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About the research of one's own work.

Introduction

A practicing composer's mere study of musical psychology and theory is always controversial: a theory implies that certain objective laws should be established, whose value is directly related to their universality as applied to any sort of practice. While practice, especially the one of an artist, as it were, exists only to prove all theories false. "I believe that as soon as an artist endeavors to formulate his own logic for himself, he unwillingly limits himself", Russian composer and genius Sergey Prokofiev used to repeatedly say. Indeed, either the formulated logic turns out to be invalid in part, or it is bound to fix limits to the abundance of art solutions. The compromise is only possible after the composer's death, when no unexpected events result from his unpredictable practice. And still, as it is widely known, there are plenty of scientific researches written by composers and dealing with the issues of the generalizations of these artists' work. Among such researches are the works of Rameau, Berlioz, Tchaikovsky, Messiaen, Hindemith and others.

The author of this work, nor aspiring to sound original, has solved this controversy in the following way.

Firstly, certain objective laws, which scientist Kulitchkin is seeking to establish, do exist just because not any array of sounds can be considered to be music. Secondly, these laws are general to the point they are utterly useless for the practicing composer Kulitchkin. And thirdly, the art practice of composer Kulitchkin is not a material to be used for the establisment of any objective laws for scientist Kulitchkin.

However, despite such conscious “ambivalence”, both parts of the personality are probably incapable of unconsciously exercising influence on each other. Let’s make clear what kind of expression this phenomenon can find.

Scientific Activity

Over the past five years the author of this article has been doing research of the function of tension in a musical work. The short description of this method would be as follows.

Tension is a certain subjective sensation connected with the rhythm change, density and harmonic pulsation. It is characterized by the function of tension $\mathbf{Fn(t,R,G,D)}$, where $\mathbf{t}$ is time, measured in bars, and $\mathbf{R}$, $\mathbf{G}$ and $\mathbf{D}$ are fuzzy sets:

$$\mathbf{R}=\left\{\mu_R(i)/_i\ ;i=\overline{1,n}\right\},\ \mu_R(i)/_i=\frac{<\mathbf{Number\ of\ tones}>_i}{\max\limits_i <\mathbf{Number\ of\ tones}>_i};$$

$$\mathbf{G}=\left\{\mu_G(i)/_i\ ;i=\overline{1,n}\right\},\ \mu_G(i)/_i=\frac{<\mathbf{Number\ of\ harmonic\ events}>_i}{\max\limits_i <\mathbf{Number\ of\ harmonic\ events}>_i};$$

$$\mathbf{D}=\left\{\mu_D(i)/_i\ ;i=\overline{1,n}\right\},\ \mu_D(i)/_i=\frac{<\mathbf{Average\ density}>_i}{\max\limits_i <\mathbf{Average\ density}>_i}.$$

The <**Average density**> is a function of interval contents, intensity and register. The function of tension $\mathbf{Fn(t,R,G,D)}$ is the combination of fuzzy sets R, $\mathbf{G}$ and $\mathbf{D}$. Thus, we have four graphs of the dependence of $\mathbf{R}$, $\mathbf{G}$, $\mathbf{D}$ and $\mathbf{Fn}$ upon time measured in bars.

Composing

In the same period sextet for flute, piano and string quartet, “Four pieces for clarinet” and the “Under the black flag. Sea stories” piano cycle were written.

Analysis of rhythmical tension in the “Four pieces for clarinet” cycle

Not to overload our work, let us analyze “Four pieces for clarinet” with the help of the specified method. In this case of four parameters (rhythmical, rhythmical-harmonic and general tension) we will have only one left: rhythmical, or general tension[1].

