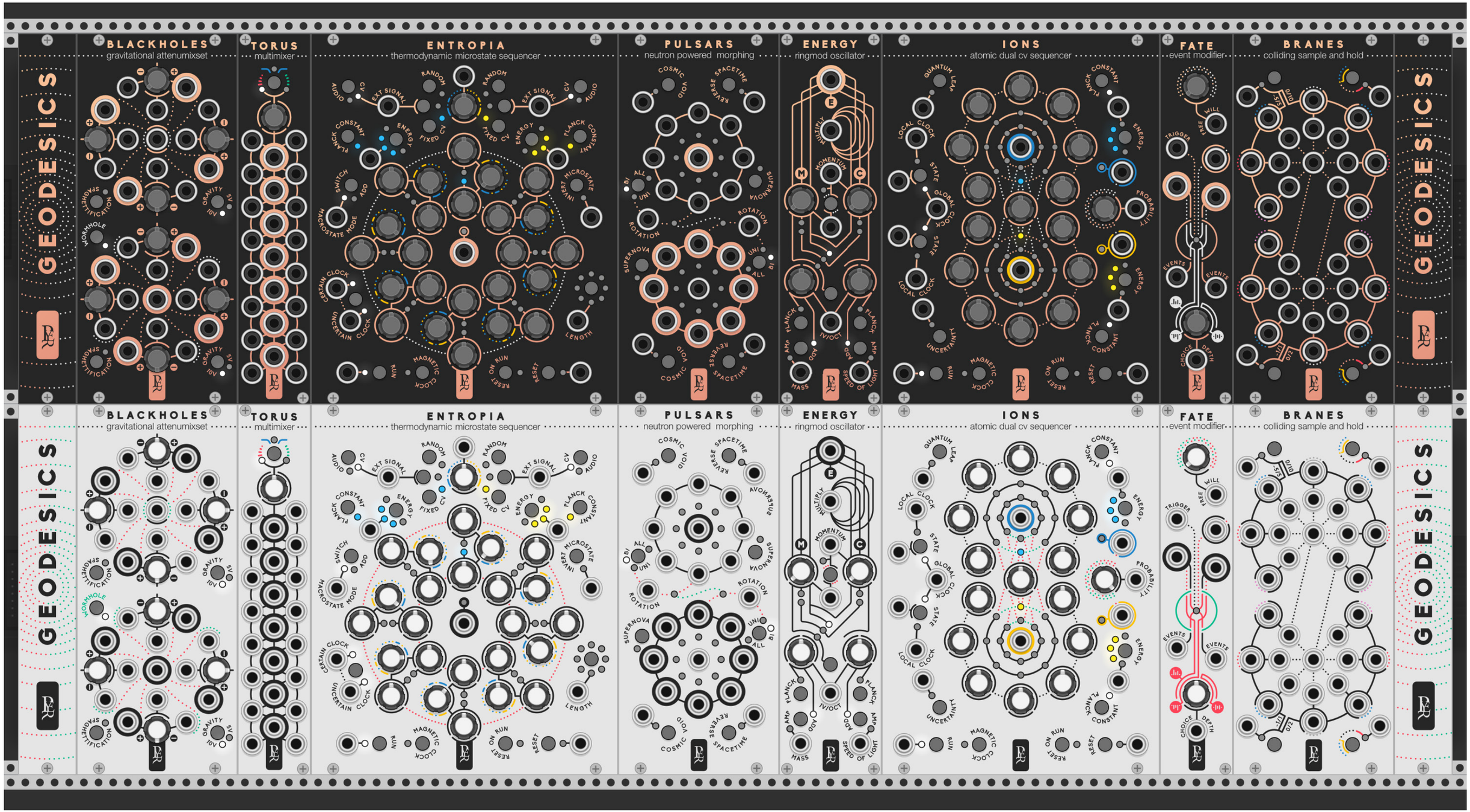
GEODESICS

A modular collection for VCV Rack by Pyer & Marc Boulé

User Manual


GEODESICS
BLACKHOLES
gravitational attenumixset
TORUS
multimixer
ENTROPIA
thermodynamic microstate sequencer
PULSARS
neutron powered morphing
ENERGY
ringmod oscillator
IONS
atomic dual cv sequencer
FATE
event modifier
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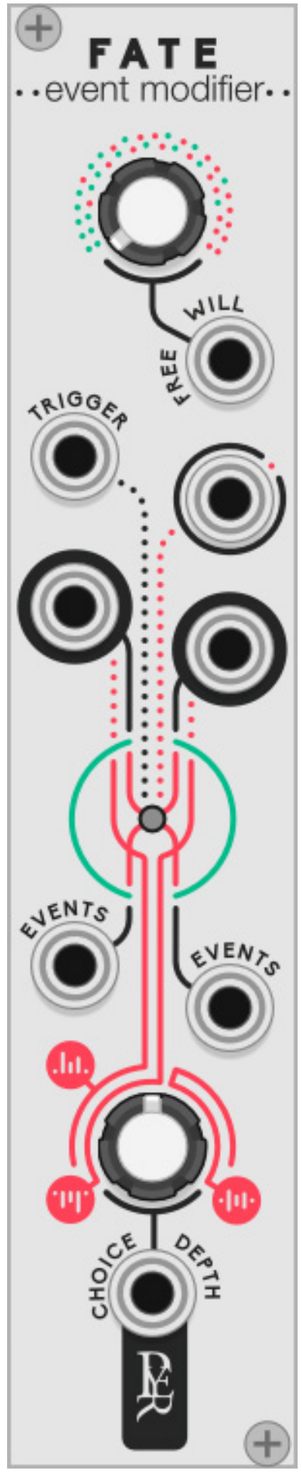


FATE

non-deterministic event modifier

Is there such a thing as free will? While scientists and philosophers are debating the question, Geodesics proposes **FATE**, a dual event modifier that will bring any sequencer to life by making its own musical choices.

