

O

On The Entanglement of Topology and Perception

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Vienna, May 2025

Written component of Master thesis
Submitted in partial fulfilment of the requirements for the degree of
Master of Arts (MA) at the
University of Applied Arts Vienna
Institute of Fine Arts and Media
Study Programme Art&Science (S 066 776)

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di: **angewandte**

Affidavit

I hereby declare that I am the sole author of this work. No assistance other than that which is permitted has been used. Ideas and quotes taken directly or indirectly from other sources are identified as such. This written work has not yet been submitted in any part.

Lilian Mira Kaufmann

...to exist at all is to assume the form of a loop. (Morton 2016)

To Lülü and Carl.

Abstract

The project "O - On the Entanglement of Topology and Perception" is a self-experiment in which I want to evaluate how much of our surrounding is shaped by the emphasize we ourselves put on specific objects. The object of my choosing is not of fixed shape but rather an idea brought to us by the creativeness of mathematic's topology. I want to collect different tori (plural of torus) everywhere I go. A torus is a one-holed object. Any kind of object with *exactly* one hole.

In this written part of my thesis project I am going to lay out all the basics of understanding of what a torus is, how one can be found and what it means to search for an object without a clear-cut form. Furthermore, I want to shine light on the change in my perception as well as the perception of people close to me. This thesis is a very metaphorical work with an emphasize on looking at the world searching for same-ness rather than looking through an individualistic lense.

Contents

1	Introduction: How I found the path to the Torus	6
2	The Mathematical Basics of Topology and the Construction of the Torus	8
2.1	Basic Examples of Topological Spaces	9
2.2	The Concept of a Torus	10
2.3	The 3-dimensional Torus	10
2.4	Topological Properties of the Torus	10
3	The Torus in 2-dimensional Space	11
3.1	Examples of the 2-dimensional Torus	12
4	The Torus in 3-dimensional space	30
4.1	Methodology of picking up a Torus	32
4.2	Exercise of constant deformation	33
4.3	Materiality	34
4.4	The Torus: the Meme	36
4.5	The Tori of my everyday life. Or: the tori I cannot escape	37
5	Perception shaped like a Torus	38
5.1	Perceptual Distortion with exactly one Hole	40
5.2	My friend the torus	41
6	Selected Tori from my Collection	44
6.1	Lülü	45
6.2	Ashtray Lid	46
6.3	Wheel	47
6.4	Half Glasses	48
6.5	Flower	49
6.6	Children's book page	50
6.7	Witch Stone	51
7	Conclusion	52
8	References	53

1 Introduction: How I found the path to the Torus

In the beginning of questioning what my research topic for this piece of work should entail, I quickly came to the conclusion that I wanted to pick something up from the ground. I wanted to start a collection of random objects from my vicinity. This is interesting to me because I truly believe that the surrounding one finds oneself in shapes one's state of mind.

Some artworks I have seen recently that made it even more clear to me that I wanted to make my own collection of found objects include "Undone", the Zimbabwean pavilion of 2024's la biennale di venezia and Messy Msxi's "Plastic Ocean". Interestingly, both of these examples deal with trash in different ways. Such artworks intrigue me and make me question what more there is to trash. One possibility of defining trash is objects that are thrown out (into the garbage bin, to the floor, into a field, etc.). Living in the city of Vienna, I am very much surrounded by discarded objects, even though the city has a very high density of trash bins (thanks to MA48).

This was the starting point: I wanted to collect tossed objects from the ground. But I did not want to collect *any* objects *just* because they are on the ground. So I started to look around to try to get a feeling what kind of objects there are to be picked up anyways. I thought, I could collect items based on their materiality, maybe all metal pieces (there are plenty of them). I could also collect traditional trash, like plastic objects, but this has been done and what new can I contribute to this field of art and/or research? And while reflecting on these first limitations of my collection, I realized my focus has shifted already. I was looking more at the ground, identifying objects that before would have slipped my mind. Something in me was changing - and change is always a good source to draw from. I soon understood that my perception was shifting even though I did not yet know where it was shifting to.

As a person who lives the majority of their life on the internet, this kind of exercise was a welcomed way to start taking more in from my physical environment. I started to feel that I was liking the way this research is

going, even though I did not yet know any proper details about it. But the internet, my darling, comes in handy. I spend a lot of time looking at memes and because of my dear interest in mathematics, the mighty meme algorithm was flushing me with topology memes. Topology is a branch of mathematics that I was always interested in and I remember the time I was enrolled in the Mathematics bachelors I was just getting to that part of the topological realm before dropping out. Topology looks at geometric objects in a very abstract way - all objects are deemed equivalent if they can be formed from one another via constant deformation. This is interesting because it opens up a new dimension of equal-ness, we, in our physical everyday life, do not realize. It is not about a shape per se but about the *possibility* of this shape.

Great, I thought, I can harbor this! The next step was to identify the different shapes defined in the topology world. The first and easiest shape is the *sphere*. A glass is a sphere, a plate is a sphere, a pen is a sphere, a crochet hook is a sphere, a chair can be a sphere. An object without any holes. Next in line is the *torus*. This really captured my interest. It is an object with exactly one hole. Obviously, there is more to the sphere and the torus than just looking at how many if any holes they have, but for simplification reasons, I focus on the hole-ness of these objects.

