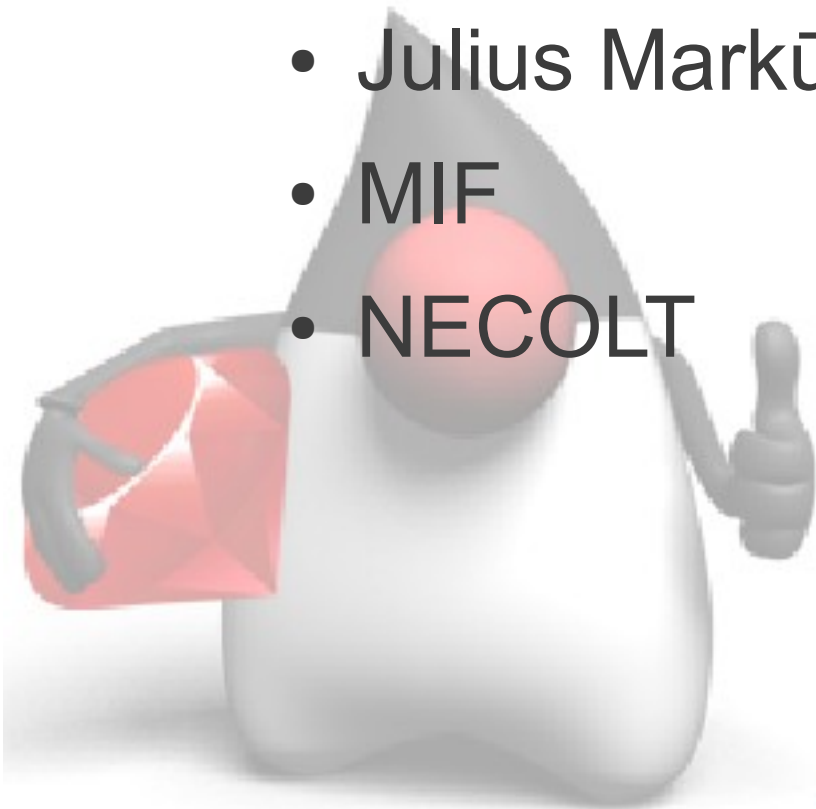
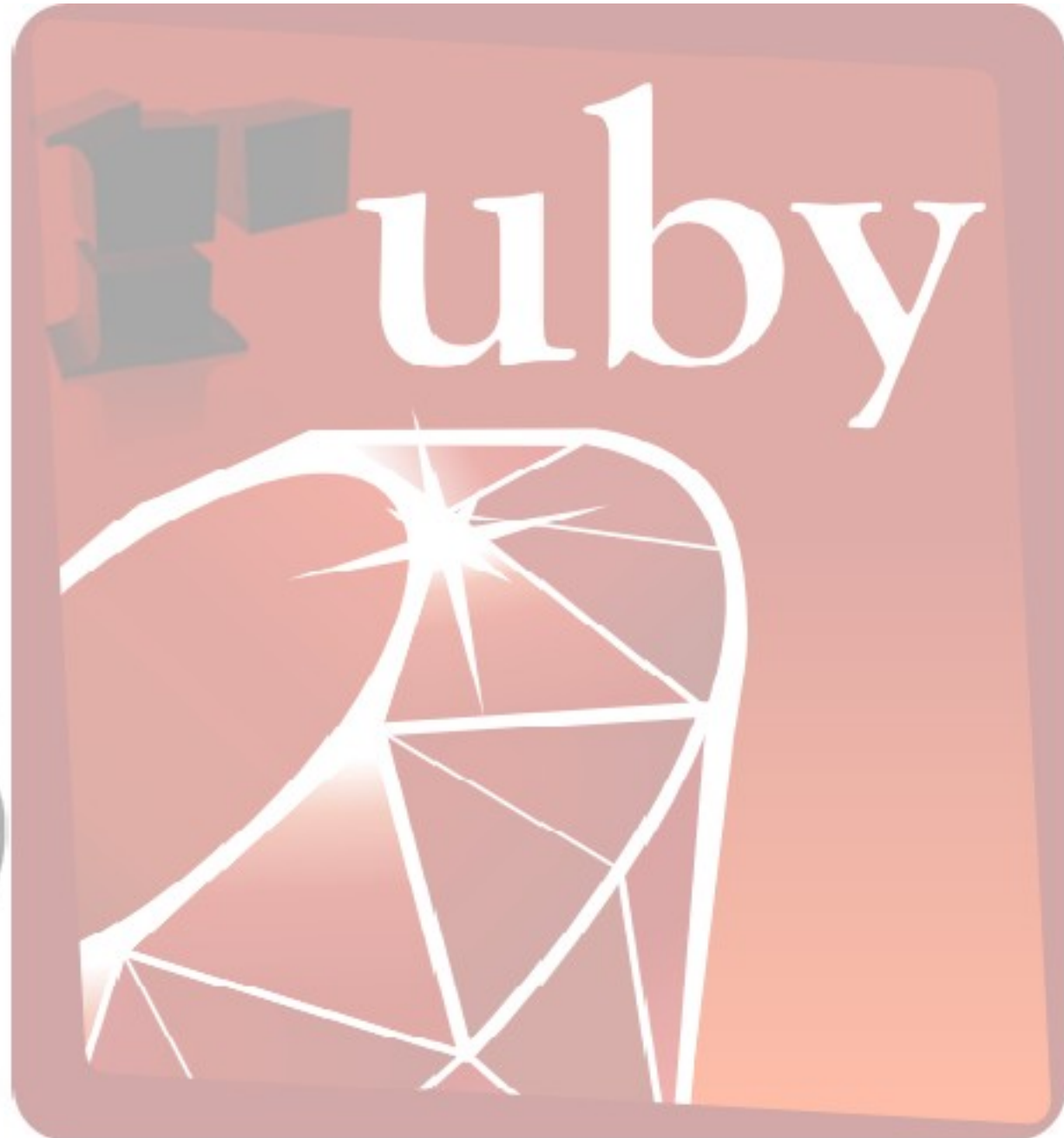