FATE alters any signal by adding a specific amount of randomness at some chosen points, or by switching in with another signal on a probabilistic way. Without any incoming signal, FATE acts as a dual probabilistic random generator and a Bernoulli gate.

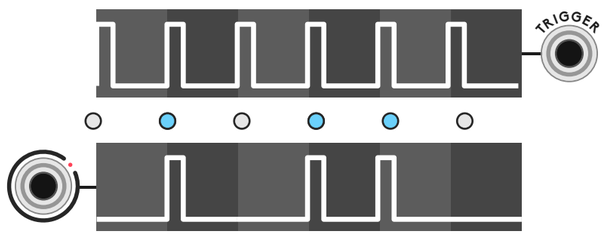
Main Concept

FATE is mainly made to alter a CV sequence but it can be used on LFOs, gate sequences, ...

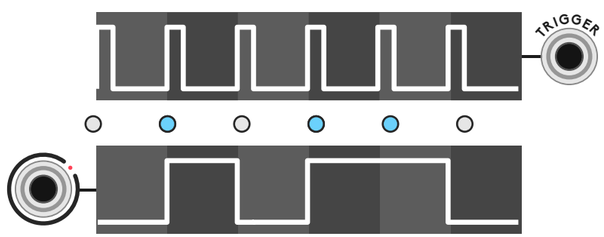
It needs a **trigger input** to make the choice of altering the incoming signal, preferably synced to the incoming signal.

A gate is emitted when the alteration happens.
The **gate output** has two modes (right click):

- **Gate:** the original trigger signal passes through when random is active

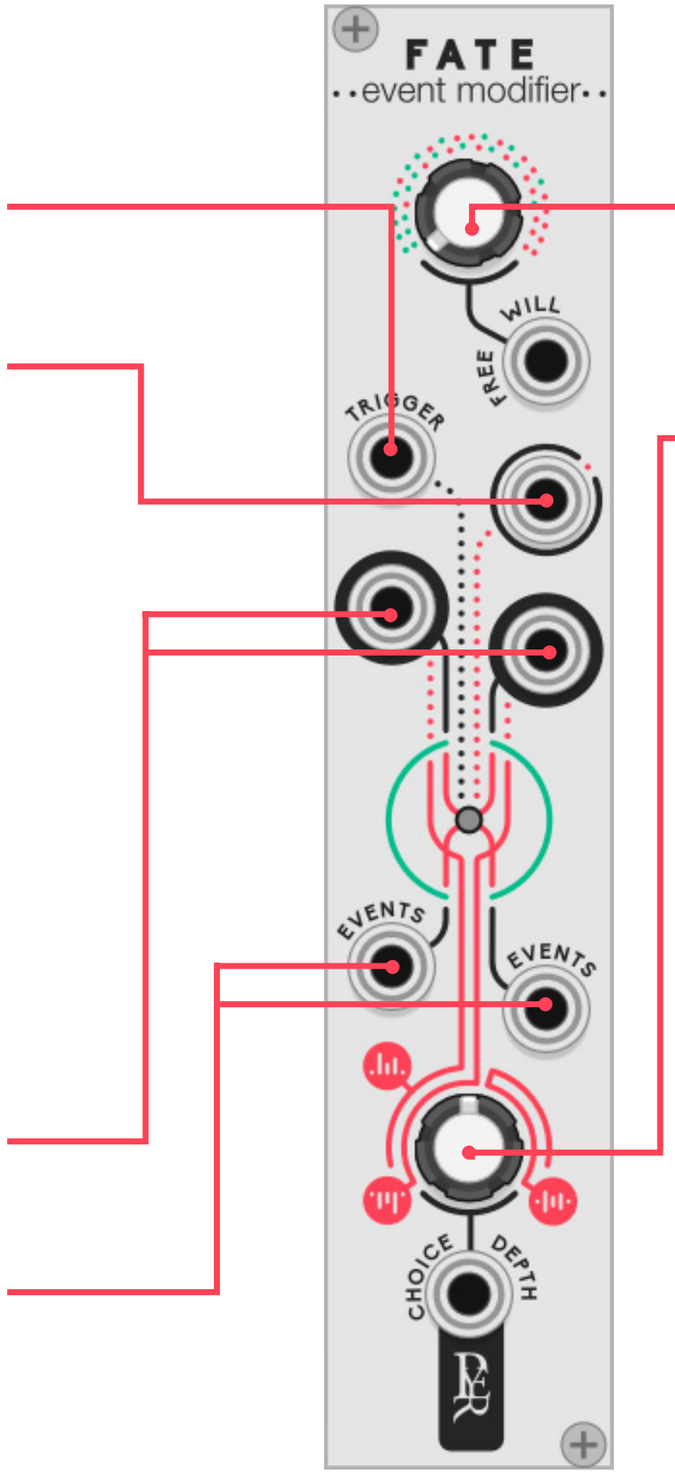


- **Hold trigger:** the gate is open when random is active.



