

# Melancholy's Quantum and the Virtuality of the Real Real

*A small detail about the theory of humors: of the four substances thought to be responsible for human wellbeing and cosmic dynamics, three were binaries. You could have too much or too little. Only melancholy's black bile was dangerous in any amount. Like a speck of Plutonium, it could work either like a fatal infection or a powerful elixir with unpredictable effects.<sup>1</sup>*

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This is an experiment. There are several ways to take up the issue of melancholy's difference from the other three humors in the famous system. One takes up the theme of Aristotle's *Problemata* XXX, 1: "Why is it that all those who have become eminent in philosophy or politics or poetry or the arts are clearly melancholics, and some of them to 'such an extent as to be affected by diseases caused by black bile?'" This is an associative approach, which collects examples, from folk lore to sophisticated treatises, to patch together a collage of ethnological traditions and practices.<sup>2</sup> Another would be similar to Panofsky, Saxl, and Klibansky's famous study, *Saturn and Melancholy*, grounded on Albrecht Dürer's famous iconic portrait, *Melencolia I*. Yet another would be an extension of this book's conjectures in the direction of alchemy and encrypted messages.<sup>3</sup> This approach tries this third avenue that begins with the premise that it is black bile's *quantum* aspect that not only distinguishes it from the other humors but explains its unusual trajectory through medicine, the arts, popular culture, and science.

A quantum involves two kinds of theoretical obligations. The first stems from its relations to atoms and atomism, the idea of a *discrete particle* that becomes a "building block" of all substances. Democritus then Lucretius depended on the idea that the point could condense the relation of that which is dimensionless itself to all things extended: both solid objects and the three-dimensional space that contained them. The point is also a theological idea, when Vico (*On the Ancient Wisdom of the Italians*, 1710) defines the point as "metaphysical" and, rather than matter, describes it as motive (*conatus*). Interestingly, Vico speculates that *conatus* is the result of a contronym whose primal term has been lost.

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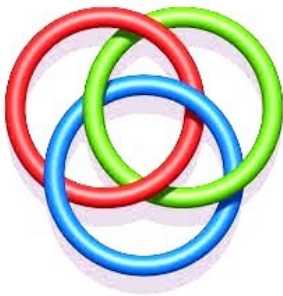
<sup>1</sup> The definitive study of melancholy is, undoubtedly Raymond Klibansky, Erwin Panofsky, and Fritz Saxl, *Saturn and Melancholy* (London: Nelson, 1964). On pages 12–13, the authors single out blood and black bile for their close connections to medical diagnosis and treatments. "The system into which humoralism developed brought with it, however, another complication, in that two of the four humours, blood, and black bile, d early occupied an exceptional position, arising out of the system's historical development; and this distinction makes itself felt in the terms used." But melancholy was further distinguished. Blood, like phlegm and choler, had positive and negative associations in both human health and natural systems. Melancholy was deleterious in any amount. "It presented such a well-known and characteristic picture of morbidity (dating possibly even from pre-Hippocratean times) that the disease as such was denoted by one noun" (14).

<sup>2</sup> Aristotle provides a good example of "interpretation by punctuation," which (according to Dan Collins) pursues meaning by adding things to "fill in the blanks" until a point is reached where a new formulation meets the needs of the interpreter. A contrasting method is "interpretation by the cut," which takes hold of an initial antagonism or anomaly and holds it to account, never forcing a fake resolution but looking to explain the function of antagonism itself. In Lacanian terms, the first method focuses on signifying chains, S2 ... S2, while the second focuses on the role of the "master signifier," S1. See Dan Collins, "Stealing Money from Offices," *Lacunæ* 16 (July 2018): 105–124.

<sup>3</sup> Philip L. Sohm, "Dürer's 'Melencolia I': The Limits of Knowledge," *Studies in the History of Art* 9 (1980): 13–32. David Finkelstein, *The Melencolia Manifesto* (San Rafael: Morgan & Claypool Publishers, 2017). <<http://iopscience.iop.org/book/978-1-6817-4090-4>>.

