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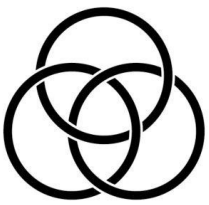
NUMBERS & THINGS

A Contribution to Number Theory Within Lacanian Psychoanalytic Theory

Making Things Count and Things Making Count

Lacan eventually adopted the Borromean knot as a topological model for psychoanalysis.[1] The knot was constructed from the three psychical registers (Real, Symbolic, and Imaginary) put forward during his life-long teaching. In his twenty-second seminar, Lacan stated that "[t]he definition of the Borromean knot begins with the number three: if you untie any ring then all three become free; that is to say, the two other rings are released."[2] From this we can deduce two properties worthy of attention, what I name "Borromean Dependence" (concerning the mutual dependence of the rings) and "Borromean Numericity" (concerning the number three). Borromean dependence concerns a situation in which any individual ring is tied always, minimally, through two other rings. This explains Slavoj Žižek's insistence that there is not only the real-real, but also the symbolic-real, and the imaginary-real, and so on. He wrote, "[o]ne should always bear in mind the complex interconnection of the Lacanian triad Real-Imaginary-Symbolic: the entire triad reflects itself within each of its three elements."[3] Put another way, the interconnection of any two rings depends strictly upon the introduction of a third, such that any individual ring includes within itself two other rings.[4]



There is something rather perplexing about the second property. Why did Lacan claim that the knot begins with the number three? He provided one possible answer to the question: "the Borromean knot, because it supports the number three, is within [...] the Imaginary register[,] because there are three spatial dimensions."[5] There is some relation among the three spatial dimensions, the imaginary register, and the Borromean knot. I'm not convinced by this argument. Lacan, who was perhaps also not convinced, invited us to think about other possibilities: "[...] the Borromean knot [...] will always bear the mark of the number three, so you can ask yourself the question: to which register does the Borromean knot belong? Is it the Symbolic, Imaginary, or Real?"[6] My provisional claim is that the symbolic register has some connection to the number 3 through Borromean numericity, the number 1 is linked to the imaginary register through the logic of identity, and the number 0 is linked to the real through the logic of truth (see table below). My argument begins with some claims made by Jacques-Alain Miller and Yves Duroux during Lacan's seminar in 1965.

	Number	Psychical Register
Borromean Dependence	3	Real-Symbolic-Imaginary
Borromean Numericity	3	Symbolic
Identity	1	Imaginary
Truth (Affirmation: 'Truth is)	0	Real
Truth (Negation: 'Not-Identity')	0	Real

Jacques-Alain Miller and Yves Duroux discovered the "logic of the origin of logic" hidden beneath the pretense of the "logician's logic" within Gottlob Frege's system. Miller wrote: "[b]y considering the relationship between this logic and that which I will call [the] logician's logic, we see that its particularity lies in the fact that the first treats of the emergence of the second, and should [therefore] be conceived of as the logic of the origin of logic—which is to say, that it does not follow its laws, but that, prescribing their jurisdiction, itself falls outside that jurisdiction."[7] Duroux, for his part, claimed that the logician's logic functions through force, precisely by giving name to number: "[f]or Frege, the name of number [...] is only obtained, in the end, by a *coup de force* [...]."[8] The process of naming through force is what permits the succession of numbers (e.g., from 1 to 2, and from 2 to 3, and so on). During each succession a name is imposed upon the preceding numbers such that those preceding numbers are taken as objects of the new number. We shall now see that things are more complicated than all of this.

Further elaboration concerning Frege's logical system seems justified. Frege introduced three main terms, including "concept," "object," and "number." He also introduced two principal relations or operations, including "succession" and "identity." The object is akin to the variable through which singular nouns or proper names (along with their definite articles) may be made to pass through the concept. An object has no empirical existence but refers purely to the object of logic itself. Frege wrote that many "logicians fail to recognize the possibility of there being something objective but not actual […]."[9] Although Frege provided us with a means to discuss an object which has no recourse to empirical frameworks, he nonetheless made it impossible to discuss something which insists within his logic and which is validated by neither empiricism nor logicism. Perhaps the logician's logic is set up as objective and not actual so that it does not have to be made to encounter *das Ding*. In any case, the concept includes, roughly, the predicate, copula, as well as its corresponding adjective or indefinite article. It operates in logic much like a function, Frege wrote: "[w]e thus see how closely that which is called a concept in logic is connected with what we call a function. Indeed, we may say at once: a concept is a function whose value is always a truth-value."[10] We can think of any expression, any sentence, as including within itself the object(s) and a concept under which the object(s) is / are capable of passing.

For example, the expression "Badiou is a philosopher" includes within itself "Badiou" as an object and "is a philosopher" as the concept. However, we know, intuitively, that "Badiou" is not the only object that can be made to pass under the concept of "being a philosopher." "Socrates," "Plato," and "Descartes" are also, arguably, philosophers. Indeed, many more objects may be passed through the concept "is a philosopher." Together, these objects form something like a class of objects defined as the "extension of the concept 'is a philosopher.'" Thus, the extension of a concept refers to the entire group of objects capable of passing through its concept. We should be precise here: the extension of a concept is not simply all of the objects passed through a concept (along with all of the properties associated with each object; i.e., the object "cat" with the respective property "brown"), but rather it is the taking into account of each object as a "unit" within a larger class of objects. I shall only further state that a "unit" has been the topic of much debate. What we do know is that it excludes the properties of objects. For example, Frege was fond of claiming that a "white cat" and a "black cat" each form an independent unit "cat" without their associated properties of "white" or "black." For this reason, number has nothing to do with properties. The debate before us therefore concerns the unitary status of units; each unit is certainly different from any other (e.g., under the concept "is a philosopher," we know that "Badiou" is not "Socrates"), and yet each unit is divorced from its properties under the reign of number.[11] Frege's answer was that we ought to maintain that each unit is different from any other unit, and he proceeded to establish logical support for his claim.

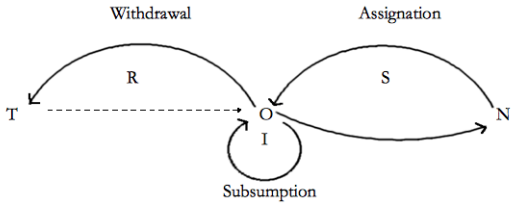
The "extension of a concept" is what permitted Frege to impose a new name of number by indexing its units. Anthony Kenny has put this rather well: "Frege says,

'I assume that it is known what the extension of a concept is.' For logicians prior to Frege, a concept's extension is the totality of objects which fall under it: thus, the extension of the concept *cat* is the set of all cats, and the extension of the concept *moon of Jupiter* is the set of Jupiter's moons."[12] To put it in another way, the extension of the concept "is a philosopher" is the class or set of all philosophers. However, this operates differently within the logic of the numerical system. The objects 0, 1, and 2, all pass through the concept 3 because there are 3 independent units in the class. The number 3 is therefore indexed in the set of objects itself. We can think about it like this: the extension of the concept 3 consists of the class of objects under the concept 3, including 0, 1, and 2. We could suggest that the extension of the concept 3 occurs through a process of remembering the numbers taken as objects preceding its concept, namely 0, 1, and 2. Yet, the unit 3 is the name of this "set," it is flattened—removed of its properties—and transformed into number based solely on the objects counted as units. We once again rub up against the problem of the unit. We shall see that Frege developed a solution which involved developing a notion of "identity" and "non-identity."

Does it not seem as though 3 has appeared out of thin air? It was nowhere within the class of objects which gave rise to its name (0, 1, and 2). It seems to me that we associate number with the index of units inside of the class of objects. Given this, we might claim that numbers within the numerical system are imposed upon objects as if from the hands of God. If this is correct then Duroux's statement about the *coup de force* of number must have referred to the way in which "succession" operates at the hands of a primordial "imposition," an imposition which occurs after the fact and takes hold of everything that came before. There are two maneuvers on the part of the logic of "succession": on the one hand, the new number imposes itself by force onto the class of objects (e.g., the number 3 is named and then pushed into the numerical system of objects); and in another sense, the named number has to be supposed before it has even been invented (e.g., we need to know the name of the number 3 before we can count to it). I name "assignation" the operation which imposes by force the name of number onto preceding objects, and I name "succession" the operation which presumes in advance the number which it postures at inventing. Taken together, assignation and succession enclose the symbolic dimension of my simplified graph on the numeric system.

Frege wrote his definition of succession as follows: "there exists a concept *F,* and an object falling under it *x,* such that the number which belongs to the concept *F* is *n* and the number which belongs to the concept 'falling under *F* but not identical with *x*' is *m*."[13] There exists a concept 4, and four objects falling under it, 0, 1, 2, and 3, such that the number which belongs to this concept is 4, and the number which belongs to the concept "falling under 4 but not identical with 0, 1, 2, and 3," is 3. This follows because 3 is found in the counting of those 4 objects (namely, 0, 1, 2, and 3) but it is not therefore identical with 4—because the number 3 does not include 3 itself as an object. 4 is therefore the successor of 3. We thereby have a logical means to move from one number to the next in the symbolic chain. This also provides

us with the logical framework required to insist on the point that each number is unique from the standpoint of any other number; unique because each number has a single unit which differentiates it from the index of any other number. Each number is missing a single unit within its index *vis-a-vis* its successor. For example, the number 3 has one more object than the number 2 but one less than the number 4.[14]



The name of number (N) is imposed upon the set of objects through assignation (demonstrated by the arrow moving from N to O) and yet the objects (O) taken under concepts (demonstrated by the loop beginning at O and ending at O) provide the basis for succession (demonstrated by the arrow moving from O to N). Three registers may be constructed: the loop made by the arrow moving from O to T and back is the Real (R), the loop made from O back to O again is the Imaginary (I), and the loop moving from N to O and back is the Symbolic (S). For each loop, there is a relation. The first relation, withdrawal, is my own addition to the logic. The other two relations, subsumption and assignation, are Miller's and Duroux's contributions that are already present but not always apparent within Frege's logical system. Taken together, this model extends the property of Borromean dependence. We shall see soon that these rings also overlap one another. The following mathemes formalize the relations across three orders of the graph:

Matheme of Number: Concept <> Number[15]

Matheme of Concept: Object <> Concept

Matheme of Object: Thing <> Object

The matheme of number concerns the relation of the concept with any number.[16] I have demonstrated that any number and the concept interact through assignation and succession, but perhaps there are further possibilities. The mathemes permit us to speculate. The matheme of concept formalizes the relation between an object and the concept, and the matheme of object formalizes the relation between things and an object. All of this establishes some basic coordinates for thinking about the relationships that might exist between each of the four notions (thing, object, concept, number). I invite the reader to tease out all of the possibilities.[17] We are no doubt struck by the possibility that things and any number might also have some relation. Or, perhaps, the thing only interacts with number through the mediation of its effect upon an object. In any case, these are questions for the reader to pon-

der—they are not my present concern. Until now, I have been discussing the matheme of number and concept. I shall now make a leap into the matheme of object.

