Originally written as a curatorial essay for the international architectural exhibition “Non Standard Architectures” at the Centre Pompidou, Paris (2002-2003), this paper discusses the formal and epistemic implications of the advent of this new paradigm (1). The non standard inscribes itself within the realm of contemporary architectural experimentations making extensive use of recent computational design technologies and its formal catalogue is marked by highly complex dynamic forms that indicate a revival of the organic tradition. The paper recasts this recent organicism in historical continuity with the early modern organic tradition, in order to highlight and reassess this formal tradition resurfacing today. Early modernist and non standard instances of the organic lineage show a remarkable formal reminiscence which conceals however significant epistemological, perceptual, geometric/mathematical and technological distinctions. The paper discusses this reminiscence in terms of a powerful ‘gestalt switch’ which is both perceptual and epistemic. The modernist mechanic-organic debate is hence revisited in terms of a basic epistemological distinction which invariably associates intelligibility in formal processes with stability and identity, as displayed in typical, standardized forms, while organic formal processes are defined as individualistic, subjectivist, intuitionist processes that escape systematic analysis and rationalization. The debate invariably records a negative anchorage of the organic in modernist thinking, as a counter-modern instrument denouncing mechanic normativity or standardization.

The so-called hermetic formal processes of the organic tradition are becoming increasingly transparent as studies in complexity and computation develop. Organic form is now being rationalized and objectified with an ever increasing computational content, one that is supplied by advances in computer-aided methodologies and procedures used in the development and control of form. The current revival of the organic inserts itself at the very heart of altering logics of material and industrial production which sustain and supply organicist formal
processes with technical and material processes of serial but non-identical realization. The formalist methodologies used in computational design research ease the understanding and control of complex forms and enable their production by extending the interface from standardization to non-standardization. The organic paradigm is now augmented with a computational essence that adds to the first biological essence of the modernist organic tradition. Indeed, the organic owes its revival to this double essence which reforms its epistemological status and betrays its historiographical obfuscation. In this sense, the non-standard is argued to be a first reconciliation of mechanic and organic paradigms, as the neo-organic is now inclusive of the mechanic, and can be sent back into the materiality of serial industrial processes to stand the test where its modern predecessor failed. A growing accuracy to translate form into computational languages now allows for a rigorous discussion of once intuitive topics. Increasingly denaturalized within an increasingly naturalized epistemology, the neo-organic revives intuitionism as a lighter variant of a heavy formalism operative in computational architectures.

INTRODUCTION

The international architectural exhibition “Architectures non standard” (2) has been named after a mathematical analysis (3) and through the bias of multiple external fields into which this latter extends. Indeed, the name indicated the advent of a new paradigm with a double biological and computational essence, one that signals a general and synchronic paradigmatic shift in the theoretical, philosophical, scientific and epistemological accounts of the world in which architecture takes place. This shift is seen to have drastic implications and consequences on architectural form. The formal catalogue of contemporary architectural experimentations within the realm of recent computational design technologies is marked by highly complex dynamic forms which bring back the organic, the dynamic, the animate with renewed interest. Formal stability now submits to an architectural vitalism and ecologism constantly shifting form, caught in ever-developing morphogenetic abilities; the right angle capitulates in a relaxation releasing an open, fluid, adaptive and supple inflection; form explodes, overflows itself in constant variation and change, accommodating and recording data and forces shaping both the environment and itself. This new spatial and formal paradigm expands the visual and plastic repertoire by the production of ever complex gestalts, augmented in information content, a thickness which defies the limits of our perceptual and mental abilities, and appeals for a similar augmentation of our faculties.