It has two uncorrelated internal random generators, one for each **CV output**. They can be added to the original signal or used on their own.

When a single signal is used (no matter which one), it is normal to both outputs with different flavours of random. When two signals are used at the same time, FATE will switch the two signals together on a probabilistic way.



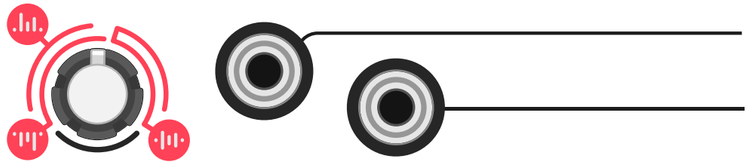
Controlling FATE

The module has its own will but gives control over two parameters:

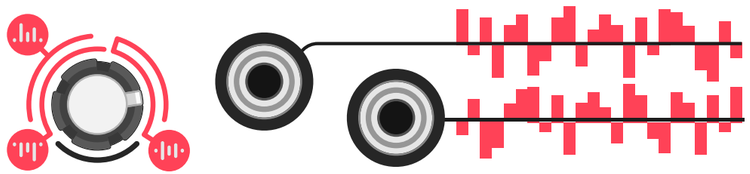
- **Free Will** is the probability to alter the source: How often randomness will be added. a non-zero probability will always trigger both generators at the same time, but giving different values of random at each output.

- **Choices depth:** the range of the random values. The knob is bipolar with different behaviour for each side.

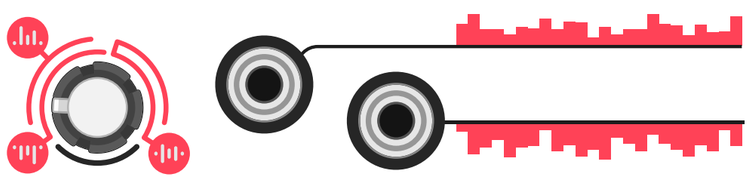
Zero: no random is emitted, this is useful as a probabilistic switch for two signals without adding random.



Clockwise direction: each output emits bipolar uncorrelated random values with a knob range from zero to -5/+5 volts.



Counter-clockwise direction: left output emits random values with a knob range from zero to +5 volts. Right output emits random values with a knob range from zero to -5 volts.



FATE as a dual random CV generator and Bernoulli gate.

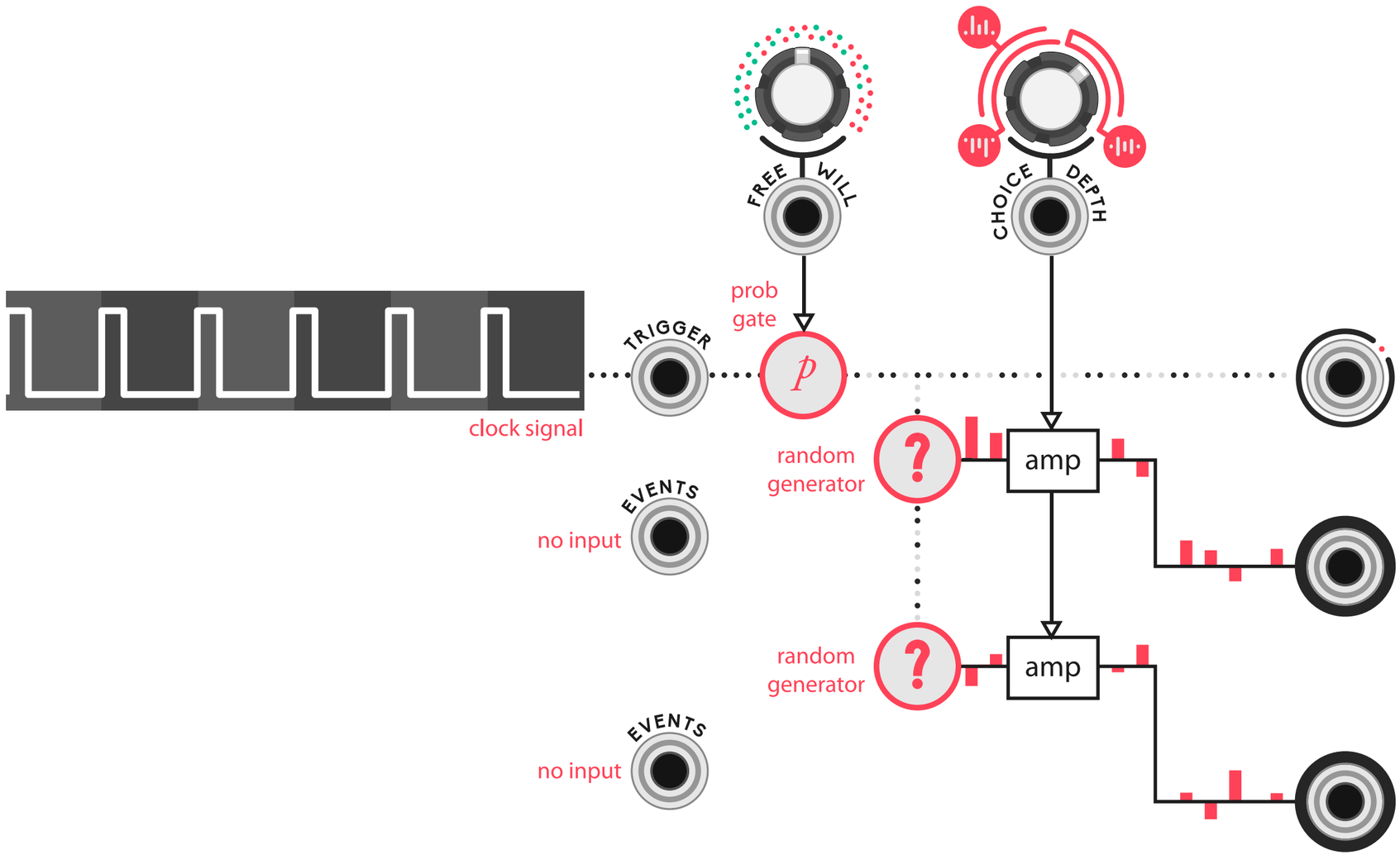
FATE only needs a clock to be effective.

