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Playing with Codes:
Steve Tomasula's *Vas, an Opera in Flatland*

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**Playing with Codes:
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Cristina Iuli

I

Vas, an Opera in Flatland (2002), is a book written and conceived by Steve Tomasula and visually composed as a collaborative project between the author and Steven Farrell, a graphic artist and typesetting professor. This is an engaging and polysemic narrative in which literature, visual art, design, specialized scientific and disciplinary knowledge converge giving rise to questions about the status, function, and the genesis of the literary object and the specific form of knowledge it generates, its relation with iconicity, the identity and adaptability of the novel as a form of art and a cognitive device in the post-biological, media-ubiquitous, and multiply coded environment we inhabit.

The cover description calls *Vas* an 'imagetext novel printed in the colors of flesh and blood' (plus ink, we must add), and aptly sums it up as the story of one family in a post-biological future, and, ultimately, as 'the story of finding one's identity within the double helix of language and lineage'. These descriptors rightly indicate that the novel's main thematic engagement is the unstable conception of 'the human' generated within disciplinary discourses, at the interface of human functions and prosthetic technologies, and through social and institutional practices in time and across cultures. And yet, they do not capture the critical force with which the novel undermines not only specific configurations of the human, but the humanist prejudice inscribed in the culturally available and institutionally assumed accounts of 'man' the novel displays. Indeed, as I hope to demonstrate, this novel resists the naturalization of the knowing subject as the foundation of knowledge assumed by disciplinary paradigms and inscribed in the protocols and procedures by means of which knowledge is largely produced, reproduced and disseminated, in spite of the displacements to which technoscience has subjected man from its epistemological epicentrality. What the novel suggests with extraordinary strength is that in the hypercomplex environment we inhabit, the humanist

distinction between the natural, the human, and the technological has become both epistemologically untenable and politically ineffective. As a result, our notions of identity, knowing, and the self are effects caused by the merging of human and radically a-human forces, pointing to the fact that our future as a species depends on our ability to coordinate our complex 'human' systems with the hybrid eco-systems in which we are embedded.

In this paper I will argue that *Vas* delivers an effective critique of humanism from the vantage point of literature by exposing the inconsistencies and assumptions that narratively restrictive definitions of humanity rely on. The main rhetorical strategy the novel employs is appropriative and deconstructive: it retrieves discourses and figurations generated by myths, historical records, statistics, genetic charts, and advertisements for transgenic manipulations, and then reactivates them, turning this material into a literary and artistic medium. The novel incorporates themes and structures from genetics and genomics and exposes their instrumental role in transgenic business as well as their impact on the redefinition of the body and the self. It does so in order to enlist readers in its larger political project aimed at rethinking the human beyond its humanist containment. In its attempt to bind technical innovations in artistic and communication media to the critique of the institution of art and literature, and in its tendency to extend such a critique to larger social practices, the novel self-consciously recuperates the critical impulse shared by all avant-garde aesthetics, regardless of the singularity of each project and of its specific targets and objects.¹

II

Steve Tomausla's *Vas* is inspired by and partly rewrites Edwin Abbott's 1882 novel, *Flatland: A Romance of Many Dimensions*, a cult short novel in the form of a memoir that tells the story of a character who lives in a two-dimensional world peopled by two dimensional geometric figures. Having been initiated into the mysteries of three dimensions by virtue of an unexpected voyage into Spaceland, the character returns to Flatland to educate his fellow Flatlanders to the existence of multi-dimensionality, and to inspire in them a desire for true knowledge. Sentenced to prison, he writes his memoir in the hope of stirring future generations to rebel against received and restrictive accounts of truth. *Flatland* mixes epistemological questions and scientific explanations in the register of the comedic, of the sarcastic and the fantastic. Following the example of *Flatland*, Tomausla also writes a story that mixes

scientific and pseudoscientific information in a sort of philosophical tale with strongly sarcastic overtones. He names the characters of *Vas* after their progenitors in Abbot's novel: Square, the protagonist and narrative voice, and Circle, his wife, and adds Oval, their daughter, the family cat, 'cat', and Circle's mother, 'Mother'. Both Abbot's *Flatland* and Tomasula's *Vas: an Opera in Flatland* are meta-texts insofar as they self-reflexively assume their own narrative strategies as narrative materials, but unlike what happens in Abbot's *jeu d'esprit*, the textual and visual density of Tomasula's *Vas* never blends into a solid, main, straightforward, linear plot. To the contrary, aphorisms, short stories, quotations, figures, images, signs, and comics sequences function in Tomasula's image-text to create only temporary, sudden, and partial aggregations of meaning, which then disperse again into a highly visual prose that seems designed to resist reduction to synopsis, as in an act of aesthetic rebellion against simplification.

The novel's main plot—if we are to identify one—is the story of Square's vasectomy, expanding on the thoughts that accompany the protagonist along his path toward his final decision. But *Vas* can be read in at least three ways. First, as we have anticipated, as the story of a vasectomy—what 'Vas' stands for—the 'procedure' Square is pushed by his wife, Circle, to undergo as the final act of a series of reproductive failures the couple experiences, so that they can enjoy sex without the complications of selective evolutionary events, whether natural, such as a miscarriage, or manipulated, such as an abortion. Abortion is another kind of 'procedure' the text uses to figure the link between evolution and medical technologies. It is the procedure Circle underwent in the past (on top of several attempts at assisted pregnancy) in order to interrupt the '75% chances of unlucky alleles'² her amniocentesis determined. The novel opens with Square at the hospital, moments after signing the form that authorizes his surgical castration, and ends with Square on the surgical table.

