

The Architectural Review

Critical Mass: Why Architectural Criticism Matters

By Michael Sorkin

**CRITICAL
MEASURE**

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By seeing beyond the glittering novelty of form, it is criticism's role to assess and promote the positive effects architecture can bring to society and the wider world



The task of articulating concepts of form, space and sociability in their etiology and contexts via another medium has always been criticism – and architecture's – challenge. The sequence of drawing before building and writing about it afterwards limns a discursive territory inhabited by a double displacement in which the word is always needed to shape the way in which we think about the built environment: seeing after sight.

Criticism, like architecture, stands on the shoulders of something called theory. We all embrace this – no theory, no revolution, of course. But there are so many constructs available and, as critics and practitioners, we sort through them on the basis of both affinity and practicality. Criticism is both enlightened and vexed by the need for conceptual alliances and if I demur at explicitly incorporating too much of the arcana of psychoanalysis or up-to-the-minute cybernetic biologism in my own work, it's not for lack of desire for conceptual underpinnings or any special disdain for expository shopping. But I am interested in augmenting architectural criticism to exceed a filtered humanities/lit-crit/kunstwissenschaft/analogically based corpus of dogma and tactics and in the search for additional informants from the side of my concerns – as both designer and writer – to weigh in judgement. This is not to reject other approaches: criticism needs many modes. But a robust critical field requires self-criticism and the critique of critique is part of the job

I see criticism – and there is some utility in separating it from theory – as a service profession. Not that I think of myself as an architectural barista brewing up steaming cups of truth, but that my perspective is increasingly both quantum and moral and that here criticism truly must be practical. The main issues confronting the planet are distributive – the apportionment of resources and equity – and architecture fascinates not just for its capacity to map, but to serve. It isn't that its power to charm – to move – is negligible, uninteresting, even less than central, but criticism must situate the nature of its own urgency. Many registers – from the urban to the micro-tectonic – demand many criticisms and the search for a unified field, even as a metaphor, seems unproductive, particularly given the rapid shifts of taste among both theoretically minded architects and those with other operational reflexes. There are styles of criticism apt for the design studio, the newspapers, the net, the glossies. But it's trying to me that so many practitioners have embraced the theoretical as the royal road to a Formalism that is then advertised as expressive insubordination (Modernism is dead, long live Modernism) only to discover – or more often to fail to – that this is precisely the kind of architecture that the voracious global culture machine finds most tasty. While I can be as intoxicated with the power of a torqued ellipse or a morphing facade as the next aesthete, architecture as 'pure' form – that is form that is not answerable to any criterion beyond sensory pleasure – cuts relatively little ice. The era of a thousand flowers blossoming hasn't exactly outlived its usefulness, but when I gaze upon the ludicrous, hyper-energetic, size-queen, skylines of Qatar or Pudong or 57th Street, I reach for the Pepto-Bismol. What victory is won? What are we really to make of those twisted dicks and riven shards and perforated signifiers of nothing in particular beyond the significance of signification?

Here's what I see. Oligarchy and BTUs. Construction-worker concentration camps filled with South Asian slaves just hors cadre. Women not driving. Nobody walking. The Gini coefficient writ huge. Empty \$100 million apartments in a city with 50,000 homeless. Too many Starbucks. Slums without end. The greatest minds of my generation diddling themselves on behalf of money and acting as if they have progressive politics. This is the architecture of neo-liberalism, driven by a market to which it offers not the slightest resistance. Don't get me wrong: if there's to be a critique of the distribution of global assets and privilege, access to the beautiful must be among the goods indispensably on offer. But the question to be asked is whose interests are served and, especially, how particular interests shape relevant ideas of the good. Thus, a political criticism is urgently needed for a planet that is clearly going to hell in a handcart, even as it rejects the reflexive styles of analysis that have frequently been associated with its standard models. Form is as form does and we don't want to be victimised by the taste of Comrade Stalin, Anna Wintour, Prince Charles, or any other overly empowered arbiter.

But exactly what falls under the remit of architecture? There are cogent arguments on the side of both broad and narrow views. Those of us who also inhabit the academy watch our faculties slugging it out over who is to be the big Solon of the environment and, in particular just now, the hegemon of the urban. The dopey jostling – by landscape urbanism, ecological urbanism, urban design, urban planning, green urbanism, new urbanism, tactical urbanism, DIY urbanism, informal urbanism, etc – to seize and constrain the foundational fantasy of the city is both useless and dispiriting, a distraction from real urgencies. This game of trying to parcel up – rather than distribute – proprietorship of the 'environment' is simply meretricious, a way of avoiding the fact that its comprehension and defence must now pervade every design discipline. Our job is not to adjudicate nitpicking questions of academic status but to help save the world. In this sense, insisting on autonomy is both indispensable and complete bad-faith. The link to agency makes all the difference.