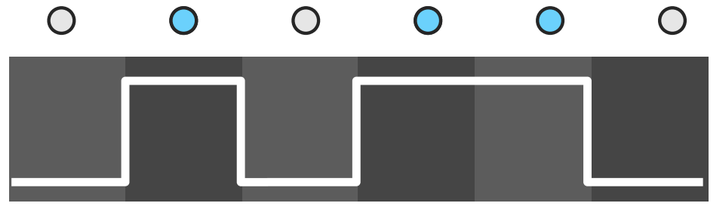
The two CV output emits uncorrelated random values.

The gate output emits a gate each time the randomness happens.

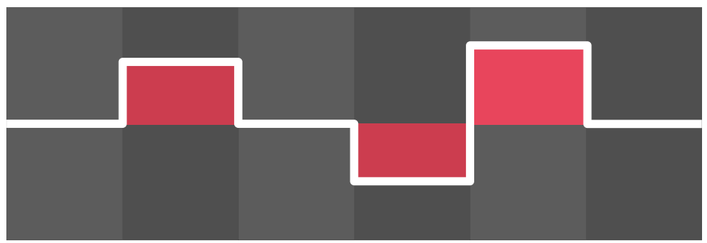
Free will controls how often random is emitted.

Choice depth control the amplitude of the randomness.





probabilistic gate sequence



probabilistic uncorrelated random sequence

probabilistic uncorrelated random sequence

FATE as a one channel event modifier.

It doesn't matter which input is connected; they are normalled to each other.

Each output will give its own altered version of the original signal.

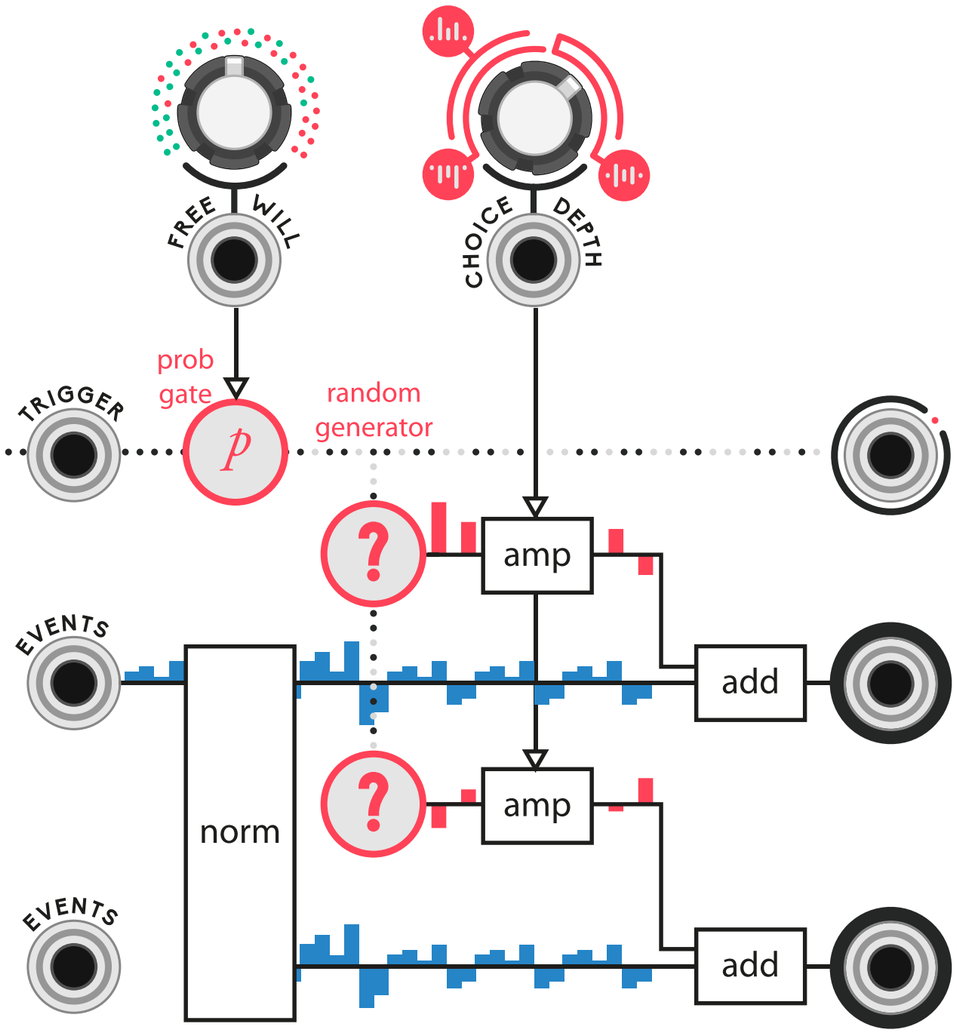
The gate output emits a gate each time the randomness happens.