Ruby interpretatoriai

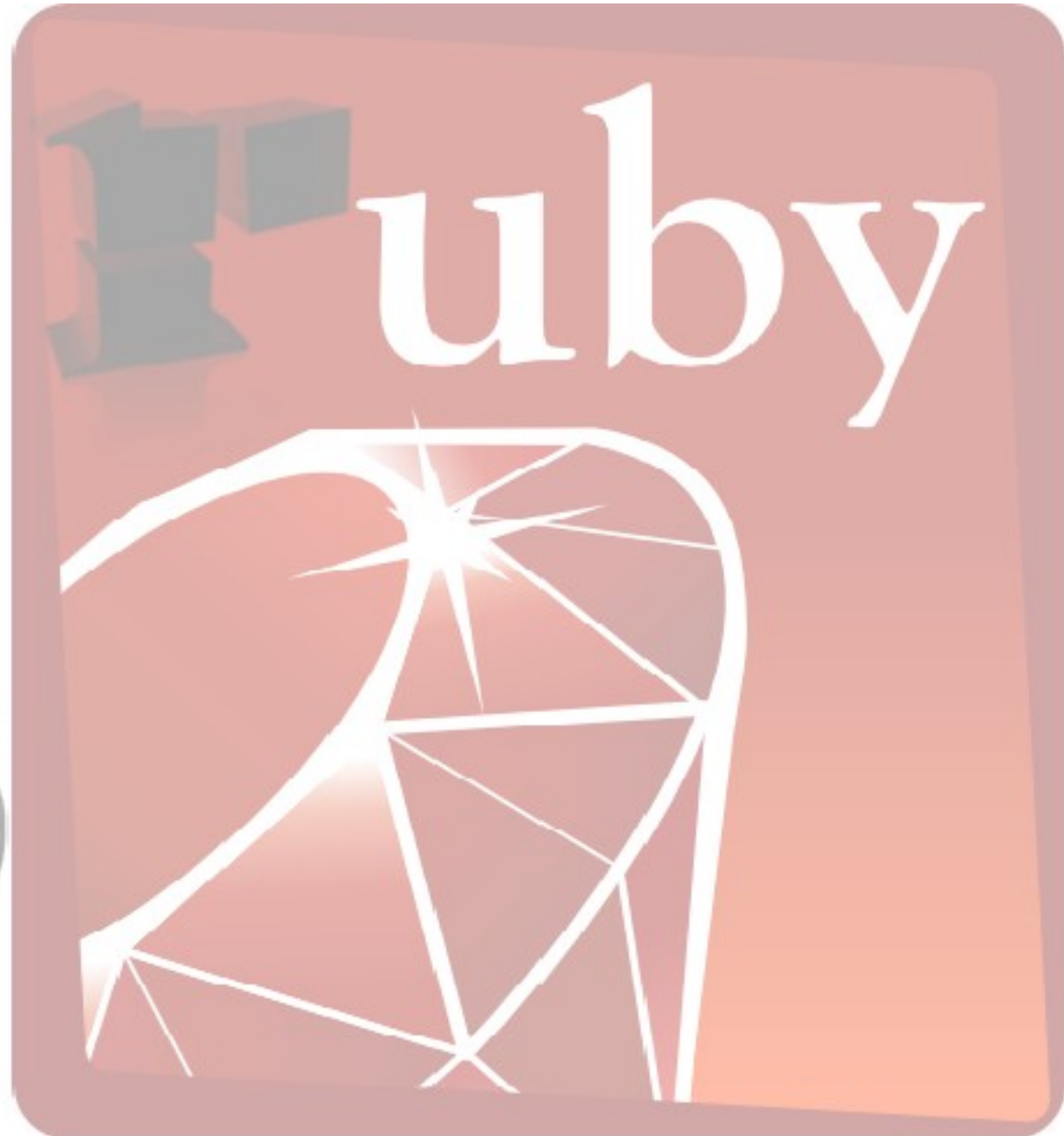
- Julius Markūnas
- MIF
- NECOLT



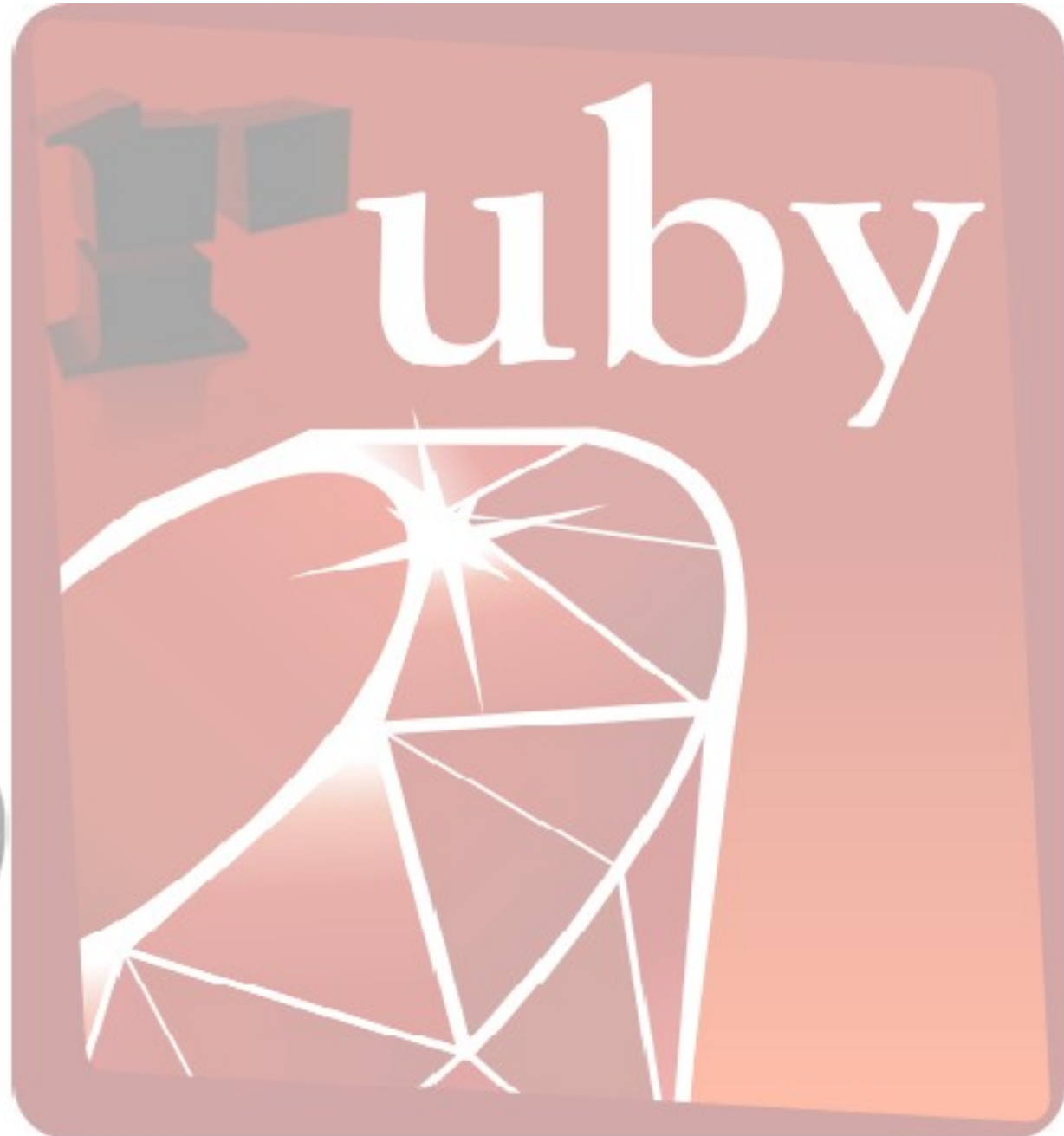
- MRI
- Rubinius
- JRuby
- MacRuby
- IronRuby
- MagLev
- Xruby



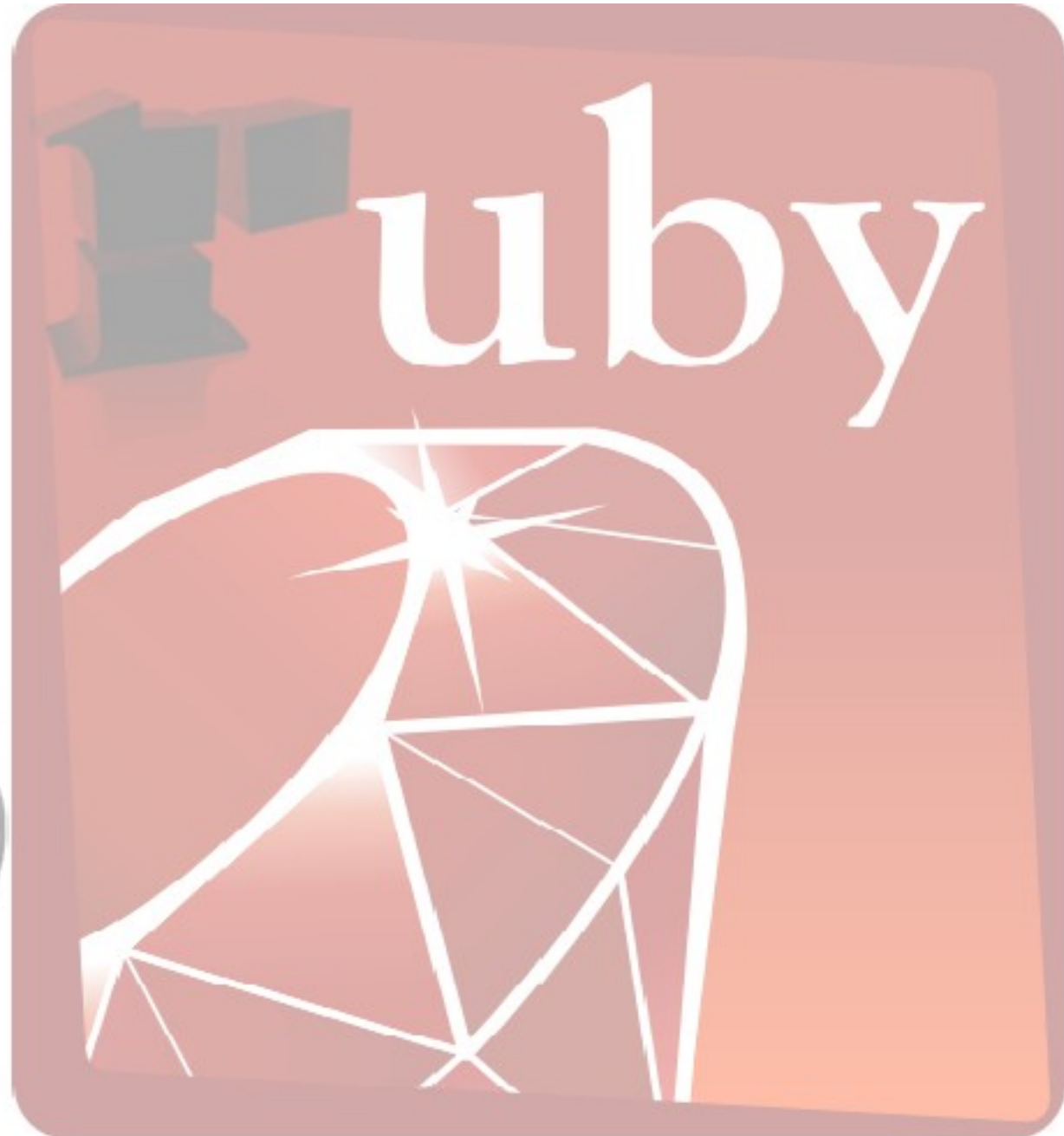
- **MRI**
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- Xruby



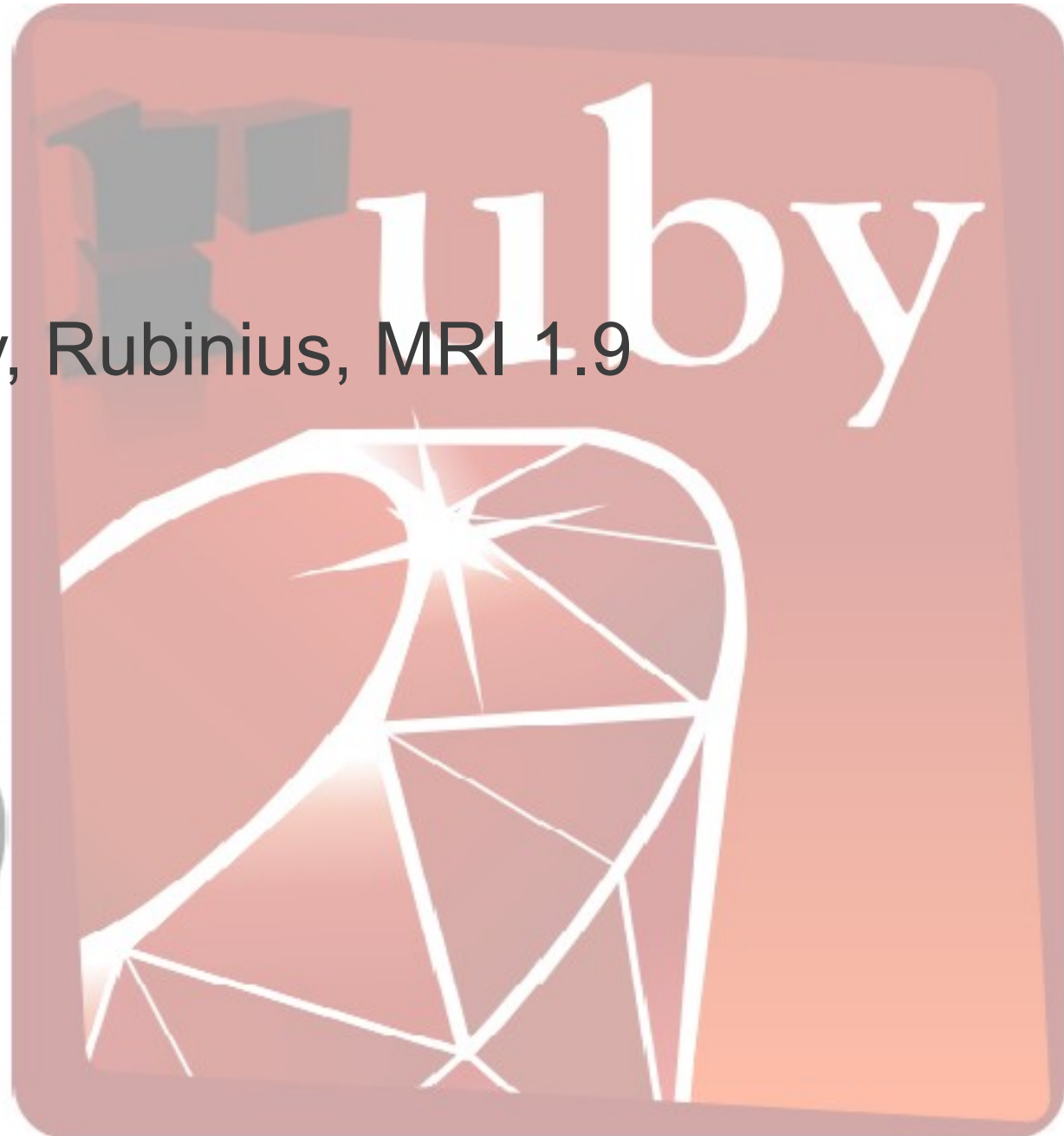
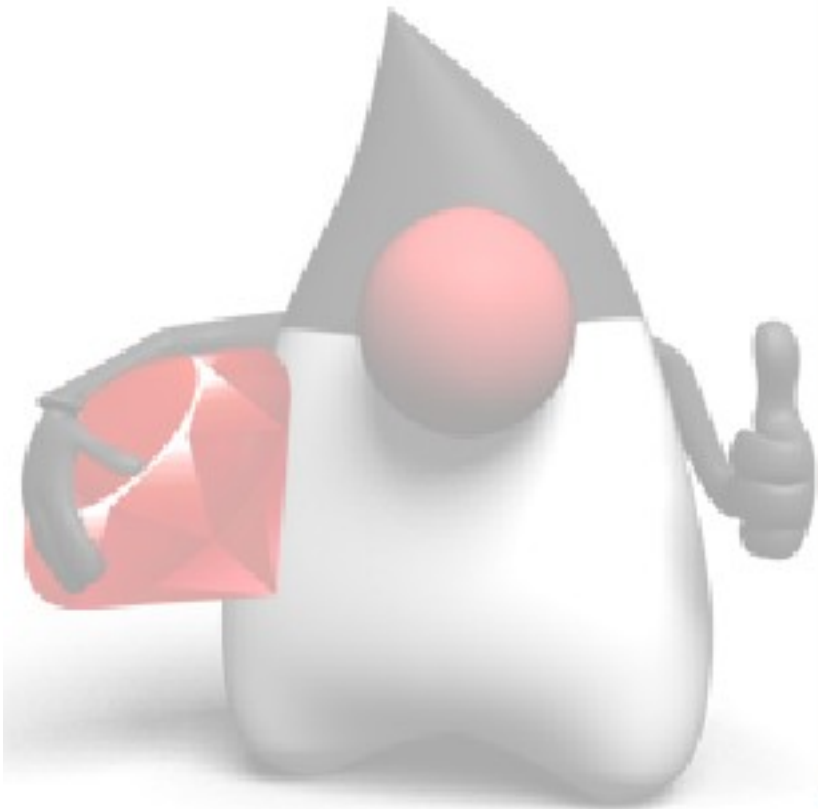
- Interpreter
- Optimizations
- GC
- Threading
- Extending ruby



