level of Abstraction	Medium	High

Table 3. *Comparative Analysis of Brăiloiu and Arom*

Therefore, Simha Arom's contribution may be interpreted as a stage of theoretical maturation of the paradigm inaugurated by Brăiloiu, characterized by increased classificatory precision and the introduction of a more elaborate perspective on the internal mechanisms governing aksak rhythm. At the same time, however, this development does not abandon the structuralist core of classical theory, but rather consolidates and extends it, which explains why Arom's model would itself become the subject of later critical reevaluation.

3. The Critical Reassessment of Aksak Theory in Jérôme Cler's Research

3.1. The Critique of Structuralist Paradigms

In the historical development of ethnomusicological research on aksak rhythm, the contributions of Jérôme Cler represent a critical turning point through which the dominant structuralist paradigm undergoes a fundamental methodological reassessment. While the models previously formulated by Constantin Brăiloiu and Simha Arom had established the interpretation of aksak as an objective metric system based on the arithmetic organization of unequal subdivisions periodically arranged, Cler proposes a radical reconsideration of this perspective, arguing that reducing rhythmic phenomena to abstract numerical schemes oversimplifies the real complexity of musical processes and risks neglecting the perceptual, interpretative, and contextual dimensions of the phenomenon under investigation¹⁰.

⁹ Jérôme Cler. 1994. „Pour une théorie de l'aksak”. *Revue de Musicologie*, vol. 80, nr. 2, p. 186.

¹⁰ *Ibidem*, p. 181.

His principal reflections on the subject are articulated in the studies *Pour une théorie de l'aksak* (1994) and *Aksak les catastrophes d'un modèle*, works in which the author critically reevaluates the entire analytical tradition inaugurated by Brăiloiu and continued by Arom¹¹. In essence, Cler contests the assumption that aksak rhythm can be satisfactorily explained through the simple mathematical decomposition of rhythmic formulas into groupings such as 2+3, 3+2, 2+2+3, or other similar combinations, asserting that such an approach reduces living musical reality to an artificial and incomplete geometric abstraction.

3.2. The Problem of Perception and Rhythmic Experience

Cler's central criticism concerns what he describes as the "hypertrophy of the arithmetic model", namely the tendency of classical ethnomusicology to transform rhythm into a purely quantitative object analyzable exclusively through mathematical relationships between subdivisions. From his perspective, this methodology erroneously assumes that musical pulse may be exhaustively understood through the measurement of objective durations, ignoring the fact that authentic rhythmic experience is profoundly dependent upon subjective perception, accentuation, phrasing, and the expressive intentionality of the performer.

Accordingly, Cler argues that the fundamental problem of previous models lies in the confusion between measurable duration and perceived duration. Although two rhythmic formulas may be mathematically identical, they may generate radically different perceptual effects depending on the distribution of accents, melodic context, articulation, or stylistic particularities of execution. Therefore, the analysis of aksak cannot remain limited to the description of durational relationships, but must be extended toward investigating the concrete ways in which rhythmic structure is experienced and perceived within the musical act.

An illustrative example proposed in the logic of Cler's argument may be summarized as follows:

Identical Mathematical Model	Accentual Possibility	Perceptual Result
2+3	Accent on first unit	Perception of dominant initial impulse
2+3	Accent on second unit	Perception of metric suspension
2+3	Gradual distributed accent	Fluid / softened perception

Table 4. *Relationship Between Accentuation and Rhythmic Perception*

Through this demonstration, Cler highlights the fact that numerical structure does not automatically determine the auditory experience of rhythm and that, in the absence of analysis of accentuation and performance behavior, simple arithmetic formulation becomes insufficient for describing musical phenomena.

3.3. Toward a Contextual and Phenomenological Understanding of Rhythm

Another important contribution of Cler lies in his reevaluation of the relationship between theory and performance practice. Unlike Brăiloiu and Arom, who privileged the analysis of scores or abstract rhythmic transcriptions, Cler maintains that authentic understanding of aksak must

¹¹ Cler, Jérôme. 1997. „Aksak Les catastrophes d'un modèle (Aksak The Catastrophes of a Model)”. *Cahiers de Musiques Traditionnelles*, no. 10, p. 60.

begin with direct observation of musical performance and its concrete context of realization. In this regard, he approaches contemporary anthropological directions in ethnomusicology, according to which music is not conceived exclusively as an abstract sonic object but as a living cultural practice dependent upon the body, gesture, community, and social context.

