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<u>The development of an organism ... may be considered as the execution of a 'developmental program' present in the fertilized egg. ... A central task of developmental biology is to discover the underlying algorithm from the course of development</u>.

Astrid Lindenmayer (17 November 1925 – 30 October 1989) was a biologist from Hungary, best known for his invention of the Lindenmayer system, or L-System. Dr Lindenmayer got his PhD. at the University of Michigan, in plant physiology. He taught at universities across America before finally settling at the University of Uretch, in the Netherlands. His primary contribution to the field of formal systems comes from his development of the L-System. The L-System is best defined as a formal grammar system that contains three key components : An alphabet, consisting of symbols, a

series of production rules, and an axiom, or starting point. Lindenmayer originally generated the L-System to model the multiplication of yeast cells, but the applications of the L-system structure allowed it to model more complex plant growth systems, as well as formal systems generally. The applications of the L-System are greatly varied. One important application is that of fractals, which have their own massive implications for science at large. The L-system is also used to model the growth of multicellular organisms, such as plants or fungal organisms. The key to the L-System's use is its ability to model growth via a set of rules. The basic pattern of "If x, then y" scaled up to sufficient complexity allows for incredibly robust models of patterned growth. This property of the L-System also renders it highly suitable for computer systems. One such example is the turtle graphic model, wherein a turtle draws lines on a painter program. By programming a turtle with an L-System, computers can draw graphical representations of L-System outcomes, like Koch Curves and the Sierpinski Triangle. This can be expanded into other realms of computer science, like indexing, web trawling, and more. One must wonder if the expansion of a biologist's modeling system into the realms of computer science, logic, mathematics, and formal systems can itself be modeled by an L-System