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Mathematics and figurative art

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Amongst the most widespread convictions, and not only in a low cultural profile perspective, there is the following: art (in all of its aspects, but here I will focus on figurative art) is the reign of freedom and fancy, whereas mathematics is that of formalism and rigour.

This approach refers to a position according to which we are dealing with two opposite worlds, with no cultural unity. Nevertheless the aforementioned four terms (freedom and fancy, formalism and rigour) do have common deep ties, and are all produced by human beings, by their need to create and communicate.

Since the Renaissance there are examples of artists-mathematicians in which such terms are indissolubly bound, reinforcing each other; it is well-known that Albrecht Dürer travelled in Italy to gain knowledge of the “scientific” art, widespread in the Peninsula and not yet in Bavaria, and to take courses as a geometry student at the *Alma Mater*; without rigorous knowledge, he said, art is an empty fancy and a blindly accepted practice.

Freedom and fancy must lay on a rigorous basis that gives them *sense*, otherwise it is *ignis fatuus*, uselessness, illogical. On the other hand, today it is well known that the first gift required by any high-level mathematician is fancy. Several mathematicians stated that a person quitted mathematics and became a poet (or a painter) because he or she wasn't fancy enough. Furthermore, when we say that a chess player plays with fancy, we don't mean he or she doesn't follow the rules of that game strictly, but that he or she follows them conceiving unexpected and creative strategies.

I don't want to astonish the reader with these statements: in fact, I just want to convince the few that should still be so naive to believe these trivial dichotomies.

So if it is true, as it is, that many artists in centuries (more and more often at the present time) turned to mathematics as a source of inspiration or as object of their pictorial practice, it is also true that many mathematicians (more and more often at the present time) didn't despise to look at figurative art, with very different means, instruments and objectives, as an interesting and significant field of research and cultural speculation.

I tried to reproduce here the variety of these approaches, so I invited many Colleagues to discuss them from many points of view, that are perfectly entangled, but each of them following specific and distinct lines, hoping to offer a significant variety of such interests.