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Applications of Systematic Musicology to Music Theory

ABSTRACT

Background

Music theory is a ‘systematic’ discipline in that music theorists systematically apply analytical methods to uncover structural patterns within musical works and understand listener subjectivity. Systematic musicology is a collection of sub-disciplines concerned with the how and the why of music — how it works from different perspectives, and why it does. This field can be further divided in humanities and scientific-oriented subdisciplines, and this poster will focus on the latter. Within this scientific systematic musicology, scholars utilize empirical methods to further comprehend the musical experience. Although the specific methods vary between music theorists and scientific systematic musicologists, the future of the music-theoretical discourse may increasingly involve scientific methodologies and epistemologies. If so, recognizing the values and benefits of interdisciplinary approaches to modern questions in musicology is key for the future development of music theory.

Systematic musicology has always been relevant for music theory and analysis, and productive interactions are frequent. For example, music psychologists may employ empirical methods to understand the experience of physically realized musical structures, whereas music theorists may apply their music experience to the systematic investigation of musical structures based on musical scores. Another example would be that physicists derive laws and rules based on an objective view of the natural universe, similar to the music theorist’s pursuit to discover re-occurring musical patterns and structures. Additionally, a substantial amount of literature from which music-theoretical ideas have emerged is rooted in ‘systematic’ disciplines, such as physics, computer science, or neuroscience. The evolution of certain mathematical and scientific hypotheses and methodologies, such as the idea that intervals can be explained physically or scientifically, have had several important effects on the development of music theory. Parncutt notes that ‘the creation, questioning, and eventual rejection of such ideas was part of [the] long historical process that brought forth modern systematic musicology’ (Parncutt 2007, 16).

Despite this, there is a debate within music theory about the motivations for applying scientific methodologies and principles to the study of music. Some who prescribe to a positivist view of science claim that scientific principles apply only to what is directly observable and empirically verifiable; because music is innately subjective, intentional, and dynamic, scientific methods are inappropriate. But music theory is intrinsically interdisciplinary and the boundaries of the discipline are expanding to involve other disciplines, such as psychology, philosophy, or computing. Ian Cross addresses this debate by discussing three different views of science and, by using sci-

ence to make a claim about music, argues that ‘through an application of science to music — through adopting a cognitivist stand — it becomes possible to make the claim that it is only through music that we have become human’ (Cross 1998, 8).

We have a tendency to view science as ‘a systematic, public enterprise, controlled by logic and empirical fact, and having for its purpose the formulation of truths about the natural world’ (Tang 1984, 1). Yet, one could argue the processes of scientific discovery and musical creativity involve similar skills and attributes, such as speculation, imagination, and a degree of inventiveness. Both scientists and composers make subjective decisions and objective observations in their respective scientific and creative processes. The role of subjectivity is important in each pursuit, and it is this subjectivity through which we can strengthen the link between these two often ‘seemingly-opposed forms of the human endeavor’ (Tang 1984, 1). Cross expands on this tendency, noting that ‘[s]cience is not an objective, unitary and reductive enterprise; it has unarguably societal and experiential dimensions, and is made up of multiple and mutually irreducible frameworks of exploration and understanding’ (Cross 2000/2001, 3). Music is inherently a human pursuit, and the sciences offer a multi-faceted framework for investigating complex human behaviors.

Where is music-theoretically relevant ‘systematic’ musicology research taking place? Are systematic musicologists working together with musicologists and music theorists? Should systematic musicology be limited to laboratories, or also practiced in a music classroom? A clear categorization and separation of musically relevant academic disciplines, while promoting standards within the discipline, can also hinder interdisciplinary collaboration.

Aims and Repertoire Studied

The aim of this project is to make the case for utilizing scientific epistemologies within the music theory domain. Additionally, we aim to promote mutual understanding among music theorists and systematic musicologists and thereby to promote productive collaboration and music-theoretical interdisciplinarity. No specific musical repertoire was studied in the formation of this theoretical argument.

Methods

We examine the overlap between several parent disciplines of systematic musicology and music theory and summarize some current research crossovers. Examples of such musicological parent disciplines surveyed include psychology, neuroscience, physics and psychoacoustics, and computing. We address a current debate in music theory regarding scientific inclusion and utilization in music-theoretical research, while also investigating the evolving interdisciplinarity of this field.

Thirdly, in accordance with this task, we ask how academic categorizations potentially hinder interdisciplinary collaboration.

Implications

We consider recent specific applications of each sub-discipline to music theory as well as possible future applications. On this basis, we ask how a potential shift towards a more ‘systematic’ or ‘scientific’ approach could influence the development of music theory as a discipline. Our survey has inspired further questions regarding current music-theoretical concerns and priorities, as well as possible implications of interdisciplinarity and what this means for music-centered disciplines.

Keywords

Systematic Musicology, Music Theory, Interdisciplinary Science, Psychology, Physics, Acoustics, Neuroscience, Cognition.

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