Alternatively, the novel can be read as the story of a nuclear family and its social and cultural transformation, or evolution, across three generations. Indeed, it can be read as a narrative of cultural evolution from biological to post-biological life and identity, and from a humanist to a post-humanist logic. In this light, the investment Mother has on the opera as a vehicle of courtship conducive to romantic love, coupling, and reproduction positions her as the figure for an archaic, pre-transgenic way of imagining human growth and evolution, bringing it back to the socio-cultural-emotional cluster of the family, and juxtaposing it to reproduction as a technical, bureaucratic function barred of all emotional value. As Mother exclaims, nudging Square to take Circle to the Opera in

the hope of rekindling between the two a passion and an intimacy that might be conducive to conceive another baby: 'You can't neglect romance. Otherwise, you turn into some kind of bureaucrat that balances a family like it's a ledger. You take her to the Opera,' she said, patting his arm. 'It worked once, it'll work again'.³ Finally, the novel can be read as the story of a narrative act, itself a metaphor for the convergence of the different notions of code that the novel explores: code as source code, as operative instructions for executing a program, and code as a series of descriptive statements generated by an executable program. Square's story—'A Pedestrian Story'—incorporated in a separate folder within *Vas* is such a narrative act. It is the story Square has on his lap in the opening scene of the novel, but which he will not disclose to readers until halfway through the narrative. It is the disembodied story Square has 'written into existence. [...] It is—dead-skin white—papier sans corpuscles—nothing more'.⁴

Despite its scant plot, *Vas* is a thematically ambitious novel, as it acknowledges 'in a simple story, as they say in literature',⁵ nothing less than a whole history of evolution and its instrumental uses in cultural and political institutions, exemplified in the novel by: the hospital (as medical procedures), the state (as birth-control procedures consonant with mainstream policies), the museum (The Museum of Natural History, Hall of Man), and the FAIR with its Family competition eventually evolving into the Miss America competition. All these are amply mixed with charts, graphics, forms, studies, quotations, and biometric lists, which interrupt at all points the reading process as well as its semantic and grammatical consistency, and force interpretive categories out of the metaphorical flatness that binds cognition to two-dimensionality or, metaphorically, to the self-evidence of conventional truth.⁶ Linearity and flatness, as the novels points out in different passages, are crucial operators in the construction of powerful, self-evident narratives about the nature of 'man' and its position in the evolutionary chain.

Tomasula's *Vas* takes as its governing principle the transformation of the living, and exploits—from a literary point of view—the ambivalent notion of code as both a 'rule for transforming symbols into other symbols' and as 'sequence of executable instructions'.⁷ Magnifying this ambivalence, particularly as it applies to DNA code, the novel posits writing life into existence and writing existence into literature, facts, and music as similar operations, as manipulations of living and non-living material through the editing of their systems specific codes: genetic, digital, musical, alphanumeric. The formal and semantic manipulation of codes is presented in the novel as a strategy to alter meaning, and thus to demonstrate how transgenic science affects not only living

beings and human bodies, but also the human imagination and its self-description.

The novel presents a polymorphic structure that defies synopsis and simultaneously calls into question linearity and flatness as crucial logical coordinates securing narrative consistency and development. The story *Vas* tells is simple, with almost no action and minimal character and narrative development. The plot, however, is expansive, because it is spatially and graphically organized on the double register of the visual and the literal, both at work simultaneously, and both simultaneously engaging several, distinct materials on the same page. The multiple narrative entries, interrupted and typographically separated by the use of different fonts, formats, font styles, by the spatial organization of the written and visual material, and by recursion to unexpected images, generate a multi-dialogical, multi-layered visual prose that sustains multiple readings and disrupts both the time-space linearity implicit in the reading process and the flat convergence of inscription and story on the page. Story and plot never simply correspond to any of the discrete typographic patterns cohabiting the page, nor are they synthesized by the visual forms textually displayed. To the contrary, the novel magnifies all along the difference between 'the text, which presents significations' and demands time, and the image, that 'presents forms'⁸ and operates synthetically.⁹ It then uses this difference between text and image to deconstruct linearity and flatness: linearity as a principle of narrative organization ultimately dependent on causal logic and consequently presupposing a unidimensional and unidirectional hermeneutic; flatness as a figure for the epistemological blind spots that secure knowledge by grounding it to historically limited coordinates. The story does not simply unfold on the page, from beginning to end, but demands a multiple, simultaneous, and recursive engagement with the mutually irreducible visual and verbal elements it organizes in its deconstructive effort. This text exemplifies what philosopher Jean-Luc Nancy calls the 'slit', a gap, an aporia constitutive of meaning and iterated by the oscillations between text and image:

What Image shows, Text de-monstrates. It withdraws it in justifying it. What Text exposes, Image posits and deposits. What Image configures, Text disfigures. What the latter envisages, the former faces down [*dévisage*]. What one paints, the other depicts. But precisely that, their common cause and their common thing [*chose*], oscillates distinctly between the two in a paper-thin space: recto the text, verso the image, or vice (image)-versa (text).¹⁰

The verbal-visual signs on the printed page organize the narrative content of the novel, rather than being themselves treated as 'content' or as 'illustration' of verbal content. They operate by deconstruction: verbal signs and images are magnified as two irreducible domains of meaning with the verbal operating through extended chronological sequences and on a temporalized hermeneutics, and the image operating through synthetic relations foreclosed to verbal representation. The convergence of verbal and the visual on the same page generates a dissemination of aphorisms and visual fragments that do not coalesce into a consistent narrative, nor illustrate and complement each other, but suggest possibilities of meaning above or below their immediate, flat presence.

