

# Sheldonian Lessons in Lacanian Topology

## Lesson 1: The Unary Trait as an Isomeric Point



Figure 1. Lewis Carroll's Cheshire Cat was possibly inspired by a molded cheese once produced in southern England, which would be eaten from "tail to nose," leaving, as a last morsel, the smile. One version of the cheese has possibly served as a model for this architectural pendentive.

forward. Like the cat in *Alice in Wonderland*, all of the cat would disappear, with the smile left as the last, treasured tidbit.

There is a rather intricate idea locked inside this simple story. When Lacan thinks about the unary trait, he cites the case of the hunter who, when killing a prey, makes a notch on a bone or

### Why Start with Such a Difficult Idea?

The unary trait is far from being the easiest idea Lacan developed, bridging the mathematical aspect of the 1 with the subjective, cultural, and psychoanalytic role played by the unary trait, which came from Sigmund Freud's *einzigster Zug*. This was the cough of Dora, which she had "caught" from her father not as a symptom of a cold or throat ailment but as a mark of identification. Since neither Dora nor her father were aware of the cough or their collective use of it, one could say that, instead of Dora or her rather "having a cough," that the *cough had them*.

This points to a curious flip common to the symptom in general. It inverts our ideas of individuals with various qualities and, instead, holds together an alternative reality, where the solidity of individual subjects is dissolved and replaced by symptoms that, like prions, seems to resist every attempt to get rid of them. The individual may die, but the symptom lives on.

A little story that Slavoy Žižek sometimes tells about the unary trait. In Lewis Carroll's *Alice in Wonderland*, Alice meets a talking cat. Carroll specifies the cat type: it is a "Cheshire Cat," but this designation doesn't refer to any animal sub-species but rather a kind of cheese that was once sold in Cheshire. Pressed into a mould shaped like a smiling cat, the cheese would be eaten, traditionally, from the tail

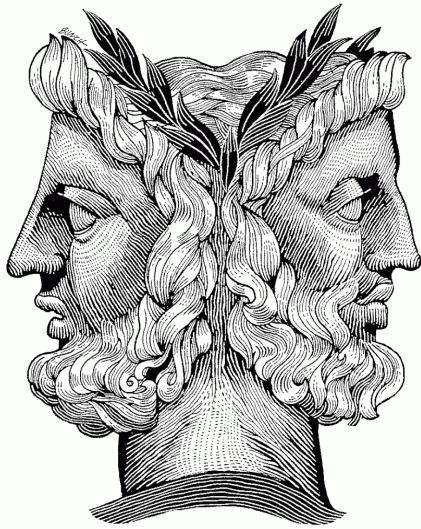


Figure 2. The isomeric point is a case of symmetrical difference, where what has been missing in one zone is inverted to match what is missing in an opposite zone. The god Janus corrected the 180° limit of looking backward (additive time) and looking forward (subtractive time) to propose a constant middle term that used the flip from one perspective to the other as a composite.

bow. This “counts as one,” no matter how many notches there are already on the bow.<sup>1</sup> Each notch is both a “first time” and a repetition, like a wheel that comes around to a zero point to “refresh its emptiness” and get ready for the next time. Think of the experience car-owners have when the odometer hits 100,000 miles, or the more personal experience of reaching age 50, or 60, or (God willing) 70, 80, 90, or 100. The idea is that the point is both a terminus of a preceding series and the beginning of a new series. It is an “isomeric” point that flips the counter from looking back (adding things up to tally a sum) to looking forward with a subtractive mentality.

When we hit certain age-thresholds, the isomeric point flips our perspective from adding years one by one to thinking about “years left to live.” The isomeric point is Janusian. We move from a 180° perspective (looking back as we plow forward along a time line) to a 360° perspective, a turn from the past to the closure of life’s horizon at some future point, where adding years and subtracting years happens simultaneously. The proof that the logic of this second phase is unary is that events and health issues immediately alter our estimate. A broken hip, the onset of type-two diabetes, a brush with cancer ... we subtract some years from our estimate. Recovery, or a new diet, or a late-in-life romance, can extend the estimate.

