

Freud's Theory of Neurones



In his essay of 1895, Freud articulated a “mechanical” model of neurophysiology based on the idea of inertia: maintenance of near-zero energy levels within “circuits” of bimodal neurons (“neurones”) able to respond to external and internal stimuli, directing energy to motor or other outlets to accomplish actions and return to low-energy states. In this review, I begin by converting Freud’s quantification of inertia to the issue of the sorites, with the justification that the “moment” at which the system recognizes a state of surplus is always “too late”: for example, realizing, in sensations of hunger, that one has been hungry for a while and just now realized it. This means that — at the level of the neurone circuitry — the condition of cross-inscription applies, i. e. that a “before” state inscribes a future moment of recognition and, reciprocally, that the moment of recognition connects in a “quantum” way to a prior condition. This cross-inscribed “before and after,” with its instantaneous “quantum link,” establishes that, within the neurone, there is a palindromic, contronymic, and double negative logic.

A key to Freud’s 1895 treatise on neuronal physics lies in his designation of a symbol for quantity “of” (= within) the cells able to accumulate and circulate electrical energy. This is $Q\dot{\eta}$: Q for “quantity,” and the Greek letter $\dot{\eta}$ (Greek small letter eta with psili) for neuronal because, as Freud was said to remark, it was a letter ‘n’ with a long tail: a cell with an appendage that could be regarded useful, ornamental, or a gratuitous feature that could, in an emergency, be sacrificed.¹ Because humans do not have, like their close cousins in the animal kingdom, tails, this sacrifice of an appendage associated with the phallus, given the phallus’s exclusive relationship to the signifier, is critical. On one hand, it points to the centrality of sacrifice in human culture. On the other hand, it lies at the basis of any theory of rivalry and mimetic identification which structured the thinking of both Jacques Lacan and René Girard. Both links have to do with the fact that the human is, in essence, “the animal who speaks,” speaking being the justification for saying “the animal *who*” rather than “the animal *which*.”

Neuronal quantity and inertia were axiomatically linked. Freud’s thesis, and the basis of his claim that psychoanalysis would be primarily a *science*, was that neurones constituted a system, that the system circulated energy, and that the level of this energy was, ideally, held as much as possible to a continuously low level. The graphic figure of this idea is the circle, streamlining the function of a circuit: *circu*-lation that

¹ James Strachey, Footnote, “Project for a Scientific Psychology” (1895), *The Standard Edition of the Complete Psychological Works of Sigmund Freud*, vol. 1, trans. James Strachey, in collaboration with Anna Freud and assisted by Alix Strachey and Alan Tyson (London: The Hogarth Press and The Institute of Psychoanalysis, 1950). URL: <http://users.clas.ufl.edu/burt/freud%20fleiss%20letters/200711781-013.pdf>. I have elaborated on the tail of the letter $\dot{\eta}$ to set up a connection with Jacques Lacan’s comparison of the phallus to the tail of the chameleon which, in emergencies, can be sacrificed without killing the organism. In this key metaphor, Lacan reveals an interior essence of the signifier, which the $-\phi$ designates in the negative, i. e. through its absence, connected to the early childhood discovery of the mother’s anatomical lack.

is internal, cut off from its two “environments,” the usual idea of an external world and the inner body that requires food, registers pain, and sometimes generates inexplicable disturbances. Facing both of these sources of stimulation, the neuronal system sought to return to an ideal state of low-energy circulation by redirecting stimulation so that it might be discharged, either to muscles that would, through *actions*, do what was required to satisfy such internal alarms such as hunger, or through conscious constructs that, through *acts* would do the same in terms of symbolic behavior.²

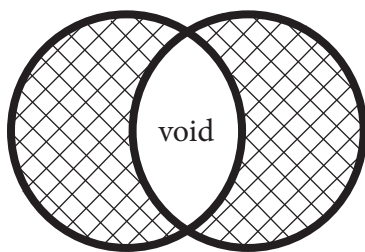
But, Freud’s concept of “return” was complex. Arguing that individual neurones were able to function as “contact-barriers” able to discharge energy (cathexis), this resistance function was able *both* to retain a memory of its discharge *and* to be freshly capable of new action. Contact-barriers could thus work both as conductors and as capacitors do in an electrical circuit. Freud himself resisted the idea that, to explain how a contact-barrier could both remember a past discharge by being permanently altered and be, equally, ready for new discharges, there should be two kinds of neurones, “memory cells” for the former function, “sense cells” for the latter. Although Freud’s alternative idea was little more than a replacement of the class of memory cells by hypothetical “impermeable neurones” (Φ) and sense cells by “permeable neurones” (Ψ), what he really needed was an *overlap* of these functions, so that any one physical neurone might participate in either the Φ system as a pass-through to aid perception or the Ψ system as a retentive capacitor permanently altered by the course of an excitation, i. e. a memory cell.