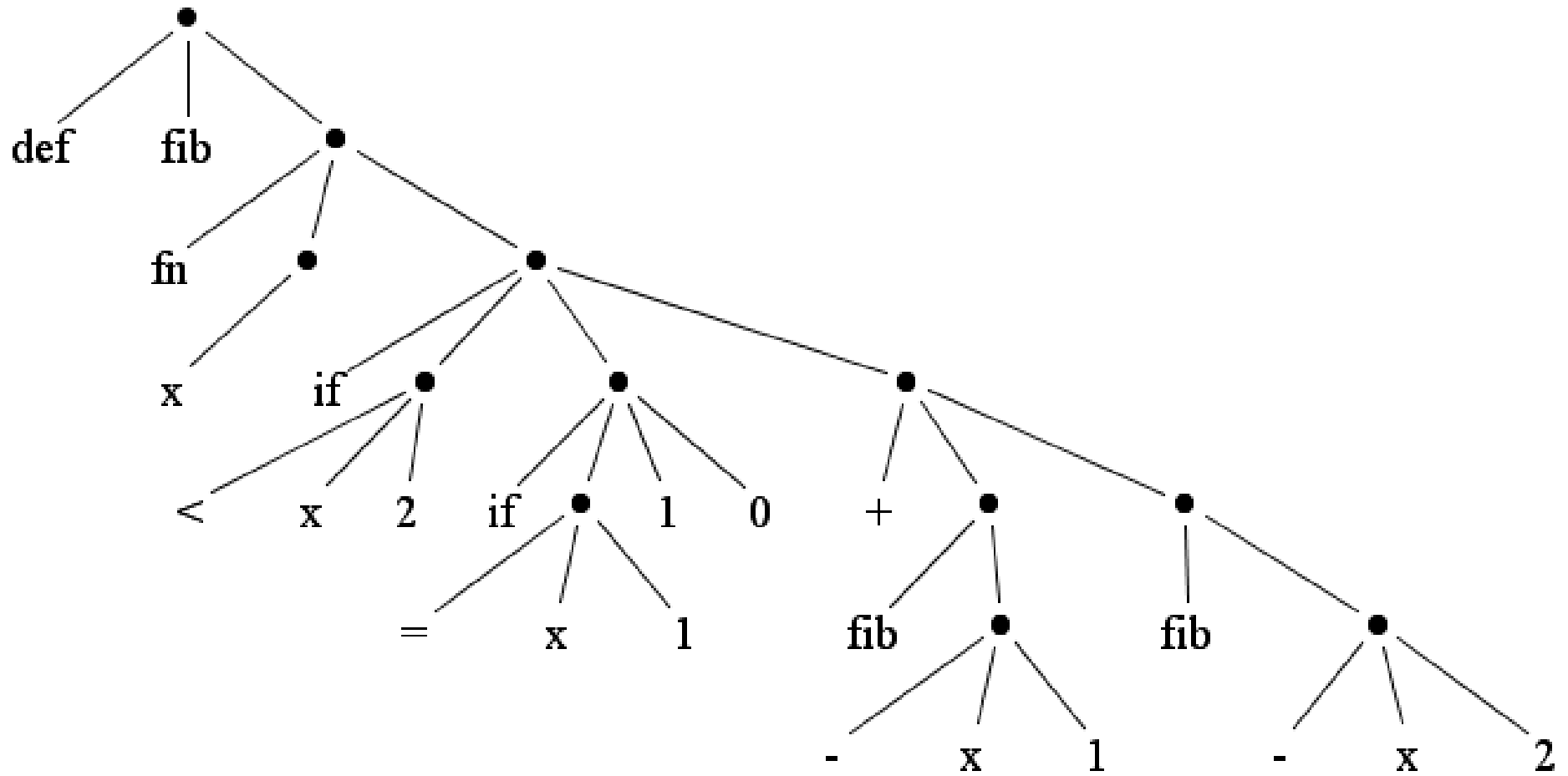
- **Interpreter**
- Optimizations
- GC
- Threading
- Extending ruby



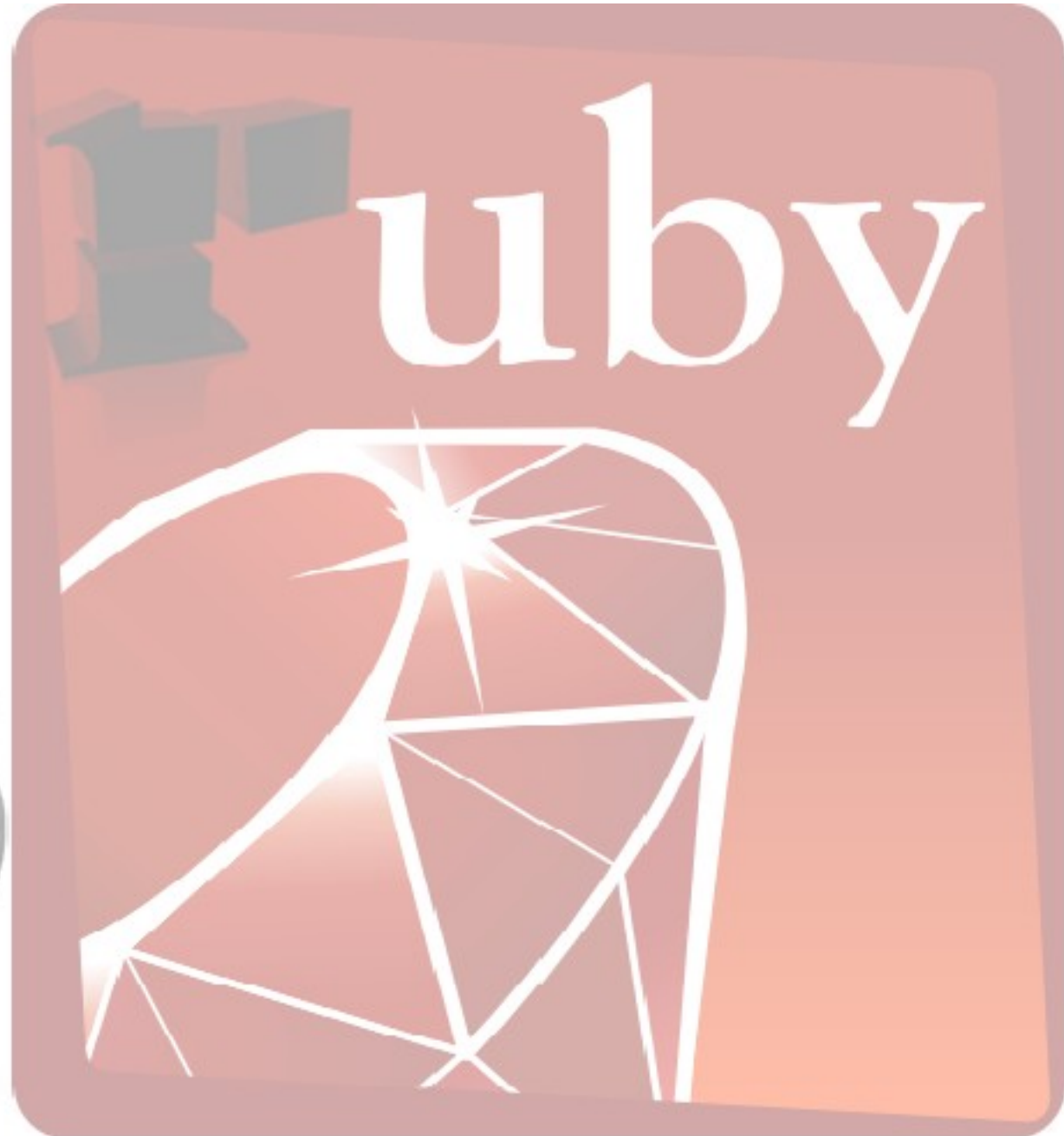
- AST - MRI 1.8
- Bytecode - JRuby, Rubinius, MRI 1.9



