

1. SETS, RELATIONS AND FUNCTIONS.

Power set. Relations and functions. Domains, ranges and compositions of relations. Cartesian products.

2. LANGUAGES AND FORMAL THEORIES.

Formal theory. Statement. Rule of inference. Proof using Γ . Theorem. Consistent. Complete. Decidable.

3. TREES AND CONTEXT FREE GRAMMARS.

Tree. Nodes. Parents and children. Interior nodes and leaf nodes. Descendant and ancestor. Depth.

Ordered tree. Tree codes.

Context free grammar. Parse tree. Good and bad grammars.

4. PROPOSITIONAL LOGIC, PART ONE.

$+$, $*$, \vee , \wedge , \rightarrow , \leftrightarrow on bits.

Tautology, $\Gamma \models A$, tautological consequence.

5. AXIOMS FOR PROPOSITIONAL LOGIC.

Axioms and rules of inference for propositional logic as found on page 78 of the coursepack.

Definition of $\Gamma \vdash A$