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SIMPLE-MINDED GOLDEN SECTION EXAMPLES

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Publications and/or *Exhibitions*:
- Generalized inverses of a sum with radical element: Applications, *Linear Algebra and its Applications*, 1996. [This paper was quoted in *Current Trends in Algebra* and much applied, even up to 2004, by J. Chen, Nanjing University, and Y. Wei, Fudan University, China].
- Similarities in irrationality proofs for pi, ln2, zeta(2) and zeta(3), *The American Mathematical Monthly*, 2001. [Attributed "Lester Ford Award 2002" of the American Mathematical Association; quoted in several papers, such as "A computer hunt for Apéry's constant" by Thomas J. Oslen and Brian Seaman, Rowan University (USA), 2002; mentioned in "New formulas for pi, e and Euler's constant ..." by Jonathan Sondow, New York, in *the Tulane Colloquium 2004*, which also refers to the golden and silver section].
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- The golden section as an optimal solution, *Symmetry: Art and Science*, [5th Congress and Exhibition of ISIS, Sydney, Australia, July 8-11, 2001], Special issue, 2001/1-2; Also in: *Visual Mathematics*, the e-journal of ISIS: *http://members.tripod.com/vismath7/proceedings/huylebrouck.htm* [This paper is well ranked for number of hits].
- Generalized inverses and colour theory, *WSEAS Conference*, Corfu, Greece, August 2004. [Most recent publication uniting topics from the first and the fourth paper].

Abstract: *Literature introduces the "golden number" $\phi = 1.618...$ as a line segment subdivision obeying a rule dating from Euclid's time. Less ancient is the related "golden angle" of 36° occurring in the pentagon and in Penrose tessellations. At the end of the 19th century, unreliable statements about the golden section started to lead their own life, but by the end of the 20th century, these exaggerations created doubts about the exceptional nature of golden section. A short focus on some excesses still seems appropriate for a conference on the borderline of mathematics and art, as some of the given consequences for society are so simple-minded every reader will be warned for good about this golden section myth.*

1 INTRODUCTION

Following Euclid's "rule", the golden number (or golden section, mean, or ratio, or divine proportion, etc.) arises when a line segment of length $\phi = (1+\sqrt{5})/2 \approx 1.618...$ is divided into two pieces of lengths *1* and *0.618...* In the regular pentagonal star and the "regular" pyramid, the golden number is discovered too (see Fig. 1). These numerical properties got numerological interpretations in mythical circles, in as much that the denomination of "golden angle" of 36° was introduced in literature. Furthermore, since the proportion of consecutive Fibonacci terms 1, 1, 2, 3, 5, 8, ... tends to ϕ, the occurrence of ϕ in many unpretentious proportions of 2 to 3, 3 to 5 and so forth is not surprising. In recent times, several authors pointed out that the occurrence of the golden section in Egyptian pyramids, Greek art, da Vinci's work, in music, poetry, modern architecture and art must be considered with the greatest precaution. Most of these "justifications of the frequent occurrence" of the golden number do not relay on solid backgrounds, while their frequency depends on a personal interpretation.

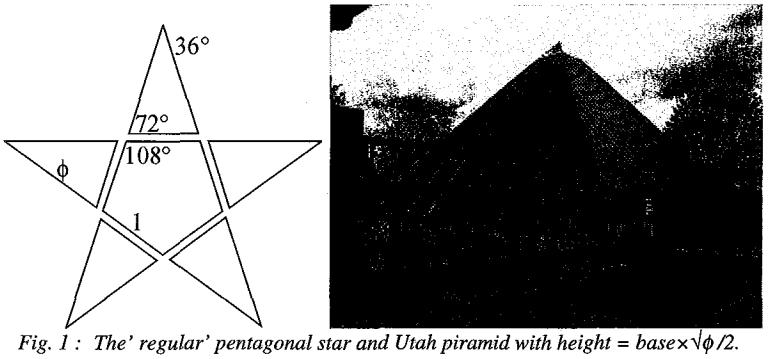


Fig. 1 : The' regular' pentagonal star and Utah piramid with height = base×√ϕ/2.