Alice says that she has often seen a cat without a smile but never a smile without a cat, but she might have remedied this lack by eating the last bit of the famous moulded cheddar cheese in County Cheshire. The cheesy smile would be the final, delicious morsel, the part well worth waiting for. Like the cherry on top of the ice-cream soda, it is the mysterious point where getting gives way to losing, to the point where we couldn’t say which of these provided the greatest pleasure. We cannot both “have our cake and eat it,” but the pleasure of consumption comes out of the middle of this paradox. It is the void of the overlap between the two ways of counting things, where we reach the summit of a mountain from which we then look down to the slope we must descend. Accumulation (the logic of saving up of years, to the point when one turns, say, 60) suddenly turns to the enjoyment of a limited but indefinite resource: the cherry on top, the climax of expenditure.

<sup>1</sup> Lorenzo Chiesa, “Count-as-One, Forming-into-One, Unary Trait, S<sub>1</sub>,” *Cosmos and History: The Journal of Natural and Social Philosophy* 2, 1–2, 2006. In my view, Chiesa’s analysis, dependent on Alain Badiou’s *L'être et l'évenement (Being and Event)* contrasts the set-theoretic approach with a topological one. Set theory can demonstrate key aspects of topological conditions, and in cases such as symmetrical difference, clarify key logical relationships. However, set theoretics cannot distinguish between conditions of the pure projective plane and “immersed” versions of topologies. In the former there are no cuts, twists, or rifts. In the latter, these appear as anomalies, where one surface appears to “magically” flow into/onto another.

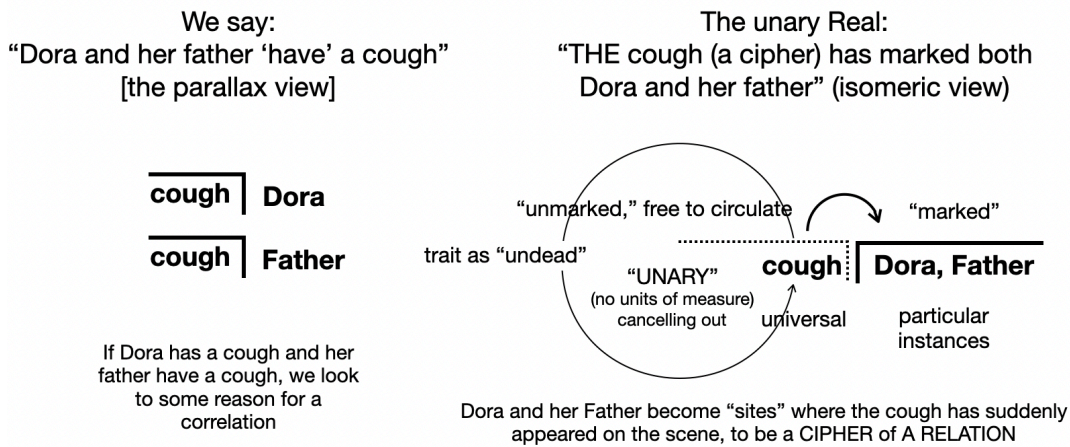


Figure 3. The unary trait reverses the ordinary way we think of subjects “having” traits (left-handed, smiling, limping, etc.), to a situation where the trait has its own world, with an autonomy and eternal life. Each individual instance of the unary trait is an “announcement” with enigmatic meaning, brought to the subject, a message about a hidden relationship.

Is this not the death drive, in its combination of nostalgia for a long-lost Nirvana with a fast-forward rush to self-annihilation, in an effort to “start over!” This is central territory in Freud’s thinking, a problematic but promising land densely packed with overlapping theoretical issues. Lacan flies over this territory, mapping it, measuring its peaks and valleys, spotting weaknesses in border defenses that would insure the success of his invasion. What was his strategy? In the example of Dora’s cough, Lacan recognized two key features. (1) The cough had no *temporal* structure. A cough now was identical to a cough two minutes ago and equally identical to a cough four years ago. (2) Just as the cough belonged to no particular instant, it belonged to no particular cougher coughing it. It was not Dora’s or her father’s cough. Rather, *they belonged to the cough*. We would say that “their fate was tied up with this shared cough.” If we draw this situation of reversal, where the trait declares independence from the agent rather than being a trait *of* someone, it might look like this (Fig. 3). In the normal view, individuals “have” various traits (qualities, disabilities, habits, etc.), but the unary trait reverses this relation of possession. It “has” subjects, whom it unifies by means of a cipher that establishes an unconscious relationship. In the case of Dora and her father, their cough–relation was subliminal, “anamorphic,” latent, virtual — something arguably present and absent at the same time.