Under such circumstances, the viewer/reader is forced to activate a sort of selective hermeneutics navigating the image-text according to a recombinant logic, assembling, disassembling, and reassembling a few, basic elements derived from the analogy the novel establishes between writing DNA code sequences and writing strings of words, numbers, and musical notations, and oscillating between written aphorism and visual fragments. The hermeneutic instability thus produced runs counter linearity, which, as Square reflects, secures narrative consistency in evolutionary and genetic history, by articulating: 'a seamless story where gaps were bridged by a timeline as straight as the baseboards, sons and three-point perspective supplying the continuity of nuclear family/hearth/God, each a faded world without end where only the products changed'.¹¹ Linearity is also ingrained in the idea of progress, where it works as a powerful force of naturalization that labors to recontain all kinds of transformation into the concept of unidirectional, steady, regular change: 'Progress being like any linear plot', but 'Linear plots not being the only model for change, of course'.¹² The problem though, and the spot at which ideas turn into ideologies, is that 'Progress in science [is] as familiar as it is to us—a pattern',¹³ and 'We—the pattern making monkey—just assume it—take it for nature, even'.¹⁴ Where evolutionary change is taken into account, long-scale transformations do not necessarily operate in a linear way. For instance, differences which natural history has long considered functional to variation are considered deformities under the paradigmatic shift from old science to new science, from evolutionary biology to genomics: 'differences in mollusks were seen as variation not deformity',¹⁵ and, unlike humans, 'often mollusks were even given a choice'.¹⁶ But, as the text comments in a series of lines dropped across several pages with an overall aphoristic effect that introduce the political edge of the novel, the

distinction between variation and deformity is tantamount to 'a matter of discriminating':

Between good science and bad
And old science and new
And new science and politics.
And science and politicians from organs of their century.¹⁷

The same, powerful force of naturalization proper to the idea of scientific progress works to turn the unfamiliar familiar, reintegrating machines, replacements, and non-organic body parts into bodily enhancements, thus feeding the fantasy of a steady human improvement and of a fully integrated, enhanced, human nature specially placed on the evolutionary chain. As the several surgical procedures (implants) referenced in the novel suggest, though, what counts as 'naturally' human is all but established, and humans turn out to be cyborgs more frequently than we like to notice:

How odd, thought Square, to realize that your mother-in-law is a cyborg. [...] 'She hadn't always been a cyborg. Her body had gone through most of its useful life without any machine parts. [...] Then, Oh happy day! After the operation, getting her blood up, having it drawn and replaced via an IV or any machine was as easy as plugging an extension cord into an outlet. And even though she was now part machine, it had been so natural. So welcome.'¹⁸

The naturalization of corporeal and genetic enhancements is further emphasized by the many examples of U.S. Patents scattered throughout the text, which magnify the collapse of science and corporate interests in the reification of all forms of life under the rubric of the marketable, the usable, and the fashionable: 'rewriting your body seemed natural, suddenly'.¹⁹ The latter being an ironic comment on the convergence of the scientific and the commonsensical, and a reminder that science progresses through 'failed theories'²⁰ no less than fashions: 'Surely there are fashions in thought'.²¹

Flatness, the twin concept of linearity in *Vas*, is evoked as a figuration of cognitive and epistemological limitation, as it forecloses perspective and the awareness of alternative perspectives. It reduces complexity to the cognitive boundaries of contingent perception, to ideological, cultural, and material blind spots. The novel quotes and recirculates several passages from Abbott's *Flatland* pointing out to the epistemological

claustrophobia of self-assured knowledge: **'How I Tried in Vain to Imagine a Dimension Not My Own'**,²² and seems to give voice to the human drive for knowledge beyond the self-assurance conventional interpretations offer. This is why *Vas* engages in a thorough critique of lamentable cultural practices and of questionable scientific 'truths', often delivered as ironic comments on institutional and discursive practices aimed at excluding groups of people from full admission into human society, as one of the narrative voices suggests early in the novel: 'The way the men who wrote "We the People" forgot to include Hottentots'.²³ At other times, entire fields of knowledge and their self-legitimizing protocols are exposed as fallacious, if not thoroughly ideological by the use of ironic comments that expose the gap between historical evidence and old scientific 'truths': 'Statistics are a wonderful tool to reveal untold stories. [...] Likewise, by reading court convictions it can be concluded that no man in America ever raped a black woman before 1957'.²⁴

But what is more important from a literary vantage point, I would argue, is the formal strategy the novel generates in order to perform its critique both phenomenologically and rhetorically. *Vas* magnifies in its form and its poetic execution the relation between scientific 'facts', their disciplinary and affective conditions of transmission and reproducibility (for instance, by force of cultural habits, indoctrination, or—simply—institutional desirability), and the communicative codes structuring their narrative sequencing. Thus, the emphasis on 'code' and 'coding', on which so many contemporary figurations of the post-human imagination depend, is crucial, since code here operates as the narrative master trope organizing the verbal-visual structure of the text as well as its formal, conceptual, and cognitive relations. The visual does not fulfil an illustrative function in the novel, but develops and carries on suggestions only partially related to the printed words on the page. Arising from the confusion, partial overlapping, and juxtaposition of different kinds of code—digital, genetic, alphanumeric, musical—the architectural structure of the narrative appears as a literary rendering of a language that tries hard to be both descriptive and executive, that incorporates the transcoding and translations of digital information, machine language, and expert knowledge into poetic form and, simultaneously, shapes up—from its literary vantage point—its own syntactical and aesthetic rules. As Tomasula declared in an interview,

