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Engineering emergence: applied theory for game design

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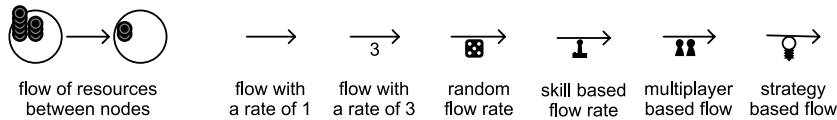
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Machinations Overview

Resource Connections

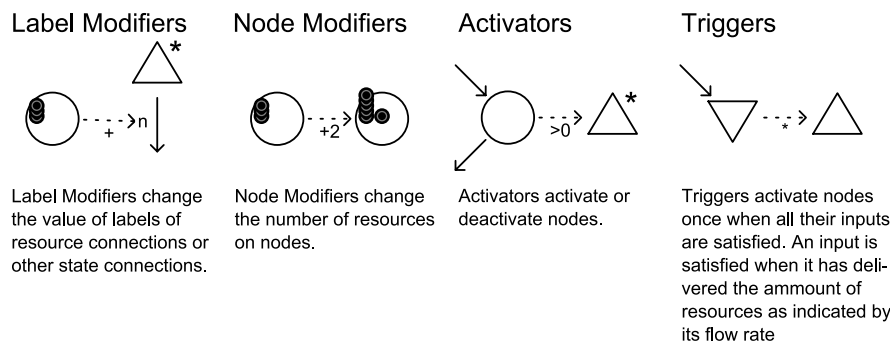
Resource connections dictate how resources flow between nodes.



Label Types	Format	Examples
flow rate:	x	0; 2; 3; 0.5; 1.3
random flow rate:	Dx; yDx; x%	D6; 2D5; D3-D2; 3*D4; 50%
intervals:	x/y	1/4; 2/2; D6/3; D3/(D6+2)
all resources:	all	all
draw randomly:	drawx	draw1; draw2; draw5

State Connections

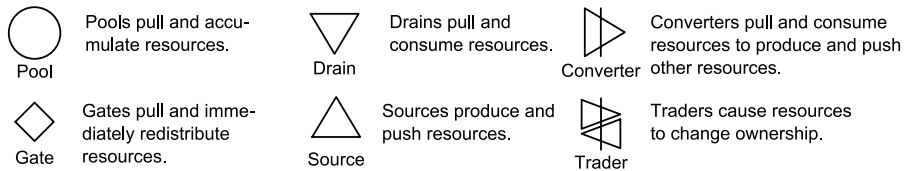
State connections indicate the effects of state and state changes on other elements in the diagram. The state of a node is determined by the number of resources on it.



Label Types	Format	Examples	Applicable to
modifiers:	+; -; +x; -x; +x%	+; -; +2; -0.3; +5%; -2%	value modifiers; node modifiers
interval modifiers:	+xi; -xi	+2i; -1i	value modifiers
probabilities:	x%; x	20%; 3	triggers after a gate
conditions:	==x; !=x; <x; <=x; >x; >=x;	=0; !=2; >=4;	activators; triggers after a gate
range (condition):	x-y	2-5; 4-7	activators; triggers after a gate
trigger marker:	*	*	triggers

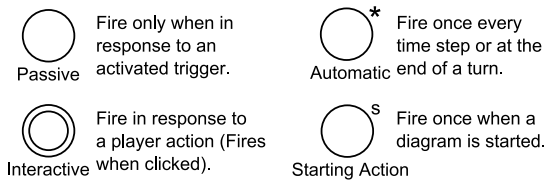
Nodes

Nodes represent game elements that take part in the production, distribution and consumption of resources. Nodes can fire. Firing nodes pull resources according to the flow rates of their input resource connections. A node without inputs will push resources according to the flow rate of its outputs instead.



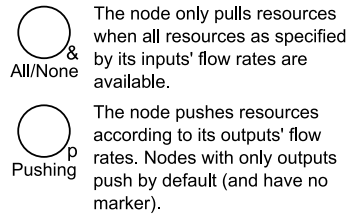
Activation Modes

The activation mode of a node determines when it fires.

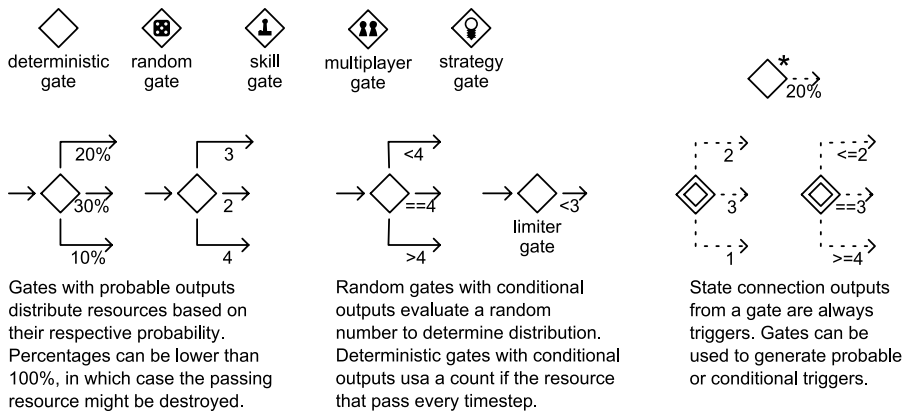


Pull and Push Modes

By default, nodes pull as many resources as are available, up to its inputs' flow rates. This behavior can be changed:



Gate Types



Other Elements