In other words, while we cannot say that the unary trait is a part of any *scene* (it is invisible and a-temporal although it is manifest in a very material way, spatially and as a temporal instance), we can say that it works as a *key*, a *cipher* that is present “anamorphically.” It helps us construct what is *happening* in the scene. It is like the “look in their eyes” that makes us think that two people have a secret relationship they are trying to hide. It is the “give-away” gesture that tells us someone is in love. A woman reaches to remove a bit of fluff from a man’s lapel.

Here's an illustration that shows how commonly unary traits are key ciphers in popular literature. In Somerset Maugham's short story, "Mr. Know-All," an annoying passenger, Mr. Kaleda, annoys everyone by advertising his ability to produce facts and quotes about seemingly everything.<sup>2</sup> When he notices the pearls worn by the wife of Mr. Ramsey, a travelling salesman who has spent a year in Japan, he claims to know that they are worth at least \$15,000 wholesale or \$30,000 on Fifth Avenue." The husband, wishing to expose the Know-All as a fraud, retorted triumphantly that he knew for certain his wife had bought them at a department store for \$18. Kaleda however puts two and two together. The husband has left his wife alone for a year; the wife has had a lover; the lover had bought her pearls that the wife had disguised as a necklace she bought at a discount, very cheaply. Kaleda realizes that he should not expose the wife to this idiot of a husband and quickly changes his story. "I was mistaken ... it's a very good imitation," he admits, with self-humiliation. The wife later secretly slips an envelope under Kaleda's cabin door, containing a note and a hundred-dollar bill, grateful for his keeping her expensive lover's gift a secret.

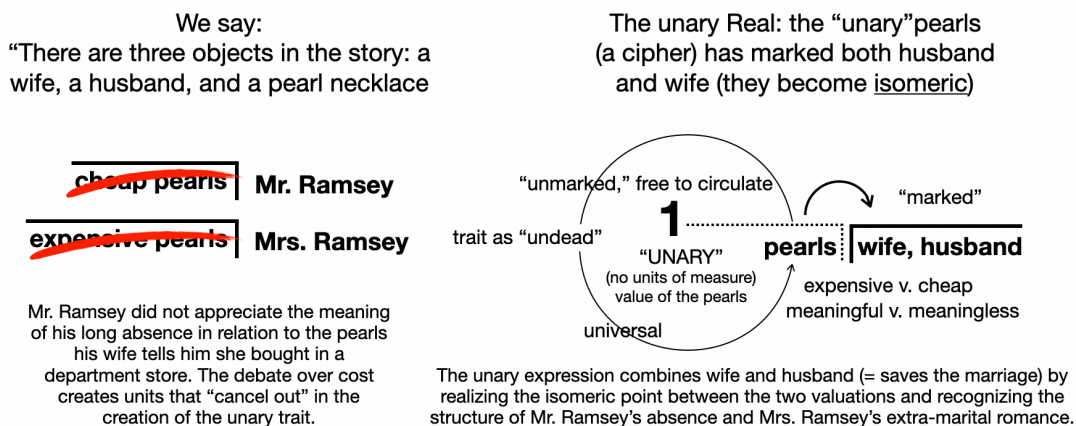


Figure 4. Mr. Kaleda realizes that the value of the pearls for Mr. Ramsey (cheap) and Mrs. Ramsey (expensive) cancels out and becomes the unit of Mrs. Ramsey's honor. As a "stranger in a strange land" himself, he allies himself with her, during her own period of estrangement and, by understanding the isomeric value of the pearls, a dynamic between the two estimates, is able to save the marriage.