And there it was, my idea: What will happen if I start collecting objects with exactly one hole, tori so to say? I finally found properties from which I could distinguish the items I found lying on the floor. Now, finally the picking-up part could begin.

2 The Mathematical Basics of Topology and the Construction of the Torus

Topology is a branch of mathematics that is concerned with the properties of space that are preserved under continuous deformations, such as stretching and bending, but not tearing or gluing. It is often described as "rubber-sheet geometry" because it focuses on the intrinsic properties of shapes and spaces rather than their exact measurements.

A **topological space** is a mathematical structure that helps to understand concepts like continuity, connectedness, and convergence without relying on distances or coordinates. Instead of measuring distances, we focus on how sets of points are grouped together in an abstract way.

Formally, topological space is a set X equipped with a collection $\mathcal{T}$ of subsets of X that satisfy the following axioms (Munkres 2014):

- **The empty set and the whole space are open:**

$$\emptyset \in \mathcal{T}, \quad X \in \mathcal{T}$$

This ensures that there are at least two open sets.

- **The union of any collection of open sets is open:** If $\{U_\alpha\}_{\alpha \in I}$ is a collection of open sets in $\mathcal{T}$, then their union is also in $\mathcal{T}$:

$$\bigcup_{\alpha \in I} U_\alpha \in \mathcal{T}$$

I.e. if you take any number of open sets and combine them (union), the result is still an open set.

- **The intersection of any finite number of open sets is open:** If $U_1, U_2, \dots, U_n$ are open sets in $\mathcal{T}$, then their intersection is also in $\mathcal{T}$:

$$\bigcap_{i=1}^n U_i \in \mathcal{T}$$

I.e. if you take a finite number of open sets and find their common part (intersection), the result is still an open set.

The elements of $\mathcal{T}$ are called **open sets**, and the pair $(X, \mathcal{T})$ defines a topological space.

To illustrate, a set can be thought of as a bunch of dots, like peas in a bowl. Depending on the context we look at the peas and the bowl in a different way.

2.1 Basic Examples of Topological Spaces

△ **Discrete Topology:** For any set X , the discrete topology is given by $\mathcal{T} = \mathcal{P}(X)$, the power set of X . Every subset is open (Rowland n.d.).

To give an example, think of the peas in the bowl. Discrete topology tells you that every single pea is its own separate open set. The space, i.e. the bowl, is totally scattered, no pea is connected to the next pea (so the bowl is flat and the peas do not touch each other).

△ **Trivial Topology:** For any set X , the trivial topology is $\mathcal{T} = \{\emptyset, X\}$ (Barile n.d.).

This is the exact opposite of the discrete topology, also called indiscrete topology: either the whole space (the bowl with the peas) is one open set, or it is empty (empty set). The space behaves like a single, indivisible unit.

△ **Euclidean Space:** The topology on $\mathbb{R}^n$ is generated by open balls $B_r(x) = \{y \in \mathbb{R}^n : \|y - x\| < r\}$ (Sydsæter et al. 2005).

This is our space we, and the bowl of peas, live in! It follows the usual geometrical rules. With this paper, on which I have written these words, I have been using Euclidean space.

2.2 The Concept of a Torus

A **torus** is a surface shaped like a doughnut (Munkres 2014). It can formally be defined as the Cartesian product of two circles (Sojakova 2016):

$$\mathbb{T}^2 = S^1 \times S^1$$

Here, S^1 represents a circle and the product $S^1 \times S^1$ describes the surface where each point is determined by two angular coordinates:

$$(e^{i\theta}, e^{i\phi})$$

2.3 The 3-dimensional Torus

A **3-dimensional torus** (or $\mathbb{T}^3$) is the Cartesian product of three circles (ibid.):

$$\mathbb{T}^3 = S^1 \times S^1 \times S^1$$

This space can be visualized as a higher-dimensional analog of the standard torus. Each point on $\mathbb{T}^3$ is represented by three angular coordinates:

$$(e^{i\theta}, e^{i\phi}, e^{i\psi})$$

The 3-torus is an example of a 3-dimensional manifold that locally resembles $\mathbb{R}^3$ around each point.

2.4 Topological Properties of the Torus

Some topological properties of the torus that are important in the physical realm and to help understand the torus as an collectable object:

- ⌘ **Compactness:** The torus is a compact space because it can be covered by a finite number of open sets.
- ⌘ **Connectedness:** It is path-connected, meaning any two points on the torus can be joined by a continuous path.
- ⌘ **Genus:** The torus has genus 1, which means it has a single hole.

3 The Torus in 2-dimensional Space

When conquering 2-dimensional space, the first thing that comes to mind is a piece of paper. Much like this sheet you are reading right now - in physical or in virtual form. Although a piece of paper in our physical world cannot be by definition (of living in a three-dimensional realm) two-dimensional, it is a good approximation of what we can perceive as two-dimensional. One can even try to invent any kind of tori one likes. The starting point can always be a circle. From there, imagine deforming the line that separates the inside from the outside in any manner you may choose.

