

## Intellectual Agenda

Simulations are valuable in two distinct ways. In the first, the *creation* of a simulation forces a formalization, an operationalization, of what we believe to be true about the past. If we write, “many Romans attempted to improve their lot in life through attachment to the household of a higher status individual”, a modeler would ask, ‘what does ‘attachment’ mean? what does ‘status’ mean? how does ‘attachment’ work? what does ‘to improve’ imply?’ and so on. Models and simulations work best in our view when they are focussed on operationalizing a limited number of phenomena. This is because of the second valuable aspect of simulation: by enabling us to ‘re-run’ history under different conditions, we can begin to see the landscape of possible emergent outcomes this operationalized description of the past implies. To recap: simulation forces us to formalize what we believe about the past; and it allows the consequences of those formalizations to be systematically explored. The job of the modeler *after* running the simulation is to use that landscape of possibilities to better understand the past, the errors in the formalization, or to circumscribe our understanding of the various likely starting positions.

A board game is another species of simulation. Indeed, one could argue that a simulation is a game that plays itself. A board-game-as-simulation therefore removes the impartial computational referee, and forces the players to interpret, understand, and contest the formalization recorded in the rules of the game. A board game is therefore a kind of ‘analog simulation’, in that it admits a lot of noisiness in the operations of its processes. A board game is also a valuable pedagogical tool in that it reveals the tyranny of algorithms and encourages players to play with the rules, challenge the rules, or even, re-write the rules.

In which case, why are the rules of *Forum: Trade Empires of Rome* the way they are?

## Historical and Scientific justification

*Forum* is a boardgame based on current theories of the functioning of the Roman economy, and also draws on the independent research agendas of Brughmans and Graham (see bibliography). *Forum* aims to highlight the integration, impact, and interplay of both physical transport networks and social networks, as well as the interwoven roles of money and prestige.

The Roman Empire in the first centuries AD spanned a huge area: from the British Isles and Spain in the west, to Egypt and Syria in the east. Despite its size, goods produced in all corners of the empire as well as exotic goods from outside the empire were available on markets throughout the empire. No market was as important as that of the capital of Rome (for a deep discussion of Rome’s distorting effects on the socio-economics of Empire, see Morley xxx, Temin xxxx, Bang, xxx, as well as the work of Wilson et al. xxxx). The city had a huge

population that constantly needed to be supplied with all manner of foodstuffs, utilities and luxury goods (most famously depicted in the Book of Revelation as the Whore of Babylon, eating the resources of the world).

In *Forum*, you play a senator (an aristocrat) based in the capital of Rome who aims to establish the greatest trade empire in order to use its proceeds for funding your political career.

Aristocrats were not directly involved in trade themselves. That is to say, they at least did not want to be *seen* as being commercial moneymakers. But it is clear that commercial interests and profits were key to the accumulation of the aristocracy's riches. This is why in *Forum* you work through a group of commercial agents who act as your representatives. They follow your orders to establish warehouses to supply for the demand in tradable goods in different markets around the empire. The size of the empire and the limited communication and transportation technologies available in Roman times mean that the physical distance between markets was a real barrier. It took commercial agents a certain amount of time to move goods between Rome and other markets. This is reflected in the lower profits the further you move away from Rome in the network of FORUM: the longer the travel distance from Rome, the higher the transportation costs.

You also support your agents by ensuring they are well informed about the prices, supplies and demands of goods in different markets around the empire. The physical distance between markets in the huge Roman Empire affected the availability and reliability of commercial information current at different markets. It was key to establish reliable social networks between commercial agents to ensure they could remain well informed about current prices and could get the best deal at different markets outside Rome (see for instance the work of Laurence, xxxx on 'space-economy'). In *Forum*, this is reflected in the trade boost agents at markets with a warehouse get if you also have an agent and a warehouse in Rome: a secure communication link is established between your home base in Rome and your warehouse at a market, your agent there is better informed and consequentially can get a better deal at the market (hence the trade boost which mitigates the money lost through transportation and making trade more profitable).

The games of Roman prestige, of patronage and client-ship, depended on seeing and being seen to have economic power, or to wield influence. Traditionally, this game of seeing and being seen played out in the ritual of the morning *salutatio* where clients presented themselves to their patron each morning; patrons would receive clients in the order of their prestige. The procession to the Forum of a morning of a patron with his clients was therefore an opportunity to signal to others the number and quality of one's clients and hence likely political power. Similarly, the Roman aristocracy could signal their power and prestige by their ability to command resources for the construction of temples or other urban architecture. This 'competitive building' reached its apotheosis in the urban renewal and building projects of the late Republic, but of course it could also find

its outlet in the *renovation* of temples, basilica, and so on, or in donations of food, or the giving of games. In *Forum* a player's prestige and their current wealth is prominently displayed on the board, so that players can take into account others' wealth and standing as they formulate their strategies. Similarly, marriages and strategic divorce was a weapon that elite Romans wielded to great effect, to heighten prestige, to enable advantage, or compel lesser individuals to bend to the patron's will. Roman marriage is an extremely complicated institution, and depends very much on the social context of the individuals involved. In the version that we imagine here, the 'children' of the player are pawns to be traded to protect interests or to obtain advantages. The dissolution of marriage carries consequences that broadly are in line with what we know about the marriages and divorces of high ranking individuals.

## Conclusion

In the creation of a computational simulation, the manner in which a historical or social phenomenon is operationalized literally encodes the modelers' understanding of how the past works: it is a kind of procedural rhetoric (in Bogost's felicitous phrasing, 2007). In creating an 'analog simulation', the equivalent idea is in terms of 'playability'. Board games require balancing of both positive and negative feedback loops (and considering the consequences when various loops intersect, as in the consequences of 'fate cards', for instance) in order to create the particular dynamic where in any given play-through, any given player might win - this is what we mean by playability. What makes the winner is the player's understanding of the rules, and her ability to deduce a winning strategy within them. We have made decisions at times in the writing of the rules where we considered multiple arguments about the past but chose to implement the idea we felt was the best compromise between faithfulness of the broad strokes of Roman society and playability.

We **expect** that players familiar with the details of any particular element we have simulated will dispute the choices that we have made. We welcome this: a simulation is only as valuable as it is a stimulation to further thought and argument and so *when* you find something that you feel strongly is the wrong choice on our part, we encourage you to re-write the rules, to challenge the algorithm, and develop (and justify) your own 'house' rules.

Then: consider the outcome to your game. How is it better? How is it worse? What does it do to your understanding of the past? Blog your experience. Publish your thoughts. Mod our game.

Simulation is a space, a landscape of outcomes. We look forward to hearing of your own explorations.