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David Dunning
University of Pennsylvania

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'Virtually Unlimited':
The Elusiveness of Reality in *Infinite Jest*

David Dunning

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> Do we really want to say that ∞ exists only in the way that unicorns do, that it's all a matter of our manipulating abstractions until the noun 'infinity' has no real referent?
>
> —David Foster Wallace

Infinite Jest borrows its name from a line in *Hamlet:* "Alas, poor Yorick. I knew him, Horatio—a fellow of infinite jest" (5.1.171-2). While alluding to this canonical meditation on death, the novel's title also points to the infinity of mathematics, an esoteric concept that appears again and again in Wallace's writing. What can the mingling of Hamlet's pain and madness with set theory's abstraction mean? It seems surprising that Wallace's disappointment in "our intelligentsia [who] distrust strong belief, open conviction" (*Lobster* 272) leads him to embrace the emotionless sterility of pure mathematics. But Wallace always humanizes the questions that fascinate him. When he asks about the ontological status of infinity, he is not just talking about set theory. The ambiguous distinction between real and virtual arises everywhere in *Infinite Jest*. For Wallace, our ability to live in an increasingly virtual world depends on our ability to locate and assert reality. As technology and consumer culture daily make that project more obscure, mathematics is relevant as a field on which the question of reality has always had obvious import.

Several critics have offered readings of Wallace that begin to interpret his fascination with mathematics, but we lack a clear and comprehensive picture of how the mathematical shapes his writing. I will argue that a lucid picture of Wallace's math is prerequisite to any proper interpretation of his thought. In a chapter of his book *Machine-Age Comedy,* Michael North analyzes the humor in *Infinite Jest* and also engages with

mathematics. He examines both the math in that novel and in *Everything and More,* Wallace's book-length layman's introduction to transfinite arithmetic, the branch of mathematics that deals with numbers that are somehow 'bigger than infinity.' North's reading of Wallace's comedy is sharp and compelling, but his treatment of mathematics is cursory. He acknowledges the centrality of math in Wallace, especially of the notion of recursion, but he simplifies Wallace's math to a "tension within *Infinite Jest* of two quite different infinities" (181). This formulation reduces transfinite arithmetic, an esoteric topic to which Wallace devotes an entire book, to a digestible binary. While certainly the major tensions in *Infinite Jest* do not depend on the technical details of an erudite theory, I would claim that they do arise in relation to Wallace's sophisticated understanding of the *history* of mathematics, a history that North obscures with his simplifying notion of two opposing infinities.

N. Katherine Hayles offers a perceptive reading of *Infinite Jest* in her essay "The Illusion of Autonomy and the Fact of Recursivity," but she imposes a specialized vocabulary on the text, obscuring Wallace's particular ideas and concerns. In Hayles's formulation, *Infinite Jest* demonstrates that "If the problem originates in the presumption of autonomy that is the founding principle for the liberal humanist self, then nothing less than a reconceptualization of subjectivity can offer a solution" (693). The 'autonomy' against which Hayles writes corresponds to a privileging of the self that indeed horrifies Wallace, and he does place his hope in a rethinking of the self in relation to something bigger outside of it. For Hayles, reconceptualizing subjectivity consists in trading one abstraction for another: from 'autonomy' to 'recursivity,' or "recognizing the profound interconnections that bind us all together" (696). But Wallace portrays the necessary act

as a transcendence, a near-mystic moment of utter redefinition that surpasses simply perceiving one structure in place of another. I contend that math's role as the model of transcendence by redefinition is an essential part of Wallace's formulation. Hayles reads him in terms of the complex systems and virtual ecologies that are the true topic of her essay. She enlists Wallace in her own project quite well, but she does not really capture his arguments.

To my mind, Paul Giles' essay "Sentimental Posthumanism: David Foster Wallace" is the most helpful reading of Wallace available. Giles situates Wallace in a broader conception of posthumanism, a strand of theory largely pioneered by Hayles in her book *How We Became Posthuman*. He observes:

> [Wallace] takes the psychological fragmentation endemic to posthumanist cultural landscapes as a fait accompli, but chooses to traverse this terrain with a wide variety of philosophical references, thereby expanding the posthumanist idea beyond the narrow technocratic circle of the cyborg manifesto and showing how, at the turn of the twenty-first century, a posthumanist sensibility has filtered into the everyday consciousness of American life. (330)

