The Parametric Sublime*

The range of cultural enterprises which depend on the computer for conception, construction, storage, and display, share with that device–as if by an intrinsic and fractal reciprocity of structure–a parametric ontology that imbues them with an aura of the sublime. Attention to this quality of the sublime that adheres to digital projects promises to link the quidity of the computer with aesthetic philosophy and a history of modernist and post-modernist artistic practice.

Take the foundational thought experiment of Turing, the Universal Machine, as a conceptual starting point:

> "We may compare a man in the process of computing a real number to a machine which is only capable of a finite number of conditions … The machine is supplied with a 'tape' ... divided into sections (called 'squares') each capable of bearing a 'symbol'. At any moment there is just one square ... 'in the machine'. … only one of which the machine is, so to speak, 'directly aware'..."

Turing goes on to demonstrate that this machine is capable of making any calculation that can be made (never-mind that there are some that can't be!). If this is not *the* computer, it is still the equivalent of any computer and it is essentially a parametric system that includes a temporal dimension governed by rules.

The empty square in Turing's machine is the equivalent of an algebraic parameter. And this same parameter shows itself indispensably in higher level programming languages. The surprising effect–in either domain–of this essentially empty character is to create, *ex nihilo*, a universe:

> x = 1; defines a singularity, a point, (or a line) but …
>
> x/y = 1; defines an infinite hyperbolic universe

This last example produces from two empty symbols (signifiers floating free of specific referents) a certain shape, a precise system, a definite relation; it is an indeterminacy that produces a particular form. That is, it is both determinate and indeterminate at once, since even as either might vary freely, one determines it's other implicitly.

Parametric systems contain a tension between their laconic definitions, within a symbolic language, and their **instantiation**. The one is finite while the other is potentially endless. They exist in two different domains: conceptual and experiential. The relation suggests a series of oppositions: constraint/possibility, mind/matter, symbolic/real, potential/actual, back/front, code/display, etc. …

It is a series of instantiations that a person confronts in an encounter with the computer. The emptiness in the system is filled and voided again and again producing a seriality that is apprehended by the user as time, space, variation, change, organization, logic,

movement, state, customization, randomness, narrative, etc. These are second order epiphenomena that depend on the computer's continuous presentation of a flow of instantiations.

The openness of a parametric system presents itself as a problem of order in that the "any" or "every," which constitutes the parameter, declines to prescribe an order to its filling. The paradigmatic dimension of the parameters' "any" requires a syntagmatic and complementary dimension which, by its rule (or lack thereof), orders the series. The alleatory therefore arises exactly as the multitude of possible sequences of instantiation that are ungoverned, together with those that are.

In even the most mundane computer task, there is a palpable presence of the parametric at play. The awareness of that presence, however, recedes with familiarity, as does the sense of strangeness, wonder, and awe that it can inspire. On those occasions where attention *is* drawn to the workings of the parametric, when the contradictory aspects of it have been aestheticized, there is a very specific affect which results. The face proper to this nexus of contradictions has a name: the sublime.

Kant, in his *Critique of Judgment,* defines the sublime in contrast to both the rational and the aesthetic as a peculiar mixture of fear and pleasure in the face of the vast and the powerful. It is an idea based in a tension between what it is possible to conceive and what it is possible to experience. Kant calls the "mathematical sublime" our experience of the innumerable and the extremely large or small as opposed to the "dynamic sublime," which relates to the fear and impossibility of directly experiencing the dangerous forces of nature. The sublime is at once the humbling of human faculties as they confront what exceeds them so mightily, and the overcoming of that fear inspiring revelation by a trick of the mind: a conceptual encapsulation, a naming, a representation. In that way, reason can grasp what cannot be directly experienced, the aesthetic can suggest it, and pleasure comes as a congratulatory laurel.

The parametric sublime is an aspect of the mathematical sublime. Computation operationalizes the contradiction between the symbolic specificity of a parametric system and the infinitude of its possible instantiations. And while the profundity of remarking on this contradiction may seem to decline as the wonder of thinking machines wears off, that they reproduce the trick we manage and find pleasure in–containing the infinite in the finite–will in some way always be that from which digital art derives its impact and its effects.

The ethical and aesthetic implications of seriality as practiced by modernists from the impressionists through the minimalists and beyond are multiplied by the scale and rapidity with which computational methods can produce variation. This shift of degree and magnitude is itself also an aspect of the sublime. Computation is capable of pushing the intensity of the sublime by adding these effects together, but the simplest and most crucial access to the sublime is produced in even the most basic forms.†

* I mean here to define the "parametric sublime" as distinguished from the "computational sublime" as proposed by McCormack and Dorin which seemed a aspirational formulation providing motive for explorations specifically in generative systems and aiming that work towards the achievement of a kind of "natural" unpredictability and authorlessness by mining the vein of artificial life. Lev Manovich's concept of "variability" is also related but only touches on surface effects does not tackle either the conceptual origins within computation or the philosophical implications for aesthetics or in relation to structuralism.

† John F. Simon Jr.'s seminal *Every Icon,* is an excellent example.