However, Freud seems to avoid the assumption that a memory cell constitutes a “trace”: “For memory is obviously one of the determining and directing forces in relation to the path taken by excitations, and if facilitation (*Bahnung*) were everywhere equal there would be nothing to explain why one path should be preferred to another. It is therefore more correct to say that memory is represented by the differences in the facilitations between the Ψ -neurones” (361). Facilitation depended on magnitude and frequency — the *quantity*, $Q\dot{\eta}$, in other words — put into spatial (energy expended at any specific moment) and temporal (frequency of such moments) terms. The *Bahnung* of facilitation, with its overtones of a rail or road system, thus was a distribution system. The Ψ was not so much a kind of cell as a *pattern* or *arrangement* of Ψ -neurones, in the same way that nodes of a network are not separate from the network even though they

² The circuit of neurones, each part of which mirrors the structure and function of the whole circuit, fractalizes the function of the brain. The usual assumption that substitutes “awareness” for “consciousness” means that at the neuronal level, the discharge of energy into a muscular action will be the result of an intentional decision known to the subject; but it is clear, given the radical potential anarchy of neurones, that a discharge might take place without any notification of the “executive function” of the mind. Thus, an act might be accomplished before the mind takes notice, but that when the mind, finding itself to be “too late” to make any difference, assumes its executive role nonetheless, reconstructing quickly a sequence of causes and effects, beginning with needs, then an intention to act, then the act. Benjamin Libet’s controversial experiments (*Mind Time: The Temporal Factor in Consciousness*, 2004) seemed to prove the priority of acts over intentions, but those who staunchly wished to defend the idea of free will objected that Libet’s demonstration of a 350 millisecond interval between unconscious brain activity to flex a finger and conscious awareness of the *intention* to flex did not rule free will. Rather, it showed how consciousness’s need for a *signifying chain of cause and effect* was able to supplant a more automatic relation — that “intention” for consciousness was not identical with intentionality operating at the neuronal level, which may depend on the neuronal circuit’s fractal structure.

seem to have independent identity and structural similarities to non-nodes. If the existence of separate Ψ and Φ functions suggests that — given that any physical model of the nervous system is, at least in its theoretical state, metaphoric, then the idea of Ψ and Φ networks (cf. *Bahnungen* in the form of “road networks”) is just as metaphoric and equally compelling, with any given neurone as a node existing in and constituting the effective components of two different but interacting systems. Ignoring for a moment the question of whether two different cell types are required, perhaps it is possible for any single cell to have a double life, one that is cumulative and retentive (Ψ), another that is conductive and unaffected by use (Φ). Whether the former dedicates itself solely to memory and the latter solely to perception should also be bracketed. Perception offers no evidence of being completely independent from memory, and *vice versa*. There should be no compelling reason to segregate or differentiate functions or the physical components of functions if there is no comparable “clean division” in experience to justify it.

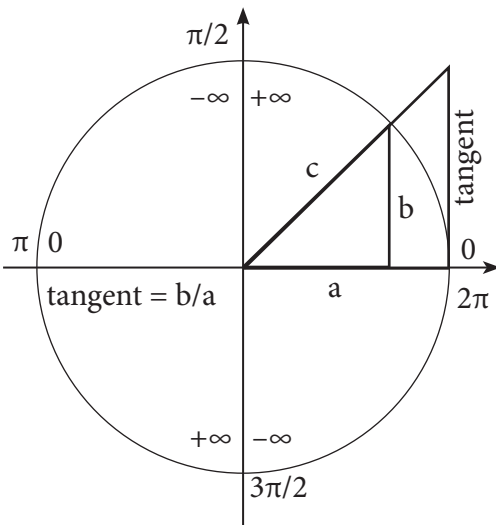
The engineering analogy for the Ψ function of retention and accumulation is the capacitor, which in electrical circuits is used to store energy and “smooth out” the performance of systems that have to respond high-energy-consuming demands. At the same time, The capacitor’s smoothing capability contributes to the neuronal network’s goal of stability. Even with conductance’s association with flow, the capacitor’s smoothing function accommodates this idea as well. Neurones may not be literally the same as electrical capacitors, but in the context of flow and retention as two overlapping functions of the neuronal circuit, the capacitors’ “diagrammatic” qualities have two significant benefits: (1) the gap between the “plates” of the capacitor represent the function of cross-inscription, where a *flip* of functionality replaces the idea of spatially separated independent functions. The Φ of perception is modified by a background influence of memory, which can be restated as $\Phi\Psi$. Conversely, the Ψ of memory can be revised to reflect the fact that memories are capable of vivid re-living that recasts dormant content as vivid perceptions: $\Psi\Phi$. If the metaphorical plates of the neurone-as-capacitor become the site of the overlap between the two *Bahnungen* or traffic systems of perceptual flow and memory’s retention, the overlap is more accurately



