

CSE 341: Programming Languages

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Lecture 14— Delayed Evaluation, Memoization, Thunks, Streams

Today

- Scheme top-level: forward references and `eval` mutation
- Delaying evaluation: Function bodies evaluated only at application
- Key idioms of delaying evaluation
 - Conditionals
 - Streams
 - Laziness
 - Memoization
- In general, evaluation rules defined by language semantics
 - Some languages have “lazy” function application!

Top-level definitions

Scheme top-level allows forward references and mutation of bindings

- What should a name clash do? (In fact, it's mutation.)
- How can you program defensively?
 - General point: Make a local copy!
- How does “primitives are functions” make this harder?
- What do Schemers do in practice?
 - Don't mutate top-level bindings
 - Use a module system for namespace management