This shift of paradigm profoundly transforms the epistemological status of aksak rhythm. Whereas for Brăiloiu and Arom it appeared as a stable formal structure analyzable independently of performance, for Cler it becomes a contextualized and fluid phenomenon whose understanding depends upon the simultaneous integration of mathematical, perceptual, and interpretative parameters.

From a comparative perspective, the relationship among the three major paradigms discussed thus far may be summarized as follows:

Analytical Dimension	Brăiloiu	Arom	Cler
Principal Focus	Structural definition	Typological classification	Perceptual critique
Methodological Nature	Structuralist	Structural-typological	Phenomenological / critical
Primary Object of Analysis	Rhythmic formula	Formula typology	Perception and performance
Relation to Performance Practice	Secondary	Moderate	Central
Degree of Abstraction	High	Very high	Reduced

Table 5. *Comparative Analysis of Brăiloiu, Arom, and Cler*

Thus, Jérôme Cler's contribution substantially redirects the trajectory of aksak research, shifting the emphasis from purely structural analysis toward a more integrative approach in which cognitive and interpretative dimensions become indispensable for a complete understanding of the phenomenon. His critique does not invalidate the value of preceding models, but rather reinterprets them, demonstrating that they must be regarded as useful descriptive instruments that remain insufficient when detached from concrete musical reality¹².

Consequently, Cler's theory prepares the ground for the emergence of contemporary empirical research on aksak rhythm, which integrates modern experimental methods and technologies of temporal measurement in order to investigate actual rhythmic performance with greater precision. These directions would be developed particularly by Martin Clayton and Filippo Bonini-Baraldi, whose research constitutes the next major stage in the evolution of aksak studies.

3.4. Contemporary Empirical Perspectives on Aksak Rhythm

In recent decades, ethnomusicological research on aksak rhythm has undergone a significant methodological transformation through the integration of empirical analytical tools and digital technologies for temporal measurement, which have enabled the direct investigation of rhythmic behavior in actual performance contexts. While the classical theories developed by Constantin Brăiloiu, Simha Arom, and Jérôme Cler were based primarily on the analysis of

¹² Jérôme Cler. 1997. „Aksak les catastrophes d'un modèle”. *Cahiers de Musiques Traditionnelles*, nr. 10, p. 73.

musical transcriptions, descriptive observation, and theoretical reflection, newer research directions introduce experimental methods capable of quantifying with remarkable precision tempo variation, synchronization deviations, and the microtemporal behaviors of performers¹³. Within this new epistemological framework, the contributions of Martin Clayton and Filippo Bonini-Baraldi become fundamental, as they transfer the study of aksak from the sphere of abstract theory into the domain of measurable observation and the analysis of concrete musical behavior.

One of the most significant contributions in this direction is Martin Clayton's study *Aksak Patterns and Entrained Interaction in Transylvanian Village Music*, in which the author investigates aksak rhythms found in Transylvanian traditional music through the concept of *entrainment*, a notion derived from music psychology and defined as the process of reciprocal synchronization among participants involved in collective musical activity. Starting from the observation that the execution of aksak rhythms cannot be fully explained through reference to abstract metric structure alone, Clayton demonstrates that the stability of such formulas is maintained through complex interactive mechanisms of mutual adjustment among performers, each participant constantly adapting his or her execution in relation to the other members of the ensemble.

This perspective introduces an entirely new dimension into the study of aksak, since rhythm is no longer conceived solely as an internal structure of musical discourse, but also as an emergent result of the social and interpretative interaction among participants in the musical act. From this perspective, the metric stability of aksak formulas is not merely a structural property, but also the product of bodily and cognitive coordination among musicians.

In parallel, Filippo Bonini-Baraldi, in the study *Measuring Aksak Rhythm and Synchronization in Transylvanian Village Music by Using Motion Capture*, develops one of the most advanced experimental methodologies applied to the subject, employing motion-capture technologies to analyze the relationship between bodily movement and rhythmic organization in the performance of traditional music¹⁴. Through the use of motion sensors and highly precise digital analysis, the author demonstrates that the execution of aksak rhythms involves an extremely sophisticated bodily synchronization in which microtemporal variations do not constitute errors or interpretative imperfections, but rather essential components of stylistic expressivity.

