



Digital [Tactical] Viscosity

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Architects sometimes lament the fact that design usually proceeds through drawing and modeling (both analog and digital) rather than through full-scale building. Robin Evans called this “the peculiar disadvantage under which architects labor; never working directly with the object of their thought, always working at it through some intervening medium, almost always the drawing, while painters and sculptors, who might spend some time working on preliminary sketches and maquettes, all ended up working on the thing itself which, naturally, absorbed most of their attention and effort.”¹ Indeed, apologies for the seemingly second-hand status of mediating representations proliferate in architectural discourse. Representation itself is sometimes even blamed for the dilution of culture. In the 1980s, Kenneth Frampton warned against the descent of architecture into the world of surface scenography that threatens to extinguish the last sparks of critical culture. And today, theorists including Sanford Kwinter and Michael Speaks dismiss certain projects designed by the current generation of digital formalists as vacuous (or “grotesque”) representations that lack substance and intelligence.² As the impressive scholarship of Evans attests, however, architects have also rev-

eled in the possibilities opened up by representation. The numerous process fetishes and software obsessions of recent times are prime disciplinary examples. This paper poses the difficult question: As new digital design interfaces, platforms, and output systems proliferate, how might architects operate consciously and productively with what Evans called the “viscosity” of projective media in the interest of digital design innovation?³

Too often, seeking to transcend the second-hand status of representation, architects retreat to the essentializing territory of digital utopias or the *Gesamtkunstwerk*.⁴ In declaring Parametricism the “great new style after Modernism,” for example, Patrik Schumacher posits a digital substrate from which parametric and algorithmic architecture emerges according to the rules of a brave new game. He describes a field of computational operations consisting of both negative heuristics (taboos) and positive heuristics (dogmas) that is nearly comprehensive.⁵ Indeed, Schumacher portrays the projective potentials of Parametricism as nearly limitless. He promiscuously embraces many of the contested concepts of Modernism, including: manifesto, style, and avant-garde, in addition to the natural, the organic, and the immersive. In



Egg crate and acrylic broccoli flowers by Albert Jang (2012)

fact, Schumacher's casual perpetuation of the utopian myths of Modernism, coupled with his universal assertion regarding the ostensibly genetic status of Parametricism, make his thesis seem unpalatably naïve. It is as though the critical theories and ideological exposures of the Post-modern period never happened. In the interest of clarity (indeed, *purity*), Schumacher puts the parametric blinders on and forges ahead. But what productive Postmodern arguments might he have missed as he teleologically targets a brave new parametric future?

Donna Haraway, for example, announced a promisingly viscous model for cultural production in her seminal 1985 essay, "A Cyborg Manifesto."⁶ Like Schumacher, she also mobilized the medium of the manifesto, but her writing was anything but naïve. "Cyborg imagery can help express two crucial arguments," she wrote. "First, the production of universal, totalizing theory is a major mistake that misses most of reality, probably always, but certainly now; and second, taking responsibility for the social relations of science and technology means refusing an anti-science metaphysics, a demonology of technology, and so means embracing the skillful task of reconstructing the boundaries of daily life, in partial connection with others, in communication with all of our parts."⁷ In calling for "faithful blasphemy" that dispensed with the myth of organic wholeness and the "troubling dualisms" of critical theory, Haraway articulated a project of unsanctioned hybridization from which architects might learn.

The anthropologically saturated work of Pierre Bourdieu and Michel de Certeau might constitute another productive, if counterintuitive, blind spot for Parametricism. In *Outline of a Theory of Practice*, Bourdieu distinguished between rules and strategies. We might not be able to change the rules of the game, he argued, but playing strategically might open up some unforeseen pragmatic possibilities. In *The Practice of Everyday Life*, De Certeau celebrated tactics over strategies when it comes to finding economic ways to "obtain the maximum number of effects from the minimum force."⁸ A