The trap of focusing on procedures, not effects

The emergence of a broad environmental consciousness has permanently altered criticism as both a conceptual matter and in the expectations of our publics. In the US, buildings now have plaques attesting to their LEED rating – silver, gold, platinum – like the stars on restaurants or hotels (if with a less direct impact on the bottom line). The meaning in both instances is that someone with nominal critical expertise has ‘evaluated’ the building according to some complicit set of criteria and given it a grade. This is authentically criticism, and its nominal objectivity gives it a certain impressive – if often mystifying and phony – purchase. Whatever the actual reliability or usefulness of the score, the idea that buildings should be judged performatively is crucial from the standpoint of criticism. We author – and authorise – buildings to act on our behalf.

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LEED’s problem is the fungibility of its criteria, evident in the absurdly distorted high marks given to giant office buildings with huge floorplates, non-operable windows, and enough embodied energy to power Belgium. Such structures often rise in the ratings through some singularly skewing metric: adjacency to a subway station, perhaps, that – as with pollution trading regimes – allows fundamentally foul practices to continue, under the cover of the camouflaging aggregation of the score. Like emissions trading, LEED never asks the question of sustainability for whom. Such a reflexive, para-metric, style of criticism constitutes a form not of analysis but of evasion, even if the discussion circulates round core values. The risk arises if we too readily displace the social with other forms of appreciation and so cease to truly speak about architecture.

Symptomatically, for decades now, a discourse of formal procedures – triple in origin – has supplanted the question of effects as the focus of architectural discussion, particularly in the schools. It begins with the legacy of Functionalism, a language that remains the mother tongue of our modernity and continues to undergird the nature of both the architectural object and act. Buildings exceed the artistic – or the indifferent – by their purposiveness and this supplement to form is ineradicable, the reason we call it architecture, not sculpture or pastry or dance. While there are plenty of interesting investigations of the picturesque turbulence at the wing-tips passing through the expanded sky, the centrality of architecture’s utility can only be abandoned at the expense of architecture itself. Which is to say, the fit of form and function will always remain critical but the actual relationship between generative strategies and outcomes maps criticism’s turf.

Architecture is never not political, given both its economic stakes and its commitment to setting social life, and Modernist architecture has bravely – if mainly futilely – held onto the dream of its own subversiveness, its ability to leverage global change; these are its roots. This version of the political extends architecture's historic hubris, the conviction that the arrangement of rooms restructures the relationship of souls. While our understanding of this relationship has been much altered – especially by the biopolitical turn associated with the work of Foucault – in both the deployment and understanding of spatial power and its focus both on the mutability of bodies and on the organisation of populations in space, precise effects remain fluid. It's not sufficient for criticism merely to note that things change, our task is to influence the direction of change. Are we going to allow Genentech to redesign and commodify us? Are we going to give up the struggle for our own privacy and self-control? Are we going to write off architecture as a tool?

The second source of the procedural affect is surrealism, which attempted to liberate technique from dogma by associating the random with freedom and rebellion. This deadpan, in-your-face, fixation on the aleatory and the accidental continues to provide a robust, if fraying, critique of idealism and of the dogmatic teleologies that have brought us to our particular end of history. By offering a constant affront to the idea of fixity, surrealist practices are at once engagingly destabilising and a rebuff to content. This is tricky territory, both protective and dangerous. If meaning is subject to constant deconstruction, we risk destroying the forms of consent that enable architecture and urbanism to become genuinely social practices, to advance human needs in measureable ways. This nexus is key: we cannot simply have contempt for benchmarks, for the measurability of – for want of a better word – progress. And let's not mystify the categories, which include breathing, sleeping, eating, gathering, staying healthy, comfortable, even happy.

Finally, the procedural turn is an outcome of moves to assimilate the authority of comprehensive systems of description and analysis that appear more rigorously grounded than any from within the architectural field itself. One of the more appealing these days is the idea of self-organisation identified with the concept of autopoiesis advanced by Francisco Varela and Humberto Maturana, a compelling merger of cybernetics and biology, described by Varela as taking 'the lessons offered by the autonomy of living systems and convert[ing] them into an operational characterization of autonomy in general living or otherwise.' This yoking of two scientific systems, each with a powerful evolutionary component, has an undeniable appeal for architecture, itself increasingly computerised and prosthetic. Autopoietic systems – recursive, self-referring, organisationally closed – redraw the boundaries between subject and object and progress not according to the input-output models of both Functionalist architecture and early cybernetics but in response to internal perturbations and compensations, which drive successive reorganisations at higher levels of complexity.

