

# Visualising Music: Synesthesia in Imaginary

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*To my friends: Irina L. Vanechkina and Bulat M. Galejev, Institute « Prometheus » in Kazan*

## Abstract

It is well known that the idea of visualising music has been advanced since the 18<sup>th</sup> century, and many machines to perform colour music have been proposed. There can be no doubt that Castel's Harpsichord was certainly begun, but it had not termination. In spite of this, *Père Castel's* experiments were directly responsible for other theories and instruments developed later, for example the *Baranov-Rossine's* Octophon. Composers as Messiaen had also splendidly used their synesthesia to give us the best musical moments. Russian composer Scriabin is considered to be the pioneer of light-music. He was the first composer to include a part for light in a musical score. Relation between colours and sounds, music and painting, fascinated Kandinsky so much, that this secret correspondence between arts becomes the postulate of his artistic conception. « Why should not we take a risk to arrange, in our days, a 'meeting' between Scriabin and Kandinsky? » said Bulat Galejev and Irina Vanechkina. In a Jubilee concert dedicated to 50-th anniversary of the Kazan Conservatory the artists proposed their own idea of directing Prometheus. Along the music of Scriabin they projected painting of Kandinsky, synthesis of two creativities, collision of two universes, the kind of "earth-orbital docking" of two like-minded persons. An art work is also an act of communication. So it is a resultant complex function of the interaction of three archetypal actions between semantic, technical and pragmatic natures. This refers also to the anthropologic structure of imaginary. Prometheus is a concrete illustration of the archetype: Light, essential picture giving a substance to the scheme: Elevation.

## Keywords

Synaesthetic Art, Coloured Music, Structured Imaginary

# 1 Colour-Music

## 1.1 *Père Castel's Harpsichord*

It is well known that the idea of visualising music has been advanced since the 18<sup>th</sup> century, and many machines to perform Colour-Music have been proposed, in many cases developed by experimenters working in isolation and a lack of understanding. The most famous was *Père Castel*. He was quite an Universal spirit. His interests were very eclectic:

- Strategy, gravity, the fire, cause and nature of storm and lighting, passing from north seas to the orient seas...

But he was the famous inventor of the Ocular Harpsichord!

He music was based on two principles:

- Perfect analogy between sounds and colours (Newton's theory which was revealed false)
- The association of the three original colours with the three sounds of a triad:

*The tonic colour has been chosen: it will be blue, as blue is the colour of nature, the colour of the sky, mother or basis of red and yellow colours.* (Chouillet, 1994)

Teleman reported that Castel was encouraged by his friends to search practical realisation of his "Harpsichord for Eyes", but there can be no doubt that Castel's construction was certainly begun but had not termination. In spite of this, the interesting experiments of *Père Castel* were directly responsible of other theories and instruments later developed.

## 1.2 *Baranov-Rossine's Octophon*

In the Leonardo Journal volume 21, number 4, 1988, there was an interesting paper about: "Colour Music: two centuries of experimentation and their experimenters". Two centuries is also the age of the *Conservatoire National des Arts et Métiers*, a famous French Engineer Institute. In honour of the two-centenary, a *Père Castel* Conference was organised with the purpose to meet together different artists, scientists, musicologists working in the coloured music area (Naranjo, 1994). One of the major artistic event was a concert with the *Baranov-Rossine's* Octophon. Alexandra Baranov-Rossine, the artist's great daughter, played Peer Gint. The Octophon was lent by the George Pompidou Museum of Paris.

The Baranov-Rossine's idea was to superpose, during live performances of a musical composition, a coloured light composition having a parallel progression and contrasting with each physical or cerebral musical inflexion.

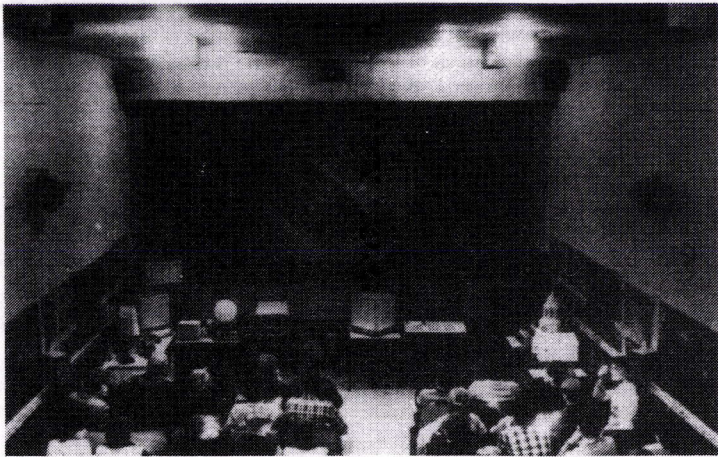


The Octophon devices is a big box (2 x 1.20 x 1.50 meters) which contains an apparatus composed of:

- a coloured drawn, painted by the artist, activated by mean of cables and chains with keys of the keyboard,
- a light source emitting its beams through prisms, lens, mirrors and coloured disc, toward a screen.