tactical approach, he argued, is often the last resort of the weak, but it can have a surprisingly powerful impact. De Certeau described a tactic as follows: "Lacking its own place, lacking a view of the whole, limited by the blindness (which may lead to perspicacity) resulting from combat at close quarters, limited by the possibilities of the moment, a tactic is determined by the absence of power just as a strategy is organized by the postulation of power."⁹ Within this framework of strategies and tactics, Schumacher seems to want to reverse engineer architectural authority. By operating strategically, and claiming universal application for recently emerging rules, he attempts to imbue parametric practice with an unprecedented cultural power. Indeed, most digital theory traditionally promotes strategic thinking. But what might happen if we invade Haraway, Bourdieu, and De Certeau's territory of social (urban) practice and re-appropriate their blasphemous tactics and hybridizations for innovation in formal (digital) practice?

Greg Lynn attempted just such a maneuver in the important "Folding in Architecture" issue of *Architectural Design (AD)* from 1993. He interpreted Gilles Deleuz in positing "smoothness" as a "post-contradictory" computational alternative to the oppositional and dialectical thinking that dominated architecture in the Postmodern period. "Smoothing does not eradicate differences," he insisted, "but incorporates free intensities through fluid tactics of mixing and blending."¹⁰ Lynn's emphasis on tactical approaches seems odd today given the overwhelmingly self-reflexive strategies that are evident in many of his digital projects (his recent "Fountain" installation for the Hammer Museum is an exception). By *tactics* he still meant mainly internal digital operations. But like Evans, Lynn also celebrated *viscosity*. And like De Certeau, he pointed to the surprising potency of the powerless. "Vicissitude is often equated with vacillation, weakness and indecisiveness but more importantly these characteristics are frequently in the service of a tactical cunning," he insisted. "Vicissitude is a quality of being mutable or changeable in response to both favorable and unfavorable situations that occur by chance. Vicissitudinous events result from events that are neither arbitrary nor predictable but seem to be accidental. These events are made possible by a collision of internal motivations with external forces...In this sense, vicissitudinous mixtures become cohesive through a logic of viscosity."¹¹

The landscapes of internal and external forces have changed notably since Lynn celebrated viscosity twenty years ago. For one thing, the internal motivations of computation and the external forces of materiality are no longer distinct valences of architectural production.¹² Jason Payne, however, fondly remembers the mid-1990s as a time before parametric practice had "congealed into an identifiable set of stylistic characteristics."¹³ He distinguishes between contemporary parametric practices that are primarily invested in imagistic indexicality and

those that explore "pragmatic indexicality" to produce specific effects or connect disparate systems. According to Payne, this second category "is more sparing and judicious, less naïve and therefore less glorified and totalizing."¹⁴ He also identifies a "move from technique to tactics" that characterizes an opportunistic materialist approach in this second type of contemporary practice.¹⁵ These architects are not using digital platforms and material systems *strategically* to realize some pre-determined utopian ideal in the Modernist sense of "emergence." They are instead using them *tactically* in unsanctioned, even blasphemous ways, to explore hybrid viscosities of design and fabrication.¹⁶