2 (ANTI-) RACIST MOTIVATION

This personal motivation may be a racist one (D. Néroman, 1983), as to mathematically prove Jewish and Hottentot people are inferior, since their feet-navel and navel-head proportion does not correspond to ϕ ("not yet", following the "unpresumptuous" author). However, to counter these eurocentrists who proclaim the frequent occurrence of the golden ratio is a proof of Western superiority, some committed multiculturalists, with an eventual political agenda, "discovered" it on their turn in African statues or Arab mosques.

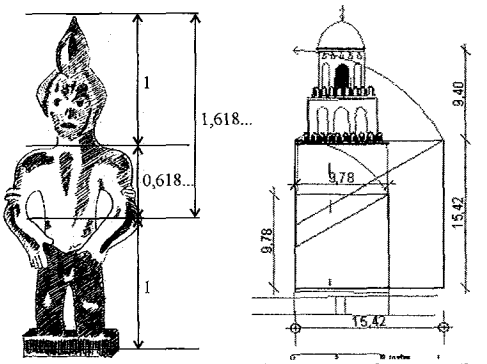


Fig. 2 : An African (Senufo) and an Arab golden section discovery (Boussora 2004).

3 FINANCIAL MOTIVATION

To others, financial motivation predominates. Dan Brown's book "The Da Vinci Code" is a bestseller, but we will not do him the favor of mentioning his non-sense oeuvre in the references - Dan Brown is invited to entertain us by instituting legal proceedings. Others sell a "golden mean gauge" to examine the golden proportion. The address is given in the references (see Levin), as there exists a less expensive student version.

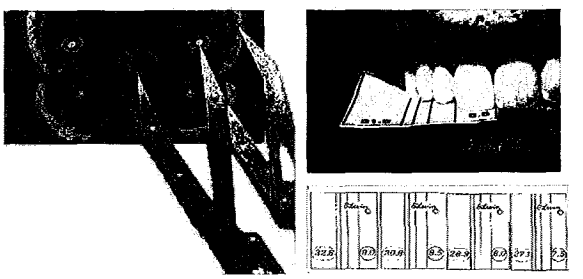


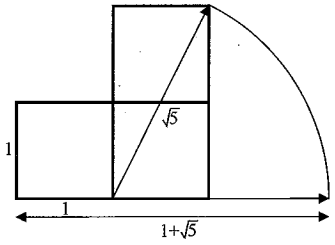
Fig. 3 : The "golden mean gauge" commercial announcement checks a moth's wing for presence of the Golden Proportion while the golden section dental set verifies the beauty of teeth.

Golden "extreme makeovers" exist too. Kiev Professor Alexander Bliskunov, highly respected in medical circles, proposes a chirurgical operation for people whose legs are too short with respect to the golden proportion. His "Orthopedics of the 21st Century" is praised along the following guidelines: *"Increasing your height by way of leg lengthening can bring your body into the proper proportion as described by the 'Golden Section' which is embodied in the ancient sculptures of Praxiteles and in the works of Leonardo da Vinci. 'Golden Section' was also known to Renaissance writers as 'Divine Proportion'."*

Fig. 4 : Before and after (left) Bliskunov's golden section operation (middle), praised by a cartoon (right).

4 ESOTERIC MOTIVATION

A desire for embellishing art and architecture through a scientific discourse is another motivation. The author of the present paper, who teaches mathematics at an architecture department, noticed how a Belgian architect called for the protection of a building in Brussels because of an alleged presence of the golden section. "Of course", a pyramid, such as the 'Summum Pyramid' of Fig. 1, is an ideal architectural concept for esoterics, but no scientist with a post-kindergarten degree will be astonished by the emergence of the golden section seeing three squares stones. Still, as there exists a "golden section religion" as well, the reader is warned not to take the present text lightly.



O **|** **Φ**
Nothing **Unity / God** **Nothing**
split by Unity is Phi, the constant of creation

"An original insight added by the author on 3/15/2003".

Fig. 5 : The double of the golden section based on 3 squares stones, and a "golden theology" statement.

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Web sites: *http://www.nexusjournal.com/BouMaz.html ; http://www.lengthening.ukrpack.net/; http://goldennumber.net/theology.htm ; http://www.summum.us/pyramid/* .