This conclusion carries major theoretical implications, as it indirectly challenges the classical structuralist perspective according to which the ideal rhythmic model may be exhaustively described through a fixed mathematical formula. Recent empirical research demonstrates that, in authentic musical practice, the relationships among rhythmic subdivisions are rarely perfectly isometric or consistently proportional, but instead present subtle variations dependent upon interpretative context, expressive intention, and performer interaction.

To illustrate the difference between idealized theoretical models and actual performance practice, the following comparison may be observed:

¹³ Martin Clayton. 2016. „Aksak Patterns and Entrained Interaction in Transylvanian Village Music”. *Empirical Musicology Review*, vol. 11, nr. 3–4, p. 188.

¹⁴ Filippo Bonini-Baraldi. 2016. „Measuring Aksak Rhythm and Synchronization in Transylvanian Village Music by Using Motion Capture”. *Empirical Musicology Review*, vol. 11, nr. 3–4, p. 201.

Abstract Theoretical Model	Absolute metric stability
Perfectly proportional 2+3	Variations of $\pm$ several milliseconds between pulses
Fixed and constant accents	Accents adaptively shaped by melodic context
Regular subdivision	Contextual microtemporal flexibility
Absolute metric stability	Interpretatively negotiated stability

Table 6. *Theoretical Model and Performance Practice*

Therefore, contemporary studies demonstrate that aksak rhythm must be understood simultaneously on two complementary levels: on the one hand as an idealized structural model useful for descriptive and analytical purposes, and on the other hand as a dynamic interpretative phenomenon characterized by controlled variability and contextual adaptability.

This methodological shift implicitly leads to a reevaluation of the entire theoretical history of the concept. While Brăiloiu and Arom successfully described the formal dimension of aksak, and Cler drew attention to the limitations of an exclusively structuralist approach, contemporary empirical research confirms in an experimental manner the critical observations formulated by the latter, demonstrating that actual musical reality is more complex than its abstract mathematical representations¹⁵.

The relationship between classical paradigms and contemporary research may be summarized as follows:

Research Paradigm	Dominant Methodology	Primary Object	Main Limitation
Classical Structuralism	Graphical analysis	Metric structure	Excessive abstraction
Structural Typology	Systematic classification	Formula morphology	Taxonomic rigidity
Phenomenological Critique	Perceptual analysis	Rhythmic reception	Partially subjective character
Empirical Research	Experimental digital measurement	Real performance	Local contextual limitation

Table 7. *Research Paradigms of Aksak*

Thus, the contemporary perspective on aksak rhythm tends to move beyond the traditional opposition between structure and perception, proposing an integrative vision in which formal analysis, practical observation, and the cognitive study of reception are articulated within a complex interdisciplinary model. In this new framework, aksak rhythm no longer appears merely as a metric formula or typological category, but as a multidimensional phenomenon situated at the intersection of musical structure, cognitive perception, interpretative expressivity, and social interaction.

¹⁵ Martin Clayton, *op. cit.*, p. 197.

4. Comparative Synthesis of Theoretical Paradigms in Aksak Research

4.1. The Paradigmatic Evolution of Research on Aksak Rhythm

The analysis of the evolution of scholarship dedicated to aksak rhythm demonstrates that the conceptual development of this field did not occur through the simple linear accumulation of theoretical observations, but rather through a continuous process of methodological reformulation in which each new stage critically redefined the premises and limitations of the preceding paradigm. From this perspective, the history of research on aksak rhythm may be interpreted as a succession of four major epistemological models: the foundational structural paradigm inaugurated by Constantin Brăiloiu, the structural-typological paradigm developed by Simha Arom, the critical-phenomenological paradigm formulated by Jérôme Cler, and the empirical-performative paradigm represented by the contemporary research of Martin Clayton and Filippo Bonini-Baraldi¹⁶.

4.2. Comparative Assessment of the Principal Theoretical Models

First, the model proposed by Constantin Brăiloiu constitutes the original conceptual foundation of all modern reflection on the subject, its principal merit lying in the first definition of aksak rhythm as an autonomous metric system distinct from mere rhythmic deviations or accidental agogic distortions. Through this position, Brăiloiu succeeds in theoretically legitimizing the existence of temporal organizational forms alternative to regular Western metric systems and in establishing the conceptual framework necessary for the recognition of asymmetric rhythms as coherent and organized structures. Nevertheless, the principal limitation of his model lies in its relatively general and schematic character, which, although effective in delimiting the phenomenon, does not provide sufficiently nuanced instruments for the internal differentiation of various aksak typologies or for the detailed analysis of performance variation¹⁷.

