

More Powerful TM's?

Multiple Tapes?

Interleave Symbols
Larger Alphabet

Multi-head?

Use Symbols for each Head
Shuttle back/forth between them

2D/3D tape?

Unroll the Higher dimensions
into 1D

Universal Turing Machine

Used it 4 Halting Problem

UTM Tape

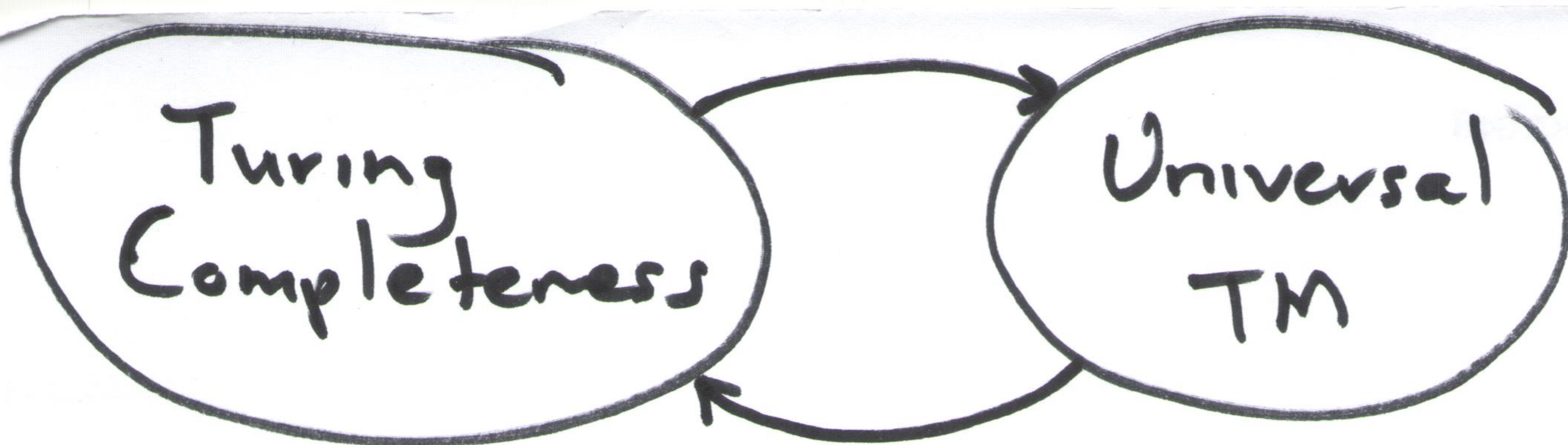
Code for TM	Input	Output
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↓ Transitions / Description

Code / Cipher

Operating System

Simulator of TM's



Simulate
Turing Systems

Turing Decidable = Solvable by
a TM

Turing Completeness
Equivalent to:

- Loops \leq Goto:

- if statements

(conditional Branching)

- infinite Loops

λ -Calculus (functional)

Recursion

Haskell

END TMS

Can you have AI?

Artificial Intelligence

What can Turing Machines do?

Consciousness

What Humans do!

Transitions Rules
(Algorithms)

Turing Decidable

Yes

???

NO

Hyper Computation

Super Turing Machines

Neural Computing

ANALOGUE

Network

Recurrent

NN 2005/3

evolving
NN

Super TM's

Turing
Undecidable
problems