FORM-NORM

Non standard form is a statement of non-identity extended to the infinite: it forms a powerful challenge to the entire organisation of human experience and philosophical thought, used to be defined between order and chaos, identity and difference, invariable and variable, universal and singular, essence and appearance. Such antinomies are both generated and controlled by an extra-formal normativity that defines form as the incarnation of a model implicated by a norm. The intricate bound between form and norm indicates that a provocative challenge is now being posed to the stability of norm by a formal activity generating singularities that do not retrieve the identity of the model or type; by a shifting definition of essence and origin that refuses a reiteration of similitude; by a denial
of *telos* that opposes a potential infinite to an actual one. The most significant indication of this changing condition of norm and form is given by developing modes of industrial production that are seen to undergo changes in order to adapt to a rising demand of singularity. What is called customization was a first attempt to deviate the norm, allowing industrial repetition an occasional departure from the model for an accommodation of singularity. The formal variability allowed by customization operates through within the limits of a still bounded norm. In this sense, customization can be defined as a process of ‘de-standardisation’, to distinguish it from non standardization. Non standardization launches an unprecedented simultaneity of mental and material processes, asking for an adaptation of serial modes of production to altering modes of conception. Developing processes of production - CNC milling machines, rapid prototyping techniques, smart moulds- allow the computation and materialization of any discrete moment of form, in lubricated variation itself with the use of algorithmic systems. This new logic of production enabled by a growing unilaterality of formal/computational languages dissolves the delay between conception and production and has important implications in terms of the relation between form and norm. A new notion of form, defined as simultaneously serial and singular, gives rise to the notion of a fluctuating norm, one which is in constant redefinition in an open-ended series formed by the non-determinacy of a formal catalogue. This new condition that amounts to a synchronic fluctuation of norm and form indicates that the current problematic of the so-called digital architectures lies in an active and pressing reengagement in material and industrial logics of production that redefine formal processes. The exhibition articulated this problematic that displaced the first generation discourse on dematerialization and immaterialization accompanying the advent of the digital, to reorient theoretical and critical interest on new forms of materialization of architecture, repositioned in its current epistemological condition.

**IDEALISM-FORMALISM**

This condition opens with the growing simultaneity of tools of conception and production drawing closer the traditional epistemic polarity between idealism and formalism. Characterized by a turn towards reality and practicality, away from a-priorisms, this second generation discourse on digital constructivism marks a shift towards a more naturalized epistemology. In mathematics, non standard analysis marks a similar epistemic turn; once inaccessible fields and scales of observation, calculus and proof open with the study of infinitesimals and the advent of computer-aided calculus, and bring forth a more experimental, pseudo-empirical phase for mathematics. This new phase develops a constructive mathematics which opposes pure mathematics and claims scientificity in the articulation of constructed theory and mathematical reality (Harthong and Reeb, 1989). A branch of constructive mathematics, non standard analysis revives intuitionism as a lighter variant of a heavy formalism shifting towards the pragmatism of the techno-sciences (4).

An understanding of the formal implications of the epistemic resolution offered by the non standard requires a return to the idealism-formalism debate which accounts as well for an art-historical unfolding of the problem of form. The problem of form is epistemically and historically inscribed within this debate that centers on the extrinsic-intrinsic dichotomy, that is, the problem of mediation between an external positive
world of contingent things and phenomena, and a mental/intellectual world housing the conceptions and interpretations of the former. This basic philosophical problem is known to stand at the source of the act of creation and operate behind diverse approaches to architectural design. One historical instance of the unresolved oscillation between the two poles of this dichotomy comes as the early modernist indecision between standardization and artistic invention, or typicality and singularity, a modern bipolarization which inscribes itself within the organic-mechanic debate.