From the start I conceived of VAS as a word-image text, and so wrote it with that in mind, using images to carry the narrative in places, etc. For example, rather than going into an explanation of faulty assumptions in science, one point just presents an image from 19th century

directions on how to measure the volume of a skull to determine intelligence. From the start I used the double-helix as the metaphor for how the book would be read, how its text pieces would be organized. For example, if you look at the novel, you'll see that the lines were broken in many passages so that they could be read (or recombined) in several ways: you can read straight down the page, for instance, or read across the page. Different narratives emerge depending on how the novel is read; and of course the images often move the narrative forward, so the space of the page, the images in it, are very much part of the narrative. It's in the DNA.²⁵

The literary simulation of an operative language—such as an executable code, or DNA, for instance—produces disorientation at the visual, verbal, semantic, and syntactic levels, disrupting the linearity of the hermeneutic process and the interpretative security of conventional reading habits. *Vas* aspires to create both a world and its instructions manual, straining through a highly formalized language, and to attain fresh possibilities of signification bypassing any easy recuperation of the cognitive functions notoriously associated with humanism: linearity, closure, and the illustrative role of the visual sign. In this respect, I argue, it would be reductive to align *Vas* to a fashionable trend of post-human narratives which focus on various figurations of the cyborg, of technology, and of information, because its critical horizon is placed elsewhere. By virtue of its conceptual and formal commitment to the critique of humanist epistemology, *Vas* should be received as an example of literary investigation into the metaphysics of humanism. The novel's own verbal and figural structure labours toward a radical decentering of the figure of 'man' from its long history of philosophical centrality and ontological security. It delivers instead a version of the human as the secondary effect of the technical, scientific, discursive, and economic procedures in which the human is imbricated but that it does not fully control. This creative decentering ends up compromising the relevance and meaningfulness of conventional hermeneutics and reading habits, as dramatized by the novel's material form. For instance, this occurs when the text declares in one of its many voices, right before a 26-page sequence of DNA code, that 'the code for the gene SHGC-110205' is 'common knowledge' for Flatlanders, but only to return to it 13 pages later with the comment, 'Of course, you would have to know how to read the patterns'. 'Which isn't easy'. 'Even for experienced readers'.²⁶

Structurally and formally, then, the disruption of flatness and linearity converge in the larger project of this novel, which also tests the viability of this work (and by extension of the novel as a narrative form) to the current debate about the status of literary knowledge vis-à-vis other disciplinary domains, and aligns its critical contribution to the demystifying task taken up by Martin Heidegger in his famous 'Letter on Humanism':

However different these forms of humanism may be in purpose and in principle, in the mode and means of their respective realizations, and in the form of their teaching, they nonetheless all agree in this, that the *humanitas* of *homo humanus* is determined with regard to an already established interpretation of nature, history, world, and the ground of the world, that is, of beings as a whole.²⁷

In this novel, scientific registers do not function as sources of established interpretations of 'nature, history, world, and the ground of the world', but as reservoirs of faulty assumptions about man and its role in the universe. The conflict initiated by the contrasting notions of 'man and its role in the universe' trigger transformative poetics which aim at renewing the literary project, its hermeneutics, its formal composition and its social function. Therefore, we can say that in the 'mode and means' of its 'realization' and 'teaching' this novel is a posthumanist one.

Vas also addresses three essentials of the epistemology of the literary work: first, the relation between different representational strategies and their effects on the production of knowledge; second, the relation between phenomenologically different codes—alphabetic, genetic, pictorial, musical, cultural—and the potential for convergence of their respective media; and, third, the relation between literary knowledge and knowledge in general. In this respect, *Vas* is more than just an interesting example of experimental visual fiction. It is a self-conscious statement about the status and the function of the literary work and the specific representational strategies it mobilizes in the cultural, affective, and technical construction of the human in the current historical moment marked by a crucial crisis of humanism. The spurious image-text that constitutes the experimental edge of this narrative embeds a self-conscious question about the specificity of literature as a vector of epistemological conservation or innovation, of its function as a means of reproduction of, or of resistance to, a humanist logic that may still function because of its powerful capacity for ideological recontainment. This is particularly evident once we have realized that conventional

criteria of distinction between art and nature, and art and communication have become moot (or mute) as it happens with the nostalgic distinction between the natural and the artificial. While the novel foregrounds the awareness that these criteria are no longer functional in order to understand the reconfigurations of the human in the complex technosystems and ecosystem in which we are enmeshed, its figurative and narrative structure does not necessarily secure the success of its critical project.²⁸ After all, as the novel notational apparatus claims, if postmodernism follows the command to 'rearrange the body',²⁹ it also follows that 'In fact, when it comes to representations of humans, we live in a period of hyperinflation'³⁰ which risks flattening out all meaningful difference into indifference, making variation and differentiation nothing else than gadgets on the menu of composable bodies, just another example of free choice in the land of 'hundreds of salad dressings'.³¹ Thus, if bodies are always in excess of aesthetic, cultural, political, technical and even scientific redefinition, their excess is available for appropriation, and—the novel seems to suggest—they are the battleground in which our future as a species among species is going to be fought. The idea that 'the personal is political' returns here uncannily, with the suggestion that the political is located not just at the level of 'the human person' or 'the subject', but is resituated both below and above the personal, on a scale that can only be a-human even as it engages in the definition of the human. In this light, how we connect the dots between the surplus of corporeal signification and describe ourselves as a living species on the chain of being emerges as the crucial political project of this novel.

