Mythologizer

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1 Abstract

This research project explores biological and computational techniques in mythology, extending the structuralist approach pioneered by Claude Lévi-Strauss and building upon work by Jean-Loïc le Quellec and Julien d'Huy. The research shifts from historical reconstruction toward myth generation, treating myths as dynamic, evolving constructs rather than static historical artifacts. Our methodology integrates literature analysis, expert consultation, qualitative experiments with participants, and developing the *Mythologizer* -an agent-based computational simulation that models myth transmission dynamics. These computational methods effectively capture myth propagation while revealing how individual characteristics and social dynamics influence myth stability and transformation. Although still an experimental and young project, the *Mythologizer* provides a framework for examining myth adaptation across cultural contexts, projecting storytelling evolutions.

2 Introduction

2.1 Definition and context

The definition of *myth* is challenging. Etymologically derived from the Greek *mûthos*, meaning a story or narrative in its broadest sense, the concept of myth has semantically drifted across time (Le Quellec & Sergent, 2017). Initially contrasted with *logos*, myth became associated with fictional stories. A more contemporary and comprehensive definition is provided by Charles-Olivier Carbonnel and cited by Le Quellec and Sergent (2017): "any representation, narrative, or idea – with their necessarily associated images – that is widely disseminated, transmitted across generations, and provides cultural cohesion and moral coherence to a group". This broader conceptualization enables the inclusion of contemporary forms, such as Barthes' idea of mythology as "collective representations" (Barthes et al., 2006).

2.2 Structuralism

The structuralist approach to mythology was a pivotal methodological breakthrough. Most notably, Claude Lévi-Strauss's work sought to identify underlying organizational principles that transcend cultural specificity. With the concept of "meta-language" (Lévi-Strauss, 1996), myths are defined as narratives composed of words and sentences forming superior irreducible units: *mythemes*. Mythemes represent irreducible narrative units that contain a subject and a predicate, which combine to create a mythological narrative.

2.3 Post structuralism and biology

Of course, structuralism's emphasis on static, universal structures has been challenged, typically by focusing instead on *processes*. In that sense, Jean-Loïc Le Quellec's diffusionist approach to mythology looks at myths as constantly evolving *beings* throughout human history. This biology-inspired outlook was already suggested by Lévi-Strauss(Barthes et al., 2006) and Vladimir Propp, who compared folkloric morphology to botanical taxonomy(Propp et al., 1973), or Abler, 1987 with his work on Iroquois mythology marked the first significant application of phylomemetics—the extension of phylogenetic methods to non-biological entities(Abler, 1987). Le Quellec treats mythological variants as taxa with evolutionary relationships that can be computationally mapped. In this research, conducted alongside Julien d'Huy, mythemes are analogous to genetic material that undergoes transmission, mutation, and selection across generations. This methodology has been used for phylogenetic reconstruction, involving systematic collection of mythological variants, decomposition into mythemes, binary encoding of the presence or absence of the mytheme, and algorithmic analysis to generate phylogenetic networks(d'Huy, 2013a). This approach has been successfully applied to various mythological traditions, including the Cosmic Hunt narrative (d'Huy, 2013a)and the Pygmalion myth(d'Huy, 2013b).

2.4 Computational *biomythology*

Recent research by Thuillard, Le Quellec, and d'Huy (Thuillard et al., 2018) employs complex computational methods, including phylogenetic networks and motif analysis, to understand myth evolution and diffusion. Their study, which analyses 40,000 myths across 934 cultures, demonstrates the scale at which computational approaches now operate. Using tools like SplitsTree4(Huson & Bryant, 2006) for reconstructing outer planar networks enables visualization of complex evolutionary relationships that traditional methods could not capture.

2.5 Cross verification and implications

Cross-verification with areological findings (the cartographic study of cultural traits' spatial distribution) has established the validity of these phylogenetic reconstructions.(Le Quellec, 2021) Le Quellec's comprehensive analysis in "Avant nous le Déluge!" (Le Quellec, 2021) establishes a methodology to trace mythological diffusion patterns and correlate these with archaeological evidence of human migration. Opposing Jungian ideas of *archetypes* (Le Quellec, 2013), Le Quellec's outlook on mythology refuses stable, universal, and immanent narrative structures. On the contrary, he stresses fluidity, adaptiveness, and transmission dependence. But his research also implies that mythemes have travelled the earth's surface with the dispersal of humanity out of Africa and, therefore, the ancient characters of mythology.

2.6 Objective and scope

This theoretical framework provides new methodological approaches for understanding mythology and its diffusion patterns. While biomythological research has primarily centred on phylogenetic reconstruction, our project extends this work along two complementary axes. The first axis examines the concrete mechanisms of myth evolution: What precisely occurs when myths transform across time and space? By analyzing the transmission dynamics at the mytheme level, we seek to identify the operational principles governing narrative mutation as myths move between individuals and cultural contexts. The second axis reverses the reconstructive approach, exploring whether phylogenetic methodologies can be adapted for generative purposes. Can these biological frameworks predict the potential evolutionary trajectories of myths? Through computational modelling of myth evolution, we aim to test hypotheses about narrative fitness and adaptation within shifting cultural environments.