The two surviving components are *punctus* and *momentum*. *Conatus* is a philosophical idea, not a primal term. At first glance it seems to say that two things are “born together” — twins in the sense developed by Freud in his essay on *The Antithetical Meaning of Primal Terms* (1910). But, the idea is that the geometric point that seems obviously to define *punctus* is, for *conatus*, a dynamic rather than a static dimensionless feature. It combines motion with the idea that something can be *outside the system* of spatial and temporal extension but nonetheless a primal cause of that system’s dynamic behavior.

Is melancholy like a “metaphysical point”? Does black bile have the sense of motive? This question has some interesting possibilities. It is a misfit in the system of humors in terms of scale, where each of the other humors can be good or bad depending on whether they are present in “just the right amount.” They are scalar, melancholy is not. Black bile, deleterious in any amount but able to fuel genius as easily as it creates evil monsters, is the perfect humor for the “point that isn’t a point,” in other words, a *quantum*. In fact, like the quantum, melancholy isn’t anything until we look at it. It is an open set of potentialities that are not determinate until we impose a critical investigation. As a unit that has only dynamic qualities, it relates in other unexpected ways to the quanta of quantum physics. Slavoj Žižek has used quantum phenomenon to characterize the paradoxical situation of the “Real of the Real” — the virtuality associated with reverse predication, exitimity, cross-inscription, and other uncanny “over-presences of the impossible.”<sup>4</sup>



Žižek turns around “virtual reality,” to a shadowy companion, “the reality of the virtual.” Following Lacan’s three-part schema of the Imaginary, Symbolic, and Real (RSI), illustrated by the three rings of the Borromean knot that remain locked in as long as all three rings overlap the preceding ring and slip under the the next, he identifies three levels of the virtual.

(1) *Imaginary*: the virtual image as a subtraction or erasure of “uncomfortable/unpleasant” (secondary) features from people and things we *interact* with; we look at our friends, lovers, colleagues but to see them we must exclude images of what they are fully, as human beings whose private bodily functions — sexual activity, defecation, etc. — *must exist* but we cannot interact with the full image so we subtract these “secondary” aspects.

(2) *Symbolic*: the symbolic virtual has to do with the effectiveness of authority. The father doesn’t need to hit the child, it is sufficient to frown or use a specific tone of voice; in fact, if the father does actually hit the child, his authority is immediately diminished; he made to seem foolish, ridiculous, impotent. The look or gesture of the father is the veiled threat of any authority. It doesn’t “represent” or “symbolize” power; rather it makes this power possible. It is the essential aspect. In the case of our own symbolic constitution, our personal beliefs are virtualized by relocating them to others. As long as others believe in something, we can participate in this belief virtually, without actually holding the belief literally, as in the case of “believing in Santa Claus.” Even children “believe” in Santa Claus to protect others (their parents), so that they can live (virtually) within the illusion of Christmas. Paradoxically, for our beliefs to work, we have to “not believe” them directly, but rely on this virtual

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<sup>4</sup> Slavoj Žižek, “The Reality of the Virtual,” URL: <https://www.youtube.com/watch?v=RnTQhIRcrno>.

transference. If we actually believe, we become a kind of “fanatical puppet”; our beliefs possess us, not we them.

(3) *Real*: This is the real treasure, says Žižek. The virtuality of the Real reflects the structure of the whole Borromeo system. The Symbolic and Imaginary appear as sub-categories of the virtual Real.

(a) *The Imaginary Real*: the image that is too strong to confront.

(b) *The Symbolic Real*: although the Real resists the Symbolic, there is the category of the Symbolic Real in the reality, the effectiveness of the virtual. This, Žižek suggests, is the quantum Real. Although the quantum represents the absolute extreme of the scientific world’s reality, it is an extreme that limits our access to it. Even specialists of this Real — quantum physicists — admit that they cannot describe, explain, or measure this Real without being inconsistent and self-contradictory. When we say we “can’t understand quantum physics,” we mean that it is not understandable; there is no consistent ontology. This limit applies not just to ordinary non-physicists but to the physicists specialized to study it.

