Pramod Parajuli

GPSS World - Background

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Introduction

-IBM – 1961

-Block Oriented Simulation System

-Originally, restricted to 1000 blocks

-GPSS/World – Minuteman Software

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Additional Features

- Integration and differentiation
- Random numbers generation following desired probability distributions
- Sensitivity – to provide high sensitivity requires high precision real numbers

In queuing systems,

- Arrival – Poisson, Exponential, Hyper-exponential etc.
- Service – Normal
- Departure – None

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GPSS World

- Continuous and discrete modeling capabilities
- Underlying PLUS (Programming Language Under Simulation)
- Untyped data (implicit conversion)
- Mathematical and Probability distributions are available implicitly
- User defined PLUS functions (use CONDUCT)
- New multi-way ANOVA matrix library
- Support for file and database access, external functions from .exe or .dll files directly (Call(), Call_Integer(), Call_real() etc..)

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Objects

- Model objects – 50 blocks
- Simulation objects
- Report objects
- Text objects

Translator – Creates simulation objects from model objects

Errors (if any) are uncovered during the translation process

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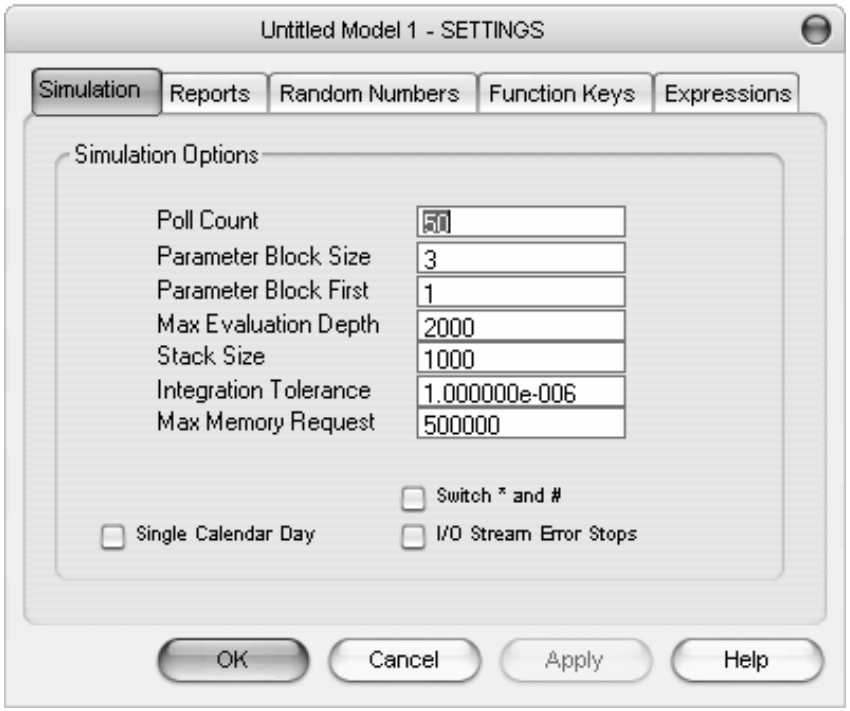
Conventions

for multiplication

* for pointer

Can be changed by using model setting



- Length of function name is unrestricted

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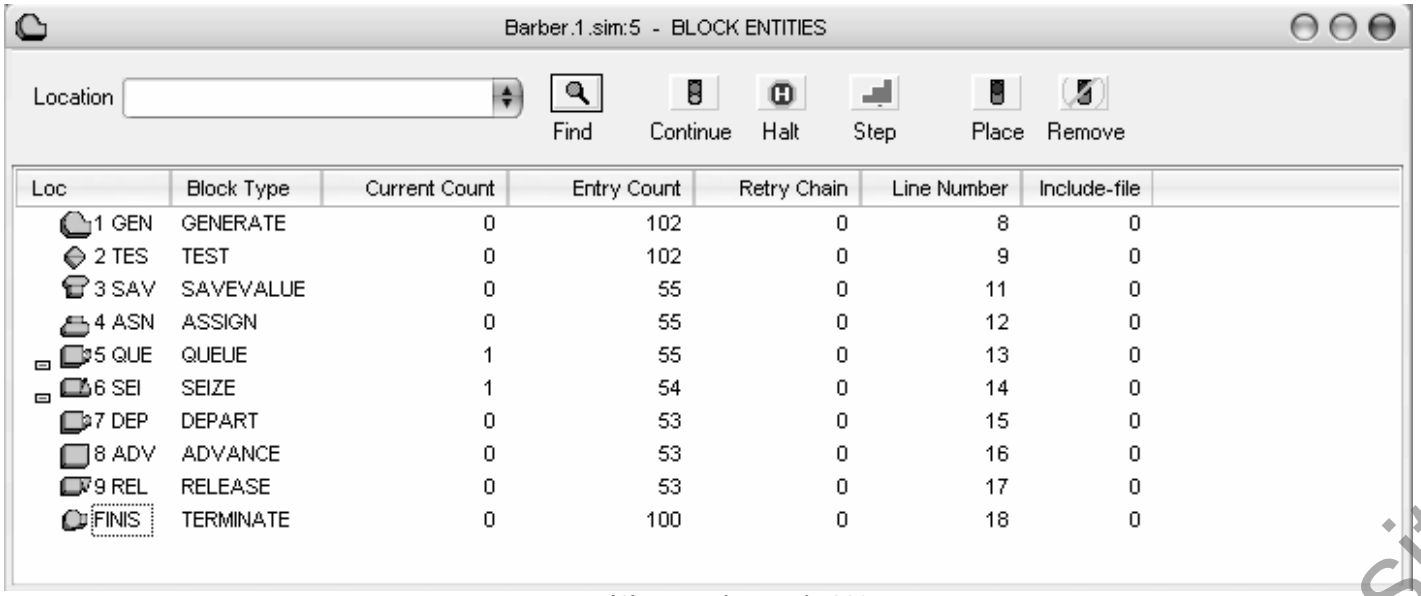
Architecture

- Multi-tasking
- Use of virtual memory
- Interactivity
- Visualization
  - Snapshots
  - Dynamic Window



Loc	Block Type	Current Count	Entry Count	Retry Chain	Line Number	Include-file
1 GEN	GENERATE	0	102	0	8	0
2 TES	TEST	0	102	0	9	0
3 SAV	SAVEVALUE	0	55	0	11	0
4 ASN	ASSIGN	0	55	0	12	0
5 QUE	QUEUE	1	55	0	13	0
6 SEI	SEIZE	1	54	0	14	0
7 DEP	DEPART	0	53	0	15	0
8 ADV	ADVANCE	0	53	0	16	0
9 REL	RELEASE	0	53	0	17	0
FINIS	TERMINATE	0	100	0	18	0

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Architecture

- Simulation clock
- Animation
  - Abstract
  - Post processing
  - Online animation

- 50 blocks and 25 commands
- All of state variables are global

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PLUS

- Polymorphic data types
- Multidimensional matrices
- Expressions

DoCommand("SHOW "("GPSS Presentation")");

Every command is parsed by DoCommand function

SHOW PolyCatenate("The ","time ","is ",AC1)

"The time is 0"

SHOW Length("ABC") 3

SHOW Find("ABC","123ABC789") 4

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PLUS

```
Accumulator=1;
Counter=1;
WHILE (Counter<=X_Integer) DO BEGIN
        Accumulator=Accumulator#Counter;
        Counter=Counter+1;
END;


IF ( Expression )  THEN  Statement1  ELSE
     Statement2
GOTO  Label ;
```


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