

Fleischer, Anja. "A Model of Metric Coherence."

This article focuses on a mathematical model of inner metric structure that is expressed by the notes of a given piece without considering the time signature and barlines. The model is realized by the MetroRubette of the software RUBATO which describes the metric structure of the notes without considering the time signature and barlines. The model looks for metric regularities inside the given piece and creates a corresponding inner metric structure as opposed to the outer metric structure given by the time signature and barlines. The model looks for all inner local meters of a given piece containing at least three onsets. A local meter is a subset of onsets and only maximal local meters are considered in the analysis.

The outcome of the inner metric analysis is the inner metric weight, which represents the numerical metric meaning of each note within its context based upon the detection of the inner local meters. The calculation of the metric weight takes only the length of the meter into account. The higher the value of p , a specific exponent which can be varied by the user, the higher the contribution of long local meters to the metric weight, the shorter the value of p , the higher the contribution of short local meters. The parameter l controls the minimum of length of the local meters being considered. The outer metric weight is the number of layer to which the outer metric structure belongs.

The inner metric analysis yields different information about a piece than the outer metric analysis. The model of inner metric structure can enlighten important metric characteristics of different pieces of music. There exists a strong correspondence between the inner metric weight and the hierarchy of the accents of the outer metric structure. Whenever the relation between grouping and meter is quite stable, one can find traces in the metric weight. This phenomenon is called an upbeat of coherent character. Metric coherence occurs whenever a correspondence between inner and outer metric structure can be stated. It is concerned with a metric subscale of the outer metric hierarchy being significant in the inner metric weight.

My favorite part of the article is the influence of l and p section. It shows exactly how each variable affects the results. The method of testing the influence of each variable is systematic and sound. The goal of testing the influence is to determine how far the variation of the parameters can affect the different contribution of long and short local meters to the constitution of metric coherence. The outcome suggested that shorter local meters prevent the emergence of periodicity within the metric weight while the longer local meters are responsible for the emergence of a correspondence between

the inner and outer metric structure. The following examples in the article help demonstrate this discovery.

My initial reaction to this model is one of praise. Now that I have had time to reflect on the proposed statements, especially the one about how the shorter local meter problems and the longer local meter problems, I find myself wondering about a hybrid solution of these two extremes. Was there, during the experiment of the influence of l and p , no combination of these values that allowed for a hybrid solution? Maybe the creation a suitable hybrid solution requires customization for each piece in analysis. In that case, it would prove difficult and probably shift the focus of the model too far off base. What is an appropriate solution then? It may be to utilize a situation where both extremes are calculated into the result. Two passes through the model, one pass per extreme, may prove noteworthy. Just putting in my two cents though.