The matheme of object formalizes the fictitious representation of *das Ding* by an object (demonstrated by the arrow moving from O to T in the graph). Yet *das Ding*, the thing, is implicated also in the construction of an object (demonstrated by the dotted line moving from T to O). My claim has been that *das Ding* (T) is anterior to the *objet petit a* of psychoanalysis.[18] Recall, once again, that Miller claimed that "[t]he logic of the origin of logic […] does not follow its laws [i.e., does not follow the logician's logic], but that, prescribing their jurisdiction, itself falls outside that jurisdiction."[19] Something is at the origin of logic, responsible for its emergence, but does not follow the laws arising therefrom. This thing which is at the origin of logic is not the name of number, forced as it is through assignation, that is, *après-coup*, and neither is it an object or the concept. Rather, *das Ding* imposes its own necessity, the necessity, for example, of subsumption, upon the numeric system precisely through its withdrawal from that system. Miller wrote, "[w]hence you can see the disappearance of the thing which must be effected in order for it to appear as an object—which is the thing in so far as it is [O]ne."[20] Thus, Miller and Duroux discovered that Frege's logical system described objects isolated from their Thing, "not as a forgetting, but as a repression" (Miller 2013, 2). Whereas the logical system isolates itself from *das Ding* through repression, *das Ding* imposes the possibility of repression upon the system through withdrawal.

We are confronted by two points of departure. First, Miller's point of departure was from within the numeric system, and his chief question was: how is it that an object of number is related to an object of the real, *objet petit a*? I have demonstrated elsewhere that this logic has its basis in "correlationist" thinking.[21] Quentin Meillassoux described correlationism as the philosophical presupposition that we only ever have access to a "real" thing by way of its relationship to the thinking human animal (e.g., the symbolic or signifying system); it is not possible to discuss the "real" thing itself. There is an additional problem here. Adrian Johnston asserts that Meillassoux avoided asking the crucial follow-up question concerning "[…] whether or not mind can be explained as emergent from and / or immanent to matter."[22] Ultimately, I cannot provide any clear or satisfying answers. My own position is similar to Johnston's who, to borrow the words from his philosophical opponent, Graham Harman, proposes that "mind [is] emergent from physical reality, [and] this takes mind to be a relatively rare and late-coming entity that appeared only after numerous complex material conditions had been met."[23]

Miller's question asked about the relation between the subject of "lack" and the object, *objet petit a*, or, in this case, Frege's object of number. Is it any wonder, then, that Miller described 0 as that object which "stands-in-place-of" the subject of lack? Frege used the concept "not identical with" to construct the 0 object within the series of numbers, beginning with the number 1. 1 initiates the sequence by falling under the concept "identical with 0." George Boolos explained: "Since no objects fall under the former concept ["not identical with"], and the object 0 falls under the

latter ["identical with 0"], the two concepts are, by logic, not equinumerous, and hence their numbers 0 [the former] and 1 [the latter] are, by Hume's principle, not identical."[24] For example, it is not true that a car falls under the concept of being identical with a fruit-fly. Consequently, they are "not identical," or, in other words, 0. On the other hand, we could claim that a car falls as an object under the concept vehicle—we could inscribe this relation as 1. The point is that the whole system of numbers begins from 0 and from the concept of "not identical with." It is only after this that something which is identical with "not identical with," that is, with 0, emerges, namely, the 1. 1 has precisely one indexed object, or one unit—it is therefore counted the 0 counted as 1.

Similarly, repression occurs only after the phallic function inaugurates the system of signifiers, only after the *objet petit a* has been pushed out the other side. I inscribe this logic using the following formula, $S_2/a \leftarrow \forall x \Phi x$, which may be read as: "every human animal is submitted to the phallic function on the condition of obtaining some knowledge, or system of signifiers, but this knowledge is always cut by the object cause of desire."[25] In the final analysis, Miller concludes that the numeric system carries with it the logic of a certain neurosis. It seems to me that Miller did not actually discover the origin of the logician's logic. Rather, he discovered, simply, the lack at the heart of numericity itself—an origin which succumbs to the *après-coup* of the signifying system. This lack may be overcome fictitiously by number through "suture," that is, through the "stand-in-place-of" function of 0. Miller wrote that "[s]uture names the relation of the subject to the chain of its discourse; we shall see that it figures there as the element which is lacking, in the form of a stand-in [*tenant-lieu*]" (Miller 2013, 2). This only works if we follow Miller's point of departure from within the numeric system itself through to the point where it finds itself lacking and thereby sutured. If we take the real as our point of departure then we necessarily admit that repression is no longer the privileged operation of numeric logic.

The thing withdraws from access leaving only a trace which thereby produces the lack at the heart of the numeric system. Is it any wonder that Lacan described the *objet petit a* as a "trace of the real" (e.g., in Seminar 10)? Moreover, Lacan claimed that the chain of signifiers, S_2, "effaces the trace" because of one signifier's representation of lack for another signifier:

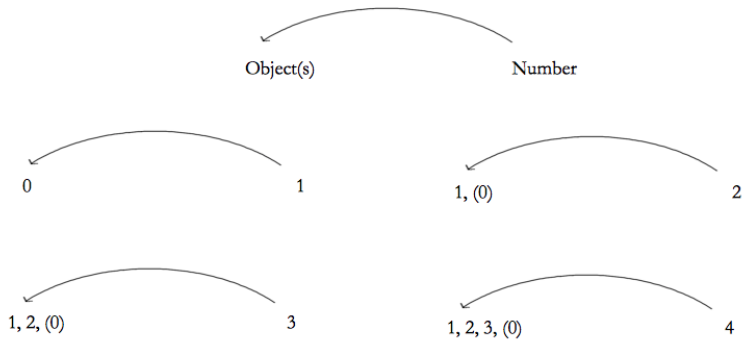
> [T]he signifier, as I told you at one turning point, is a trace, but an effaced trace. The signifier, as I told you at another turning point, is distinguished from the sign by the fact that the sign is what represents something for someone. But the signifier, as I told you, is what represents a subject for another signifier.[26]

Similarly, Miller and Duroux claimed that suture, in effect, effaces the trace of lack. Miller wrote that "nothing can be written" in that place where the object of number is lacking, so that "a 0 must be traced, [...] merely in order to figure a blank, to render visible the lack" (Miller 2013, 2). The thing, unlike lack, operates as an "event"

from the standpoint of the world of numbers. Thus, Alain Badiou has claimed that the trace is "what subsists in the world when the event disappears [...] [i]t's something of the event, but not the event as such; it is the trace, a mark, a symptom."[27] It is possible to think of lack, which gives rise to suture within the logician's logic, as some thing which remains or exceeds the numeric system precisely because it comes before.

For Miller, the empty place within the numeric system is also the locus of the subject. Alain Badiou has claimed that the trace is not the mark of an empty place for the subject but rather the mark of an empty place for some object, for something objective—it is an "objective trace."[28] If Frege demonstrated that the numeric system could be thought in objective terms, and if Miller demonstrated that Frege's logic effaces or represses the trace through suture, then Badiou, finally, found a third way which was some combination of the two: with Frege and contra Miller, he maintained the objectivity of the numeric system; and with Miller and contra Frege, he affirmed the empty place at the heart of number. My claim has been that the trace or lack is some object which persists within the numeric system after the thing has withdrawn from access. Against Miller's view that an object takes the place of *das Ding* within the numeric system, I claim that some thing also takes the place of an object from the real. The distinction that I am making between Miller and Badiou was summed up very well by Joan Copjec when she wrote: "[...] while Miller designates the (constitutive) empty place of reality as 'subject,' Badiou will name it 'the Event.'"[29] While I share Badiou's emphasis on the empty place as the place of an "objective trace," I do not think that this trace is necessarily inaugurated by an "event" per se. Rather, the empty place is neither subject nor event—it is the consequence of the thing's withdrawal from the world of numbers.