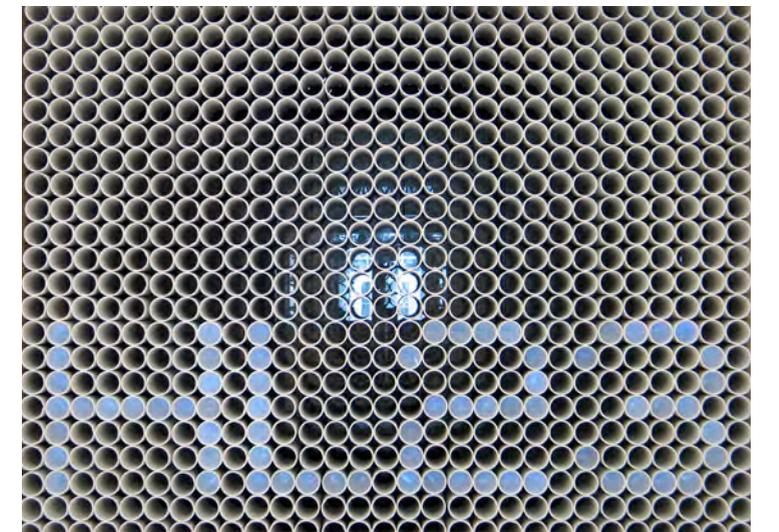
In three projects with my Syracuse University students, we explored digitally and tactically viscous approaches to fabrication. In 2009, a small group of graduate students and I organized an exhibition based on Neil Denari's HL23 tower on the High Line in New York.¹⁷ After finding a supplier of thousands of free cardboard tubes in Utica (NY), we developed a modular system for a tube wall that filtered views between the gallery and atrium. Ironically, we spent an academic year researching the HL23 tower and Denari's practice, but found nothing inherently tube-like about them. With free material at hand, however, we decided to force-filter our understanding of HL23 through the viscous material logics of cardboard tubes. Among their many qualities, the tubes had the ability to imbue general viewing with the focused ocular parameters of peeping. They also efficiently intensified LED light sources into hot spots to advertise the exhibition. And perhaps most importantly, they introduced the logic of pixilation as a viscous matrix through which images of the already highly graphic and insistently surfacial HL23 tower could be projected. We used a remarkably cost-efficient production system of laser-cut chipboard templates, digitally manipulated anamorphic images, and spray-painted blue foam panels to mount the exhibition. Through numerous tactical decisions and carefully calibrated techniques, the final installation seemed like an intelligently rational and intuitively obvious framing of Denari's project.

Last year a group of second-year undergraduates and I produced an exhibition of biomimetic panels for the Biomimicry Challenge conference at the Syracuse Center of Excellence.¹⁸ Even though I had no serious personal interest in biomimicry per se, the event provided an excellent excuse to explore the potentials of tactical viscosity. I asked the students to select a microscopic or telescopic image from the biological world and then fabricate a small panel using readily available materials that usually escape the attention of architects. Students developed their own hybrid fabrication processes that used laser cutting and CNC milling in conjunction with everyday materials—including plastic bags, colored pencil shavings, pins and buttons, egg cartons, plastic forks, and rubber bands—to fabricate the images they selected. Perhaps

not surprisingly, the overtly image-oriented installation quickly found its way into university promotions. These published images of the installation might seem reductive in traditional phenomenological terms. But since the project started with the selection of images, we understood this "post-phenomenological" re-mediation as a chance to explore the viscous potentials of print, photography, and video to produce architecture.

The following semester, I took another group of second-year undergraduates to Los Angeles. We visited a number of architecture schools, museums, firms, and important buildings, but I also asked them to analyze a hill-top site in Culver City. The Baldwin Hills Scenic Overlook occupies the top of the highest point on the South edge of the Los Angeles basin. A rugged terrain of scrub brush and oil well pumpjacks, the site offers expansive views from downtown in the East all the way to the Pacific Ocean in the West. From this elevated vantage point, the infrastructural logics of Southern California development come into focus.¹⁹ All the students documented these conditions and produced original site analyses. Two of them became intrigued with the exaggerated qualities of this vehicular landscape and tried to imbue their analysis with a similar sense of the sublime. They decided to cast the site in aluminum. With the help of Sculpture Professor Robert Wysocki, they melted down recycled auto parts to fabricate a site model of molten metal.²⁰ It was a complicated, even dangerous, process of trial and error that took viscosity to a hot material extreme. The students laser-cut a conventional chipboard site model (which would easily have satisfied the site analysis requirements for most studio projects), treated it with heat-resistant polymers, and made four small sectional molds for the sculpture workshop's sand bed. After the liquid aluminum cooled, they buffed and polished the metal to a high-gloss automotive shine. Although the model certainly relates to the topography of the Los Angeles basin, it does more than merely represent it. Neither is it purely an

Cardboard tube exhibition wall by Syracuse University graduate students (2009)



essay on process nor a vehicle for conveying the *content* or *meaning* of the site. It is a piece of architecture that is viscous with digital, material, representational, experiential, political, economic, and collaborative tactics.

