

The Complexity of Uncertainty: Towards Interactive Digital Narratives of Prehistoric Intangible Cultural Heritage

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The interdisciplinary endeavor of the Interactive Narrative Design for Complexity Representations (INDCOR) project to define the role of Interactive Digital Narratives (IDNs) 'as a means to address complexity as a societal challenge by representing, experiencing and comprehending complex phenomena'¹ benefits from the identification of a wide spectrum of applications exhibiting complexity that make such efforts relevant to the present and future challenges of society. One such challenge is representing intangible cultural heritage of prehistoric times, about which no certainty exists due to the lack of documentary evidence. This paper asks to what extent does uncertainty about prehistoric intangible cultural heritage constitute a complex narrative that befits an interactive digital approach. This is tackled in two parts. First, an argument for uncertainty being a factor for complexity is made, such that having multiple probable stories contributing to a narrative can lead to a complex scenario. Then, the characteristics of this resulting complex scenario are analysed to assess whether they present a narrative that justifies its experience through an interactive digital narrative.

Complexity

Chan (2001) defines complexity as resulting 'from the inter-relationship, inter-action and interconnectivity of elements within a system and between a system and its environment' (p. 1). In addition, the behavior across time of such systems (Mathews, White, and Long, 1999) is a crucial aspect when the focus is on systemic change.

Complexity as an academic field is an umbrella term for a number of different perspectives and approaches to problems in the physical and natural sciences (Mathews, White, and Long, 1999; Mitleton-Kelly and Land, 2004) building upon cybernetics (Wiener, 1948; van Dijkum, 1997), system theory (von Bertalanffy 1945, 1969; Walby, 2007) and chaos theory (Lorenz, 1963; Cambel, 1993). One such complexity theory resulted from a multidisciplinary collaboration pursuing lines of enquiry characterized by emergent complex behaviours of multi-level systems (Chan, 2001). This led to the formulation of the concept of Complex Adaptive Systems (CAS), which have an evolving rule-based structure that 'adapts to problems posed by (its) surroundings' (Holland, 1992, p. 18) while exhibiting a 'sensitive dependence on initial conditions' (Chan, 2001, p. 4). Through its multi-layered network of rules, a CAS exhibits emergence resulting from the aggregate behavior of its distributed control mechanism and, most markedly of all, anticipates the outcome of its behavior. These three elements (evolution, aggregate behavior, and anticipation) feed into each other, such that the system is never stable but always evolving – what Chan (2001) calls 'a state of paradox' (p. 6) – across all of its layers, to fit within its changing environment. CAS are not only reactive, but also proactive in choosing between available actions by uncommittally looking

¹ <https://indcor.eu/>

ahead to anticipate future consequences. Three mechanisms are combined to achieve this complex behavior: parallelism, which uses individual rules as 'building blocks' for rulesets to act upon a given context; competition, which allows it to flexibly use rulesets as the situation demands; and recombination, allowing the system to recombine parts of rules into new ones in order to adapt to new situations (Holland, 1992; Chan, 2001).

The Subjective Complexity of History

The 'value' (Kersel & Luke, 2015) that may be attributed to cultural heritage is dependent on what we know about its past. Written accounts of history provide us with insightful understanding of that past (Moody, 2015). However, current representations of history are deemed to be 'oversimplified' as their respective 'purpose, social status, ideology and historical location' (Turina, 2018, p. 125) is opaque, preventing a reflection on how these underlying frameworks of meaning determine our understanding of history. Indeed, Turina (2018) suggests that representations of history ought to be treated as complex systems of past social interactions and be modeled through a CAS, with such social interactions working like a 'layered network' of causality between parallel decisions made throughout time. But while Turina focuses on the complexity of subjective interpretation of historical evidence, this paper adds the element of complexity resulting from the uncertainty of the evidence.

The Objective Complexity of Uncertainty

Knowles (2019), in his reflection on how uncertainty is embraced by historians, claims that there is no certain knowledge of the past, since historical record offers no stability. While examples of 'official' history might appear to deliver unbiased recounts of past events, they are always framed within the patriarchal society of the 'white men in the global North' (Knowles, 2019, para 4). As women, minorities, lower classes, and eco-centric views gained importance, the certainty of the official record is challenged, opening up to the social dimension of history and, in so doing, reveals multiple perspectives beyond the official record and shows, sometimes conflicting, accounts from contemporary witnesses (Knowles, 2019; Turina, 2018). Examples of disparate details between the official written and underrepresented histories include the accounts of the 1921 Tulsa Race Massacre (Segall and Wilson, 1998).

