Giulia Accornero

Abstract

This dissertation examines how music theorists measured musical time in the medieval greater Mediterranean, the Afro-Eurasian region that interweaves the Christianate and Islamicate worlds. I focus in particular on their music-theoretical practices, interrogating basic concepts such as motion, duration, and rhythmic patterns in order to examine the contingencies involved in their formation, and demystify their alleged universality. This dissertation also contributes to current efforts to confront the colonial legacies at the foundation of the Western canon by deconstructing one of its foundational "origin myths": the emergence of rhythmic notation in medieval Europe. Instead, I foreground the non-graphic forms that the theorization of musical time can take, revealing a cultural technique shared across the medieval Mediterranean: "diagrammatic thinking."

Chapter 1 draws on recent literature in media theory and diagrammatics to lay out my methodological approach. I begin from the assumption that time can only be known through cultural techniques of time measurement: the tools and practices that allow one to divide the continuity of time in discrete, appreciable units. But as medieval time-keeping systems testify, discrete units of duration (*tempora* in Latin, *azmina* in Arabic) were apprehended by measuring motion. The movement of the shadow on the surface of a sundial, for instance, allowed time to be translated into spatial elements: lines, points, surfaces. I argue that this basic translation from time to space is at the basis of all cultural techniques of time measurement of the authors I surveyed.

In Chapter 2, I examine Abū Naṣr al-Fārābī's (d. 950) theory of ʾīqāʿāt (rhythmic patterns) through the close analysis of passages from his *Great Book of Music*, the *Book of Rhythms*, and the *Book for the Classification of Rhythms*, some of which were never translated into English before. I analyze how al-Fārābī theorizes ʾīqāʿāt with what I call music-theoretical "tools of the trade:" the physical surrogates that he relied on to make sense of musical time and orient his readers in the cognition of its measurement. I contend that the multiple affordances of these tools—which included the plectrum, warps and weft, weights, and prosodic notations—allowed al-Fārābī to organize his rhythmic system on the principles of speed (an intensity, pertaining to the realm of physics) and duration (a magnitude, pertaining to

mathematics). By introducing these tools to his readers' imagination, al-Fārābī aimed to train them in skillful listening—or what he calls the "technē of music (*ṣināʿat al-mūsīqī*)." Thus to make sense of the rhythm of a given musical phenomenon, al-Fārābī calls upon his readers' to imagine a projected space to be navigated. The projection of the measured space of a rhythmic mode allows one to use proportions to compare the durations between the audible beats, and establish their role within the mode's hierarchy.

Chapter 3 focuses on how Latin grammarians, Islamicate physicians, and music theorists from both contexts treated voice and human pulse as "airy" matters, governed by musical motion, which could be "geometricized" in three dimensions (length, width, and depth). Each of these dimensions was meant to identify discrete and measurable aspects of music, or what today we call "musical parameters." Through these case studies, I argue that theorists relied on geometrical principles to measure sound-in-motion and obtain units of duration which could then be counted arithmetically. I also show how the dimension of depth—corresponding to today's parameter of "pitch"—was apprehended temporally through the experience of inscribing on a wax tablet. In a fixed amount of time, a sharp sound (*acutus* in Latin, *ḥidda* in Arabic), would impress the soul deeper than a dull sound (*gravis* in Latin, *thiqal* in Arabic), which would move through wax sluggishly, just as a sharp stylus penetrates more quickly in the depth of the wax tablet than a dull one. The theorists examined in this chapter include the anonymous authors of the *Musica Enchiriadis* and Paleofrankish notations, the polymath Ibn Sīnā (980–1037), and the physician Solomon ben Abraham Ibn Yaʿīsh (d.1345). My discussion of Ibn Yaʿīsh's Judeo-Arabic text—a document that has never been translated or studied before—provides a window into the untapped history of the circulation of Islamicate music theory in the Iberian peninsula after the Christian conquest.

Chapter 4 responds to early twentieth-century comparative historiographies that attempted to place al-Fārābī's rhythmic theorization at the origin of early European sources of measured music, focusing in particular on the work of scholars who took part in the Cairo Congress of Arab Music in 1932. Referring back to the problematic notion of "medieval Mediterranean" as analyzed in the Introduction, I draw a relation between these comparative historiographies and what I call

"chronotropic frameworks": that is, historiographical frameworks that temporalize and spatialize the relation between a culture (in this case Europe) and its Others (the Islamicate world). I show how twentieth-century comparative historiographies have relied on Orientalist chronotropic frameworks finding in the Orient the origins of measured music (followed by stagnation) and in Europe its full development through measured notation. I then propose an alternate methodological path for the pursuit of comparative study in the medieval greater Mediterranean today. Setting aside the temptation to find a clear path of influence and teleologies, I consider the European and Islamicate medieval traditions in their own rights to show how certain cultural technique at the basis of the theorization of musical time operates in the development of both Islamicate and European rhythmic theory and notation. In particular, I stage a dialogue between al-Fārābī, Johannes of Garlandia (fl. 1270), and Franco of Cologne (fl. 1280) to reveal the basis for the mutual intelligibility of their rhythmic systems. I argue that their different approaches to measuring musical time were premised upon a shared cognitive practice: all of them treated their temporal systems of rhythmic modes as diagrammatic spaces, that is, as projected spaces of durations that had to be cognitively navigated (by those who learned the theory) in negotiation with durations as acoustically sounded. The cultural technique I identify as "diagrammatic thinking" thus becomes a shared basis for future comparison of local inflections.