Miller wrote that "[...] to be situated in the function of identity [involves] conferring on each thing of the world the property of being 1, [and this] effects its transformation into an object of the (logical) concept" (Miller 2013, 4). Each object, beginning with the number 1, must be taken as 1 even thought the thing which it postures at representing has withdrawn from numeric access (thereby leaving the mark of 0). Miller put it this way: "[...] [the] concept, by virtue of being a concept, has an extension, [and] subsumes an object. Which object? None" (Miller 2013, 5) The lack of object is subsumed under the concept "identical with 0." This is confirmed by Anthony Kenny, a foremost interpreter of Frege: "0 is the number belonging to the concept 'not-self-identical.' 1 is the number belonging to the concept 'identical with zero.'"[30] 0 is precisely the mark of lack and this is why it falls under the concept of "not identical with itself"—it marks the incompleteness of all concepts of identity.[31] The principle of identity states that each number has as one of its objects this primordial repression of that which is not identical with itself—this initial repression has to be renewed at each succession in the numeric chain. Anthony Kenny confirmed this when he wrote that "[t]he crucial feature of an object, for Frege, is that it is something which possesses an identity which is capable of being recognized over and over again."[32]



"Subsumption" is the name Miller gave to the process of transforming an object into the concept "identical with itself." The number 1 counts the lack of a thing as unit, an operation which is essentially self-validating. This process is perpetuated through succession, which repeats on the condition that it continually represses the primordial lack at the heart of the numeric system. Thus, the numeric system is a rather sophisticated manner of displacing the lack, spreading it out, deferring it, burying it, and thereby ensuring that one never has to encounter it directly again. At the very beginning there is the unifying function of the One, which, by implication, establishes itself with regard to its own logic: it is *identical* with zero. Miller's claim was that the operation of subsumption is secured and the logic of identity is premised upon this initial suture: "suture [is] the general relation of lack to the structure [...] it implies the position of taking-the-place-of" (Miller 2013, 2). Suture concerns the way in which 0 has to be invented as a stand-in for lack.[33] As one commentator put it, "[i]t is necessary that zero should be a number, that zero should occupy the suturing place of what is missing, so that the discourse of logic may close."[34] Number, then, seems to be of the order of the ego.

If we are honest about this thing (*das Ding*) which withdraws from number then we should inscribe a place for that affirmation within the system of numbers. This is what Miller refused to do, since, for him, number is sutured to the real as lack through the mark of 0. Thus, 0 can only function as an imaginary support of number. With Frege, Miller claimed that 0 is forced to occur within number because there needs to be a concept of "not identical with itself"; 0 is therefore the mark of lack as negation; it is the rendering visible of something which should remain negative. My claim has been that we can inscribe a thing of the first order real with the mark of 0 so as to formalize (and not necessarily suture) the relation of withdrawal. I am putting forward a positive proposition which states that something has withdrawn and that this thereby made possible the emergence of *objet petit a* as "visible lack." For example, Miller wrote that "if 0 must be traced, it is merely in order to figure a blank, to render visible the lack" (Miller 2013, 5). But 0 is also a

trace of some *thing* intruding into the numerical system from the first order real, something which insists on intruding through each succession.

If we affirm the principle of Borromean dependence—which states that the triad of the real-imaginary-symbolic reflects itself within each of its three registers—then we are permitted to claim that the real-symbolic operates in, from, and toward a different register than the symbolic-real. These are different points of departure. The first is a relationship from the real to the symbolic and the second is a relationship from the symbolic to the real. I propose that there are two placeholders for each of the many combinations of rings. For example, within the symbolic-real, the symbolic occupies the first placeholder and the real occupies the second. If we like, we can think with George Spencer-Brown's logic: the marked (i.e., everything to the right of ⌉) and unmarked (i.e., everything to the left of ⌉) spaces of distinction. The first placeholder operates like an adjective inasmuch as it places the thing of its order near the corresponding name—"adjective," here, is a word derived from the 14th century Latin *adicere* meaning "to place a thing near."[35] The second placeholder operates like a noun inasmuch as it names the order itself—noun means "name."[36] We can thereby deduce a few more combinations, of which I shall list four:

Adjective	Noun	Form
Real	Symbolic	S ⌉ R
Real	Imaginary	I ⌉ R
Symbolic	Real	R ⌉ S
Imaginary	Real	R ⌉ I

The adjectival place distinguishes a given order from any other listed within the nounal place. The adjectival real is that first order real which puts the thing near the nounal symbolic and imaginary orders (Thing <> Object); it is represented formally as S ⌉ R (the real thing is placed near the symbolic name) or I ⌉ R (the real thing is placed near the imaginary object). The adjectival real places the thing near, while the nounal real is the consequent negation or lack associated with *objet petit a,* the second order object of the real. The number 0 is the emergence of a lack of signification (negation) but it is also the mark or trace of a thing within the world of signification with that which we cannot be without. It is an indication that there has been an "event," an event precisely in the form of the withdrawal of a thing from the real. We can claim that some thing in the real gives birth to the system of logic, to the logician's logic, and then withdraws from access, thereby leaving a lack in the numeric system of signification. 0, in this place, is not the imaginary mark of suture, it is the only honest number—it is the only number which admits contradiction and therefore inscribes a place for truth. Truth inscribes a place for a number which is not identical to itself.

1 is not a truthful number, as Miller wrote: "[t]his system is thus so constituted with the 0 counting as 1. The counting of the 0 as 1 (whereas the concept of the

zero subsumes nothing in the real but a blank) is the general support of the series of numbers" (Miller 2013, 6). The number 1, as primordial repression of lack, affirms the law of identity and thereby represents the lack for another number. Moreover, the number 1 represents the lack, 0, precisely *as* 1. Whereas Miller's claim was that 0 can only exist to suture the entire system of numbers, my claim is that numbers only exist because of the trace of the first order real through the mark of 0. We've been dealing with two notions of truth. First, for Miller, there is the negative dimension of truth, borrowed from Frege, which states that truth is that which is "not identical with." For example, within numeric logic there is always an "error" from the standpoint of assignation and subsumption, and there is truth to that error. This is the truth of that which is not identical, of negation, of lack, from the standpoint of the numeric system. There is another dimension of truth, borrowed from Lacan, which claims that "truth *is*." For example, Miller wrote that "[i]n order for the number to pass from the repetition of the 1 of the identical to that of its ordered succession, in order for the logical dimension to gain its autonomy definitively, without any reference to the real, the zero has to appear [...] [because] truth *is*" (Miller 2013, 5). Truth is that which insists within the chain of numbers.

We might extend this to imply something which neither Miller nor Duroux was prepared to admit: truth is also the affirmation of the consequences of the withdrawal of the thing. In Badiou's language, "truth is a consequence of an event inside the world."[37] In this sense, truth is a way of the real touching us and not simply of us touching the real. When we begin from the real marked as I⅂R or S⅂R, and when we affirm the operation of withdrawal via the matheme of object, then we necessarily take the position that truth occurs as a pure affirmation, as that which leaves a trace and permits us to organize the consequences of its withdrawal via the assistance of the trace. This explains why during a debate between Slavoj Žižek and Alain Badiou about the question of truth within Lacan's work, Badiou claimed that the following tension exists:

> On the one hand, truth is secret and unknown [for Lacan]. The truth of the subject is produced by the subject and yet the subject himself has no knowledge of this truth. This is why, for example, truth is always unconscious. On the other hand, the aim of psychoanalysis is to generate knowledge about the unknown. The paradoxical position concerning truth is therefore that there is no knowledge of truth but that there is a psychoanalytic knowledge precisely concerning this absence of knowledge.[38]

This tension was effectively removed from psychoanalytic logic by Miller in his early paper. It has been my aim to have it restored. I aim to take seriously the claim that some knowledge of the real can exist, even if the price we pay for it is with rigorous formalization through the matheme, or through topological models, and so on.

In summary, I have claimed, with Duroux, that Borromean numericity establishes itself through force. Thus, assignation is an operation which gives name to number,

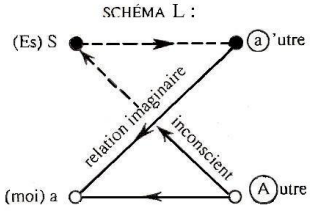
produces the possibility of succession (which manifests as the signifying chain, S_2), and yet, relying as it does on an initial operation of subsumption, nonetheless represses a primordial encounter with lack. This third movement, which operates via the number 3 (taking 0, 1, and 2 as its objects) occurs via the symbolic register of the numeric system. Put simply, assignation consists of the naming of one number dependent upon another which represents the lack, a logic which is no different from the logic of the signifying chain inasmuch as the latter is made up of a system comprised of signifiers which represent the lack for other signifiers. To gain a better understanding of the symbolic dimension of number I shall now turn to Lacan's 1956 seminar on "The Purloined Letter."

The *Coup de Force* of 3

In his seminar on "The Purloined Letter" (1956), Lacan described the elements of the symbolic order in terms of a rudimentary chain of pluses (+) and minuses (-), representing, respectively, presences and absences. His claim was that Freud already developed some understanding of the signifying chain when he wrote about his observations of a child playing in his 1920 essay *Jenseits Des Lustprinzips* (*Beyond the Pleasure Principle*). Freud wrote:

> The child had a wooden reel with a piece of string wound round it. […] [H]e kept throwing it with considerable skill, held by the string, over the side of his little draped cot, so that the reel disappeared [*fort*] into it, then said his significant "o-o-o-oh," and drew the reel by the string out of the cot again, greeting its appearance with a joyful "*Da*" ("there"). This was therefore a complete game [of] disappearance and return.[39]

Lacan deepened Freud's original insight about the *fort-da* game in at least three ways. First, he claimed that the symbolic order is a relatively autonomous psychical register. He wrote that "[t]his position regarding the autonomy of the symbolic is the only position that allows us to clarify the theory and practice of free association in psychoanalysis." In other words, that exemplary method which was and continues to be of such profound clinical necessity, namely, free association, obtains its importance precisely because analysts have used it to isolate the analysand's unconscious symbolic relations as if they existed in an order of their own.[40] Was this not the lesson of Lacan's "L Schema"? We can see that the symbolic axis, which is also the axis of analytic intervention, is positioned in such a way as to demonstrate its relative autonomy *vis-a-vis* the imaginary relation. Indeed, if one were to follow the arrows in the schema, one would discover that there are two autonomous tracks. Treatment aims at isolating the symbolic relation, taking analysis along that track, so as to bring the unconscious to bear upon the analysand's speech.