None of these projects are the result of having started in the ideal place with the perfect strategy. Beginning variously with image selection, material procurement, site analysis, or fabrication process, these projects actually suggest that architecture can start with anything, anywhere, at any time. They emphasize the importance for architects to remain tactically open to design contributions from unanticipated and unsanctioned sources. The results are often impure, contingent, and residual in the spirit of social architectural engagement, but still rigorous, refined, and precise in the tradition of formal architectural autonomy. In short, *Digital [tactical] viscosity* abandons the naïve fundamentalist claims of digital geneticists, while exposing certain *critically* viscous tactics for incrementally refined and technically precise fabrication. It is carefully calibrated, opportunistically hybridized, and subversively observant. Several of its tendencies—including an open-minded approach to resource identification and management, iterative approach to design research and development, and collaborative approach to question formulation and resolution—already suggest, if not require, concentrated work with diverse media and across different disciplines. And perhaps most importantly, they might prompt architects to establish additional platforms for productive engagement that enhance the inherently projective capacities of this *digitally and tactically* viscous approach to design innovation?

ENDNOTES

1. Robin Evans, *Translations from Drawing to Building and Other Essays* (London: Architectural Association Publications, 1997), 156.

2. In conversation with Jason Payne, Sanford Kwinter explained, "I see your third generation as having lost its connection to the material substrate in which the mind works, exiled within an equipment-saturated world, sold on the hype of cyberfreedom and cybersociality and compensating wildly with ersatz realities like 'special effects.'" Kwinter quoted in "A Conversation between Sanford Kwinter and Jason Payne," in *From Control to Design: Parametric/Algorithmic Architecture*, ed. Tomoko Sakamoto, Albert Ferre, et al (Barcelona: Actar, 2008), 231. Michael Speaks recently dismissed certain unbuilt parametric projects as "fluffy." He adopted a surprisingly conservative Marxian distaste for surface appearances when he celebrated the "real" projects developed by his faculty and students when he was Dean of the University of Kentucky College of Design. See Speaks's responses to questions by Sarah Whiting and Winka Dubbeldam following the session, "Panel 3: Collaboration between Architecture Education and Non-Academic Partners," (presentation, New Directions in Architecture Education: 3rd International Architectural Educations Summit, Aedes Network Campus Berlin (ANCB), Berlin, Germany, September 14, 2013): <http://www.ancb.de/sixcms/detail.php?id=9708635>.

3. The work of Michael Hansmeyer offers an intriguing case of "post-phenomenological" viscosity in that it often evinces a palpable materiality whether or not his digital constructions are physically fabricated. His projects sometimes simultaneously violate and embody the phenomenological parameters for material experimentation in architecture. While his digital renderings seem rich in material texture, it hardly matters what material is used to fabricate them. According to Hansmeyer, "The processes can generate highly specific local conditions, while ensuring an overall coherency and continuity. As such, the resulting architecture does not lend itself to a visual reductionism. Rather, the procedures can devise truly surprising topographies and topologies that go far beyond what one could have traditionally conceived." See Michael Hansmeyer/Computational Architecture: <http://www.michael-hansmeyer.com/profile/about.html>.

4. German opera composer Richard Wagner famously used the term *Gesamtkunstwerk* in his 1849 essay, "Art and Revolution." In this essay, he celebrated the Greek drama as the most highly developed art form because it successfully incorporated music, dance, and poetry. See Wagner, "Art and Revolution," in *Richard Wagner's Prose Works*, trans. William Ashton Ellis (London: K. Paul, Trench, Trübner, 1895).

5. Patrik Schumacher, "Parametricism as Style: Parametricist Manifesto," (paper presentation, Dark Side Club, 11th Architecture Biennale, Venice, Italy, 2008); and "Parametricism: A New Global Style for Architecture and Urban Design," in *Architectural Design (AD): Digital Cities*, vol. 79, no. 4 (July/August 2009): 14-23.

