

# GPSS Process Interaction Simulation Kernel

- Thomas J. Schriber. *Simulation Using GPSS*. Wiley, 1974.
- Thomas J. Schriber. *Simulation Using GPSS/H*.
- <http://isgwww.cs.uni-magdeburg.de/~pel0/s1e/sa5/sa52.shtml>

# GPSS Process Interaction Simulation Kernel

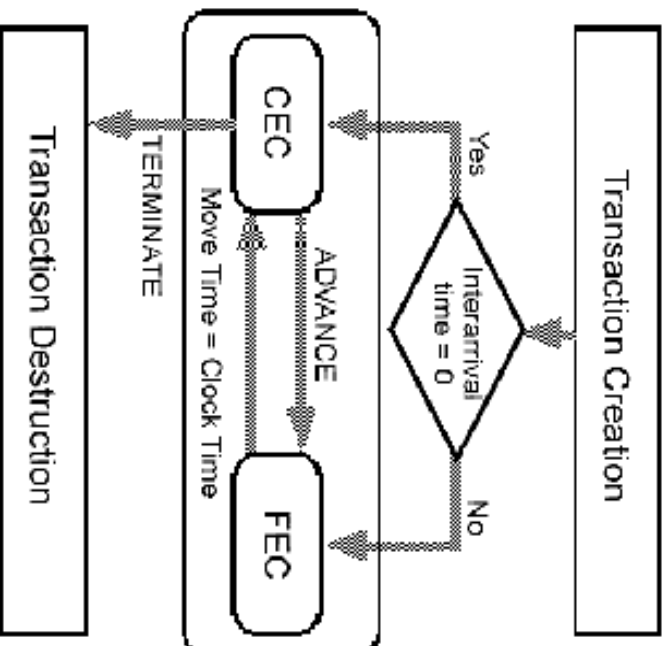
Data Structures: *chains*. A transactions is on *exactly one* chain at a time !

- (1) Current Events Chain (CEC):  
Transactions, waiting for a condition, at current time.
- (1) Future Events Chain (FEC):  
Transactions waiting for a known future time.
- (0 .. n) User Chain (UC):  
Transactions waiting to be UNLINKed by a user transaction.
- (0 .. m) Interrupt Chain (IC):  
Transactions waiting for the end of an interrupt.
- (0 .. p) Match Chain (MC):  
Transactions waiting for a (Match, Assemble, Gather) rendezvous.