The coloured image generated by the pianist playing had as a purpose to give a visual play effect as an accompaniment of a piece of music (see the web page: <http://www.baranoff-rossine.com>)

### 1.3 Prometheus Institute of Kazan (Russia)



**Fig. 1:** Music projection space in the Kazan Prometheus Institute

Another major event was the presence of Bulat Galejev and his wife Irina Vanechkina. Their Prometheus Institute of Kazan (Russia) is entirely dedicated to the coloured music. Bulat presented the state of art in coloured music and majors device realisations in the Prometheus studio (Fig.1).

## 2 Scriabin + Kandinsky

### 2.1 Tastiera per Luce

Prometheus, the Poem of fire (1911) for a large orchestra and piano, with organ, choir, and «Tastiera per luce» (Fig. 2) was composed by Alexander Scriabin, the first composer to include a part for light in a musical score.

# Прометей

Lento. Brumeux  $\text{♩} = 60$

Luce

Flauto piccolo

3 Flauti

3 Oboi



Fig 2.: Scriabin's Prometheus score

This line was a mute keyboard controlling the playing of coloured light through the pattern of beams, clouds, and so forth, flooding the concert hall and culminating in a white light as strong as « *Painful to the Eyes* ». In the score, that part is written with conventional musical notation, Scriabin providing the coding between notes and colours. Keys were also specific : F minor was blue « *the colour of reason* », D major a « *sunny golden* » and F major « *the blood red of hell* ».

The first performance with lighting effects was on March 20, 1915, in New York, just 5 weeks before the composer's death. Technical difficulties were insuperable. As a compromise, that Scriabin rejected, the colours were merely projected on a screen above the orchestra. But Conductor Frederick Bentham gave performances including Luce on a light console at the Strand Electric Demonstration Theatre in London shortly before World War II.

## 2.2 Kandinsky, painting and music

Kandinsky's artistic sensitiveness was conduct to the paroxysm when he attended to the performance of the Wagner's opera Lohengrin at the theatre of Moscow. He was marvelled by the arrangement of sounds:

*I see in spirit all my colours: they held in front of my eyes. Savages and almost crazy lines drew in front of me.*



This synaesthetic experience allowed to sense the hidden forces of the paint. The relation, not only supposed but very real, between colours and sounds, the music and the painting, fascinated him so much, that this secret correspondence between arts becomes the postulate of his artistic conception.

### 2.3 Bulat Galejev and Irina Vanechkina directing Prometheus

On June 21, 1996 a jubilee concert was dedicated to the 50-th anniversary of the Kazan Conservatory. One of the major execution of Prometheus was executed, directed by F.Mansurov, and with Ye Mikhailov at the piano (Fig.3). Recollecting their own presentations at the Kandinsky conferences (Hague, 1993; Moscow, 1994), the artists concluded with pathetically high rhetorical exclamations:

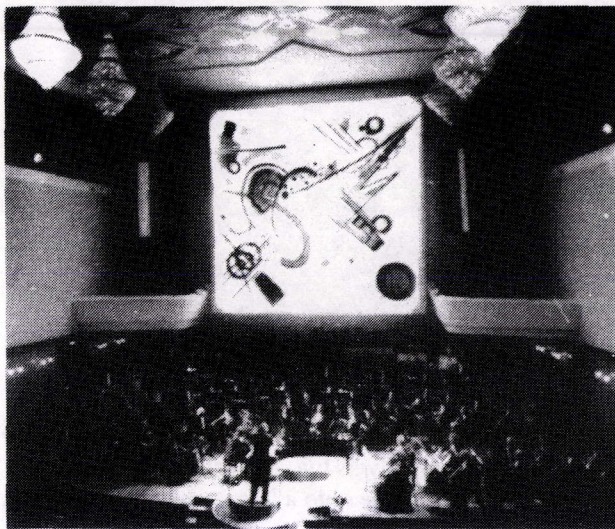
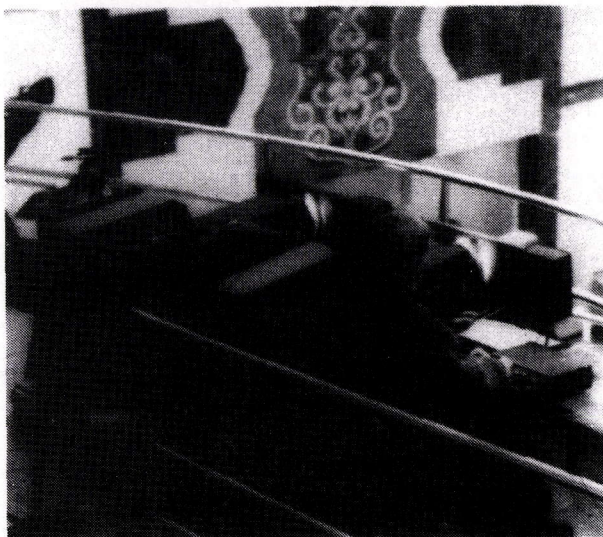


