1. Enumerator

Turing Machine + Printer

Operations:

- → Initially empty tape
- → Printer produces series of strings
- → Machine enumerates strings in language
- → Halt or loop
- → Language may be infinite
- → May print duplicates
- → May print in order

TH Language is Turing-Recognizable iff some enumerator enumerates it.

Proof by construction

E → TM: Run enumerator as subroutine of TM, match = accept.

TM → E: Run TM on all strings in Σ^* simultaneously, accept = print.

2. Church-Turing Thesis

Algorithmically Computable = Computable by TM

3. Decidability

Regular Languages → decidable, recognizable

CFL → some decidable, some not, recognizable

Halting/Acceptance problem → undecidable, recognizable

TM → undecidable, some recognizable, some not