seen as a gap that facilitates this flip. Here, the vel of the two systems yields a void in the common area. Lacan has focused on this set-theoretic condition as representative of the “forced choice,” a situation where one option “completely usurps the potentiality of the other option.” As in the common example of the mugger’s demand, “Your money or your life,” the victim is presented with a choice that is really not a choice.

Even if this isn’t an accurate representation of a neurone, it is instructive. The problem (with Freud’s concept of the death drive) has always been how the maintenance of a “Nirvana” state of low-level energy stasis can be combined with the self-aggressive compulsion to return to painful traumatic events, which are not “remembered” in the usual way but relived. Memory would allow for fantasy to cover over the unbearable Real of trauma, domesticating its uncanny attractiveness. The forced choice is, after all, a paralyzing catalepsy of free will. The shell-shocked veteran of wars is *drawn back* to reliving the worst

horrors of battle. In less dramatic cases, the compulsive collects or obsessively orders a tedious universe of parts that are always *out of place*, always needing to be ordered or completed. Repetition destroys the free will that would otherwise avoid pain and seek pleasure. The free-will *paralysis* of the forced choice is self-imposed by the compulsive, something taken from an interior self-aggression and “extimated” to an external condition in the world. It cycles internally about a permanent void, an empty un-fillable site, a lipogram.



In this *circling motion* around a void, the behavior of the compulsive that serves as a model for the way the neurone acts as a capacitor in an electrical circuit. The circle, whether an actual structure (as in any circuit) or a geometrical metaphor, combines positive and negative. Its quadrants allow for four states, a doubly positive and doubly negative, and a positive-negative opposite a negative-positive. *The circle is the model of the flip that constitutes the void of the capacitor.* As the radius that is symbolically the relation between the sensual dynamic materiality of the circle and the insensible void at the center rotates like the beam of a radar screen, it moves through trigonometric

relationships, sine and cosine, that are related in the function of the tangent (sine/cosine). The tangent can be represented by a vertical line drawn in the y direction from the x axis. At the $\pi/2$ position, it moves “instantaneously” from a positive infinity to a negative infinity, thanks to the change of a (diagram above) from a positive to a negative value. The curve of the graph of the tangent this appears to magically vanish from its positive infinity only to appear suddenly out of its negative infinity. Bruce Fink has used the tangent curve’s seemingly magical disappearance/re-appearance to show how the feminine not-all “goes off the charts” of the representation system. Like the Real, it cannot be contained by the Symbolic. It cannot “exist” (because this would subject it to re-presentation). Rather, it ex-sists, thanks to the supplementary rule, that this not-all is the case with all who would call themselves ~~woman~~, *with no exceptions*. It is here that the ~~woman~~ becomes scientific. Unlike the masculine position, which depends on at least one exception to its rule (“an observer”) that all must fall beneath the law of the signifier, the feminine position has no exceptions. It is a law “unto itself.” There are no observers who are exempt from what they observe. This is the “quantum situation.”

Back to the case of the neurone: the capacitance function, Ψ , may not be the kind of memory Freud wished to say it was. It is certainly a *conservational* function; a means of stabilizing the circuit by being able to store energy that would otherwise be passed on. Because the neurone can accumulate at the level of the cell, the circuit can be “damped down” to avoid overload and maintain its low-energy status. If, instead of saying that there are two kind of neurones, one for capacitance and another for transmission, Φ , it is more

obvious that every cell has both Φ and Ψ capabilities, that each cell participates in two overlapping networks that combine without the conscious participation (“free will”) of the subject. Their operation is the vel of the system, a void, a choice that is forced because its transfer (from one side of the void to the other) is “locked in place” by the palindromic condition of the flip/transfer.

