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Correspondence
mkonstadakis@aegean.gr

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Experimental interpretation of ancient games through playtesting

Angelos Tsilogiannis[1], Markos Konstantakis[1], and Spyros Vosinakis[1]

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Abstract

Reconstructing the rules of ancient games remains one of archaeology's most intricate interpretive challenges. While surviving boards and pieces provide tangible evidence, the logic of play, rules, roles, and goals have largely vanished. Traditional reconstructions rely on text and comparisons to better known games, yet these methods seldom capture the experiential and social dimensions of ancient gameplay. This paper presents an experimental framework designed to explore how such systems might emerge through play itself. Using *Ludus Latrunculorum* ("The Game of Little Soldiers") as a case study, participants engaged in iterative, co-creative sessions where they invented, refined, and transmitted rules across successive lineages of play. The resulting games revealed recurring mechanics that closely parallel known reconstructions of *Ludus Latrunculorum*. While the outcomes do not claim historical accuracy, they demonstrate how collective experimentation can illuminate the cognitive and social processes underlying the development of structured games in antiquity. The study thus proposes experimental play as a complementary archaeological tool for examining how rulesets evolve, stabilize, and reflect the societies that produce them.

[1]Aegean University – Department of Product and Systems Design Engineering, Syros, Greece

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Introduction

The study of ancient games occupies a complex intersection of archaeology, anthropology, and game studies. Although board games constitute some of the most enduring material traces of play in human history, their original rules and social meanings are often lost to time. Archaeologists and historians typically rely on fragmentary evidence such as game boards, pieces, or scattered literary references to reconstruct how these games might have been played. This traditional approach has produced valuable descriptive catalogs and comparative typologies (Bell, 1960; Murray, 1952), yet it often struggles to capture the reality of the embodied actions, negotiations, and social meanings that once animated these artifacts.

In recent decades, advances in *archaeology* have highlighted the limitations of purely object-based interpretations. Researchers such as Finkel (2007) and Schädler (2007) have successfully reconstructed partial rule sets for games like *The Royal Game of Ur* and *Ludus Latrunculorum* through a combination of textual and material evidence. However, these reconstructions, while plausible, tend to treat rules as fixed historical data rather than emergent social constructs. They often lack insight into how games were learned, transmitted, and adapted by the people who played them. The result is a static understanding of dynamic cultural practices.

Understanding ancient games therefore requires situating them within their *societal context*. Games were not isolated leisure activities; they functioned as social performances embedded in everyday life, education, warfare, and ritual (Voogt et al., 2013). The processes of rule negotiation, competition, and shared learning that characterize gameplay mirror broader mechanisms of cultural interaction and transmission. A rule is not merely a prescription for play, it is an agreement between individuals that encodes shared values, hierarchies, and cognitive models of order (Schell, 2019). Without accounting for this contextual and procedural dimension, any reconstruction remains incomplete.

This paper proposes an experimental approach that treats play itself as a research method. Rather than attempting to recover definitive rules from limited evidence, we explore how rulesets might emerge through iterative play. In our proposed approach, participants engage with reconstructed boards and pieces modeled on *Ludus Latrunculorum* and are tasked with inventing and refining their own rules within historically framed scenarios. Across successive "lineages" of gameplay, these rules evolve through teaching, adaptation and negotiation, mirroring the cultural processes through which games likely developed.

By documenting this evolution, the study aims to evaluate whether structured play can serve as a viable archaeological method: one that complements traditional analysis by reconstructing not only *what* ancient games may have looked like, but *how* they might have been learned, played, and understood within their social worlds.

After stating some fundamentals on related work (Section 2), we analyse the framework we designed to conduct the experiment in Section 3. Later, in Section 4, we summarize events and points of note in each lineage. Finally, in Section 5, we discuss the limitations involved as well as future work and of course whether or not the method suggested can help in the reconstruction of ancient games.