III

Vas explores how technology and science have affected narrativity at large, how narrativity is embedded in the production of scientific discourse, and how the literary object in particular has been affected by science and technology. It does so by transvaluating scientific insights and expert knowledge into formal devices: the concepts, structures, and vocabularies of life sciences, informatics, history, and bureaucracy merge in its prose and become the literary and visual components of its poetic inquiry. In so doing, *Vas* certainly exhibits an 'avant-garde consciousness'—if by the term 'avant-garde', for all its complexities and problematic historical and aesthetic contradictions, we accept the minimal description Hal Foster has given of it as 'a lost model of art made to displace customary ways of working'.³² Such a disposition places *Vas* on the ideal experimental continuum that has traversed, first, the historical avant-garde in the first two decades of the twentieth century, then, the neo-avant garde of the 50s and 60s, and finally aligned itself to what we could perhaps call the neo-neo avant-garde of

today's digital and biotech art. This is what the poet critic Frederic Block calls, in reference to digital poetics, a "'new" avant-garde consciousness, ignited with current technical achievements and the connected artistic experiments'.³³

The focus on the avant-garde as—at least partially—the outcome of the relation between technical achievements and artistic experimentation casts an ambiguous light on *Vas*, and destabilizes our interpretive security in situating it along the critical historical phylum and in evaluating its status as exemplary of an avant-or rear-garde stance. Indeed, the conceptual and poetic impulse of *Vas* qualifies it as an avant-garde work, since—as we have seen—the novel foregrounds scientific and technological questions in a non-reductive way by addressing the relation between technical forms of coding, imagination, and communication, particularly by focusing on the nexus between how self and body, and hence memory, identity, social worlds, and cultural orders are conceptualized and represented in literature. However, as a printed book that emphasizes the technical versatility of an old technology—printing and typesetting—and an old medium, *Vas* belongs to a techno-cultural milieu that is passé, and speaks of an 'archaic' literary environment and its conventional functions (authorship, audience, reading epistemology etc.), rather than celebrate the creative possibilities that digital and scientific outbreaks technologies have inaugurated for literature.³⁴

Indeed, the uncertain historical and conceptual terrain on which this literary artifact moves, I would argue, is precisely what makes it stand out as an expression of literary avant-garde, for it engages the technical and scientific outbreaks of the contemporary world, their languages, and their ubiquity, and recodes them aesthetically, incorporating the conceptual extensions they make possible and the contradictions and disorientations they generate as the organizing principles of the narrative and of its innovative aesthetics. In so doing, *Vas* resists the easy reduction of the creative in literature with the technically innovative, and struggles instead to fabricate a poetics that incorporates—to borrow Foster's expression—the 'crucial coarticulation of artistic and political forms'³⁵ that define our present techno-scientific condition and the relations it makes possible between biological elements and communication systems. From that vantage point the novel raises questions about the nature of memory—by asking what we have been as a species and how we have been represented—and the nature of identity by asking what defines the boundaries of historically specific definitions of human physiology and how those definitions have been instrumentally used to restrict humanity and guard its borders.

Exposing the contingent value of the visual, physiognomic, scientific and biometric records that have patrolled such boundaries at different historical moments, the novel demystifies definitions and attributions of humanity dependent on corporeality as a self-contained, ontological datum. Instead, it redefines corporeality as a multi-dimensional system that emerges in relation to processes of separation from and/or unification to the human body as well as in relation to other technical and communicative procedures. Mother-as-a-cyborg, as we have seen earlier in this essay, is one example of such redefinition. It is on the register of the human body, and on the crucial metaphors of having a body and being a body, that history and memory are recast. However, it is only after the phenomenology of the body is decomposed and reconnected to larger systems of meaning that these impinge on domains heterogeneous to the human body: information, biology (in the sense of non-human animals and other life-forms), communication. Thus, if—as we have seen—from body to cyborg the step is short, equally short it is from information, code, to life. As the advertisement for Operon announces: 'At \$2.8 per base, OPERON'S DNA make anything POSSIBLE'.³⁶

The resonance of the body's uncertain status and its reification as a commodity is maximized in the pages articulating the nexus between the ideology of an ever flexible human body, its correlate flexible identity, and the immutable logic of capital. If the body is an accessory or a commodity, a flexible construct, then—the caption wonders—'can commerce be a destiny?' 'The way that gravity can be destiny?' 'For Someone Who Steps Off a Ledge?'.³⁷ The excess of signification the body—in all its metamorphosis—generates has uncertain outcomes whose destiny or possibilities are largely dependent on whether it will be left to corporate business to govern or to public politics to discuss.

IV

What does it mean to undergo vasectomy under conditions of genetic manipulation and reproduction? If what *Vas* pursues is, among other things, the relation between a residual and an emergent evolutionary narrative in which the slow processes of natural selection are replaced by genetic engineering, post-biological reproduction, and commercial interests, then vasectomy occurs as the proper conclusion Square struggles to find for a novel about the new scenarios that science opens to our sense of self. The closure of a genealogical line represented by a narrative of vasectomy operates as a self-reflective, metafictional comment on the extinction and convergence of codes—genetic and linguistic—that the novel has pursued all along, and on its own status as a spurious narrative genre:

Square walked into the into the clinic, Square wrote realizing that like Alice, Christopher Columbus, Dorothy, Galileo and all the rest, he was writing an ending by living it even if, like them, like everyone, he could never leave his book. But what kind of story was it that didn't have either a comedic union or a tragic separation? Pedestrian?³⁸

Vasectomy is, in this kind of story, the final act of a history (and concept) of evolution based on natural selection: surgical intervention blocks at individual level an archaic, self-organizing process by changing its contingent, individualized outcome, but it does not interfere with the structural organization of living matter, and it has no consequence for the species. In this respect, it is radically different from genetic engineering and its related procedures and techniques, which intervene from the outside to the inside of living organisms so as to control and modify them at sub-molecular level, altering their 'nature' and triggering large scale and long term consequences both on the species and on their structural organization. Moving from natural selection to genomics, the novel signals a paradigmatic cultural shift, a sort of escalation into a thoroughly different kind of evolution in which biology no longer describes an 'original', natural state, but is recoded as a branch of information science. If all life is coded by the four letters composing the DNA double helix, then a 'little editing'³⁹ of the body corresponds to the editing of the text.