The pearls themselves were not a unary trait, it was the isomeric point they were capable of producing. This is the circle around the "cough" in the Dora/Father example. The unary trait tells a story, the story circles around from its origin to its ending. Just as expensive pearls can be mistaken for cheap ones, the unary trait can be dismissed. A cough can be "just a cough," just as Freud once remarked, "sometime a cigar is just a cigar." When the pearls became a unary trait in

<sup>2</sup> This short story was first published in 1924. In *The Summing Up*, 1934, Maugham wrote that "I had an acute power of observation and it seemed to me that I could see a great many things that others had missed. I could put down in clear terms what I saw." Maugham's sense of a two-region division between an Imaginary shared by others and a Real, to which he and he alone had access, thanks to his ability to "cipher" subliminal contents supports our model of the unary trait, where the measures that others view as contingent and definitive become the measureless unit that is the key to the story.

the Somerset Maugham story, the different estimates of their value, the under-estimate by the husband and the over-estimate by the wife, “cancel out” to produce a *unit* from the numerator-denominator relation (Fig. 4). As a unit, the pearls “flip” to cover the wife–husband relation. The pearls literally “become priceless” once they took on a role in a *larger story* that went beyond the banter in the ship’s dining room, a story that Mr. Kaleda realized but decided to keep secret. When Freud heard Dora’s cough and realized it was also her father’s cough, the privacy of the clinic made the matter one of his professional discretion. We can give away the secret or keep it. The unary trait *becomes a commodity in a larger system, a more cosmic order*. This is a move from the use-value to the exchange-value, in Marx’s terms, but the exchange is not for the pleasure of individuals involved, but a *jouissance* that contains the individuals in their relationships.

## Hunting

What about Lacan’s “one of 1” example, the Late Pleistocene hunter who carves a notch in his bow when he kills his prey? What kind of sign is this? Is it a count, for bragging rights? Or, is it a unary trait that engages a different circuitry? In this puzzle we unavoidably face the problem of the isomeric point. In chemistry, an isomer involves two compounds with the same formula but a different arrangement of atoms in the molecule, which give rise to different properties. The classic case a molecule with left-right version, called “enantiomers,” identical in every respect but their “handedness,” which produces different properties. There are two enantiomeric forms of carvone, for example. One has the smell of caraway, the other of spearmint.<sup>3</sup> In physics, two atomic nuclei may have the same atomic weight but different energy states. These natural occurrences of isomerics point to the psychic function of the unary trait as one instance or object that sends two different messages. Instead of a point between two regions or quantities (the expensive pearls *versus* the cheap knock-offs in the Somerset Maugham example), the isomeric point is more of a cut that is never finished cutting, because it repeats the first instance. For the hunter, it never concludes on one side of “animals killed” *versus* “animals to-be-killed.” The “next” is built-in. In the case of the Cheshire Cat, the smile remains after the cat has disappeared. We are left with the trait without anything the trait is a trait *of*. A smile without a cat, a story without the pearls, a kill without the dead animals.

If we have traits cut away from their “strata,” so to speak, so that the trait is able to circulate in an independent manner outside the time and space of its former agents and their specific spatial and temporal locales, we have to ask: just what kind of cut *is this*? What has placed the isomeric knife at *just the right point* where a virtual, anamorphic Real has been separated from an ordinary reality? What kind of cut has worked as a password or key between these two realms?

This is not an abstract theoretical problem. The archaeologists Marc Azéma and Florent Rivère have argued that bone thaumatropes found at Mesolithic sites were used to animate the moment of the kill. On one side of the round disk, an animal is shown running, on the other, it

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<sup>3</sup> Mike Jay, “In the Alchemist’s Den,” Review of Theresa Levitt, *A Story of Perfume, Science and the Search for the Secret of Life*, Basic, *London Review of Books* 45, 15 (27 July 2023): 28.



Figure 5. The ancient thaumatrope may have been a prayer-token used by hunters in anticipation of lucky kill. The living animal on one side of the bone disk combined with an image of the same animal, dead, on the obverse. The hole in the middle of the disk accommodated a twisted chord that spun it but also was placed at the imagined point of penetration of the spear killing the prey.

has fallen to the wound of a spear, entering it at the same point the disk itself allows a twisted chord to spin the token so that the two images combine.<sup>4</sup> Like the prayer-wheels spun by Tibetan Buddhists, these ancient thaumatropes relied on a logic of repetition to produce an anamorphic composite of life-death in the belief that the unary moment of the kill was automated by an “instrumental convergence.” This was the complicity of a structure or force of fate installed within the contingency of the hunt:

necessity *within* chance. The material function of the hole in the middle of the disk was the same as other objects constructed by the “mythic consciousness”: spindles, wheels, millstones, *tesseræ*, spinning castles and axel-trees — substantial, material examples of winding, binding, and *lines* that, wound into compact forms, compel animals as well as humans to “meet up” at “just the right moment.”

