## Treating Agent-Based Models as Algebraic Structures

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**Abstract**: Stepanov and Rose’s work *From Mathematics to Generic Programming* demonstrates that computer programming, by following in the footsteps of mathematics, can achieve higher and higher levels of abstraction. Taking our cue from them, we have been able to treat agent-based models as instances of the algebraic structures known as groups. Having defined the standard group operation and ensuring it satisfies the group axioms of closure, associativity, identity and invertibility. We have a generic way to easily define new agent-based models. So far, we have successfully applied this idea to models dealing with fashion trends, neighborhood segregation, and asset-market behavior.