Amazing Labyrinths, Further Developments III

Samuel Verbiese
Plastician Artist
Terholstdreef 46,
B-3090 Overijse, Belgium
E-mail: verbiese@alum.mit.edu

Abstract

After drawing a Chartres-like labyrinth on the surface of a grapefruit and seeing how it distorts when drying, I was inspired to project labyrinths on tori. This paper shows two examples of computer renderings and one example of a bagel decorated with a labyrinth.

Genesis of an Idea

Among other works at Bridges Coimbra last year, I presented a grapefruit decorated with an opposite pair of my stretched-out MiniStOmer labyrinths [1, 2], inspired by Carlo Séquin. The fruit had begun its lengthy drying process which I monitored further upon my return. I was suddenly struck by the appearance of an increasing shallow dimple at the poles (Fig. 1a) that would eventually settle when the fruit would have become completely dessicated. This new apple-like shape gave me the insight that this phenomenon could be virtually continued up to the point where the poles would touch each other, and the shape would then change nature into a regular torus, giving the decorating labyrinth the same 'doughnut' status. And soon enough I got reminded of Carlo's impressive plenary paper precisely talking about tori [3].

Deciding this would be a new step in morphing labyrinth topologies, I first created a virtual model using JavaView encouraged by early successes with this excellent tool [4]. I applied the texture defined on a rectangle containing said design on a preexisting torus model (Fig.1b).

While fiddling, I realized something strange: for the grapefruit I had explicitly organized the texture strip (Fig.1b) design in such a way that the busiest part would comfortably sit on the equator and the regions with less turmoil would fit the restricted vicinity of the poles (Fig. 1c), to get a uniform impression of complexity. Now, having fed the same strip onto the JavaView torus, I discovered that the inner rim got the complexity while the outer rim zone looked desperately deserted (Fig. 1d).

Figure 1. a: Dimpled grapefruit, **b:** Original strip, **c:** Calm part on pole, **d:** wrong result.

This phenomenon is due to the way JavaView applies the texture strip to a torus. The middle of the strip ends up inside the hole of the torus, so is compressed to a small area. By rearranging the image so the busy portions are at the top and bottom of the strip (Fig. 2a), a more uniform impression results (Fig. 2b). The salient features of the St. Omer design---the cross, the dot and the square---are nicely visible, so this is closer to the impression of the labyrinth on the choir floor of the St. Omer cathedral (Fig. 2c).

Realized Artwork

One last move was to find a proper real torus to support the design. A tire inner tube I initially considered would present too large a cross-section-to-the-neutral-fiber-ratio, and a donut wouldn't offer the needed permanent strength, I tried a suggestion by Françoise Beck to use salt pasta, but found it finally funnier (and easier!) to look for bagels imported from New York as a proper MiniStOmer support!

See side by side in the exhibition [5], the vintage Florida grapefruit and the New-York bagel. Both sported almost the same brownish and black colors, yet the bagel (Fig. 2d) shined like a pump just polished along a New York avenue...

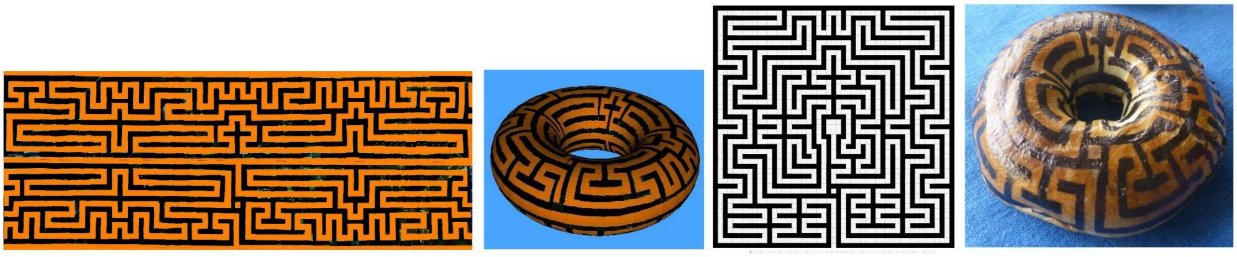

Figure 2 : **a:** Inverted strip, **b:** Correct model, **c:** StOmer design, **d:** Realized bagel.

Acknowledgments and Copyrights

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References

[1] Samuel Verbiese, *Amazing Labyrinths, and Further Developments I & II*, Proceedings of the Bridges Conferences Donostia 2007, Banff 2009 and Coimbra, 2011 and its Exhibition catalog :
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[3] Carlo H. Séquin, *Tori Story*, Proceedings of the Bridges Conference in Coimbra, 2011.
[4] www.javaview.com.
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[6] www.sofam.be.