In figure 1 three possible tori are portrayed. While they are topological

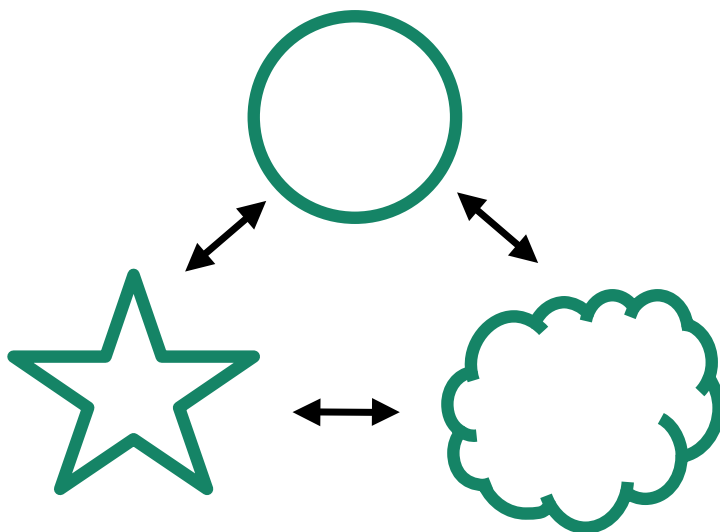


Figure 1: Suggestion of possible torus deformation in 2-dimensional space.

equivalent, meaning all of them are by definition tori, they appear totally different to our eye. Only the colour suggests familiarity, the shape has changed completely. Although this seems true, topologically speaking we are still in the same sphere of equivalence. One could even say there is a

clear border from "inside" and "outside". This exercise showcases the true reality of the torus: the border itself becomes the point(s) of interest, and whatever we do to the border, it is not changed fundamentally (as long as we do not cut it, of course). Yes, it appears to have changed shape and form but in reality it still encloses the "inside" from the "outside". We are still way within the properties defined in section 2.4, the genus of our object of desire stays 1.

Deformation can take place, as suggested above, in a manifold of ways. Creativity is the limit - what space do you mean to enclose with your border? You can construct your torus as you like. But not all tori are constructed just for the purpose of construction. There can be a very real meaning behind the torus. And once again, the (seemingly) 2-dimensionality of the paper gives us the possibility to look at the torus from a complete different angle. Nevertheless, we are walking on the border of equivalence, we are still here:

$$\mathbb{T}^2 = S^1 \times S^1$$

This holds true for all the examples we will conquer in the two-dimensional world. Entering in the meta-mathematical world, what are the limits to the torus, what is the border of this limit?

3.1 Examples of the 2-dimensional Torus

While reading the text, you have already come across many tori, maybe unconsciously, maybe you have already had an eye out for them. These are tori that are not constructed for the torus-sake. They are here by mere chance, to make sense of these characters topology can provide for a renowned sense of connection. The equivalence the torus supplies gives a certain kind of grip, it brings inter-connectedness where it cannot be found otherwise.

On the following pages, there the 2-dimensional tori crafted not in the sense of the torus but for very different purposes displayed.

a

b

d

e

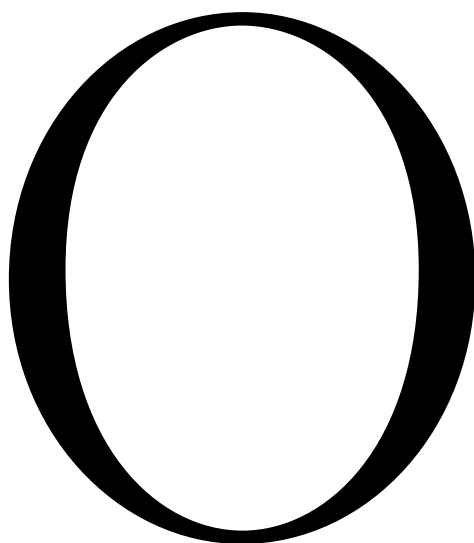
O

p

q

A

D



P

R

4

6

9

O

...and so forth.

The collection of the 2-dimensional torus can be seen as a game with only one rule: *one hole*. The attribute of the torus is not fixed to a certain character, in the aforementioned selection the key point is the font, the look not the meaning behind the letter. Maybe this selection is therefore a superficial one. But the superficiality is the point itself. Topology is concerned with space and where there is space there is a surface. The look on and the making sense of connectedness of this surface can provide for a different kind of meaning.

It is a game of abstractness and a possibility to sharpen one's perception on attributes that are not distinctly obvious, like colour for example. Who would have thought that A and 6 can be regarded as equivalent? It is only a matter of the inertial system and the rules you put in it. This is what fascinates me about this abstractness: strip away the physical properties that are in the foreground and look at characteristics that are not at first glance apparent and you will find other systems to think in. Rules are arbitrary in general. I like to think that we as a society are so rigid when it comes to pre-made rules, a little abstractation could help to overcome a lot of prejudices.

4 The Torus in 3-dimensional space

When adding a new dimension and thus entering the 3-dimensional world, we are also entering the physical realm. We do not only need to add another S^1 to the product of now $\mathbb{T}^3$, we can now hold, turn and throw - if necessary - the torus. The only constant is the number of holes: one.