Related Work

Game Reconstruction

The reconstruction of ancient games often relies on partial evidence — surviving boards, scattered pieces, or fragmentary written accounts — leaving their actual rules uncertain. Scholars have long attempted to deduce these rules through comparative analysis with better-known games or by interpreting textual clues within historical context. These range from early typologies (Bell, 1960; Murray, 1952) to modern syntheses (Crist et al., 2016). However, while these reconstructions produce plausible hypotheses, they tend to treat rules as fixed systems awaiting recovery rather than as evolving cultural practices.

The approach presented in this paper departs from such reconstructions by proposing a *generative* method — one that uses iterative play to explore the range of rules that could emerge from a given material configuration. This shifts the focus from reverse-engineering a historical original to understanding how human players make sense of affordances and constraints within the game's material design. In doing so, it positions play itself as an epistemological tool for archaeological inference.

Experimental Archaeology

Experimental archaeology is a research method that seeks to understand ancient technologies and practices through direct material reconstruction and experiential testing. As defined by Outram (2008), it aims to replicate ancient processes to examine their practical and cognitive implications. When applied to games, this connects to the broader argument that play itself can reveal how material design influences cultural evolution. Rather than relying solely on textual or visual sources, it focuses on replicating the physical and procedural aspects of past activities to reveal insights about their feasibility, constraints, and intended outcomes. In the context of ancient games, this approach allows scholars to move beyond the static study of artifacts and engage with the dynamics of play itself. Reconstructing a game through repeated experimentation can uncover the implicit logic of its design, its ergonomic or cognitive demands, and the social interactions it facilitated.

In this study, the experimental method takes on an iterative, player-centred form where rule-making and playtesting act as archaeological tools. The goal is not to "discover" the authentic rules of a lost game but to approach an understanding of what those rules *could have been* by observing how structure, balance, and meaning naturally emerge through play.

Cultural Transmission and Iterative Learning

The transmission of rules across multiple groups of players in this experiment parallels models of *iterative learning* and *cultural evolution* in anthropology and cognitive science. This dynamic reflects broader models of cultural evolution and bias-driven transmission described by Mesoudi (2011) and Acerbi and Bentley (2014), where systems stabilize through cumulative social negotiation. Studies in these fields explore how behaviours, symbols, and languages evolve over successive "generations" of learners through cumulative modification (Kirby et al., 2008; Tomasello, 1999). Each lineage of gameplay in this project represents a microcosm of that process: players receive a partially defined set of rules, reinterpret them through interaction, and pass on an altered version to the next group. This results in emergent systems that gradually stabilize through repetition and shared understanding.

By applying this framework to the reconstruction of games, the experiment transforms rule-making into a model of cultural adaptation. The persistence of certain mechanics such as capture rules, race objectives, or territorial control reflects how human cognition and play instinct naturally favour structured, goal-oriented systems. In this way, the project demonstrates that the *evolution* of rules through collective reinterpretation can serve as a proxy for understanding how ancient games may have evolved and been transmitted within historical communities.

Goal and Scope

The primary goal of this study is to explore how play-based methodologies can contribute to the reconstruction and understanding of ancient games. Rather than reconstructing a single speculative ruleset, the method aims to observe how rules emerge organically through player interaction.

The scope of this work is twofold. First, it aims to evaluate whether a play-centred experimental framework can produce meaningful insights into historical gameplay systems. Second, it examines how emergent rulesets developed through iterative play and social transmission can align with, challenge, or expand upon existing scholarly interpretations of ancient games.

This study is limited to short-term, small-group experimental sessions and does not attempt to establish definitive historical accuracy. Instead, it positions its findings as interpretative contributions that can support expert analysis and further research. Additionally, while the methodology incorporates elements of meaningful play and play in archaeology, it does not aim to exhaustively validate these theoretical frameworks, but rather to demonstrate their applicability within this specific context.

Methodology

To be able to evaluate our experiment we used *Ludus Latrunculorum* as a case study. It is a game for which some surviving rules exist and there are even a good number of rulesets that experts have suggested. By referencing the rules we see uncovered by the players back to *Ludus Latrunculorum* we can evaluate how accurate or helpful the method is.