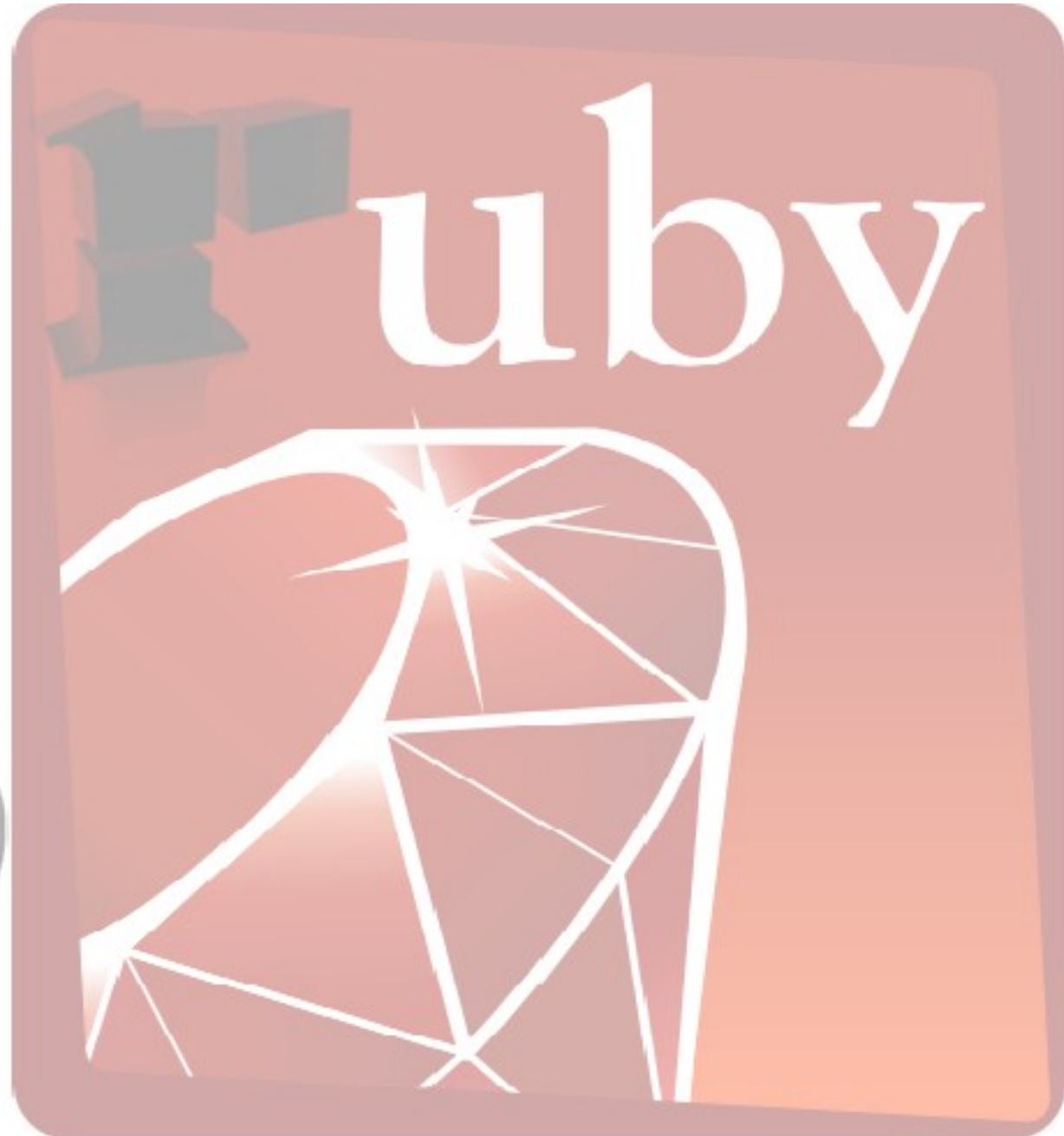
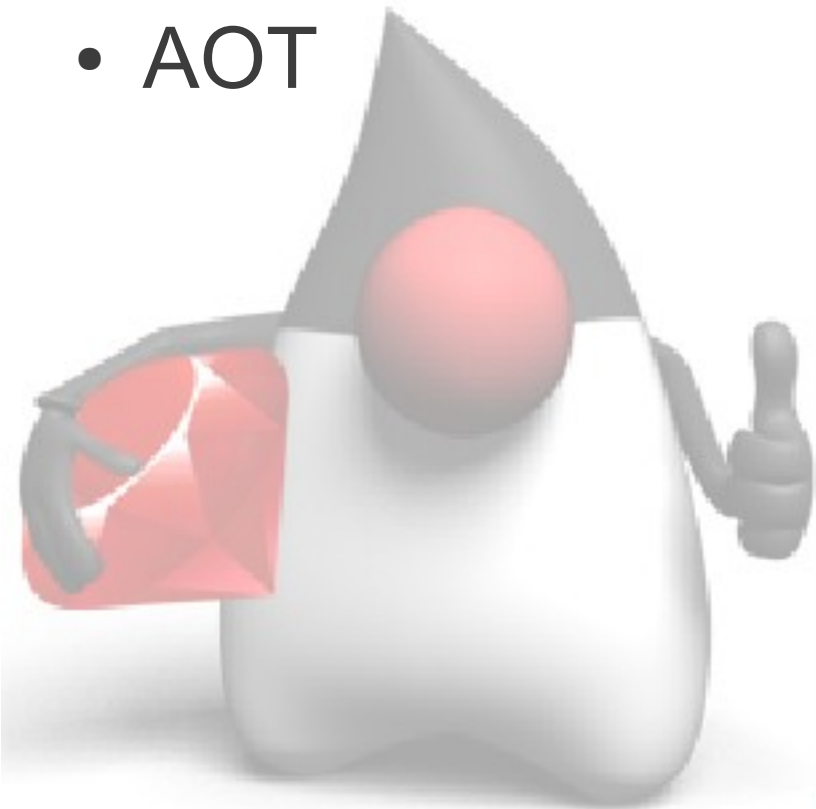
```
(def fib (fn (x) (if (< x 2) (if (= x 1) 1 0) (+ (fib (- x 1)) (fib (- x 2))))))
```



- Interpreter
- **Optimizations**
- GC
- Threading
- Extending ruby



- JIT
- Method inline
- AOT





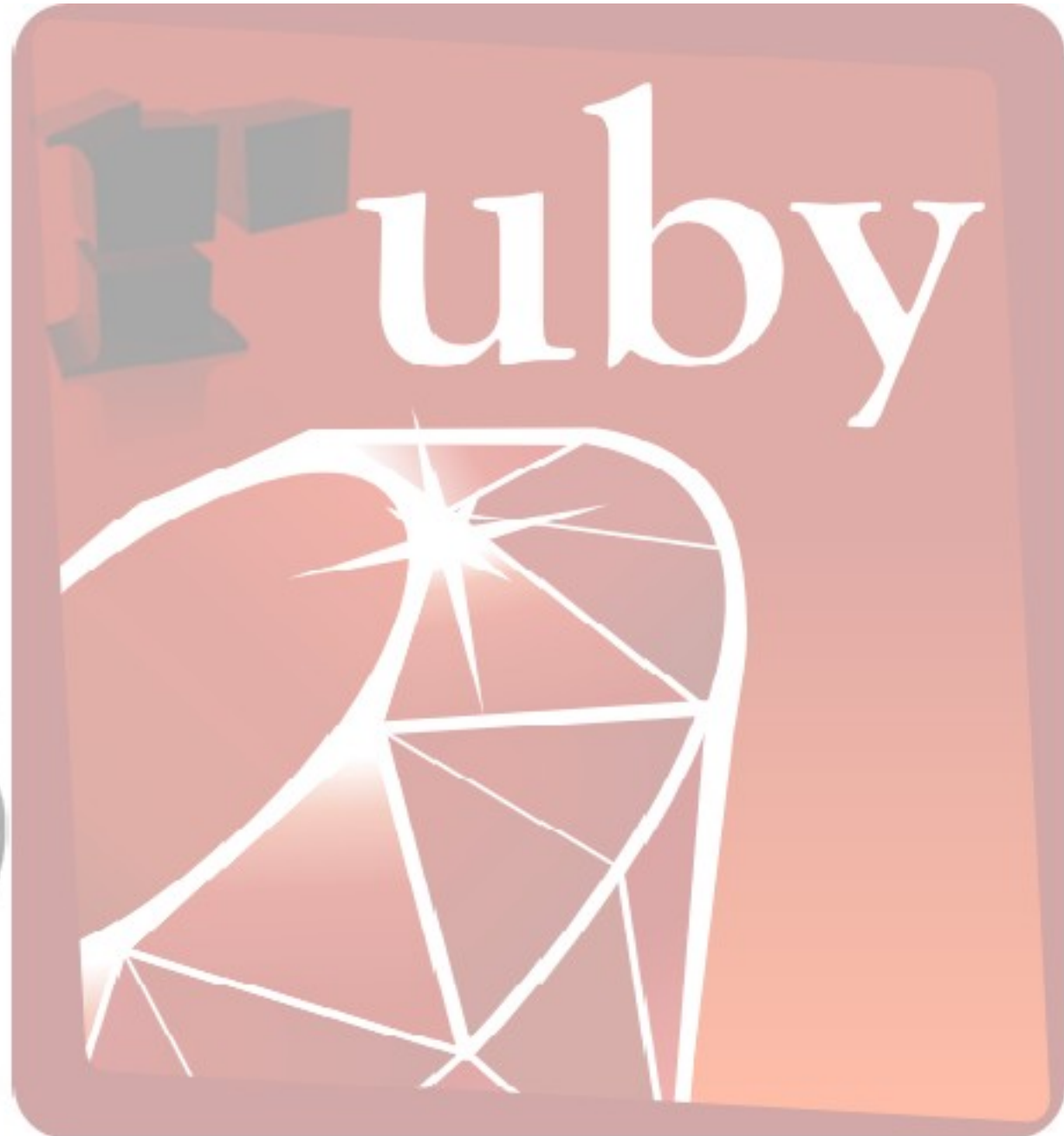
MRI :(

uby

Rubinius && JRuby (party)

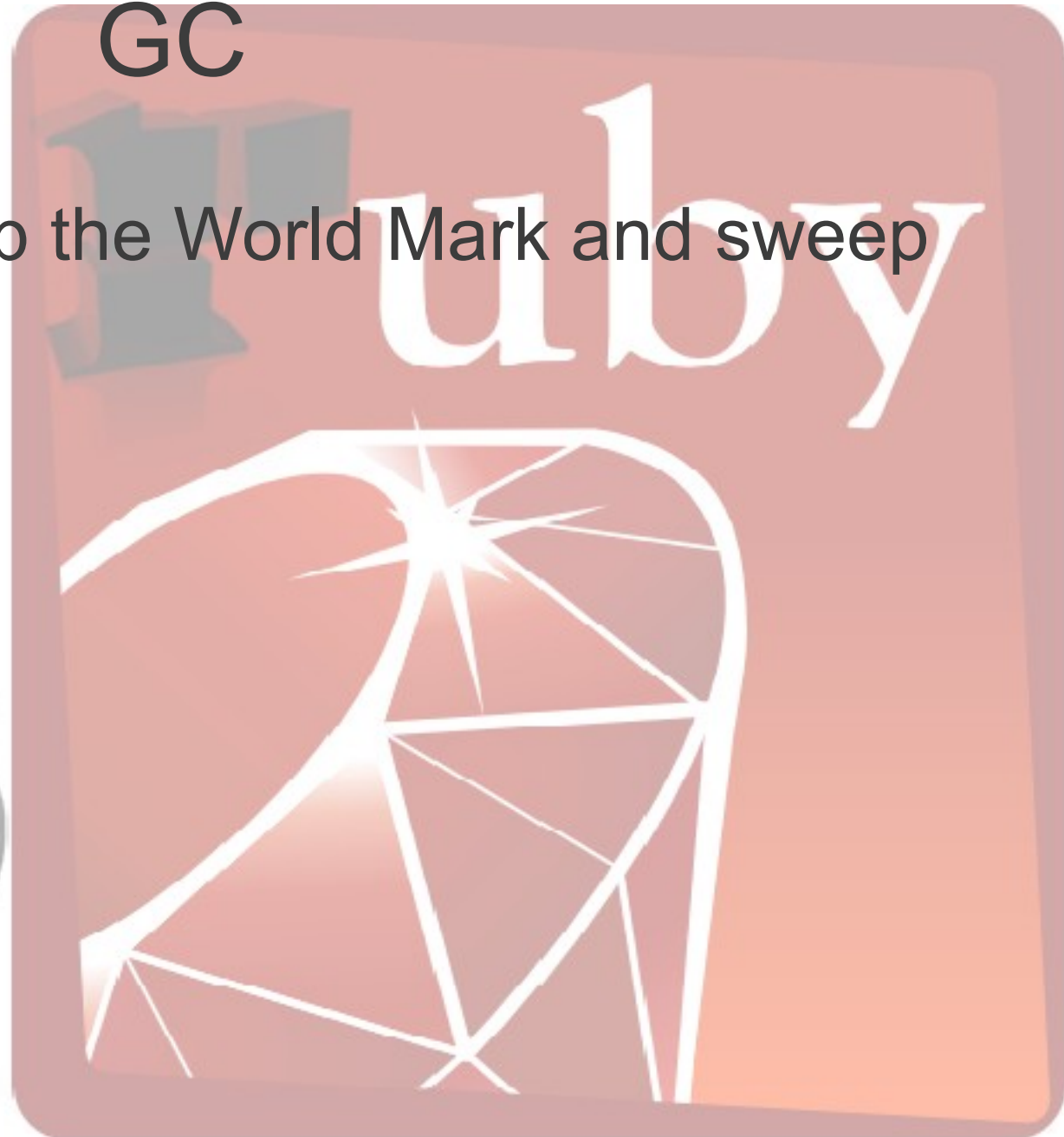
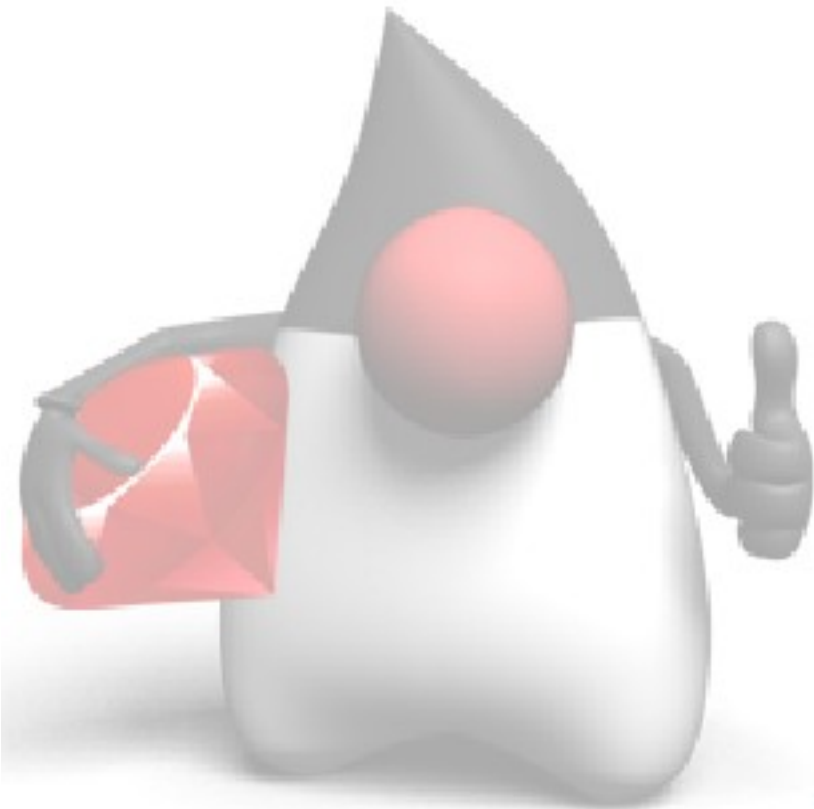


