caos

S F E
devices

MIDI EFFECT · VERSION 1.2

WHAT IT DOES

caos listens to the notes passing through it and plays them back **a little differently every few bars**. The dice are rolled once per cycle, not once per note, so every pass is another version of the same figure rather than jitter.

With `scale` on listen, everything it plays is built from notes that were actually played. It does not piece a scale together and never slips in a degree the piece has not used.

Until it has heard one full pass, nothing is touched. After a stop it keeps what it has learned, so the next start needs no warming up.

CHAOS AND PALETTE

`chaos` says how much happens, `palette` says what it may happen with. Between them they carry four axes.

DIAL	AXIS	TURNED DOWN	TURNED UP
`chaos`	how often	a cycle steps in only now and then	from 60 % on, every cycle
`chaos`	how many	at 20 % about one note in twelve, at 50 % about one in three	fully right about three notes in four
`chaos`	where	near the end of the cycle, so the start of the figure stays recognisable	spread evenly
`palette`	which kinds	fully left: velocity and note length only	fully right: every kind, the leap included

With `palette` in the centre the kinds open one after the other as `chaos` rises, in the order of the table below. Turned left, they close down until only velocity and note length are left, however far `chaos` is turned. Turned right, they open up, however little `chaos` is turned. Few places with every kind allowed, or many places with nothing but velocity and note length: the two questions come apart.

`palette` works by the square of its travel. Near the centre it barely moves the choice of kinds, and it does its work in the last third. Both ends still reach all the way.

THE CONTROLS

`chaos`	0 to 100 %. How much of the incoming melody is touched: how often a cycle steps in, how many places it touches and where they sit. At 0 the notes pass through unchanged; the measurement keeps running.
`palette`	-100 to 100 %, centre by default. Which kinds of deviation are within reach, as described above.

`fill`	-100 to 100 %. What the deviations do. To the left they take away: dropped notes and shortened notes win, and fully left no note is added. To the right they add: echoes, ghost notes and lengthened notes win, and fully right no note is dropped. In the centre both are balanced.
`reach`	1 to 5, in the card **variation**. How far a leap travels, counted in steps of the key that was heard: from two steps up to the number set, so at 1 and at 2 a leap is always two steps. A neighbour always moves one step.
`accent`	0 to 100 %, in the card variation. How far the velocity of a varied note may move: mostly softer, now and then louder. At 100 a softer note keeps 30 to 75 % of its velocity, a louder one gains up to 45 %. At 0 the velocities stay as they came in, and the velocity kind is never drawn.
`memory`	0 to 100 %, 60 by default. How long the measurement remembers what came in: at every new cycle it keeps between 15 % (at 0) and 95 % (at 100) of the weight gathered so far. Set short, it follows a change of key at once; set long, it holds the key through a passing chord. Fully down, too little is kept to read a key at all: the display stays on listening and the kinds that move a pitch never join in.
`lock`	off or on. Keeps the current deviations instead of rolling new ones every cycle. The pass then repeats unchanged for as long as lock stays on.
`cycle`	1 bar, 2 bars, 4 bars or 8 bars: how long one pass is. The deviations are rolled once per pass. A Live loop shorter than one cycle shortens the pass with it.
`grid`	1/8, 1/16, 1/8 triplet or 1/32: the note value that added notes (echo, ghost note) land on, and the step by which a note is lengthened. Nothing the device adds lands finer than this grid; coarser is allowed. A figure that fills every slot leaves an addition nowhere to go, so none comes, while the kinds that replace a note keep working.
`scale`	where the key comes from. listen measures it from the notes coming in, song scale takes the root and scale of the Live set, chromatic allows every semitone.

Live's list of parameters also holds **drag**. It has no effect and stays only so that older sets and presets still load.

THE KINDS, AND WHEN THEY JOIN IN

The number is the setting from which a kind can be drawn. With `palette` in the centre it reads off `chaos`; turned left, every threshold moves up, turned right, every threshold moves down.

FROM	KIND	WHAT HAPPENS
0 %	velocity	a note arrives softer, now and then louder; only with accent above 0
0 %	note length	a note is held one or two grid steps longer, or cut to half its length
12 %	echo	a note repeats once, quieter, one or two grid steps later
22 %	dropped note	a note is left out
32 %	octave	a note moves an octave up or down
45 %	neighbour	a note moves one step up or down within the key
55 %	ghost note	a quieter note is added after a played one: one or two steps away within the key, or a pitch from the material
80 %	leap	a note moves two or more steps within the key, as far as reach allows

The three kinds that change a pitch, neighbour, ghost note and leap, join in only once enough has been heard to name at least three notes of the key.

THE DISPLAY

The measurement, on the left. Twelve bars, one per note of the octave. The height of a bar is the weight that note came in with: long, loud notes weigh more than passing ones. The lit bars are the notes the device builds from, and the brightest is the root.

The name of the key, underneath. It shows listening until a key has been read, then a name such as e minor: out of what it heard, the device reads e as the root and a minor character. The name is a readout, not a switch. The device only ever plays the notes in the lit bars. If the name looks wrong, not enough has come in yet; it settles after a few bars, faster with a short memory.

The trace, on the right, shows the notes last sent out as a pitch line: dim where they passed through untouched, bright where they were varied, narrow where they were added.

IN PRACTICE

Monophonic in, monophonic out. An added note cuts the line short instead of lying on top of it. Chords are recognised by their simultaneous attacks and stay polyphonic.

In a chord, one note at a time. A deviation applies to one attack, and a chord is one attack: its first note takes the deviation, the others pass as they came.

It follows the transport of the set. A cycle is tied to its bars, also after a loop or a jump. With the transport stopped it still works: a pass then lasts as many notes as the previous one held, at least eight.

Stopping the transport clears what is sounding, but not what was measured. Notes still held down are left alone.

Put it before the instrument, like any MIDI effect. Before another MIDI effect it varies what that one is given; after it, what that one produced.

Keeping a pass that came out right: switch lock on. The pass repeats unchanged, and the track can be recorded like any other MIDI.

PUSH

Two parameter banks: *play* with chaos, palette, fill, reach, accent, memory and lock; *listen* with cycle, grid and scale.