The splitting of body and self that genetic engineering, bio-robotics, and even plastic surgery make available to the market produces a series of tensions that the novel endorses. This is summarized in a passage, which I quote at length here, about the meaning of natural and assisted reproduction for father and daughter respectively, narrated from the perspective of the father. The sequence of comments encompasses all the conceptual nodes of the novel:

He himself couldn't explain this irrational attachment to his old body. It made no more sense than confusing himself with an old favourite hat, or refusing to let go a comfortable sweater that had a hole in one elbow—even though wearing it meant getting cold. And of course he wanted what was best for his family. Children engineered to repel mosquitoes, engineered not to develop an appendix, or wisdom teeth, or any anachronistic

appendages—who could not want that for their descendants?—and all for the having by simply creating a litter of embryos from which they could select the one with the best genetic profile. When Oval was considering getting pregnant, he himself helped her go through the dizzying array of choices, taking copious notes on sperm banks, womb rentals [...] knocking out genes for spina bifida, colon cancer, schizophrenia, dialing in the standard gene clip that everyone (who could afford it) received for concentration and memory, for facial symmetry, for skin colour [...]

Composing a body as if it were a crossword puzzle was natural for Oval. She was young and didn't know any other way. But he couldn't help but marvel at the species of free verse Darwin had helped midwife, so long ago, intimating that all life—not only men and apes but also the bean stalk outside his window and the fruit fly he swat a moment ago—all life spoke the same genetic letters and could be parsed by tenses.

When he looked to Oval, he could see an etymology of himself within the dimensions of her face. But what would she see looking at her child with its five parents, four of whom would be unknown to her?⁴⁰

The linearity of evolutionary narratives, the flatness of the visual composition of the body 'as a crossword puzzle', and the notion of authorship reappear in the analogy the text establishes between writing life and writing a text. The analogy, however, is once again called into question by the several registers and the variety of codes deployed by the novel, which plays on the ambiguity between the formal and the semantic notion of code. This complicates the rigid distinctions between body and text, and helps de-routinize reading habits: 'Body text once had a body', Square claims referring to miniature and ancient inscriptions, 'Couldn't it again?'.⁴¹ But the idea of correspondences between the world and divine truth governing the medieval world and manifested as a revelation in the perfection of natural forms is reversed in the operations of DNA as a formal code for composing life by writing executable instructions: 'The world was written differently then, Creation one continuous expression of Divine Letters-Proportions-Harmony-Laws-Spheres without separation'.⁴² DNA technologies reverse the relation of being a body into having a body, as Square epiphanically realises right before entering the operating theater:

He could see what was happening, this transubstantiation of being his body into having his body. [...] He couldn't grasp it, [...] a change from wine to water any more than the moment message becomes material, material becomes man, man becomes patient, patient becomes material and a heart, cradled by latex fingers from ice chest to some other's needy cavity, drinks in and starts a new life, servant to some other emperor with no clothes.⁴³

The sequence highlights points of convergence and differentiation between language, life, and codes, so as to embody the notion of mutation through several series of mutating signs. For instance, the line that marks the margins of the 'main' plot slowly mutates into a pentagram, then into a chromosomic band, then disappears to leave room for 26 pages of code transcription of chromosome 12, then reappears again to mark the boundaries of the various consent forms, and then disappears again to mark—negatively, by void—the beginning of Morse coding. More directly, an entire section in which the image-text develops into the composition of a DNA structure is inaugurated and governed by the challenge: 'Try to mutate the word APE into the word MAN',⁴⁴ which finds a solution after a couple of pages, 'A LINEAR PLOT [...] APE ARE ARM AIM DIM DAM RAM RAN MAN',⁴⁵ and ends with a full comment delivered in a different typesetting spread across the page: 'Progress in science, that is, achieved / by eliminating from study those problems / that do no have scientific solutions. / But if every intermediate step must make sense / then the change can be made in eight generations / History being written by the victor, of course'.⁴⁶

The images and the complex typesetting strategies also serve to generate this narrative's special code in its attempt to create, I would argue, a transgenic literary poetics akin to what visual artist Eduardo Kac calls transgenic art:

A new art form based on the use of genetic engineering techniques to create unique living beings. [...] The nature of this new art is defined not only by the birth and growth of a new plant or animal but above all by the nature of the relationship among artist, public, and transgenic organism. [...] From the perspective of interspecies communication, transgenic art calls for a dialogical relationship among artist, creature, and those who come in contact with it.⁴⁷

Kac's emphasis on the question of the social existence of organisms and of the co-evolution and co-existence of human and other species offers an occasion for meditating on the problematic coupling of bioengineering and big business, both increasingly common and legally unstable, and thus making public discussion on their social signification all the more urgent. In *Vas*, I argue, Tomasula is tinkering at his own version of transgenic literature, striving to create a poetics that—by analogy with Kac's transgenic art—we may perhaps call transgenic-literature, and to which the visual-verbal structure of this novel is essential. Integrating writing, images, and different codes in a visual prose that—like Kac's installations—may highlight the evolutionary continuum between the species is a fundamental element in Tomasula's posthumanist fiction and it is crucial to define its critical edge.