ORGANIC-MECHANIC

The modernist project of cultural and historical unity brings forth a new normativity resting on a powerful overlapping of artistic, social, economic and political norms made operative with the shifting of emphasis to industrialisation and standardization (Mertins, 2000). Justified by its adequacy to an emerging mass-society, serial production consolidates the prominence of the machinic paradigm in early modernism. Standardization means the self-iterability, stability and perfection of the model/type and norm through mechanical means, a perfection that in the Werkbund ideal of the ‘gute form’ would also restore to the self-identical product the spiritual effect of the craft object (Mertins, 2000). A simultaneous reading of social, technical and formal norms confers a sense of unity, totality and Sachlichkeit to the mechanic paradigm. The organic paradigm, on the other hand, challenges this modernist normativity defined by serial production and typification. Defining an inside-out, open-ended and unpredictable formal process, the organic as an evolutionary metaphor alluding to vitalism and intuitionism resists objectification, producing anxiety all by itself. The organic confronts the disquieting vital element, in mutation and movement, to the morphostatis and identity of typical forms. Organic formal processes can not be governed by the normative logic of standardization: Incompatible with serial processes of industrial production, they inevitably fail the test of their serial self-reproduction. With ‘mechanization taking command’, borrowing the expression of Siegfried Giedion, the organic becomes the term of exclusion of the regulative norm (Gombrich, 1966). The mechanic-organic debate invariably records this negative anchorage of the organic in modernist thinking, as a counter-modern instrument denouncing mechanic normativity.

This incompatibility further extends into a basic epistemological distinction between the mechanic and the organic: while intelligibility in formal processes is invariably associated with stability and identity, as displayed in typical, standardized forms, organic formal processes are defined as individualistic, subjectivist, intuitionist processes that escape systematic analysis and rationalization. The modernist connotation of the organic amounts to a crisis of mastery over the formal process and product, resulting in the banishment of the organic from the realm of the rational and the objective to that of aesthetic psychologism. The mechanic-organic debate then translates into a rational/irrational opposition (Rowe, 1994), one which is less then conclusive in the early decades of the 20th century as witnessed by the intensity of avant-garde debates revolving around the question of form, and the recurring dichotomies between typical and singular, rational and irrational, objective and subjectivist/intuitionist, utilitarian and artistic (Mertins, 2000, 52).
The divide is reflected in the two directions taken by the formalism-idealism debate: on the one hand, a formal/analytic approach which strives to develop a science of form (Formwissenschaft), and on the other, an insistent psychologism and intuitionism focusing on the subjective and sensible aspects of aesthetic contemplation (Mallgrave and Ikonomou, 1994). The symmetry is reflected in Wilhelm Worringer’s 1907 thesis, *Abstraction and Einfühlung* (Worringer, 1986), attempting without resolution, to bring into equilibrium the two poles of German normative and psychological aesthetics (Valier, 1986). Drawing heavily on Riegl’s concept of *Kunstwollen*, this collective and anonymous will to art, abstraction for Worringer arises out of a psychological need to keep distances with an uncontrollable nature, thus opposing ‘Einfühlung’, this intuitionist sense of well-being and euphoric overlapping with nature (Valier, 1986). Worringer’s symmetry is emblematic of the mechanic-organic opposition translated into his abstract and natural forms: abstraction, denoting the inorganic, takes on geometric form and mathematical legitimity, leaving the organic in an insistent castration in psychologism, maintaining the rational-sensible opposition in which the organic remains hermetic to the disclosure of its formative activity.

EUCLIDIAN-NON-EUCLIDIAN

The opposition is deemed to remain unresolved without the recognition that the so-called abstract and natural forms may not have a common geometric ground. Non-Euclidian geometry, named after its opposition to Euclid’s fifth parallel postulate, owed its initial formulations to Gauss, Lobachevsky and Bolyai, as early as in the first decades of the 19th century (Henderson, 1983). Later in 1867, Riemann formulated still another alternative to Euclid’s system, a geometry as “the study of manifolds of any number of dimensions and of any curvature, using differential geometry as the measure of this curvature” (Henderson, 1983). The provocative challenge that these alternative non-Euclidian geometries represented was the possibility of surfaces or spaces with variable curvature, on which a figure could not be moved without being affected by changes in its own shape and properties, thus invalidating the Euclidian assumption of the indeformability of figures in movement, in other words, the positing of an absolute unchanging form (Henderson, 1983). The fallibility of Euclid also meant the fallibility of the Kantian a-priori categories of space and time without which perception cannot occur. This first refutation of mathematical axioms would mean a turn from the absolute to the relative nature of truths, as pronounced in Poincaré’s conventionalist view of the axioms, stating that geometric axioms are neither synthetic a priori, nor empirical, but conventions (Henderson, 1983). Though not settling the issue, Poincaré’s relativism for the first time pointed to the
incommensurability of different geometries in which form takes place, that is, the recognition that the so-called irrational organic forms and rational typical forms develop into philosophically and mathematically different formal and spatial paradigms, explaining also for the aesthetic and epistemological divides that separate them.