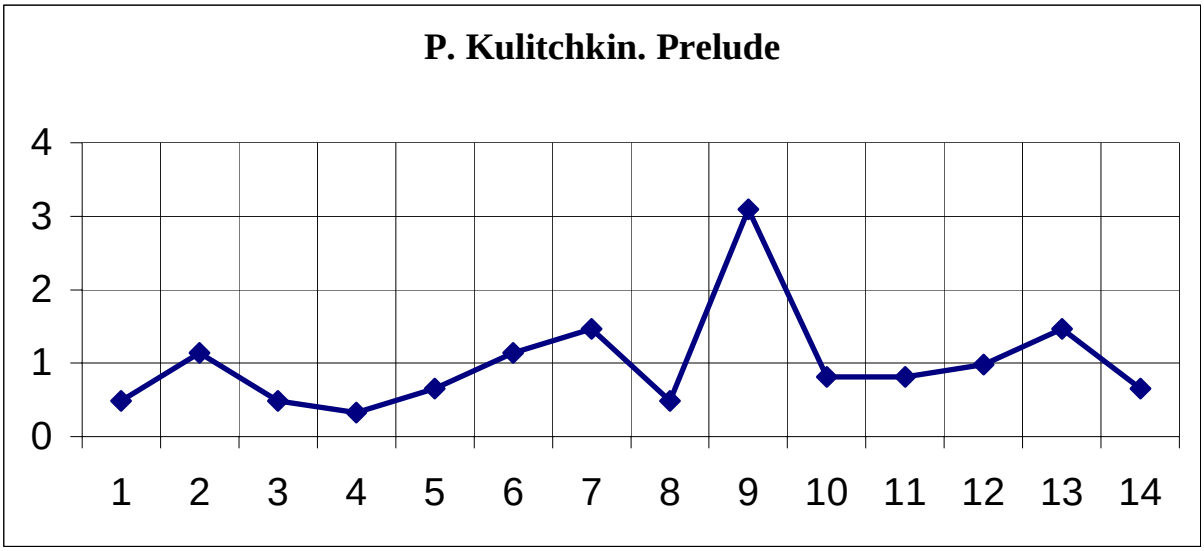

Fig. 1

1. Prelude (see Fig.1). Culmination in the point of the “golden section” both in the thematic and “rhythmic” senses. Three easily distinguishable waves in the curve correspond to musical phrases.

[1] In all graphs the values of tension are normalized in relation to the average value

