

Week 1/6 - 1/12 Report

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Intention

This is a set of ideas you can think about or use them while writing your report for each week's reading. Writing reports for our reading each week is not mean to make you take notes, but make you think about what we have read. However, you may still use your report as a reading notes, whichever helps you read better.

You may write whatever you think while reading, questions, complains, or whatever. This might become your research interests in the future (who knows).

Ideas

1. How do you think about computability and complexity theory so far? Did reading the first chapter change anything you know regarding computability and/or complexity theory?
2. Compare Hilber's program and Gödel's incompleteness theory. What makes the first one intuitive and the second true?
3. If it depends on how we define math to have incompleteness (or not), why no just define pure math all over again instead of following basic logic? In other words, can we redefine math? Why not doing so to avoid incompleteness, and can we avoid incompleteness in mathematics?
4. Turing Machines are assuming a finite set of alphabet, what about Chinese characters?
5. Turing Machines require the observation ether be simple (one block) or within a certain length where TM can recognize the meaning of it immediately. Then, what is a proper

length? For example, we can easily see $1 = 1$, but how do we know $1111111111 = 1111111111$ at the first glance? How can we assure identity of numbers?

6. Can we build a TM which is continues instead of discrete? If so, how?
7. Do you think algorithms are software or hardware? Why?
8. Why do you think this book is using WHILE language? What do you think about Lisp language?