It comes as no surprise, then, that Tomasula is an admirer of Kac and has seen and reviewed some of his installations, in particular, the 1999 installation, *Genesis*, an 'Installation with genetically modified E-coli bacteria, ultraviolet light, computer and internet'.⁴⁸ The installation revolves around the creation of the 'artist's gene', a synthetic gene which Kac created by translating a sentence from *Genesis* in the Hebrew bible into Morse code, and then converting the Morse code into DNA base pairs through a conversion table especially developed for the piece. By using a text from *Genesis*, which reads: 'Let man have dominion over the fish of the sea, and over the fowl of the air, and over every living thing that moves upon the earth', Kac raises questions about the self-attributed 'natural' supremacy of humans over other creatures and the environment. At the center of the gallery stands a petri dish containing the bacteria under a UV light box, and the setting includes a flexible, ultra-small camera, and a microscope illuminator. Once the gene is inserted into the bacteria and placed in the petri dish, local and remote viewers can manipulate it by turning on an ultraviolet light that may cause mutations to the gene. At the end of the exhibition, Kac translated the altered gene back into Morse code and then back into Bible verse, thus demonstrating how the mutations caused by viewer interaction changed both the code of the E-coli's DNA and the *Genesis* text.

One might interpret these transformations—as has already been done—by suggesting that the human manipulation of nature, legitimized by the bible, alters the Bible, and hence undermines the grounds of its own justification. But Tomasula's own reading of the installation is delivered in terms thoroughly conversant with his own work, and this can thus shed light on the poetical-political project articulated by *Vas*:

All life, be it a tumbler-pigeon, cow, tomato or human, is composed of the same four-letter genetic alphabet: the chemical bases adenine, guanine, cytosine and thymine, abbreviated as A, G, C, T. This simple fact means that the genetic manipulation of one species has direct implications for all others. [...] Analogies made through genetic art take on the immediacy of nonfiction. Their truths become not only poetically true, but literally true. The aesthetics of genetic art are inextricably bound up with the genetics of humans, the aesthetics of humans—and the motives to act on those aesthetics.⁴⁹

In *Vas* the composition of a body and the composition of a narrative are treated as similar processes on the grounds that both depend on coding and communication. Words, being both the material and message of language, and chromosomes, being genetic words made flesh, are 'both message and material': 'Written in a language of four base letters, AGCT, which combined into words—CAG|ATA|ACC—the words forming double-helix sentences of genes which filled pages of chromosomes within the cells which made up the book of his body. And he marveled at the malleability of the system—people, orchids, amoebas, elk—all cognate'.⁵⁰

The once celebrated truth about the inseparability of bodies and selves, 'bodies have become as rearrangeable as they are',⁵¹ has now changed into the following mutating sentence:

'People and their bodies being inseparable as they are'
 'People and their stories being as inseparable as they are'
 'Cultures and their stories being as inseparable as they are'
 'Bodies and their cultures being as inseparable as they are'.⁵²

Whether bodies are to be considered as part of our selves or whether we are only organs of our century, as the quotation from Goethe on the first page of *Vas* indicates—'Men are to be viewed as the organs of their century, which operate mainly unconsciously'⁵³—is not a question that transgenic art, be it literary or visual, is willing to leave to bioengineers to settle. On the contrary, the incorporation of the themes and structures that genetics raise into critical poetics and performances can be part of a larger political project aimed at rethinking the human beyond its humanist containment. This is the direction toward which, I think, Tomasula's own comment on Kac's *Genesis* leads, a direction he has taken with *Vas*. This direction entails a poetical-political program devoted, in Tomasula's own words, to 'making art that mirrors biological

processes and the network of commercial concerns that configure our dawning biological age'.⁵⁴ This would be a kind of conceptual art worth the reputation of avant-garde, an art form for which Square, in a rare moment of aesthetic reflection, recuperates a perfect formulation from his copy of *Modern Art in the Common Culture*: 'For conceptual art to have currency it must: 1) be living and available rather than concluded; 2) presuppose contact with lay audiences; and 3) reference the world beyond the gallery'.⁵⁵

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Notes

- 1 A discussion of the notion of Avant-Garde and its incarnations in the nineteenth and twentieth centuries is obviously beyond the scope of this paper. For an excellent, critical survey of the main theoretical positions around which the concept of the Avant-Garde has been constructed and reconstructed since its historical appearance in aesthetic debates, see Johanna Lamoureux, 'Avant-Garde: A Historiography of a Critical Concept', in *A Companion to Contemporary Art since 1945*, ed. Amelia Jones (Oxford: Blackwell, 2006), pp. 191-211.
- 2 Steven Tomasula, *Vas: an Opera in Flatland*, art & design by Stephen Farrell (Chicago: University of Chicago Press, 2004), p. 16.
- 3 Tomasula, *Vas: an Opera in Flatland*, p. 48.
- 4 Tomasula, *Vas: an Opera in Flatland*, p. 10.
- 5 Tomasula, *Vas: an Opera in Flatland*, p. 13.