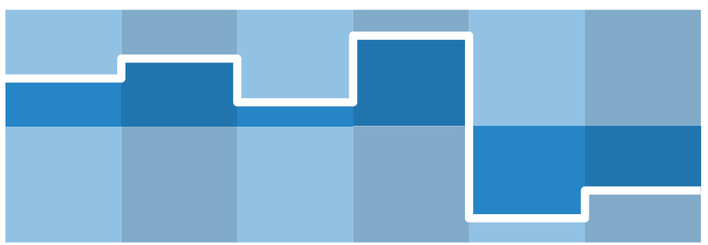
Free will controls how often randomness is added to the signal.

Choice depth controlq the amplitude of the randomness.

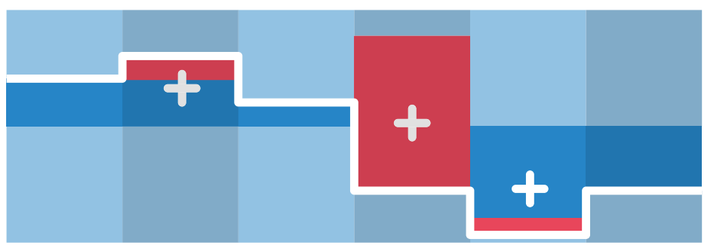
probabilistic gate sequence

clock signal, sync or divided on the external signal



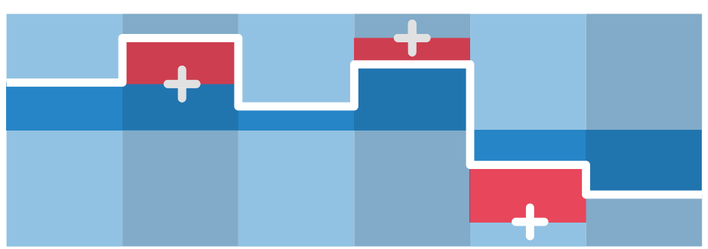


external signal, sequence, or lfo, gate sequence, audio



original signal + probabilistic uncorrelated random

no input



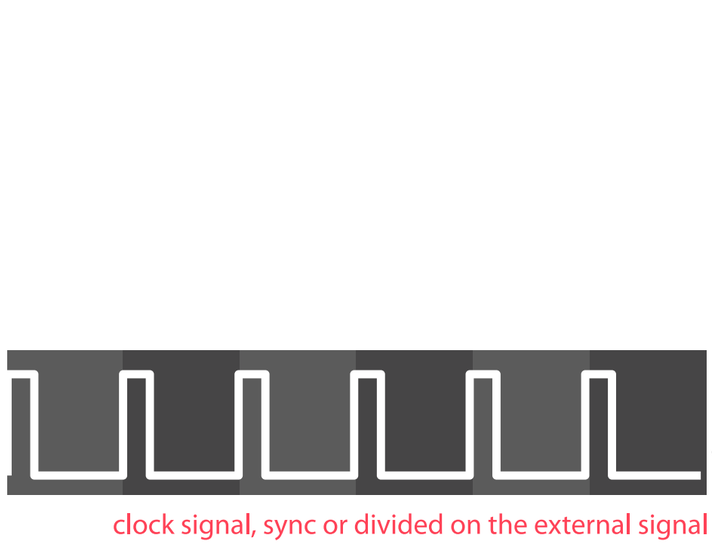
original signal + probabilistic uncorrelated random

FATE as a probabilistic two signal switcher.

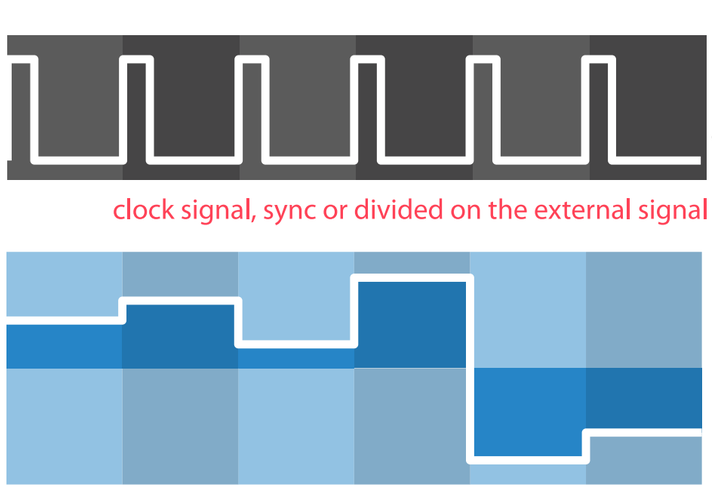
The gate output emits a gate each time the switch happens.

