



Newsletter

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Dear All,

My favorite philosophical tradition follows the line which has been set by Spinoza, Plato and Hindu scientists and wise men. The Hindu philosophers distinguish 64 different arts. Music and dance are at the top of the list.

Several reasons can be put forth to justify this judgement. Among them are some observed physical facts such as the presence and the role of periodic phenomena in Nature, the presence of phenomena of expansion of what we name energy.

A distant formalization of this last phenomenon lies in the notion of extension. It appears in all the parts of mathematics, in particular in number theory, algebra and logic. The concept of extension was not yet sufficiently present in the mind of the mathematicians of the nineteenth century involved in the intelligence of basic numbers. Through the notion of Dedekind cuts, they could only offer an existential theory for the existence of real numbers. Indeed the notion of extension offers a constructive way to define and compute numbers. For numbers, this fairly simple general and constructive process consists in solving equations : given any equation of finite or non finite type, either you can get a solution which is an already well known object, or you have to create a new class of objects that will solve the given equation.

One can make a weak analogy with the embryo inside its shell, who must break out of the shell in order to enrich itself, to evolve and to unfold into the world.

In the same way, the development of art and of math-art is related to the breaking out of physical or intellectual constraints. The content of some math-art exposés could shed light on this important concept of extension.

We can apply the concept to ESMA activities. We have encountered quite understandable difficulties for publishing the Proceedings of the second ESMA Conference, the Ca-





European Society for Mathematics and the Arts

gliari Conference. Considering the Proceedings of the first ESMA conference, who can pay these prices : Bruter (Ed), Mathematics and Modern Art. Proceedings of the First ESMA Conference (Springer Proceedings in Mathematics 18) ISBN 978 – 3 – 642 – 24496 – 4, ebook 89,24 €, hardcover 110,76 €.

As far as I have understood, Belgian and Hungarian colleagues have encountered the same kind of difficulties for publishing proceedings of their own meetings. We can overcome these difficulties through an extension of our activities.

The French publisher <http://www.cassini.fr/> and ESMA will publish documents on math and art in any language.

ESMA will publish these documents in electronic form on its website, so that the access to them remains free.

In this way, each collective or individual author may have the documents printed and published through Cassini. The author determines the number of printed documents. Cassini sends him an estimate of the cost of printing. With extra help or not, the author participates in the financing of the publication. The documents in electronic form are sent to Cassini by ESMA for printing. Cassini and ESMA will mutually publicize and diffuse their publications.

Approximatively 120 people are informed of the publication of the Newsletter. Since our website has been visited more than 9500 times, we may think that the content of the website has some fruitful interest.

By contrast, last year less than 20 people agreed to contribute to our activities by paying a dues. Please, go to Adhesion on our website.

