

CSCI 1730 Capstone: Extending the SMoLest Language in Redex

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Abstract

This capstone project focuses on extending a language representing the Standard Model of Languages, or the SMoLest language. This language and the extensions are implemented in Redex, a domain-specific language and toolkit designed for the formal semantics of programming languages. The project first involved adding conditionals or introducing booleans, a reference equality operator, and a ternary if expression. Then, add `let`, `let*`, and `begin` syntactic sugar constructs through metafunctions to enrich SMoLest's expressiveness. Lastly, altering the language to evaluate function arguments in reverse evaluation order or from right to left. Extensive tests validate each extension, ensuring the intended functionality within the SMoLest language.