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CONCLUSION

The result of this research shows that Information Theory may effectively be applied to analyse music by measuring the amount of information it contains and therefore also its rate of predictability. It was shown that the degree of popularity or appeal of music may be a reflection of the measure of predictability contained in a combination of different elements of music. Different levels of predictability in music may therefore cater for the preferences of different audiences.

Three groups of songs were analysed and the results compared. Two of the groups of songs were selected on the basis of their popularity among two essentially different listening audiences. One group comprises seven songs from the current popular repertoire; songs that have proven to be modern day classics. The second group consists of eight Art Songs from the Romantic period (Robert Schumann, Franz Schubert, and Johannes Brahms) and were also selected because of their popularity amongst an audience who generally have a different musical taste. A third group consists of seven 20th Century songs. Few of these have ever been recorded even though some of the composers are relatively well known.

One of the Classical Art songs, Schubert's *Ave Maria*, proved very useful in support of the hypothesis of this study. This song was a link between the results obtained for both the Popular and the Classical Art songs. During the last thirty years or so, *Ave Maria*, has often featured on the popularity charts—with the help of rhythmic manipulation and additions from the pop-artists—and is often included on recordings by many different music groups and soloists.

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The results obtained for each of the three groups of songs were significantly different and were demonstrated by means of tables and graphs. Below is a summary of the most important conclusions of this research:

1. Each of the three groups generated a characteristic range of predictability levels for six aspects of the analysis. Generally the Classical Songs were found to be less predictable than the Popular Songs. Especially the interval analysis of the Modern songs shows that the predictability of these songs is much lower than that of the Classical songs.

2. Where the predictability of specific musical aspects of the different groups overlaps, the overlapping values are usually compensated for by greater differences in the predictability of other aspects of the music.

3. The aspect in the music that showed the largest differences in predictability, both static and structural was rhythm. The songs belonging to the Popular group of songs are much more predictable (about 50%), and are structurally much more repetitive than the Classical songs. Although the Modern songs showed similar initial predictability as the Popular songs, they showed to be structurally much less cohesive than any of the other songs in the other groups.

4. Interval predictability was rather lower in all three groups than had been expected. However, there was also a marked difference among the three groups, with the Classical songs and Modern songs being noticeably less predictable than the popular songs.

5. A combination of the results obtained showed that the predictability factor of each group fell within specific upper and lower limits. This information was applied to develop a graphical model for each of the groups.

6. From the results obtained, it is clear that the melodies which are more predictable, especially rhythmically more predictable, are predominantly the more popular items (including *Ave Maria* and *Rosamunde*). In the structural analyses (stochastic entropy) these songs also showed a greater degree of structural cohesion or repetition.

In the last chapter, a proposed approach to developing specific models for music of any kind was demonstrated. A variety of possible practical applications in the music industry and other fields in which music features prominently, were discussed.

The results obtained in this research show that Information Theory certainly can practically classify music in ways that are impossible by traditional methods of analysis. Most of the research done to date has mainly revolved around the numbers stochastic analysis produces, while practical applications have largely been ignored. As has been shown, this form of analysis makes many practical and beneficial applications possible.