3 Literature Review

3.1 Navigating the Mythology theoretical Landscape

There are countless interpretive frameworks for mythology, and therefore, it was crucial from

the beginning of this research to discriminate in our selected approaches. We found Carl Jung's archetypes(Jung et al., 2007) and Joseph Campbell's monomyth(Campbell, 2008) to be theoretical dead ends despite their cultural influence, as they lack empirical support, which hinders computational modelling. While the conceptual foundations of phylogenetic mythology are well-articulated, we encountered a significant lack of technical documentation for this specific context. The papers mention tools like SplitsTree, Mesquite, and Iramuteq but provide minimal methodological detail about their application to mythology. This documentation gap reflects the emerging nature of computational approaches to mythology, where technical knowledge remains largely undocumented. In order to overcome these issues, we first had to commit to the framework from Jean-Luc Le Quellec. With the help of his *Dictionnaire Critique de Mythologie* (Le Quellec & Sergent, 2017), we were able to understand quickly and navigate the existing theories concepts and get a historical understanding of the discipline. In a second step, we managed to arrange a video conference with Julien d'Huy directly, whose guidance proved essential. He clarified methodological questions that literature alone couldn't resolve, especially adapting phylogenetic algorithms to mythological analysis, and outlined effective data collection strategies. Through his help, we were also able to find one of our main tools during this project: the database of mythological motifs by Yuri Bereskin.(Berezkin, n.d.).

3.2 Yuri Bereskin's myth motifs database

A crucial resource for our research has been Yuri Berezkin's "The Mythology Database" (also known as the "Folklore and Mythology Electronic Analytical Database")[1], which represents one of the most comprehensive collections of global mythological motifs ever assembled. This database comprises approximately 2,500 distinct mythological motifs documented across more than 900 cultural traditions worldwide. This database gives an incredible overview of the world's mythology and provides raw mythological material to work with.

[1] https://www.ruthenia.ru/folklore/berezkin/

3.3 Phylogenetic trees

As Delbrassine et al. (2025) points, "the joint use of cultural evolutionary theory and population genetics illuminates the biocultural processes that shaped our species."å At the centre of this methodological shift lies the application of phylogenetic networks—graphical structures originally designed to map evolutionary relationships among biological organisms—to trace the transmission and transformation of myths across cultures and time.

Whereas traditional phylogenetic trees present a hierarchical, branching structure that implies direct descent with modification, phylogenetic networks offer a more nuanced representation that accounts for horizontal transfers, convergent evolution, and hybridization, as suggested by Doolittle, 2000.

As Le Quellec and Sergent Le Quellec and Sergent, 2017 observe, the transmission of myths through human cultural systems introduces complexities that can lead to an erasure of this signal through processes of hybridization, cultural borrowing, and independent innovation. Gray developed quantitative methods to measure the strength of phylogenetic signals in cultural data, providing valuable tools for assessing the reliability of phylogenetic reconstructions. These measurements help researchers determine when phylogenetic analysis is appropriate and when other approaches might be more suitable.(Gray et al., 2009)

3.4 Math meets myths

The book *Maths Meets Myths: Quantitative Approaches to Ancient Narratives* Kenna et al. (2017) more or less shaped our thinking about myths as complex systems and guided us through thinking about the structures which are analyzable quantitatively through mathematical frameworks. Although it did not explicitly provide the methodological steps we eventually adopted in the Mythologizer project, its perspectives were crucial in developing our system.

The introductory chapters emphasize a critical idea: models are simplifications of reality, but their value lies in their usefulness rather than strict accuracy. This aligns with the philosophy expressed by statistician George E. P. Box, "Essentially, all models are wrong but some are use-

ful" Kenna et al. (2017, p. 3). This influenced our theoretical grounding, prompting us to consider myths as dynamic systems whose structure and function can be explored through quantitative methods.

Particularly influential was the chapter by Robin Dunbar on cognitive and network constraints, highlighting the psychological limits of storytelling and suggesting that network methods can simplify complex narrative structures into more comprehensible metrics Kenna et al. (2017, p. 8), Specifically through the notion of mentalizing or "orders of intentionality" Kenna et al. (2017, p. 17). Mentalizing refers to the human capacity to understand the mental states of others and is categorized into distinct hierarchical orders. The first order involves recognizing one's own mindstate; the second order includes understanding another individual's mindstate; the third-order mentalizing involves comprehending interactions among multiple mindstates, as seen in typical narratives or plays like Shakespeare's *Othello*. Dunbar suggests that audience engagement peaks around fifth-order mentalizing, which is cognitively demanding yet achievable, while higher orders push cognitive limits and risk narrative incomprehensibility Kenna et al. (2017, p. 17). This approach to storytelling holds a critical position in shaping our project around the transmission, propagation, and mutation of myths.

