59 Uncertainty of Dimensions or Dimensions of Uncertainty

Krzysztof Koszewski (krzysztof.koszewski@pw.edu.pl)
Politechnika Warszawska

Uncertainty may have many dimensions. Beyond geometry and measurement, virtual reconstructions involve uncertainties about chronology, materials, construction, use and cultural meaning. Further uncertainties concern the reliability and independence of sources, the validity of analogies and the assumptions linking evidence to interpretation. These dimensions do not necessarily coincide: a precisely measured fragment may support several possible reconstructions, while a plausible overall form may conceal poorly understood details. A single uncertain assumption can also affect many apparently consistent elements.

Uncertainty is intrinsic to virtual reconstruction understood as an interpretative research practice. Some uncertainties can be reduced through further investigation; others remain because evidence is missing or supports competing explanations. Their communication therefore requires more than a single confidence score: it must clarify what is uncertain, why, and how this affects the proposed reconstruction. The persuasive force of visual representation, the most commonly used knowledge dissemination form, makes this particularly important. An apparently complete image can obscure incomplete knowledge, requiring the hypothetical nature of reconstruction to remain understandable wherever it is encountered