Posthumanist theory often revolves around specialized discussions in computer science and related fields. Wallace adopts its philosophical context and exports it to a nontechnical consideration of life in the posthumanist age. Giles summarizes this context as "a condition of confusion where the human sensibility is left uncertain about its epistemological status… the categorical distinction between human and nonhuman is becoming ever less self-evident" (328). Giles goes on to identify Wallace's use of "dialectics between a discourse of dehumanization [and] nostalgia" (335). His notion of

Wallace as a dialectician is especially useful. However, Giles only briefly mentions *Everything and More*, then pauses to acknowledge that "*Infinite Jest* also plays knowingly with the idea of infinity as a rhetorical trope with wider applications beyond pure science" (334). But his analysis is not concerned with mathematics. I will argue that Wallace's project, which Giles aptly describes as "a creatively sentimental redescription of posthumanism" (341), arises from his consideration of mathematics and its history, and derives its structure from that tradition. Any interpretation of Wallace's aims as a posthumanist must proceed from an adequate understanding of his role as a pop-historian and cultural interpreter of math. Wallace looks to the treatment of paradox and contradiction in math to find a method of resisting the addicted paralysis that dominates contemporary America. He constructs an opposition between the circular structure of addiction and the dialectical structure of pure mathematics. He sees in mathematics a model for the posthumanist transcendence of virtual solipsism.

Infinite Jest finds addiction everywhere and to everything. Wallace is interested not only in chemical dependence, but also in the psychological dependencies that can attach to any enjoyment. The two principal settings of the novel are the Ennet House Drug and Alcohol Recovery House—"redundancy *sic*" (995n49)—and Enfield Tennis Academy, or E.T.A., an athletically and academically prestigious boarding school. One of the novel's two protagonists is Hal Incandenza, the youngest son of the Academy's founders and a star pupil there in his own right. Wallace introduces the culture of substance abuse at E.T.A. well before Ennet house even appears. He catalogues with extensive pharmaceutical jargon the drugs Hal and his peer enjoy (984n8-9). Wallace describes the teenage recreational drug user's aim:

> to basically short out the whole motherboard and blow out all the circuits and slowly recover and be almost neurologically reborn and start the gradual cycle all over again… this circular routine, if your basic wiring's OK to begin with, can work surprisingly well throughout adolescence and sometimes into one's like early twenties, before it starts to creep up on you. (53)

The circularity of this process prevents escape; through 'rebirth,' the user returns to the same place where he first felt the need for the substance. The metaphor of brain as motherboard, a quintessential metaphor of the posthumanist age, suggests the mind's capacity for crashes, bugs, and syntactical errors that corner the processor with an incomputable problem. The drug creates an opportunity to reboot, be born again; second birth begins a 'new' life that travels the same circular path.

Amidst the defamiliarizing flood of technical jargon, this circular structure emerges as the true form of addiction in the broader, nonchemical sense. The identity of the drug is not essential to this cycle. Wallace observes that just about any object of our attention can be a venue for circular annihilation and reconstitution of the self:

> Some persons can give themselves away to an ambitious pursuit and have that be all the giving-themselves-away-to-something they need to do. Though sometimes this changes as the players get older and the pursuit more stress-fraught. American experience seems to suggest that people are virtually unlimited in their need to give themselves away, on various levels. Some just prefer to do it in secret. (53)

Here giving the self away is the addictive act. For many addicts, including Hal, secrecy is the key to enjoyment. Hal smokes marijuana in secret in the tunnels under E.T.A., a habit

that revolves around "the bigger secret… that he's as attached to the secrecy as he is to getting high" (49). But the enjoyment of secrecy preserves the self, undermining the act of giving the self away. Significantly, Wallace notes a *need* to give the self away, not an ability to do so; any secret destruction of the self simultaneously edifies a kernel of that self by granting it privileged knowledge of its own action. Thus the 'sacrifice' of the American addict is derailed by secret enjoyment. The circle is evidence of the sacrifice's falsity: The self returns, not sacrificed but rather more fortified than ever and eager to repeat the cycle.

The insidious dynamic of the self-feeding circle is everywhere. When Hal gets high, he holds the smoke in his lungs long enough that he exhales hardly any of it. His principle, "Total utilization of available resources = lack of publicly detectable waste" (49), points ironically to the airborne garbage capsules that the government in *Infinite Jest* launches daily over Boston up to a fictional wasteland called the Great Concavity. The logic of this equation depends on a conflation of resources and waste. To eliminate waste, one must not just consume the resources, but *consume the waste*. For Hal, resources and waste coincide in smoke; it is both the object of consumption and the incriminating evidence of indulgence. This principle of waste as a resource is the concept underlying E.T.A. founder (and father of Hal) James Incandenza's theory of 'annular fusion.' Before he founds a tennis academy, James is a prominent scientist. He develops a method of energy production that creates waste that is in turn fuel for further energy production. Annular fusion provides the world of *Infinite Jest* with infinite sustainable power, but it also immediately destroys a vast region of land, now the Great Concavity, and over the course of the novel the societal consequences of that destruction creep