Another impactful contribution was Kenna and MacCarron's network analysis of mythological epics. Their methods involved representing narratives as networks, with characters as vertices and interactions as edges, enabling the comparative study of different narratives and social structures depicted within them Kenna et al. (2017). Quantitative tools, such as node degrees and degree distributions, offer a means of comparing myths structurally. This approach encouraged us to adopt a broader conceptual perspective, viewing myths analogously to biological systems rather than purely narrative networks.

4 Methodology

Contending with the nature of myth evolution prompted us to investigate the very personal thought and decision-making processes individuals and culture groups go through. Why and how exactly are people altering stories? What kind of mythemes or narratives are popular and stable between multiple people evolving the same myth?

Since our ultimate goal was to build a computational system capable of simulating human-driven myth evolution processes, we were challenged with the task of translating human actions, decisions, and narrative preferences to code. This led us to conduct two qualitative experiments: the individual interviews and the collaborative workshop. Our observations and learnings from those experiments informed our decisions for building our agent-based myth evolution system, the Mythologizer.

4.1 Individual Interviews

The goal of our interviews was to observe how and why individuals mutate myths, as well as what happens to a myth if it is mutated by several people, one by one. Each one of our research group picked a motif from Berezkin. Using Misteral AI, we generated a list of mythemes from each motif, as well as a poetically formulated myth. This produced 4 distinct myths with their mythemes to give to interview participants.

Since we work with the analogy between evolutionary biology and mythology, we defined four actions each participant can perform on the mythemes (genome), according to the types of chromosomal mutations happening in human DNA (Miller, O. J. & Therman, E. (2011). Human chromosomes. Springer Science & Business Media.):

ADD
:: Chromosomal Insertion ::
Introduce a random mytheme
of your choice.

DELETE
:: Chromosomal Deletion ::
Remove one existing mytheme
of your choice.

MUTATE
:: Random Chromosomal Alteration ::
Freely alter, switch, invent,
inverse, or remove mythemes.

LEAVE
:: No Mutation ::
Keep the mythemes unchanged.

By translating chromosomal mutation processes to specific mytheme-altering actions, we create a codable solution for defining the basis for evolutionary processes within the Mythologizer later on.

Interview participants were presented with each myth and its themes one by one. They could choose to perform one of the four actions per myth, and each action could be performed only once. To prompt participants to engage with their task seriously, we let them read the current version of the myth out loud and designed physical cards for the actions. After the list of mythemes for a given myth was modified, it was fed back into Mistral AI to generate the new myth version to give to the next participant. 4.1 visualizes this process. We filmed all interviews to be able to analyze and compare the participants' reasoning for each action later on. Additionally, we tracked all actions per participant via the website. [2]

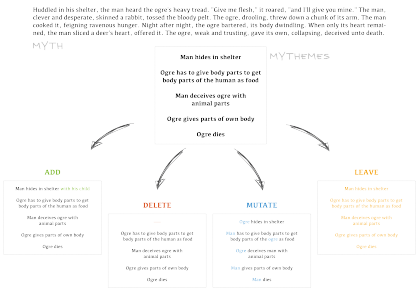

Figure 1: How the actions can influence mythemes

Interview Context

The interviews were conducted at the Design & Computation studio, located in the main building of the Technical University of Berlin. Written consent for video and audio recording was obtained from each participant. Visual recordings were captured using a Blackmagic Pocket Cinema Camera mounted on a tripod, while audio was recorded via a Shure SM57 microphone connected to a Zoom H5 recorder, ensuring high-quality audio integration. All participants were students of the M.A. Desing & Computation.

A comprehensive introduction to the experiment, including an explanation of rules and objectives was given at the beginning of each interview. Throughout the session, participants were questioned on their rationales, motivations, and emotional reactions behind their choices. The responses provided rich qualitative data, sharpening our understanding of myth evolution in the context of the analogy to evolutionary biology. To avoid always presenting the same myth last, where only one possible action was left, we randomized the order in which we presented the myths between participants.

In total, thirteen participants contributed to the experiment, producing over three hours of raw interview footage. Our analysis and post-production involved organizing the captured footage chronologically by myth lineage, allowing the clear observation of evolutionary changes across thirteen generational cycles. Audio post-processing was required due to ambient studio noise, necessitating noise reduction and sound enhancement. Footage was further processed for visual consistency and narrative clarity, resulting in a 1 hour and 22 minutes Documentary film, that clearly illustrates the evolution of each myth. An original soundtrack was created specifically for the project using VCV Rack.

Figure 2: Interview Impressions

Figure 3: Link to Interview Documentation Video

4.2 Collaborative Workshop

We are aware that human reasoning, inspiration, and storytelling can be vastly different in groups vs individuals. Myths underlie cultural reality and manifest shared values, purposes, goals, strategies, and philosophies in an explicit form (Halyna, S.,& Tetyana, D. (2018). MYTH AS A PHENOMENON OF CULTURE.). The collaborative nature and cultural function of myths needed to be included in our research for the Mythologizer as well. What exactly happens if

[2] https://myths.celest.in

a group of people tells a story collaboratively? How important is a sensible storyline vs expressing shared but inarticulate values or ideas? How much influence do individuals have on the final outcome? The goal of this workshop was to investigate the manifestation of group dynamics and the immediate environment in spontaneous myth creation.