Parametric design vs algorithmic design

The leading exponent of the translation of autopoiesis into the social field, Niklas Luhmann writes that, within this condition, 'the normativity of laws is replaced by the performativity of procedures'. This sounds promising but its utility lies in its translation. The membrane around various autonomous social systems (law, economics, art) must be seen as both a fact and convenience, which is to say highly permeable: the actual autonomy of autopoietic systems in relation to the external environment is clearly provisional and arbitrary, a form of patch dynamics. While Luhmann identifies a general historical trajectory of legitimation and a descent of the law from divine authority to performative results, his formulation suggests a tactic of self-legitimation within the procedural, which is what its architectural exponents have latched onto, precisely as a way of excluding politics from architecture. This is the position of Patrik Schumacher, who builds his theory on Luhmann's and offers a vision of architectural outcomes that find their social meaning as avatars of the irresistible wisdom of the market, not a position that necessarily inheres in the useful provisionality – and inevitably shifting observer effects – of the idea of the autopoietic.

The problem of the membrane is particularly reified in the difficulty of coming to grips with the nature of the continuity between architecture and urbanism, the apparent change in register begged by that shift in scale and organisation. Certainly, we continue to be influenced by the historic idea, per Alberti, that these phenomena are essentially just larger and smaller instances of the same substance, but this falls apart at the points of attempted convergence, when the territory shifts ineluctably into the domain of the social and the political, form increasingly encrusted with event. The enormous and persuasive body of work on the city from a generally Marxian perspective – including Lefebvre, Chombart de Lauwe, Williams, Castells, Harvey, Smith (even Mumford and Jacobs) – has formulated robust conceptual and quantitative tools for tackling the subject. These writers frame the visibility of the city in the context of social relations, as a mapping rather than an instigation. The priority of groups over individuals is the key to understanding the social, moving analysis in the direction of space rather than – as more purely architectural theory tends to do – taking spatial relations as the primary given.

Surrealist practices form a strangely useful bridge between these phenomena, standing at the headwaters of psycho-geography (vivid in work as different in mood as the Situationists and Kevin Lynch) and effectively bring the unconscious – hence psychoanalysis – into play as foundational for the understanding of space. While Duchamp and Debord may have been overly fascinated by the psychological juju they thought their procedures helped excavate, they nonetheless suggested a companionable territory to Marxism's focus on group relations in space for understanding the dimensioning of the terrain of individual subjects. More, their sensitivity to the 'irrational' outcomes of random juxtapositions opened up a key vein in a general description of the working of the city, both socially and spatially. The exquisite corpse – with its combination of regulation and chance – surely continues to be as good a metaphor, and model, as we have for the inventive engine of urbanism.

What surrealism lacks is a mechanism beyond delirium or strangeness for vetting its outcomes, a deep qualitative or quantitative parametrics of results and effects. Today's post-surrealist parametrics is a semi-automated method to introduce a specific set of certifying performative criteria on the front end of the process of computational creation and has spread its claims and operations to every scale, from buildings to cities. But can this methodology – which surely has demonstrated the capacity to produce beautiful forms, rich with seductive self-referential meanings – transport its intentions through the process of design in a way that yields outcomes which 'live up' to the critical categories that begat them?

My colleague David Scheer has suggested that there's a helpful distinction to be made between parametric design and algorithmic design. Although both locate design within logical structures that generate form, rather than at the level of form itself, parametric design serves, in practice, mainly as an accelerant that allows the testing of alternative designs by changing inputs quickly, often automatically. Algorithmic design, on the other hand, is more thoroughly recursive, aiming to produce successively better designs that grow from a series of inborn 'selection criteria', the expression of negative and positive desires incorporated in its operations, much closer to the autopoietic ideal. The relationship between these criteria and their outcomes is subject to 'verification' by systems designers – their own form of critical practice – but the connections occupy largely arcane computational realms and the chain of argument can't really be followed, save by programmers. However, the importance of algorithmic design is that it is explicitly conceived to produce results that the designer could not foresee, not just variations on an established prototype or envelope. And, as a politics, by replacing the idea of an 'optimal' design (à la Chris Alexander) with a 'stable' one, such a process might have some actual potential to subvert the received bureaucratic ethos. While this distinction may not be writ among experts, it's another way of trying to probe the question of exactly how a system of self-referential closure can create openness, how the object of architecture interacts with an environment rich with its own parameters and behaviours.