With three dimensions, it is somewhat harder to create a torus from scratch, what we did for the two-dimensional torus in figure 1. However, the creation of the torus is not impossible. If there are proper tools at hand, one can make a torus out of practically anything. For example, if you have a piece of wood as well as a drill you can transform the sphere (a topological object *without any* holes) into a torus. If you have a piece of metal you can weld it into a torus. These actions of transformation from sphere to torus are no topological ones, though. These are preliminary actions to *generate* a torus from a non-torus object. It is very important to distinguish the topological actions of constant deformation once we have the torus at hand from the actions that provide the torus to begin with.

Figure 2 shows a possible torus deformation in 3D on the basis of figure 1. Obviously, it is impossible for us to make plastic into rubber and then paper and vice versa. Figure 2 is just a mere illustration of the way of *thinking* the deformation with a topological mindset. We deem all three objects in this figure as *equivalent* because of their surface structure (i.e. having *exactly* one hole) and *theoretically* we could deform these surfaces into one another. The abstractness here is key (like explained in the end of section 3.1).

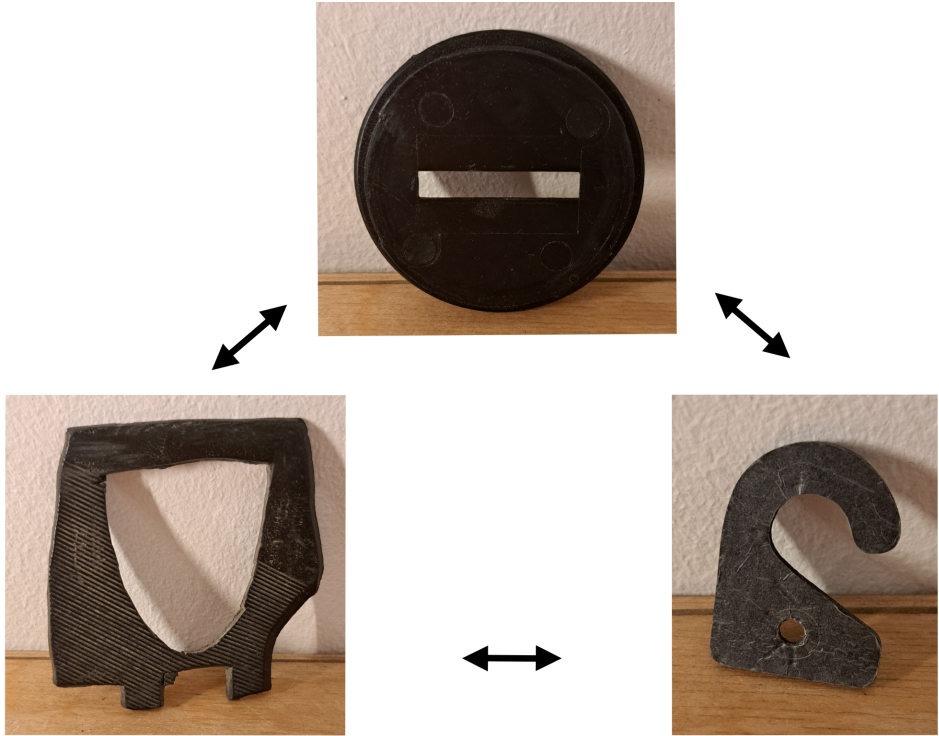


Figure 2: Suggestion of possible torus deformation in 3-dimensional space (hence the shadows).

4.1 Methodology of picking up a Torus

For the last couple of months, I have been collecting random tori in my surroundings. This is what I have been doing:

- ☆ Go about my way
- ☆ Look around
- ☆ Find an object with seemingly exactly one hole
- ☆ Check for it having exactly one hole
- ☆ Take a picture with locations
- ☆ Pick it up
- ☆ Store it in any bag I have on me
- ☆ (sometimes months later) put it into my collection

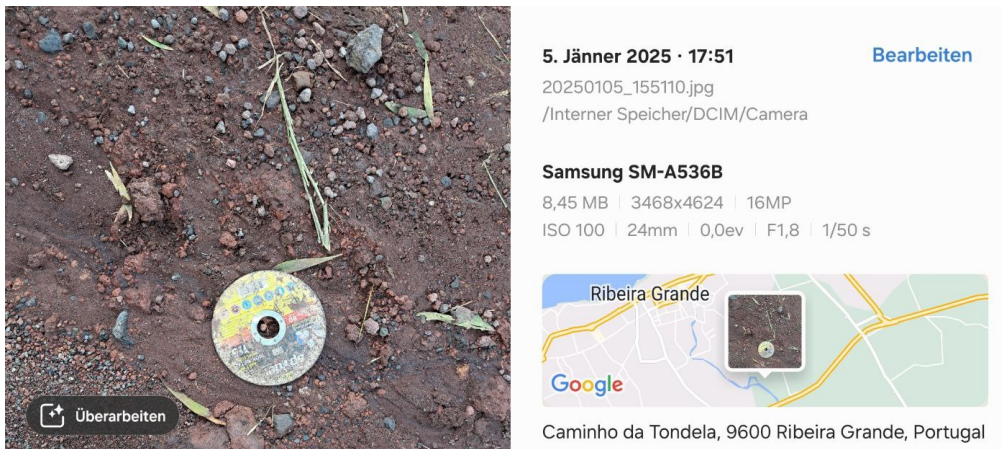


Figure 3: A torus I found in January while on holiday at the Azores (an angle grinder disk) together with all the meta-data.