Palombini (2017) claims that, in order to make a story comprehensible, any gaps in what is known needs to be filled with uncertainty. But what if we reach beyond the documented history and wonder at what might have been the function of sites and artefacts whose existence spanned over hundreds of years, such as the Neolithic Hypogeum of Hal-Saflieni, carved into stone between 4000BC and 2500BC? While no documentary evidence is available beyond the artefacts found within the site, its excavation reports are rife with speculative statements about the function of the place based on the soil and bone deposits found (burial place or ossuary?) as well as the number of complete skeletons found (120, 3000, or 33,000?) – especially as not one skeleton was found 'lying with bones in position' (Zammit, 1910, p. 37) but the bones were rather dispersed and mixed, even with animal bones. The artefacts found within the Hypogeum, such as statuettes of sleeping females of a wholesome figure, support multiple interpretations: is this the goddess of fertility adored by the temple people? Or a votive offering? Is the female sleeping, or dead? Is her figure wholesome through nutrition, or pregnancy? Is this representative of the average female, or a role model that everyone looked up to? While the agency in charge of the site refrains from entertaining speculative narratives, and strives to quell myths and conspiracy theories (such as 'alien skulls' after the archeologist in charge of the original excavation in the early 1900s described recovered skulls as

'elongated'), lost schoolchildren and the appearance of hominids, other archaeologists entertain conjectures on burial practices for which no archaeological evidence exists (Malone et al, 2009).

The Hypogeum example presents a scenario where a site, its artefacts, burial processes, ceremonies, the contemporary temples above, the passage of time, the excavations, the reporting and the modern day interpretation are all inter-twined elements where the consideration of one supports or contradicts that of another, in a systemic exchange of meaning that further suggests an objective complex phenomenon over and above the subjective one argued by Turina (2018).

The Narration of Complexity

The challenge of representing complexity (Rosen, 1987) has seen the use of narrative to represent organization studies (Luhman & Boje, 2001), and complex urban spaces (Uprichard and Byrne, 2005). As for history, Turina (2018) suggests that CAS representations present a 'continuously changing interaction' which, due to its causality-feedback loop, needs 'new narrative tools' (p. 124) that 'narrat(e) the past from different points of view' (p. 126). Beyond the 'interactivisation' of traditional media forms (Koenitz, 2015), interactive narrative media can offer the CAS necessary for the narration of such complex systems. Koenitz's SPP model presents the notion of a protostory: a narrative structure that 'enables a flexible presentation of a narrative' (Koenitz, 2015). The narrative design of the different contrasting uncertain claims can serve as the underlying network of rules, keeping in mind Chan's sensitive dependence on initial conditions for a CAS mentioned earlier, the need for backstories in cultural heritage (Vanonvershelde, 2019), and also Turina's notion of 'priming.' The engagement of the interactor with these rules represents the changing environment to which the CAS adapts as it develops the narrative forward, facilitating the personal interpretation of heritage.

IDNs, through their 'double hermeneutic' of interpreting both the current narrative trace and their opportunities for interaction (Cf. Veli-Matti Karhulahti 2012, derived from Giddens 1987 and applied to IDN by Roth et al. 2018) afford multilinear and multi-perspective narratives (including conflicting views) that emerge as the result of audience's reflections and choices. The increase in comprehension during this activity can be described as a 'hermeneutic spiral' (Knoller, 2019), taking into account multiple traversals of the protostory, the exploration of different perspectives across multiple sessions, where each subsequent encounter increases the understanding of the complex narrative representation and thus decreases the circle of interpretation.

The uncertainty inherent with the study of prehistoric rituals make the representation of intangible cultural heritage a complex narrative that requires new narrative tools to help comprehend them and interactive digital narratives (IDNs), with their multi-perspectivity and personal involvement typical of heritage activities, are hereby proposed as fitting mechanisms for their representation.

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Jonathan Barbara is a PhD candidate at Trinity College Dublin reading in the area of Virtual Reality, Interactive Narratives, and Intangible Cultural Heritage. He has an MA in Games Design from UCLAN, UK with publications in Board Game User Experience, Narrative Consistency across Transmedial Narratives, and Game Design Teaching Approaches. He is also a full-time senior lecturer at Saint Martin's Institute of Higher Education teaching Creative Computing, Game Design, Interactive Narratives, Transmedia Storytelling and WorldBuilding. Jonathan is also a Management Committee member of the EU COST Action 18230 INDCOR (Interactive Narrative Design for Complexity Representations).

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