FYSE 1280 Fall 2025

Breaking The Code: The Enigma of Alan Turing

Assignment 21

For Wednesday, November 5

Reading

Complete reading of Turing's paper "Computing Machinery and Intelligence"

Writing

Continue work investigating responses to Turing's "Computing Machinery and Intelligence Paper" in *Mind*.

Prepare a few questions/comments for David Leavitt's ZOOM visit on Friday

Problem On Turing Machines

Due Friday, November 7

Create a Turing Machine that doubles numbers. Assume the number is a positive integer represented in unary form. For example, the input tape for 3 would look like

		#	1	1	1	#	

and we want the output tape to look like

		#	1	1	1	1	1	1	#		y

List all the states and provide a careful description of all the transition functions you will use. Show step by step what the tape will look like and over which square on the tape the read/write head is pointing. Make sure that your Turing Machine works if the positive integer is 1 and also for any positive integer of your choice larger than 2.