Parametricism as Style - Parametricist Manifesto
Patrik Schumacher, London 2008

Presented and discussed at the Dark Side Club, 11th Architecture Biennale, Venice 2008

We pursue the parametric design paradigm all the way, penetrating into all corners of the discipline. Systematic, adaptive variation, continuous differentiation (rather than mere variety), and dynamic, parametric figuration concerns all design tasks from urbanism to the level of tectonic detail, interior furnishings and the world of products.

Architecture finds itself at the midpoint of an ongoing cycle of innovative adaptation – retooling the discipline and adapting the architectural and urban environment to the socio-economic era of post-fordism. The mass society that was characterized by a single, nearly universal consumption standard has evolved into the heterogenous society of the multitude.

The key issues that avant-garde architecture and urbanism should be addressing can be summarized in the slogan: organising and articulating the increased complexity of post-fordist society. The task is to develop an architectural and urban repertoire that is geared up to create complex, polycentric urban and architectural fields which are densely layered and continuously differentiated.

Contemporary avant-garde architecture is addressing the demand for an increased level of articulated complexity by means of retooling its methods on the basis of parametric design systems. The contemporary architectural style that has achieved pervasive hegemony within the contemporary architectural avant-garde can be best understood as a research programme based upon the parametric paradigm. We propose to call this style: Parametricism.

Parametricism is the great new style after modernism. Postmodernism and Deconstructivism have been transitional episodes that ushered in this new, long wave of research and innovation.

Avant-garde styles might be interpreted and evaluated in analogy to new scientific paradigms, affording a new conceptual framework, and formulating new aims, methods and values. Thus a new direction for concerted research work is established. My thesis is therefore: Styles are design research programmes.

Innovation in architecture proceeds via the progression of styles so understood. This implies the alternation between periods of cumulative advancement within a style and revolutionary periods of transition between styles. Styles represent cycles of innovation, gathering the design research efforts into a collective endeavor. Stable self-identity is here as much a necessary precondition of evolution as it is in the case of organic life. To hold on to the new principles in the face of difficulties is crucial for the chance of eventual success. This tenacity – abundantly evident within the contemporary avant-garde - might at times appear as dogmatic obstinacy. For instance, the obstinate insistence of solving everything with a folding single surface – project upon project, slowly wrenching the plausible from the implausible – might be compared to the Newtonian insistence to explain everything from planets to bullets to atoms in terms of the same principles.

“Newton’s theory of gravitation, Einstein’s relativity theory, quantum mechanics, Marxism, Freudianism, are all research programmes, each with a characteristic hard core stubbornly defended, … each with its elaborate problem solving machinery. Each of them, at any stage of its development, has unsolved problems and undigested anomalies. All theories, in this sense, are born refuted and die refuted.” The same can be said of styles: Each style has its hard core of principles and a characteristic way of tackling design problems/tasks.

Avant-garde architecture produces manifestos: paradigmatic expositions of a new style’s unique potential, not buildings that are balanced to function in all respects. There can be neither verification, nor final refutation merely on the basis of its built results.

The programme/style consists of methodological rules: some tell us what paths of research to avoid (negative heuristics), and others what paths to pursue (positive heuristics). The negative heuristics formulates strictures that prevent the relapse into old patterns that are not fully consistent with the core, and the positive heuristics offers guiding principles and preferred techniques that allow the work to fast-forward in one direction. The defining heuristics of parametricism are fully reflected in the taboos and dogmas of contemporary avant-garde design culture:

Negative heuristics: avoid familiar typologies, avoid platonic/hermetic objects, avoid clear-cut zones/territories, avoid repetition, avoid straight lines, avoid right angles, avoid corners, … and most importantly: do not add or subtract without elaborate interarticulations.

Positive heuristics: interarticularate, hyberdize, morph, deterriorialize, deform, iterate, use splines, nurbs, generative components, script rather than model, …

Parametricism is a mature style. That the parametric paradigm is becoming pervasive in contemporary architecture and design is evident for quite some time. There has been talk about versiioning, iteration and mass customization etc. for quite a while within the architectural avant-garde discourse.