Fig. 3: Scene from the Prometheus concert, June 21, 1996

*Ha, it is a great pity that Scriabin was not acquainted with Kandinsky! They could achieve real synthesis if working together! Both were contemporaries, breathed the same air and fed the same "spiritual feed». They were the novators in equal measure in their arts and both came to the "Gesamtkunstwerk" idea, though from different sides, dreaming on its embodiment in unprecedented temples of "Mystery" (Scriabin) and "Great Utopia" (Kandinsky). Both were attracted to theosophy. It was in its context that the very idea of synthesis (Scriabin), and system of colour symbols (Kandinsky) was developed. The synaesthetic relations: Scriabin's colour-tonality, Kandinsky's colour-timbre, were formed. Both are vivid representatives of "cosmism" in art, not only due the content of their works, but also due to the form, techniques used, being discovered by them. Scriabin was novator in the field of modernisation of harmony. His innovation has being based on the liberation against*



the dictate of tonal gravity (synaesthetic analogy of earth gravity). It was due to this approach that composer achieved the effect of cosmic flightiness and light bearings of sounds. Kandinsky revolutionised painting by excluding object, which was usually subordinate to gravity laws, as part of composition. It was this approach that provided him the possibility to come out to "space" of abstract forms and colours being independent from "gravity" (personal communication)



**Fig 4. : Irina Vanechkina is at the control panel**  
The only lighting equipment was two powerful slide projectors "Pani" projecting in fade-in mode onto a large screen of 9 x 9 meters.

The artists also said:

*We have proposed our own idea of directing Prometheus, the one of synthesis of two creativity's, of collision of two universes, the kind of "earth-orbital docking" of two like-minded persons. We also have revealed interesting system. In course of our visual interpretation of "Prometheus", pictures we have chosen for the performance turned out to be arranged "along" music of "Prometheus" in chronological order. More precisely, evolution, thematic development of Scriabin's piece turned out to be in tune, in general, with evolution of Kandinsky's creativity as a whole. It is known that "Prometheus" is symphonic poem in one movement, written in form of a "sonata allegro", and containing introduction and chord. Philosophical program of the piece is embodied in the development of the following themes: "Prometheus -creative spirit", "Will", "Reason", "Game", "Languor", "Pleasure" and others corresponding to the general evolution "spirit - Matter -Spirit". All the themes were presented in*

introduction and exposition, being transformed and developed then in development to become firmly established in renovated form in reprise and chord. We have selected definite type of Kandinsky's pictures for each musical theme. Our selection was based on "prompts" provided by picture titles and on symbolic characteristics of colours and forms we knew from his theoretical works : "On the spiritual in art", first of all (personal communication).

### 3 Synesthesia

#### 3.1 Colour and Music with Olivier Messiaen

Synesthesia is an involuntary conjunction that the real information of one sense is joined by a perception in another sense (Cytowic, 1989). The most frequent form is chromesthesia. Unlike "normal" people who may report that a sound "suggest" brightness or colour, subjects who have chromesthesia report a real colour perception. The hypothesis is that synesthesia depends on the limbic system activity. There is a possible neuroanatomic mechanism that could explain some of the seemingly paradoxical overlapping of the various qualities contributing to emotional experience (Naranjo, 1992).

Olivier Messiaen explained how colours were very important to him and how he employed them:

*I try to convey colours through the music; certain combinations of tones and certain sonorities are bound to certain colour combinations, and I employ them to this end.*  
(Conference given by Composer Olivier Messiaen in Clermont-Ferrand[1986])

Much of Messiaen's music was highly concerned with mathematical organisation. In his "limited transposition modes", he consistently used a polymodal form based on the tempered system of twelve sounds. He also provided a wide variety of harmonic colours and formed the basis of melody as well.