To make sure we weren't limiting the possible interactions with the game components we created two mock-ups of the game based on relevant findings. Unfortunately, in the case of *Ludus Latrunculorum* pieces and boards vary quite a bit. In particular the "Dux" piece once had quite the debate behind its role in the game, however more recent studies conclude that it is rather unlikely that the piece was part of the game at all (Penn and Courts, 2022). Our team was unaware of the specifics behind the special piece at the time the mock-up was being made and so hesitantly included it in the kit as an extra piece.

We decided to recreate a 6×7 and a 10×9 grid board as they were amongst the most common board sizes. All components were made by hand by clay mostly in manners that don't require modern machinery or engineering. Mock-ups were accompanied by three wooden bowls that would store all of them; they would be introduced to the players as components also (Figure 1).

It is important to note that due to ease of access most of the participants were design students. That may affect the experiment in that design students are trained in skills such as conceptualisation and are aware of design principles that may alter how they approach the experiment. Although the participants were asked not to recall any design tools and to approach the

Figure 1 – The 10×9 board with the wooden bowls placed next to it. On the board are different formations and placements players would experiment with.

experiment organically, we believe a more diverse group would harbour more fruitful and more accurate results.

The method was conducted on three different groups of four in 2–4-hour long sessions with a break in between. Before each session each group was briefed on a different scenario which would provide context for when and where they are in history. All different scenarios were of timeframes and locations relative to sightings of *Ludus Latrunculorum*. After being briefed on their scenario, players would split into pairs and each pair would be given one of the boards, 16 pieces of both colours and one, two or none of the wooden bowls. Both pairs also had access to a common "*supply*" which had extra pieces including two "*Dux*" of each colour (Figure 2).

Players were encouraged to play with the pieces given, say their thoughts out loud and take notes if they felt they had to. Because the board and the number of pieces don't fully represent a known game, players would have to make up their own rules, themes and goals and agree to a ruleset to play. In this study we note the initial agreement of the rules as the start of that game's Lineage. Each change and evolution from a Lineage is an iteration of that Lineage.

Once players A–B and C–D were done playing, one player from each table would switch. Because of that, in each *Lineage* one player would have to teach the "new player" (player C) the game of that *Lineage*. Players were asked to mark all if any of the changes they felt were necessary as well as why they occurred. Once that play session was over players would switch and play again.

Results

Due to the free and playful nature of the experiment, a degree of flexibility was necessary. Certain practical and contextual constraints required adaptations during the sessions. Notably, an unplanned "Lineage 0" emerged spontaneously before the official start of the study, and in