In *Beyond the Pleasure Principle*, written twenty-five years after “Project for a Scientific Psychology,” the concerns of the earlier text persist. There is, first and foremost, the desire for the circuit to maintain a low-energy state. Second, there are the external threats of stimulus (perceptual) and internal stimulæ arising from hunger, sex, pain, etc. The perceptual threats correlate to the Φ , or non-retentive aspects of neurones; but the Φ seems to be just as good for internal disturbances. It is if it doesn’t matter what the source is, a threat to tranquility is a threat to tranquility. In the same sense, the capacitance function Ψ doesn’t seem to care about the source of a disturbance; its aim is to restore balance. The key is the way in which disturbance raises the energy level to a painful degree, while pleasure arises when this level is returned to the near-zero state. Pleasure (*Lust*) is not the same as *jouissance*, but its relation to this mysterious commodity is informative. Pleasure/*Lust* can be postponed, depending, as Freud put it, on “exigencies” of context that promise greater satisfaction and resolution if the subject tolerates dissatisfaction — the so-called “reality principle.” The idea is that the subject can have her near-zero state back later in exchange for meeting the demands of the various networks of Symbolic participation: families, lovers, friends, culture. These *Others* have desires that persuade our belief in an “economy of desire,” an external system of exchanges, substitutions, delays, and revaluations. The pleasure of our postponed desire’s amortization will be combined with the pain of the delay, a conscious combination of costs and benefits. *Jouissance* thus is the immediate experience of the generic bitter-sweet deal that allows the subject its life within the Symbolic, in the face of often intolerable demands of the desire of the Other. Pleasure, in other words, by its very nature constitutes an *economy*, a bargaining system, a market, a trading floor.

What we hear in *Beyond the Pleasure Principle* is an extended metaphor that projects the neuronal combination of energy flow and capacitance, Φ and Ψ , by means of an external metaphor of an exchange economy. We might even imagine the banal popular culture contrast of the grasshopper, who spends his capital as soon as he gets it, contrasted with the ant, who sacrifices and postpones satisfaction in behalf of a greater good. There have been philosophers of culture who have argued for an irony in this external economy, however. Bernard Mandeville (*The Fable of The Bees: or, Private Vices, Public Benefits*, 1714) used the example of the “grumbling bees” who converted their displeasure of work into fantasies about the powers that subjected them but, in the end, benefitted from a collective *jouissance*. Giambattista Vico (*New Science*, 1744) reversed this grumbling motif to emphasize how there could be self-imposed collective restraints on personal *jouissance* as long as personal desire was allowed to run its course. Like modern economists who insist on an internal self-stabilization of market forces, effective as long as there are no artificial constraints to personal greed (the “unseen hand”), Vico argued for the emergence of restraints out of systems left free to accumulate at will. In Freud’s algebra, this would be to say that $\Phi \rightarrow \Psi$, that

capacitance is a “natural or emergent product” of free flow conductance. Thus, the *mathemes* of Φ_Ψ and Ψ_Φ differ only in the *direction* of flow. The metaphor of capacitance plates emphasizes that conservation and expenditure are pure motion, which is a primary form of signification.³

This may have been what Freud had in mind when he wrote:

The necessity for finding a place for memory in the theory of contact–barriers calls for something further. Every Ψ -neurone must in general be presumed to have several paths of connection with other neurones — that is, several contact–barriers. It is on this that the possibility depends of the excitation having a choice of path, determined by facilitation. This being so, it is quite clear that the condition of facilitation of each contact–barrier must be independent of that of all the others in the same Ψ -neurone. Otherwise there would once again be no possibility of one path being preferred to another — no motive, that is. From this we can draw a negative inference as to the nature of the condition of “facilitation.” If we imagine a neurone filled with quantity ($Q\dot{\eta}$) — i.e., cathected [comment: *Besetzung*, more commonly like an electrical charge or occupation by troops] — we can only suppose that this quantity ($Q\dot{\eta}$) is uniformly distributed over all the regions of the neurone, including all its contact-barriers. On the other hand, there is no difficulty in supposing that, in the case of a quantity (Q) [comment: *Bahnung*, cf. “rail network”] in a condition of flow, it will take only one particular path through the neurone; so that only one of the contact-barriers will be influenced by that quantity ($Q\dot{\eta}$) and acquire facilitation from it. Therefore facilitation *cannot be based upon a cathexis that is retained*, for this would not produce the differences of facilitation in the contact-barriers of the same neurone. [*Project*, 362; emphasis mine]

In other words, the system would not be free to make different energy distributions over a given circuit if the charge is retained. Freud is, in this theoretical demand, making precisely the point that Vico made: that without the freedom to make choices “selfishly” — in the “self-interest” of each individual transaction — Ψ or Φ networks would be unable to “overlap” within the void of the forced choice. No overlap, no brain; no brain, no mind; no mind, no subject, in its sequential self-propelled “forced choice” development from (prematurely born) child to adult. This is the freedom needed for subjective development and the vicissitudes that, in this development, define its steps in relation to the stages that gradually transform the signifier from an all-powerful magical force into a crippled and crippling designation.