*The first transposition has been defined as shades of violet as blue with little purple – violet, golden, red, ruby cube glows. Grey, cobalt, dark, white stars are sprinkled all over it. The second transposition has been defined as golden and brown: golden and silver spirals on a background of browns, red-ruby, vertical stripes. The third transposition has been defined as green: light and meadow green foliage's which blue, silver, orange – reddish spots.*  
(Conference given by Composer Olivier Messiaen in Clermont-Ferrand[1986])

#### 3.2 Synesthesia in imaginary

For all normal people, semantic correspondences between the two languages must be investigated in the process of emotion . But an Art Work is also an act of



communication. So it is in reality a resultant complex function of the interaction of three archetype actions between semantic, technical and pragmatic natures. This refers also to the anthropologic structure of Imaginary (Durand, 1992). The figure 5 succinctly gives here the basis :

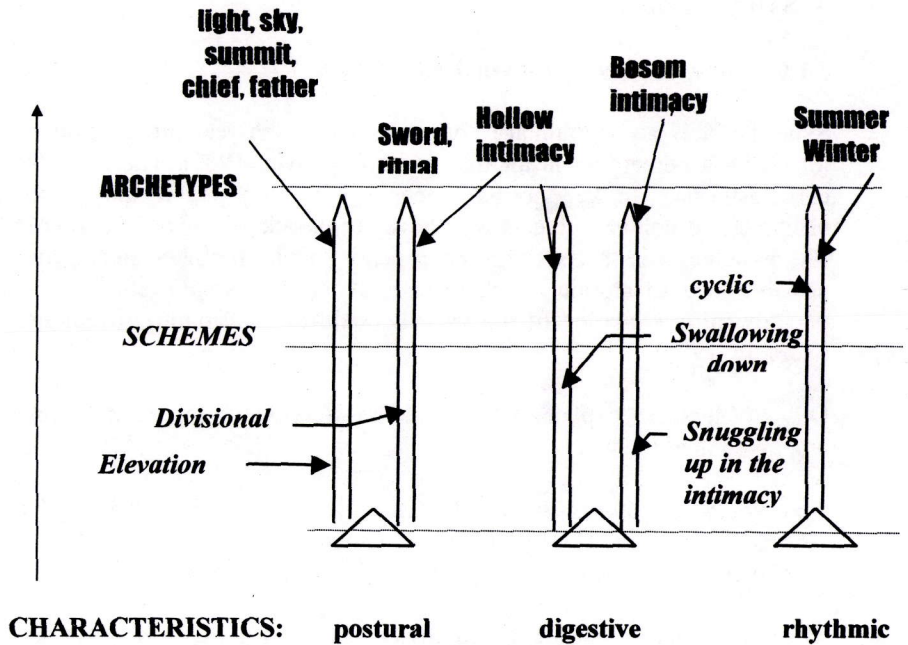


Fig. 5: Structured Imaginary

- Imaginary is structured by three postural characteristics :
  - characteristic of position: vertical, horizontal and oblique ;
  - characteristic of nutrition or digestive: labial suction, head position,
  - Characteristic of rhythm.
- The three characteristics generate mental structures: schemes and archetypes.
- The schemes are dynamic skeletons, functional canvas of imagination issued from the characteristics:
  - the postural characteristic generates the scheme of the verticality and the scheme of the visual and manual division ;
  - The digestive characteristic generates the scheme of the swallowing down and snuggling up in the intimacy ;
  - The rhythmic characteristic generate the cyclic or seasonal scheme.



- The archetypes, essential and original pictures, give the substance to the schemes. They are intermediate between the schemes (subjective) and the pictures of the environment; they are affective and representative “moulds ” of ideas. They also are junction points between imaginary one and rational processes, or possible connections between pictures and thoughts. They degenerate in symbols, sensitive concrete illustrations of the archetypes and of their schemes, for example the elevation scheme generates the archetype of sky and the symbol of the arrow.

Schemes and archetypes of the transcendence demand a dialectic procedure: the motive that guides them is polemic rear-thought that confronts them against their opposites. The elevation is imagined against the fall and the light against the darkness. In Prometheus, the fire is a simple symbolic substitute of the light - spirit. The light tends to do itself lightening or sword and the elevation trampling on an overcome opponent. The solar hero always is a violent warrior. Thus, the revolt of Prometheus is mythical archetype of the liberty of the spirit. Bachelard said:

*we imagine the thrust toward the sky and we know the fall towards the bottom.*

While liberating his music of the tonality, and liberating his painting of the earthly gravitation, Scriabin + Kandinsky refer themselves to the elevation, liberating itself of all the dynamic one of the darkness, like Eschyle's Prometheus with the « *Sun who sees all things* ».

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