The Church-Turing Thesis

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- "A function is effectively computable if and only if it is Turing-computable." [1]
- "A certain procedure constitutes a (discrete) algorithm for computing a given function if and only if it can be implemented as a Turing Machine that computes that given function." [1]
- "Whenever there is an effective method (algorithm) for obtaining the values of a mathematical function, the function can be computed by a TM." [4]
- "LCMs [logical computing machines: Turing's expression for Turing machines] can do anything that could be described as 'rule of thumb' or 'purely mechanical'." [7]
- "[T]he 'computable numbers' [the numbers whose decimal representations can be generated progressively by a Turing machine] include all numbers which would naturally be regarded as computable." [6]
- "Intuitive notion of algorithms equals Turing machine algorithms." [5]

Law of Mechanical Computability (Thesis M)

- Whatever can be calculated by a machine (working on finite data in accordance with a finite program of instructions) is Turing-machine-computable. [3] (Cited from another source, so I am not certain it is verbatim.)
- "A function is mechanically computable (that is: computable by means of a machine) if and only if it is Turing-computable." [1]

Strong Church-Turing Thesis

- "A TM can do (compute) anything that a computer can do." [4]
- "Any 'reasonable' model of computation can be efficiently simulated on a probabilistic Turing Machine (an efficient simulation is one whose running time is bounded by some polynomial in the running time of the simulated machine). Here we take reasonable to mean in principle physically realizable." [2]

References

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