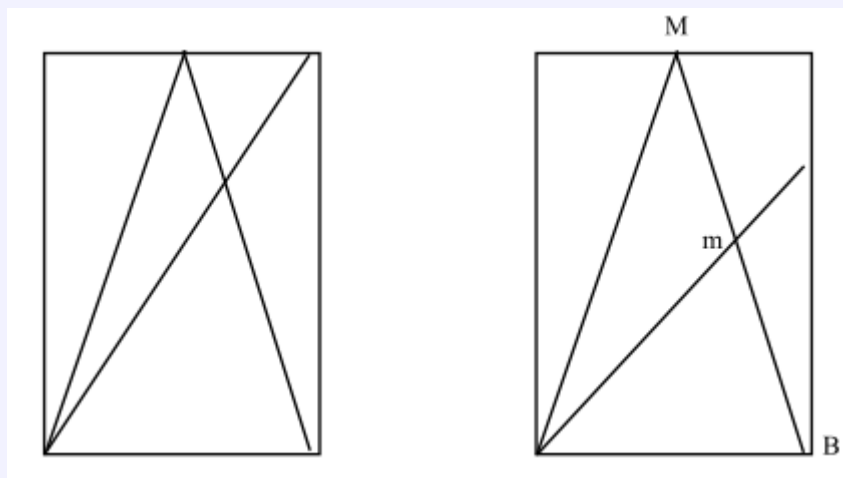
Best wishes,
Claude



Philippe Rips' pedagogical Puzzle

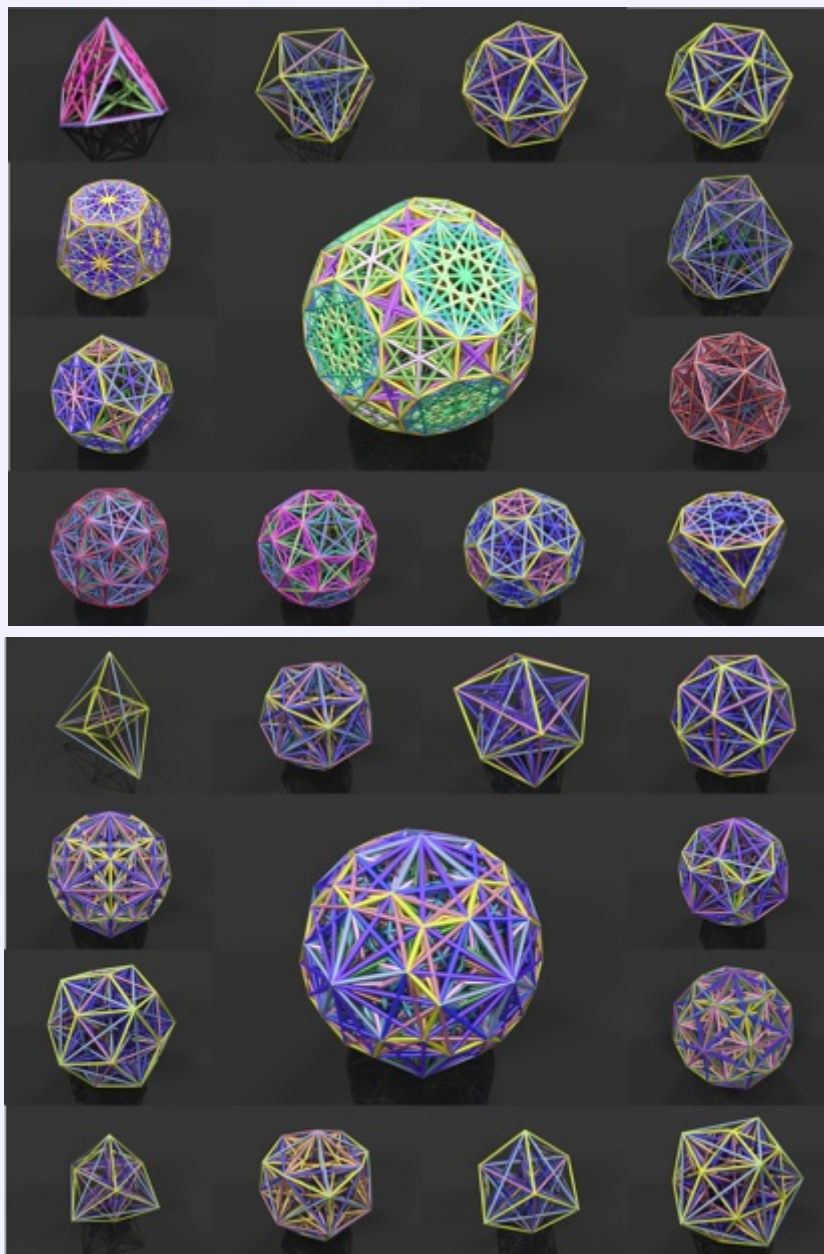


The game is to reconstruct a parallelepiped P from this set of tetrahedra. They were obtained by sectioning P by planes passing through opposed vertices, and by planes passing through vertices and midpoints of the edges of the upper face of P . Small tetrahedra have the same volume. The volume of an intermediate (large) tetrahedron is twice (three times) that of a smaller tetrahedron. These facts are the result of Thales' theorem applied to the following rectangles (m is the middle of the line BM) :



If the length of the height of the rectangle is the root of a rational number, all distances have this same property.

From Francesco De Comite's Gallery
All the edges of the Catalan solids



Claude Bruter, Publisher. Contributors : Sharon Breit-Giraud, Francesco De Comite, Richard Denner, Jos Leys, Philippe Rips. Website : <http://www.math-art.eu>