VISIBLE-INVISIBLE

The consciousness of this incommensurability would however not bring the idealism-formalism debate to a dead-end. Early 20th century interest in new geometries and in the theory of Relativity opened new conceptions of space and perception with new possibilities of intuiting form and space that allow for an exploration of form in mutation and movement to challenge the identity and stability principles of the mechanic paradigm. However, modern art in the early decades of the 20th century continued to perpetuate the rational/irrational opposition in a diversity of positions taken by the modernist avant-gardes: All these positions were actually different reactions to an ‘invisible’ which opens with non-Euclidean geometry and the geometry of n-dimensions, with their claims of a curved space and the possibility of a fourth dimension that remain beyond the reach of the visible and of reason (Henderson, 1983). As Linda Dalrymple Henderson (1983) notes, fascination with new geometries, and especially with the fourth dimension was common to almost all avant-gardes (Cubism, Futurism, Suprematism, Constructivism, Dadaism, de Stijl, Surrealism) and was synonymous with emancipation from established truths: The impalpability and versatility of space was either tried to be visualized and measured through the submission of form to empirical, mathematical laws governing the dynamics of its evolution, or met with a denial of intelligibility, turning to pure intuition and pure sensation in an increasingly abstract art liberated from natural references (Henderson, 1983). A rigorous formal/mathematical approach to problems of form would then meet a double resistance in either a para-scientism mystifying the invisible, or a Surrealist and Dadaist relief from reality and materiality (Henderson, 1983). The mystification of mathematical and scientific developments in early 20th century (in the form of pseudo-philosophical movements such as Hinton’s Hyperspace Philosophy and Theosophy, or the popularization of the fourth dimension in science-fiction novels (9)) account for a resistance to a formalization that can not yet be redeemed by existing mental and cognitive structures and for the same reason overflows intelligibility. It can be noted that this condition echoed itself in the proliferation of the literature of cyberspace and virtual reality, in the frenetic emphasis on the dematerialization of the visible and the tangible in invisible bits.

This distrust in visual reality was however balanced with an interest in visualization. A proponent of what he calls “the mathematical way of thinking in visual art”, Max Bill (1993) points to the necessity of “the assistance of some visualizing agency” so that “...abstract conceptions assume concrete and visible shape, and so become perceptible to our emotions. Unknown fields of space, almost unimaginable hypotheses, are boldly bodied forth” (Bill, 1993, 8). An enlargement of the visual template, already apparent in the 19th century practice of modelling mathematical objects and the artistic interest in them, would contribute to the formation of a plastic language and provide for new formal idioms. Interest here is less in formalism than in “form in which intuitions or ideas or conjectures have taken visible substance...an image that is no mere transcript of this

 invisibility world but a systematisation of it ideographically conveyed to our senses” (Bill, 1993, 9). This will to visualization, as a demystifying endeavour to map what remains beyond the scale of vision (10) is fulfilled for instance in the case of fractal geometry, developed in the 1970’s by Benoît Mandelbrot, depicting the geometry of nature in the figure of the fractal enlarging the domain of the visible to at once inaccessible scales of observation and with an accuracy that would not have been conceivable without the help of the computer (Mandelbrot, 1993). The limits of the visible extend with the limits of computation and reason.