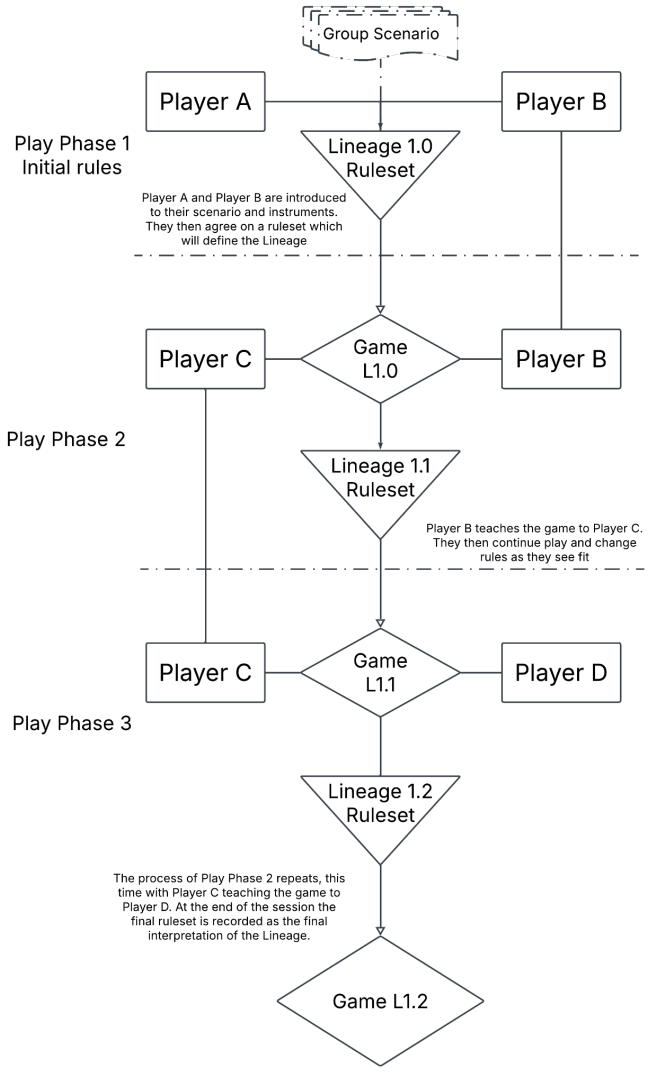

Figure 2 – Diagram that shows the sequence of play sessions that constitute a Lineage.

one instance, an additional iteration was added to an existing lineage. These departures from the initial framework ultimately enriched the dataset by demonstrating how rulesets can arise organically even outside structured conditions.

Each iteration was assessed along two interpretive dimensions: *rule-system rigidity* (rigidity) and *historical alignment* (alignment). Rigidity describes the extent to which the emergent game has developed into a coherent, playable, teachable, and internally consistent ruleset. This included the clarity of legal moves, constraints, victory or loss conditions, the ability of players to explain the game to others, and the absence of unresolved ambiguities, stalemates, or dominant exploits. This dimension is informed by broader approaches to game playability evaluation, where clarity of goals, consistency of rules, balance, learnability, and meaningful constraints are central criteria (Desurvire et al., 2004). Alignment describes the degree to which the emergent ruleset corresponded with the available historical, archaeological, textual, and comparative evidence for the game under study. In this case, alignment was assessed in relation to known evidence and scholarly reconstructions of *Ludus Latrunculorum*, including mechanics, spatial logic, capture methods, objectives and military or territorial themes. This dimension does not constitute a measure of historical accuracy, but rather an indication of comparative compatibility with

existing evidence and interpretations, in line with recent approaches that compare possible ancient game reconstructions through both historical evidence and playable rule systems (Browne et al., 2020; Crist and Soemers, 2023).

Those dimensions are valued as high, low or somewhat high/low in each iteration of each lineage. Table 1 displays a comprehensive sum up of those values for all iterations of all lineages.

Lineage 0 – "Surprise Round"

This initial lineage emerged by chance when two design students encountered the experiment setup before it officially began. After a brief introduction to the general premise, they spontaneously began playing, generating the first experimental rule system. This "Surprise Round" was brief yet highly instructive. The players immediately recognized one of the distinct pieces (the "tower") as special, assigning it dominant properties and making it central to the victory condition.

The tower could not be captured by a single opposing piece; it required being surrounded. Victory was achieved either by moving a tower to the opponent's back row or by capturing all the opponent's towers. This early focus on an asymmetric and hierarchical piece structure foreshadowed similar developments in later lineages.

Gameplay was marked by continual revisions: the participants noted that they had "changed the rules five times" within a short span. Each alteration sought either to balance the play or to emphasize the tower's strategic importance. Around the seven-minute mark, a dispute over an unclear rule led to playful accusations of cheating — a turning point that produced the first formalized clarification and the introduction of the "2-vs-1" rule, where two allied pieces could jointly capture one enemy. Rigidity was somewhat low with rules changing often, having to pause play. Alignment was somewhat high, sharing themes and the capture method experts usually associate with *Ludus Latrunculorum*.

Lineage 1 – "Trofothosian (Provisioning)"

Lineage 1 represented the first structured application of the experimental method and unfolded through four successive iterations, each transmitted between new player pairs. The lineage began with the smaller board, two bowls and the plate, which players quickly re-contextualized as external components within the game's environment. Namely, they utilized them as "graveyards" for captured pieces or "stores" for unplaced pieces.