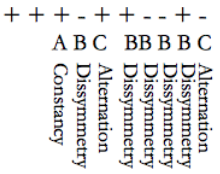
(Lacan's "*Schema L*")[41]

The second way that Lacan deepened Freud's original understanding of the *fort-da* game had to do with his explanation of the inhering elements of the signifying chain. Lacan believed that the signifying chain at its most basic level could be thought as a linear placement of ostensibly random pluses and minuses, or, as we shall see, zeroes and ones, which might look something like this: 0 1 0 0 0 1 0 0 0 1 1 1 0 1 0 1 0 1 1 0 0 or - + - - - + - - - + + + - + - + - + + + - -. Recall that there exists within the chain of signifiers a mark of the real, 0, and an inscription of the imaginary, 1. Also recall Miller's claim that 0 is the mark of suture, and my own claim that 0 is the trace of the real. We have also found that 1 is that number within the chain which counts that which is "not identical with," or 0, that is, zero is counted as self-presence or as the presence of an object which is identical-with or counted-as One. I have already demonstrated how it is that the logic of succession and assignation plots two routes through the symbolic loop of the numeric system. I shall now attempt to demonstrate that Lacan offered another possible way of thinking about the symbolic.

This brings me to the third way Lacan deepened Freud's insight about the *fort-da* game. Lacan claimed that the symbolic order is constitutive of the subject rather than constituted by the subject: "[…] the symbol[ic] order can no longer be conceived of […] as constituted by man but must rather be conceived of as constituting him."[42] He wrote, "this game manifests in its radical traits the determination that the human animal receives from the symbolic order."[43] Lacan was not claiming that the agency of the child is responsible for the production of the imaginary and symbolic orders but rather that the imaginary and symbolic orders, as relatively independent agencies, are enacted upon the child in such a way that the child, as a subject, could not be said to precede them. The child becomes increasingly aware of these orders which precede and yet produce him as a subject, such that the human's object, in this case it is the child's wooden reel, also becomes enmeshed by its determination. Lacan wrote, "[s]imply connoting with + and — a series playing on the sole fundamental alternative of presence and absence allows us to demonstrate how the strictest symbolic determinations accommodate a succession of [coin] tosses whose reality is strictly distributed 'by chance.'"[44] The game of *fort-da* thereby becomes an important moment in the constitution of subjectivity. Lacan suggested that the two elements representing the chance flip of a coin inevitably give way to fairly precise symbolic determinations or rules which further produce

the subject as lack. Indeed, there exists "a truth which may be drawn from [this] moment in Freud's thought [...] namely, that it is the symbolic order which is constitutive for the subject."[45] In this understanding the subject is what comes after the symbolic order, after the phallic function, and is, in effect, produced as something lacking through that order. The subject is nothing without the signifying chain which is its support and its determination.

I shall return to the question of the subject of lack and its symbolic determination.[46] For now, it is important to demonstrate that it is possible to construct a catalog of potential combinations which occur each in a series of three. First, + + + and - - - can denote the letter "A" due to the principle of "constancy." That is, there is no variation in the symbolic chain, and the first symbol is carried through the series. Second, + - -, - + +, + + -, and - - + can denote the letter "B" according to the principle of "dissymmetry." That is, we have two symbols which are the same (either + + or - -) which follow or are preceded by an alternate symbol. One symbol, whether at the beginning or at the end of the series, separates "A" from "B" (e.g., + + - precludes "A" on the basis of the final symbol, -). Third, + - + and - + - can be described as "C" according to the principle of "alternation." Here, we can see that the series is constituted by alternating symbols such that the series begins and ends with the same symbol (e.g., + - + begins and ends with +). To review: each of the three principles are represented by a letter which carries logical significance. We denote "A" for the principle of constancy, "B" for the principle of dissymmetry, and "C" for the principle of alternation. To understand these symbolic determinations further, let us look at the example Lacan provided in a footnote added to the manuscript in 1966:[47]



The first three elements of the series (+ + +) function according to the logic of constancy, represented by "A". The next three elements in the series (+ + -) function according to the logic of dissymmetry, noted by the letter "B". Next, + - +, the logic of alternation, is represented by the letter "C", and so on. From this we can deduce future and anterior determinations. I shall provide just one example to demonstrate the point: alternation cannot follow constancy (and constancy cannot follow alternation) without passing through dissymmetry. We can reach constancy after alternation because the first two places of constancy (+ + or - -) are not present in the last two places of alternation (+ - or - +). So, one must pass through dissymmetry, "B", to move from alternation, "C", to constancy, "A":

$$\left.\begin{array}{r} - + - - - \\ \text{CBA} \end{array}\right\} \text{alternation} \rightarrow \text{constancy}$$

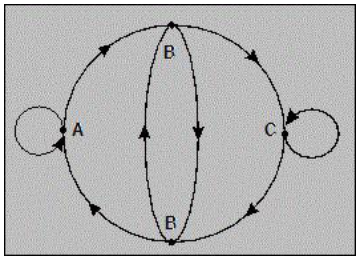
Put another way, "A" can only follow "C" after it has been mediated by "B". Similarly, "A" can only precede "C" if before "C" there appears the mediation of "B":

$$\left.\begin{array}{r} + + + - + \\ \text{ABC} \end{array}\right\} \text{constancy} \leftarrow \text{alternation}$$

Taken together, alternation ⟶ constancy, or C ⟶ A, and constancy ⟵ alternation, or A ⟵ C, demonstrate, respectively, future and anterior symbolic determinations. Moreover, each determination requires three moves to pass from its source to its destination, or from its destination to its source: C ⟶ (C ⟶ B ⟶ A) or A ⟵ C (A ⟵ B ⟵ C). We can understand the centrality of the number three for the determinations of the symbolic order: there are three elements in each series, whether constancy, alternation, or dissymmetry, and the minimum number of moves possible between destination and source is often also three. To make this point clear, the combination A ⟶ C (constancy ⟶ alternation) might represent the following completed series:

Completed Series:	+ + + - +	A → C
Constancy (yellow):	+ + + - +	A
Dissymmetry (yellow):	+ + + - +	B
Alternation (yellow):	+ + + - +	C

To demonstrate the impossibility of moving from A ⟶ C in only two steps, I shall provide all possible combinations. We begin with + + + and the next move can be either + or -. In the case of +, our string becomes + + + +, and, in two moves, we have A ⟶ A. In the case of -, our string becomes + + + -, and, in two moves, we have A ⟶ B. There are no further possibilities. Lacan mapped out all of these precise determinations in his "1-3 Network" diagram:[48]



The "1-3 Network" demonstrates that it is impossible to move from "A" to "C" without passing through "B". It also demonstrates that "A" can move to another "A" or else to a "B", and that "C" can move to another "C" or else to a "B", and so on. We know from Miller and Duroux that we can only move to the number 3 by first establishing as fact the number 1, and that this is what the imaginary permits. The question Miller and Duroux were asking in 1965 concerned the nature of number and the logic of succession—how is it possible to move from 1 to 2, and from 2 to 3, and from 0 to 1, and so on? In other words, what makes possible our ability to count?[49]

In 1966, Lacan produced an addendum to his essay on the purloined letter. It now included the following signifying chain (I have added the highlights):

L Chain: (10...(00...0)0101...0(00...0)...01)11111...(1010...1)111...

I hazard to guess that Lacan named this the "L Chain" so as to evoke in the reader a sense of its relation with the "L Schema," such that one could discern in it the possibility of there being imaginary and symbolic tracks. Indeed, Lacan explicitly linked the two: "[t]he similarity between the relationship among the terms of the L Schema and the relationship that unites [...] the oriented series in which we see the first finished form of a symbolic chain [above] cannot fail to strike one as soon as one consider[s] the connection between them."[50] If, within the L Schema, there are two psychical dimensions (imaginary and symbolic), then, within the L Chain, there is added the dimension of the real. This advances upon the traditional L Schema but without allowing the real to have its own autonomous order with its own relations.

Each parentheses of the L Chain might be associated with a ring of the Borromean knot.[51] For example, the strings of consecutive zeroes nested inside of the first set of parentheses, highlighted with yellow, indicate the place of the real and can be understood within the clinic as moments of abrupt and noticeable silence or scansion. More particularly, Lacan described this as the locus of the subject, and the silence of the drives. The enveloping parentheses, highlighted with red, represent the imaginary a-to-a' relation from the L Schema and enclose not only zeros but also ones. It is possible to distinguish between zeros which are isolated within the real (yellow), which are a set of multiplicity of zeros, and zeros which are no less real, but which are dispersed amongst the ones of the imaginary (the latter corresponds to R ⌉ I). Finally, outside of the parenthesis, highlighted with blue, is a series of ones, without any zeros, which are meant to represent the field of the symbolic and its repetition compulsion.