- Interpreter
- Optimizations
- **GC**
- Threading
- Extending ruby

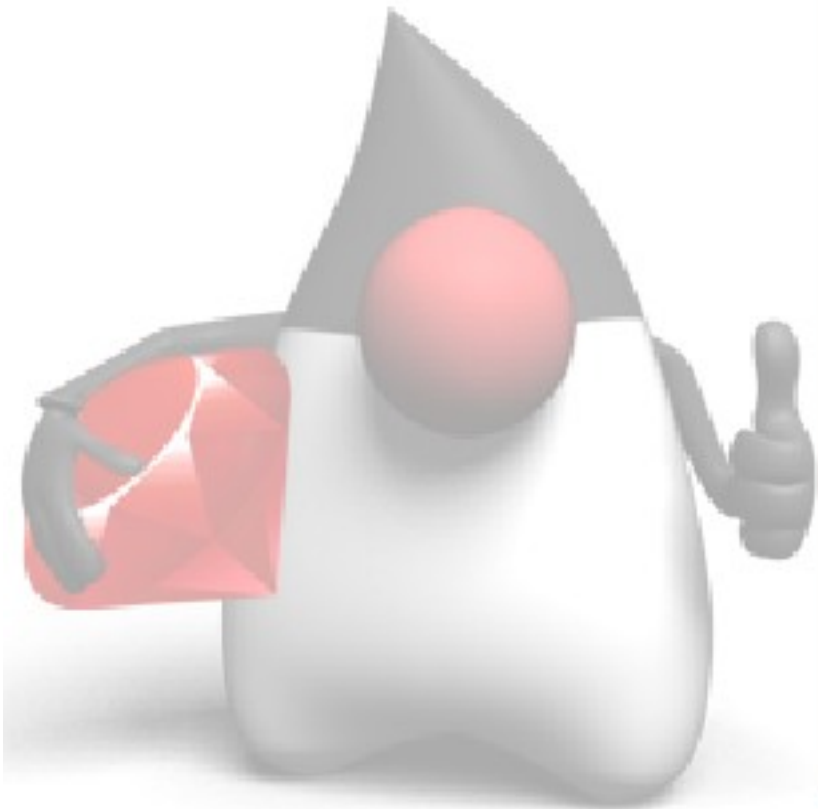


GC

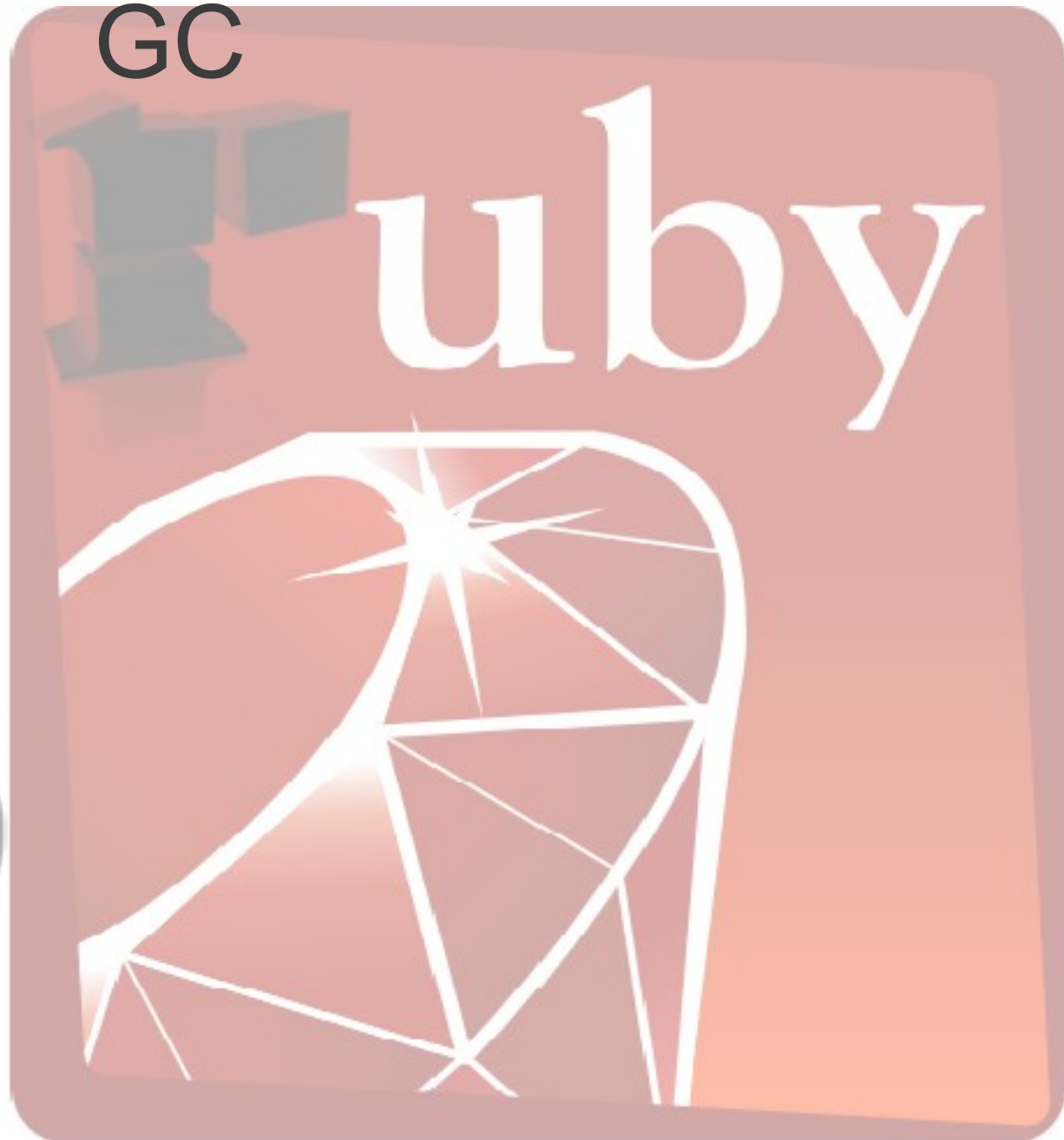
- Conservative Stop the World Mark and sweep
- Generational



- Ree
- Kiji

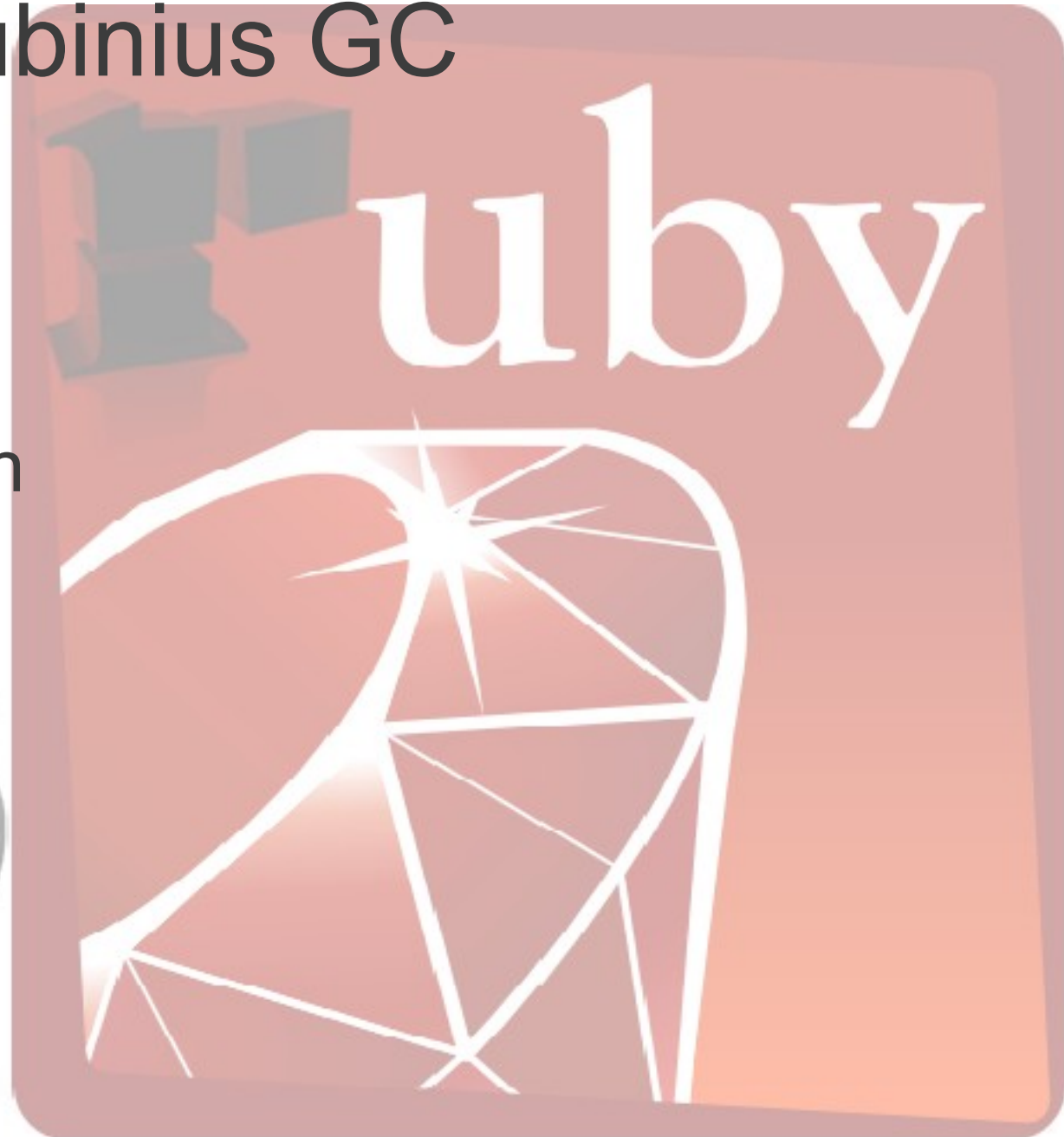
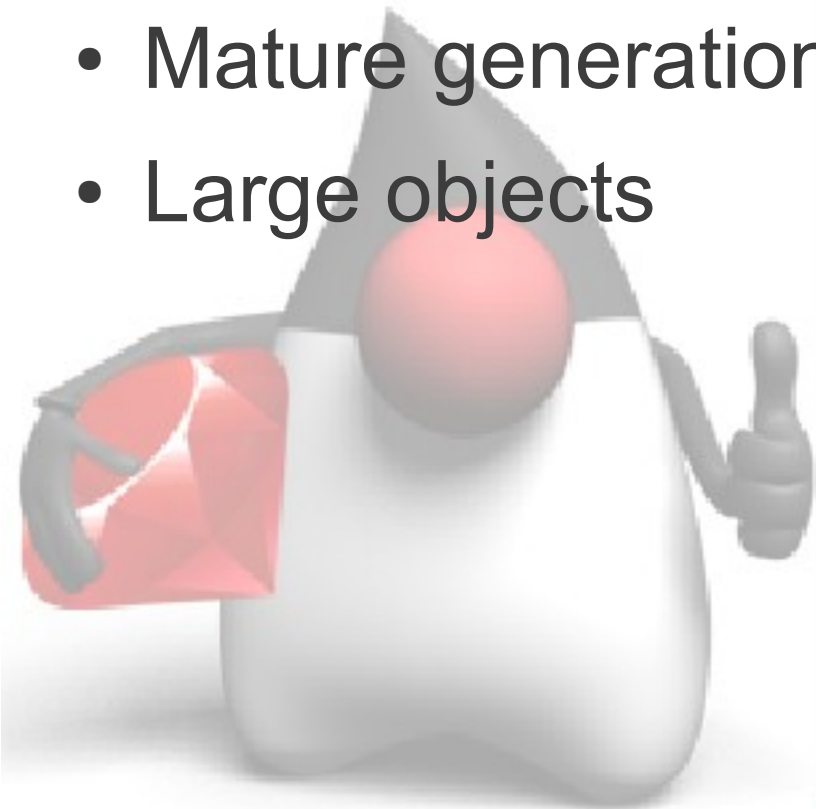