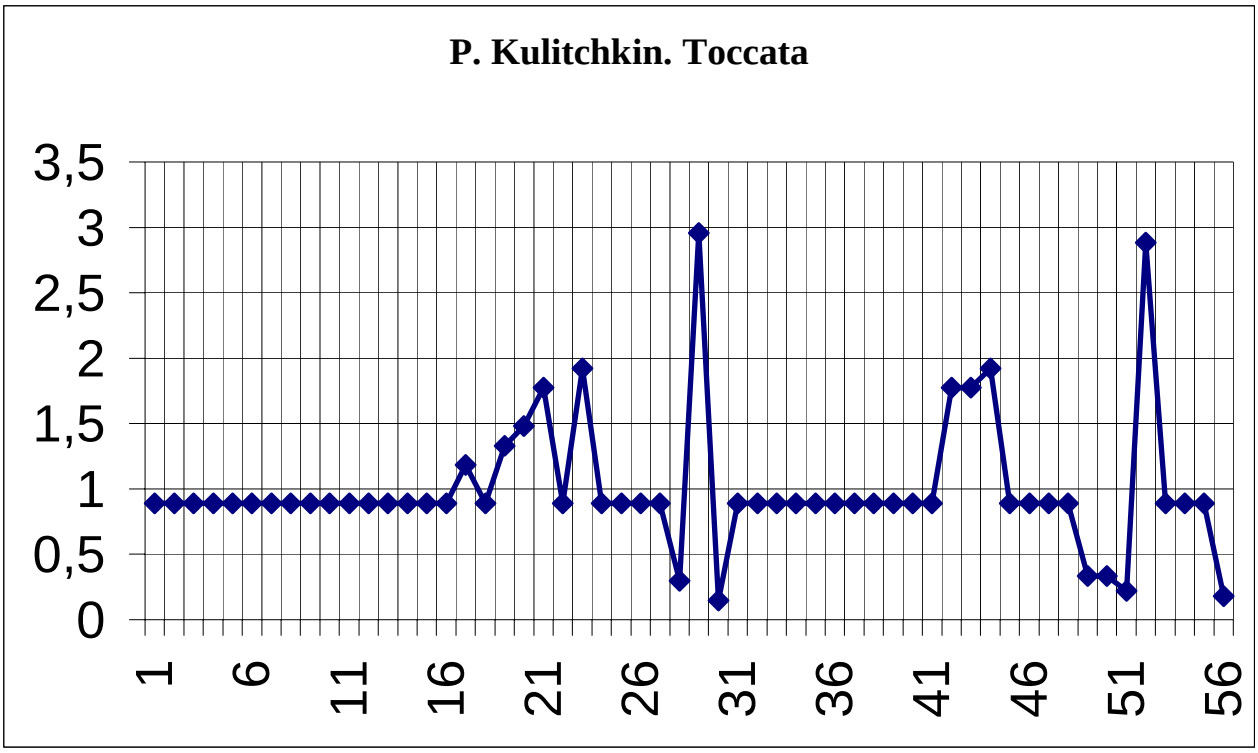

Fig. 2

2. Toccata (see Fig. 2). The rhythmic density either assumes an average value, or there are “outbursts” due to the Toccata genre. The form is binary in terms of theme (division in the point of the golden section). In the graph we have two nearly equal maximums that follow after the similar waves.

Fig. 3

3. Vocalise (see Fig. 3). Culmination in the point of the golden section (as in Prelude), oscillations around the average value (see Toccata). The form is one-part, the come-back of the initial material at the end does not change anything in the graph (see Prelude, as well as “Morning” by Prokofiev).

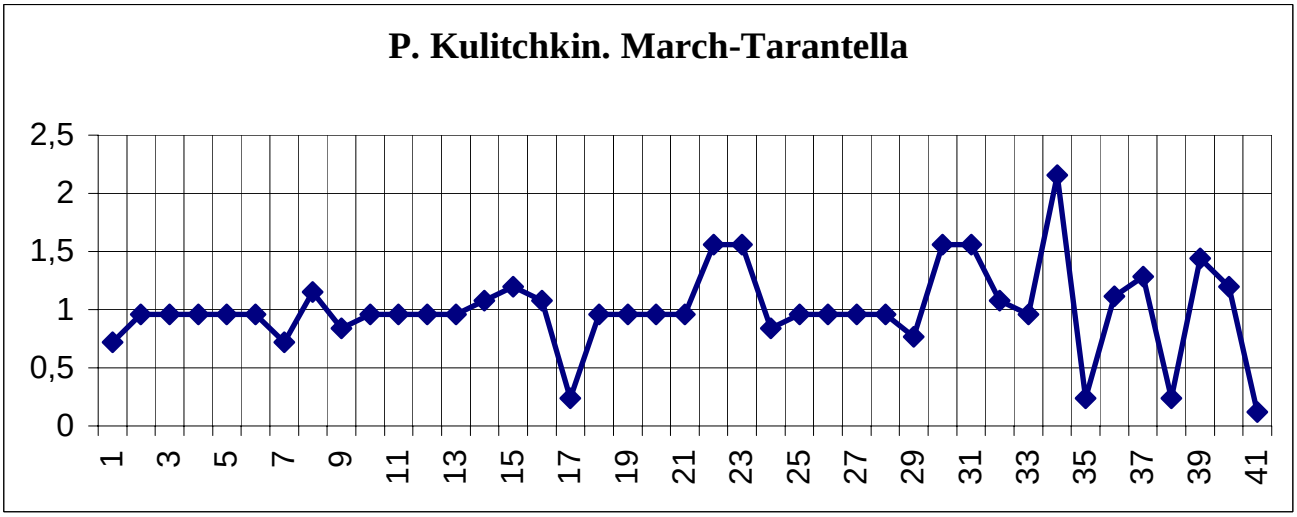

Fig. 4

4. March-Tarantella (see Fig. 4). If Prelude and Vocalise are nearly similar in terms of genre, Toccata and March-Tarantella have a principal difference. Nevertheless, the graph clearly shows an average value of the rhythmic density with oscillations. March-Tarantella performs a function of addition. The first part of triadic form (in terms of theme) ends in the left point of the golden section. According to the graph, the form is binary, and the general culmination is located in the point of the golden section of the second part. The oscillations increase drawing near the end, thus copying the principle of Toccata's rhythmic development. Before the culmination there are three waves, as in Prelude.