Is the jump from Freud's “cathexis that is retained” to Vico's generic selfishness too big a leap at this point? What would justify the need for a *lack of structure* at one stage as prerequisite for an emergent

³ It's premature to compare this primary signification to Lacan's “primary” signifier, S_1 , but it's interesting to consider S_1 's self-negating properties in conjunction to its ability to pass freely from one signifying chain to another, as a kind of herald who comes into town with a uniformly enigmatic announcement that is met, in each town, with completely different receptions.

structure at a subsequent stage. This is more than the influence of a structure that works from behind the scenes and is revealed suddenly as a Wizard-of-Oz “man behind the curtain.” When the curtain is pulled back, it has to be something like the scene from Fritz Lang’s *Testament of Doctor Mabuse*: not an enigmatic all-powerful Other but, instead, an automatic playback device, devoid of consciousness, an *automaton*.

Ersatz conjecture

At this point where it seems that Freud connects to Vico, a third study device is required. The “ersatz conjecture” is based on the idea that, in the face of too many unknown commodities to allow an “algebraic solution,” thought should arrange itself around an independent proposition formed without any consideration of logical, cultural, or historical dependence on a problem — in other words, a free-floating signifier. This conjecture will require the construction of bridges between the “interested” features of the problem, which are, in effect, mortgaged to the hilt, and the elements of the conjecture which owe each other only a duty of consistency, having foresworn the objective of completeness. It is more likely than not that the ersatz conjecture can “get lucky” (*Ansatz*). In the case of error, the contrast between the wrong answer and the original problem can reveal the original’s non-salient structure; what resists the attempted solution is, after all, what maintains the integrity of the original. In the less likely case of success, the fact that there was no previous obvious link connecting the problem and the ersatz conjecture means that the proposition is disinterested and, hence, objective. The ersatz conjecture works like a control group of any other kind of experiment. Its disconnection from the facts of the case mean that any pattern or variation is due to something significant in the original situation.

My ersatz conjecture is the sorites, the phenomenon of emergence arising out of accumulation. In the positive accumulation of grains of sand, at some point emerges the idea of a pile. Out of the negative accumulation of lost hairs, suddenly appears the phenomenon of the bald head. The suddenness of emergence has the effect of a quantum event. The presence of the pile or bald head is realized retroactively. The universal “had to exist” before it was recognized, meaning that the universal *comes into being* in a backwards way. It was secondary to the primary process of accumulation, but out of the blue it becomes a controlling principle that had been in place “all along.” An attempt to retrace the steps of the accumulation process leads, absurdly, back to the first fallen grain of sand or first lost hair. The condition of loss or fallenness is located *within* the hair or sand. As soon as one grain of sand falls, the pile *had, has, and will have to be*.⁴ Inevitability is the invariant within the extreme opposite, absolute variance. Invariance is not added to or external to variance; it is internal, located within a central void of variance. Similarly, variance is the lipogrammatical kernel within invariance: Freud’s need to keep the neural networks open for business, by not retaining cathexis.

⁴ This same phrase is used by Vico as his (soretic) proof of the truth of his *New Science*: “Our Science therefore comes to describe at the same time an ideal eternal history traversed in time by the history of every nation in its rise, progress, maturity, decline and fall. Indeed we go so far as to assert that whoever meditates this Science tells himself this ideal eternal history only so far as he makes it by that proof ‘it had, has, and will have to be.’” (*New Science*, §349).

Freud's clinical evidence finds, in the "necessity" of a determinism in the face of an absolute freedom, the basis for calling itself a science.⁵ In this, it is remarkably if not miraculously parallel to Vico's equally insistent demand that his theory of culture be called a science, more severe and exacting than the standard set for physical sciences. Freud's search for a neurophysiological basis was limited from being a true neurophysiology because, if anything, the technology of the times drew the line where inference must convert into speculation. This line exists today, despite the claims of neuroscientists who insist they have found definitive physical evidence. They have moved the line separating brain from mind but not erased it. The stumbling block is intentionality; and this is precisely the issue that Freud aimed at, pushing past physical evidence to the heart of the matter, where conscious intentionality had to give way to a deeper, unconscious intentionality, even more firmly resolved.