across the rest of the continent. James, for all his apparent success in several careers, is Wallace's embodiment of a failed life. His sons refer to him as "Himself," which as Hayles notes "[acknowledges] the man is so inward-bent that any nominative referring to him must include an intensifier of selfhood" (689). In addition to science and tennis, he has a long career in filmmaking. His filmography, which Wallace presents in its entirety with academic formality, is one extended exercise in self-reference (985-993n24). It culminates in "Infinite Jest (V?)," a mysterious film so entertaining it literally kills anybody who watches it, rendering them incapable of turning away from the screen even long enough to eat or go to the bathroom. The sad irony is that Wallace indicates James' intention was to create "something so bloody compelling it would reverse thrust on a young self's fall into the womb of solipsism" (839). Instead, his entertainment accelerates that fall. Viewers die watching a film on repeat, endlessly traversing a circle in a virtual realm of entertainment, severed from the world outside.

Hal seems at least vaguely suspicious of these circular processes. He notices the peculiar importance he places on secrecy, and he tries to understand the structure of his dependence, but his musings are always impaired:

> He broods on it abstractly sometimes, when high: this No-One Must-Know thing. It's not fear per se, fear of discovery. Beyond that it all gets too abstract and twined up to lead to anything, Hal's brooding. Like most North Americans of his generation, Hal tends to know way less about why he feels certain ways about the objects and pursuits he's devoted to then he does about the objects and pursuits themselves. It's hard to say for sure whether this is even exceptionally bad, this tendency. (54)

Hal knows secrecy serves a function deeper than protection from getting in trouble, but he falls into hopeless abstraction when he tries to discover what that function is. His confusion appears in a complicated light: Wallace sees danger in Hal's ignorance of his own addiction's workings, but he also mistrusts excessive attention to the self. Zadie Smith, in an insightful essay about Wallace, notes the suggestion in his work that "too much awareness—particularly self-awareness—has allowed us to be less responsible than ever" (266). Hal is always stoned when he considers his need for secrecy, and Wallace comments elsewhere in *Infinite Jest* on the impotence of "marijuana thinking… a paralytic thought-helix" (335). Hal's high ponderings are a conceit through which Wallace poses serious questions and abandons them in exasperation. He exposes the dangers of self-awareness by painting Hal's narcotized paralysis as a result of abstract introspection. But the question remains important. The problem is how to practice reflection without turning irrecoverably inward.

In *Everything and More*, Wallace identifies the Vicious Circle as the paradox that threatens to derail promising mathematical theories. He cites Bertrand Russell's famous natural language version of the Vicious Circle: "Imagine a barber who shaves all and only those who do not shave themselves—does this barber shave himself or not?" (278*n*78). If yes, then he must satisfy the stated condition of being a man who does not shave himself, although we just said that he does. If we say he does not shave himself, then he satisfies the condition and thus does shave himself, even though we just said that he does not. Either answer leads to a contradiction. The barber illustrates Russell's Antimony, which asks the same question about abstract sets: Consider the set of all sets that do not contain themselves as members; call this set *N*. Is *N* a member of itself?

Again, we cannot answer without implying a contradiction. Wallace describes the impasse of the Vicious Circle as the occasion when "it becomes logically impossible to do something we're logically required to do" (278). This sentence could, with a different adverb in place of 'logically,' describe any of the psychic circles in *Infinite Jest*. For example: It becomes emotionally impossible to do something we're emotionally required to do—such as walk away from a fatally entertaining film. It becomes psychologically impossible for Hal to understand his own addiction to secrecy. Instead, he falls into the Vicious Circle, indulging in the private interruption of the self that returns him to the same position of dependence every time, never facing his own condition.

