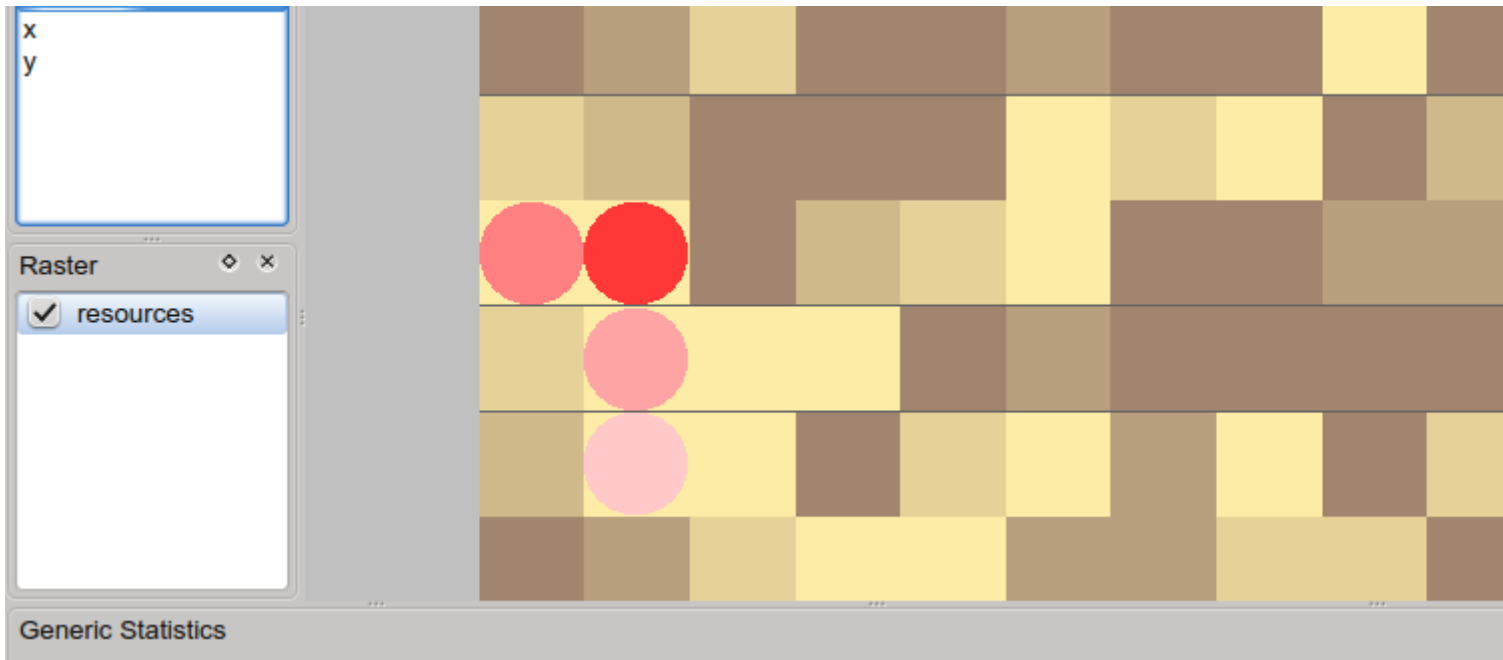


## Agent-Based Models



Formal models are increasingly being used to study social dynamics. Agent-Based Modelling has become one of the most successful techniques due to its flexibility to explore human interaction using a bottom-up approach.

## Summary

An Agent-Based Model (ABM) is a computer simulation designed to improve our knowledge of society understood as a complex system. It uses concepts such as decision-making, social learning and emergence to study human interaction using a bottom-up approach.

The technique is one of most successful techniques created to study human groups. However, its application faces several challenges, as any other research tool. This research line uses HPC to explore new ways to integrate this tool within the social sciences and humanities. This includes technical solutions, but also methodological advances beyond the needs of particular disciplines such as computer science or archaeology. This transdisciplinary effort allows us to develop formal models of human societies, both from the past and the present.

## Objectives

- Develop HPC tools to run large-scale ABMs

- Apply formal methods to help answer research questions from the social sciences and humanities
- Contribute to the creation of transdisciplinary methodologies to improve our understanding of social dynamics

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