Turing Machines Project

Discrete II

Spring 2018

Description of Project

The goal of this project is to learn about Turing machines and critically analyze the reliability of the sources you are able to find. You may work in groups of up to four people. The project must be typed.

Part 1: Researching Turing Machines: A Turing Machine is a theoretical model of computation, in the same way that finite state machines are theoretical models of computation. Your goal in this project is to learn about Turing Machines. In particular, address the following questions.

- What is a Turing Machine, theoretically?
- What is a Turing Machine, in practice?
- How do Turing Machines compare to finite state machines? Be very specific.
- What is the history behind Turing machines?

Part 2: Annotated Bibliography: Find 5 references for Turing Machines and write an annotated bibliography that discusses the reliability of each resource.

- At least 1 reference must be in academic literature (By academic literature we mean a journal with articles written by experts such as college professors).
- At least 1 reference must be in popular culture (By popular culture we mean things that normal people are interested in and might partake in for their own enjoyment, such as a blog post or youtube video).
- For each reference, use the accompanying rubric to determine its reliability.
- For each reference, write a short paragraph justifying where you placed it on the rubric.

Other Specifications

- The write-up should be about 2-6 pages. This is not technically a minimum nor maximum, but a guideline insomuch as shorter write-ups are probably missing something and longer write-ups and probably full of bullshit. Maybe you didn't what a Turing Machine is? Or your history is just a few dates and names? Or you didn't justify the reliability for each reference?
- You may work in groups (max 4 people) or alone.
- The project should be typed and saved as a PDF, then submitted on Blackboard. The penalty for incorrect submission format is 20% of the maximum score.
- Cite any sources that you use – plagiarism will result in a 0% grade.
- You may cite the sources using any standard format, as long as Dr. Beyerl is able to find them.
- The project is due on Blackboard Wednesday May 2nd at midnight. Assignments submitted late will receive a late penalty of 0.4% per hour.

Resource Reliability Scale

1 —— **Unreliable**. The reference itself gives you reason to question its accuracy.

Example: A website published by an unknown author filled with advertising. Who is the author? What is their goal? Why are they trying to influence you?

Example: A viral photo that your friend posts on facebook. Is it true? Where did it come from? Why was it made?

2 —— **Questionable Reliability**. Something other than the reference itself gives you reason to question its accuracy.

Example: A self-published book by a well-known author. Why did they self-publish? Did a publisher turn them down? Did the reviewers suggest not publishing it?

Example: A high school textbook. Why was the book selected? Who had influence on adopting this text? Could political or economic pressures affect how the content was written?

3 —— **Unknown Reliability**. There is no specific reason to trust or question the accuracy of the reference.

Example: A high school teacher. To what extent have they studied the field they're teaching? Are they an expert? Did they change fields? Do they keep active in the field?

Example: Wikipedia articles not in mathematics, science, or medicine. How reliable are these pages? They've not been studied well, so how can we know?

Example: non-peer reviewed academic literature: It was written by an expert, right? But why did they publish here where nobody was asked to verify their work?

4 —— **Probably Reliable.** Something other than the reference itself gives you reason to trust it.

Example: A college textbook. The professor(s) that chose the textbook should be experts in that field. There's a reason they chose that book. But sometimes authors make mistakes, that's why errata's exist, and one reason why books go through multiple versions.

Example: A college professor teaching outside their field. Going through a Ph.D. teaches a person how to find and evaluate information, and they can do just that.

Example: Wikipedia articles on obscure topics in science, mathematics, and medicine. The articles on these topics have been well studied, but because they're obscure it can take weeks or months for errors or omissions to be corrected.

5 —— **Very reliable.** Something other than the reference itself gives you reason to trust it.

Example: A college professor teaching their field of expertise. There might only be a thousand experts on that topic in the world, when scientists use the word expert, this is what they mean.

Example: Peer reviewed academic literature: This is literature that was written by an expert, and reviewed by other experts to verify its correctness.

Example: Wikipedia articles on major topics in science, mathematics, and medicine. These articles have many times been compared against peer reviewed academic literature we have, and consistently show their merit.

(Version 2.0)