Autopoiesis at the scale of the city and the building

Parametricism seeks to buttress its authority in several important ways. To begin, its discourse – much of it borrowed from the life sciences – seeks to naturalise both its methods and its meaning: an extensive conversation about artificial intelligence and artificial life is pervasive in Parametricism's ambitious self-account. This extends beyond mere metaphor to a 19th-century vitalism that equates architectural creation with the genesis of being itself. Without doubt, the modelling of building as organism, as a self-organising and self-generating system, seeks to blur the boundary between life forms and forms of living. This is very dodgy terrain and I am not the first to point out the eugenic overtones in much of the discussion of architectural autopoiesis and the dangerous ambitiousness of its self-considered reach. The problem is not that it is closed but what it is closed to.

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Christine Boyer writes about this with her usual clarity: 'While the ... model of autopoietic systems offers new ways of talking about both biological form and urban form and presents new organisational methods to manage populations at risk or the flows of movement into the city and between layers of the city, such management systems, however, strip individual or local details from their context, blend characteristics together in databanks, and statistically manipulate differences into a homogeneous pattern. In architecture, it has led to the study of a hallucinatory normality called the 'Generic City'. But what is the standard of this normality, and what does it mean about individuals or cities that do not live up to this standard? Does it form a new kind of inequality: between those who can afford to develop in 'Generic Cities' with all the accoutrements of modernity displayed in their skyscrapers, shopping malls and superblocks of housing and those left behind in the backwaters of development?'

How then is architecture to embrace, enhance and understand the social, to hedge against the kind of technological dream still hungering for a single cybernetic system of organisation that produces not simply cities but life itself? How to step back from this overwhelming tsunami of post-humanist complexity to elevate human and planetary needs as agents against an irresistible model of emergence? One route is suggested by Amartya Sen, who identifies human and social development with capacity building. What Sen argues is not simply for specific powers and practices (nor, certainly, for some sweet form of social Darwinism), but for an expanding space in which to acquire them. For politics, this means moving beyond a simple list of rights towards the more fundamental right to have rights. This is what Henri Lefebvre calls 'the right to the city' – the idea of an imaginative space: a milieu – from which to envision and move towards a city that's the outcome of desires that may not have yet been conceived. It's a revolutionary formulation and demands not simply the whimsical change of churning alternatives with completely commutative meanings but a mutually defended advance of human possibilities. The fight is against the neo-liberal retreat from such broad questions of social welfare – whether expressed theoretically or practically – that springs from the rampant privatising of architecture's chain of being and meaning.

Parametricism's criteria often involve the production of functional outcomes. Although it seems – in much of the work I've seen – less important in practice than the production of new expressive forms, the achievement of novelty, the pursuit of refined vocabularies of shape, and the elision of processes of design and fabrication, I strongly believe that the possibility of creating acute and variegated architectural and urban responses to questions of solar access, ventilation, view, privacy, circulation and other fundamental – and measurable – parameters of architectural success, particularly in cases of large urban aggregations of structures, is a genuinely important frontier to be pursued at full bore. That this might be achieved via the creation of a succession of formal singularities of great structural efficiency is only a bonus in a world of growing scarcity.

The idea of the closed-loop embedded in autopoiesis – of a system constantly renewing itself from its own outputs – is resonant for the creation of truly sustainable architectures and urbanisms, although, on the ground, these loops must be both leaky and internally open. Unfortunately, the leading advocates of architectural Parametricism don't seem interested in this particular form of autonomy; too often the contrary (sustainability is shockingly absent from Schumacher's huge tome), but this calculus is critical to the future of construction and is one of the most promising aspects of the computational infusion into architectural practice. The city is central to this not simply as an outcome but as a critical increment of democratic organisation and as the site at which collective resistance to the predations of globalisation can be best organised and at which the autopoietic metaphor is best interrogated and recast. One cannot just leap analogically from cellular life to social life: the infinity of a human subject's practical engagements simply doesn't resemble those of a cell.

Without doubt, however, computational technologies have already had a great epistemological effect – the layered simultaneity of BIM systems and GIS have been extensively applied but barely appreciated in their deep transformation of our mode of knowing building. Beyond the consequences for representation and process, it's clear that we're on the cusp of creating architectures and cities with new forms of liveliness and responsiveness. However, these cannot be detached – as the corporatised discussion of so-called 'smart cities' so often does – from the real threats to liberty and subjectivity posed by an environment that simply knows too much. Or pretends to. Post-Snowden, we've got to watch out: Parametricism can feel an awful lot like Modernism's big brother.