**DETERMINISM-INDETERMINISM**

However, the insufficiency of mathematical tools and topological-geometric models was still an obstacle in 1917 when D’Arcy Thompson wrote his major treatise *On Growth and Form*, developing a morphogenetic theory repositioning the problem of form as a mathematical problem and that of growth as a physical one (Thompson, 1992). D’Arcy Thompson extends his treatment of form as number to both animate and inanimate forms that are claimed to obey the same mathematical laws derived from the precise model, the latent logos of nature (Mazzocut-Mis, 1995). The claim that a common typological and determinist drive underlies the invariable laws generating form, whether inert or animate, not only denies a special status to the living, but also affirms the possibility of subordinating the irreducible organic to a computable and determinable behaviour. According to D’Arcy Thompson, the only obstacle in reducing
the complexity of natural forms into a mathematical intelligibility would be the lack of quantitative measures and deficiencies in mathematical and physical methodologies, and not an irreducible residue in the vital element (Mazzocut-Mis, 1995). This remarkable formalization of the organic went largely unheard in the early modern artistic and architectural practices redeeming the new geometries as new plastic opportunities revealed only through the intuitions of the artist. D’Arcy Thompson’s work was however a precursor of studies in differential growth, that have been extended by contemporary theories of complexity. Overcoming the obstacles faced by D’Arcy Thompson’s reductionist enterprise, studies in complexity sciences ironically oppose his reductionism to develop a phenomenological hermeneutics of form.

The study of forms having unpredictable dynamic behaviour is given impetus in complexity sciences, gathering diverse morphological theories (11) which account for the radicalisation of a new formal, geometric and computational paradigm, by placing the study of form on an empirical continuum of spatio-temporal data within which form presents an infinite variety: Alain Boutot (1993) notes that this elimination of discontinuity, of the discrete, disposes of tools of differential and integral calculus invented in the 17th century but remained ignored as some kind of limit case to continuity itself, together with some branches of mathematics, such as topology. Complexity theories offer new insights into the continuity-discontinuity problematic (12) which projects itself into the question of formal processes governing stable and dynamic forms, hence the divide between typical and organic forms. The theory of Catastrophes, for instance, suggests a doubling of space; a substrate space of empirical observation and an ideal mathematical space of parametrization of the qualitative properties of the substrate space at any of its points (Boutot, 1993, 82). Continuity is a feature of the ideal space, in which the dynamic at the origin of morphology is played out, whereas the morphology itself occurs as a discontinuity in the substrate space. The ideal space of mathematical logoï determines form which is engendered through projection on the substrate, where empirical morphologies appear as traces of an abstract superstructure (Boutot, 1993, 82). An apparent neo-Platonism in this projection of the intelligible on the sensible does not allow however for a revival of idealism, one that has been weakened with what Boutot calls an “ontological neutrality”, a common attribute of all morphological theories which refuse to pronounce themselves on the essence of being (Boutot, 1993, 83). This ontological indifference to the nature of the substrate of forms is affirmative of the autonomy of form from the abstract space of control parameters. Form refuses its self-determination and self-prediction despite an augmentation of accuracy in the control of parameters, augmenting also predictive capabilities. Indeed, determinism is inhibited in the case of complex systems which are unstable, dynamic and open systems constantly exchanging information, energy or matter with the environment. That is why, though remaining under the spell of classification in their search for common, simple, iterative rules in the generation of complex form, these theories do not strive to derive ideal invariables out of empirical morphologies, but instead develop a new language for deciphering and rationalizing forms in motion (Boutot, 1993). Modelling inner logic rather than external form, complexity sciences provide insights into the ways organic forms evolve in constant relation with dynamic and variable influences from their context. They mark the shifting interface between the hermetic and intelligible aspects of organic formal processes.