When Freud and Vico aim to establish their theories as sciences, the both start from the position of the phenomenological observer of cases, both special cases (Vico: history; Freud: the clinic) and general cases (Vico: human nature; Freud: anecdotes, jokes, details about dreams, memory, anxiety). From this carapace of observations, they aim simultaneously inward and outward. The inner-directed quest aims at the atom of cause that has generated the successive waves of human development from an instant when the animal became the "animal that speaks." This is both a temporal moment (the point of the emergence of language) and a spatial one (its physical apparatus must continue to function). Vico's point is the spark that led to the construction of the imaginative universal, or the imaginative universal itself. This was a palindromic exchange between the perceiver and the perceived, which led the first humans to transfer their own natures to the objects and phenomena of external nature. Freud's point is the contact-barrier (the name itself is a contronym), the essence of the neurone's ability to support both inertia and constancy. Both the imaginative universal and the contact-barrier must create a break from animal communication's seamless exchange of signs. These are not yet signifiers, because they "lack a lack." They do not have the ability to function as place-holders, as pronouns, because they link particulars to particulars within complex webs of closely coordinated associations. There is no room, in animal and insect communication, for misunderstanding. Theirs is like a binary 1's and 0s that constitute strings of code. One cannot imagine one bee "telling" another bee something that, in subsequent exchanges, is distorted and transformed. Animals do not play "whisper down the lane" (a. k. a. Chinese whispers, the telephone game, grapevine) because errors in their transfers would not be able to have their own alternative meanings. The emergence of human communication is both sudden and universally effective. Vico expresses this in terms of the cosmic system of demons and gods that springs into being immediately after the perception of the imaginative universal.

Freud, however, does not imagine an origin as a primal fault line. It is as if the contact-barrier will have to serve a common biological communications function until Lacan works out a parallel to Vico's

⁵ The editors and translator are careful to note that Freud's essay was untitled. The claim for a scientific psychology is however implicit in the way Freud singles out thought's biological "atom," the neuron(e).

historical primitive. This of course is the Mirror Stage, when effectively the *structure* of the contact–barrier is externalized — “staged” — as an event when a young child comes into contact with his/her reflected image and immediately a barrier forms between the pre-subject, who feels him/herself to be a “body in pieces,” and a prospective subject installed within the domain of the Symbolic, often appearing in the company of older subjects, demonstrating a mastery and wholeness that the pre-subject now suddenly realizes he/she has lacked.

The reason for pairing Vico with Freud and, later, Lacan, is to emphasize what is latent in the neurone theory of the contact–barrier. While Vico’s primal moment comes about through an external disturbance (loud claps of thunder), Lacan deduces a more predictable and universal mechanism for this moment to be reproduced, in the negative (for the idea of reproduction and primacy contradict each other), with each instance of a pre-subject’s sudden appearance within Subjectivity’s imaginary and symbolic kingdoms. Thanks to the human’s premature birth — the human child requires intensive support before he/she is able to communicate desire — the primal transition from non-human to human must be made for every individual. “The human” exists as a collective *only when* the networks of relations within the Symbolic are in working order, and this can happen *if and only if* the constitutive behaviors have already been rehearsed in detail, to the point of perfection, *without realization of the real “truth” behind them*. It is as if words must be learned, pronounced, and polished as performatives *before* their significance is evident. There must be a suppressive function to prevent realization before this “event” will bring together all of the required component parts.

Why is an event important? This will be evident for several reasons. The event is, first and foremost, an act. It is the sudden instance where meanings appear together without being rationally merged or made to fit. This is a “synthesis without synthesis” in that any union of components would require a “meta-rule” governing the merger. In this case, synthesis is self-generated. It comes from nowhere and is a *hapax*, a singularity. In this flash, nothing is accidental or, rather, everything accidental is essential. The event must be a pure emergence. Its unity projects backwards, retroactively, to the conditions that “had to be” in order for the event to take place, but no amount of close examining can reveal any pattern. Rather, retroaction reveals a complete lack of structure, a “pure randomness” with no sense of determinacy.