(c) *The Real Real* involves the idea of the “obscene shadow.” This is an accompaniment that somehow does not fit and can’t be explained. Marching soldiers sing meaningless songs with obscene, idiotic lyrics. Why does military discourse need this virtuality to supplement its functions? Or, as in the case of the film, *The Sound of Music*, how is it that the most trusted friends of the anti-Nazi Austrian von Trapp family directly represent the regressive characterizations central to Nazism (obsession with folklore, peasant dress, traditional customs, etc.) while the invading Nazis resemble nothing more than sophisticated urbane Jews, interested only in the efficient operation of appropriating Austrian bureaucracy?

Žižek concludes that this Real Real, this obscene accompanying shadow, which seems able to connect an alien feared exterior with an intimate trusted interior, is nothing less than the unconscious. This Real Real forces the recognition of something that, while resisting any assimilation into a (symbolic) system, turns out to be the background principle behind the system. In Einstein’s first attempt to articulate his theory of Relativity, space and time assumed a “natural” Cartesian regularity, a kind of net that could be bent or deformed by a large mass, so much so that the light traveling along this net would be “surprised” and itself bent around the mass. This bend could be measured. But, Einstein realized the need for a stronger, second theory of Relativity, where curvature was not a deformation of a “natural” system, but the principle behind the system as a whole. Space was not simply curved by the accident of extreme mass, but it was primordially curved. Curvature and space were indistinguishable.

In the same way, Freud moved from the idea that trauma was an exceptional event within a general “natural” Symbolic space to the view that trauma was comparable to a “curvature” working within the Symbolic as a whole.<sup>5</sup> This explained how failures in the Symbolic provoke us to “recover” past traumas, which had not before that point constituted a problem. One way of thinking of this alternative to a “normal-plus-antagonism” model, is the model of cross-inscription, where we see that the original “normal” already had a kernel of opposite antagonistic force:  $A_B/B_A$ . The antagonism is

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<sup>5</sup> This implies that trauma is first present as a “secondary” turbulence, felt but not defined until memory reconstructs a primal event, a trauma *act*, as its historical source.

“already and always” present, but when we attempt to explain some tension or difficulty, we must externalize some *image* of the antagonism, just as the pre-war Germans had to construct the image of “the Jew.” We can see the logic of this extimity because the construct itself contains contradictory features. The Jew is reviled, dirty, evil, obscene; but at the same time the Jew represents sophistication, intelligence, and unrivaled cunning. Just as Freud’s Wolf Man experienced inexplicable tension in his attempt to understand his sexuality until he was able to “reclaim” an early childhood trauma (the witness of his parents engaged in *coitus a tergo*). He required a (retroactive) *virtual trauma* to Real-ize his general antagonism. The trauma had not functionally existed before he “recollected” it.

### *back to the case of melancholy*

Melancholy is opened up initially by the connection to the quantum condition of the Symbolic Real. It is an atom that is not an atom, it is the “pure energy” that Vico describes in his concept of *conatus*, the “metaphysical point.” Vico came close to both Freud and physics by specifying how the point was something without a dimensionality that paradoxically gave rise to dimensionality. This is the notion of the eigenform: something that has no determinate being, something that by itself “doesn’t make sense,” something inaccessible to understanding.<sup>6</sup> Nonetheless, reality requires the presence of the eigenform to have determinate being, to make sense, and to make itself accessible to understanding. The eigenform is the “shadow” of the virtual Real that makes possible the effective action of those things in the Symbolic (the army singing the obscene songs) or Imaginary (the subtraction of “secondary” aspects of people and things). For the Real however we have a gold mine for the case of melancholy. The “eigenvalue” element, the thing that “doesn’t exist” so that all else may exist, may be the unconscious, where we, like quantum physicists, are denied access; but we can *see its effects* in the function of (in both the Symbolic and Imaginary) the “master signifier,” the S1.

Here, we must rely on the idea of cross-inscription, the idea that some antagonism is “already centrally present” inside something that will later have it simply in the form of a symptom. The virtuality of the Real is the way in which the master signifier is “in” other signifiers, S2 ... S2 (to denote the concept of the signifying chain, a series of causes, the plot of a story, the grammar of an expression, etc.). The argument is this: that S1 is inside, or rather *beneath*, S2, working as its traumatic “shadow,” in the same way melancholy is “inside/outside” the system of humors, working both as its limiting exterior and its internal traumatic kernel or void. This is not an isolation of three humors in the system (Sanguine, Choleric, Phlegmatic) from a distant melancholic operator. Rather, it is to have melancholy both formatively inside and constructively/ontologically outside of the system of humors, operating like the “Real of the Real” *inside itself*, in a situation of continual radical “re-entry” into itself.