We gathered a group of participants and presented them with the four original lists of mythemes created for the individual interviews. They chose one of them. Their task was to come up with a myth based on the chosen mythemes and to act it out with props. We closely watched the story creation, material gathering, and task distribution to determine important group dynamics and aspects of collaborative storytelling. Aside from the initial selection of mythemes, the only restrictions were the mode of filming and a time limit of 3 hours.

Workshop Context

The workshop was conducted at the Design & Computation studio, located in the main building of the Technical University of Berlin. Visual recordings were captured using an iPhone mounted on a tripod, filming top-down birds-eye perspective. We used a table as a canvas. The audio was recorded via a Shure SM57 microphone connected to a Zoom H5 recorder, ensuring high-quality audio integration. All participants were students of the M.A. Desing & Computation.

A comprehensive introduction to the experiment, including an explanation of the task and objectives, was given at the beginning of the workshop. Throughout the session, participants were observed regarding their group organization, storytelling methods, usage of environment, individual contributions, and discussion culture. The observations provided rich qualitative data, sharpening our understanding of group-based myth manifestation in the context of the analogy to evolutionary biology. In total, eight participants contributed to the experiment, producing a six-minute video.

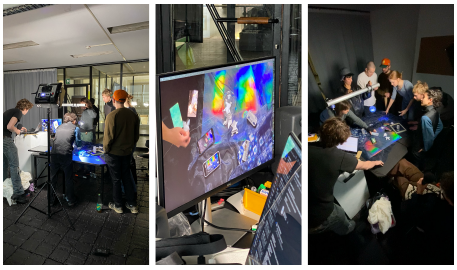

Figure 4: Workshop Impressions

Figure 5: Link to Workshop Video "Also Fish"

4.3 The Mythologizer

Inspired by the layed out previous research, employing biocomputational methods to analyze the evolution of myths, we proposes a computational framework aimed at simulating the prospective generation and transformation of myths. Rather than examining myth retrospectively, the focus lies in modelling its dynamic development forward.

While myth is inherently a cultural phenomenon, our qualitative observations have emphasized the significant influence of individual agents in the transmission, alteration, and creation of narratives. These insights prompted a reconsideration of a purely biocomputational approach and motivated a transition towards an agent-based simulation model.

An agent-based simulation enables the representation of both individual actors and broader cultural systems at the same time. Our initial concept involves a "sandbox" environment, populated by agents embedded in distinct cultural contexts, who interact and exchange crystallized narratives over multiple epochs.

Asking ourselves how to model complex cultural and personal relationships, social and natural events, time, death, reproduction, as well as individual traits led us to the realization that the system must be designed to be as modular as possible. This allows potential researchers to build upon and customize the simulation according to their specific needs.

The following subchapters will introduce the fundamental building blocks of the Mytholo-

gizer.

4.3.1 The Agent

Starting with the individual, each agent is modelled with a unique identifier, a name, and optional parent agents. Agents can belong to multiple cultures simultaneously and are characterized by attributes such as age and personality traits. These characteristics may be derived from both their parental lineage and cultural affiliations.

4.3.2 AgentAttributes

These agent attributes are defined by a name, a brief description, and a data type, such as string, float, or integer. Additionally, attributes may include optional minimum and maximum values. It is also possible to specify an optional epoch function. When defined, this function updates the attribute at each simulation epoch. The update may depend on the current attribute value to enable incremental changes or periodic modulation, or it may produce values randomly. One could also potentially make this function dependent on the culture of the agent. We define these attributes in such a way that all agents have to have these attributes.

4.3.3 Culture

For us, culture directly influences the behaviour of individual agents. Agent attributes are defined as described above to regulate this influence. In order to model how culture shapes behavior, these attributes are initialized based on a probability distribution. The selection of an appropriate distribution, along with its parameters, must be carefully aligned with the specific attribute and the cultural context under consideration.

To enable the automated extraction of suitable distributions and parameters for each of the need attributes, each culture is defined through a textual description. This description together with the description of the attribute can, for example, be used by large language models to extract the appropriate probability distribution and its parameters based on the cultural setting and the nature of the attribute.

4.3.4 Memory

Each agent maintains a memory in which myths are stored. The memory has a fixed capacity, which can be initialized randomly or determined by cultural affiliation or inherited from parent agents. It is also possible to define the memory size as decreasing with age. When a new myth is added and the memory limit is exceeded, the agent will forget existing myths.

To reflect the varying importance of myths, which may depend on their cultural relevance or recent usage by the agent, each stored myth is assigned a "retention" attribute. This attribute represents the strength of retention and allows the memory list to be dynamically reordered based on the relative importance of each myth.

