Lecture #10: Introduction to Turing Machines
What Will Happen During the Lecture

Remember... You Had Homework!

Students were asked to work through the following set of lecture notes before this lecture.

- Lecture Notes — “Introduction to Turing Machines”.

As always, you may attend the lecture presentation if you have not worked through this material ahead of time — but it will not be repeated for you, and you might get a little bit lost, during the presentation, if you haven’t worked through this.

Problems To Be Solved

A pair of Turing machines — one that has a language, and another that computes a function — will be presented. Students will be asked questions about these Turing machines, so that their understanding of how Turing machines are presented, and how Turing machines process strings, can be understood and improved.

If You Want To Get Started. . .

An outline for notes, to be used during the lecture presentation, is also available. This includes the Turing machines that will be considered and some of the questions that will be asked about them. If you have time then you might wish to fill in part of these notes, in advance, to see whether you are able to answer the questions that will be discussed.

How This Will Continue

Turing machine design will not be a significant part of this course. Required readings will not include very much about this, and no questions on assignments or tests will be primarily about this.

At the same time, ***it is necessary to show that a given function is computable in order to solve a different, more significant, problem***.

So, while required readings will concern other necessary topics, a supplemental document, that introduces a useful design technique — ***refinement*** — is now available. The next few lecture presentations will (in part) include enough information and activities, concerning Turing machine design, to help students make sure know how to explain why functions are computable when the need to do so.