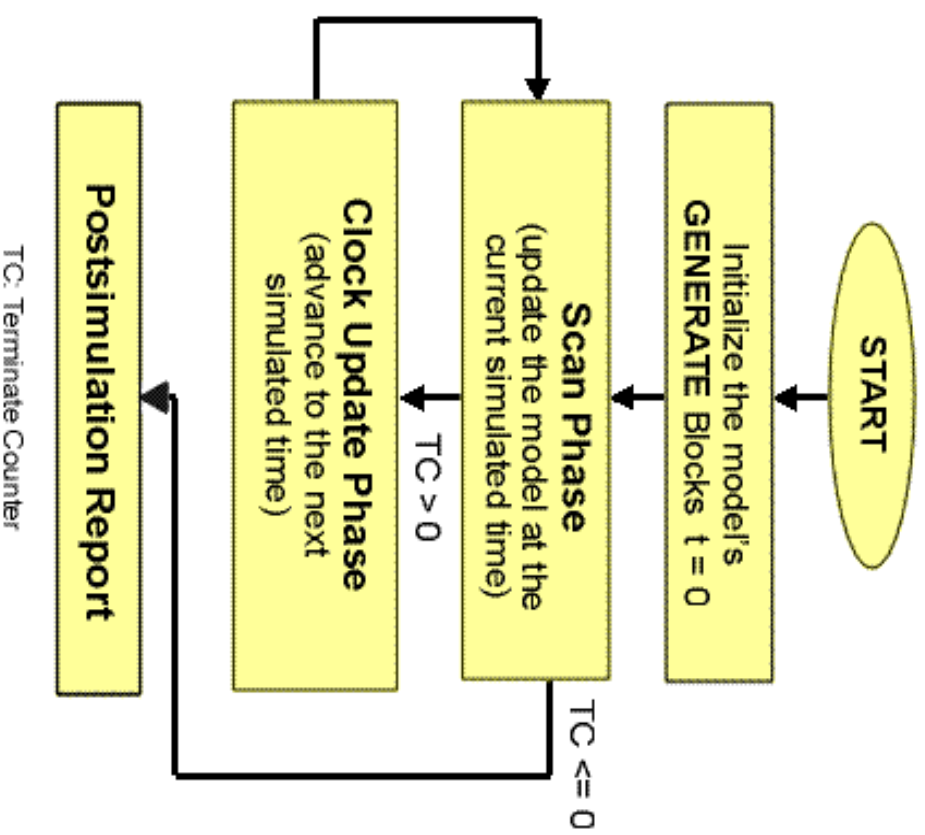
# Transaction Life

- A transaction moves through GPSS blocks (as far as possible).
- Internally, its structure is on exactly one of the chains.
- Structure: unique Xact ID, current block, next block (attempt), move time, priority, . . . .
- Ordering:
  - On CEC: decreasing priority.
  - On FEC: increasing move time, FIFO(FCFS) irrespective of priority.

# Transaction Life

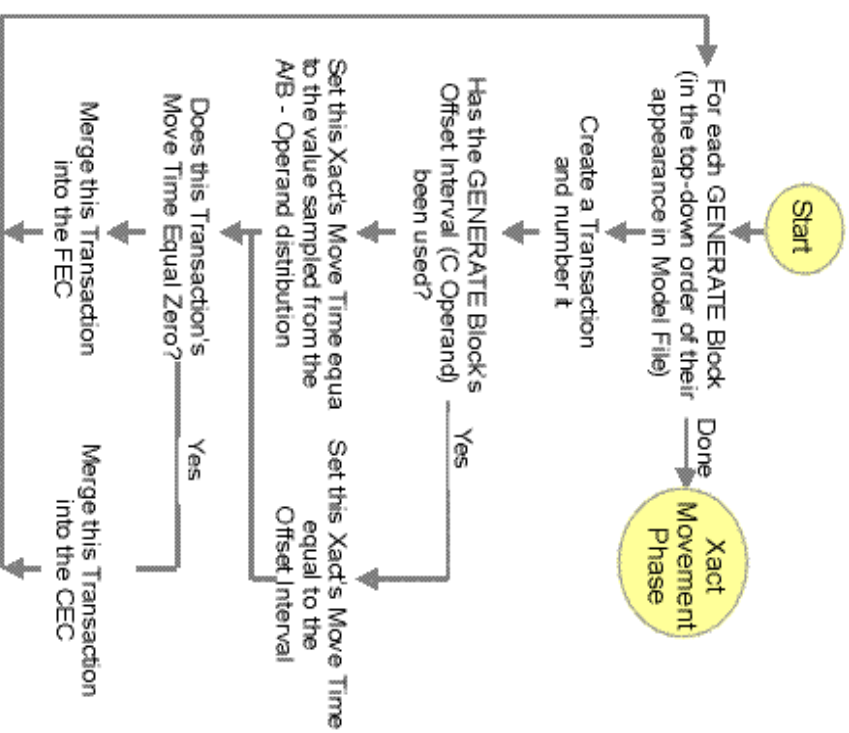


# GPSS Process Interaction Simulation Procedure

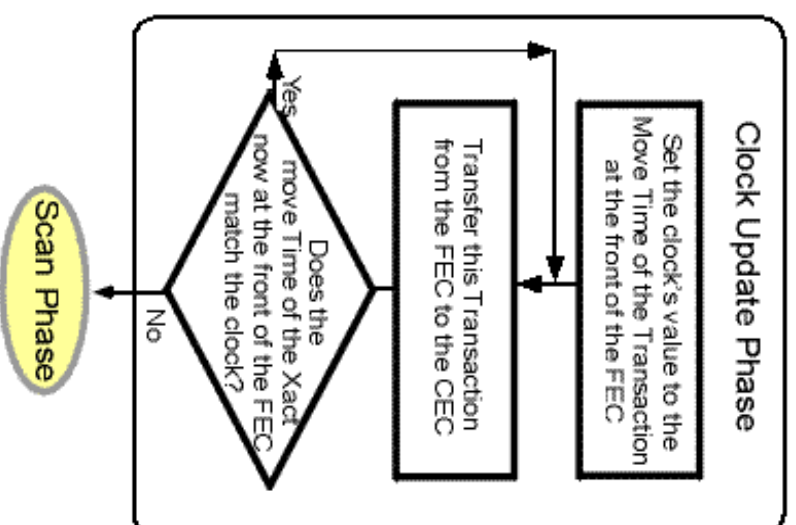


TC: Terminate Counter

# GENERATE Initialisation



# Clock Update Phase



# Operational Semantics of Process-oriented Simulation Languages: $\pi$ Demos

- Simula-style
- Operational semantics (Plotkin)
- Scheduling of Events, Synchronisation
- Birtwistle and Tofts (SCS Transactions, 10(4), 1994, 299-333)