11. The theory of Catastrophes (René Thom), the theory of fractals (Benoit Mandelbrot), the theory of dissipative structures (Ilya Prigogine), Chaos theory (David Ruelle), or cynergetics (Hermann Haken). Boutot, 1993.
The resurfacing of the organic in non standard architectures is therefore not a mere formal revival. The organic paradigm is now augmented with a computational essence that adds to the first biological essence of the modernist organic tradition. Indeed, the organic owes its revival to this double essence which reforms its epistemological status and betrays its historiographical obfuscation during modernism. The non standard redemption of the organic accounts then for a powerful ‘gestalt switch’, simultaneously perceptual and epistemic (13).

Early modernist and non standard instances of the organic lineage show a remarkable formal reminiscence which conceals however significant epistemological, perceptual, geometric/mathematical and technological distinctions. This return of the organic in a differentiated form suggests an extending non complete form-class, the historical reading of which would be obscured by a stylistic and normative classification of forms. George Kubler in The Shape of Time: Remarks on the History of Things (1962) brings forth a theory of formal sequences which allows for a simultaneously historical and formal reading. A sequence suggesting an open-ended expanding class, the biological analogy of style (birth, maturity and death) is replaced here by the mathematical analogy of topology which allows historical segmentations for elastic expansion and releases them from the fixity of style (Kubler, 1962). The biological analogy in Kubler’s theory is speciation, where form is manifested by a large number of individuals undergoing genetic changes (Kubler, 1962, 34). Stressing the indeterminacy of the beginning and end of formal sequences, Kubler notes that some formal sequences may remain inactive for long periods, but be reactivated when the problem is given greater scope by new needs: thus “abortive, retarded or stunted sequences” can be boosted under new conditions, especially in the case of renewal in craft techniques or technological innovations (Kubler, 1962, 48). Carefully avoiding stylistic categorization, Kubler refers only to early and late solutions, differentiating the early ‘pro-morphs’, “technically simple, energetically inexpensive, and expressively clear”, from the late ‘neo-morphs’ that are “costly, difficult, intricate, recondite and animated” (Kubler, 1962, 55). Following Kubler (1962), the organic tradition can be reformulated as a formal sequence that has been retarded in the art-historical construction of modernism, and waiting for technological, scientific, epistemological and aesthetic paradigm changes.

13. The term ‘gestalt switch’ is used both in its original sense, as developed by gestalt psychologists to define perception changes occurring on the same object, and in the much debated connotation it retains in the philosophy of science, first developed by Wittgenstein in his duck-rabbit switch discussion in Philosophical Investigations (1952), and further by Thomas Kuhn in The Structure of Scientific Revolutions (1970) to account for switches between paradigms.
for its reactivation in non standard neo-morphic solutions. The visual
genealogy presented in the exhibition and the catalogue (Migayrou and
Mennan, 2003) correspond to pro-morphic solutions of this once hindered
sequence.

CONCLUSION

The historical unfolding of this form-class opens a multi-faceted
philosophical, epistemological, and geometrical debate on form, linking
to problems of perception, gestalt, cognition and computation. The
‘gestalt switch’ we are experiencing through the ontogenesis of the
organic accounts for paradigm changes developing around three axis;
an epistemic axis of determinism-non determinism, a geometric axis of
discontinuity-continuity, and a perceptual axis of simplicity-complexity,
where the shift from one pole to the other is increasingly yielding the
organic towards rationalization, de-ontologization and denaturalization.
The perceptual ‘gestalt switch’ we are experiencing between the early
and the late forms of the organic is then also a consciousness of their
incommensurability. The hermetic formal processes of the organic tradition
are becoming increasingly transparent as studies in complexity and
computation develop. Organic form, which used to escape definition as
intelligible structure, is being rationalized and objectified with an ever
increasing computational content, one that is supplied by advances in
computer-aided methodologies and procedures used in the development
and control of form. The organic is increasingly denaturalized within an
increasingly naturalized epistemology offering an epistemic resolution
to the rational-irrational dialectic historically framing the mechanic-
organic debate. This resolution is itself intricately bound to developments
in computational sciences and the industrial production interface. The
formalist methodologies used in computational design research ease the
understanding and control of complex forms and enable their production
by extending the interface from standardization to non standardization.
The advent of a non standard regime of industrialization imposes a radical
disruption in terms of modernist normativity and adresses a provocative
challenge to modernist standardization. In this sense, the non standard
also prepares for a reversal of mechanic and organic paradigms. Non-
standardization legitimates the singular, as standardization legitimated
the typical. The current revival of the organic inserts itself at the very heart
of altering logics of material and industrial production which sustain and
supply organicists formal processes with technical and material processes of
serial but non-identical realization. This is a first reconciliation of mechanic
and organic paradigms (14), as the neo-organic is now inclusive of the
mechanic, and can be sent back into the materiality of serial industrial
processes to stand the test where its modern predecessor failed.