Melancholy is thus a Lacanian “part that is no part.” It is the subtracted virtual secondary that makes the Symbolic and Imaginary associations of the system workable and effective. Its quantum nature — its harmfulness at any dosage level — has freed it from binary logic that has defined the other humors in terms of ideal balances required to restore health or success. In the figure of the Borromeo knot, the Real, like melancholy, was not just one element among three. It *absorbed* the

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<sup>6</sup> “Eigenform” is a term cited by Louis Kauffman in his relation of the “Calculus of Form” of George Spencer-Brown to the general phenomenon of recursion. See Louis Kauffman, “Laws of Form — An Exploration in Mathematics and Foundations,” unpublished ms. URL: <http://homepages.math.uic.edu/~kauffman/Laws.pdf>.

values of the two other rings, the Imaginary and Symbolic, into itself. At the same time, the Real was virtually present in the Symbolic and Real. This is what Žižek meant about the reality of the virtual. The reality is this cross-inscription. We might write this up in two formulas. (1) the Symbolic contains a Real as its inscribed kernel,  $S_R$ ; and in a kind of Lacanian palindrome, the Real contains its own radical Symbolic,  $R_S$ . (2) Similarly, the Imaginary and Real cross-inscribe:  $I_R$  and  $R_I$ . The inscribed elements work as a “melancholy cross-inscription,” a function by which two mirror conditions are created that can operate independently or combine palindromically. Each ring in the Borromeo knot is free to move, but the presence of all three rings create a lock that transfers in a diffuse way to each ring. The lock is somewhere and nowhere.

Each ring is, in this way, a microcosm of the whole Borromeo, but the question should be asked, what is the knot? It is easy enough to look at the knot and admire its cleverness. The three rings hold together although none of them is “trespassed” by any other. Each simply lays on top of a preceding ring and is, in turn, beneath the next. This structure suggests both stacking and sequence — but with the “trick” of the knot, which is that the “last” ring (take your choice) underlies the first. This trick means that there have to be at least three rings. Two rings couldn’t accomplish the trick of recursion. Although we can’t image how, four or more rings would lack the Borromeo knot’s economy. We can however extend the *idea* of over/under infinitely *as long as* the ring on the top of the stack is also beneath the ring on the bottom.

The knot is not simply an illustration, nor does the principle of requiring all three rings for its integrity just an analogy for the way the Symbolic, Imaginary, and Real are interdependent. Imagine two inferior ways of representing the Lacanian RSI. Three intersecting Venn-diagram disks would simply be symbols of the three entities in mutual contact. The disks would show overlap without the idea of recursion. One step up from this would be three separate circles with two-way arrows between them, emphasizing the co-dependency. Again, the clever trick would be missing, although the stupid overlap of the Venn diagram would be replaced by a more dialectical relationship. It seems that, in moving from disks to dynamically interacting circles we add a dimension that moves from a “subjective” level to an “inter-subjective” level. With the addition of arrows, the viewer of the diagrams sees how the “intersubjective” situation involves reciprocity. Not only do the circles form a system (“subjectivity”), they must achieve a kind of equity in their mutual exchanges.

These two failed diagrams seem to miss the point of the Borromeo knot, and I would argue that this is the same as mistaking subjectivity as a matter of proximics/contact (association) or inter-relations (discourse/belief). A third view is required. This is the Borromeo knot, which I would compare to the “trans-subjective.” The knot’s logic is that whatever one might assign as the “innermost” position, it is immediately bound to the “outermost.” But, even more important, there is no one ring that is any more or less the point where one can demonstrate an “innermost” or “outermost” conjunction. Like the Möbius band, where although we know the band is twisted we cannot locate any point along it where the twist occurs, the “twist” of the Borromeo knot has no specific fixed location. If we extrapolate the Borromeo knot to any series where the outermost reconnects to the innermost, ...>>>..., we can condense the re-inscription with the sign, . This twist or flip’s “anywhere” is the logic. The key relationship is mobile, a “moving section” that slides along a

series, and we can imagine a hyperspace Borromean knot that has as many rings as it wants, as long as the ring on top “returns” to the bottom of the stack, □.