While there is something deeply sinister in the idea of smart cities and buildings – and with the ratcheting up of the idea that information is simply neutral and 'free' (so often proclaimed by the billionaires who own it) – and while we are right to suspect any ideology of perfect knowledge that seeks to 'optimise' systems too dynamic, complex, political and historical for such approaches, the potential of machine-enabled design to advance environmental transformations remains fascinating, because that project is central to the very future of architecture – and the planet – and because the looping patterns of terrestrial respiration and reproduction must increasingly be the model of all of our building practices: earth is mainly a closed system (if crucially open to energy and the odd meteorite). I know that this might sound, in effect, like a revival of the Functionalist agenda and, in a way, it is. But, believing that architecture is always also an artistic practice, I reject – as a mode of criticism – the idea that we must search for an indexical set of relations between the operational aspects of architecture and their form. Indeed, a legitimately operational touchstone is where the fundamentally surrealist promise of parametrics or algorithmics gains its appeal: the cat can be skinned in an endless number of ways, many of which yield a lovely pelt. This may remind you of those infinite monkeys at infinite typewriters eventually aping Hamlet. But these new design methods are potentially more interesting in their capacity to generate a large number of artefacts that are not Hamlet. The task of criticism is to sort out the worthwhile not-Hamlets from the mounds of gibberish and to resist the fantasies of optimisation and singularity, the oppressive forms of knowledge and practice pretending to perfection.

Means and ends: a quantifiable basis for criticism

I've argued that the focus of criticism must be moved from the territory of authenticating procedures to the terrain of desirable effects. But how to articulate these authoritatively? Nobody who has been in an academic design studio in the past couple of decades can have failed to notice that creeping transformation in styles of account offered by students presenting their projects, which reflect these larger tendencies in critical language and strategy. As I've already observed, the steady displacement of a discourse of effects by one of 'pure' procedures (as if there were any such thing) works to mute the range of judgements about outcomes, which are simply justified reflexively: 'this line represents the connection between Richard Wagner's desk and Otto Wagner's – nuff said!' In part, I think, this neurasthenic silliness is a consequence of the emptying out of the architectural signifier by its asymptotic trajectory in the direction of minimalism and its macho purgation of meaning. This degree zero has also goaded the wild expressionism identified with computational Parametricism and hooray for that! But the stance also seems to be a result of the general displacement of art practices from object to performance. What's striking here is the effective theatricalisation of art (continuing the war between the theatrical and pictorial that Michael Fried long ago marked as crucial to defining art's objecthood) in which we are invited to embrace Marina Abramovic in the same conceptual frame as Rembrandt, both being phenomena seeking the same public and the shelter and sanction of the museum. Such acts of excess parity threaten the very ground of criticism.

This issue is not simply a displacement of the meaning of an artefact onto the technique that produces it. Rather, it is a conceptual reweighting of their relationship that functions in the same way that conceptual art seeks to skew the scales in favour of the quality of the idea that stands at the headwaters of the truncated chain of signifiers that finally yields the thing. Fixation on procedure can be a form of indirection, a shift of focus away from the performativity of the object to that of the artist. While this may have a certain resonance in other artistic disciplines – and certainly hasn't inhibited our own starchitect cults – it can never be enough in the space of actual architecture and of the urban where reception must always be an immanent category as long as other people live in it.

My scepticism is quite different from a blanket antipathy to the idea of intention as a critical category. We're all schooled in the intentional fallacy, the death of the author, and a general dissolution in the probative value of artistic motives and yet architecture really is different. Architectural intent resides in the idea of programme (or something that stands in its place) and a programme-less building ceases to be architecture, much as a sculpture that arrogates specific characteristics of architectural performance – say shelter from the rain or the management of circulation – becomes, at least partially, architecture. That this may constitute an 'expanded field' for the increasingly irrelevant task of adjudicating disciplinary boundaries (I recently had a glance at the catalogue of the School of the Art Institute of Chicago where the degrees have mounted into their hair-splitting dozens), mere multiplication does little to interrogate that class of effects that architecture embodies and that form the main locus for its criticism which – in the social realm – always has a corrective component, advocacy for getting it right. And, many of the effects – thermal behaviour, energy efficiency, ease of movement, mix of people and uses, etc – are both measurable and non-trivial and can be got right in various ways. The more difficult questions concern their intercourse with more slippery categories such as beauty or joy – or justice.

The search, in other words, is for a post-Functionalist, quantitative criticism, that does not simply live in peace with the unaccountable and expressive but converses, negotiates and co-evolves with them. What are the measurable elements to which we can look in architecture that will collaborate with whatever qualifying supplement elevates a building (and an urbanism or a landscape) into the category of art? While we must preserve something of the timeless formulation that ever isolates – or individuates – the quality of delight and insist that we retain some territory of autonomy (or semi-autonomy in the Marxian mode) for the free range of desire and the collusive effects of various taste-cultures, I also believe that what makes architecture singular is that its aesthetics are irreducible to either purely quantitative or qualitative matters, that old asymptotic conjunction of form and function. Programme and expression are inseparable: buildings have motives. As Gilles Deleuze puts it: ‘no one ever walked endogenously’. That is not to say mere goals define architecture – they must be seen in their constant state of change – but that there is no architecture in the absence of goals and these can very often be specified and measured. The chicken has a reason to cross the road.