4.3.5 Myth

As established in previous research, myths can be understood as being composed of atomic building blocks, commonly referred to as mythemes. These themes form the foundation of the computational representation of myth in this work. A myth is modelled as a set of mythemes. In addition to this set, each myth includes a string representation of its written form and a unique identifier.

Mythemes can be modelled in various ways. They may be represented as simple strings or as embeddings situated in a textual latent space. Similarity is measured depending on the chosen representation of mythemes to compare different myths. When using string-based representations, similarity can be quantified using the Jaccard index, defined for two sets A and B as $\frac{|A \cap B|}{|A \cup B|}$. For embedding-based representations, similarity can be computed using operations in vector space, such as the dot product.

As described above, each myth also includes a retention value, which reflects its relative importance or likelihood of being remembered by an agent.

4.3.6 Mythtelling

In the simulation, agents do not communicate or narrate stories in a literal sense. Instead, myth transmission is modelled through a defined protocol involving a speaker agent A and a listener agent B.

- Agent A recalls a myth from its memory. This recall process is modelled using a probability distribution that decreases for myths with higher indices in memory. The shape of this distribution may also be influenced by the attributes of the agent, the characteristics of the listener, or events occurring within the simulation.
- Upon recalling a myth, its retention value is increased. At this stage, the myth may be subject to mutation to simulate the changes that can occur during the act of remembering and telling.
- The recalled myth from agent A is compared to each myth in agent B's memory by computing similarity scores.
- The myth in B's memory with the highest similarity to the recalled myth is identified. If the similarity is below a defined threshold, it is assumed that agent B has not previously encountered the myth or has forgotten it. In this case, the recalled myth is introduced into B's memory as a new entry, potentially with mutations.
- If the similarity exceeds a lower threshold, the myths are considered moderately similar. If it exceeds a higher threshold, they are treated as nearly identical.
- In both cases, a new combined myth is generated from the recalled myth of A and the most similar myth from B. The weighting in the combination process depends on the degree of similarity; the more similar a version is, the higher its influence on the combined result.
- For moderate similarity, the combined myth is added to B's memory.
- For high similarity, the existing myth in B's memory is replaced with the combined version, and the retention value is updated accordingly.

4.3.7 Mythmutation

A mutation of a myth is defined using the same set of operations as described in the interviews (see Section 4.1), excluding the addition operation. This results in three possible operations: leave, mutate, and delete. One of these operations is selected at random and applied to a randomly chosen mytheme within the myth.

The implementation of the selected operation can vary. A central challenge lies in preserving the nuances of the written version of the myth after mutation. One effective approach is to employ large language models. A prompt can be constructed that specifies the selected operation and the target mytheme. This prompt, together with the full list of mythemes and the written version of the myth, is used to generate a modified version of the myth.

The goal is to design a prompt that performs the desired operation while updating the written version in a consistent and coherent manner. By using structured outputs, the results can be formatted and validated to ensure compatibility with the simulation's data model.

4.3.8 Mythcombination

The combination of two myths is implemented through a function that takes both myths as input, along with associated weights and merges their mythemes and written versions accordingly. The weights determine which mythemes are retained in the resulting myth. The selection process is guided by a weighted evaluation of each theme's relevance.

As with mutation, a key challenge is preserving the nuances present in the written version of the myth. To address this, large language models can be employed. A prompt is constructed that includes the selected mythemes to retain, the complete list of mythemes from both myths, their written versions, and the corresponding weights.

With appropriately designed instructions, the language model is capable of generating a coherent and contextually consistent combined myth. The output can then be parsed into a structured format that aligns with the simulation's requirements.

5 Findings and Results

5.1 Definition of Mythologizer

One of the central challenges in designing the Mythologizer was achieving an appropriate level of abstraction while preserving sufficient nuance in the modelling of individuals, cultures, and communication processes. This challenge was ini-

tially addressed by identifying a broad range of potential edge cases, requirements, and use scenarios. Based on these insights, the core components of the system were defined, with an emphasis on modularity and extensibility.

To support these goals, the system was structured around object-oriented principles for the representation of atomar buildingblocks like agents, relationships, and myths. This approach enabled clear encapsulation of data and attributes. At the same time, the design of operations on these objects was influenced by functional programming paradigms, especially in the definition of higher-level computations.

A particularly useful method in refining the design of interaction protocols was to simulate communication between agents and the transmission and storage of myths in memory. Among the most complex aspects of the system was the definition of the function responsible for merging myths. Although one of the objectives was to minimize reliance on large language models, their Use became necessary in the initial implementation to handle semantically demanding tasks such as myth combination.

In future iterations, efforts will be directed toward reducing dependence on large language models in order to avoid introducing potential biases or constraints that could influence the natural evolution of myths in the simulation.