Iteration 1 (A–B): The first players established a social context for play, humorously suggesting that games would require stakes to be worthwhile, a remark that later evolved into a recurring motif of "playing with something at stake." They debated the balance between luck and strategy and agreed that the game should be purely strategic. One player proposed a deployment-based system, adding pieces during play rather than starting from a fixed setup. The "tower" again became the focal point of power, while the goal shifted toward territorial control and surrounding the enemy pieces. Rigidity was somewhat low as rules were more often formed after discussions around specific phases in the game. Alignment was somewhat low, although sharing theme and capture method with *Ludus Latrunculorum*, there is no reason to believe it was ever a game of stakes.

Iteration 2 (B–C): The next pair formalized several implicit elements. The teaching player (B) demonstrated not only the rules but also mannerisms, such as how pieces were placed or how removed ones were handled. This transmission of gestures and routines exemplified embodied

learning, an often-overlooked aspect of rule inheritance. The pair introduced diagonal captures to increase tension and prevent stalemates, as well as a new losing condition: running out of moves or pieces to place. In both cases, the rule change did not cause much debate as the players agreed that the game was "running a bit short in the climax" and agreed that this change would make it better. Rigidity was somewhat high as players had a much clearer and more agreed upon ruleset, only changing it on agreement that the game would fail otherwise. Alignment did not see much change as the core of the previous iteration stayed largely intact.

Iteration 3 (C–D): In the third iteration, overlooked ambiguities in victory conditions were clarified. The "stakes" were raised into land or crops as the game was now "more serious". Interestingly, a rule from the first iteration (flipping a piece to decide turn order) was reintroduced spontaneously, now reinterpreted through a new metaphor ("plains" and "valleys"). Draws became a concern, prompting the rule that in a draw, the player who had captured more pieces would be declared the winner. By the end of the iteration the game becomes rigid enough to have concrete rules.

Iteration 4 (D–E): By this stage, the game had become complex enough to require detailed explanation and examples when teaching. This caused a thematic narrative to emerge. Player (D) imagined the towers as capital cities producing "provision lines" to armies. This narrative was born out of the need to explain what was coined by player (D) as the "desertion" rule, where pieces cut off from their capital could no longer be used to capture. It is worth noting that the mannerisms introduced in iteration 1 survived well into this iteration. As the game gets more well-defined, its theme changes to better suit its core mechanic. This concludes in a game that is more dissimilar to how *Ludus Latrunculorum* is suspected to have been seen by its players.

Lineage 2 – "Siege"

Lineage 2, played on the larger board, explored heavier tactical and wargame-like dynamics.

Iteration 1 (C–E): Players began by comparing the board to a checkerboard, prompting them to adopt a promotion mechanic for pieces reaching the opposite side. Players very soon decided that the thematic should be a siege. Soon after, they designated the tower pieces as "monoliths" and proclaimed that whoever captures the enemy monolith is the winner. Capturing was defined as flanking from the side or rear ("like in real combat"/"like in Total War"). This iteration faced frequent rule ambiguities, frequently needing mid-game clarifications and tweaks, but by its end, the system resembled a rudimentary siege scenario. Rigidity was somewhat low as despite the players agreeing on a theme they struggled to improvise satisfactory rules. Although not well-defined yet, the themes and most of the original rules fell in line with multiple interpretations of *Ludus Latrunculorum*.

Iteration 2 (A–E): The next pair filled missing rules as needed. They observed that the game risked stagnation, introducing the "five-piece rule" (later reduced to three) to prevent situations where a player could no longer make any meaningful moves. They also experimented with restricting movement near the monolith to create zones of tension, which momentarily gave the game a chess-like feel. Subsequent adjustments restored fluidity while retaining the sense of spatial hierarchy. Rigidity suddenly spikes up in this iteration as players form a clear ruleset.