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This question is germane to the debate about the scope of the validations offered by computational Parametricism, which bear a downside risk of creating standards with a distinctly theistic, ritualistic, auratic, sublime aroma, with the self-declared quest for the new style. This back and forth between codification and ineffability recapitulates exactly that discussion of the last few decades about the authority and utility of the procedural in both its pre- and post-automated incarnations, not simply in determining architectural value but as a mode of invention and this suggests the same sort of collapse between the formal and the social that Functionalism aspired to. Such displacement onto methodological approaches (is anyone else feeling déjà vu of the design methods school of the 1960s?) represents both a kind of endgame for Functionalism and a certain despair over architecture’s actual utility. Proponents of Parametricism move this along by their supersession of the Modernist idea of space by the notion of field, an attempt to capture indeterminacy via a seeming excision of the body, spines succumbing to splines. (I would, by the way, suggest that Walter Netsch’s forgotten ‘field theory’ stands at the headwaters of contemporary post-Functionalist, Formalist, approaches to automated design although the question of more recent interpretations of the idea of field – an extremely expansive notion – must await another day and author.)

While the procedural mood has been, as suggested, strongly influenced by contemporary minimal, gestural and purely performative art ‘practices’ that foreground the body as site, the connection to technique remains abstract. There’s an emotional automation in which the Surrealist legacy again figures strongly, especially its conceit that it had discovered techniques that could directly – and mechanically – access the teeming font of the unconscious. Are computers now meant to dream for us as well as draw?

Computational Parametricism – and its digital scripting – is, inter alia, a means to rationalise, to mechanise, Surrealist procedures. That is, effectively, what makes it different from the immemorial techniques of architecture in general which are, invariably, nothing if not parametric. Indeed, the most theoretically informed, over the top, parametric practice on the planet is probably the new urbanists' (nicely observed by Reinhold Martin in a recent talk) whose coding is amazingly disciplined, comprehensive and successful at producing variations of their own homely, traditionalist, repressive desires. Whether we design with a pencil or a programme, no architecture can exist – or wait long – without recognition of constraints, generally starting with gravity and the injunction of every post-Neanderthal parent to 'stand up straight stupid!' In this sense, parametric computation offers a difference of degree rather than of kind. What it produces is still mainly a shape vocabulary and grammar of unusual sophistication, generated at very high speed. The output, however, still needs to be vetted for cybernetic and other forms of idiocy and submitted to various tests of taste and practicality – included the purging of any accidentally literal or undesired representations, the kind of incidental teratology that comes from anything constituted of skin and bones.

The fallacy of parametric autonomy

The argument has been made for some time that formal outcomes are pre-inscribed in the parameters of the animating programs themselves, that Grasshopper is the real brains – and taste – of the operation. This again raises the issue of the anterior judgement of the procedural, given that the inputs into parametric design guarantee a determinate range of formal outcomes: there's a reason that those Maya monkeys often produce work with deep affinity – although the frequent complaint that you can't tell one project from another represents more of a failure of connoisseurship than fact. Languages do generate their own characteristic prosodies: there's a reason that Japanese, its every syllable ending in an open vowel, is not congenial to long-form poetry. Computer languages are surely even more acute examples as they are not the product of aeons of evolution and the nuanced accumulation of influence and affect but are the short-term creation of a small circle of inventors whose goals are shaped by a vision of outcomes. Catia was a solution to the problem of representing compound curvature, not its source. Indeed, the automation of Zaha Hadid's project has clearly entailed both benefit and compromise. While much of the work could not be built without the computer, there is a risk of loss in translation: it isn't simply a matter of Zaha in, Zaha out. Today there's a whole field of amateur speculation dedicated to discerning the authentic product of the master's hand and the studio simulacrum.

In that sense, the necessity for critical metrics becomes even more acute. If the formal properties of architecture are prevented from any particularly rogue expression by constraining parameters, then effects become especially important. This begins to refocus the idea of intention, away from its dismissal as fallacy or irrelevance. Tools, which have uses, always mediate intentions (which is what gives rise to the fallacy) but by seeking to inseminate architecture with a certain predictability of functional effect – shading, proximity of the lavatory, straight runs for electrical chases, minimum use of reinforcing rods, whatever – Parametricism again effectively recapitulates the Functionalist argument by insinuating Formalism into the lexicon of pure effects, by collapsing the range of choices about building form into a single generative complex. Not that there's anything wrong with that! What's tendentious is the claim more than the practice, the assimilation of procedural authority to outcomes. In architecture, the ends generally justify any means, as long as it doesn't involve killing puppies or over-exploiting interns.