5.2 Implementation of the Mythologizer

5.2.1 Python Implementation

The first prototype of the proposed Mythologizer model was implemented in Python. The core classes described in the methodology section (see section 4.3) were realized, with the exception of certain functionalities such as death and reproduction, which were omitted for initial simplicity. To improve computational performance, selected attributes were abstracted out of the object structures and stored in optimized data structures, such as hash maps for fast indexing and NumPy arrays for efficient matrix-based computations.

For instance, all agent attributes are stored in a single matrix, which facilitates the application of epoch-based update functions while reducing computational overhead. Another example of structural optimization is the modelling of the population using two separate hash maps: one for living agents and one for deceased agents. These hash maps can be treated as a unified population but also allow for constant retrieval based on agent identifiers.

5.2.2 Usage of Large Language Models

The Use of large language models (LLMs) in the simulation introduces practical considerations regarding computational cost. Depending on the population size and number of epochs simulated, the number of LLM calls can become substantial. To manage costs effectively, self-hosting an LLM presents a viable alternative.

Modern LLMs can now operate on consumer-grade hardware. For this simulation, the model Deepseek-v3 was deployed using the Ollama framework. This combination provides access to a high-performing language model with support for structured output generation, which is essential for integration into the simulation workflow.

5.2.3 First Run

The initial implementation of the Mythologizer model, integrated with a locally hosted instance of Deepseek-v3, resulted in a functional prototype capable of executing a complete simulation. Although the current version is limited in scope, the simulation successfully demonstrated agent interaction and the exchange of evolving myths over time.

The focus of this stage was to deliver a working prototype for an end-of-year exhibition. As such, no measurement tools have yet been implemented to quantify the evolution of myths or to systematically track simulation results. To transform the framework into a scientifically valuable tool, it is necessary to introduce analytical components, refactor and complete the codebase, and implement comprehensive documentation and testing. Furthermore, missing operations must be added, and the system should be adapted for modularity and cross-platform compatibility.

5.3 The Interviews: Patterns of Individual Myth Manipulation

The analysis of the interviews was conducted on two levels: a qualitative evaluation of participant behavior and reasoning, and a quantitative comparison of the participants' action decisions. This two-level-approach significantly expanded our understanding of how participants interacted with myths and revealed evolution patterns across participants and myths.

Qualitative Observations Each participant approached the myths uniquely, demonstrating varying degrees of comfort, creativity, and critical engagement with the story. All of them showed individual motivations, hesitations, and thought processes, leading to similar, as well as contrary final decisions. Some participants introduced very obvious mutations to a myth – they tended to stick out to the next participant. If a participant realized a mytheme to be mutated by another participant, it tended to get reversed. At the same time, some distinct mutations were beloved by almost all participants and tended to stabilize. Those mythemes tended to be humourous or absurd. There was a split between participants trying to make the myth more coherent, while others tried to make it more nonsensical.

We conclude that the individual character of people plays a significant role in how exactly a myth gets altered by them. The alterations themself show a motivational dichotomy: fix the myth or destroy it. Almost all participants accepted specific absurd or humourous alterations, stabilizing them across mutation iterations. We want to note that repeatedly hearing participants articulate their reasoning highlighted the complexity inherent in myth interactions, pointing to a critical research gap: understanding the subjective psychological and cultural dimensions shaping myth modification behaviours.

Quantitative Observations Tracking the action patterns of participants, we can observe different evolution patterns for each myth, see Figure 6.

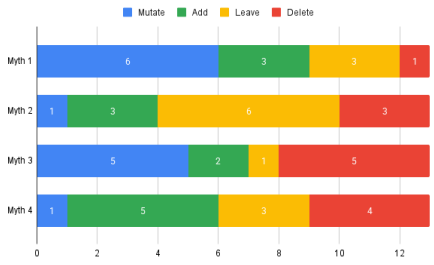

Figure 6: Actions per myth

Myth 1 was predominantly mutated. Since this is the action that allows for the most extensive changes, this indicates a shared drive to drastically alter this myth across participants.

Myth 2 was predominantly left as it was. This indicates a lack of motivation to actively engage with the myth across participants.

Myth 3 shows an interesting dichotomy between mutation and deletion, indicating that drastic alterations to the myth were oftentimes (partly) deleted by others. Since leave was performed only once, this myth has the highest rate of engagement.

Myth 4 has the most equal distribution of actions, with addition and deletion being the most frequently performed. This indicates a small, iterative myth evolution with high engagement across participants.

These observations point to an intriguing diversity in how myths resonate with individuals. There seems to be a trend of engagement across participants per myth: while myth one and myth 3 seem to invite active evolutionary action by almost all participants, myth 2 shows a trend of stabilization. Overall, it seems that the evolution of a myth by individual people over time is heavily dependent on the myth itself. We conclude that there is no randomness to the evolution myths go through, and no overarching identical patterns. Myth evolution patterns vary, with some myths enticing a high level of activity, while other myths stay predominantly stagnant. Based on our qualitative insights, we suspect that this is due to the level of inspiration, possibilities for change, and points of personal connection the myths provide.

