Translation of "La Simulación"

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Abstract

This document presents a translation into English, by Rogelio E. Cardona-Rivera, of the section titled 'La Simulación' in Joseph E. Grimes's article "La computadora en las investigaciones humanísticas", which appeared in the Spanish-language journal *Anuario de Letras. Lingística y Filología* in 1965 [1]. That section is the most extensive contemporaneous account by Grimes of his exploration of computer story generation in the early 1960s, which produced one of the earliest known systems in that area [2]. The source text was translated sentence by sentence, and its text stylization, parenthetical elements, and footnote are preserved; the bibliography is an artifact of this document, not the original one being translated. James Ryan rediscovered the original article, arranged for its translation, and prepared this document.

1 Simulation

The computer is a mechanism that obeys and executes instructions. Therefore, if we want to examine the effect of an operation over the entities that interest us, it is sufficient to specify what the operation is, what form the inputs take, and what are the contingencies that can modify the operations that we have defined. That way, we can formulate an idea of the potential consequences of the application of diverse types of operations, with almost limitless complexity.

For example, the fairy tale is a globally diffused literary genre with a very simple architecture. Several prior investigations over this topic have limited themselves to cataloguing the elements of the tale; but Propp suggests that, in addition, the global structure of the tale should be discussed, which manifests itself in each one, and which is what allows the development of new tales made according to the same global structure. I have simulated the structure that Propp defines in a computer, by way of a process that selects elements at random and orders them in the due sequence, resulting in elements for tales that have never been told, but are recognized as tales nonetheless.

In grammar, simulation makes it possible to evaluate a grammar rule. In a manner similar to folkloric simulation, one can trace random trajectories through propositions that describe syntactic structures (*rules*) and the elements

of a language. If the result of this process is a series of sentences or texts that the speakers of the language judge acceptable, the underlying description must be good. As such, the adequacy of a grammatical analysis can be characterized as a function of the proportion of sentences deemed unacceptable from the results of a grammatical simulation.[1]

Computer machines have been employed to simulate learning processes in psychology, economic systems, clear and erroneous perception, military games and strategy, diagnostic procedures in medicine, and other things. The principal advantage of logical simulation is that we can obtain an approximate idea (in the case of simulation, it is never exact because of various limiting factors in practice) in a short amount of time, without misusing resources that may be irreplaceable. Further, the simulation allows one to examine a variety of possible processes, with all their consequences, in an amount that perhaps will never be observed directly in one's experience.

References

[1] Joseph E Grimes. La computadora en las investigaciones humanísticas. *Anuario de Letras. Lingüística y Filología*, 5:163–174, 1965.

[2] James Ryan. Grimes' fairy tales: A 1960s story generator. In *Proc. International Conference on Interactive Digital Storytelling*, 2017.

[1] Vladimir Propp, *Morphology of the folktale* (Publication 10 of the Research Center in Anthropology, Folklore, and Linguistics), Bloomington, 1958. Translated from Russian by Laurence Scott.—I created the program that synthesizes tales for the IBM 1620 at the University of Oklahoma and the Instituto Politécnico Nacional. Various programs to generate sentences based on a grammar have been developed at the Massachusetts Institute of Technology.