Wallace follows modern math as it answers and escapes the Vicious Circle, indicating that he sees a possibility of deliverance from analogous psychological circles. *Everything and More* tells the history of mathematics, interpreting the entire story as a dialectic centered about the problematic concept of infinity. Georg Cantor, the founder of set theory and transfinite arithmetic, emerges as the hero of Wallace's narrative. Wallace quotes Cantor elaborating his notion of derived sets: "We see here a dialectic generation of concepts, which leads further and further, and thus remains in itself necessary and consequently free of any arbitrariness" (242). Cantor refers to a well-defined process by which the points 'infinitely' close to a set (points that may be part of the set or may themselves be absent from it) constitute a new set, the 'derived set.' I intend to avoid as much as possible digressing into the technical details of the math at play here, but I do wish to illuminate a certain detail that Wallace especially emphasizes. Cantor's crucial insight is that this process can be iterated *more* than infinitely many times, in a sense. Let

us start with a set of points, which we call P.[1] By taking the derived set of P, then the derived set of that set, and so on repeatedly, we construct sets named $P^{(1)}$, $P^{(2)}$, $P^{(3)}$, … etc. A certain well-defined set of points will be included in *every* derived set, no matter how many times we repeat the process. Thus it makes sense to call this set $P^{(\infty)}$. It is the set that would be left if we were to take the derived set of P literally 'infinity times.' Though we cannot perform infinitely many derivations, we can nonetheless coherently articulate the definite result of infinite derivations. But then we can take a derived set of $P^{(\infty)}$ as well, leading us to construct the sets

$$P^{(\infty+1)}, P^{(\infty+2)}, P^{(\infty+3)}, \ldots, P^{(2\infty)}, P^{(2\infty+1)}, P^{(2\infty+2)}, \ldots, P^{(3\infty)}, \ldots$$

And so on. Each of these sets is well defined and distinct from the others, so the numbers of iterations (∞, ∞+1, ∞+2, and so on) really do describe different infinite numbers in a meaningful sense. It is even possible to prove rigorously (as Cantor did) that these infinite 'numbers' are subject to their own consistent laws of addition and multiplication. Thus, though they are horrifically abstract, it does make sense to consider these different infinities as actual numbers. Cantor devoted much of his career to studying these 'transfinite numbers' and the different ways a set can be infinite. Wallace's interest in Cantor's work is already explicit in *Infinite Jest,* when he uses the word 'Cantorian' to describe the infinite possibilities inherent in tennis, and then explains in an endnote that Cantor was "the man who proved some infinities were bigger than other infinites" (82, 994n35). The counterintuitive discovery that there exist fundamentally different infinities fascinates Wallace. North's conception of a 'good infinity' opposed to a 'bad infinity'

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[1] P must satisfy certain requirements for this argument to hold, but I will not reproduce all the details of the construction here. In general, I present only as much of the math as seems necessary to illustrate the notion of 'different infinites.' For a more thorough presentation, see *Everything and More* and also Cantor's *Contributions*.

misses Wallace's point because it is the very notion of multiple infinities that Wallace celebrates, not one particular infinity over another. To Wallace, the threat is the stagnation math faced before Cantor argued for a rigorous theory of infinite sets, which theory created the context in which it became possible even to talk about different infinites.

More broadly, Wallace describes the structure of mathematical progress: "certain paradoxes give rise to conceptual advances that can handle those original paradoxes but in turn give rise to new paradoxes, which then generate further conceptual advances, and so on" (*Everything* 278). With paradox comes conflict, and Wallace interprets these conflicts as expressions of different underlying ideas of mathematical reality. "The modern wrangle over math's procedures," says Wallace, "is ultimately a dispute over the ontological status of math entities" (282). For Wallace, this ontology seems to be both a matter of interest and a mental hazard. He contemplates:

> The integers never stop; there is no end. Does the set of all integers compose a real ∞? Or are the integers themselves not really real but just abstractions; plus what exactly is a set, and are sets real or just conceptual devices, etc.? Or are maybe integers and/or sets only 'mathematically real' as opposed to really real, and what exactly is the difference, and might we want to grant ∞ a certain mathematical reality but not the other kind (assuming there's only one other kind)? And at what point do the questions get so abstract and the distinctions so fine and the cephalalgia so bad that we simply can't handle thinking about any of it anymore? (21)

Asking what it means for a math entity to be 'real' can be paralyzing, as outside of pure Platonism it admits of no satisfying final answer. But this question also leads to the productive paradoxes of mathematical dialectic; it is unanswerable, but it is the occasion for a deliverance of sorts. As math develops, each paradox forces new definitions and concepts, until the paradox is tamed and becomes something "many working mathematicians now don't worry too much about in the course of their day-to-day work" (284n91). In the place of paradox emerges a more nuanced concept that escapes the Vicious Circle of the initial contradiction.

The progress of mathematics would be irrelevant, however, were it to inform only the technicians' theory. When Wallace asks, "Do we really want to say that ∞ exists only in the way that unicorns do?" (21), it is essential that he frames the question in terms of what *we want*. Wallace considers the ontology of infinity on behalf of a community with something at stake. Wallace is not a mathematician, nor is his audience highly trained in math. Still he situates *Everything and More* in a conversation that is somehow invested in the reality of math. The question of what is real, Wallace implies, is urgent for all of us.