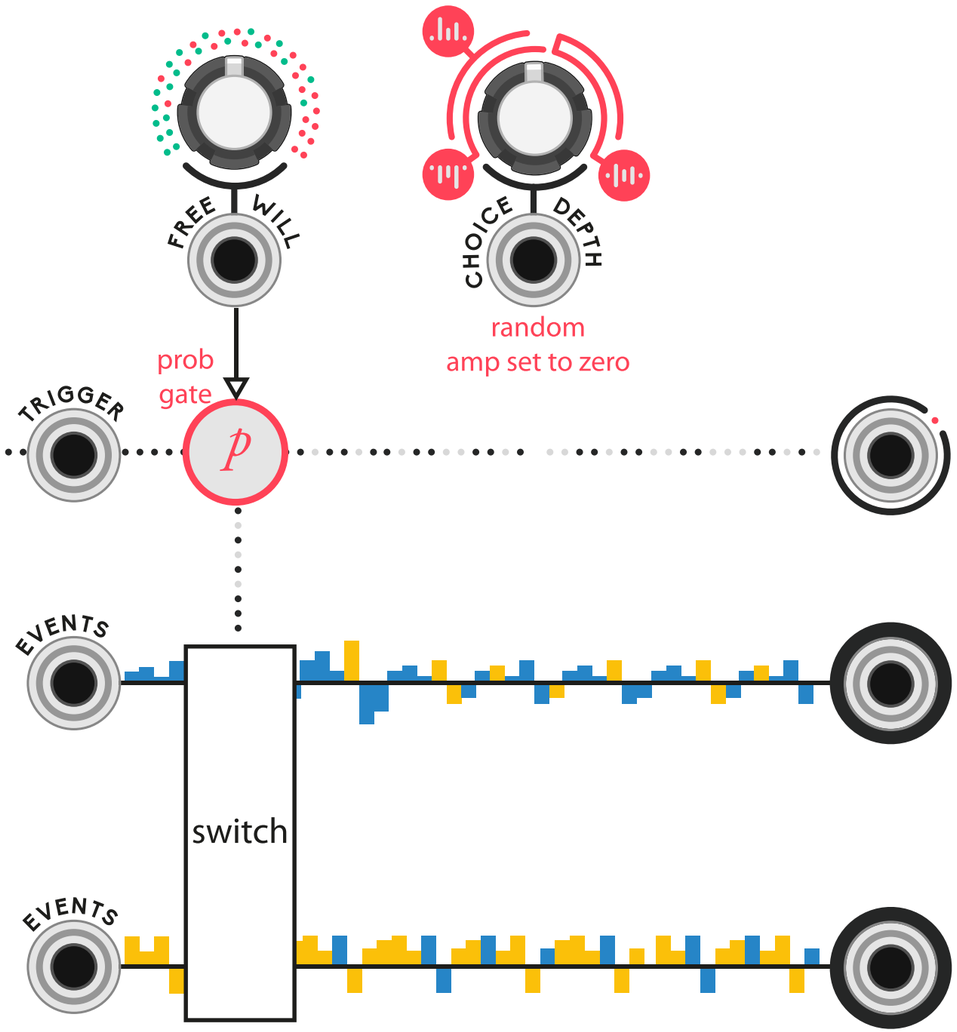
Free will controls how often the signals are switched and altered.

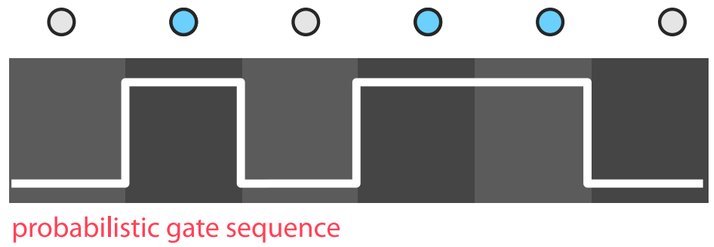
Choice depth should be set to zero.



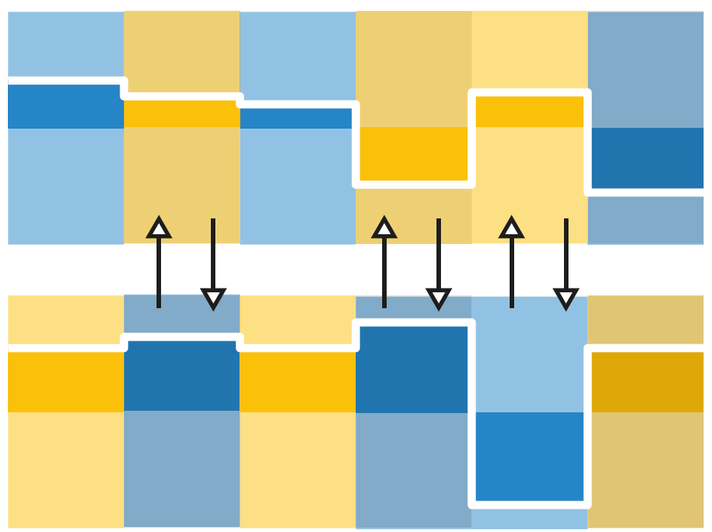
clock signal, sync or divided on the external signal