The event structure further reveals the “soretic” nature of emergence: the structure-less accumulation that conserved a structure without being determined by it. In the sorites of the pile of sand, the pile does not exist until it is realized, but then the pile, as a universal form, does not give way even when the grains of sand are subtracted down to a final solitary grain. At this point, the key element of falling reveals that a grain of sand, to be a grain of sand, *must have been lifted in the first place*, in order to fall on a pile. Kobo Abe has, in his novel *Woman in the Dunes*, explained that sand is “whatever it takes for wind to lift a particle and transport it to another location.” The vertical lift generated by horizontally moving air defines what is and isn’t sand. The lift and transport are the same (the Venturi effect). So, the grain and the pile are the same. In just the same way, the event must be suppressed until it is realized in the instant where the

universal quality, the pile, is able to confer retroactively the universal combination of grain and pile that made this instant of realization inevitable.

The story of Helen Keller's sudden realization of language's potentiality is instructive. The young blind and deaf girl had been taught sign language, which she used proficiently. But, she did not yet appreciate how the separate signs constituted language, and how language related to the correlative idea of an "internal existence" within each speaking subject. Her teacher Ann Sullivan brought this realization about by holding Helen's hand beneath a water pump. While the water was splashing onto her hand, Sullivan signed "water." It was not that Helen did not know the association between the sign and the thing being indicated, it was that she did not realize the *difference* between the flow of sensation and the "backwards directionality" of the sign. This moment was not just a demonstration of this reverse motion, it was an instance of it, *proving* the thesis by *being* the thesis.

Lacan realizes that one and the same biological basis must serve both animals and humans, but that human brains, in being put to service on behalf of the Symbolic, will revolutionize the functioning of the Imaginary and even of the Real. The *event* of this transformation will involve a splitting that takes place within the (non-)structure of the Act. Act will, in turn, give rise to the structure of the Thing, which equally relies on the hapax simultaneity of difference and its powers of retroaction. The narcissism of the Mirror Stage will become the formative myth of origination and give Freud's theory of the contact-barrier's simultaneous service to the Φ of conductance and Ψ of conservation new life — a Vichian life.

Had Freud realized the Mirror Stage in his own work, had it not lain dormant as a kind of "Lacanian destiny" (just as the *falling* of the grain of sand preserved the idea of the pile while repressing it), there would have been no Lacan. Retroactively, neither would there have been the Vico who made Lacan what he was (without Lacan's awareness of the fact), just as without Lacan there would have been no Freud who would be what he was *latently*, to be revealed only through Lacan's articulation of the Mirror Stage. Vico, Freud, and Lacan are psychoanalysis's own peculiar pile of sand. Without the Mirror Stage, Freud and Vico suddenly disappear, their true being vanishing with the non-appearance of what in history actually did appear, first at a professional meeting (text lost) and later in written form.

The disappearance of what is former by an "accident of the now," in which what should happen actually doesn't, creates a vertiginous reverse-action condition that recalls the phrase Bachelard used in

Air and Dreams: “First there is nothing, then there is a *deep* nothing, then there is a blue *depth*.”⁶ There are two antipodal nothings. We may realize this in the impossibility that one negation can correct another, as in Dino Buzzati and Yves Klein’s simultaneous destruction of payment for an “immaterial pictorial sensibility” and a representation of what cannot/doesn’t exist (the gold leaf thrown into the Seine). This exchange demonstrates that, in the face of non-existence (what Lacan would call *ex-sistence*, the not–all), there can nonetheless be a *system of exchange*. This is also Marx’s insight, in the *Grundrisse*, namely that exchange systems are based on symmetrical fictions: production, distribution, exchange and consumption. None of these exist apart from the dynamic exchange within the totality that may be named after its most salient feature, production. The system is equally “exchange,” which logically necessitates distribution, which is predicated on and by consumption. No part exists without the others. Without the exchange (Klein/Buzzati’s destructive exchange of two nothings) the components don’t exist, but in a sense the exchange, to exist, must be non-existent. It must *ex-sist*. It must be a partial object, a not–all. It must in short be feminized and, as feminized, identical with the boundary condition, which is not a single line separating two spaces but a coincidence of two edges of what, before they acquire an edge, do not exist.