Thus, now we can compare these four graphs of Kulitchkin's pieces and typical one (see Fig.5).

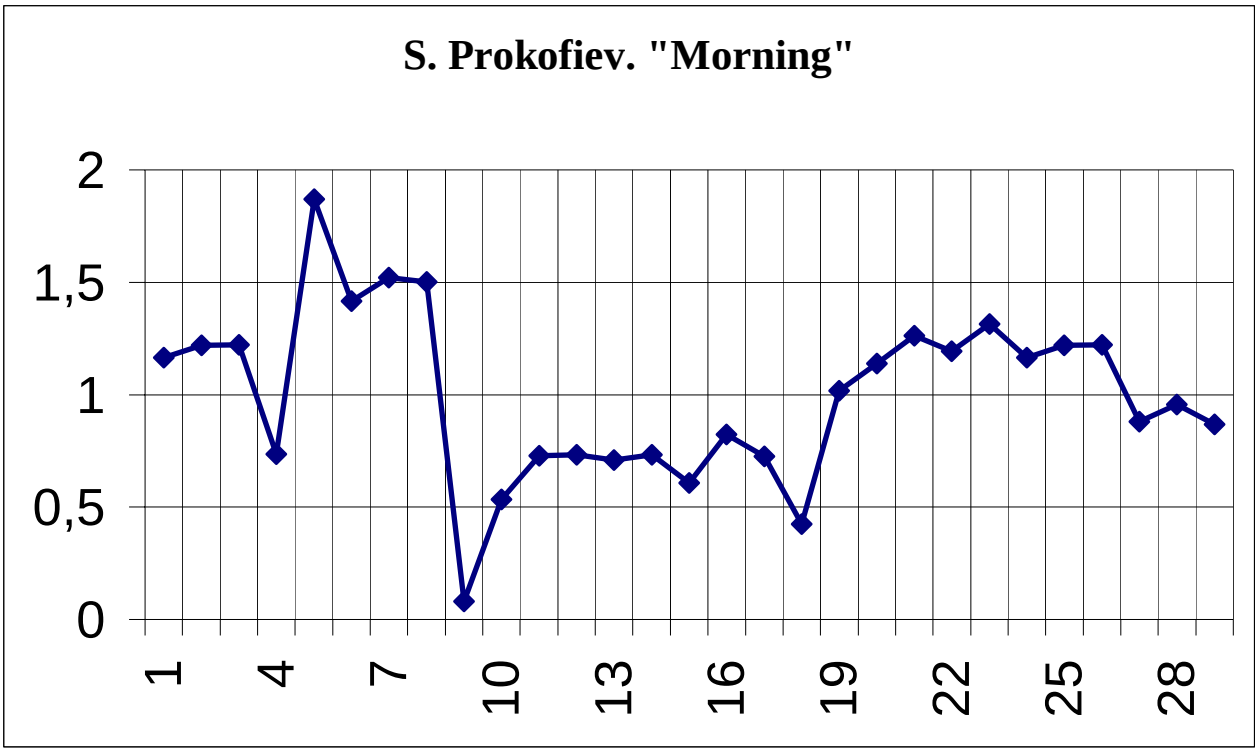

Fig. 5

They are similar, excluding two curious points:

Typical graphs	“Four pieces for clarinet”
The tension changes smoothly, there are neither standstill areas, nor sharp upsurges	The tension may not change at all through a number of bars, sharp “outbursts” are possible
The culminating value of tension exceeds the average value not more than twice	The culminating value of tension, as a rule, exceeds the average value 3 to 4 times.

Conclusion

The quantitative research makes the following presumptions possible:

1. The knowledge of objective laws of musical development and form-building, as expected, in no way leads to the violation of these laws.
2. The laws that were quantitatively disclosed as a result of the scientific research are unconsciously employed in creative work, and are expressed more acutely than in the material that has been researched.
3. In the event of the research of one’s own work the measuring method becomes more complicated.