In this direction, Simha Arom's contribution appears as a natural methodological extension of the Brăiloiian paradigm, its principal objective being the refinement and systematization of the structural classification of aksak rhythms. Arom transforms the initial descriptive model into a rigorous taxonomic system, introducing a modular and typological approach intended to differentiate and organize the multiple rhythmic configurations possible within aksak structures. This contribution represents an unquestionable methodological development of the preceding theory; however, it preserves the same fundamental structuralist orientation, continuing to privilege abstract analysis and formal classification over perceptual or interpretative dimensions¹⁸.

A significant rupture within this tradition is introduced by Jérôme Cler, who shifts the center of theoretical reflection from formal structure toward perceptual experience and performance context. Cler explicitly contests the assumption that the numerical organization of rhythmic subdivisions is sufficient to explain the phenomenon of aksak, arguing that exclusively mathematical analysis ignores the essential dimensions of auditory perception, accentuation, and expressive interpretation. In this sense, his research introduces a phenomenological and critical

¹⁶ Constantin Brăiloiu. 2004. „Le rythme Aksak”. *Revue de Musicologie*, vol. 33, nr. 99–100, 1951, p. 71; Simha Arom. 2004. „L'aksak Principes et typologie”, *Cahiers d'Ethnomusicologie*, vol. 17, p. 11.

¹⁷ Brăiloiu, *Le rythme Aksak*, ed. cit., p. 74.

¹⁸ Arom, *L'aksak Principes et typologie*, ed. cit., p. 18.

perspective that reformulates aksak not merely as a metric structure, but as a rhythmically lived and contextually perceived experience¹⁹.

This orientation is further confirmed and reinforced by contemporary empirical research, particularly through the studies of Martin Clayton and Filippo Bonini-Baraldi, which experimentally demonstrate that the real execution of aksak rhythms involves microtemporal variation, interactive adjustment, and performance behaviors impossible to capture fully through classical mathematical models. The introduction of digital tools for temporal analysis and motion-capture technologies effectively validates the theoretical observations previously formulated by Cler, offering for the first time concrete empirical demonstrations of the limitations of the structuralist paradigm.

This evolution may be comparatively summarized in the following table:

Author / Paradigm	Theoretical Foundation	Principal Contribution	Identified Limitations
Constantin Brăiloiu	Descriptive structuralism	Definition of the concept of aksak	Excessive generalization
Simha Arom	Structural typology	Modular classification and systematization	Rigid formalism
Jérôme Cler	Phenomenological critique	Reevaluation of rhythmic perception	Reduction of model universality
Martin Clayton	Cognitive empiricism	Study of interactive synchronization	Limited experimental context
Filippo Bonini-Baraldi	Digital performance analysis	Measurement of microtemporal variation	Limited experimental context

Table 8. *Synthesis of Theoretical Paradigms*

4.3. Contemporary Epistemological Perspectives on the Concept of Aksak

From an epistemological perspective, this progression demonstrates that the understanding of aksak rhythm has gradually evolved from a static and formal conception toward a dynamic and contextual one. While early theories conceived aksak as a simple objective and stable metric formula, more recent research tends to redefine it as a complex musical phenomenon dependent simultaneously upon internal structure, cognitive perception, bodily performance, and social interaction. Thus, the concept of aksak can no longer be reduced exclusively to the numerical formula describing its internal subdivisions, but must instead be understood as a multidimensional musical reality in which mathematical parameters coexist with perceptual and interpretative ones.

Consequently, the comparative analysis of the scholarly literature demonstrates that none of the paradigms presented may be considered exhaustive in itself, each capturing only a particular dimension of the phenomenon. Structuralist models effectively explain the internal architecture of rhythmic formulas but tend to neglect performance variability; phenomenological and empirical models capture the complexity of actual execution but occasionally risk excessively relativizing the internal structural coherence of the system. Therefore, the most appropriate current theoretical perspective on aksak rhythm appears to be an integrative and interdisciplinary one, capable of

¹⁹ Jérôme Cler. 1994. „Pour une théorie de l’aksak”. *Revue de Musicologie*, vol. 80, nr. 2, p. 184.

correlating simultaneously formal analysis, perceptual study, and the observation of interpretative behavior. This conclusion confirms that aksak rhythm cannot be interpreted exclusively either as a mathematical structure or merely as a perceptual experience, but must instead be approached as a total musical phenomenon situated at the intersection of temporal organization, cognitive experience, and performance practice.