GC

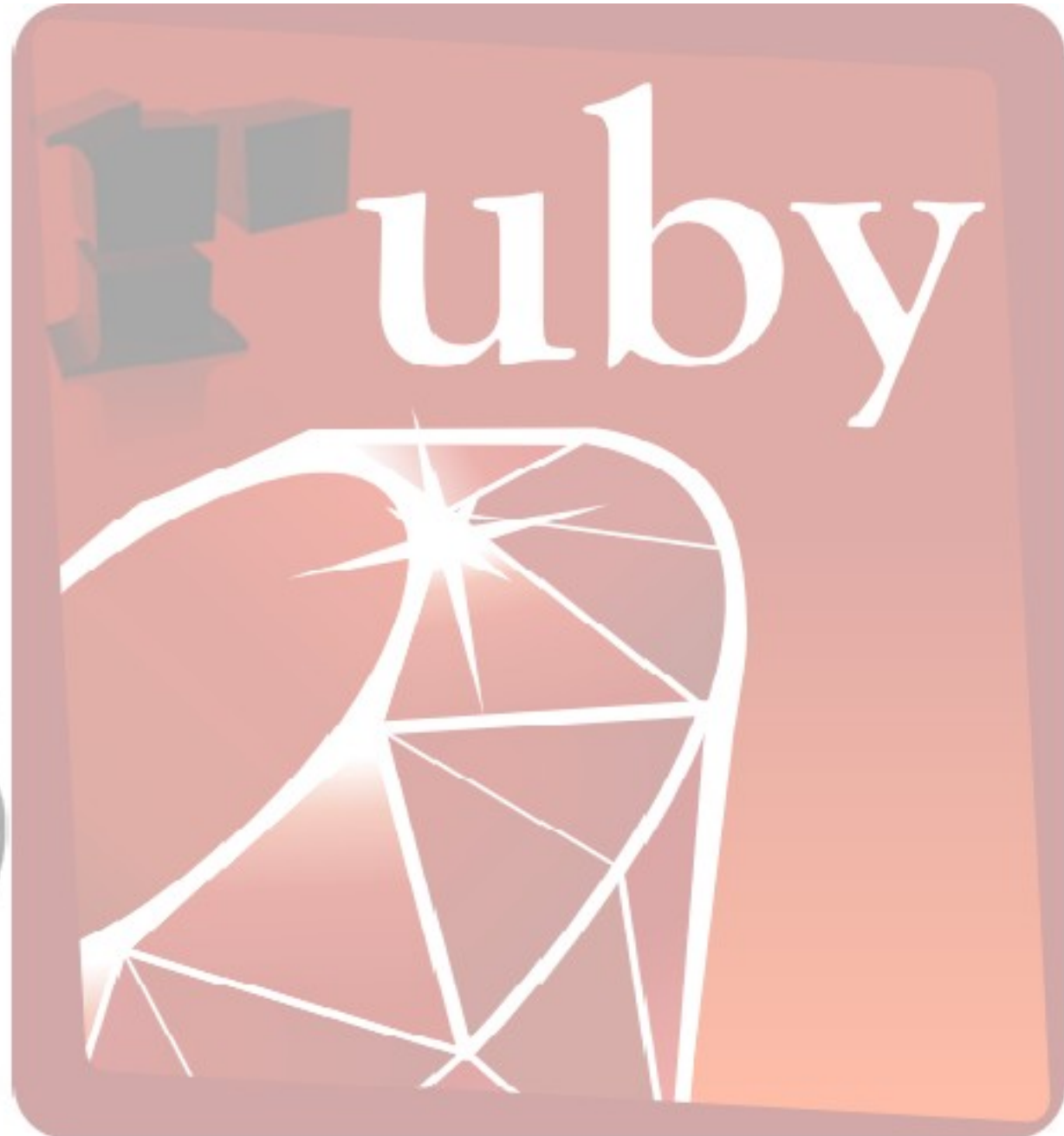


Rubinius GC

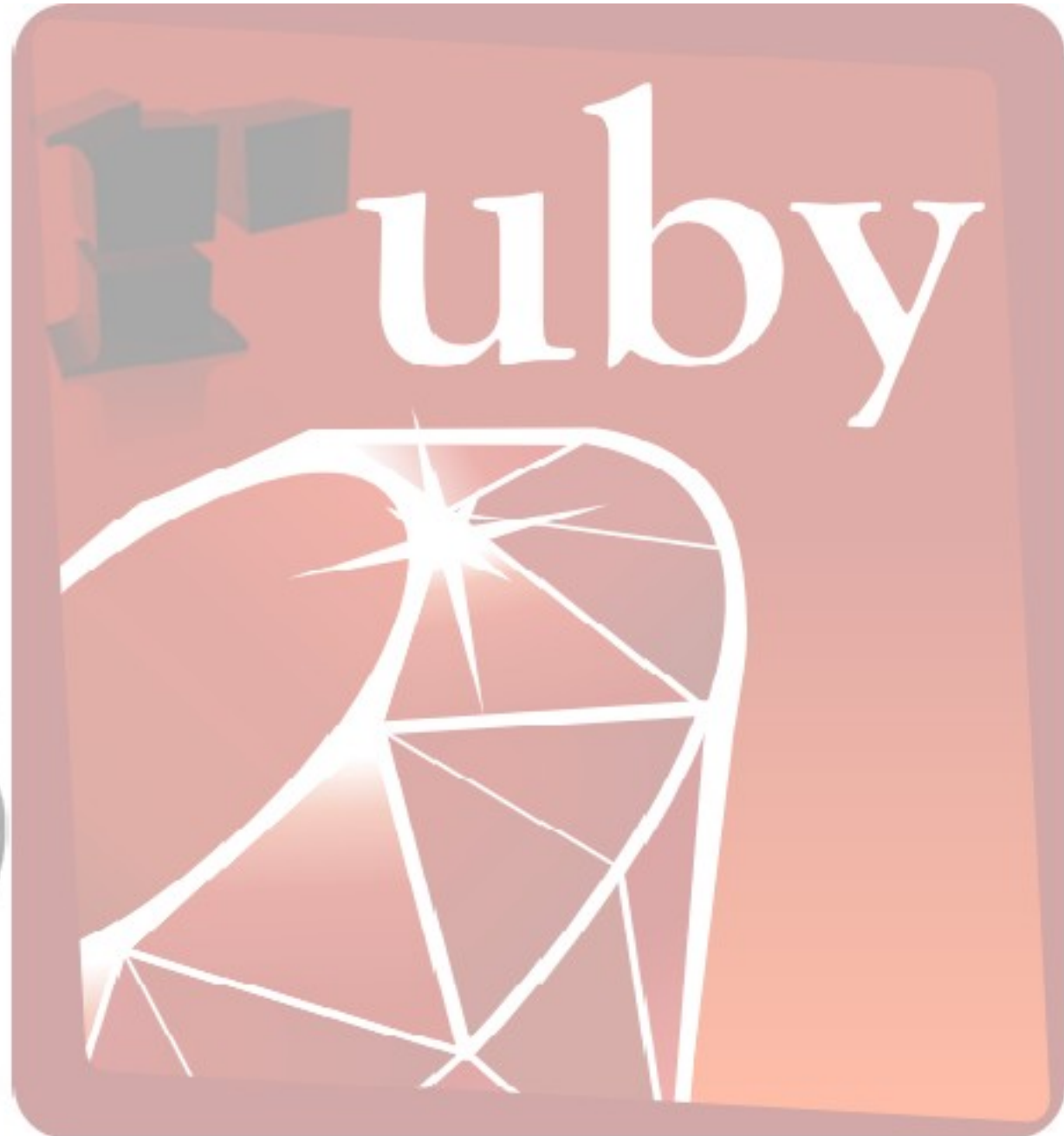
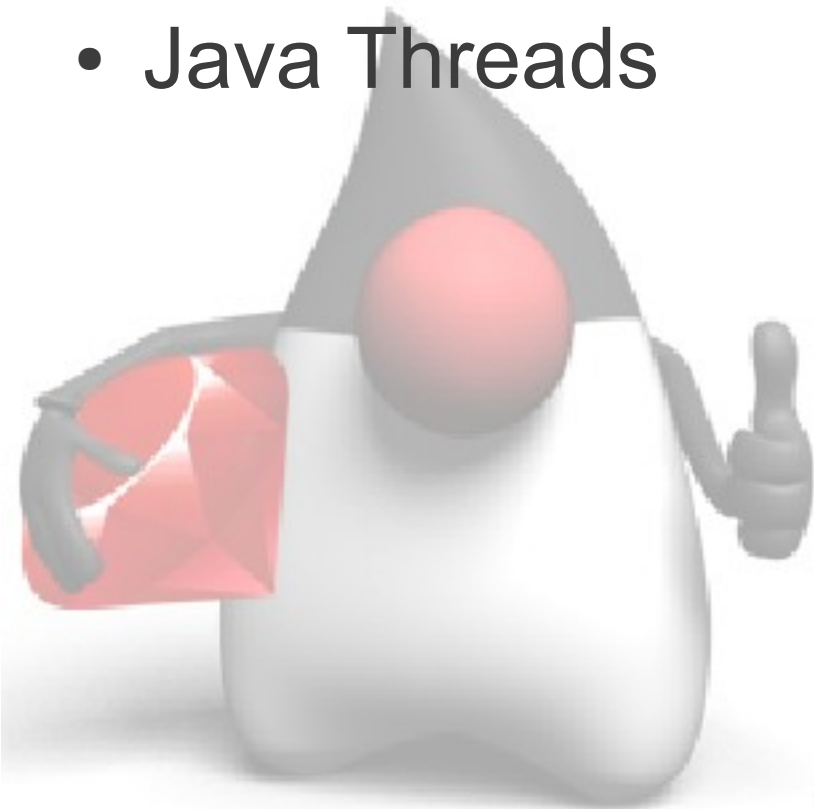
- Nursery
- Young generation
- Mature generation
- Large objects



