20+ YEARS OF GPSS

Computer software has been regarded as a very dynamic endeavor. Languages start, become popular, and then fade. While FORTRAN has been around since the beginning, there is a vast difference between what is in use today with the initial version of twenty odd years ago. Yet in this world of rapid change, a very common language of discrete event simulation, GPSS, has shown remarkable powers of survival. How this came about is the subject of our panel. The four panel members bring widely divergent backgrounds to this discussion of twenty plus years of GPSS.

Geoffrey Gordon, alone, did the first version of the language. He laid out the fundamental characteristics of GPSS:

1. Keep it simple. Aim to allow the user to actually write the program.
2. Anticipate the user's needs. Show that a variety of problems can be simulated while remaining within the constraints of the language. In effect, provide a problem definition language, a problem solution, and the basic statistical outputs.
3. Make it flexible. There is no "right" way to model a problem. The user can simulate the same system with a variety of different GPSS approaches.

The remarkable fact about Gordon's initial work was how much he visualized the basic needs and requirements of the user in order to successfully simulate complex systems.

John Bult led the team that converted Gordon's initial GPSS into the product that we recognize today. He had the task of justifying all the "improvements". At the same time, GPSS was being implemented on a new and different system, the IBM 360. Over the years, Bult guided the changes in GPSS. While there were many requests for changes, those that were implemented and those that were not, contributed to the evolution of the language.

There have been, and still are, many versions of GPSS for different computers. David Martin is probably the individual who has stayed with implementing GPSS on other computers longer than anyone else. The question of how to implement a language on another computer and choosing how to implement that system has been his mark on GPSS.

Jim Hendriksen has taken the view that there are other ways to accomplish the same thing. He felt it worthwhile to improve the running time significantly, and incidentally, make few enhancements. Obviously, he also has views on what else could be done to change GPSS.

In summary, the goal of the panel is to provide a retrospective view of 21 years of GPSS. How it got to be and how it measured up as a tool in the Art of Simulation. Once the panel has made its statements, then it is up to the audience to either continue to look back or maybe turn around and conjecture about the future.

Julian Reitman

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How to Move GPSS to a non-IBM Machine - M.D. Martin

GPSS10 is the first GPSS to be implemented on DEC hardware. This is also an implementation in which the capability of user interaction with the executing model was considered during the early design stages. Several aspects of the design and implementation process will be discussed.

GPSS10 is a direct antecedent of an improved implementation now running on the DEC VAX-11. The VAX version of GPSS is itself the basis for a new implementation designed for a high degree of portability across 32-bit machines ranging from microcomputers to mainframes. These latter two implementations will also be discusssed with particular reference to language extensions and interactive capabilities.