

Chiasmus

Reverse delay with Grain and Tape engines.

A reverse delay with two engines over one 32 s stereo buffer: **Grain** (six windowed voices) and **Tape** (one read head with continuous motion). It behaves like a pedal: zero latency, no lookahead.

Named for the rhetorical A-B-B-A reversal. The **Cross** control lets each pass through the loop re-reverse the last, so repeats alternate direction.

SIGNAL FLOW

```
in --+----- dry --+
    '-> write -> [32 s stereo buffer] -> 6 grain voices
        ^           | forward echo tap           -> diffuse -> wet
        |           v                               -> duck -> mix -> out
    '-- tone <- drive <- mix(echo, wet, Cross) x Feedback
```

QUICK START

- 1 Put Chiasmus on an audio track. With Engine on Grain and Trigger on Free, **Time** sets the chunk length.
- 2 Raise **Feedback** and **Dry/Wet**. Repeats are reversed the same way each time while Cross is 0.
- 3 Set **Cross** to 100 so each pass re-reverses (R, F, R, F), with drifting splice points.
- 4 Switch **Engine** to Tape: each chunk plays backwards, then the head slows, stops, fast-forwards and drops into the next chunk. **Zip** sets how audible the spin is.
- 5 **Trigger** Sync locks chunks to the host tempo; Onset catches hits and lands the reversed swell after them.

CONTROLS

TIME

CONTROL	RANGE	WHAT IT DOES
Trigger	Free / Sync / Onset	Free launches every Time. Sync launches on each Division tick (free clock when the transport is stopped). Onset schedules one grain that captures the next chunk and ends, reversed, on the attack.
Division / Time	-	Chunk length. Division applies in Sync, Time otherwise; the unused one is dimmed.
Pre	0-2 s	Extra delay before the reversed chunk plays.
Drift	-	Random chunk-length variation per grain.
Sens	-	Onset sensitivity (Onset only).
Freeze	toggle	Stops writing; grains keep chewing the last chunk.

DIRECTION

Pattern	Rev / Alt / ABBA	Rev: all reverse. Alt: R F R F. ABBA: R F F R.
Flip	-	Chance that any grain inverts the pattern.
Pitch / Fine	+/-12 st, +/-50 ct	Read rate. Accumulates through Cross feedback.

SHAPE

Smooth / Swell	-	Grain: window width (1-50 % of the grain) and skew (+ is reverse-cymbal rise, - is pluck). Tape: catch-up length (5-50 % of the chunk) and play-level skew. The preview is drawn live.
Zip	0-100	Tape only. Level of the catch-up spin: 0 is a long dip, 100 is the whole spin.
Wow	-	Shared wow (0.55 Hz), flutter (6.3 Hz) and slow drift. Only ever reads older audio, so it never overtakes the write head.
Engine	Grain / Tape	Selects the engine.

LOOP

Feedback	-	Loop gain. Small-signal gain is exactly Feedback, so the loop only self-sustains at 100 %.
Cross	0-100	0: feedback comes from a forward echo tap. 100: feedback is the grain output, so each pass re-reverses. In between is a blend.
Scatter	toggle	Instead of blending, each grain or tape chunk flips a coin with probability Cross to enter the loop.
Diffuse	-	Smears the output and, with Scatter, the loop.
Tone	-	Tilt around 800 Hz.
Drive	-	tanh saturation with gain compensation; always soft-limits the loop.

OUTPUT

Width	-	Pans alternate grains left and right.
Duck	-	Ducks the wet signal by the input envelope.
Dry/Wet, Output	-	Mix and level.

NOTES

Display

Right edge is now. Each active grain or the tape head draws its read position (first line colour reverse, second forward or fast-forward) with an arrow in its direction of travel; a stopped tape head is a square. The top line reads chunk time (or division and bpm), pattern and pitch, with Frozen and an Onset flash on the right.

Banks (Live Push)

Chiasmus: Time, Feedback, Cross, Pitch, Smooth, Swell, Dry/Wet, Freeze. **Motion:** Trigger, Division, Pre, Drift, Pattern, Flip, Fine, Sens. **Tape:** Engine, Zip, Wow, Scatter, Tone, Drive, Diffuse. **Output:** Width, Duck, Output.

Limits

- No true pre-verse (swell ending on the dry hit). That needs reported latency, which a pedal-style device avoids.

- Sync phase alignment is per beat; divisions longer than a beat may not land on bar lines.
- Onset mode holds one pending grain; a second hit inside the capture window is ignored.
- A 7th overlapping grain steals the oldest voice without a fade.
- Live sometimes keeps a stale copy of a rebuilt frozen device. Delete and re-add it after a rebuild.

STATUS

Loaded in Live 12 Suite on 2026-09-23: gen~ compiles with no console errors and the grain display runs; a Freeze render analysed clean. Not yet auditioned: Sync, Onset, Scatter, Cross > 0, Pitch other than 0, Freeze, Wow, Diffuse and Drive extremes, Width and Duck.