The fundamental desire that has come to the fore in this tendency had already been formulated at the beginning of the 1990s with the key slogan of “continuous differentiation”. Since then there has been both a widespread, even hegemonic dissemination of this tendency as well as a cumulative build up of virtuosity, resolution and refinement within it. This development was facilitated by the
attendant development of parametric design tools and scripts that allow the precise formulation and execution of intricate correlations between elements and subsystems. The shared concepts, computational techniques, formal repertoires, and tectonic logics that characterize this work are crystallizing into a solid new hegemonic paradigm for architecture. One of the most pervasive current techniques involves populating modulated surfaces with adaptive components. Components might be constructed from multiple elements constrained/cohered by associative relations so that the overall component might sensibly adapt to various conditions. As they populate a differentiated surface their adaptation should accentuate and amplify this differentiation. This relationship between the base component and its various instantiations at different points of insertion in the "environment" is analogous to the way a single genotype might produce a differentiated population of pheno-types in response to diverse environmental conditions.

The current stage of advancement within parametricism relates as much to the continuous advancement of the attendant computational design technologies as it is due to the designer’s realization of the unique formal and organizational opportunities that are afforded. Parametricism can only exist via sophisticated parametric techniques. Finally, computationally advanced design techniques like scripting (in Mel-script or Rhino-script) and parametric modeling (with tools like GC or DP) are becoming a pervasive reality. Today it is impossible to compete within the contemporary avant-garde scene without mastering these techniques. Parametricism emerges from the creative exploitation of parametric design systems in view of articulating increasingly complex social processes and institutions. The parametric design tools by themselves cannot account for this drastic stylistic shift from modernism to parametricism. This is evidenced by the fact that late modernist architects are employing parametric tools in ways which result in the maintenance of a modernist aesthetics, i.e. using parametric modelling to inconspicuously absorb complexity. Our parametricist sensibility pushes in the opposite direction and aims for a maximal emphasis on conspicuous differentiation.

It is the sense of organized (law-governed) complexity that assimilates parametricist works to natural systems, where all forms are the result of lawfully interacting forces. Just like natural systems, parametricist compositions are so highly integrated that they cannot be easily decomposed into independent subsystems—a major point of difference in comparison with the modern design paradigm of clear separation of functional subsystems.

The following 5 agendas might be proposed here to inject new aspects into the parametric paradigm and to push the development of parametricism further:

1. Inter-articulation of sub-systems: The ambition is to move from single system differentiation—e.g. a swarm of façade components - to the scripted association of multiple subsystems—envelope, structure, internal subdivision, navigation void. The differentiation in any one systems is correlated with differentiations in the other systems.

2. Parametric Accentuation: The ambition is to enhance the overall sense of organic integration through intricate correlations that favour deviation amplification rather than compensatory or ameliorating adaptations. For instance, when generative components populate a surface with a subtle curvature modulation the lawful component correlation should accentuate and amplify the initial differentiation. This might include the deliberate setting of accentuating thresholds or singularities. Thus a far richer articulation can be achieved and thus more orienting visual information can be made available.

3. Parametric Figuration: We propose that complex configurations that are latent with multiple readings can be constructed as a parametric model. The parametric model might be set up so that the variables are extremely Gestalt-sensitive. Parametric variations trigger gestalt-catastrophes, i.e. the quantitative modification of these parameters trigger qualitative shifts in the perceived order of the configuration. This notion of parametric figuration implies an expansion in the types of parameters considered within parametric design. Beyond the usual geometric object parameters, ambient parameters (variable lights) and observer parameters (variable cameras) have to be considered and integrated into the parametric system.

4. Parametric Responsiveness: We propose that urban and architectural (interior) environments can be designed with an inbuilt kinetic capacity that allows those environments to reconfigure and adapt themselves in response to the prevalent patterns of use and occupation. The real time registration of use-patterns produces the parameters that drive the real time kinetic adaptation process. Cumulative registration of use patterns result in semi-permanent morphological transformations. The built environment acquires responsive agency at different time scales.

