

## The Roman Fora in North Africa Towards a Supportive Protocol to the Decision for the Morphological Restitution

**Authors :** Dhouha Laribi Galalou, Najla Allani Bouhoula, Atef Hammouda

**Abstract :** This research delves into the fundamental question of the morphological restitution of built archaeology in order to place it in its paradigmatic context and to seek answers to it. Indeed, the understanding of the object of the study, its analysis, and the methodology of solving the morphological problem posed, are manageable aspects only by means of a thoughtful strategy that draws on well-defined epistemological scaffolding. In this stream, the crisis of natural reasoning in archaeology has generated multiple changes in this field, ranging from the use of new tools to the integration of an archaeological information system where urbanization involves the interplay of several disciplines. The built archaeological topic is also an architectural and morphological object. It is also a set of articulated elementary data, the understanding of which is about to be approached from a logicist point of view. Morphological restitution is no exception to the rule, and the inter-exchange between the different disciplines uses the capacity of each to frame the reflection on the incomplete elements of a given architecture or on its different phases and multiple states of existence. The logicist sequence is furnished by the set of scattered or destroyed elements found, but also by what can be called a rule base which contains the set of rules for the architectural construction of the object. The knowledge base built from the archaeological literature also provides a reference that enters into the game of searching for forms and articulations. The choice of the Roman Forum in North Africa is justified by the great urban and architectural characteristics of this entity. The research on the forum involves both a fairly large knowledge base but also provides the researcher with material to study - from a morphological and architectural point of view - starting from the scale of the city down to the architectural detail. The experimentation of the knowledge deduced on the paradigmatic level, as well as the deduction of an analysis model, is then carried out on the basis of a well-defined context which contextualises the experimentation from the elaboration of the morphological information container attached to the rule base and the knowledge base. The use of logicist analysis and artificial intelligence has allowed us to first question the aspects already known in order to measure the credibility of our system, which remains above all a decision support tool for the morphological restitution of Roman Fora in North Africa. This paper presents a first experimentation of the model elaborated during this research, a model framed by a paradigmatic discussion and thus trying to position the research in relation to the existing paradigmatic and experimental knowledge on the issue.

**Keywords :** classical reasoning, logicist reasoning, archaeology, architecture, roman forum, morphology, calculation

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