

New Simio Features

Balking and Reneging



What is Balking and Reneging? ▶ Simio FORWARD THINKING

Balking: When an entity arrives and decides not to enter the intended destination.

Reneging: After an entity has entered a queue or station, it decides to abort the process and leave.

- ▶ Common in service-oriented applications like banking lines and call centers.

*Simio 9.149 adds significant new ease-of-use features.

What is Balking? ▶ Simio FORWARD THINKING

When an entity arrives and decides not to enter the intended destination:

- ▶ No *space available* to wait
- ▶ Reached a *limit* on the number in queue, station, or system
- ▶ Entity *chooses* not to wait

Two key elements:

- ▶ Under what condition does balking occur?
- ▶ What happens to the balking entity?

What is Reneging?



After an entity has waited in a queue or station, it decides to abort the process and leave:

- ▶ Reached waiting *time* tolerance
- ▶ A triggering *event* occurs
- ▶ Entity *chooses* to move elsewhere

Two key elements:

- ▶ Under what condition does renegeing occur?
- ▶ What happens to the renegeing entity?

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Where do you specify this?



- ▶ Standard Library input or output buffer
- ▶ Station element (used with processes)

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Changing States



- ▶ When an entity balks or reneges you can change that entity's state or any system state

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Statistics



- ▶ Functions:
 - ObjectName.BufferName.NumberBalked
 - ObjectName.BufferName.NumberReneged

▶ Pivot Grid Output

Object N...	Data S...	Category	Data Item	Statistic	Average Total	
Server 1	InputBuffer	Content	NumberInStation	Maximum	7.0000	
			HoldingTime	TimeInStation	Average (hours)	0.0914
				TimeInStation	Maximum (hours)	0.5846
		Throughput	NumberBalked	Total	0.0000	
			NumberEntered	Total	4.0000	
			NumberExited	Total	378.0000	
Source 1	OutputBuffer	Processing	NumberBalked	Total	328.0000	
			NumberEntered	Total	627.0000	
			NumberExited	Total	627.0000	

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Balking/Reneging SimBits



▶ BalkingOnSource BlockingOnServer

- Simple balking on source with no buffer space.



"Please tell me you made reservations."

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Balking/Reneging SimBits



▶ ChangingQueues WhenServerFails

- Entities waiting at one server change to another server when their server fails.



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Balking/Reneging SimBits



▶ ServerQueueWithBalking AndReneging

- Entities have individual 'number in line' tolerance which causes balking as well as individual 'waiting time' tolerances which cause them to renege IF they are not close (within their personal 'stay zone') to being served.



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Balking/Reneging SimBits



▶ MultiServerSystemWithJockeying

- Whenever another line becomes shorter than the one entity is waiting in it will move (jockey) to a shorter line.



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Balking/Reneging SimBits



▶ RenegingCombiner

- Parent entity attempts to group a fixed number of entities to continue processing. After waiting for a certain time, parent reneges, changes to smaller group size to combine with existing waiting members.



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Simultaneous Seizing



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Simultaneous Seizing



- ▶ When seizing multiple objects (Resources / Workers / Vehicles) – all objects must have available capacity at the same time for the seizures to occur for all objects.

▶ Examples:

- Requiring Nurse and Open Room for Patient Exam
- Requiring ToolA, ToolB and Operator for Processing
-

*Added to Simio sprint 155 +

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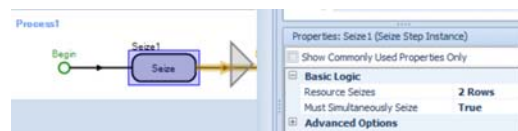
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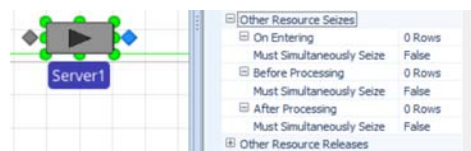
Where Do I Specify This?



▶ Seize step



▶ Server: Other Resource Seizes / Task Sequences



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