

Synaesthetic approach to Lighting Design

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The synaesthetic approach to the acoustic changes in lighting belongs precisely within this framework, and has its roots in the study of the coherence of natural visual and acoustic stimuli, which, without necessarily being synchronised, are coordinated in time to compress a common, and, from this point of view, 'synchronised' - that is, timely - meaning within which the mostly undervalued after-sense of the chronologically preceding stimulus is assimilated. Whether the lightning / luminous stimulus comes first and the thunder / acoustic stimulus follows, or the explosion / acoustic stimulus comes first and the overflowing of the molten lava / luminous stimulus follows, we always apprehend the single natural phenomenon as an indivisible conceptual whole.

It is precisely for this reason that the thunder invites us to observe the lightning more attentively, with the result that we perceive it as brighter than we would an 'unspeaking' flash of the same intensity. Given, moreover, that even if the luminous and the acoustic stimulus were synchronised, we would apprehend the sound approximately 50 ms (time delay equivalent to about four successive photographic images in a film) earlier according to relevant neuro-physiological findings [3], it is obvious that both the deferred collocation of stimuli in audio-visual 'phenomena' / meanings, and the inertia difference of our neuro-sensory responses supply evidence for a chronological ranking, not necessarily in parallel with the natural one, of the sequence of apprehensions which in terms of narration [4] takes on our cohesive neurosensory route towards the meaning / destination, summing up the time and compacting it into a single synaesthetic impression.

A representative example of the above theory is the experimental work of mutable lighting in the Chapel of Our Lady Rematiani in the centre of Ioulida on Kea, which unfolded on the chronological traces of the 'Purification' melody by the composer Dimitris Lagios, publicly presented within the framework of the International Experimental Lighting Seminar on 14 October 2016.

The music introduces the plot of the sequence of the instants of lighting, thus dramatising its evolution from the inception to its constructive culmination in the final overall image of the nocturnal appearance of the chapel, and so allowing the beholder to observe in the time provided by the flowing melody the gradual revelation of the individual constituents / stimuli the visual sensory whole before these are grouped together imperceptibly into a common apprehension obeying the rules of morphological psychology (Gestalt Theory), which by precisely this method of the musical dismemberment of the overall image of the nocturnal appearance in time is decoded and becomes traceable.

Simonides of Kea, who originated in the place where the experimental work described above was performed, referred, as early as the fifth century BC, to this synaesthetic capability which we possess when he noted that 'painting is silent poetry, and poetry is speaking painting', thus pointing out, in a way, the acoustic autonomy of the visual painted stimulus, artistic lighting, which is not to be superficially characterised as dumb because it knows how to be silent, not excepted.

Since, however, the converse is also true, if we regard, in the place of poetry, music as 'speaking painting', that is, if we recognise to it its potential for depiction, we will easily understand how much this assists the complementing of the acoustically reinforced sense of the brightness of visual stimuli of an exceptionally low level of luminance, as is also demonstrated by relevant targeted light-metings (see Fig. 1), which support the pragmatism of the approach to lighting, compatible with semi-darkness, with values of luminance within the field of mesopic vision. As resulted from an assessment of the above experimental work, the familiarisation of the viewer with the exercise of his mesopic vision remains even when the music is succeeded by the sound of the crickets which defend at high tones the natural light of the night at Ioulida on Kea, just two days before the moon is full.

To sum up, it could be maintained that the synaesthetic apprehension lends hypostasis to or mentally reinforces stimuli which are nonexistent or of negligible intensity, thus demonstrating the capability of our mechanism of perception to form a synthesis, and, in this sense, in an exploratory manner, transcending the precision of the senses. This also occurs with the apprehension involving only one sense, that is, with visual perception acting beyond vision. Thus, characteristics perceived by the sense of sight itself, such as, by way of indication, brightness and shadow, can be distinguished from one another even when they are of equivalent luminance, as can be seen from the recorded luminance values, on the one hand, in the field of the projection of shadow of the ironwork on the window jamb at the point where it is spontaneously compared with the adjacent field of projection of light, with the result that its brightness is underestimated, and, on the other, in the illuminated field of approximately equivalent luminance the sense of whose brightness is further strengthened by the Helmholtz-Kohlrausch phenomenon [5], by reason of the high colour purity of the luminous stimulus.

As to the coaggregative way in which our mechanism of perception functions, we were prepared many decades ago by morphological psychology (Gestalt Theory), when it drew attention to spontaneous means of mental organisation of visual information which converge in the tendency to create a

framework of interpretation (context), capable of producing meaning.

Thus, the spotlights at the entrance door to the chapel in Fig. 4, with a level of luminance and colour purity comparable with that of the fanlight are read as if they were the sections of the door equally transparent with the fanlight surmounting them. The simulation of the familiar quality of light of the fanlight in the bright spotlights on the surface of the door lends to the corresponding parts of the door the non-existent quality of transparency, in stimulating the mechanism of synaesthetic perception, and reducing the stimuli to symbols by means of the introduction of the typology of a specific luminous stimulus to symbolise, in this instance, transparency.

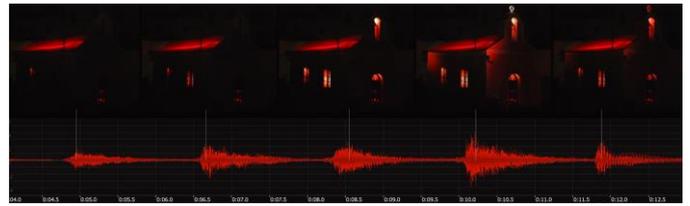


Fig. The time alternations of lighting follow the rhythmology of the music. For the co-ordination of sound and light, the DMX

References

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