4.2 Exercise of constant deformation

Thinking of this constant deformation, one can imagine a rubber band, a very typical, straight-forward torus. Just like Donna Haraway's string figures, that are symbolic for connectedness between two people of any phylogenetic kingdom (Haraway 2016), taking the rubber band between four fingers one can find any kind of form with the chosen torus - make a square, a bigger one, a trapezoid, parallelogram, take one finger out and make a triangle,... Endless possibilities.

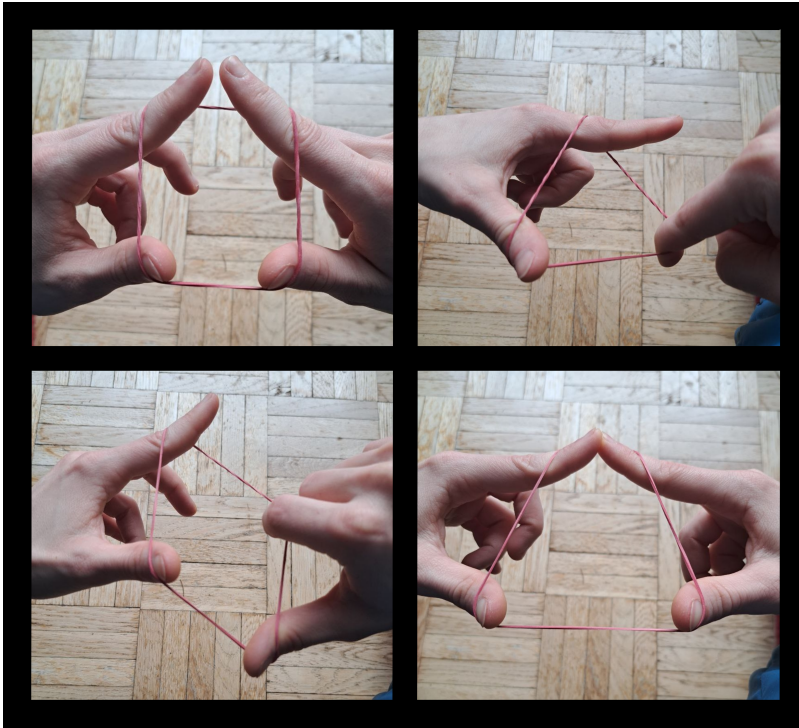


Figure 4: String figure play to illustrate constant deformation. The rubber band is a torus and no matter how we deform it, it stays a torus (we neglect now the twisting of the rubber band itself for simplicity).

4.3 Materiality

In the 2-dimensional world the "material" we were provided with was the colour of the border (e.g. green in figure 1). In the physical world there are a manifold of materials that can provide us with our beloved torus. We explored wood and metal, other possibilities can be rubber, PVC, glass, acrylic-glass, ceramics, dough, paper, carton, wax, etc. Still, although the materials differ from one another, the torus stays the same - the space that encapsulates a space, the border but now stretching out in three dimensions.

In this sense there is no materiality in topology. Of course, in our physical world-view the material will *also* shape the shape of an object (i.e. there are certain limitations of properties of distinct materials). But in the topologically defined world, we enter an abstraction that transcends materiality as such. Yes, the material is one property of an object but we can neglect it completely. The materiality does not matter. One could also say: the look (of the torus) does not matter. Matter-ing in itself is not a unit one needs to explore. In another view, the matter of the torus is the missing part - the hole (freely adapted from Barad 1996, even though they would probably argue that the opposite is true).

In figure 5 the torus in its manifolds is depicted. A lot of round tori, a lot of metal, but also differently shaped tori as well as ones made out of different polymers. I have found all these tori in one day, this may not always be the case but it is also not unusual to find a lot in a short period of time. I can confidently say that a walk without finding at least one is the exception. Some days it feels like my focus is so much with the torus as a concept, that I see them everywhere and I cannot stop looking for them. To be honest, I do not pick up all the tori I see, especially when it rains, because i) I need to go somewhere and do not want to become more wet than I already have and ii) I do not want to put a wet, oftentimes very dirty torus in my bag.



Figure 5: All the tori I found in one day

4.4 The Torus: the Meme

The internet is very quick to exploit this effect.



Figure 6: Torus Meme, found on reddit with the caption: "I like to have a torus with my torus"

The equivalence of a coffee cup to the doughnut is a very famous meme. It is very prominent, since the materiality of these two objects do not align at all, we have ceramics with the cup and dough with the doughnut. Despite this little facet a topologist like in figure 6 would regard these objects as equals, which provides the humour to this infamous meme. A non-topologically thinking mind would argue that these two objects can never be seen as equivalent, one must be crazy to think otherwise. In this

work I want to argue why it can be so prosperous to think like a topologist, to identify equivalence in unforeseen circumstances. That a certain set of properties is enough to regard some things as equals despite their obvious differences.