However, we've overstepped our bounds. In all actuality, the ones and zeros represent a fourth level in a multi-tiered structure. An example of the first three tiers can be found below:

+ + + - + + - - + -
A B C BB B B C
α γ β γ γ δ

The first tier consists of chance flips of a coin (the chain of pluses and minuses represent presences and absences). On the second tier, there are three possible English letters ("A", "B", and "C") representing the logic of constancy, dissymmetry, and alternation. The "A" represents the constancy of the three pluses which precede it on the live above, the "B" represents the dissymmetry of the + + - above it, and so on. Now, we can add another tier, representing further logical possibilities:

α (alpha)	β (beta)	γ (gamma)	δ (delta)
A⟶A (const⟶const)	A⟶B (const⟶dissym)	B⟶B (dissym⟶dissym)	B⟶A (dissym⟶const)
A⟶C (const⟶altern)	C⟶B (altern⟶dissym)		B⟶C (dissym⟶altern)
C⟶C (altern⟶altern)			
C⟶A (altern⟶const)			

We can see, within the example provided from Lacan above (+ + + - + + - - + -), that the first series on the second line is "A B C." It therefore moves from A ⟶ C and so may be inscribed on the line beneath it with an "α." Next, the "B C B" moves from B ⟶ B and may be inscribed with "γ", and so on.[52] I have chosen to by-pass any further discussion on these logical determinations so as to remain on the track I have laid out regarding the relation between the number three and the symbolic order. We can thereby correlate the Greek letters (α, β, γ, δ) with ones and zeros. However, these Greek letters also correspond with the opening and closing of rings in the Borromean knot. For example, we might use the following rubric:[53]

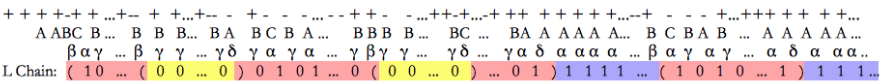
α ⟶ '1'

β ⟶ '('

γ ⟶ '0'

δ ⟶ ')'

The fourth tier brings us back to our point of departure, which was the series of ones and zeros. Thus, one version of the completed L Chain looks like this:[54]

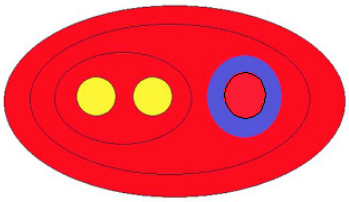


I should mention the interpretive flexibility we have at our disposal for the completed model. This is no doubt due in part to unresolved tensions and leaps of argument made in the original text produced by Lacan. What we can state with confidence is that the model moves from a system of pluses and minuses, of presences and absences, toward, finally, a chain of ones and zeros nested at various levels with a placement of parentheses. The chain is further mediated by a system which breaks the series into three groups of logical determinations (constancy, dissymmetry, and alternation), and then further by the possible relations between those determinations. Given my decision to comply with the principle of Borromean dependency, I would like to invite readers to imagine a final layer of parentheses enveloping the entire chain. The opening parenthesis stands before the first symbol, before the originating parenthesis, and the closing parenthesis stands after the final symbol (after the 1 from the series of 1 1 1). The result is the modified L Chain:

Modified 'L Chain'

((1 0 ... (0 0 ... 0) 0 1 0 1 ... 0 (0 0 ... 0) ... 0 1) 1 1 1 1 ... (1 0 1 0 ... 1) 1 1 1 ...))

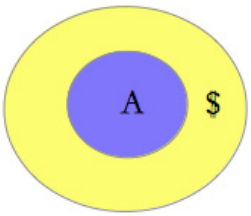
I have added some highlighting to emphasize the different registers. We thereby achieve the following topology:



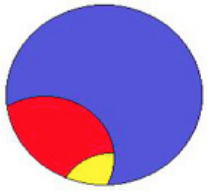
The L Chain is therefore skewed in favor of the imaginary register (e.g., the red circles encase the others). The real seems to be embedded within the imaginary parentheses. In this topology, then, the real is entirely encased by the imaginary order—it is transformed into a "unit" of sorts. Yet, we know that the real is that which persists despite all imaginary encasing. Also, within the L Chain, the symbolic is *not* contained. We could think of it as the absolute envelop of the entire chain, or else we could imagine parentheses encasing it, as I have in the most recent topology. But Lacan did not include enveloping parentheses around the blue series of ones. This implies that the locus of the symbolic is *outside* of our topological model, even though we imagine it to be inside. How do we resolve this paradox?

The symbolic order, represented by the repeated series of ones, is a part of the unconscious relation within the clinic. It is therefore inside of the mental system. On the other hand, we also know that Lacan placed the series of ones outside of parentheses. We are forced to admit, then, that the symbolic is outside even while being inside. Lacan developed a concept to describe this: extimacy. Extimacy describes the locus of the symbolic Other as the outer-most unconscious determinations of mental life. As Jacques-Alain Miller explained: "[i]f we use the term extimacy in

this way, we can consequently make it be equivalent to the unconscious itself. In this sense, the extimacy of the subject is the Other."[55] In the same essay, Miller produced a simple topology:



We do an injustice to the series of ones by surrounding it, as we have, by the imaginary order in our topology. In Lacan's seventh seminar, he claimed that the big Other, represented in the model above as "A", is "something strange to me, although it is at the heart of me."[56] The parentheses for the symbolic order (blue) in the L Chain are missing, and I have claimed that this is because the symbolic order, and the field of the big Other, is extimate. Truthfully, the imaginary order provides the parentheses required for there to be any organized design of mental life, above. This is no doubt problematic. However, if we return to the claim that the symbolic order is the absolute envelop, because it is outside and extimate, then we arrive at the following topological model:

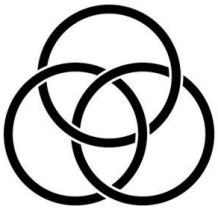


The symbolic (blue) here gives birth to the imaginary (red) which further gives birth to the real (yellow). In some cases, we might extend this claim to insist on the point that the symbolic gives birth to an imaginary, which was anyway already there which further gave birth to the real which was anyway always already there. However, even here, we might once again note the problem that that the symbolic is the privileged point of departure—we thereby eclipse Borromean dependence. Levi Bryant addressed this problem in his recent book *Onto-Cartography* (2014):

> With the Borromean knot, Lacan's work undergoes a fundamental transformation. In his earlier work, the imaginary dominated [sic] the real and the symbolic. In the work of his middle period, it was the symbolic that over-coded the real and the imaginary. In his third phase, it was the real that over-coded [sic] the symbolic and the imaginary. With the Borromean knot,

> no order over-codes the others. Rather, they are all now treated as being on equal footing.[57]

The principles of Borromean dependence and numericity make necessary the deprivileging of the symbolic and imaginary orders. Consequently, we must retie the knot:



In other words, if we begin with the imaginary as our point of departure in thinking about the L Chain, then we end up with a flattened model. If we begin with the symbolic, then we end up with a model which has an "inside" and "outside" but we miss out on the autonomy of the other two rings. It is only with the real as our point of departure that we can begin again to restore the knot to its rightful place, with Borromean dependence affirmed.

We must now investigate what Mladen Dolar described as the "paradox of the emergence of a transcendence at the very heart of immanence, or, rather, of the way immanence always doubles itself and intersects with itself. Or, to put it another way: there might be no inside, there might be no outside, but the problem of intersection remains."[58] How, from the model I have been elaborating, is it possible to move from the supposed immanence of the real toward the transcendental symbolic and imaginary orders within that immanence?

Transcendental Barriers

Lacanian thought has been oriented around the transcendental position in philosophy. This position begins frequently with the assumption that a thing exists outside of, and yet cannot be entirely grasped by, mind. Thus, the transcendental position amounts to an assertion that some barrier is lodged between the thing and a mind, and this keeps the two at some distance from each other and thereby prevents the latter from directly accessing the former. On the other hand, the immanental position presumes that a mind and the thing are in some proximity to one another, and that any such barrier separating the two is absent. Therefore, philosophies of immanence assert that the mind and a thing exist together on the same plane of immanence. One such position was maintained by Gilles Deleuze, who wrote that "immanence is in itself: it is not *in* something, *to* something; it does not depend on an object or belong to a subject [...] When the subject [...] is taken as the universal [...] it finds itself enclosed in the transcendental."[59] It would not make sense for Deleuze to claim that a thing is barred from mind or that a mind has within itself

some internal barrier which keeps it from directly accessing an object of the real. Transcendental philosophies may therefore be distinguished from philosophies of immanence by the presence of some barrier between mind and thing.

We could claim that transcendental positions are often at odds with philosophies of immanence on the basis of some mutually decided barrier propped up between the two positions themselves. In other words, each position must make a fundamental decision which results in the exclusion of the other position. Philosophies of immanence erect a barrier which puts at some distance all transcendental philosophies on the presupposition that the latter are ontologically and / or epistemologically flawed. Transcendental philosophies erect a barrier which puts at some distance philosophies of immanence even while they are the first to authorize the possibility of thinking immanence. According to the standards dictated by the philosophies themselves, then, the consequence is such that the barrier between the two philosophies produces results which are not symmetric. On the one hand, philosophies of immanence maintain that transcendental philosophies can be thought but that they do not describe what exists in the real, and, on the other hand, transcendental philosophies maintain that immanence can be thought precisely because there is already within the plane of immanence a barrier separating what is immanent from itself. Thus, Deleuze claimed that "it is always possible to invoke a transcendental that falls outside the plane of immanence, [...] all transcendence is constituted solely in the flow of immanent consciousness that belongs to this plane. Transcendence is always a product of immanence."[60] Slavoj Žižek claimed that "immanence generates the spectre of transcendence because it is already inconsistent in itself."[61]

It would be fruitful to note that there are actually two transcendental positions within traditional Lacanian thought, the first being the foundation for the second. The first position authorizes from behind the scenes the second, and the second is the avowed domain of psychoanalysis proper. Lacanians must begin by bracketing the question of the thing outside of mind so as to think the object of the second order real (*objet petit a*) as the blind-spot within mind itself. When Lacanians have adopted the second position (which I list as $[*a*]) they have also often avoided the possibility that mind inheres in the thing as its bracketed term (which I list as t[$] or t[$[*a*]]). The first position is that there is an essential transcendental barrier between thing and mind, the result of which is that the thing ought to be passed over in silence so as to move into the second and more fundamental discussion of the transcendental barrier which exists between subject and *objet petit a*. We might conclude that there is some object of the real which eludes direct access and yet about which we can nonetheless have partial knowledge. If, in this first case, direct knowledge of the thing is impossible, then, in the second case, partial knowledge of the object is to some extent possible.