probabilistic gate sequence



original signal with probabilistic switch between the steps

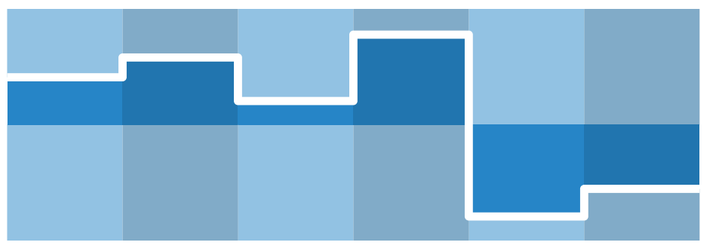
FATE as a probabilistic two signal switcher and modifier.

The gate output emits a gate each time the switch happens.

Free will controls how often the signals are switched and altered.

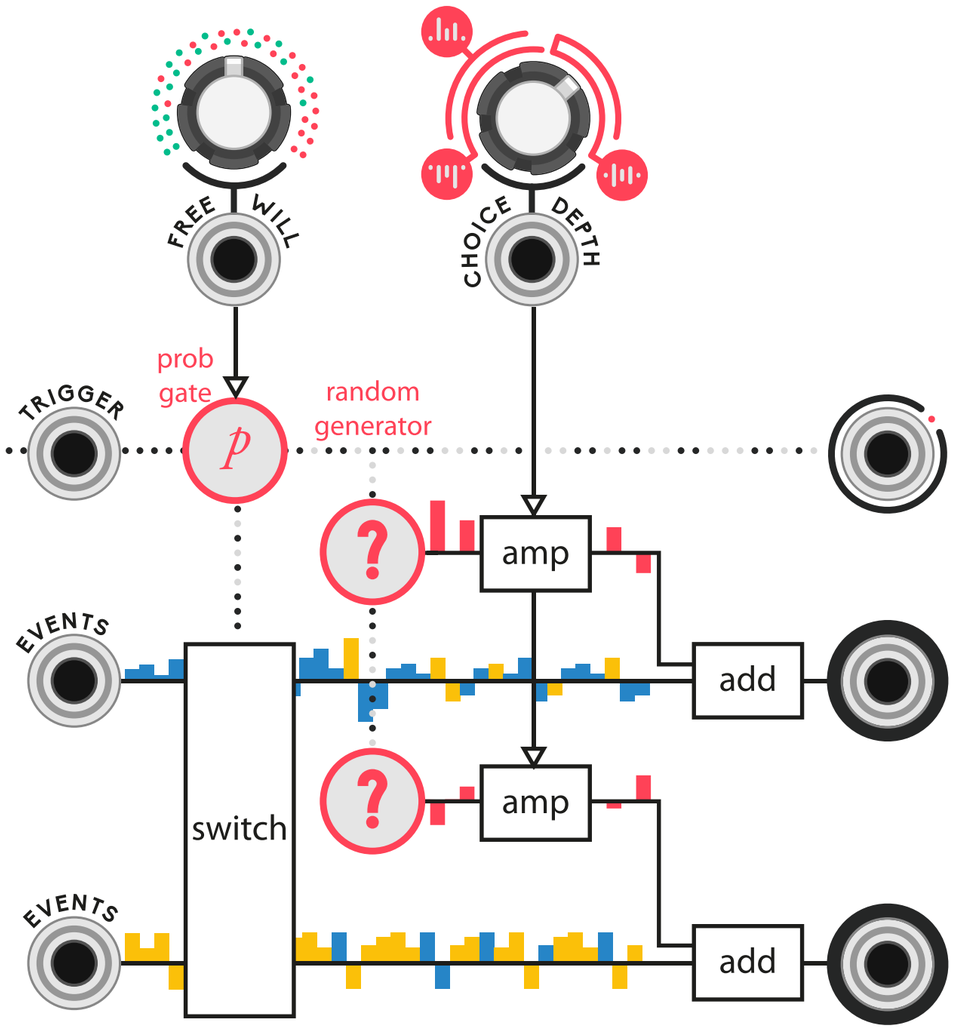
Choice depth control the amplitude of the randomness.