4.5 The Tori of my everyday life. Or: the tori I cannot escape

- ✧ Cymbals (I am a drummer)
- ✧ Keys
- ✧ toilet paper rolls
- ✧ Rings (I never wear them)
- ✧ Nuts (the technical things)
- ✧ Pearls (I like to bead)
- ✧ Needles (for beading pearls)
- ✧ Vinyls and CDs
- ✧ Garden Hose (I have a balcony)
- ✧ Cups
- ✧ the complimentary doughnut
- ✧ rubber bands (I eat a lot of spring onions and they always come with these)
- ✧ pipes (I previously studied engineering, and also the construction site in front of my house for 1+ years showcases the most beautiful tori)

5 Perception shaped like a Torus

Interestingly, the longer I have collected the tori, the more prone I am to finding one. My perception has changed to observing my surroundings for holes, for specifically exactly one holed-objects. My collection has grown exponentially. Specific objects I will not pick up anymore, because of the vastness of their occurrence. Such items include metal washers. I am very much wondering where all the missing metal washers come from, are there parts mounted on machines without the necessary grip always on the brink of getting so loose they fall off?

In figure 7 you can see a fraction of the vastness of tori I collected. You can also see some people in the pictures. Not only my perception is now somewhat entangled with finding exactly one holed objects, also the people close to me recognize it now, draw my attention towards these objects and collect them for me. Once you go torus, you can never come back.

In section 4.3, the materiality or better: the insignificance of the materiality of the torus became prevalent. To combine this to my change in perception since the start of the torus project, in the beginning I was only finding round objects made of metal (especially washers). Still, these objects are the majority of items I collect today, but my perception has broadened and not only the hole became more flexible. My perception of objects in my surroundings has transcended, especially when it comes to the materiality bias from the beginning.

There is one term in cognitive psychology that explains the entanglement of my perception to the torus: **motivated perception**. Motivated perception is the idea that what we see, hear, and interpret is influenced by our desires, emotions, expectations and goals. In other words, *our motivation affects our perception of the world* (Skelly et al. 2012, Hughes et al. 2015). My motivation to collect objects with exactly one hole has definitely changed the view of my surroundings.

Our perception is not purely objective and submissive. Instead, it can be shaped. We find ourself in a situation and our brain does not just passively process sensory input, it actively filters, prioritizes and interprets the information at hand based on what matters most to us in that specific moment.

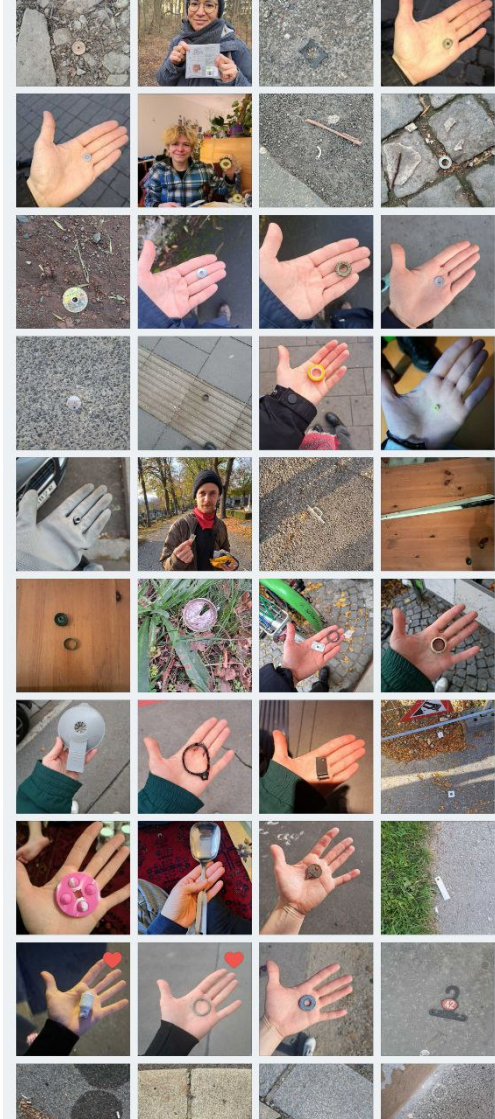


Figure 7: My camera roll full of different found torii

There are two ways that our brain processes situations: Top-down and bottom-up processing. The first is the one I put my focus on, literally.

This is the part of perception we can hijack, with the aforementioned expectations, emotions, goals and desires. The latter is our auto-pilot, where sensory input dictates what we perceive.

5.1 Perceptual Distortion with exactly one Hole

One important aspect of motivated perception is the **wishful thinking bias**. The wishful thinking bias is a cognitive bias where one believes something is true or more likely to happen simply because they want it to be true. Instead of making rational, evidence-based judgments, they allow their (again) desires, hopes or emotions to shape their beliefs and expectations (Krizan et al. 2009). This is interesting in context of my torus-search because I see a torus in everything, or at least I want to see it. When I go around very often I pick something up to only later realize it has two holes or the hole is not a real hole and what I have in hand is actually a sphere. These are the frustrating parts of my perception shaping journey, that I do not only sharpen my perception to the torus but also distort it in a way that I see false-positives everywhere.

