

Managed Runtimes

Goal: Language

Compiler \Rightarrow Language
($L \Rightarrow \text{Asm}$)

Interpreter is a program in M-language
that implements a function from S-language \rightarrow Answer

Compiler is M-program that goes from
S-language to T-language \Rightarrow
"C"ompiler (T = assembly)

Asm - not portable, very different than (Macro is Racket that turns
most S S into Racket)

* C

* Java

* Racket

Full Abstraction:

Coq

$$\forall t \in T. \exists s \in S. C(s) = t$$

ML

* JavaScript

$$C(s_1) = t_1$$

SQL

$$(t_1 \ t_0)$$

Regex

Target is weaker

\hookrightarrow Racket has infinite memory, Asm doesn't \Rightarrow G.C.

\hookrightarrow Arbitrary-precision math vs fixed-width bit vectors

\hookrightarrow Target is not Turing-complete

\hookrightarrow Target has a type system that is less expressive

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Lecture

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