clock signal, sync or divided on the external signal

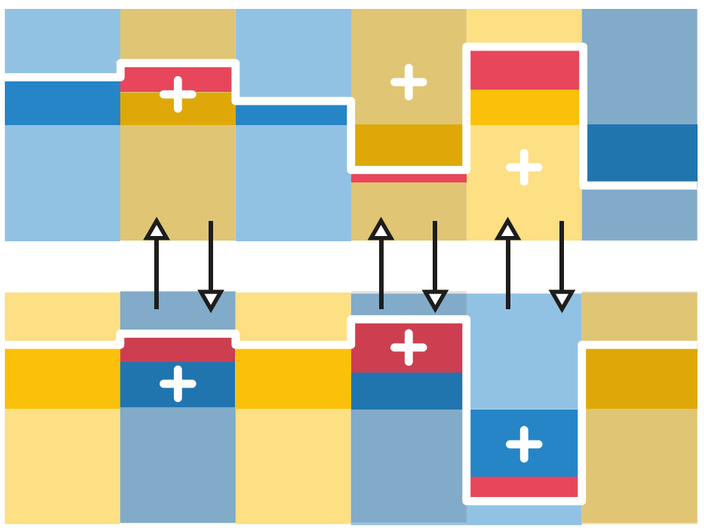


external signal, sequence, or lfo, gate sequence, audio

external signal, sequence, or lfo, gate sequence, audio



probabilistic gate sequence



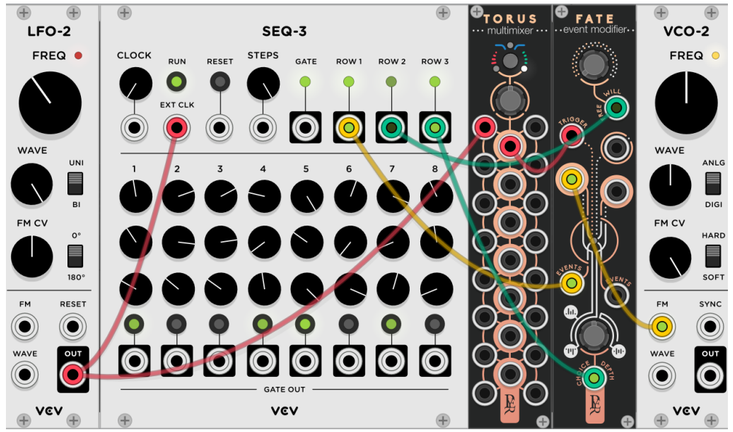
original signal with probabilistic switch + uncorrelated random

FATE with a multi-channel sequencer.

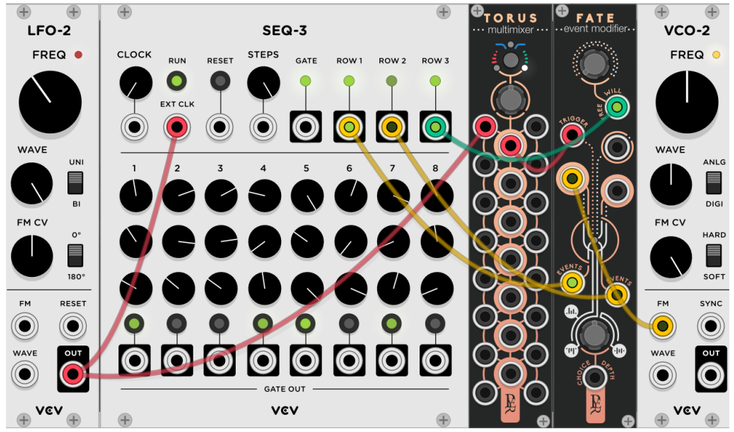
When FATE is used to alter a CV sequencer, **Free will** and **Choice depth** can be controlled by other CV sequences to make the random happen on specific notes of the sequence. FATE can then turn any multi-channel sequencer in our Entropia sequencer.

For a correct timing, FATE and the sequencer has to be triggered by the same clock source to avoid any latency

- Add randomness to a sequence (input 1, output 1).
- Use a second sequence to control which step should be randomised (Free will CV in).
- Use a third sequence to control which step should have a wider random (Choice depth CV in).



- Switch between two sequences (inputs 1 and 2, output 1)
- Use a third sequence to control which step should be switched (free will cv in)



Polyphonic FATE

Fate is also polyphonic. The number of output voices will be defined by the number of event channel or trigger channel, whichever is the highest. Modulation input are also polyphonic. It is recommended to experiment with different trigger sources on the input to add richness to the generated melodies.

GEODESICS

A modular collection for VCV Rack by Pyer & Marc Boulé

Geodesics has been created in July 2018 by **Pierre Collard** (industrial and graphic designer based in Brussels) and **Marc Boulé** (developer and creator of Impromptu Modular based in Montréal).

Just like many projects within VCV Rack, Geodesics is also a community effort and it would not have been possible without the help of many users, composers and developers participating one way or another to enhance the quality of the project.

Among them we would like to address a special thank to those who helped us in the beta testing phases, who made tutorials, who proposed their help in any way and those who brought the collection to life with some great pieces of music: **Omri Cohen, Georg Carlson, Xavier Belmont, Steve Baker, Marc Demers, Adi Quinn, Ben De Groot, Latif Karoumi, Espen Storo, Synthikat, Dave Phillis, Carbonic Acid**, **Martin Luders**, **Ghalebor, Stephen Askew, Lars Bjerregaard, Richard Squires, Lorenzo Fornaciari, Adi Quinn, NO rchestra, Poxbox23** and **Ananda Bhishma.**

Geodesics links
www.pyer.be/geodesics
vcvrack.com/plugins.html#Geodesics
github.com/MarcBoule/Geodesics

Creations from composers using Geodesics:
https://www.youtube.com/playlist?list=PLEh-5QLxa-BlqLl9rBcncUTFm2Lk-ZMgvZ

Tutorials on Geodesics by Omri Cohen:
https://www.youtube.com/playlist?list=PLEh-5QLxa-Blr4dsurkkwUehFsNl7T_Jv-

Marc's work links
github.com/MarcBoule/ImpromptuModular

Pierre's work links
www.pyer.be

Coded and released by Marc Boulé – Concept and visuals by Pierre Collard