5. Conclusion

The comparative analysis of the principal directions of research on aksak rhythm highlights the fact that this phenomenon has consistently constituted a point of convergence for diverse theoretical reflections situated at the intersection of musicology, ethnomusicology, and the psychology of perception. The conceptual evolution of the notion of aksak demonstrates a progressive transition from a predominantly structural understanding, centered on the internal organization of durations, toward a complex and integrative approach that incorporates perceptual, bodily, and relational dimensions.

Constantin Brăiloiu's contribution remains fundamental insofar as he established the initial conceptual framework of research, defining aksak rhythm as an organized and autonomous system distinct from accidental rhythmic deviations. This position enabled the scientific legitimization of asymmetric meter and constituted the basis for all subsequent developments. Continuing in this direction, Simha Arom carried out a rigorous typological systematization, providing a more refined analytical instrument for the classification of aksak-type structures, while essentially maintaining the same structuralist orientation.

The paradigm shift is introduced by Jérôme Cler, who shifts the emphasis from formal analysis toward the perceptual and interpretative dimensions of rhythm, highlighting the limitations of reducing the phenomenon to abstract arithmetic models. This perspective is confirmed and reinforced by contemporary empirical research conducted by Martin Clayton and Filippo Bonini-Baraldi, who experimentally demonstrate that the actual performance of aksak rhythms involves microtemporal variations, interactive adjustments, and mechanisms of collective synchronization that cannot be fully captured through traditional theoretical models.

Therefore, the principal result of this analysis lies in the observation that aksak rhythm cannot be adequately explained through a single theoretical paradigm. Structuralist models provide a coherent description of the internal organization of rhythmic formulas, yet tend to overlook interpretative dynamics; by contrast, phenomenological and empirical approaches capture performative complexity, but may excessively relativize the structural stability of the system. In this context, the adoption of an interdisciplinary perspective becomes necessary, one capable of correlating formal analysis with the study of perception and the direct observation of musical practice.

From an ethnomusicological perspective, this conclusion carries important methodological implications, suggesting the necessity of integrating classical analytical methods with modern instruments of empirical investigation, as well as reconsidering the relationship between score and performance in the study of traditional musics. Aksak rhythm thus appears not merely as a specific metric structure, but as a complex cultural phenomenon in which temporal organization reflects both stylistic norms and cognitive mechanisms, alongside the social practices specific to the communities that employ it.

Looking forward, future research directions may involve extending comparative studies to other cultural areas in which similar rhythmic structures occur, deepening the analysis of the

relationship between rhythm and bodily movement, and integrating digital analytical methods into the investigation of interpretative variability. In this regard, the study of aksak rhythm remains an open field with significant potential for interdisciplinary development, capable of contributing to a more comprehensive understanding of the relationship between structure, perception, and expression in traditional music.

6. References

- Arom, Simha. 2004. „L'aksak Principes et typologie” („Aksak Principles and Typology”). *Cahiers d'Ethnomusicologie*, vol. 17: 11–48.
- Bartók, Béla. 1981. *The Hungarian Folk Song*. Albany: State University of New York Press.
- Bonini-Baraldi, Filippo. 2016. „Measuring Aksak Rhythm and Synchronization in Transylvanian Village Music by Using Motion Capture”. *Empirical Musicology Review*, vol. 11, no. 3–4: 201–221.
- Brăiloiu, Constantin. 1951. „Le rythme Aksak” („The Aksak Rhythm”). *Revue de Musicologie*, vol. 33, no. 99–100: 71–108.
- Brăiloiu, Constantin. 1984. *Problems of Ethnomusicology*. Cambridge: Cambridge University Press.
- Cler, Jérôme. 1994. „Pour une théorie de l'aksak” („Toward a Theory of Aksak”). *Revue de Musicologie*, vol. 80, no. 2: 181–210.
- Cler, Jérôme. 1997. „Aksak Les catastrophes d'un modèle” („Aksak The Catastrophes of a Model”). *Cahiers de Musiques Traditionnelles*, no. 10: 60–80.
- Clayton, Martin. 2016. „Aksak Patterns and Entrained Interaction in Transylvanian Village Music”. *Empirical Musicology Review*, vol. 11, no. 3–4: 188–200.
- Cooper, Grosvenor, and Leonard B. Meyer, *The Rhythmic Structure of Music*. Chicago: University of Chicago Press, 1960.