ANNOTATED BIBLIOGRAPHY

Project Description:

Theories of Western tonal classical music often describe the organization of the overall structure as a hierarchical one (Schenker, Lerdahl & Jackendoff). Modern theorists (Everett) have attempted to map some of these models of tonal hierarchy onto contemporary popular music, but the results have not been entirely convincing. One issue stems from the block-form construction of popular music, where sections are repeated multiple times with often little to no change, thereby deflating the view of a single overarching tonal elaboration. The act of simple repetition thus seems to be a more important form-generating procedure in popular music.

Prior work in the area of the cognition of form has focused almost primarily on what effect the rearrangement of different formal sections – whether from the same piece (Karno & Konečni, Tillman & Bigand) or from different pieces (Tan & Spackman) – has on listeners' perceptions and preferences for a musical work. No research to date, however, has focused explicitly on what effect the repetition of different formal sections – a central process in popular music – has on listeners' perceptions and preferences. Thus, I propose to study the extent to which repetition plays a role in our cognition of popular music.

To study this role, I propose to use a collection of songs in which the repetition of different formal sections will be controlled (through the use of audio editing software). Versions in which no repetition, moderate repetition, and high repetition will be presented to the participants, who will be asked to rate each version on a variety of categories including preference, unity, and complexity. One main complicating issue is the effect of the exposure to multiple versions acting as a form of repetition itself. Previous experimental work by Tan & Spackman has shown that spreading listening sessions across multiple days can mitigate such effects. My experiment will therefore necessarily involve two or three sessions in which the combination of repetition levels will be counterbalanced within the collection of songs.

Deliège, I., Mélen, M., Stammers, D., and Cross, I. (1996). "Musical Schemata in Real-Time Listening to a Piece of Music." *Music Perception***, 14 (2), 117-160.**

Building off the earlier work by Deliège in the realm of cue abstraction, this study consists of three experiments that measure the interactions of both musicians and non-musicians to a single piece of music: a 16-bar Schubert waltz. The first experiment focuses on which aspects of the waltz listeners would extract as structural cues. To accomplish this goal, the authors ask nonmusicians to locate and describe moments that seemed like referential "landmarks" (a process termed *cue localization*). The following experiments had both nonmusicians and musicians reconstruct the piece of music from smaller, 2-bar segments. In the second experiment (a *mental-line* project), listeners were asked to identify the location of each segment along a timeline of the piece after having initially heard the original version. In the third experiment (a *puzzle* experiment), the participants were asked to rearrange the 2-bar segments into a complete piece of music without ever having heard the original version.

The responses generated from the first experiment showed that nonmusicians segment music mostly using surface features, such as change of register and texture. In the other two experiments, the nonmusicians even more clearly displayed a lack of sensitivity to tonal functions as determinants of structure. Even trained musicians displayed a certain inconsistency with regard to tonal syntax. However, both groups tended strongly to retain the basic relationships of the 2-bar segments in terms of whether these segments began or ended a 4-bar phrase unit. The authors summarize that any cognitive representation of real-time listening must center on features of the musical surface, not necessarily features of the tonal hierarchy. It remains unclear, though, to what extent these cues from the music surface are dependent on and integral to the underlying harmonic functions themselves.

Karno, M. and Konečni, V. J. (1992). "The Effects of Structural Interventions in the First Movement of Mozart's Symphony in G Minor K. 550 on Aesthetic Preference." *Music Perception***, 10 (1), 63-72.**

The authors conduct two similar studies as a response to Robert Batt's statement from a prior article that structural changes in a symphony movement such as Mozart's 40th would result in a significantly inferior piece. The first study tests this hypothesis on a group of non-musicians, while the second duplicates the first study except it uses a small group of undergraduate music majors. The test subjects hear five different versions of the first movement (including the original) and rate each version in terms of pleasingness, interestingness, and a desire to own a copy of the piece; additionally, subjects are asked which version they perceive to have the best structure.

The results of the experiment refute Batt's statement to the extent that the original version did not consistently or overwhelmingly rate higher than altered versions of the piece. No significant difference was seen between the two population groups, further arguing that structure plays less of a role than Batt predicted. Both studies showed strong primacy effects, however, in that whatever version happened to be played first received the highest ratings; as well, ratings dropped fairly consistently with each additional playback. While changes in structure are thus not able to overcome fatigue effects, the authors fail to prove to what extent structure and appreciation are related in the absence of order effects.