We can then think of an anachronism in the case of early organicism with
respect to current processes of formalization. Prior to contemporary studies
in complexity and computation, and in the absence of formalization,
early organic processes could not withstand the modernist demands for
rationalization nor serial production. Early organicism then necessarily
constructed intermediary metaphysical structures or a pseudo-scientism
compensating for this anachronism. Form now recovers from the
ontological delay of idealist conceptions, approaches the intelligible
through a flattening of ontological strata. Translation delays between
conception and production are overcome with the help of a growing

14. Detlef Mertins refers to the concept
of ‘gestaltung’, “added to the arsenal of
Modernist polemics” by the 1920’s, as the
organist metaphor of form in open-ended
evolution attempting to reconcile the
mechanic and the organic, but one that still
kept transcendent residues in its reference
to the mysterious origins of creativity.
THE QUESTION OF NON STANDARD FORM

The question of non standard form is seen to leave the idealism-formalism impasse to reinscribe itself in an intuitionism-formalism debate, where intuitionism and formalism no more oppose each other. The current status of (organic) form within this debate needs yet to be defined. On the one hand, a process of continuous formalization claims for an overall objectification and an almost impudent denudation of cognitive and spiritual processes, of the mysteries of the mind. The black box acquires transparency in a formal language dreaming ultimately of replacing human intelligibility and rationality with artificial intelligence, an overarching deterministic endeavour occupying an immutable place in architectural history. From ancient treatises and pattern books to the design methodology movement of the sixties, the pragmatism of a problem-solving approach invariably disciplined architectural activity, grounding it in foundational forms that are produced through laws and norms expected to free the formal activity from the vagaries of the designer. Prescriptive approaches to design and form-making can now be fulfilled within the formalism of computational languages. On the other hand, the positivism and pragmatism of this heavy formalism confronts the intuitionism of contemporary theories of complexity which radically oppose the analytical-reductionism of the techno-sciences and its determinism (15). Developing a formal hermeneutics disinterested both in a-priorism and a-posteriorism, theories of complexity can be said to align with the epistemic position of the non standard mathematics, its constructive, intuitionist method denouncing formalism as ideology while retaining it as method (Harthong and Reeb, 1989). In mathematics, systems extending incomplete systems are generally called non standard systems. This consciousness of incompleteness seems to be the most important contribution of the non standard; it is secured by an irreducible intuitionism against the exhaustive attempts of an overarching formalism.

This intuitionism is now seen to be different from its counterpart in the realm of aesthetics. Drained of its mystical and subjectivist references, non standard intuitionism comes as a lighter variant of formalism, one which cultivates our abilities to tolerate indeterminism and incompleteness, that are inherent qualities of non standard forms. Non standard intuitionism ensures a never-completed space of creativity and non-identical reproduction, releasing an infinity of possibilities suggested in the plural of non standard architectures.

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STANDART OLMAYAN FORM SORUNU