What makes me anxious are more extravagant and overbearing claims and the scary will to power. For example, Patrik Schumacher declared in his 'Parametricist Manifesto' of 2008 (and repeatedly since in his calls for a 'Free Market Urbanism') that the 'shared concepts' of those working towards his 'parametric paradigm' are 'crystallising into a solid new hegemonic paradigm for architecture'. Schumacher elaborates this at great – indeed amazing – length in his two-volume treatise, *The Autopoiesis of Architecture* (AR March 2011), a work that is admirable in its game efforts to assimilate everything, but which founders on the same risk that haunts any totalising system: its heroic lack of scepticism. Hegemonic paradigms – including Modernism's, the previous model – are among the most conspicuous of revolver-reaching stimuli and we need, therefore, to react swiftly to them. While I do not consider procedures – all of which function via the articulation and valorisation of parameters – to be authoritative outside the question of their effects, I don't dismiss any procedure absent the evidence of its outcome: whatever bus gets you to nirvana is fine with me. And, nobody can deny the need to establish a supple set of feedback loops between methods and results. Still, where's the beef?

Enthralled with its brand of universalism, Parametricism seems to be a new name for what used to be called total design – another high point in a very long history of architectural over-reach – albeit with a different inflection and methodology. Both seek all-encompassing control and architectural autopoiesis argues for a troublingly closed idea of infinity, unable to distinguish a cell from a person. This is true both in the sense that they proclaim the all-encompassing character of a unified field in its self-avowed capacity to eventually produce anything and in the even more all-encompassing claim to be able to take account of anything. This is dangerous. By an explicit arrogation of the social and the political into its methodological armamentarium and by its insistence that it is, as procedure, fundamentally scientific, a can of worms cracks open. The idea that architecture defends its territory in a fragmenting and allegedly non-hierarchical social field has a certain hermetic glory but the move from relative to complete autonomy continues to trouble: the end of history again. While many students and practitioners working via parametric scripting have produced images of original and mesmerising beauty, I am unaware of outcomes of this methodology that have had dramatically measurable effects on environmental performance, economics, homelessness, real user control, or any other non-visual characteristic of architecture that cannot presently be achieved more easily by other means.

The idea of self-containment suggested by the concept of autopoiesis, whether incarnated in Varela and Maturana or Luhmann is, however, not entirely ... self-contained. While it is surely a great conceptual convenience when arguing for the autonomy of architectural practice – a kind of idealist partition against contamination – by framing architecture as a system of communication, it invents it as a reciprocal, the singularity (or succession of singularities) at the nexus of a variety of intra- and interdisciplinary relations and influences. This might usefully open architecture to the social, but it also means that shifts in these relationships cause the migration of the architectural in relationship to other points within the larger field of disciplines. Today's architecture is not necessarily tomorrow's and the conceit of self-production – the idea that the system constantly changes in relationship to conditions the system itself considers relevant – is critical, those perturbations in its parts that reposition the object/environment boundary. But, given that we don't respond to everything but only to certain stimuli, the question is how we determine what is relevant. These criteria cannot be completely elastic.

Autonomous or not, parametric design still obliges the designer to choose between alternatives generated by the computational results of the motivating scripting as well as to choose and weight the parameters entered. If anything, this reinforces the reserves of artistry – even informality – that the technique might be capable of, even as it undercuts the domineering mystique offered by its exponents and their troubling claims of universalism. Your parameter, after all, can be my nightmare and a logical – and neglected – area of research is precisely the sourcing of parameters and the relationship between such expert systems and the world of the amateurs who will be the beneficiaries – or victims – of this work. Once the field is expanded, as it must be, to embrace architecture's 'users', claims of disciplinary autonomy become tenuous unless such unwashed feedback is excluded.

Criticism and its measurements

It's a platitude that critics of architecture often arrive on the scene too late, giving their useless thumbs up or down to some zillion-dollar pile on which their opinions will have not the slightest impact. I don't mean to trivialise either the function or the concept of criticism but – just like architecture – it must also be judged by its effects. While our pronouncements may have useful consequences for the general conditions of culture, for the city, for the refinement of the terms of discussion, it is precisely the critic's mission to help vet the instigation of the social and formal parameters of building. In looking at explicitly parametric practice, we should be keen to observe the way in which the parameters of production are inhibited by the parameters of inhabitation, to assess the consequences of their weighting and interaction, to assure that the graphics are not more seductive than the objects, indeed that the avowed parameters inhere in the buildings.