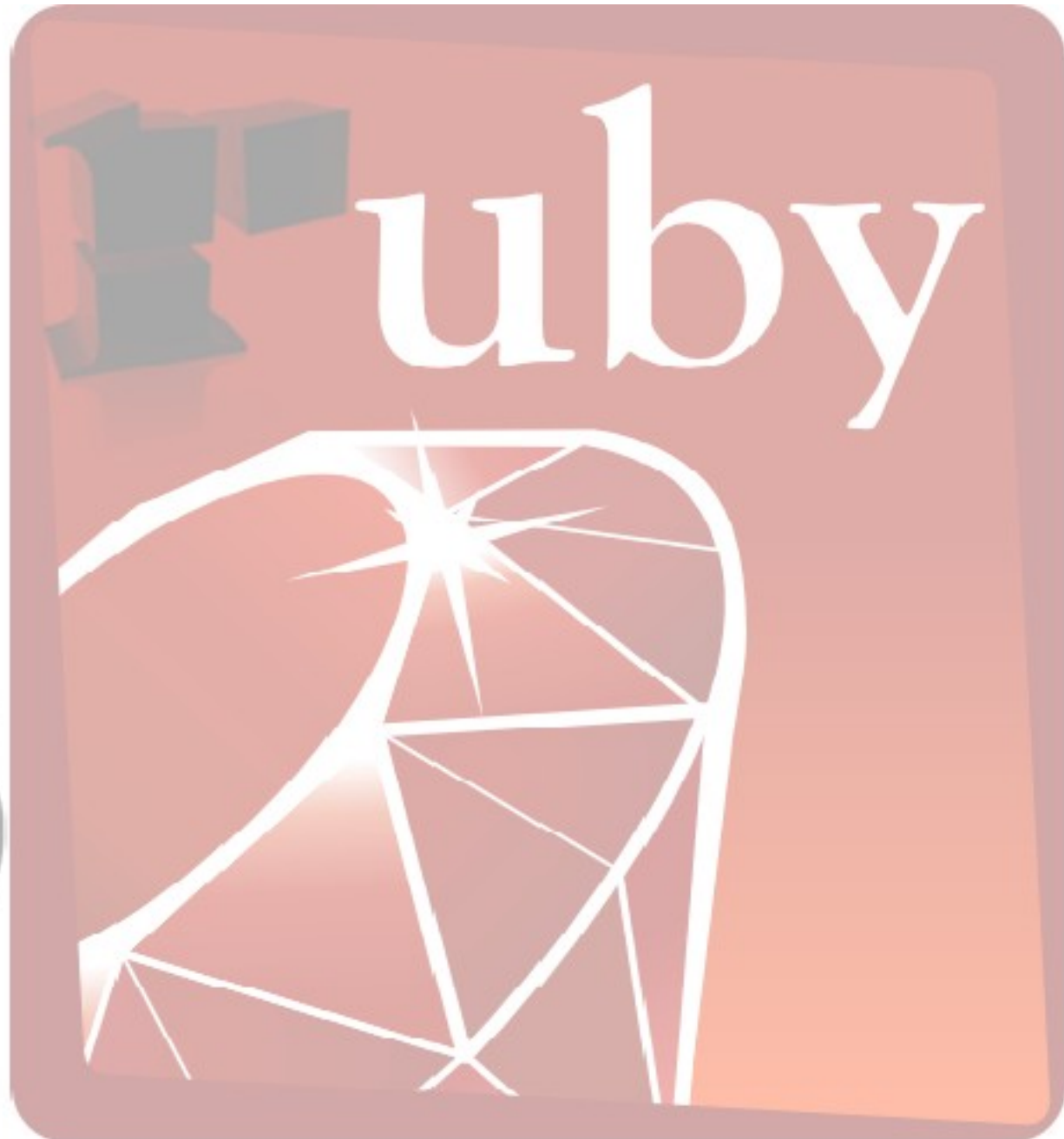
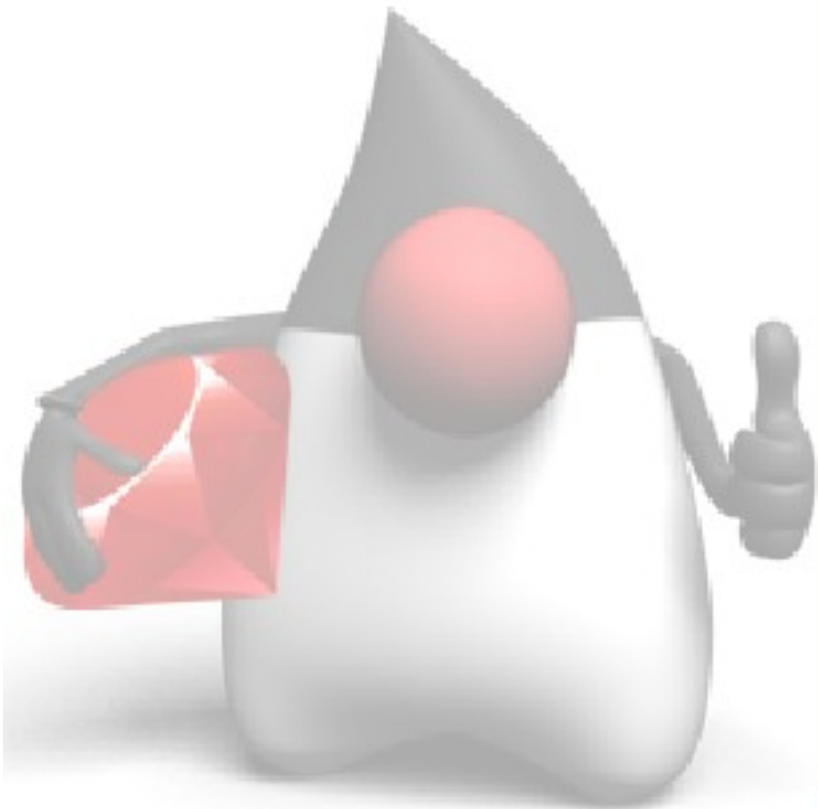
- Interpreter
- Optimizations
- GC
- **Threading**
- Extending ruby



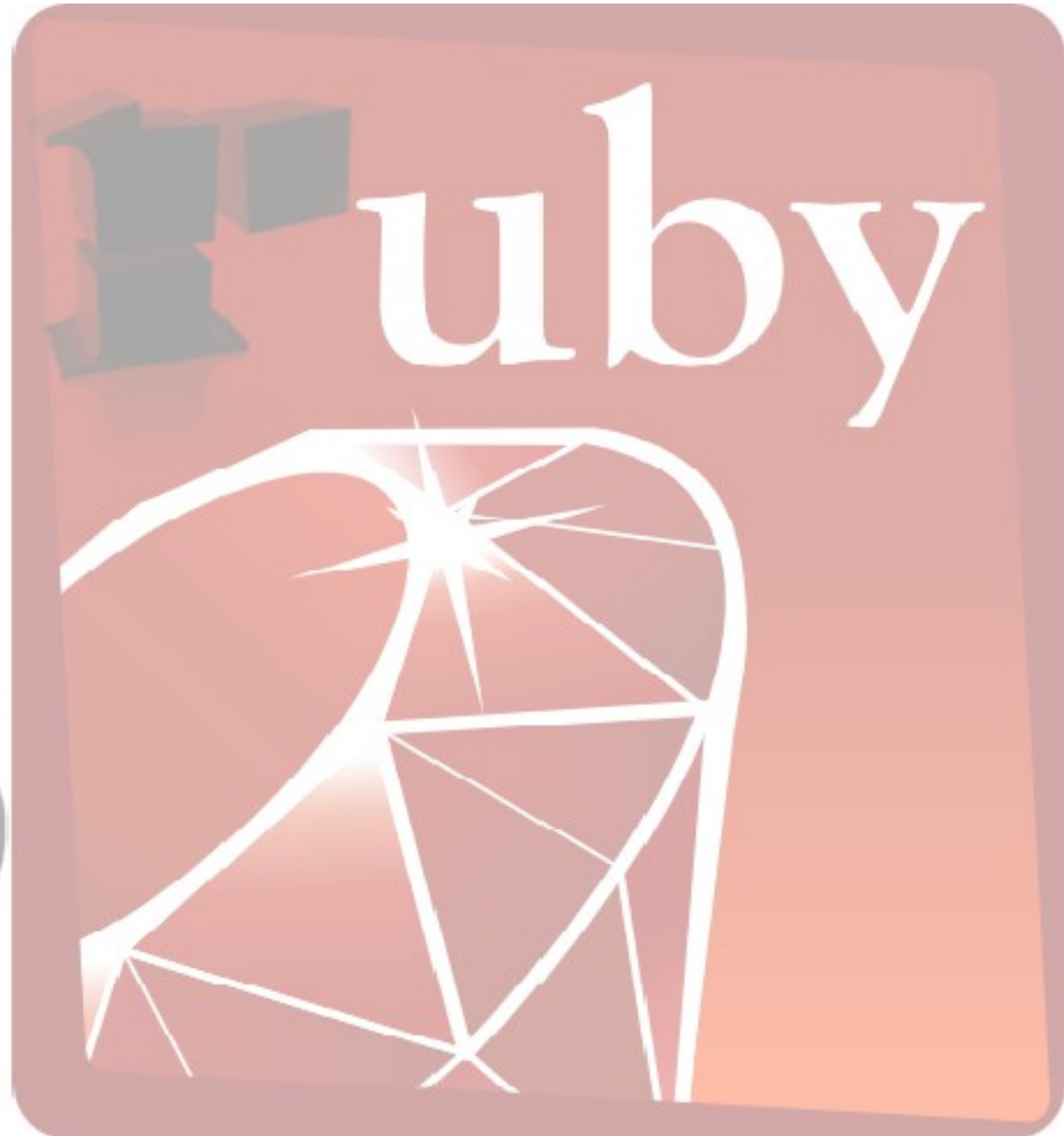
- Green threads
- System threads
- Java Threads