Iteration 3 (A–C): At this point, *Siege* evolved into a complex system that players could teach confidently and were in fact rather proud of its depth. They happily shared some of their theory crafting while playing. They identified three distinct stages of play: the **Run for It**, where pieces rushed to gain ground; the **Battleline**, where fronts stabilized and tactics emerged; and the **Finale**,

where players pursued either *Domination* (surrounding the monolith) or *Elimination* (capturing as many of the enemy pieces as possible). The emergent strategic depth led players to describe the game as something Roman soldiers might use for both training and recreation. Although technically in line with many interpretations of *Ludus Latrunculorum*, the complexity of the game as well as its emphasis on the "Monolith" render this very difficult to suggest as historically accurate.

Lineage 3 – "Crabs and Kings"

The third lineage developed on the small board and initially took the form of an abstract race game. Later in its iterations however it grew a rather strong narrative element.

Iteration 1 (F–G): Players experimented with setups inspired by checkers and backgammon, defining movement and capture intuitively. Early play was chaotic but generative, with several quick layout revisions. Although not all rules were explicitly stated, the couple was very keen on establishing tacit agreements. Although the players had a rough time sticking to a ruleset, they mainly circled around the objectives of a race game. The players struggled to maintain a single ruleset. The emerging game was also of a nature such that it would be a massive stretch to claim similarities with *Ludus Latrunculorum*.

Iteration 2 (F–H): As player (H) joined, they introduced the theme of warfare. The game incorporated roles such as "guards," "soldiers," and "kings" and did so without requiring unique pieces. Roles were determined in such a manner that a piece's position on the board implied its available moves and abilities. The narrative expanded to represent a rescue mission, with a captured king and loyal soldiers attempting to save him. The narrative seemed to take a leading role in shaping the rules. This was only the exception when the "guards" were renamed to "plants" to better fit their function, since they couldn't move. Although a narrative begins to form and with it a more solid game, the game in question is still far from what experts would assume *Ludus Latrunculorum* to have been.

Iteration 3 (F–I): In this iteration, the players decided to instead play one of the ideas players (F) had abandoned, during iteration 1. The game is a variant in which some of the pieces now move diagonally (hence the name "crabs"). The only thing to really note here is that during play, player (I) discovers the dominant strategy of the game. It is surprisingly unclear whether the rule that emerges from this is to forbid the strategy or forbid player (I) from playing. The game essentially failed and reverted to previous iterations.

Lineage 4 – "City"

The final lineage involved the broadest experimentation, reflecting some creative lag but eventually came to be.

Iteration 1 (I–H): Players had a long and awkward silence while trying to agree on a general ruleset. Initial ideas ranged from flicking the pieces (not unlike crokinole) to territory control but felt unsatisfied with most of their play sessions. They don't eventually end up in an agreed game, but they keep the ideas shared in this iteration for potential input from the players in future iterations. The inability of the players to agree on a general ruleset kicks off this lineage with very poor rigidity.

Iteration 2 (I–G): Player (I) instead of teaching a game goes over all the ideas proposed in iteration 1. Combining prior concepts, players created a race game utilising the "tower" pieces where the objective was to reach the board's centre. Player (I) discovers yet another dominant

strategy that is game breaking enough to warrant an overhaul of the game. A goal and mechanics finally emerge, albeit not yet fully solidified. The emerging game is not something experts would recognise as similar to *Ludus Latrunculorum*.

Iteration 3 (G–H): The final iteration is defined by the players finding it easier to visualise a different narrative in the preexisting game. Ultimately, they developed "City," a game in which movement into designated "urban" zones suspended capture rules as "the city is friendly to both of us". The result was a race-and-territory hybrid emphasizing mobility and protection. It is somewhat noteworthy that the mechanics of the game being "more forgiving" and "less competitive" led to the table being rather casual in comparison to other lineages. The lineage concludes with a rigid game. Although it also shares some elements with *Ludus Latrunculorum* now, it's more characteristic features (such as the unique setup) are not associated with it.