The knot of rings, like the strip of the Möbius, indicate closure and finitude. You can go as far as you want but you always have to “return,” you always connect your last chapter to your first.<sup>7</sup> This is the point at which the knot identifies with the “quantum Real,” the simultaneous accessibility and inaccessibility of an idea, exemplified by quantum physicists who, although they know the principles of quantum interactions, find themselves unable to explicate what is happening. In trying to become conscious (the literal aspect of science as knowing) they find that they cannot assimilate the “unconscious” that has, in the Real, set up shop in the middle of things. They order themselves to cross the boundary between consciousness and the unknown unconscious, but they cannot bring themselves to take the step. Like the house guests in Buñuel’s *Exterminating Angel*, they cannot bring themselves to violate the mental interdiction *not to cross*. Or, rather, it is that they have been *instructed to cross* but cannot obey this command. The injunction produces failure.

Cross-inscription represents this situation. O<sub>I</sub>, the outside has a “little bit of the inside” already in it; and, symmetrically, the inside is inscribed with a “little bit of the outside.” The result of crossing from one state/side to another involves confronting the paradoxical encounter with the same within the different. The hoped-for effect of the boundary, a switch from an outside to an inside or *vice versa*, is negated, but what is negated was the boundary’s function of negation. The boundary has failed to fully negate, failed to divide or distinguish. Cross-inscription is about the “incontinence of the void,” as Žižek has called the propensity of the Real, like the stopped-up plumbing system, to “flow backwards.”

Incontinence strips the metaphysical point of its Euclidean functionality. It has already been stripped of dimension; now it is stripped of its status as a spatial point, it has become “metaphysical.” It no longer can claim to be static; it is dynamic, “on the move.” If we see melancholy in its correspondence to the point, through the fact that it is “deleterious in any amount.” It cannot be *extended*, as the other humors can, into a sliding scale of health/sickness, where we attempt to find a perfect balance. Its inability to be extended into a binary means that it subtends the binary within it, as a duplicity, evident in the way melancholy is to be found in geniuses, artists, and suicides. There are no sociological correlates as there are with other humors. We can identify the “sanguine” person who laughs and has many friends; we can see that there can be too much blood (cf. Falstaff) or too little (Shakespeare’s Iago in *Othello*). A phlegmatic person can be prudent (a good thing) or lazy (a bad thing). Some cholera is necessary to act effectively, too much becomes obsessive, aggressive, and hateful. These “extensions” charge spaces and situations with their too much’s and too little’s, but melancholy is the dark shadow that, when it enters the room, causes all conversation to fall silent.

This suddenness is a function of melancholy’s purely temporal quality. Even where melancholy is assigned a place (Hades), space is negated through self-cancelling forms (spirals, labyrinths, vortices). Unlike heaven’s eternity, Hell’s eternity is prison time, time *spent*, time as a form of punishment,

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<sup>7</sup> This design is evident in James Joyce’s *Finnegans Wake*, where the opening sentence leaves blank its first half, which is provided at the end of the novel. The reassembled sentence: “A way a lone a last a loved a long the ... riverrun, past Eve and Adam’s, from swerve of shore to bend of bay, brings us by a commodius vicus of recirculation back to Howth Castle and Environs.”



Botticelli's painting of the Assumption of Mary juxtaposes heaven's perfect rings (here used as theater seats) to the subterranean object, the coffin, shown here open to allow Mary's transference. In place of the representative tomb, we can imagine the virtuality of Hades ("invisible") as a set of circles that refuse to join directly or perfectly but instead assume the recursive forms of spirals, vortices, and knots.

endurance. It cannot be spatialized consistently, hence the preponderance of recursive and self-generative forms. If Middle Earth is the place for architecture, it is melancholy in its necessity to *turn from* the perfect circles of the ceiling/sky in order to scratch a plan on the earth to mark where a foundation will in effect, ground a building by digging a grave. Between timelessness of heaven's perfect circles and the timefullness of Hades' twists and knots, there is a quantum paradox. We can be conscious only of our own unconsciousness, of architecture as the unconsciousness of building. The Real of the unconscious cannot present itself to the Symbolic consciousness, and when it becomes an Image, it must present itself as a shadow, a virtuality of *absence*, something that "insists" on presence but, because it must externalize itself (as must all architecture), insistence becomes ex-sistence, the virtuality of the Real.

