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Cycles of intensity of artistic life: ways to leadership (European music and theatre, $16^{th} - 20^{th}$ centuries)

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As it is well-known, in some epochs certain national schools of art are more significant than others. For example, appropriate effect named centralization, was studied earlier theoretically by Golitsyn (2000) and empirically by Gribkov & Petrov (1997). But how to establish which national school is a leader for each given kind of art? Usually it's a separate problem. We would propose a quantitative indicator to solve such a problem in general. This indicator is connected with the cyclic behavior of the INTENSITY OF ARTISTIC LIFE.

This concept was examined earlier a lot. In line with the existing tradition (Martindale, 1990; Petrov & Mazhul, 2002), the data were borrowed from appropriate encyclopedias: authors' years of birth and the lengths of articles devoted to each author's creative activity (number of lines). All authors were grouped in 10-year intervals according to their birthdates (for each national school): 1500-1509, 1510-1519, For each ten-year interval (t) the total NUMBER OF AUTHORS (n) and the total NUMBER OF LINES devoted to them (N) were calculated. The last value (N) seems to be the indicator of the INTENSITY of artistic life. Finally we gather information about 6453 composers (belonging to 39 national schools), 992 play-wrights and 2741 creative persons engaged in theatrical life (producers, actors, critics, etc., belonging to 20 national schools).

On the basis of the earlier analysis (Kulichkin, 2004) we may conclude that:

- If the number of authors (n) serves as a factor of «popularity» or «prestige» of a particular kind of art in the professional artistic environment, there should be an indicator of «quality of intensity» the «average mastery». This parameter is SPECIFIC INTENSITY q: q(t)=N(t)/n(t).
- Changes in the intensity of artistic life can be regarded as a dynamic process: each generation of authors keeps in mind the experience of the previous generation.
- So, we have three intensity parameters: n, N and q. There exist six versions of the evolution depending on their changes (for each ten-year interval t): each parameter can increase (\uparrow) or decrease (\downarrow) :
- 1) RISE ($\uparrow\uparrow\uparrow$). This version usually relates to the arising of a national school. The given kind of art becomes popular in the professional artistic environment, the internal resources increase, as well as the mastery. So the potential of the national school is rather high.
- 2) DECLINE ($\downarrow\downarrow\downarrow$). If this version of change in the intensity parameters continues for a long time, the potential of the national school is likely to be exhausted. Then, if any sources (internal or external) are not found, the national school disappears surely. But short-time $\downarrow\downarrow\downarrow$ is not dangerous, because it doesn't destruct the control centre.
- 3) DISSIPATION ($\uparrow\downarrow\downarrow$). This fundamental phenomenon takes place in evolutionary dynamics of almost all national schools. There are some $\uparrow\uparrow\uparrow$ connected with very high level of intensity, so the next generation of authors cannot repeat such achievements. It means that specific intensity q and general intensity N are both down. But the given kind of art is "mechanically" becoming more and more popular. This rapid growth of popularity causes the exhaustion of the internal potential. Downward trend in the quality combined with a high level of popularity of the given kind of art may become true "horrible nightmare" at the periphery of national school. Here are

some features of a long-time ↑↓↓: expansion of graphorrhea, spreading of doubtful artistic values, "fashion instead of mastery," etc. But if the "artistic elite" really control evolutionary process, the national school can survive.

- 4) ACCUMULATION ($\downarrow\uparrow\uparrow$). This is only possible effective anti-dissipation action. The "artistic elite" separates itself sharply from its "periphery." However this essential action is really "unpopular." Given kind of art becomes "art for high-brows." Only a few newcomers from periphery may "gain access" to real artistic elite: not because of difficult "entrance examinations" but because of the simple reason: almost nobody knows something about this elite. So the national school resists "author-replication" and makes its potential raise. And as a result of very low level of mastery, the "scum of periphery" vanishes as far as it arose during $\uparrow\downarrow\downarrow$.
- 5) EXTERNAL GROWTH ($\uparrow\uparrow\downarrow$). This variant takes place if internal potential of the "centre" decreases. But something makes to grow the popularity of given kind of art. This fact can be explained only by the influence of another national schools, kinds of art, or other external causes. However, rather long $\uparrow\uparrow\downarrow$ can lead to "default" of control centre and the national school might disappear or become a part of another more powerful national school.
- 6) EXTERNAL DESTRUCTION ($\downarrow\downarrow\uparrow$). The national school accumulates its internal resources, but popularity of the kind of art declines. The artistic elite vanishes, the periphery collapses rapidly. So evidently there exist certain external causes (political, religious, social, cultural, etc.) that lay obstacles for the successful development of the national school. After this variant of the evolution, the given kind of art usually experiences global style transformations.