Furthermore, the torus is contributing to the affective priming phenomenon (Zhang et al. 2012). I see a torus (this would be the emotionally charged stimulus) and that influences how I process and how I react to a subsequent stimulus. To put it more bluntly, finding a torus in the wild makes me happy and this affects my life according to the affective priming theory in more ways than just my altered way of perceiving my environment.

The torus has entangled itself with basically all my perception and even influences my mood and how I react and interact with other parts of my life.

5.2 My friend the torus

Not only my perception has been altered by my search of the torus but also my near surroundings have changed: in the sense that I focus more on exactly one-holed objects, but further that my friends start to chase the torus.

My project has exceeded my mind and has infiltrated the minds of the people closest to me. My motivated perception motivated my friends to seek tori themselves. Moreover, their perception has not only sharpened in the torus-sense, they are very excited to show me their recent findings.



Figure 8: Jonah showing me their recent finding

In figure 8 you see a very proud Jonah holding a card showing meerkats, on the top of the card you see exactly one hole - Jonah has found a torus and was super happy to present it to me.

But my friends do not only seek the torus in their surroundings and collect them from the floor, they have entangled me (as a person) with the torus concept and the chase thereof. Figure 9 shows my friend Noo gifting me a chocolate that has a hole in the middle for christmas. They



Figure 9: Noo with their gift (chocolate with one hole) to me

found it at the supermarket and immediately had to think of me - probably because I never shut up talking torus. It is a nice feeling that my friends have started to associate me with the torus.

Not only do the people around me seek out tori and give them to me, they also document them and send them to me via text-message. The torus has, so to say, entered the virtual realm of my communication, as seen in figure 10. Sometimes they even add the location (see figure 10 left) where they have found the precious object. Each time I get such a text-message I am filled with joy, as my answers may reveal (on the left I write: "Omg how coooooool/Are you at Prater?", on the right I write: "Yeeeeees" followed by three heart-eyed emojis). Especially the misspelling of "taurus" made me grin and love my friends even more. Interestingly, a lot of them think torus is actually taurus, even though I try to tell them otherwise.

In conclusion, it is a weird but also good feeling to be able to change what one sees in the world to that extent, not only for oneself but also to

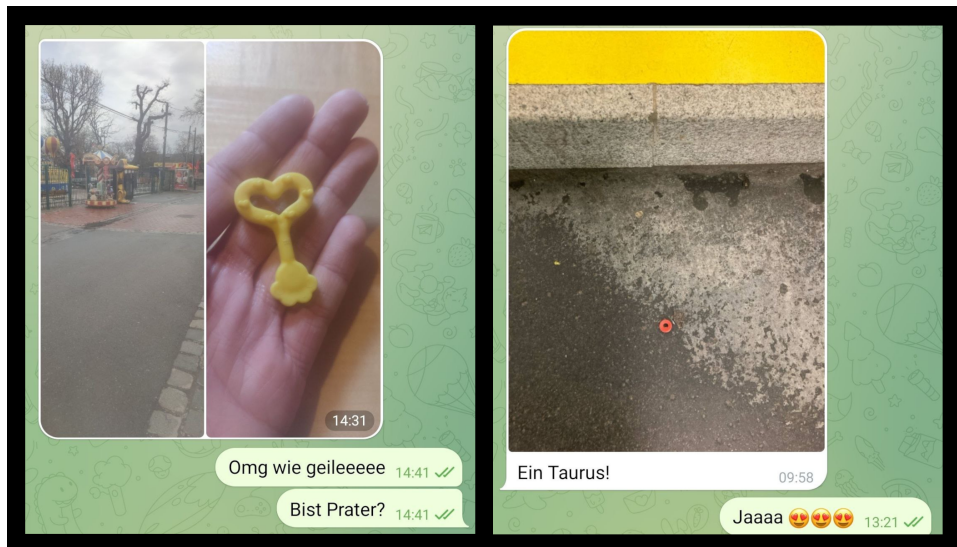


Figure 10: Tori found and sent to me virtually by two separate friends

see how your altering perception influences the people around you. This makes me wonder, how much of my own opinions and thoughts are shaped by active interception of others. I think it is a good starting point in these times (of change, misinformation and social media), to reflect on one's views and see how easily one can hijack other's way of viewing the world around them.

6 Selected Tori from my Collection

Some tori that I find stick with me. I put them on a necklace or on my wall. All tori mean something to me, it sounds cheesy but I developed an objectophile tendency towards objects with *exactly* one hole. But like with everything else, there are favourites. I try not to say it too loud but truth be told, some tori are more equal than the other.

In this section I want to introduce you to some of my favourites and tell their story.



Figure 11: Some tori from my collection that stick together (the orange torus is a magnet).