5. Parametric Urbanism: The assumption is that the urban massing describes a swarm-formation of many buildings. These buildings form a continuously changing field, whereby lawful continuities cohere this manifold of buildings. Parametric urbanism implies that the systematic modulation of the buildings’ morphologies produces powerful urban effects and facilitates field orientation. Parametric Urbanism might involve parametric accentuation, parametric figuration, and parametric responsiveness.

Modernism was founded on the concept of space. Parametricism differentiates fields. Fields are full, as if filled with a fluid medium. We might think of liquids in motion, structured by radiating waves, laminal flows, and spiraling eddies. Swarms have also served as paradigmatic analogues for the field-concept. We would like to think of swarms of buildings that drift across the landscape. Or we might think of large continuous interiors like open office
landscapes or big exhibition halls of the kind used for trade fairs. Such interiors are visually infinitely deep and contain various swarms of furniture coalescing with the dynamic swarms of human bodies. There are no platonic, discrete figures with sharp outlines. Within fields only the global and regional field qualities matter: biases, drifts, gradients, and perhaps even conspicuous singularities like radiating centres. Deformation does no longer spell the breakdown of order but the lawful inscription of information. Orientation in a complex, lawfully differentiated field affords navigation along vectors of transformation. The contemporary condition of arriving in a metropolis for the first time, without prior hotel arrangements, without a map, might instigate this kind of field-navigation. Imagine there are no more landmarks to hold on, no axis to follow and no more boundaries to cross. Contemporary architecture aims to construct new logics – the logic of fields – that gear up to organize and articulate the new level of dynamism and complexity of contemporary society.

Furniture and product design fully participates in the parametricist agenda we are pursuing. We consider furniture not in terms of isolated objects but as a pre-eminent space-making substance. Our design efforts need to encompass the domains of interior design, furniture design, and even product design. We can orchestrate all those registers to advance the design of integrated, immersive worlds. Our handling of interior furnishings as dynamic swarm formations, or sometimes as a continuous surface/fluid mass, is geared towards the detailed elaboration of the continuously differentiated fields described above.

The Dark Side Club is a critical salon initiated and organized by Robert White to coincide with the Architecture Biennale. Three successive events were onceived as a critical salon to debate some of the themes Aaron Betsky had set for this year’s Biennale. Three curators have been invited to each put forward a proposition for debate: Patrik Schumacher, Greg Lynn, and Gregor Eichinger. Each invited young architects and thinkers to debate the direction architecture is taking.

The first session – curated and introduced by Patrik Schumacher was titled: Parametricism as New Style. The following 8 architectural studios were presenting: MAD, f-u-r, UFO, Plasma Studio, Minimaforms, Aranda/Lasch, AltN Research +Design, MOH. Jeff Kipnis acted as moderator.

This interpretation of styles is valid only with respect to the avant-garde phase of any style.

It is important to distinguish between research programmes in the literal sense of institutional research plans from the meta-scientific conception of research programmes that has been introduced into the philosophy of science: whole new research traditions that are directed by a new fundamental theoretical framework. It is this latter concept that is utilized here for the reinterpretation of the concept of style. See: Imre Lakatos, The Methodology of Scientific Research Programmes, Cambridge 1978


The final reckoning takes place later, in the arena of the mainstream adoption which only indirectly feeds back into the central, discursive arena of the discipline.

The credit for coining this key slogan goes to Greg Lynn and Jeff Kipnis.

“Parametric Figuration” featured in our teachings at Yale and at the University of Applied Arts, Vienna. It also featured in my studio at the AADRL.

Parametric Responsiveness was at the heart of our 3 year design research agenda “Responsive Environments” at the AADRL in London from 2001-2004.

“Parametric Urbanism” is the title of our recently completed design research cycle at the AADRL, from 2005 – 2008.

http://www.patrikschumacher.com/Parametricism%20as%20Style.htm