Chapter 2
From Morphology to Morphogenesis:
On Speculative Architectural Design Pedagogy

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ABSTRACT
The chapter describes the principles behind that change and illustrates how it affects architectural education through examples of student design projects. This is through the description of how the shift from morphology to morphogenesis have marked a shift in the general understanding of form. Where morphology concerns itself with the syntax of predefined, archetypal architectural form, morphogenesis moves towards an understand of generative form production from the bottom up. That shift creates a new condition for the architect to operate in.

PRO-LOGOS
Novel architectural forms have always been part of the aspirations of the architect; at least from Alberti onwards. However, the concepts of the new and of innovation are constantly under re-evaluation within every creative discipline. Could we argue that innovation can result from something already known or it is always a leap of imagination? A deterritorialisation of the creator towards its own mutation? Expanding that line of thinking, within an anthropocentric framework, is it possible to think of architectural form as innovative when the architect/creator functions only in a top-down, deterministic approach where everything is based on causality? Can novel architectural form arise from a logic that abides to strict cause-effect rationality? Finally, how does technology enter that picture? Is it a force that pushes towards innovation, or does it ultimately become another burden that, through its causality, hinders the architectural creation process instead of enhancing it?

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From Morphology to Morphogenesis

The core premise of our educational approach is that while morphology is the outcome of a deterministic, top-down approach to design, morphogenesis is not only a different approach to the same ‘problem’ – that of the creation of form – but a set of emergent, non-linear and dynamic design processes that are founded on the triptych of logos-techne-praxis and, through it, re-evaluate the ‘problem itself constantly’. *Logos* fosters contemplation and enhances speculation that enables relevant questions. *Techne* comprises the means, tools, techniques and both material (hardware) as well as immaterial (software) infrastructure that offer unknown and beyond the human sensorial domain sensitivities to allow the designer to read and/or cut the world transversally. *Praxis* is the platform on which both *logos* and *techne* come together to offer innovative responses that would generate novice forms.

All of the above questions set a framework within which architectural education has to operate. In order for future architecture to be innovative and relevant, it is important for architecture students to become familiar with those questions; not by providing them with readymade answers but instead making them aware of the fact that they are agents within a larger network of agencies within which they will have to operate. Only that way the production of architectural form can start functioning away from false alternatives, directed by a technological consumerism and indulgence, and towards a condition where bottom-up and top-down processes are operating in parallel and in sync.

This chapter presents current educational approaches to architectural design that illustrate how innovation can be taught, not through a direct quest for never-seen-before, unprecedented forms, but instead through the introduction of the concept of morphogenesis, in place of morphology, as a process that emerges through constant experimentation with material and digital means along with relational and associative thinking. In line with that new approach to the production of form, architectural education itself has to embrace bottom-up processes and graft them to the existing top-down ones.

Morphe and the Question of ‘When’

The difference between morphology and morphogenesis is, on a first level, a temporal one. Morphology, which derives from the Greek words *morphê* and *logos*, comes into play when the form – morphe – is already there; and *logos* is the discourse or the cognitive construct that describes the form of an artefact after it is created. Morphogenesis, on the other hand, has as its second morpheme the Greek word *genesis* which means creation or birth. Therefore, it moves back in time and goes to the very moment that form is generated. Consequently, in order for morphology to take place, a morphogenesis has to precede. In biology, this temporal relation between the two is clear: Morphogenesis is the biological process that causes an organism to develop its shape. Morphology is the branch of biology that deals with the form of living organisms, and with relationships between their structures. Therefore, form is created (morphogenesis) and then form is studied (morphology). In other words, morphogenesis is ontological, whilst morphology is epistemological.

Morphe and the Question of ‘Who’

This temporal sequence reveals a second level in the different meaning between the two: a difference in subject. Nature performs Morphogenesis, whereas the biologist, who tries to analyze and provide a systematic taxonomy of the products of morphogenesis, performs morphology. So much is more than clear in the context of biology. In other words, in the case of morphogenesis, creativity is non-human and evolutionary, whereas in morphology it is purely human and deterministic. At this point it is important
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