- JRuby
- MRI, Rubinius

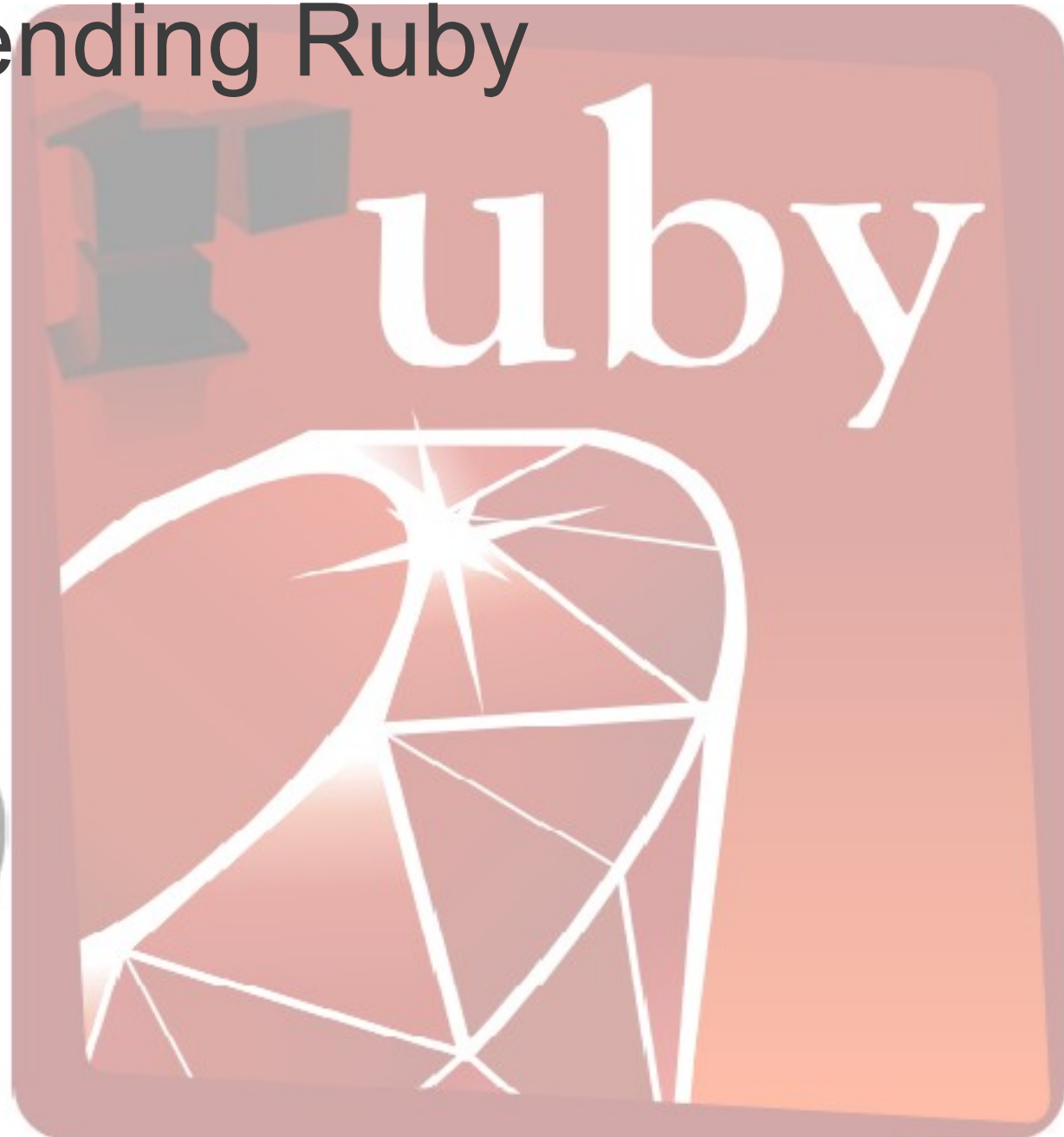
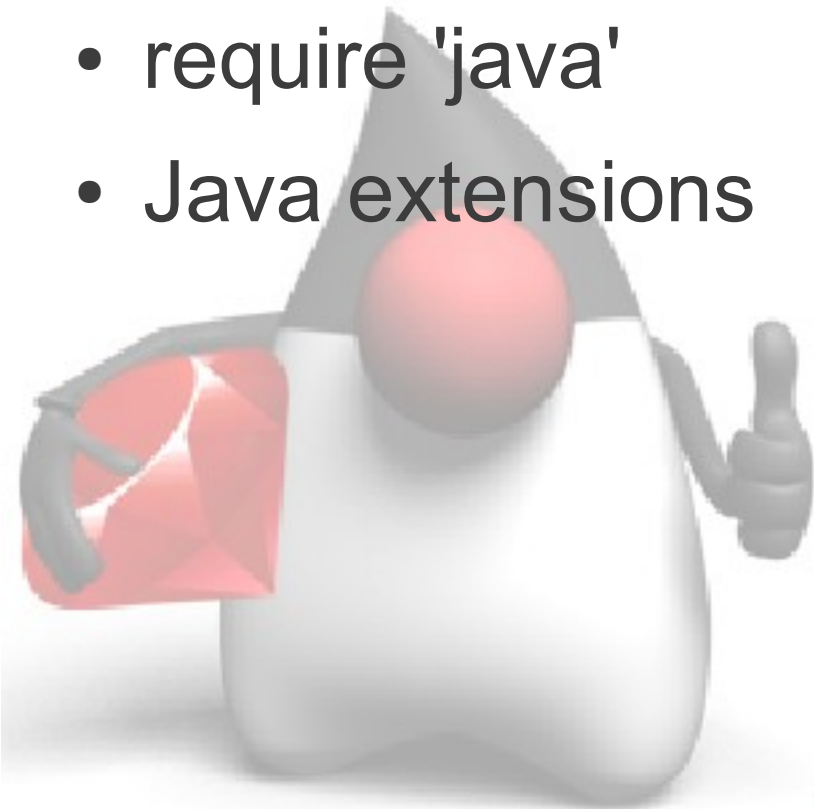


- Interpreter
- Optimizations
- GC
- Threading
- **Extending ruby**



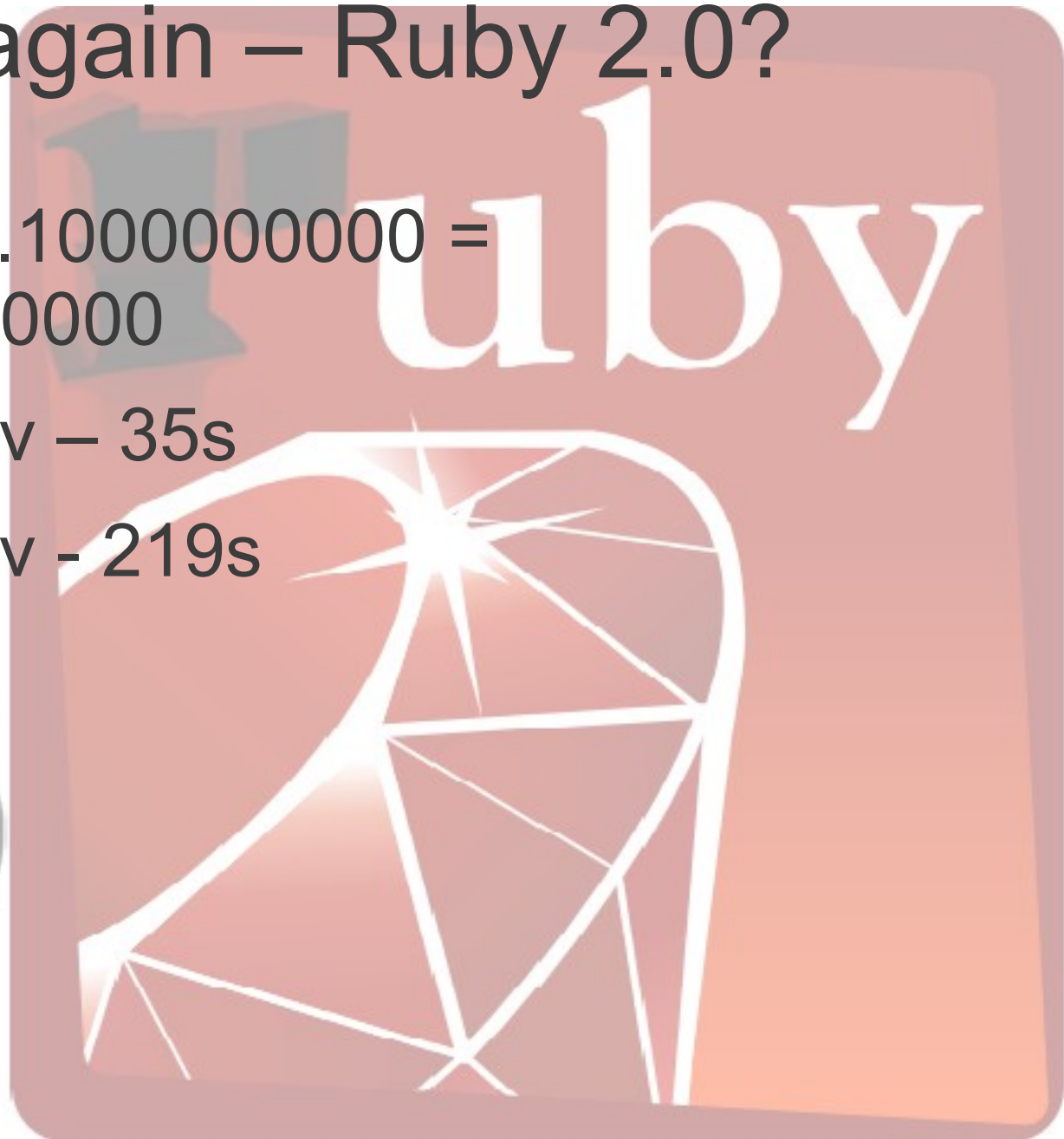
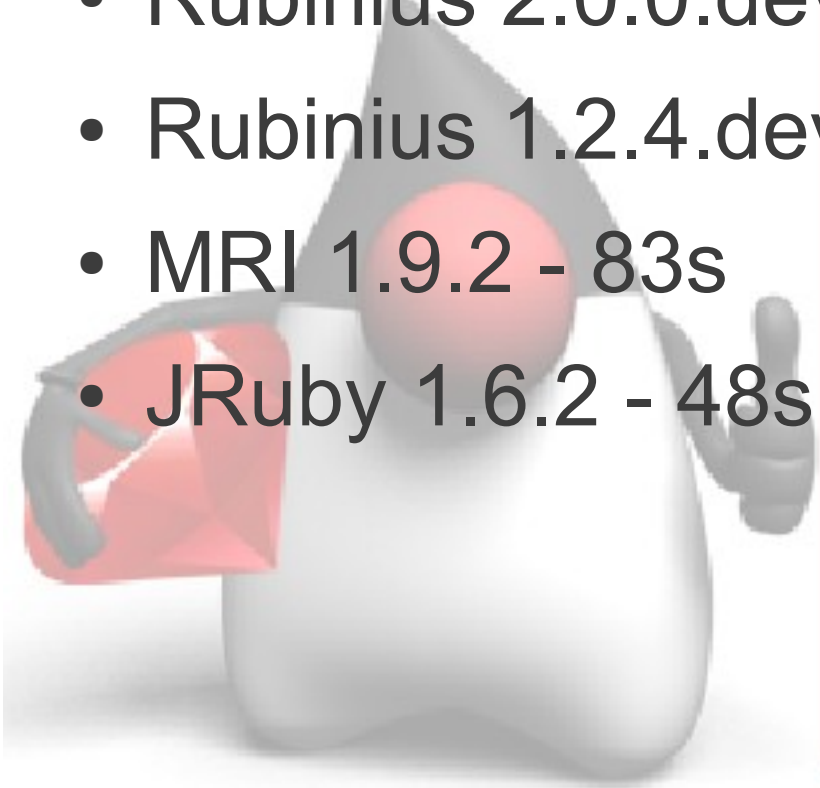
Extending Ruby

- C extensions
- FFI
- require 'java'
- Java extensions



Rubinius again – Ruby 2.0?

- 3 threads: $\text{sum } 1..10000000000 = 50000000005000000000$
- Rubinius 2.0.0.dev – 35s
- Rubinius 1.2.4.dev - 219s
- MRI 1.9.2 - 83s
- JRuby 1.6.2 - 48s





Klausimai?