5.4 The Workshop: Collaborative Myth Manifestation

The collaborative workshop revealed an interesting and quite surprising fact: the storytelling sto-

rytelling was much more about the social interactions between participants than the story itself. After an initial discussion where a vague storyline and strategy, as well as individual or team-based responsibilities, were determined, the group scattered and fulfilled their tasks. The preparation of materials and canvas was very fluid, participants tuned in and out of happenings. Overall, the atmosphere was friendly, bubbly, full of excitement and joy. Participants were laughing, talking, and helping each other. After preparation, they came back together to tell the myth. They settled on an improvised strategy: one participant invented the poetic narrative based on the list of mythemes on the spot, while the other participants used the materials to act out their words. Interestingly, they started to add random actions and sounds that were picked up by the storyteller and added to the narration spontaneously. A strong sense of community emerged, and only a minimal sensible plot was needed. The main concerns of the group were a celebration of narrative absurdity and unscripted connection by reacting to each other's prompts, as well as keeping the process enjoyable. Since they created a very fluid storytelling storytelling context, everyone was free to shape the myth however they wanted. The already-established closeness of the participants further amplified the harmonious proceedings.

We conclude that in a collaborative myth creation context, the narration and storyline itself are secondary to the social aspects of working with a group of people. The immediate environment determined the visual aesthetics. The individual inputs and foraged materials resulted in a myth version that could only be created with these specific people in that moment with those emotions in that environment.

6 Discussion

6.1 Critical Analysis

6.1.1 Use of LLMs

One of the main perceived flaws of the current project is its reliance on LLMs. Although LLMs offer a great shortcut to quickly convert mythemes into myths (and vice versa), they also pose the problem of biases in the training data or even the arbitrary limitations introduced to most of these commercial products. We observed, for instance, that OpenAI's ChatGPT couldn't work with graphic or crude details in the narratives[3], unlike models from Mistral[4].

6.1.2 Limitations of Agent-Based Modeling

Our agent-based modelling approach to myth evolution faces inherent limitations in capturing the full complexity of human myth-making processes. As Epstein (2008) notes, agent-based models necessarily simplify social phenomena. This is particularly evident in our attempt to codify the deeply nuanced cultural contexts that shape mythological transmission. Because of a lack of testing, our approach struggles to fully account for global normalisation of the system, or for what Bonabeau (2002) describes as "Emergent phenomena": "Emergent phenomena result from the interactions of individual entities. By definition, they cannot be reduced to the system's parts: the whole is more than the sum of its parts because of the interactions between the parts". In other words, even though we have tried to reduce the system and – thus its rules – as much as possible, the complexity and the interaction between the agents can create unpredictable, counterintuitive phenomena.

6.1.3 Ethical Considerations

The computational generation of myths raises significant ethical questions regarding cultural appropriation and the decontextualization of sacred or culturally significant narratives. Algorithmic systems risk flattening the rich cultural contexts and power dynamics that give myths their meaning within communities. (Bender et al., 2021). We share the perspective of Anderson (2015) recognizing that myths are not merely data points but living cultural heritage with specific ownership, protocols, and contexts. The Mythologizer thus necessitates careful consideration of which mythological systems it simulates and how results are framed, mainly when working with narratives from marginalized or colonized peoples whose stories have historically been appropriated.

[3] https://chatgpt.com
[4] https://chat.mistral.ai/chat

6.2 Contributions to the public

6.2.1 Reconstruction to generation

Our research presents a novel methodological approach and analytical angle for engaging with mythology. Unlike other tools and methods relying predominantly on precise, reconstructive processes, our developed framework facilitates a more speculative and experimental means of analysis, experimentation, and creative exploration. Conceived from a scientific perspective, this shift from reconstruction to generation expands the academic discourse and may have applications in broader domains such as writing, gaming, and artistic expression.

6.2.2 Theory to code

The transition from reconstruction to generation introduced the complex task of modelling the generation and transmission of myth in an abstract yet realistic manner. Inspiration drawn from reinforcement learning provided an essential insight, guiding our decision toward agent-based simulations. The main challenge involved defining atomic functions that accurately represent how these agents transmit and create myths based on their experiences, culture, and beliefs. Identifying edge cases and enacting potential scenarios significantly facilitated the development of our current modelling approach. Additionally, designing intuitive, resource-efficient, and optimized interactions among these functions and their corresponding mythological and agent-based objects presented further complexities.

6.2.3 Myth Algebra

During the completion of our initial implementation, we discovered that key components could be effectively represented using mathematical concepts from information theory and linear algebra. For instance, a myth can be considered as a linear combination of distinct mythemes, with varying amplitudes indicating their presence within the myth. Operations such as the dot product can quantify the similarity between mythemes and myths. Additionally, processes such as remembering or mutation can be modelled using matrices acting on myths or mythemes. This represents only one possible approach to modelling; depending on whether narrative order, temporal dynamics, or probabilities are to be incorporated, different algebraic frameworks can be defined to systematically represent myths and their associated operations.

