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VARIABILITY

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Variability

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The 15th issue of the ArchiDoct e-journal addresses the concept of **variability**; a concept that is closely related to those of difference and change. While constant change is a persistent characteristic of current societies and cultures, it is by no means a property that we first encounter in the 21st century. Already since the 1960s theories of difference – more often than not within a post-structuralist framework – started to emerge and shifted our focus from the concept of ‘being’ towards that of ‘becoming’. The modern idea of certainty, supported by all kinds of standards, was juxtaposed with postmodern processes of fluidity and constant transformation.

However, it was indeed the 21st century and the almost total dominance of digital media that – at least on the surface – brought those ideas into everyday practice. Architecture of course is also affected by that process. One can therefore initially identify three main concepts in relation to the production of architectural form within the context of the fluidity described above.

The first is that of the **Variable**: Architectural form is produced through the manipulation of variables. Specific properties are identified and then varied in order for different results to arise. The second is **Variation**: architectural form is produced through constant transformation of an initial form, generating this way an extended family of forms. Variation can be smooth or uneven. The third concept is that of **Variety**: Architectural form is produced having in mind the generation of different spatial conditions. The architect envisions specific situations and manipulates form in order to accommodate them.

All those three modes of operation however, when used separately, function as a repetition of different, existing modes of architectural production. Variations echo ideas of typology where specific characteristics are (pre)defined and the new is created through their alteration. Variables advocate a more scientific approach where architecture is understood as a more or less objective field and can be analyzed accordingly. They result in situations where form is produced within a very limited range

of predefined solutions. Varieties represent the idea of the architect as an auteur, where his mastery allow him to generate form and authorize it at the same time.

Variability on the other hand – while closely related to all three, both etymologically and conceptually – implies a slightly different property: that of *the possibility to be different in an unpredictable way*. More specifically, it represents the claim to difference and change through almost illogical and definitely difficult to control actions. While a property that in many cases was typically undesirable – precisely because of its unpredictability – variability might be the key to a new approach to the production of architectural form. One that combines the properties of Variations, Variables and Varieties and moves beyond the standards and the uniformity ultimately imposed by digital technologies through them.

The 15th issue of ArchDOCT therefore, features essays that examine the concepts of change and difference in all three initial versions of Varia-; and most importantly in their combination in variability.

In that context, the good practice example has the title “**Variability: Architecture and its Fight with Chaos and Opinion**”. It explores the theoretical background of the concept of Variability and expands on the ideas set forth in this editorial. It starts with the work of Deleuze and Guattari in order to make clear how the concepts of variation, variety and variable can be related with different modes of production of subjectivity – different disciplines – and how architecture and design can be at the intersection of those three. It claims that if architecture needs to move beyond the homogeneity created by the use of digital tools, it has to embrace variability and its chaotic properties and reinvent itself.

The first essay by **Constantinos Miltiadis**, from the Departments of Design and Architecture of Aalto University in Helsinki, is entitled “**Oblivious to Gravity: Virtual Architecture between disciplinary dead ends and complex intersections**”. It explores the domain of Virtual Architecture through the lens that is formed by the fact that in its case digital media are means for both

designing and experiencing space. It forms a theoretical discourse of key issues behind Virtual Architecture with a focus on aesthetics while at the same time it underlines the fundamentally transdisciplinary nature of all relative research. Variability in this case, is a result of the replacement of the Cartesian-Euclidean understanding of space by the spatiotemporal model of the Riemannian non-Euclidean geometry.

The second essay by **Chrissa Papasarantou**, from the Department of Architecture, University of Thessaly, has the title “**The notion of Mixed Embodied Presence as a variable for generating mixed environments**”. It concerns the design and the experience of mixed reality and mixed environments. The concept of Virtuality is again at the heart of the research and of the text. It proposes the concept of Mixed Embodied Presence as a new concept that would allow us the better understand how mixed experiences are formed, through a mainly corporeal approach. Variability emerges inevitably through the physical interaction. The presence of the human body at the center of the experience introduces unpredictability that ultimately affect the production and design of mixed spaces.

The third essay by **Ioannis Mirtsopoulos** and **Corentin Fivet**, from the Department of Architecture, University of Thessaly, has the title “**Design space exploration through force-based grammar rule**”. It transfers our interest in form-finding techniques that concern the design of spatial structural systems. It proposes a design framework that goes beyond computational tools as a mere digitalization of existing processes that through force-based grammar rules can produce structural systems that go beyond any know structural typologies – and beyond typologies at large. The research illustrates that variability can be produced when a ruled-based approach is used instead of a variable-based one.

The fourth essay by **Sergio Garcia-Gasco Lominchar**, from the Universitat Politècnica de Valencia, comes under the title “**Affonso Eduardo Reidy and the Aterro Do Flamengo Pavilions. Structural Concrete Shells During Modern Revisionism**”.

Like the previous paper, it also concerns structural variability, but this time in a historical context. More specifically through the study of the last three works built by Affonso Eduardo Reidy, designed in 1962 for the urban project of Aterro do Flamengo, in Rio de Janeiro. By displaying a revisionist attitude towards modernity and modern architecture the three examples make clear that structural variability and exploration is independent of the tools used and frame late modern architecture in a different context from the one that we are used to.

Finally, the fifth essay by **Olympia Ardavani**, from the Hellenic Open University, has the title **“Alternatives to artificial lighting: Varying patterns of bio-light in architecture”**. It returns to the immaterial qualities that were explored by the first two essays, only that this time the focus is on light. It is based on the fundamental hypothesis that light contains variability by default. In other words, light possesses some of the ‘chaotic’ properties of variability. Those properties can be enhanced and taken to a new level through the genetic modification of plants in order to become able to emit light. The living and the non-living, the material and the immaterial, fuse in order to produce new, hybrid lighting environments.