Graham Harman has produced a useful conceptual framework for thinking about the relationship between mind and thing, or, more specifically, the presence or absence of barriers between thing and mind.[62] First, there is the position of na-

ive realism. This position begins with the presumption that things exist outside of mind and therefore can be entirely grasped by the various symbolic and imaginary systems of mind. Another variation of naive realism would be the position which claims that there are only things in the world and that there are no subjects. Given that this position maintains that there is no difficulty regarding our access to things, precisely because all barriers forbidding such access are absent—it thereby gravitates toward philosophies of immanence. At the other end of the spectrum there is absolute idealism. This position begins with the presumption that only mind exists and that things outside of mind therefore do not exist. Given that this position maintains that things outside of mind do not exist, it gravitates once again toward philosophies of immanence. On the basis of there being no barrier between mind and thing, because, on the one hand, things do not exist, and on the other hand, mind either does not exist or else mind is reduced to thing, we can claim that both positions, naive realism and absolute idealism, are closer to philosophies of immanence.

There are two further positions nestled somewhere between naive realism and absolute idealism. These two middle positions are named "weak correlationism" and "strong correlationism," and they proceed on the basis of a different assumption. Both positions presume that some barrier demarcates mind from thing and thing from mind. Unlike naive realism and absolute idealism, weak and strong correlationisms introduce a notion of there being a barrier for thinking things. Strong correlationism, which is closer to absolute idealism than to naive realism, is the position which maintains that things may very well exist outside of mind but that it is futile to think them because at every step of the way, they are reduced to the abstract categories of thinking. This position assumes, unlike absolute idealism, that things exist outside of mind. The problem is that we cannot have any knowledge of those things. On the other hand, weak correlationism, which is closer to naive realism than to absolute idealism, is the position which maintains that things do exist outside of mind and that there is some difficulty in directly accessing them from the limited symbolic and imaginary systems of mind. However, weak correlationism, unlike strong correlationism, maintains that some knowledge of things is possible. It seems to me that both weak correlationism and strong correlationism share a sort of transcendental position on the basis of their presumption that there is some barrier between thing and mind.

For Lacanians, there is certainly a transcendental decision to bracket things in the first order real in favour of an analysis of objects in the second order real. The first decision to bracket things is based upon Lacan's belief that the "[t]he affair [*sache*] is the word [*wort*] of the thing [*ding*]."[63] In other words, Lacan believed that all the things which exist are things transformed into objects, into the material of the symbolic: "it is obvious that the things of the human world are things in a universe structured by words, that language, symbolic processes, dominate, govern all."[64] It is clear that Lacan here took a position closer to absolute idealism than to naive realism. However, is this position strong correlationism, the position which claims

that things do exist but that it is futile to form knowledge of them, or absolute idealism, the position which claims that things do not exist? If we take Lacan at his word when he claimed that every attempt to render reality intelligible, that is, every attempt to link the reality principle with the physical world, renders our efforts all the more isolating,[65] then we by necessity end up positing that Lacan's position is the position of strong correlationism.

However, there is another transcendental position inherent to Lacan's thought. For example, there is the barrier which exists within mind itself, which splits the subject, and splits the subject precisely in terms of access to the object of the second order real.[66] When Jacques-Alain Miller and Yves Duroux explored the concept of suture in Frege's numerical system—we should forever keep in mind that both of these students were adamant that Lacan had already inaugurated this logic in his own way—they took the position of strong correlationism. For them, number established itself over the real through a *coup de force* of the symbolic and imaginary systems. What therefore makes possible the count from 1 to 2, and from 2 to 3, and so on, is the inaugurating gesture of the number 1 which "stands-in-place-of" the object of lack, 0. Recall also that to remain true to the principle of Borromean dependence requires that we think through the way in which the real forces its way, like a speed bump in the movement or succession of the symbolic, into the numerical system. Thus, I was able to produce a new logic not reducible to assignation, succession, identity, or subsumption, which occurs from the real and toward the other two Borromean rings. The logic of withdrawal operates under the assumption that things have a power over mind and that, precisely, their power is the possible erection of a barrier to thinking. You can see that we've made possible a shift from strong correlationism, with the logic of suture, to weak correlationism, with the logic of withdrawal. The logic of suture is strongly correlated because it proposes an impossible access to being, and the logic of withdrawal is weakly correlated because it proposes that things have a power too.[67]

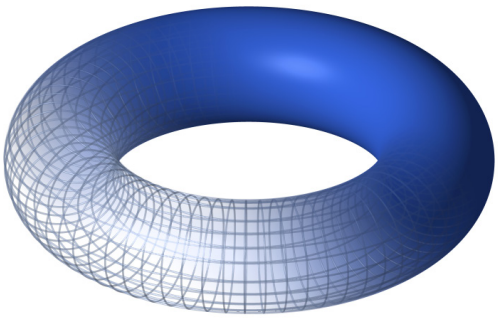
There are periods of Lacan's teaching which motion toward the position of absolute idealism (whereby all that exists is mind), and there are periods which motion toward the position of strong correlationism (whereby things exist but are forever isolated from mental life). I also maintain that it is possible to locate periods of weak correlationism in Lacan's teaching. Thus, we are permitted to think another possibility than the one offered to us by Slavoj Žižek who wrote that: "The [Lacanian] Real is not out there, as the inaccessible transcendent X never reached by our representations; the Real is here, as the obstacle or impossibility which makes our representations flawed, inconsistent. The Real is not the In-itself but the very obstacle which distorts our access to the In-itself."[68] Here, Žižek's position conflates the two orders of the real. It is as if the first order real is merely a fictional construct of the second,[69] that is, it is as if the subject is always in some relation to *objet petit a* ($<>*a*). In this understanding, Borromean dependence cannot be fully maintained Žižek's reduction of the real to the barrier itself avoids the possibility that there are

things outside of mind and that these things exist outside of mind whether or not mind is there to have the trouble of thinking them.

It seems to me that the Lacanian real often obscures the immanent world of things through its linkage with some notion of the barred or split subject. If, on the one hand, there has been a subject of the real, a lacking subject which lacks despite the "stand-in-place-of" function of number, then, on the other hand, there are also things of the real which disrupt the "stand-in-place-of" function of number, as well as the string of ones and zeros which otherwise are the determinate coordinates of symbolic and imaginary life. Žižek and Badiou have interpreted Lacan's work as a transcendentalism of the second order by reducing all analyses to the inaccessible *objet petit a* which splits mind from within itself. In this conception, the symbolic is the absolute envelop of the imaginary and real orders. At this point we should speculate as to how it is possible to think the emergence of transcendence from the plane of immanence. I have already begun by claiming that the plane of immanence has within itself a barrier which gives rise to the symbolic and imaginary orders. If we like, we might provisionally claim that this barrier is nothing but a potential. Thus, mind, like most children born today, must be the beautiful and yet unintended result of an accident.

At the center of everything, there where the three rings of the Borromean knot form a Reuleaux triangle, we find the *objet petit a. Objet petit a* is therefore something like the atom of traditional Lacanian psychoanalysis, precisely because it is irreducible, it is the remainder, the cause, and it produces the gravity around which the rings orbit in their Borromean universe.[70] Between the symbolic and real rings there is phallic enjoyment, or "JΦ," and between the imaginary and real rings there is the enjoyment of the Other, or "JA." Finally, there is meaning, which can be found where the symbolic overlaps with the imaginary. What this means is that the phallic function, if it can be said to be operative in the Borromean universe, must be located in some proximity to *objet petit a.* Moreover, this helps to further establish my claim that the *objet petit a,* which is itself always split through the chain of signifiers (S_2), is the result of the primordial signifier (S_1). Or, to put it another way, *objet petit a* is the result of the intrusion of the phallic function into the first order real.

I would like to close this paper by making mention of a recent discovery made by a Canadian topologist. For the moment, let us presume that there exists a single string looped around and into itself such that the result is a torus of some considerable size (see below):[71]



In this model, the string represents the closed loop of the real, an infinite track without barrier—pure immanence.[72] If we introduce a tri-blade inside of the torus, we may demonstrate a remarkable property: by moving the blade through the entirety of the torus, while rotating at some precisely calculated degree such that it returns to its original starting degree at the end of the loop, the result is that the torus transforms into a perfect Borromean knot. Much like the big bang, then, we end up with more space, more surface area, than existed before the splitting. Research on this effect was presented by Dr. Carlo H. Sequin, a topologist who wrote a paper in the early 2000s named "Splitting Tori, Knots, and Mobius Bands."[73] Sequin's work is fascinating for its simplicity. His discovery: it is possible to produce a Borromean knot out of a single torus, and not, as it were, out of three interlinked tori (the "chain"). It is unusual that a discovery such as his, which has unthinkable implications for topology, mathematics, physics, psychoanalysis, and countless other disciplines, was not made known until so very recently in our history. In any case, he has demonstrated that one can produce knots of various sorts, including the complex Borromean knot, simply by splitting a torus using the appropriate blades and at the appropriate degree of rotation through-out the material. Perhaps nature already has these splitting machines within itself.

We can find an equivalent notion of "splitting" in Lacanian psychoanalytic thinking: the "splitting" of the subject. The subject is split, or, if we like, barred, through a process in which the subject comes to be constituted as a lack within the symbolic chain. This splitting is a necessary part of the process of the coming-into-being of the neurotic subject and it occurs through the phallic function. Lacan claimed that "one can show that a cut on a torus corresponds to the neurotic subject."[74] The cutting transforms the loop into a surface which can then be twisted and stitched back together so as to produce the Mobian surface which so fascinated Lacan. However, Lacan and his followers had not considered that one could produce a cut from inside of a torus itself, as an interruption of infinity, and as a swerve in the real. We should therefore take Žižek at his word when writes that "[f]or Lacan, [...] the Real [...] is also a swerve, a black hole detectable only through its effects, only in the way it 'curves' mental space, bending the line of mental processes."[75] My claim has been that we should use the principle of Borromean dependence to think all of the

possibilities that exist between the orders: Real (first order, *das Ding*), Real (second order, *objet petit a*), Symbolic (the phallic function), and Imaginary (the transference). Each has its gravity. Lacanian number theory and topology must contend with this problem. The future of Lacanian realism shall be one which maintains the tripartite Borromean position such that the real will have its place and not merely return to it.

