

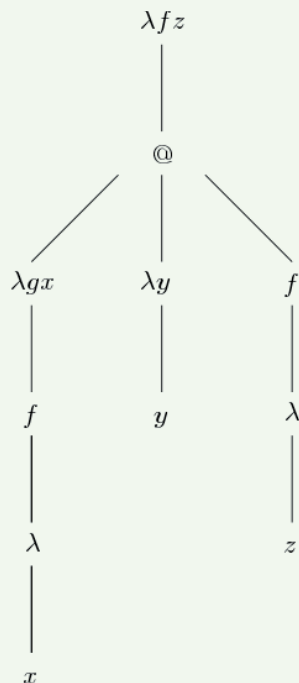
Game Semantics of Functional Language on the Base of Computational Arenas

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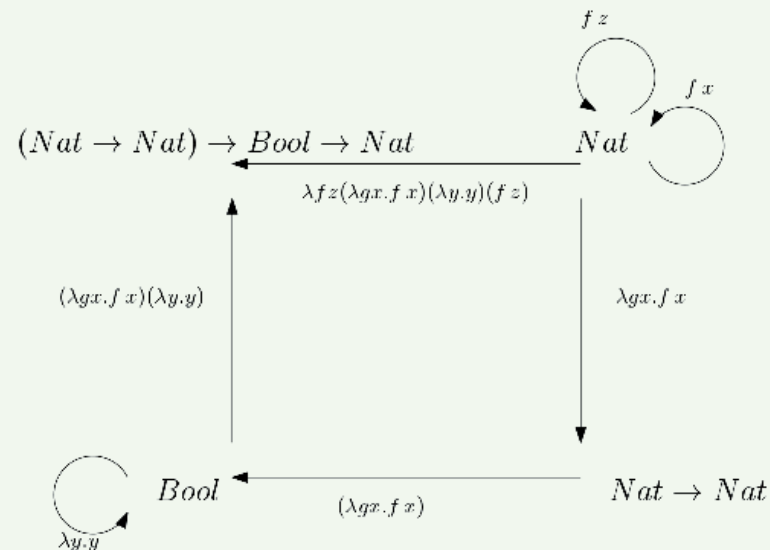
Game trees

- structure for defining possible moves of players and opponents
- game strategy is a program in λ -calculi terms
- game tree represents a computation of the term and it is branched from top (root) to bottom (leaves)

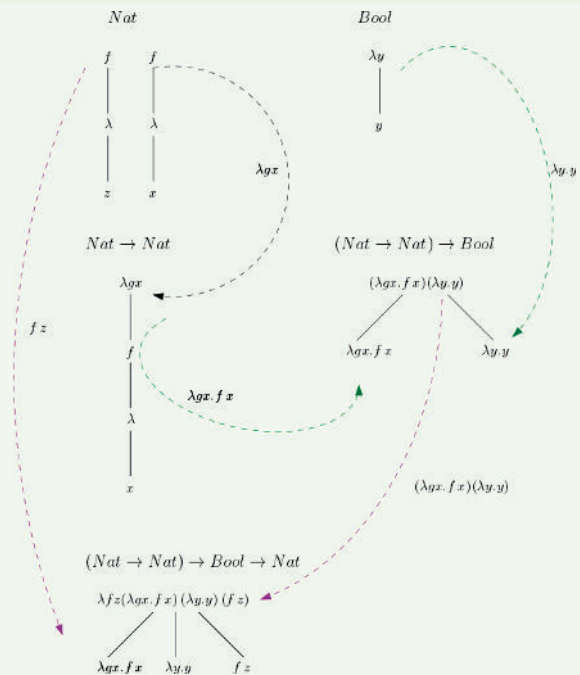


Computational arena

- computational arena (hereinafter also CA) is a set of game trees
- CA is a computation of term of given type and contains simply-typed terms
- ability to construct the product of CA and arrow CA for simply-typed terms
- operations of CA represents the computation of typed term
- CA is used to create the category of CA with objects (CA) and morphisms (strategies)



Category of computational arenas



Results

- we showed the possibility to create the model of computation for typed terms within category of computational arenas
- this approach connects the advantages of denotational semantics (result of the computation) and operational semantics (computation process)