Wallace alludes to the urgency of this dialectic in *Infinite Jest*, suggesting that it may apply to structures more immediate than abstract math. The intense German Head Coach and Athletic Director of E.T.A., Gerhardt Schtitt, is a foil to almost every character in the novel. Wallace depicts the friendship between Schtitt and the other character who is unlike the general population of *Infinite Jest,* gentle, naïve middle-child Mario Incandenza. Mario is severely physically and mentally handicapped, so he is neither an athlete nor a student at E.T.A. He is, however, a budding filmmaker, and he helps Schtitt by filming all of E.T.A.'s players. Schtitt confides in Mario his frustration with the

American "myth of efficiency." It is "An efficiency of Euclid only: flat. […] The story that the shortest way between two places is the straight line" (80). Schtitt speaks here against a principle that drives almost every other character in the novel. Hal, for example, smokes his marijuana in a one-hitter because it has "the advantage of efficiency" (49). Although Wallace states that Schtitt knows as much math as a "Taiwanese kindergartener," the head coach does refute efficiency in the language of math (82). He knows enough to understand that Euclid represents flat space and straight lines, the easiest and most obvious ways of thinking geometry. Schtitt rejects movement in a straight line, asking "And how many two places are there without there is something in the way between them, if you go?" (81). Schtitt insists that real development is always against obstacles—gesturing toward a crude version of the dialectic active in mathematical development.

Wallace describes Schtitt as holding "certain permanent values which—yes, OK, granted—may, admittedly, have a whiff of proto-fascist potential about them, but which do, nevertheless (the values), anchor nicely the soul and course of a life" (82). The many equivocatory modifiers preceding the reluctant concession "fascist" reveal Wallace's discomfort with the complicated implications of these values. Schtitt believes that junior athletics is "about learning to sacrifice the hot narrow imperatives of the Self… to the larger imperatives of a team (OK, the State)" (82). For Schtitt, self-sacrifice is not the circular, secret reaffirmation of the self that recreational drug users practice. Circular sacrifice is about meeting that virtually unlimited need to give the self away, a need that belongs to the self ostensibly being given away. Schtitt advocates self-sacrifice that is about surrender, which meets a need outside of the self. It is truly sacrifice *of* the self, not

for the self. The danger in this philosophy is that the larger system, if chosen incorrectly, can be more dangerous than the self—the fascist State being exemplary. But in contemporary America, "the State is not a team or a code, but a sort of sloppy intersection of desires and fears, where the only public consensus a boy must surrender to is the acknowledged primacy of straight-line pursuing this flat and short-sighted idea of personal happiness" (83). Schtitt insists that we need something bigger than ourselves, telling Mario, "Any something. The *what*: this is more unimportant than that there is *something*" (83). Here Schtitt sounds similar to Wallace himself in a commencement speech to the Kenyon College class of 2005. Wallace tells the graduates, "In the day-to-day trenches of adult life, there is actually no such thing as atheism. There is no such thing as not worshipping. Everybody worships. The only choice we get is *what* to worship" ("David"). Wallace's discomfort with the fascist tones of Schtitt's thought arises from his desire to endorse them in a non-fascist way. Wallace even describes the students' opinion of Schtitt in terms that he must realize apply well to *Infinite Jest* itself: "probably bats, [and] w/o doubt mind-looseningly discursive" (81). Schtitt represents analytic thought that moves erratically towards some form of devotion, and he appears heroic in his rejection of "the happy pleasure of the person alone" (83). He acknowledges a need for the conflicts that move a life forward, for the challenges that pull one out of comfortable paralysis.

Schtitt also resembles Wallace in his taste for mathematical language. Without any formal knowledge of math, he still sees it underlying the aesthetics of tennis:

> Schtitt approached competitive tennis more like a pure mathematician than a technician… knew that real tennis was really about not the blend of statistical

> order and expansive potential that the game's technicians revered, but in fact the opposite—*not*-order, *limit*, the places where things broke down, fragmented into beauty. (81)

There is no irony when Schtitt points toward a mathematical interpretation of tennis; this is the interpretation Wallace himself favors in his essays.[2] He relates it to his commitment to dialectic, signaling to a model of sacrifice that appears more powerful than the addict's circular short circuit. One day, Schtitt expounds his beliefs to Mario over ice cream cones:

> The true opponent, the enfolding boundary, is the player himself… You seek to vanquish and transcend the limited self whose limits make the game possible in the first place… junior athletics is but one facet of the real gem: life's endless war against the self you cannot live without. (84)