### *the importance of Spencer-Brown's Ninth Canon*

Midway in his treatment of the problem of form, the British mathematician George Spencer-Brown presents a "canon" that seems to contradict and undermine his so-far Boolean logic. The first axioms of his notation system (a single symbol,  $\ulcorner$ , indicating an enclosed space) specify a system of continence: (1) if you cross over a boundary and then cross back again, you return to the original value of the space you were in; and (2) a "call" — an instruction? — has the same value when repeated, in other words, the second order does not contradict the first. The axioms, however, depend on the relation of their "enunciation" (being drawn on a surface of representation) to the medium of the representation itself. That is, "the paper makes a difference." If the paper is regarded as flat in the sense that any straight line drawn between two points on it is the shortest possible line, then the paper is a portion of a plane that extends infinitely in the  $x$  and  $y$  directions. Note that this "option" of including or not including the paper as a distinction itself in any expression (an extra  $\ulcorner$ ) belongs to the  $z$  dimension of the theorist/observer — we are into a "quantum situation," that what lies before the observer is indeterminate before the act of observation!

The Ninth Canon uses this quantum aspect to reverse its primary axioms. Simplifying, it says that a single distinction is equivalent to a double distinction, and that it is ambiguous whether the result is a marked or unmarked state. This can be represented as a "square wave,"  $\square\square\square$ , vacillating between the values of marked/unmarked without any temporal delay. The fact that it takes no time for the curve to go from one value to the alternative qualifies it as a case of "spooky entanglement," a quantum phenomenon. This makes it a precise definition of the cross-inscription condition of  $A_B/B_A$ , where an inside is "already" an outside, so that when one attempts to cross from outside to inside, one is still in a sense outside, but in a flipped position (of observation).

The flatness of the drawing surface is not a settled matter. Something is flat on the planet earth if all points of its surface are equidistant from the earth's center. A floor is not flat if a marble placed on it rolls to the center, but this would be what happens if the floor is perfectly flat in terms of being the extension of a line connecting an  $x$  and  $y$  in the shortest distance possible. This geometrically flat floor

is not *geodesically* flat, with the result that a marble placed on it would roll to the center. In other words, curvature is “built into” flatness in the same way that B is “built into” A in the expression  $A_B$ .

This was Einstein’s conclusion when he moved from the “lite” form of General Relativity to the strong version: the idea that space is not curved by exceptionally massive objects but rather that curvature is space’s nature to begin with. This cosmic paradox is localized in every question of graphic representation: is the representational surface to be treated as a part of the representation or not? The question is not obscure. It has been a continuing theme from early history, and it relates directly to the fact that discourse requires two levels of operation: an action level, the presentational act of communication; and a content level, the message per se, “that which is intended to be said.” When the two levels are connected by an intentional short circuit, as in the case of the Liar’s Paradox, their different functions become apparent. “All Cretans are liars” is both true and false, depending on what relationship one takes to the “surface of representation.” If it’s geometrically flat, the content can be isolated from the act; if it’s cosmically flat, the act aspect dominates.



Spencer-Brown’s Ninth Canon articulates this ambiguity graphically, demonstrating that any single boundary or spatial cut is actually a double boundary.<sup>8</sup> The space between the two boundaries both exists and doesn’t exist. It is “non-zero” in the sense that we cannot dismiss it; we cannot deny the issue of the surface of representation or our role as observers/constructors). In art history this is called “iconicity.”<sup>9</sup> The potentiality of *irony*, to alter the status

of the content of enunciation by reference to its act, is also significant in its historic relationship to melancholy. *The Thinker*, Rodin’s famous representation of melancholy, drew from centuries of icon traditions going back to Dürer and before, using a seated figure with head resting on its hand, elbow on knee, to state the melancholy dilemma that is the signature of thought. When Picasso used this same figure in *Les Femmes d’Avignon*, the image nearly duplicated Spencer-Brown’s formula for doubling the distinction. Two prostitutes are shown (or, are they really two?); two masked figures open

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<sup>8</sup> George Spencer-Brown, *Laws of Form* (London: Allen and Unwin, 1969), 54–68.