6.1 Lülü



Figure 12: Rusted Metal Washer. Found by Jonah, 13.02.2025, 12:07, Grinzinger Steg 6, 1190 Vienna

This metal washer is probably the most emotionally charged piece of my collection. Jonah found it when we were going home after the funeral of a dear friend of ours, Lülü. We were going in a group of friends, all smoking cigarettes from a pack that was left from Lülü. It was a very emotional day and all of a sudden Jonah stops to dig something up from the ground. It was this rusty metal washer. Even in times of grief and immense mourning, a torus can be found. Look through and see the connectedness. We will never forget you Lülü.

6.2 Ashtray Lid



Figure 13: Ashtray lid. Found by me, 04.09.2024, 17:49, near Uraniastraße 1, 1010 Vienna

I passed this ashtray lid twice before picking it up. I can remember it very clearly, when I first passed it I was on my bike going from Donaukanal to Ringstraße and I was, as usual, in a hurry. Most probably I was already running late and I remember thinking what a shame it was that I had no time to stop and pick up this torus, but it would have cost me precious minutes and I was full speed going uphill. The day passed and I had an itch under my fingernails to check if it would still be there, so I took the same route home (which I usually try to avoid because I get sick of routine very fast) and voilà, it was still there, waiting for me to be picked up.

6.3 Wheel



Figure 14: Trolley wheel. Found by Leni, summer 2024, Hernalser Hauptstraße, 1170 Vienna

Unfortunately, I missed documenting the finding, so I cannot provide better date and location data. Nevertheless, I wanted to include this piece in the list, because I have such a strong memory of when Leni spotted it. We were going somewhere together and were actually just talking about this project that I just started, being already obsessed with finding tori. My friend Leni was a little upset because she tried to collect them for me for a while but was unsuccessful. And suddenly while we were talking about how she could not find any tori she stopped and sprinted towards a little construction site and picked up this trolley wheel, one of my biggest pieces in my collection so far.

6.4 Half Glasses



Figure 15: Half of a pair of glasses. Found by me, 14.10.2024, 15:00, Oskar-Kokoschka-Platz 2

I found this object right in front of one angewandte building and I could not believe it when I saw it from afar. Apparently someone must have lost their glasses (I hope they were not too expensive) and then they broke in half and the glass fell out, because this is indeed how I found it. Because so many coincidences to occur to have produced this torus I felt so lucky to have found it and am very proud to have it in my collection.

6.5 Flower



Figure 16: Cloth flower. Found by me, 02.02.2025, 12:31, Hernals cemetery

This cloth flower plays right into my aesthetics since I have a very big soft spot for flowers and all kinds of accessories associated with spring. I live right around the corner of the Hernals cemetery where I oftentimes go for a little stroll to clear my head, be surrounded by old trees and see what kind of vegetation is in season. Having found this little flower that must have been attached to a mourning-related object, I immediately felt a connection and keep it dear to my heart.

6.6 Children's book page



Figure 17: Page torn out of a children's book. Found by me, spring 2024, Schadinagasse 11 1170 Vienna

This paperback page from a children's book was a big realisation to me. I just started the project and was collection tons of metal washers and metal nuts and all of a sudden right in front of my house there was this beautiful and special torus. Some child must have ripped it out of their book and tossed it out of their trolley. Thank you, child, for your rash anger!

6.7 Witch Stone



Figure 18: Stone with one hole. Found by me, 03.01.2025, 14:32, R. do Farol, Prainha, Azores Portugal

This stone torus is loaded with mysticism dating back to druidic rituals in pre-Roman Britain. It is often referred to as the Witch Stone, Hag Stone or Serpent's Egg. Legend has it, that possessing one of these stones grants you with the power to cure venomous snake bites and to glance through the veil of enchantment, revealing the true form of fairies and witches.

7 Conclusion

To sum up, the hunt for tori has in fact hijacked the way I look at and perceive the world around me. Properties do not have to be concrete, they can be abstract and still motivate one's perception. My torus-collection is growing every day, my eye is more and more focused on the one-holeness of things, the search is spreading to my friends as well.

This project became a game the people close to me and I are constantly playing, motivating each other to find even more obscure tori. This game has a very satisfying feeling to it, that you find something and put it into the collection box and know, every object in this box can be regarded as equivalent. This is (w)holesome in every possible definition of the word. Every way that has to be walked becomes a new quest to look around.

And even though I just argued about the same-ness of all the tori, in section 6 I admitted that certain tori are more ingrained in my sympathy than other. These tori I want to showcase in a special manner, telling the story of them. This is also what this work has come to be about: finding stories. With each object I pick up, I can imagine where this came from, when was it dropped and by whom and sometimes, the act of picking up by myself has its own story that lasts longer and stays with me.

In the second part of my physical work I want to simulate finding a torus by chance. The audience is invited to take a torus from my collection and hang it on a wall - the hole in each object makes it perfectly fit to be hung. By this interaction, maybe the audience can entangle themselves with the abstractness of the equivalence of the objects. Each object seems to be pretty unique (apart from eons of the metal washers and nuts I suppose) but by using the one property they all share to put them on the wall, the viewers and now participants can make their own map of torus, maybe they see properties worth selecting, maybe it happens randomly. This work lives off fluidity, everyone can interact with it and change the composition.

8 References

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