

Kampa is a general-purpose programming language. It is imperative, but influenced by functional programming. Its distinguishing features include value types with a concise tuple syntax, immutability that applies recursively, and custom named operators. Closures and first-class functions are a matter of course. Thanks to dependent types, the size of an array may be bound to any immutable variable or field. Arrays can be embedded in other data structures. This, in conjunction with dependent types, allows almost arbitrary memory layouts. In addition to the specification, this thesis also provides a proof-of-concept implementation built on top of Truffle.