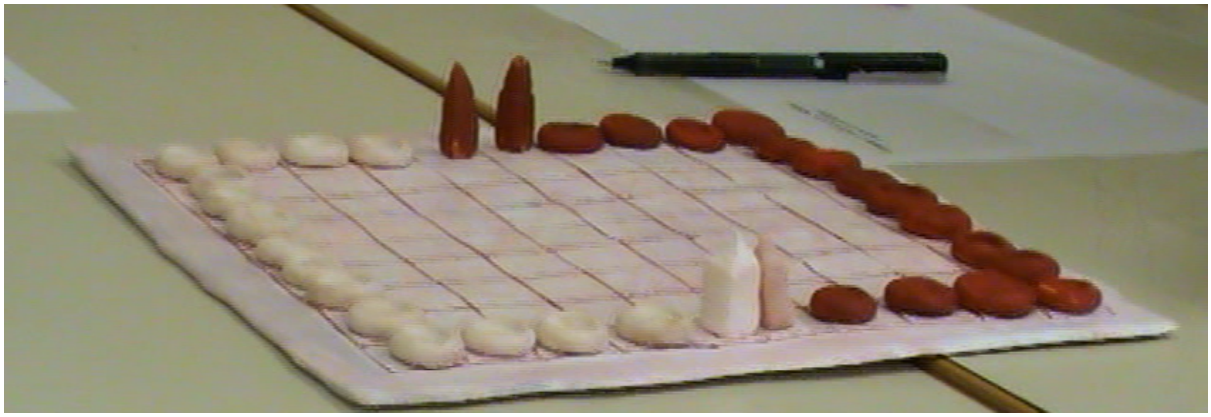

Figure 3 – The game board during the experimental phase of Lineage 4. This setup is what gave way to the players to imagine the board as a larger city, which defined their game thereafter.

Table 1 – Rigidity and Alignment of each iteration of each lineage.

Lineage	Iteration	Rigidity	Alignment
0 – Surprise round	1	somewhat *low*	somewhat *high*
1 – Trofothosian	1 A–B	somewhat *low*	somewhat *low*
	2 B–C	somewhat *high*	somewhat *low*
	3 C–D	*high*	somewhat *low*
	4 D–E	*high*	*low*
2 – Siege	1 C–E	somewhat *low*	somewhat *high*
	2 A–E	*high*	somewhat *high*
	3 A–C	*high*	somewhat *high*
3 – Crabs and Kings	1 F–G	somewhat *low*	*low*
	2 F–H	somewhat *high*	*low*
	3 F–I	somewhat *low*	*low*
4 – City	1 I–H	*low*	N/A
	2 I–G	somewhat *low*	*low*
	3 G–H	*high*	somewhat *low*

Overall Trends

Across all lineages, the experiment revealed a gradual but consistent movement from open-ended improvisation toward systems of structured and teachable play. This becomes evident by

how in most lineages' rigidity improves with each iteration. While each lineage developed distinct identities, several recurring rule patterns emerged throughout them. We tag those recurring rules as: **surround-to-capture**, **territorial control**, **piece hierarchy**, and **deployment**. These recurrent features, as discussed below, can be linked to previous interpretations of *Ludus Latrunculorum*, strengthening their basis. It is worth noting however that although these rules occurred often, overall likeness trends very lowly in our study group. They can also reveal insights into the broader dynamics of play-based reconstruction, contributing to the methodological goals of this study and informing future work.

The most prominent and persistent mechanic was **surround-to-capture**, first appearing spontaneously in Lineage 0 and then reemerging as a stable feature in both *Trofothosian* and *Siege*. This rule type is strikingly similar to the *custodian capture* rule associated with *Ludus Latrunculorum*, in which a piece is taken when trapped between two enemies along a line (Finkel, 2007; Schädler, 2007). The repeated re-invention of this rule suggests that the principle of entrapment or enclosure is both intuitively graspable and aesthetically satisfying to players, offering a clear feedback mechanism and spatial logic. In cognitive terms, such rules may emerge naturally from human spatial reasoning: the notion that "cornered" objects are vulnerable is conceptually universal and thus prone to independent rediscovery.