Ironically, a lot of the conversation about computation-driven architecture actually devotes quite a lot of attention to the idea of effects. But the parlance is quite different from the one I am trying to offer. For the Maya generation, the meaning is mainly congruent with the idea of 'special effects', Hollywood lingo: the effects that are being sought are sensory, artistic, representational, rather than social, political or functional. This isn't to say that an aesthetic effect has no potential to yield social or environmental consequences, rather that these consequences are almost invariably indirect, second order effects, rather than immediate ones. And, I surely wouldn't gainsay that a flamboyant return to form was a critical style of rebellion against ossified Modernism and the life-deadening systems of conformity and control that had come to find it so congenial.

'Why is it that the most exuberant formal experimentation all seems to take place under the auspices of various despotisms, from the Persian Gulf to the boomtowns of China?'

This opens up a familiar interpretative gap and I'm not yet satisfied with how the current generation – indeed the several generations of Postmodern practices of which Parametricism is one – has sought to bridge it. While the idea that the right riposte to a dreary, universalised, mechanised, architecture was broad-based, artistic insubordination, the spirit of anything goes, and an exaltation of the individuality of the object made sense at the time, the rapid co-option of these formal experiments by the man in his various incarnations is striking. Why is it that the most exuberant formal experimentation all seems to take place under the auspices of various despotisms, from the Persian Gulf to the boomtowns of China to capitals of the Central Asian -stans? That this is an advertisement for the truly marginal effects of formal experiment as such is both painful and indisputable. It is an irony – but not a coincidence – that wild architecture is so easily tolerated, one that should give us pause when thinking about the potency of form qua form. If our agendas are so easily co-opted, we certainly bear at least some of the responsibility for their ultimate wimpiness.

If it's social effects we're looking for as a foundation for criticism, where – beyond raw distributive equity – do we locate them? Surely not in some deracinated form of utilitarianism, in a purely statistical conceit. While our obligation as citizens is to assure that there be a fundamental fairness in the allocation of rights and goods, it is not exactly – at least not exclusively – where our duties as architects lie. Sure, there is something measurable gained if we can design the means to make housing accessible and affordable via technical innovations, but there can be a fine line between affirming the logics of distributive inequity and assaulting it. We want everyone housed, but not in the segregated minimum-security prisons of Existenzminimum blocks. Don't we want to participate in a project of raised, not diminished, expectations? This means that it is not completely productive to have a criticism that is entirely rooted in material expectations, however important it is that material benefits be gained.

The way forward is to focus our critical gaze on situations where the stakes are real. To cite one possible critical direction, the less pervasive – but potentially more liberating and germane – fascination with 'informality', which has seen a recent return to professional scrutiny, actually seeks to come to grips with the major portion of the urban condition, if only by identifying the place where more than half of city dwellers eke out their lives. And yet this too rarely figures in the critical canon, perhaps because it so directly gainsays the question of architecture's discursive autonomy. By parcelling off this territory with walls of either infatuation (generally freighted with an excess of the formal) or disdain (why look at the slums?) we distort our field. But the informal has powerful implications for our own styles of formal analysis. Although the subject is conceptually fraught – and many of its best students now go so far as to reject the category as simply too slippery – it's too important, too seminal, to ignore its key qualities.

The most critical of these is the element that has long made it so conceptually attractive to those seeking to explore the relationship of architecture's modes of production and the nature of the freedom and self-actualisation enjoyed by those who use and inhabit it: the real romance and the promise of informality is 'user' control. But control of what? Much as the favelas and squatter settlements of Latin America and Asia are alluring for their intoxicating, complex, visuality – the image of prismatic squalor spilling down the hills of Rio – so the ideal of participation needs to be taken with a grain of salt. My own school days were filled with the ennobling rhetoric – and the real work on the ground – of John Turner as well as with the ultimately indeterminate speculations of John Habraken and his highly parametric 'support structures'. The idea behind these and other experiments was to translate the supposed autonomy – the right to build houses of rubbish and to have sewage run down the middle of the street – 'enjoyed' by Third World slum dwellers into a more rationalised form of flexibility and control to suit the trials of expanding and shrinking households in developed economies. The best architects among us – including many involved in parametric techniques – are again working to bring more malleability to our environments, but the question is what is lost in translation. And this, as usual, is politics.

The challenge for criticism is not simply to acknowledge the political but to struggle to infuse the practice of architecture with the means for understanding and incorporating progressive social values, including ever-expanding rights of comfort and desire. One of the fascinations of architectural criticism is that its work must bridge the qualitative and the quantitative and we should not demote the idea of net-zero energy or mass affordability to a status inferior or ancillary to dancing forms and fascinating finishes. Criticism must play a role both in advocating for the most expansive ideas of artistic self-expression and human possibility and in making ardent arguments through which to expand, refine and acquire real outcomes for real people, tireless propaganda for the good, the just, the fair, and the beautiful.