It is impossible to dismiss the thaumatrope as just a toy or good-luck charm. Its structure and use involve the unary in ways that expand Lacan’s idea of the notch on the hunter’s bow. The idea of a binary flow, made laminar to reduce all measures to a single “unit,” parse the idea of the hunter-hunted dyad. This is topology at work, as active components of conscious minds wishing to make productive use of Kant’s dictum, “if something can be done, it *should* be done” — i. e. that in the contingency of events and choices that seem to be freely made, there is a moral/ethical necessity.

Where have we encountered this before? In the story of Diana and Actæon, we have two hunters, one immortal, the other mortal. Diana is herself a kind of thaumatrope, consort of Janus if we spell her name more correctly, as “Djana.” The dyadic structure of Djanus/Djana, themselves a theological version of the thaumatrope, whose structure is that of a 2-d cut with two “obverse” (chiralistic) faces. The disk spins to produce a unary instance aligning two laminar flows. In the case of the hunter’s thaumatrope, the unary is both an animation and a “freeze-frame” of the instant of the kill. The intersection of hunter and hunted is imagined as a cut or cross between two flows, moving in “opposite directions” in the sense that one pursues, the other flees. Each action is co-dependent and co-generative on/of the other. This is the hunt’s equivalent of the co-

<sup>4</sup> Marc Azéma and Florent Rivère, “Animation in Paleolithic Art: A Pre-Echo of Cinema?” *Antiquity* 86 (2012): 316–24.

determining relations of Lacan's aim and goal, echoing ancient myths where the spear is guided by a mysterious "desire of the target" to be wounded.<sup>5</sup>

Although Actæon seems to be entirely moving freely within the contingencies of the forest (a perfect geographical analogy for contingency), he stumbles across the spring where Diana and her attendants habitually bathe. In some versions of this story, the centrality of the spring is emphasized, as both an "everywhere and nowhere" element. Like Pascal's infinite sphere, the center of a finite space with no boundary is by definition always in the center. Diana's centrality retroactively defines the forest as just such a finite unbounded space, so Actæon's discovery of it is predetermined. No matter where he wanders, he will be heading toward this very center.

Actæon's mortality and Diana's immortality constitute two flows, typically in turbulence. The designs of the gods and free will of humans is the norm. What stabilizes it? In this case, the role of fluids is critical. *Although Actæon does not intentionally wish to disturb the goddess*, he nonetheless encounters the wonder of her beauty, fully exposed. This is a *coincidentia oppositorum* in the style of every lovers' claim that, although they met entirely by chance, their love had been fore-ordained. The effect of one was cause of the other, and *vice versa*.

The encounter of Diana and Actæon, both hunters, requires a topological transformation. Actæon's "accidental" discovery of Diana's bathing spring has cast her as prey, a transgression that calls for a reversal of Actæon's status as a hunter. He must be converted into prey, and tellingly the pharmakon of this transformation is fluid. Diana splashes him with water from her spring. This retroactively identifies the water as a cut with mirroring capabilities, the essence of a what we might call "flowing chirality." How could we model this? In Seminar I, *Freud's Papers on Technique* (1953–1954), Lacan cites a striking metaphor from Norbert Wiener's recently published book, *Cybernetics: Or Control and Communication in the Animal and the Machine* (1948). Lacan has read it in English, there was no translation into French until 2014.<sup>6</sup> Lacan's interest seems to point to an early recognition of the relation of topology to laminar flow and fluid dynamics, following de Saussure's earlier metaphor of the relation of signifier to signified, as wind moving over water.<sup>7</sup> The idea of a chiral-laminar flow, imported from the newly hatched science cybernetics moves the point of Lacan's mathematical-topological interests back considerably, from the traditional date of Seminar IX, *Identification*, 1961–1962. At least six years before Lacan himself says that he first begins to officially think about topology, he is considering the temporality of the symptom in terms of laminar flow

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<sup>5</sup> Slavoj Žižek has pointed to Wagner's opera, *Parsifal*, as a modern re-positioning of the wound-weapon correlation. Just as the arrow or spear is guided to its target by the target itself, it takes the original weapon to heal the wound it creates. See "Christ, Hegel, Wagner," *International Journal of Žižek Studies* [no volume, number, or date]: <https://www.lacan.com/zizdigitowag.html>.

