CS131 Final Topics After Midterm

Week 6
Prolog Syntax
Atom
Numbers
Variables
Compound Term
Predicate (compound term of arity n)
Ground terms
Unification
Circular Terms (binding)
occurs check (prevent circular terms) (Prolog skips this)
Cuts
<head> **:-** <conditions>
Declarative has simpler semantics
Syntactic sugar
Representation of lists: cons pair cells in memory
- never has fragmentation

Proof trees
Infinite Proof Trees
Variable Renaming

Closed world assumption

0 order logic
1st order logic
Horn statements

Proof by Contradiction (Prolog)

Week 7
Scope and Memory Management
OCaml Namespaces
Array Descriptors (lb, ub, stride)
Nested Links
Activation records (stack frames)
Array Allocation strategies
Weak vs Strong memory references

Week 9
Memory Management

Mark-and-sweep
Copying Collector
Generational GC
Incremental GC
Nursery
Reference Count

Week 10
Parameter Passing
call by value
call by result
call by value-result
call by reference
call by name
call by need

thunks (anon function that prevents evaluation of param value until function is called)

Cost model
Basically how much operations cost etc.

Semantics
static semantics
attribute grammar (uses AST to find out types and scopes etc)
dynamic semantics
operational semantics
axiomatic semantics
denotational semantics