<sup>9</sup> The standard definition of iconicity is “a relationship of resemblance or similarity between the two aspects of a sign: its form and its meaning. An iconic sign is one whose form resembles its meaning in some way. The opposite of iconicity is arbitrariness” (“Iconicity,” *Oxford Bibliographies*; URL: <http://www.oxfordbibliographies.com>). However, Max Nänny and Olga Fischer, in *The Motivated Sign* (Amsterdam: Benjamins, 2001) indicate how works of art and literature frequently and ironically refer to their own formation through references to their authorship, construction, or medium of presentation.



up the painterly space to (1) the presumed spectators of the painting and, in back, (2) a guardian who rips the *cælum* of the sky, represented in the painting as a light-blue curtain with painted clouds.<sup>10</sup>

The issue of recursion, communication's double register, melancholy's in-and-out status, Spencer-Brown's Ninth Canon, and the virtual Real of the Real are each staging grounds where the elements of the problem of the Real are shipped in, inventoried, cleaned and repaired, and organized for battle. Each *topos* has its own rules of play and logic of assembly. But, the important issue is that the logic linking them together spans an extensive domain: mathematics, mythology, linguistics, art, medicine, folklore, politics, physics, philosophy ... whatever theme manages to hit each of these historically and culturally different domains with the force of a giant comet demands our attention. Without throwing away any evidence from any one "sample," critical inquiry is obliged to account for the stability-in-variety that is clear proof of significance. This is the primary aim of any "interpretation by the cut," since it keeps its focus fixed on the S1/S2 relationship, the "eigenvalue," of how something without form can make form possible.

It bears repeating Spencer-Brown's condensed argument about boundaries:



Stating the Canon, the single boundary is convertible to the double boundary (with a "deniable but non-zero space") that logically leads to the "echelon" of multiply contained spaces. The exterior of this formation and the interior are identical, thanks to the indeterminate relation to the *flatness* of the surface of representation and the relation of the observer to the observed. The "quantum" relation of the abbreviated situation of recursion to the concatenation of contained spaces (the last figure on the right) is that of a "metaphysical point" (*conatus*), a principle of pure motility able to circulate throughout the echelon, like Hermes in his role as herald. This is equivalent to the master signifier (S1) function in Lacan's *mathemes* of discourse. In relation to signifying chains, S2 ... S2, the master signifier is a "nothing" that empowers S2's in their relations of meaning. Ultimately, however, these meanings are subject to being undermined by the ironic relationship to the act and medium of representation. It is the melancholy of the S1 that indeterminacy lies beneath any case of determinacy. What seemed to be an escape route was, like the fate of someone lost in the forest, a return to the point of origin. Straight lines are really curved.

<sup>10</sup> Picasso's trick repeats the logic of the birth of Athena through the carapace of the sky ("the head of Zeus"). The contronymic word, *cælum*, means both heaven and wedge/axe. The story of Athena's parthenogenic birth, thanks to a blow of Hephaestus's axe corroborates the contronym's combination of the *act* of splitting and the *medium/surface* rent by the split. In *Demoiselles d'Avignon* there are two "holes," the opening in front of the representational space (to connect to the spectator) and a hole in back, to the "heaven." This painting is a quantum statement in that the contents of the representational space depend on (and include) the observer, who "sees him/herself seeing her/himself" as if the right/back side were really a mirror. The "mazy" (saturnine/melancholy) position of the observer in this situation of self-reference is *corrected* by the orthography of the observer's double at the back. The theme of the doubles is the paradox of the same: that the rival is essentially someone who is directly equivalent, someone able to *take one's place*. This is René Girard's point in *Violence and the Sacred* (London and New York: Bloomsbury, 2017).