There is an important geometrical point to be made here. In the construction of the boundary as the coincidence of two separate edges of two separate spaces, an inside and outside, the outer edge of the inside and inner edge of the outside *overlap*. The space between them is both a “nothing” (a-dimensional, a pure overlap) and a Janusian converter. This repeats the logic of the contact–barrier, which is able to preserve through a cancellation — a primary case of Hegelian *Aufhebung*. This is the basis of the soretic function of the contact–barrier, which is also the event of the Mirror Stage and Vico’s instance of imaginative universality in the clap of thunder. As Bachelard would put it in speaking of the nature of dreams, the only dimension is depth. Creation of depth — which one could extrapolate literally to the construction of perspectival space as the “net” by which vision casts internal aggressions outward, as anxieties based on proximity — is always metaphorically vertical, no matter when it is cast forward and cut

⁶ Gaston Bachelard, *Air and Dreams*, trans. Edith R. Farrell and C. Frederick Farrell (Dallas: The Dallas Institute of Humanities and Culture, 1988), 168. This phrase captured the imagination of the artist Yves Klein, who conducted an experiment with Dino Buzzati on the quay of the Seine. In 1962, the two “performed a ‘ritual transfer’ of empty space on an embankment of the Seine, in which Klein dutifully wrote Buzzati a receipt for the 20 grammes of gold leaf that he had paid him for a ‘zone of immaterial pictorial sensibility.’ Buzzati then ceremoniously burned the receipt, just as Klein theatrically dropped the gold into the water.” Zoe Slutzky, “Dino Buzzati’s Ideal House,” *AA Files* 75 (2017): 204. Bachelard intended to say that the dream, paradoxically, has only a depth dimension. He defined this precisely in terms that Macrobius would paraphrase from Cicero’s account of Scipio (the Younger)’s dream. Accompanied by his famous dead uncle, Scipio would be transported to a position above the blue of the sky and, looking down, would realize the irony of the living, enchanted by the illusion that they were living, were actually dead, while those in heaven around him in the super–celestial position, were really the living beings, not the dead imagined by the (actually) dead mortals on earth. This and Bachelard’s revelation depend on the contronym Vico had identified in his *Autobiography*; the coincidence of “wedge” or “burin” with “heaven,” in effect telling the story of the birth of Athena through the skull of Zeus (= the blue carapace of the heavens). Athena’s “fully armed” status provided the essential clue, that *ingegno*, the invention of “pointed” or “acute” thoughts, was aggressive, an externalized form of an internalized militarization of self against self. This is the meaning of the contact–barrier and the barrier’s necessary relation to extimity (inside to outside, both both positions as “impossible/Real” within their respective contexts.

off sideways in the experience of “framed immanence.” While this frame appears to point outward, appropriating limited zones of what disappears quickly into the distance idealized by the perspectival “vanishing point,” in fact it point inward, given that external reality has already and always been projected from an interior exchange beginning with the contact–barrier’s contronymic service of conservation and flow. Like the sacrificial victim of the Aztec ceremony, we are allowed to see our heart still beating, and this beating can be none other than Lacan’s idea of *pulsation/pulsion*. This force could not exist without the overlap of inside/outside which Lacan elsewhere describes as the *lamelle* (lamella), a “false organ” that cannot be described biologically but, in contrast, mythically: “This organ ought to be called irreal, in the sense in which irreal is not imaginary, and precedes the subjectivity that it conditions by being in direct contact with the real.”⁷

The irreal has an unreal, or at least curious, connection with the sorites. As a simple mechanism, the sorites *accumulates*, in a way that is normally gradual and without spectacular change from one state to another. Grains of sand fall; hairs fall off a man’s head. At some point, this casual passage of time is abruptly ended, when the *realization* of the fact of the pile or bald head comes. It always comes *too late*. That is, by the time one has realized the fact of the condition, it has been going on for some time. The realization is thus *retroactive*. It is an example of Lacan’s famous future perfect tense: the time *by the time of which* something will have happened. Attempts to walk the process back to the point where the non-pile suddenly became a pile all fail. As each single grain is subtracted, what remains is still a pile, until the absurd conclusion where the pile seems to be implicit in a single grain. Perhaps it is because the grain has *fallen*, and that its falling implies more grains will fall. Perhaps it is because sand *is* what is lifted by the wind, carried off, and let fall. The case is less clear with the case of the bald man. Not all men will become bald, but hairs being what they are, it is no surprise that once one falls, others will follow.

The point is that the sorites creates an overlap that, like the overlap of inside and outside, constructs an “irreal” infra-thin space. The point at which a pile is realized, its “too late” status implies a “too early” counterpart, the time just before the point where the pile became a pile. But, this point cannot be located. The entire pile is *too early* until the moment when it is *too late*. Isn’t this a

⁷ Jacques Lacan, *Écrits*, 718. Note: I have revised Fink’s translation “unreal” to “irreal.”