A second recurring motif was **piece hierarchy**, most visibly embodied in the persistent presence of a special or "Dux" piece. It is worth noting that in many cases players would begin without the special pieces only to actively seek for some component to use as a unique piece when trying to introduce tension or depth into the game. Across lineages, this element evolved into forms such as the "monolith", "capital", or "city", each functioning as either the target or the command centre of the game. It is worth noting that all the names and roles players would assign to the special pieces would be in some way products of the piece's tower-like appearance. This raises the question of how even minute details of pieces can have a massive effect on how games end up evolving. In hindsight, it becomes clear that players would try to interpret a theme from the pieces themselves. Future work should have this in mind as it can be argued this is a primary reason for recurring themes.

The theme of **territorial control** also appeared repeatedly. In *Trofothosian*, players developed supply-lines and provisioning mechanics. In *Siege*, they defined frontlines and battle stages; and in *City*, they introduced safe zones immune to capture. These dynamics resonate with interpretations of *Ludus Latrunculorum* as a game of encirclement and positional dominance rather than direct piece elimination (Schädler, 2001).

A fourth common rule was the **deployment-based play** instead of a typical fixed setup, especially evident in *Trofothosian* and *City*. Players often chose to introduce pieces gradually, "like Go," rather than begin with prearranged formations. This was evidently an easier way for players to begin play early in the lineage when the game components make it hard for them to refer to a known game setup. A deployment-based game would also fall in line with some recent reconstructions of *Ludus Latrunculorum* (Crist et al., 2024).

Discussion

The experiment demonstrates that iterative, player-driven reconstruction can function as an experimental heuristic for exploring how ancient games might have been played. The method, as practiced, produced results that reveal mechanics that closely parallel multiple hypotheses for

Ludus Latrunculorum tend to appear often and naturally. This convergence suggests that experimental play can generate historically plausible systems even without direct instruction, offering insight into the cognitive and social tendencies that shape game design across cultures. Rather than offering definitive reconstructions, these outcomes highlight how such methods can surface patterns in rule formation that may inform and complement existing research.

However, the method cannot be considered an instrument of historical verification. The rules produced are interpretive rather than reconstructive, reflecting modern intuitions more than ancient realities. As such, the value of the approach lies in its ability to generate structured possibilities that can be examined, compared, and assessed by experts. To meaningfully assess its accuracy, similar experiments should be conducted with other ancient games (such as *Senet*) to determine whether comparable patterns of convergence or divergence occur under different material and cultural conditions. Regarding material, recent works that have analysed the relation between game rules and the material components they embody seem to imply that material components themselves can be blamed for repetitions in rules reconstructions such as those in this experiment (Stenros and Montola, 2024).

It is also very important to note that the limitations of the experiment possibly led to a very stagnant result pool. All participants were design students, a background that almost certainly influenced their approach to the creation of rules as it sometimes resembled the design process. Their shared educational background may have predisposed them toward structured thinking, narrative framing, and iterative changes, skills central to design but not necessarily representative of ancient or even general player behaviour. Moreover, the participant pool was small and relatively homogeneous in age, experience, and cultural outlook. These factors likely constrained the diversity of interpretive possibilities and limited the emergent variability of rule systems. The results therefore reflect how a particular kind of trained creativity interacts with archaeological uncertainty, rather than offering a neutral sample of human play cognition.

This, if anything, manifests an urge to re-conceptualize the scope of the experiment toward a broader investigation of rule formation and transmission. Following discussions with experts, it became apparent that the findings of a study that focuses on how rules develop and evolve would help game reconstruction efforts much more than a targeted approach. Future work should therefore place greater emphasis on the processes of rule negotiation, adaptation, and teaching, as well as the contexts in which these occur. While these aspects were not the central focus of the present study, the observed interactions between players, rules, and transmission reveal promising avenues for extending play-based methodologies within both game studies and archaeological research.

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