North, A. C. and Hargreaves, D. J. (1995). "Subjective Complexity, Familiarity, and Liking for Popular Music." *Psychomusicology***, 14, 77-93.**

This study examines the links between familiarity, liking, and subjective complexity – of which the latter two are predicted to conform to Berlyne's inverted-U relationship. As a stimulus, the authors use 60 excerpts of popular music, although these excerpts are all stylistically confined to non-vocal "new age/ambient house music." In order to avoid expectancy effects, each participant was asked to rate the musical selections on just a single variable. It should be noted that the familiarity parameter is relatively abstract, as all of the musical selections were chosen to be previously unheard by any of the subjects.

As expected, subjective complexity had an optimal level at which liking peaked; for both higher and lower subjective complexity ratings, liking decreased. More interestingly, liking peaked at a slightly lower level of subjective complexity for those subjects with the lowest levels of musical training, although there was no difference in optimal subjective complexity between those participants with intermediate or high levels of musical training. As also predicted, familiarity and liking exhibited a positive linear relationship. The relationship between familiarity and subjective complexity was less clear.

Tan, S.-L. and Spackman, M. P. (2005). "Listeners' judgments of the musical unity of structurally altered and intact musical compositions." *Psychology of Music*, **33 (2), 133-153.**

The topic of musical unity is the focus of this study. In particular, the authors wish to learn how listeners – both musically trained and untrained – perceive and judge unity. To investigate this perception of unity, three types of 1-minute piano solo compositions were used: 1) original, unedited versions; 2) versions in which a 20-second portion is exactly repeated three times; and 3) "combined" patchwork combinations in which 20-second portions from three random, separate works were spliced together. Five of each type of version were used in one listening session for a total of 15 works. Participants rated the level of unity and wrote essay-type responses on the basis of unity or lack of unity after each work was heard.

From the written responses, ten general categories were extracted, such as themes, repetition, volume, tempo, mood, etc. Musically trained participants offered more statements regarding thematic and structurally aspects as determinants of unity, while untrained participants seemed to focus on more surface-level attributes, such as tempo or contour. The authors are unable to definitively say, however, whether these differences are the result of vocabulary or perception (or something in between). The "combined" compositions were consistently rated with the lowest levels of unity by both trained and untrained listeners, implying that all listeners – at least in obvious cases – are able to detect a lack of planned structural unity.

Tan, S.-L., Spackman, M. P., and Peaslee, C. L. (2006). "Effects of repeated exposure on liking and judgments of thematic unity of patchwork and intact compositions." *Music Perception*, **23 (5), 407-421.**

This study examines changes in listeners' responses after multiple hearings of the same piece of music. The authors investigate such changes on both unaltered (intact) compositions as well as patchwork compositions in the solo piano genre. Patchwork compositions are defined as pieces creating by combining roughly 20-second excerpts from three different musical works with no attempt to reconcile the excerpts with respect to tempo, key, harmonic plan, style, or mood. During the experiment, the intact and patchwork compositions were played in a random order for a total of two times each, and listeners were asked to rate each composition after each hearing on a variety of factors, such as sense of unity, thematic clarity, variety, repetition, etc. The experiment was

duplicated with the same participants and process for a second day, bringing the total number of hearings for each piece to a total of four.

The experiment showed higher ratings for the non-patchwork compositions after the initial playback of each individual piece. However, by the fourth playing, the ratings for patchwork compositions increased and the ratings for intact compositions decreased to such an extent that patchwork compositions rated consistently higher. The authors conclude that the results support Berlyne's 1971 two-factor arousal theory, which states that highest preference occurs for stimuli with an optimal level of complexity; moreover, repeated exposure reduces novelty and thus shifts preferences to a higher level of complexity than was originally optimal. The results refute Zajonc's 1968 mere-exposure theory and the theory that thematic unity deepens appreciation since listeners preferences for intact compositions declined overall.

Tillman, B. and Bigand, E. (1996). "Does Formal Musical Structure Affect Perception of Musical Expressiveness?" *Psychology of Music*, **24, 3-16.**

Inspired by the work of Karno and Konečni (1992), the authors take the process of structural rearrangement to a further extreme. Three solo piano pieces – by Bach, Mozart, and Schoenberg – are sliced into multiple musical chunks of approximately six seconds, with each chunk corresponding to an cohesive musical phrase (such as 2 or 4 measures). These chunks are then linked in reverse order to create a "backwards" version of each piece. Participants, most of whom were non-musicians, were split into two separate groups; the first group heard and rated the original versions, while the second group heard and rated the backwards versions. The rating system involved a set of 27 categories related to perceived expressiveness, such as tension, sadness, seriousness, etc.

The resulting expressiveness ratings showed little variance between the two subject groups. Each musical work generated unique and distinct expressiveness ratings from the other works under study, but these ratings remained consistent within the original and backwards versions of each work. The authors conclude that structural relations (motivic and harmonic) that exist higher than the local phrase level do not significantly contribute to the perceptual expressiveness, identity, and coherence of a musical work.