Mario listens and wonders, "What's the difference between tennis and suicide, life and death, the game and its own end?" (84). Schtitt answers "Not different… except the chance to play" (84), then erupts with laughter. Mario also laughs, spilling some of ice cream. This warm moment of friendship emphasizes the sincerity of the scene. Despite the comedy of Schtitt's clumsy English and parodic intensity as a coach, Wallace appears to endorse his philosophy, a dialectic philosophy that values discipline and sacrifice over immediate happiness. Schtitt's struggle against the self stands in opposition to Hal's secrecy and the general solipsism it represents. But Schtitt is a flat character; he is a source of jokes and a mouthpiece for important ideas, but it is not his fate that concerns the novel.

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[2] See in particular "Derivative Sport in Tornado Alley" in the collection *A Supposedly Fun Thing I'll Never Do Again.*

Hal is the character we first invest in. He narrates the captivating first scene, in which we see that he has fallen into a dark solipsism. He sits quietly in an office for a college interview, while E.T.A. staff speak on his behalf. The University deans become increasingly frustrated that Hal does not speak for himself, until finally Hal feels forced to say something:

> My application's not bought… I am not just a boy who plays tennis. I have an intricate history. Experiences and feelings. I'm complex. I *read*… I feel and believe. I have opinions. Some of them are interesting. I could, if you'd let me, talk and talk. Let's talk about anything. (12)

He goes on to rattle off his specific thoughts about several major philosophers—yet something is wrong with Hal's impassioned speech. The deans respond in horror and struggle to restrain him. It becomes clear that Hal is merely imagining this moment of articulate speech. In reality, he cannot speak intelligibly, cannot even control his own body when he tries to communicate. His solipsism is not skepticism of the world's existence, but rather an inability to engage the world—in a sense it is skepticism of the world's relevance to the self. As desperately as Hal wants to communicate, his motivation is to demonstrate his own ideas, not to learn anything from the world.

This first scene is chronologically the last in the novel, and still a year later than the next latest. The reader spends the rest of the book wondering how Hal ends up in such a state. Wallace offers hints but no definite answer. One of the ideas Hal announces, incomprehensible to the world outside him, is "I believe, with Hegel, that transcendence is absorption" (12). But Hal has emphatically *not* transcended the self. Rather he is entirely lost to it. *Infinite Jest* goes on to chronicle Hal's failure to transcend solipsism.

Abstraction is the crucial point of potential for Wallace. It can lead to productive paradox as in the dialectic development of math, or it can spiral into a Vicious Circle. Wallace creates an absurd theater of abstraction in the game Eschaton, a cult favorite at E.T.A. that captures kids "in the very earliest stages of puberty and really abstract-capable thought" (321). Eschaton takes four adjacent tennis courts for a map of the world and 400 old tennis balls for nuclear warheads, which the 'game-master' distributes unevenly among about ten players according to an algorithm. As the name suggests, the game involves eventual nuclear apocalypse as players lob tennis ball warheads at each other's cities on the tennis court map of the world. However, the core of the game is not gleeful bombing but cautious diplomacy, conducted according to the simulations and statistics that a sophisticated computer program generates before and during the game. The Eschaton episode subjects the reader to a dozen pages of heavily jargonized description of a rather tedious game before things start to unravel in comic payoff. Wallace notes that if adults were to watch, they would "find an actual game of Eschaton strangely subdued, almost narcotized-looking," as the "devotees become, on court, almost parodically adult" (327). While the young players become parodic adults, the older kids watching the game become parodically geriatric, not just narcotized-looking but actually narcotized by the joint they pass around. Again, Wallace is ambivalent about Hal as a narcotized subject. Hal is a perceptive observer, but when he locates the essential question in the game, he fails to absorb its paradox and act.

Eschaton constructs a complete abstract world. Wallace unsubtly names the character Otis P. Lord (often called just O. Lord) who "more or less [has] to play God"—but he is God of a virtual world (328). Before he declares the significance of any event, he must

consult the computer that runs the game and then announce its statistical analysis of the players' moves. The major figures and quantities in the game have only the abbreviated, all-caps labels of the program's syntax; The game's favorable points are called "INDDIR,"—short for "Infliction of Death, Destruction, and Incapacitation of Response." In this case, abbreviation seems natural, and similarly for the negative points, "SUFDDIR." But the kids also adopt the computer's codes for the players, for example "REDCHI" instead of just China (322-324). By speaking in defamiliarizing code, they accentuate the game's virtuality. When they fail to defer to the computer in other ways, the game begins to degenerate. While Lord runs a proposed treaty through the computer program to determine whether the agreement two players have reached is plausible in the game's virtual world, a third player, REDCHI, lobs a warhead at the T-shirt representing INDPAK's Karachi on the tennis court map. Lord does not see the warhead land, and controversy ensues:

> It's an uneasy moment: a dispute such as this would never occur in the real God's real world... But God here is played by Otis P. Lord, and Lord is number-crunching so fiendishly… that he can't even pretend to have seen where REDCHI's strike against INDPAK landed w/ respect to Karachi's T-shirt… and in his lapse of omniscience cannot see how he's supposed to allocate the relevant INDDIR- and SUFDDIR-points. (333)

Eschaton's virtual world draws its God into a matrix of data that obscures his vision of his own domain. Only in a virtual world can there be a dispute about whether a warhead hit a given city—in a simulated war, destruction is not real damage, it is just one possible state for the system.

Lord tries to establish the effect of the Karachi warhead, which requires him to calculate fallout conditions based on weather and geography in the simulated world. While he is running the program, it begins to snow. Some players suggest that the snow would affect the spread of radioactive fallout, and thus Lord needs to adjust the computations. But is this actual snow part of Eschaton's virtual world? Michael Pemulis, the school's all-time greatest Eschaton player, now retired watching from the sidelines, is furious at this suggestion: "It's snowing on the goddamn *map*, not the *territory*, you *dick*!" (333). The map is both a real, physically present artifact and an abstract rendering of imagined spaces in the virtual reality of the game. The snow controversy exposes the ambiguous relation between different levels of abstraction, different realities. Pemulis insists that the snow is not assigned to map anything in the virtual world, so it cannot be real in that virtual world. But the disastrous outcome of this game proves that the disorder of the real world can violently invade the ordered abstraction of the game. Pemulis insists, "Eschaton gentlemen is about logic and axiom and mathematical probity and discipline and verity and *order*. You do not get points for hitting anybody real. Only the gear that *maps* what's real" (338). By "anybody real," he means the real players who stand on the court. But when he says, "the gear that *maps* what's real," then "real" means precisely *un*real, since the gear is materially real. The virtual world of the game becomes 'real.' The very real tennis gear is then in this context not 'real' because it functions as a representation.

Hal watches as Eschaton unfolds, uncharacteristically getting high socially. He steps out of his budding solipsism, enjoying his drug communally rather than secretly, temporarily breaking the circle of his habit. He locates a point of interest in a game that

never interested him much as a kid. Hal "finds the real-snow/unreal-snow snag in the Eschaton extremely abstract but somehow way more interesting than the Eschaton itself" (335). The snag arises out of the unstable difference between reality and representation. Underlying this ambiguity is the impossibility of fixing one level as 'real.' As in the mathematics that Pemulis cites as Eschaton's foundation, reality is an elusive concept. The distinction between being real and mapping something real relates to the idea Wallace ponders in *Everything and More*: maybe there are multiple types of 'real'—and maybe none of them is privileged. This difficulty fascinates Wallace, but he is also nervous about considering it too seriously. He asks these questions through a Hal paralyzed by marijuana, who struggles unproductively with the various levels of reality he perceives. His struggle suggests that maybe these questions lack definite answers. Wallace declares in *Everything and More*, "The ability to halt a line of abstract thinking once you see it has no end is part of what usually distinguishes sane, functional people… from the unhinged" (17). The appropriate response would be that of mathematics: to exploit the ontological tension in order to arrive at a new, more useful conception of 'real.' Where math uses paradox to advance, Hal loses himself in circular thinking, turning infinitely inward.

In *Infinite Jest*, the competing 'kinds of real' lead not to development but to comic disaster. The young Eschaton players turn violent as they argue, and their game degenerates into a brawl that destroys the computer and seriously injures several kids. Only one of the older kids, Jim Troeltsch, feels any concern about the dangerous mess they are watching. He prods the others to react, but they sit paralyzed by the horrifically entertaining scene in front of them:

> Hal reflects that he does feel a certain sort of intense anxiety, but can't sort through the almost infinite-seeming implications of what Troeltsch is saying fast enough to determine whether the anxiety is over something about what he's seeing or something in connection between what Troeltsch is saying and the degree to which he's absorbed in what's going on outside the fence, which is a degenerative chaos so complex in its disorder that it's hard to tell whether it seems choreographed or simply chaotically disordered. LaMont Chu is throwing up into the Indian Ocean (341).

