

On the Origin of Sandwiches: A Revised Theory

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How does one define a Hotdog? Can it be considered a Sandwich? These are hotly contested debates in the memeology & scientific communities. Many authors around the world have proposed theories that *claimed* to conclude this debate - with exceptions. However, we put forth an entirely superior theory that eliminates the need for silly edge cases and integrates multiple perspectives.

This paper seeks to propose a simple solution: solving the mystery of bread-like constructions through the use of vector addition and taxonomy. It should be noted that all bread-like constructions are differentiable Reimann-2 manifolds. As a result, one can take the sum of all normal vectors to all bread-like material present in the construction, which we will henceforth call the **ideal vector sum**. Moreover, all compositions must be evaluated as if they were sitting on a flat level surface with all ingredients included, as if to be presented - as this is how we perceive such objects in their ideal form.

Once the sum has been taken, one can determine the classification of the construction. In this theory, there are three main taxonomic families of bread-like constructions: *Sandwicos*, *Pastillum Botellos* (P.B.)¹, and *Calzoni*².

The ideal vector sum, $\sigma = \sum \hat{n}$ where \hat{n} having magnitude $|\hat{n}|$ and angle θ_n is a normal vector, must satisfy the property $|\theta_\sigma| < \frac{\pi}{4}$. The vectors are oriented such that $\theta = 0$ is parallel with respect to plane of presentation. In addition, for pure constructions, $\sigma = \vec{0}$. When both segments of bread-like material are parallel planes, we are in the form *Sandwico Paterprimaria*. If the upper bread-like plane has a curved top surface S , formally defined as both $\frac{\partial^2 S}{\partial x^2} < 0$ and $\frac{\partial^2 S}{\partial y^2} < 0$, it is of the genus *Hamburgense*. However, if $|\sigma| \neq 0$, one can classify the *Sandwico* as a *Sandwico Subaquaneam*.

A P.B.'s vector sum will add up to being within $\frac{\pi}{6}$ of the vertical axis, that is, $|\sigma - \frac{\pi}{2}| < \frac{\pi}{6}$, pointing upwards relative to the plane of construction. Additionally, it is necessary that $\sigma \neq \vec{0}$ as well.

The vector sum of a *Calzoni* should be such that $\sigma = \vec{0}$. Moreover for pure constructions, the topology of a *Calzoni*, C , should be homeomorphic to a sphere³, that is, $C \cong S^2$. However, if said *Calzoni* is made of one bread-like plane but $C \neq S^2$, it can be said that the *Calzoni* is of the genus *Burrito*.

Referring to Figure 1, we can see that the Sandwich, consisting of two perpendicular bread-like planes, is indeed *Sandwico Paterprimaria*. Similarly, the Burger, with its upper-bread-like plane having a curved top surface, is of the genus *Hamburgense*. The Sub, while not consisting of parallel planes, maintains $|\theta_\sigma| < \frac{\pi}{4}$, but with $|\sigma| \neq 0$. The Hotdog in Figure 1, the point of contention for this paper, has an ideal vector sum with angle $\frac{\pi}{2}$ placing it firmly within the family *Pastillum*⁴. The Calzone is of ellipsoidal shape, and is therefore of equivalent topology to S^2 , making its taxinomial classification *Calzoni Paterprimaria*. Burritos are not homomorphic to S^2 , unlike Calzones (as indicated by the line through the cross-section in the figure). $\sigma = \vec{0}$ for this example as well, and it consists of one bread-like plane, consistent with the genus *Burrito*.

In conclusion, if one properly applies this theory to a hotdog, one can surmise that **a hotdog is indeed, not of the family *Sandwico*.**

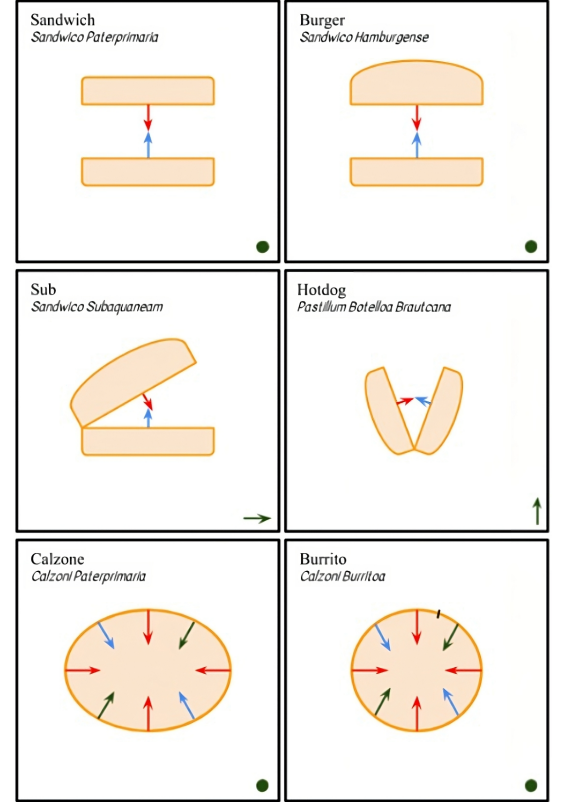


Figure 1: Example vector sums of various bread-containing food items.

¹The word "hotdog" is hotly contested in the taxonomic community. One can define tacos and other similarly-shaped constructions as of the same substance. Therefore, the only proper taxonomic classification one can use is the whole family of *Pastillum Botelloa*, with *Brautcana* being a genus within.

²There is debate within the community as to the true taxonomic name of the *Calzoni* family. Some consider the family to be named *burrito* or *empanæ*, but this article will be sticking to latin roots.

³Having the topology of S^2 is a sufficient condition for $\sigma = 0$

⁴The family *Pastillum* also includes genera such as *Taco* and *Shwarmæ*.