Recursion Discussion Post

For this discussion post, I found an interesting article all about the concept of recursion. The first part that caught my attention is that the concept of recursion started in 1888 by Dedekind in an essay. This essay “demonstrated that it was possible to state and prove the existence and uniqueness of functions defined by primitive recursion as mathematical theorems” (Dean, 2024, 1.1). The recursion he introduced was primitive, but the concept of using the solution for continuous calculation is present.

From this article, I also learned that there are many forms of recursion, but the most common two are Primitive Recursion and Partial Recursive Functions. Primitive Recursions are recursive functions where the upper bound, or the number of iterations of every loop can be determined before entering the loop. All programs should incorporate this, or at least a failsafe to avoid infinite loops. Partial Recursive Functions are partial functions from natural numbers to natural numbers that are "computable" in an intuitive sense. These functions can have a definitive number of iterations, but this may be difficult to calculate.

This article was a great discovery, it is a large amount of organized information starting from the beginning of recursion in 1888, and it just got updated in March. After reading this article, I am interested in the application of Partial Recursive Functions, and I think this could be responsible for random number generation. Recursion is applied in all forms of programming, and it is very important to know when to apply recursive functions, and how to properly code recursive functions to reduce runtimes.

References

Dean, W., & Naibo, A. (2024, March 1). *Recursive functions*. Stanford Encyclopedia of Philosophy. <https://plato.stanford.edu/entries/recursive-functions/>