This last sentence eschews all previous deliberation about levels of abstraction and accepts the virtuality of the game as reality, stating that LaMont Chu is literally vomiting into the territory mapped by the courts. But Hal has discovered a second question beneath that of the ontology of the map. Is the scene ordered or chaotic? Wallace has spent several page-length paragraphs boring us with the structure of the game, but in his narcotized stupor, Hal perceives that that structure might be breaking; it might be possible to transcend. We recall Schtitt's theory of tennis, which celebrates precisely the moments when order fails. Were order stable, the boy LaMont would not exist at the same level of abstraction as the Indian Ocean; he would need to vomit onto a tennis court. But the lines between 'kinds of real' fall apart, and the map and territory collide. Their collision is comic and strangely beautiful despite causing real harm.

Wallace's language describing Eschaton—"the parabaloid transcontinental flight of a liquid-fuel strategic delivery vehicle closely resembles a topspin lob" (324)—recalls the poetry of the parabola and the rocket in *Gravity's Rainbow*, but links it to tennis. Wallace's diction nods to Pynchon: Lord sprints, "trying to save hardware that's now at

the top of its rainbow's arc" (342). A computer, the computer that holds Eschaton and is thus the symbol of abstraction, takes the place of Pynchon's Rocket 000000. Like the rocket in *Gravity's Rainbow*, abstraction is a dangerous thing with a religious sort of beauty. The rocket is the twentieth century symbol of Eschaton—horrifically potent but somehow gorgeous to Pynchon's characters in its devastation. In *Gravity's Rainbow*, characters pursue the rocket to their own annihilation. Rocketman seems simply to dissolve at the end of his quest; his world is left to wonder if he was real. The twenty-first century sees the rise of the posthumanist symbol of destruction, the computer. It threatens to annihilate reality by converting it to simulation and information. It would be useless to cry out against this symbol; it already arcs parabolically above us. The difference is that the violence of the computer is virtual. In *Infinite Jest*, Hal is annihilated as an actor, but preserved as an observer. The world exists for Hal only as virtual reality entertainment, not as a real context in which he can live as a human subject.

In Eschaton, the distinction between levels of abstraction and reality collapses, sending Lord's head flying through the computer screen. Hal can only watch; he does not intervene to prevent the younger students he supposedly mentors from injuring themselves over an abstract argument. Order fragments into comic beauty, and in the confrontation between different 'types of real' there is a potential for transcendence, but it goes unrealized. The paradox of real/unreal snow leads Hal not to a personal conceptual advance, but to internal circular thinking and a catastrophe of external violence.

Giles finds Wallace's thought centered around the "interface between the human and the machine, between spirit and technology" which leads to "intriguing dialectics between a discourse of dehumanization, which defamiliarizes the human body and

represents it cartographically, and a nostalgia for more traditional forms of identity" (335). It is indeed a dialectical confrontation, but the dialectic is not always actualized. In Wallace's first novel, *The Broom of the System*, a character says "You can't think of your own act of thinking-of, any more than a blade can cut itself, right? Unless you're the guy who's significantly lowering Nervous Roy Keller's quality of life [i.e. Hegel, the subject of a paper Roy is finding very difficult to write]" (247). To Wallace, Hegelian dialectic is an elusive ideal. Mathematics is indispensible because in its history we see dialectic achieved. In real life, too much reflection, attempting to cut through the inherent, internal paradoxes of the self, is an endless circle. Wallace sees math as a site of realized transcendence. It has absorbed the disruptive contradictions of infinity; its definitions of 'real' have developed to be more stable than ever, though never finally fixed. Were Hal to absorb the impasse of the dissolving 'kinds of real,' he could transcend their contradictions and intervene, preventing the young combatants from destroying themselves on behalf of underdeveloped abstract concepts. Instead he sits still. Physically he is with his friends but psychologically he is stoned in utter solitude, as always. The Eschaton game is Hal's ultimate missed opportunity, an unrealized parallel to the great triumph of mathematics.

Infinite Jest is then a novel about missed opportunities and unrealized potential. The retrospective relevance of this theme to Wallace's own story is clear and painful. But the picture of the unrealized in *Infinite Jest* is a source of hope as well. At what can only be the infancy of the posthumanist age, Wallace offers us an outline of how we might absorb and thus transcend the collapsing concepts and definitions of a suddenly obsolete reality. To borrow Giles' words, Wallace enacts a "humanization of the digital sensibility" (336).

Specifically in mathematics he finds a model for what it might mean to live in the new age of virtuality without living inwardly. It is, as Wallace once told a crowd of new college graduates and their families, "unimaginably hard to do this, to stay conscious and alive, day in and day out."

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