Such an algebraic approach could enhance precision in implementation, potentially offering avenues for optimization or novel methods for modelling specific phenomena and patterns. Establishing one or multiple myth algebra systems is could not only help in generating myths but also in facilitating retrospective analytical research.

6.2.4 Biology as a tool of study for cultural and linguistic content

This project tries to exemplify the relevance of biological research tools and concepts and their application to mythology. On a more abstract level, and closer to its original definition in *mûthos*, myth is nothing else than a narrative. Narratives live among cultures, the same way myths do, and there is no reason to think that they can't be explored with phylogenetics or a simulation tool like the *Mythologizer*. The recent progress of LLMs has made the process of converting any narrative into smaller units like mythemes faster and easier on large volumes. On top of this, machine-learning tools like computer-vision give us tools to work with narratives outside of their linguistic forms.

6.2.5 Use of creative technologies

This project also aims to show a different angle into creative technologies. The phylogenetic mythology theory served as a vehicle for a collective *cadavre exquis* within the interview phase of the project. In the non-demiurgic world, the *Mythologizer* agents can escape what we expect of them, constantly shaping their own society. This way of conceiving algorithmic generation goes against what is traditional from creative technologies since it happens one layer below its representation. This approach proved to be challenging for outreach around our project.

6.3 Public Impact

6.3.1 Narratives as a product of society

Rather than trying to answer the call to new mythologies from Campbell (2008) or looking at myths as pure products of the human psyche like

Jung et al. (2007), this project aims to give attention to the live nature of narratives as a product of society. Le Quellec (2021) makes it really clear that myths adapt to values rather than the other way around, describing mutations and sometimes inversion in the interpretation of the same symbols by different societies. These ideas are critical to understanding, both for creative practices and political understanding.

6.3.2 Cultural Homogenization

One of the main motivations behind researching myth stems, paradoxically, from the imperative to explore narrative diversity. In fact, there's a concern about the convergence of storytelling structures. Joseph Campbell's *monomyth* has become disproportionately influential in modern narrative construction, its alignment with neoliberal individualism — particularly the *self-made* man trope – being symptomatic of broader standardization. This homogenization intensifies through algorithmic content systems operating within what Schiller Shiller (2017) describes as *Narrative Economics*. Coupled with machine learning and creating a feedback loop, narrative structures are at acute risk of homogenization. Pre-modern narratives, like myths, constitute valuable repositories of alternative storytelling structures that frequently challenge contemporary Western narrative conventions. Our computational approach to mythology serves dual purposes: preserving these alternative structures, and developing methodologies for generating narratives resistant to standardization.

6.4 Evaluation of the Collaborative Framework

Evaluation of the working process and the collaborative framework.

The results of the individual interviews and collaborative workshop enabled us to make decisions on how to construct the first version of the Mythologizer. While the interviews show that we need to create agents with individual characters, the workshop shows that we need to establish cultural groups and environmental factors within the system. We are aware that not all factors contributing to and shaping myth evolution can be determined and computationally defined so far. Still, we managed to produce an informed approach for building a generative system for myth evolution.

Evaluation of the collaborative working process We worked collaboratively throughout the whole process. All strategic decisions and distribution of individual tasks were done collectively. Still, the multi-dimensional nature of our project required specialized skills and knowledge, naturally resulting in a lead responsibility of people for the different layers. The different phases of the project emerged sequentially and required a variable amount of individual investment per phase. Still, we were always present and assisting each other as much as possible. This approach was possible because of weekly group meetings for discussion on the status of the project and upcoming tasks.

7 Conclusion and Future Work

The first stages of the project, until the interview, helped us better understand the methodology of this research field. We were thrilled with the media output and we believe this an insightful outlook into individual myth mutation. We hope that these videos will also be valuable for future research, and act as a meaningful archive of the cultural *zeitgeist* within which it was produced. Regardless of its future impact, this first leg of our research effort was able to nourish the more ambitious project of the Mythologizer.

The current implementation of the Mythologizer is a preliminary prototype designed to showcase the feasibility of simulating the evolution of myths through agent-based models. While it has already facilitated meaningful interactions and the transmission of myths, the codebase is still in its initial stages. In future iterations, we intend to systematically refactor the code to enhance its modularity, reliability, and safety, with a particular focus on minimizing reliance on large language models. Moreover, if feasible, we aim to formalize the underlying logic of myth transformation into a structured framework or algebraic system, which would allow for more rigorous reasoning, composability, and verifiability of myth operations. Once these enhancements are completed, we will release a stable, documented version to promote further academic engagement and open experimentation.

Beyond the technical framework, our wider objective is to transform the Mythologizer into a valuable tool for both public and academic use.

Its methodological foundation, which merges computational modeling with cultural theory, provides diverse applications across disciplines. By continuing to develop the tool with an emphasis on usability, extensibility, and interdisciplinary relevance, the project aspires to bridge theoretical insights with practical applications, thereby contributing to ongoing research into cultural transmission, narrative dynamics, and mythological systems.

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