<sup>6</sup> The first French translation of *Cybernetics* was published in 2014: *La Cybernétique: information et régulation dans le vivant et la machine*, trans. by Ronan Le Roux, Robert Vallée, and Nicole Vallée-Lévi (Paris: Seuil, 2014). Lacan's citation occurs in *Freud's Papers on Technique*, 1953–1954, Seminar I, trans. John Forrester (New York and London: W. W. Norton & Co., 1988), 159. Strangely, this encounter did not receive any mention in *Reading Seminars I and II: Lacan's Return to Freud* (1996), edited by Richard Feldstein, Bruce Fink, and Maire Jaanus.

<sup>7</sup> Roland Barthes, *Elements of Semiology* (1964): "For Saussure ... signifier and signified are like two superimposed layers, one of air, the other of water; when the atmospheric pressure changes, the layer of water divides into waves. in the same way, the signifier is divided into *articuli* [divisions]."

chirality. There is no way to conceptualize this flow as Euclidean. The vanishing point of one traveler becomes the viewing point of the other. The trace that vanishes for one, begins to appear for the other. This is not simply a matter of opposed viewpoints, but a transformation of the media involved: space and time.

What is symptom for one is cause for the other. In this revolutionary way of thinking, we have to agree with Jacques-Alain Miller when he argues that Lacan's idea of *extimité* — the principle of obverse (chiral) faces in a 2-d space, *unobservable* from any “meta-” external position — is distributed throughout Lacan's thinking.<sup>8</sup> It is present, quite clearly, in his construction or rather *re*-construction of the idea of a Mirror

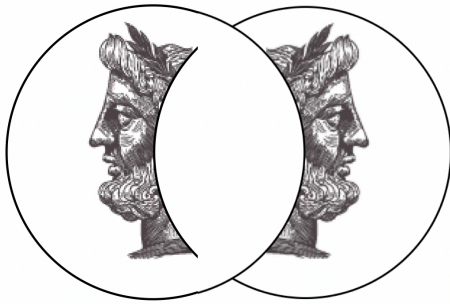


Figure 6. The “Janusian cut” of the mirror creates two competing claims about a full, 360° peripheral territory, each bounded by a horizon of the visible. Neither the mirrored or mirroring spaces acknowledge the plane of the mirror. It is conceptually void for both. The lacks of each (they are halved by the cut of the mirror) are symmetrical and opposite, defining the horizons each claim as true Euler circles, overlapping to create a “vesica pisces” of impossible (-Real).

Stage, based on a key correction of the idea as a cut rather than a reflection. Like the two faces of a halved apple, the mirror image presents an obverse face to reality's face, at the same time introducing *the idea of face* as a cut creating and occupying a void both separating and forever joining and aligning the two.

Janus indeed! In the not-all feminine form of Diana/Djana, the bond/cut is also a cross that “justifies the margins” of what are essentially two laminar flows. Thanks to the chirality of the mirror cut, the flows are in opposite directions, left-to-right *versus* right-to-left. What exits stage left in reality will exit stage right in the stage-space of the mirror. In another and even weirder sense, this stage space creates an asymmetrical overlap. The “actors” inside the mirror — for we must consider them as nothing less than impostors who are doing their best to take our places — gaze out into our space, taking no notice of us as their masters and originals but instead presume that their 180° slice of the pie is completely whole; that their horizon is, like ours, circular, the bound of *their* visibility. Our visibility has a competing claim. Our horizon, were it not for

this interruption of the mirror, would encompass a full 360° horizon. The two claims overlap, with a void in a “middle” that is simultaneously a cut and a face-off, an outward looking Janusian double face(s), each of which makes territorial claims for a total, durable authenticity.

What does this mean for the hunter, Diana, who must convert her fellow-hunter into a prey? It means that the intrusion of mortal visibility onto her divine space must be cut by a splash connecting the two realms. This will stabilize the (over-)flow, laminate the opposed domains. Actæon's dogs, innocent in their perception, which is neither divine nor human, will revert to semantic literalness: the prey must be chased, and chase they do. Ovid names and counts them, separating out four bitches able to outrun their master by halving his retreat, taking a mountain pass where Actæon was forced to run around a full perimeter. Again, the theme of 180° “besting” the territory of the 360°, the *short-circuit* as successor to the long circuit.