6. Donna Haraway, "A Cyborg Manifesto: Science, Technology, and Socialist-Feminism in the Late Twentieth Century" (1985), in *Simians, Cyborgs and Women: The Reinvention of Nature* (New York: Routledge, 1991), 149-81.

7. Haraway, "A Cyborg Manifesto," 181.

8. Michel de Certeau, *The Practice of Everyday Life*, trans. Steven Rendall (London, Berkeley & Los Angeles: University of California Press, 1984), 82.

9. De Certeau also insisted, "Power is bound by its very visibility. In contrast, trickery is possible for the weak, and often it is his only possibility, as a 'last resort': 'The weaker the forces at the disposition of the strategist, the more the strategist will be able to use deception.' I translate: the more the strategy is transformed into tactics." See de Certeau, *The Practice of Everyday Life*, 37-38.

10. According to Greg Lynn, postmodernism and deconstructivism—represented by the diverse practices of Peter Eisenman, Frank Gehry, Bernard Tschumi, and Robert Venturi—formalized contradiction and fragmentation in architecture from the mid-1960s to the late-1980s. He also identified a parallel trend to regain wholeness, or a "reactionary response to formal conflict," in Neo-Classicism, Neo-Modernism, and Regionalism. See Lynn, "Architectural Curvilinearity: The Folded, the Pliant, and the Supple" (1993), in *Constructing a New Agenda: Architectural Theory 1993-2009*, ed. A. Krista Sykes (New York: Princeton Architectural Press, 2010), 32-34.

11. Lynn, "Architectural Curvilinearity," 37.

12. As the Marxian ambition to unveil reality by stripping away ideology and the Freudian desire to therapeutically expose unconscious motivations through psychoanalysis are themselves exposed as ideological constructs, oppositional dualisms such as real/virtual, analog/digital, optical/tactile, active/passive, and formal/social begin to lose their power as well. Dualisms certainly still exist, but the lines have been redrawn. Almost all architecture schools are now digital, but they distinguish themselves according to digital platform: Revit/Ecotect versus Rhino/Grasshopper, for example.

13. Payne, "A Conversation," 219.

14. Payne, "A Conversation," 222.

15. Jason Payne, "Hair and Makeup," in *Log*, no. 17 (Fall 2009): 41.

16. Examples of these digital materialist practices include R&Sie(n) (Francois Roche, Stéphanie Lavaux, and Jean Navarro): <http://www.new-territories.com/>; Payne's firm Hirsuta: <http://www.hirsuta.com/>; and the firms of Payne's (and Greg Lynn's) former students, including WEATHERS (Sean Lally): <http://www.weathers.cc/>, and Sift Studio (Ellie Abrons and Adam Fure): <http://siftstudio.com/>.

17. These graduate student collaborators were Anastasiya Gridneva, Erik Maso, Mina Panichpakdee, Cailyn Remington, Alex Raynor, Shannon Sturm, and Elijah Yoon. See H. James Lucas and Mark Linder, eds., *Neil Denari: Graduate Session 08* (Syracuse: Syracuse University School of Architecture, 2009) (Jon Yoder curator/faculty advisor for exhibition/interactive CD-ROM).

18. For information on the First and Second Annual Biomimicry Challenges, see the conference website: <http://syrbiomimicry.com/>.

19. For an account of the mid-2000s shift in architectural attention to infrastructure in the context of a graduate research studio, see my essay, "All That is Solid Melts into Infrastructure..." in *Thought Matters 2: UCLA Research Studio Works*, ed. Hitoshi Abe (Los Angeles: The Regents of the University of California, 2008), 88.

20. See Robert Wysocki's work on Vimeo: <http://vimeo.com/user2061629>; and his SU Lava Project: <http://lava-dev.syr.edu/>.

Recycled aluminum site model of the Los Angeles Basin by Cristina Abondano and Jessica Borri (2012)