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- 6 Alison Gibson has described the immersive, multiply cognitive aspects of *Vas* in her essay, 'Multimodal Literature "Moves" Us: Dynamic Movement and Embodiment in *VAS: An Opera in Flatland*'. The essay, which defines multimodality as 'the coexistence of more than one semiotic mode within a given context', tries to connect the formal properties of *Vas* to the experience of embodied cognition and immersive reading. While I find the notion of multimodality interesting for a complex verbo-visual text such as *Vas*, I do not find its application to literary interpretation illuminating from a literary point of view. See Gibson, <http://download2.hermes.asb.dk/archive/download/Hermes-41-6-gibbons.pdf> [accessed 15 October 2010].
 - 7 Florian Cramer, 'WORDS MADE FLESH: Code, Culture, Imagination'. Rotterdam: Media Design Reserach Piet Zwart Institute, Institute for postgraduate studies and research. William de Kooning Acaedmy Hoge School. 2005. p.9. <http://www.pzward.wdka.hro.nl> and <http://www.youblisher.com/p/4449-Words-Made-Flesh/> [accessed 20 September 2010]
 - 8 Jean-Luc Nancy. *The Ground of the Image*, trans. Jeff Fort (New York: Fordham Univeristy Press, 2005), p. 63.
 - 9 As is well known, the aporia between text and image has a long history in Western aesthetics, from its Platonic dawn to its deconstructionist present, and even if it is crucial to Tomasula's *Vas*, I cannot adequately address it in this paper, as it would demand a dedicated essay.
 - 10 Nancy, *The Ground of the Image*, pp. 77-78.
 - 11 Tomasula, *Vas: an Opera in Flatland*, p. 31.
 - 12 Tomasula, *Vas: an Opera in Flatland*, p.75.
 - 13 Tomasula, *Vas: an Opera in Flatland*, p. 84.
 - 14 Tomasula, *Vas: an Opera in Flatland*, p.84.
 - 15 Tomasula, *Vas: an Opera in Flatland*, p.119.
 - 16 Tomasula, *Vas: an Opera in Flatland*, p. 120.
 - 17 Tomasula, *Vas: an Opera in Flatland*, pp. 94-98.
 - 18 Tomasula, *Vas: an Opera in Flatland*, pp. 144, 145, 146.
 - 19 Tomasula, *Vas: an Opera in Flatland*, p. 98.
 - 20 Tomasula, *Vas: an Opera in Flatland*, p. 73.
 - 21 Tomasula, *Vas: an Opera in Flatland*, p. 98.
 - 22 Tomasula, *Vas: an Opera in Flatland*, p. 231, bold in original
 - 23 Tomasula, *Vas: an Opera in Flatland*, p. 55.
 - 24 Tomasula, *Vas: an Opera in Flatland*, p. 66.
 - 25 Tomasula, piece of interview circulated by Tomasula in private e-mail messages about the attribution of his works. The author of this essay has been unable to locate the interview.

- 26 Tomasula, *Vas: an Opera in Flatland*, p. 229.
- 27 Martin Heidegger, 'Letter on Humanism', trans. Frank A. Capuzzi, in *Basic Writings*, ed. David Farrell Krell (San Francisco: HarperSanFrancisco, 1993), p. 225.
- 28 On this and related issues, see Cary Wolfe, *What is Posthumanism?* (Minneapolis: University of Minnesota Press, 2010).
- 29 Tomasula, *Vas: an Opera in Flatland*, p. 186.
- 30 Tomasula, *Vas: an Opera in Flatland*, p. 298.
- 31 Tomasula, *Vas: an Opera in Flatland*, p. 53.
- 32 Hal Foster, *The Return of the Real: The Avant-Garde at the End of the Century* (Cambridge, MA: The MIT Press, 1996), p.1.
- 33 Friedrich W. Block, 'Digital Poetics or On The Evolution of Experimental Media Poetry', in *Media Poetry: An International Anthology*, ed. Eduardo Kac (Bristol: Intellect, 2007), p. 229.
- 34 Perhaps the relation between the archaic and the hi-tech is a strategy by means of which the novel references the notion of originality as an effect of the dialectics of repression and repetition, as Rosalind Krauss notoriously theorized in her famous 1981 essay, *The Originality of the Avant-Garde and other Modernist Myths* (Cambridge, MA.: MIT Press. 1986) 151-70. This was originally published in *October*, 18, (1981), 47-66.
- 35 Foster, *The Return of the Real*, p.5.
- 36 Tomasula, *Vas: an Opera in Flatland*, p. 262. Capitalization, italics and underlining in original text.
- 37 Tomasula, *Vas: an Opera in Flatland*, pp. 267-9.
- 38 Tomasula, *Vas: an Opera in Flatland*, p. 365.
- 39 Tomasula, *Vas: an Opera in Flatland*, p. 312.
- 40 Tomasula, *Vas: an Opera in Flatland*, p. 179.
- 41 Tomasula, *Vas: an Opera in Flatland*, p. 51.
- 42 Tomasula, *Vas: an Opera in Flatland*, p. 52.
- 43 Tomasula, *Vas: an Opera in Flatland*, p. 315.
- 44 Tomasula, *Vas: an Opera in Flatland*, p. 85.
- 45 Tomasula, *Vas: an Opera in Flatland*, p. 87.
- 46 Tomasula, *Vas: an Opera in Flatland*, pp. 86-87.
- 47 Eduardo Kac, *Telepresence and Bio Art: Networking Humans, Rabbits, & Robots*, foreword by James Elkins (Ann Arbor: University of Michigan Press, 2005), pp. 236-237.
- 48 This can be found at: <http://www.ekac.org/geninfo.html> [accessed 28 March 2010].
- 49 Tomasula, 'Genetic Art and the Aesthetic of Biology', *Leonardo*, 35: 2 (2002), 137-44, p. 140.
- 50 Tomasula, *Vas: an Opera in Flatland*, p. 51.
- 51 Tomasula, *Vas: an Opera in Flatland*, p. 310.

52 Tomasula, *Vas: an Opera in Flatland*, p. 310.

53 Tomasula, *Vas: an Opera in Flatland*, p. 1.

54 Tomasula, 'Genetic Art', p.138.

55 Tomasula, *Vas: an Opera in Flatland*, p. 285.