<sup>8</sup> Jacques-Alain Miller, “Extimty,” *The Symptom* 9 (Fall 2009).



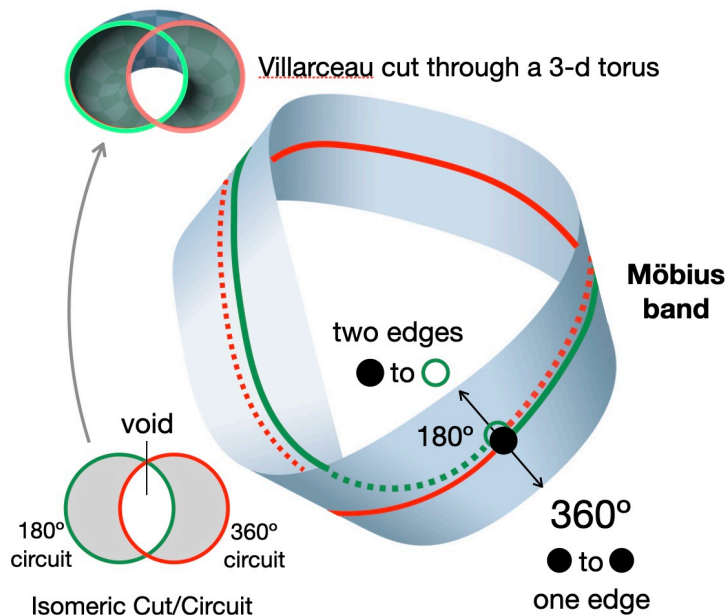


Figure 7. The Möbius band demonstrates two kinds of closure: (1) self-intersection, which requires two open edges to be joined with a twist — non-orientation; and (2) the completion of a continuous line drawn across the single surface. Self-intersection requires only half (180°) of the drawn-line circuit, giving the Möbius band the ability to be a twin or double circuit, connected by the void located at the match-point where the black circle and green circle are at the same position but 180° opposite in terms of the drawn line on the 2-d surface. This is the essence of the “isomeric circuit.”

Again, topology. A dot on the Möbius band will be met by a pencil line that travels a full 360° in 2-d, but at the 180° position it will be in the position of the two time travelers (Fig. 7). The 3-d immersed form will have it “so close yet so far away.” This will be the place where the Möbius band’s non-locatable twist will nonetheless produce the “trace” of non-orientation: the place where we have joined the Möbius band with its characteristic twist. The literal join disappears. We have taped the paper strip together, but the non-orientable twist it produced has vanished before our eyes. Only if we put a mark on the strip can we see the results of our work; only at this 180° circuit do we realize that another 180° is required for self-intersection *in the 2-d form, the Real of the band.*

The dogs apparently knew this trick and made a katagraphic<sup>9</sup> cut through the void, the mountain pass. Actæon is done for, his flesh is good as gone. The mirror’s claim of hegemony, entirely contestable, is accepted by the subject who anneals this Imaginary imposture to a Symbolic authentication *via* the Big Other. The mirror wins, but the void does not go away. The victory is ideological, spectral, structurally weak; to the victor the spoils. The subject before the mirror, like the audience in the presence of actors on a stage, is mortified, desiccated, vanished, overrun by a dominant visual regime whose bogus regimen nonetheless rules the day. Actæon has meant no harm, but his humiliation must be total, his defeat definitive. The Law, in these Kaffka-esque terms, is locked in by the logic of the flow, the retroaction of the unary trait in circumstances where the cut is simultaneously a glue.

<sup>9</sup> The katagraphic cut is the action made to establish an isomeric relationship. Lacan mentions the katagraph made by Popilius, Roman counsel for Egypt, who prevented invasion by drawing a katagraphic circle around the Syrian King Antiochus. This “injunction” was a seemingly magical gesture to indicate Rome’s resolve to contain and finish, each project simultaneously accomplishing the other. A katagraphic cut through a 3-d torus is accomplished by twisting the knife 180° while completing a 360° circuit, producing two Möbius faces across a twisting void.