Conclusion

Lacan claimed that the real is that which forever returns to its place. However, my claim has been that the real might only be situated within its proper place for psychoanalytic discourse if we cease returning to the formulae passed on to us through secondary literature. Instead, we should interrogate the claim that the real is that which returns to its place within the symbolic order, and, consequently, return to the question of the real itself. It is precisely the real which permits the return, that is, the turning again or revolving around a central pivot of Phi. It is the turning again, usually counter-clockwise and at a 90 degree angle, that introduces the possibility of new discourses in psychoanalysis, politics, and philosophy. Indeed, "revolving" as a word is derived from the French phrase recorded in the 1660s meaning "cause to travel in an orbit around a central point." What could be more central to the experience of neurotic humanity than the phallus? This orbit, this "revolving" or "returning," is nothing but the changing of the foundational experience of our neuroses; it is the bending of our psychical orbits toward the production of new perturbations, new subjects, and new signifiers.

I have pursued a number of speculative arguments within this manuscript concerning the real and its place. Incidentally, this "it" which is "its place" relates to the "id" of Freudian thought, and is linked to the middle English derivative for "thing or animal spoken about before." This "before" could, in turn, be linked to the archefossil of Meillassoux's philosophy. Thus, when Lacan writes that "I must come to the place where the id was" (in one translation of Freud's famous expression "*wo es war soll ich werden*"), we might claim, now, that the Symbolic and Imaginary orders, which appear to us to be uniquely human (but perhaps are not), *must* come from the "it" of the real, that is, the pre-historic place of things or animals. This method of speculative argumentation is similar to the one in which Freud engaged in his *Beyond the Pleasure Principle* (1920), wherein he admitted, and on more than one occasion—as if to emphasize the point, that he was simply pursuing a line of speculation through to its end to see where it might lead him. Of course, this work was largely dismissed by later Freudians as metaphysical non-sense. Lacan claimed that it was an "extraordinary text […], unbelievably ambiguous, almost confused."[76] However, Lacan championed the book, finding in it Freud's most creative and decisive position on the drive, repetition, and the reality and pleasure principles. Similarly, it is through intensive speculative engagement with the neurotic clinical structures of hysteria and obsession, as they were presented by Lacan, that I have offered

my new theses. Without any doubt, readers shall either feel unsettled by my theses, and reject them in their entirety, or, they shall find in them some measure of novelty, however repetitious their claims. To be sure, these claims are new to the reader precisely because they were hidden in plain sight within the primary texts, like a seed beneath the snow.

Notes

1. At least as early as Seminar XIX, "*ou pire…*" A class given on February 9th, 1972.

2. My translation: "*La définition du nœud Borroméen part de 3. C'est à savoir que si des 3, vous rompez un des anneaux, ils sont libres tous les 3, c'est-à-dire que les deux autres anneaux sont libérés.*" Jacques Lacan. (1974) *The Seminar of Jacques Lacan, Book XXII, 1974-5: RSI.* Unpublished. Henceforth cited as *RSI.*

3. Slavoj Žižek,"The Rhetorics of Power," *Diacritics,* 31.1 (Spring 2001): 91-104.

4. Lacan claimed: "It is easy for you to see that no two rings of string are knotted to each other, and that it's only thanks to the third that they hang together." Jacques Lacan, *The Seminar of Jacques Lacan, Book XX: Encore, On Feminine Sexuality, The Limits of Love and Knowledge, 1972-1973*, trans. Bruce Fink (New York: Norton & Company, 1998) 124.

5. My translation: "*J'avance dès aujourd'hui… ce que dans la suite je me permettrai de démontrer …j'avance ceci: le nœud borroméen, en tant qu'il se supporte du nombre trois, est du registre de l'Imaginaire. C'est en tant que l'Imaginaire s'enracine des trois dimensions de l'espace…*" *RSI.*. It is also important to point out that in Seminar XV Lacan claimed that you can never have 2 without first having 3. This explains why I do not deal with the number 2, but only with the numbers 0, 1, and 3. See *The Seminar of Jacques Lacan, The Psychoanalytic Act: 1967-1968, Book XV,* trans. Cormac Gallagher from Unedited French Manuscripts. Karnac Books. For Private Use Only.

6. My translation: "*[V]ous avez tout de suite à vous poser la question: à quel registre appartient le nœud borroméen? Est-ce au Symbolique, à l'Imaginaire ou au Réel?*" *RSI.*

7. Jacques-Alain Miller, "Suture (Elements of the Logic of the Signifier)," [1965], trans. Jacqueline Rose (2013) 1-9. Retrieved July 14th, 2014 from <http://cahiers.kingston.ac.uk/pdf/cpa1.3.miller.translation.pdf>.

8. Yves Duroux. [1965] "Psychology and Logic,," trans. Cécile Malaspina. Retrieved July 17th 2014 from <http://cahiers.kingston.ac.uk/pdf/cpa1.2.duroux.translation.pdf>

9. Gottlob Frege, *The Basic Laws of Arithmetic: Exposition of the System*, trans. and ed. Montgomery Furth (California: University of California Press, 1964) 16.

10. Gottlob Frege, *Concept and Function* (1891) 139. Retrieved July 30th 2014 from <http://fitelson.org/proseminar/frege_fac.pdf>

11. For an overview of the debate see Anthony Kenny, *Frege: An Introduction to the Founder of Modern Analytic Philosophy.* (Harmondsworth: Penguin Books, 1995) 68-77.

12. Kenny 1995, 88.

13. Gottlob Frege, *The Foundations of Arithmetic: A Logico-Mathematical Inquiry into the Concept of Number*, trans. J. L. Austin (Oxford: Blackwell, 1950).

14. This is a variation of what philosophers of mathematics refer to as the 'axiom of extensionality.' In this case, it states that two numbers are different if the class of objects for one number has one object which is not in the class of objects for the other number.

15. The symbol which finds itself between each of the two terms is named a "punch" (from the French "*poinçon*"). The original French word has some relation to the word "point" in English. This makes sense given the context of the Borromean knot: there where two rings are brought together, at the point of intersection, is what Lacan names a "point." Thus, in *RSI*, Lacan says: "There is nonetheless a way to define what is named a 'point', namely, that it is something strange, which Euclidean geometry has not defined [...] A point within Euclidean geometry has no dimension at all, zero dimensions. It is contrary to the line [...] [which has] one, two, three dimensions. Is it not, in the definition given to us of a point from Euclidean geometry, that which intersects two straight lines?" [My translation: "*Il n'y en a pas moins moyen de définir ce qu'on appelle un point, à savoir ce quelque chose d'étrange, que la géométrie euclidienne ne définit pas [...] C'est à savoir que le point, dans la géométrie euclidienne, n'a pas de dimension du tout, qu'il a zéro dimension, contrairement à la ligne, [...] qui respectivement en ont une, deux, trois. Est-ce qu'il n'y a pas, dans la définition que donne la géométrie euclidienne du point... comme de l'intersection de deux droites*"] Interestingly, if we separate the French root word for "point" from "poinçon" we are left with "çon," which means any number of things, including: "cunt," "asshole," "shit," "prick," and even "bloody." We are here dealing with the rims of the erogenous zones (e.g., asshole), as well as objects of those zones (e.g., shit). I cannot provide a full account of the punch within Lacanian mathemes. In a sense, I am using it in a fairly restricted way to imply 'is in some relation with' (e.g., 'Object is put in some relation with Object'). However, I do want to point out that a punch represents the possibility of at least four relations for Lacan, including envelopment ('>'), development ('<'), disjunction ('∧'), and conjunction ('∨'). For a full explanation I highly suggest the following article: Santanu Biswas, "The poinçon (<>) in Lacan," *(Re)-Turn: A Journal of Lacanian Studies* 6 (Spring 2011): 135-147.

16. Miller provided some support for the construction of the aforementioned mathemes: "You will be aware that Frege's discourse starts from the fundamental system comprising the three concepts of the concept, the object and the number, and two relations, that of the concept to the object [object<>concept], which is called subsumption and that of the concept to the number [concept<>number] which I will call assignation. A number is assigned to a concept which subsumes objects." Miller 2013, 3-4.

17. There are twelve possibilities. See note 15.

18. See Duane Rousselle, "The New Hysterical Question," *Umbr(a): A Journal of the Unconscious: The Object issue* (2013): 71-87.

19. Miller 2013, 2.

20. Miller 2013, 4.

21. See Rousselle 2013.

22. Adrian Johnston, "Hume's Revenge: A Dieu, Meillassoux?," in *The Speculative Turn: Continental Materialism and Realism*, ed. Levi Bryant, Nick Srnicek, and Graham Harman (Melbourne: re.press, 2011) 96.

23. Graham Harman, "Johnston's Materialist Critique of Meillassoux," *Umbr(a): A Journal of the Unconscious: The Object issue* (2013): 29-45; 32.

24. George Boolos, "The Standard Equality of Numbers," in *Frege's Philosophy of Mathematics*, William Demopoulos (Cambridge, Mass.: Harvard University Press, 1995) 248.

25. See Rousselle 2013.

26. Jacques Lacan, *The Seminar of Jacques Lacan: Book X: Anxiety, 1962-3,* ed. Jacques-Alain Miller (London: Polity Press, 2014).

27. Alain Badiou, *The Subject of Change*, ed. Duane Rousselle (New York: Atropos Press, 2013) 85.

28. Badiou, *The Subject of Change*, 85.

29. Alain Badiou, "Introduction to 'Frege / On a Contemporary Usage of Frege," *Umbr(a): A Journal of the Unconscious: Science and Truth issue* (2000): 99-115.