The cycle ↑↑↑-↑↓↓-↓↑↑-↑↑↑ (RISE-DISSIPATION-ACCUMULATION-RISE) we regard as "the first step to leadership" (Kulichkin, 2007; Kovalenko & Kulichkin, 2007). This cycle took place in Austrian and German, Italian, French Russian and Czech national school (music), Italian and Russian national schools (both dramatic art and theatrical life), French and American national schools (theatrical life only).

These facts provide for long lifetime and stability of the national schools considered. How does it appear? During initial 111 one generation of authors creates major achievements. Significant composers of such ↑↑↑ are usually innovators. So they can be metaphorically called "evolutionary pioneers." After major artistic achievements created by one generation of composers during \tau^t, the next generation cannot keep up such high level of mastery. DISSIPATION ($\uparrow\downarrow\downarrow$) comes. Music becomes popular, the periphery (i.e., rather large number of insignificant composers) assimilates the achievements of preceding grand composers. So, significant composers of 111 may be regarded as "evolutionary professors:" they "translate" the achievements of previous generation into "peripheral language.". As a result, every author can reproduce means and devices introduced by the previous generation, but nobody can propose productive way for further development. If such a way is not found, the musical history of the national school is probably over. Only few composers can withstand the pressure of "total repetition" and develop the ideas of the grand masters of the past. But only such composers are able to realize ↓↑↑. Significant composers of similar ↓↑↑ (included into the cycle) are "evolutionary academicians". On one hand, they summarize the "knowledge" of "pioneers" and "professors" and make an advanced stage of the evolution. But on the other hand, their artistic logic is already "out of peripheral mind," and the popularity of music decreases. So the "scum" of the periphery rapidly vanishes and the foundations for new innovations are laid. Finally, if "evolutionary professors and academicians" really keep in mind the experience of previous pioneers—then the national school passes these three phases of evolution "without errors" and another ↑↑↑ comes surely.

The duration of the cycle $\uparrow\uparrow\uparrow-\uparrow\downarrow\downarrow-\downarrow\uparrow\uparrow-\uparrow\uparrow\uparrow$ is about 40-50 years. If it is realized, then rather mighty *national tradition* is formed. Its memory may last for about next 50 years. Due to this, the national school becomes *leading*. So such cycle is capable of providing the leadership of this national school, its *central position* in the world art during centuries.

In addition, there are some advanced modifications of such a cycle. They are "the second step to the leadership." Such national schools are likely to be "world leaders". Corresponding examples are German & Austrian music $(\uparrow\uparrow\uparrow-\uparrow\downarrow\downarrow-\uparrow\uparrow\uparrow-\uparrow\uparrow\downarrow\downarrow-\downarrow\uparrow\uparrow-\uparrow\uparrow\uparrow)$, Italian dramatic art $(\uparrow\uparrow\uparrow-\uparrow\downarrow\downarrow-\downarrow\downarrow\downarrow-\downarrow\uparrow\uparrow-\uparrow\uparrow\uparrow)$ in the $17^{th}-19^{th}$ centuries. These advanced modifications are more difficult to study than $\uparrow\uparrow\uparrow-\uparrow\downarrow\downarrow-\downarrow\uparrow\uparrow-\uparrow\uparrow\uparrow$, because we deal with more complicated and more individual regularities. Such cycles seem to demand special researches. Now we can only see, that the duration of the modifications is about 100-150 years and their memory may last for about next 150 years. So, if any national school experiences such a cycle, it's likely to be a world leader during this period in corresponding kind of art.

Our results generally correlate with theoretical predictions of the centralization model (Golitsyn, 2000) and with traditional qualitative investigations.

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