30. Kenny 1995, 84. As Frege put it: "'1' is the number which belongs to the concept 'identical with [the object] '0'." Gottlob Frege. (1960) "§77, Our Definition Completed and Its Worth Proved," in *The Foundations of Arithmetic,* 90.

31. Frege wrote "'0' is the number which belongs to the concept 'not identical with itself'." Gottlob Frege. (1960) "§74, Our Definition Completed and Its Worth Proved," in *The Foundations of Arithmetic*, 87.

32. Kenney 1995, 84.

33. Miller wrote: "[i]t is this decisive proposition that the concept of not-identical-with-itself is assigned by the number zero which sutures logical discourse," 5.

34. R. Horacio Etchegoyen, *The Fundamentals of Psychoanalytic Technique* (London: Karnac Books, 2005) 40.

35. Retrieved July 16th, 2014 from <http://www.etymonline.com/index.php?term=adjective>

36. Retrieved July 16th, 2014 from <http://www.etymonline.com/index.php?term=adjective>

37. Retrieved July 16th, 2014 from <http://www.etymonline.com/index.php?term=noun>

38. See my own transcription of this talk at <http://dingpolitik.wordpress.com/2013/06/04/zizek-versus-badiou-is-lacan-an-anti-philosopher> Retrieved August 10th 2014.

39. Sigmund Freud, *Beyond the Pleasure Principle* (1920), ed. Ernest Jones, trans. CJ. M. Hubbak. Retrieved August 15th, 2014 from <https://archive.org/stream/BeyondThePleasurePrinciple_633/freud_sigmund_1856_1939_beyond_the_pleasure_principle_djvu.txt>

40. Freud argued that the "main road that leads to the interpretation of dreams" consists of a technique which "asks the dreamer to free himself from the impression of the manifest dream, to divert his attention from the dream as a whole on to the separate portions of its content and to report to us [analysts] in succession everything that occurs to him in relation to each of these portions—what associations present themselves to him if he focuses on each of them separately." Sigmund Freud "Revision of the Theory of Dreams, (1933)" in *Sigmund Freud: New Introductory Lectures on Psycho-Analysis*, trans. James Strachey (New York, NY: Norton & Company, 1990).

41. See Lacan, *The Seminar of Jacques Lacan, Book II: The Ego in Freud's Theory and in the Technique of Psychoanalysis, 1954-1955*, ed. Jacques-Alain Miller, trans. John Forrester (New York: Norton & Company, 1991) 243-4.

42. Jacques Lacan, "Seminar on 'The Purloined Letter'"[1956], *Ecrits*, trans. Bruce Fink (New York: Norton & Company, 2006) 46.

43. Lacan, "Seminar on 'The Purloined Letter,'" 34-5.

44. Lacan, "Seminar on 'The Purloined Letter,'" 35.

45. Lacan, "Seminar on 'The Purloined Letter,'" 12.

46. Mladen Dolar confirmed this view when he wrote: "We can say that in Lacan's early work, where we find the adage 'the unconscious is structured like a language,' the starting point is the logic of the signifier—his concept of the subject, as $, *sujet barré*, the subject without qualities rooted in a lack (that is, the subject without roots), follows from there." Mladen Dolar, *A Voice and Nothing More* (Cambridge, Mass.: MIT Press, 2006) 144.

47. I have adapted Lacan's example for the sake of clarity. The underlying logic remains the same.

48. I have been dealing with Frege's logic of number, which includes a very specialized understanding of the numbers '1,' '2,' and '3.' Lacan's '1-3 Network' also makes use of the numbers '1,' '2,' and '3,' but in a way that might now be confusing to the reader. To avoid confusion I have simply changed the diagram to correspond with the 'A-B' network I have constructed above. The essential logic has not changed.

49. Yves Duroux [1965], "Psychology and Logic," trans. Cecile Malaspina in *Concept & Form, Volume One*, ed. Peter Hallward & Knox Peden (New York: Verso Books, 2012) 85-90.

50. Lacan, "Seminar on 'The Purloined Letter,'" 54.

51. Readers may notice that one of the rings stands completely outside of the other two rings. This further demonstrates that Borromean dependence is not all it is cracked up to be. We shall see that the 'L Chain' puts the symbolic ring outside of the imaginary and real rings, whereas the real ring is wrapped into the imaginary. One possible explanation may be to suggest that Lacan privileged the symbolic ring by constructing it as the absolute envelop of the other two rings. This interpretation is close to Levi Bryant's claim that the Borromean knot is in actuality only knotted from the symbolic, thereby neglecting the real. Levi Bryant, "Notes Toward a Borromean Critical Theory," Lecture at York University, (2013) Cf., <http://larvalsubjects.wordpress.com/2013/04/02/notes-towards-a-borromean-critical-theory/> Retrieved August 24th, 2014.

52. Bruce Fink has achieved a remarkable feat with his examination of this logic in the appendix of his early book on the Lacanian Subject. See his "Appendix 1" and "Appendix 2," in *The Lacanian Subject: Between Language and Jouissance* (Princeton, NJ: Princeton University Books, 1995) 153-72.

53. Some of this interpretation was provided by Bruce Fink. See previous footnote. Fink noted that there have been strikingly few interpretations of the 'L Chain' in the secondary literature. Indeed, he claimed that even those whose work has focused on Lacan's seminar on the purloined letter have completely avoided any discussion of it. However, Fink's interpretation is at odds with at least one other interpretation provided by Dr. Jacques B.

Siboni of the Lutecium School. See Jacques B. Siboni, "Freud-Lacan: Mathematical Models of Desire," [Mailing-list Discussion (1998)] Retrieved August 22nd, 2014 from <http://www.lutecium.org/pipermail/freud-lacan/1998-October/001502.html>

54. My thanks to Joady Rousselle for collaborating on this particular break-down of the 'L Chain'.

55. Jacques-Alain Miller, "Extimacy," *The Symptom* 9 (2008). Retrieved August 29th, 2014 from <http://www.lacan.com/symptom/?p=36>

56. Lacan, *The Seminar of Jacques Lacan, Book VII: The Ethics of Psychoanalysis, 1959-60*, trans. Dennis Porter (London: Routledge, 1992).

57. Levi Bryant, *Onto-Cartography: An Ontology of Machines and Media* (Edinburgh: Edinburgh University Press, 2014) 258.

58. Dolar, 166.

59. Gilles Deleuze, *Pure Immanence: Essays on Life* (Cambridge, Mass.: Zone Books, 2005) 27.

60. Deleuze, 30-1.

61. Emphases are mine. Slavoj Žižek, "The Descent of Transcendence into Immanence or, Deleuze as a Hegelian," in *Transcendence: Philosophy, Literature, and Theology Approach the Beyond*, ed. Regina Schwartz (New York: Routledge, 2004) 246.

62. See Graham Harman, "Johnston's Materialist Critique of Meillassoux," *Umbr(a): The Object issue* (2013): 29-50.

63. Lacan, *Ethics Seminar,* 76.

64. Lacan, *Ethics Seminar*, 53.

65. "As soon as we try to articulate the reality principle so as to make it depend on the physical world to which Freud's purposes seems to require us to relate it, it is clear that it functions, in fact, to isolate the subject from reality." Lacan, *Ethics Seminar*, 55.

66. As Santanu Biswas has put it: "Lacan once again clarified that the barred condition of the subject is related to the irreducibility of the object *a*, by stating that the '$' [barred or split subject] has the form of division following the operation because the '*a*' as the remainder of the operation is irreducible." Santanu Biswas, "The Punch," *Re-Turn: A Journal of Lacanian Studies* 6 (2011): 138.

67. This is a phrase used by Jane Bennett, *Vibrant Matter: A Political Ecology of Things* (Durham: Duke University Press, 2010).

68. Slavoj Žižek, *Less Than Nothing: Hegel and the Shadow of Dialectical Materialism* (New York: Verso Books, 2012) 389.

69. Alain Badiou, whose work has opened many pathways for realist political philosophy, has nonetheless also read Lacan's work in this way: "[t]he real, in its Lacanian conceptual content, is what absolutely resists symbolization, whether carried out by means of mathematics, logic, or topology. This motif recurs over and over: the real of the subject is unsymbolizable." Alain Badiou and Elisabeth Roudinesco, *Jacques Lacan: Past and Present, A Dialogue*, trans. Jason E. Smith (New York: Columbia University Press, 2012).

70. Lacan described objet petit a as something like an 'atom' in his tenth seminar (class of May 22nd 1963). See Jacques Lacan, *Anxiety: The Seminar of Jacques Lacan, Book X: Anxiety*, ed. Jacques-Alain Miller (London: Polity Press, 2014).

71. "*Torus*," from Wikicommons. Retrieved September 20th, 2014 from <http://upload.wikimedia.org/wikipedia/commons/1/17/torus.png>

72. Lacan's position on the torus was quite different from the one I present here. A full paper could be written on Lacan's use of the torus as a topological investigation into subjectivity. I will forgo such an attempt.

73. Carlo. H. Sequin, "Splitting Tori, Knots, and Mobius Bands," Bridges Conference, Banff, Canada (2005) 211-8.

74. Jacques Lacan. (1966) "Of Structure as the Inmixing of an Otherness Prerequisite to Any Subject Whatever," Symposium ["The Languages of Criticism and the Sciences of Man"] Johns Hopkins Humanities Center. English translation available at LacanianInk. [unknown translator] Retrieved September 20th, 2014 from <http://www.lacan.com/hotel.htm>

75. Žižek, *The Puppet and the Dwarf: The Perverse Core of Christianity* (Cambridge, Mass.: MIT Press, 2003) 74.

76. Lacan, Seminar II, 37.