

The Rhythm Knobs

How NOTE VALUE, VARIATION, LEGATO and REST shape a pattern, with seven presets to start from.



Dicey splits every pattern into two questions. The **twelve faders** and RANGE decide *which* notes play. The **four knobs along the top** decide *when* notes happen and *how long* they last. This guide is about those four knobs.

All four work on the same idea, so it is worth reading the next page first. After that, each knob gets a page of its own, and the guide ends with presets you can dial in to hear the knobs at work.

THE KEY IDEA

Every step has its own dice

When you press **DICE**, Dicey rolls a set of hidden random numbers, one set for every step of the pattern. Each step gets a separate number for each question it has to answer: *Is this step a rest?* *Is it held into the next?* *Does it change its note value?* Each number is somewhere between 0 and 1.

The knobs never roll anything themselves. A knob is a **threshold**, and a step whose number falls below it gets that behaviour. In the chart below, each bar is one step's REST number. With REST at 30%, the steps under the 30% line are silent (red). Raise REST to 60% and the line moves up, so more steps fall under it.



The same sixteen dice values judged against REST at 30% and at 60%. Red steps become rests.

What this means when you play

- **Knob moves are gradual and reversible.** Turning REST from 30% to 60% keeps every rest you already had and adds more. Turning it back removes exactly those. LEGATO works the same way.
- **The pattern repeats** because the dice stay the same loop after loop. Moving a knob changes how the same dice are read, so the pattern changes instantly but still sounds like itself.
- **Pressing DICE** rolls new numbers. With the same knob settings you get a different pattern of the same character, for example the same amount of rests in different places.
- **Holding DICE** (realtime mode, LED off) rolls new numbers on every pass through the loop, so it never repeats. Click DICE again to return to the dice you had.
- **Rhythm and melody have separate dice.** Re-rolling RHYTHM keeps the melody's choices, and the other way round.

Why your notes won't match this guide exactly

The examples here use fixed dice so the pictures are repeatable. Your dice are different, so the same knob settings will give you the same *kind* of pattern with different specifics. Press DICE a few times to hear the range a setting can produce.

NOTE VALUE: the base rhythm

NOTE VALUE sets how long each step is. It is the only one of the four with no randomness: at 1/8 you get eighth notes, nothing else. Everything the other three knobs do starts from this grid.

1	1															
1/2	1/2								1/2							
1/4	1/4				1/4				1/4				1/4			
1/4T	1/4T		1/4T		1/4T		1/4T		1/4T		1/4T		1/4T		1/4T	
1/8	1/8		1/8		1/8		1/8		1/8		1/8		1/8		1/8	
1/8T	1/8T	1/8T	1/8T	1/8T	1/8T	1/8T	1/8T	1/8T	1/8T	1/8T	1/8T	1/8T	1/8T	1/8T	1/8T	1/8T
1/16																
1/32																

One bar at each of the eight settings. The triplet values (T) fit three notes where two would normally go.

Good to know

- The pattern is built from left to right, one step after another, starting at the beginning of the pattern. With NOTE VALUE alone that is a plain grid. It matters once VARIATION starts changing step lengths (next page).
- **1/4T and 1/8T** are triplets: six or twelve per bar. Use them on their own for a shuffling, rolling feel.
- Slow values give you very few steps. At **1** (a whole note) a one-bar pattern has a single step. Set LENGTH to 2 or 4 bars in the table so the slow values have room for some variety.
- The ring LEDs always divide the *pattern* into 16, not the notes. In a one-bar pattern each LED is a 1/16; in a four-bar pattern each LED is a beat.

VARIATION: other note values, by chance

VARIATION gives each step a chance of using a different note value from the one NOTE VALUE sets. The **centre is off**. Turn **left** and steps may become **longer**; turn **right** and they may become **shorter**. How far you turn sets the chance: at 60%, each step has a 60% chance of changing, so over time about six in ten do (any one bar can land a little either side). At the far end every step changes.



The same 1/8 line with VARIATION off, 60% toward longer, and 60% toward shorter (with 1/32 enabled). Narrow cells are 1/16 and 1/32.

Turning VARIATION right does nothing? Check NOTE VALUE.

VARIATION only picks from the values switched on in rows 2 and 3 of the table (right). By default 1/32 and both triplets are off. So at the default NOTE VALUE of **1/16** there is nothing shorter to choose from, and turning right has no effect. Set NOTE VALUE to 1/8 or longer, or switch on **1/32** (row 3, column D). Likewise at NOTE VALUE **1** nothing is longer, so turning left does nothing.

		A	B	C	D
1	MUTE	NO RESTART	RESTART		
2	VARIATION	1	1/2	1/4	1/4T
3	VARIATION	1/8	1/8T	1/16	1/32
4	SCALE	MAJOR	MINOR	PENTA	DORIAN
5	LENGTH	1 BAR	2 BARS	4 BARS	

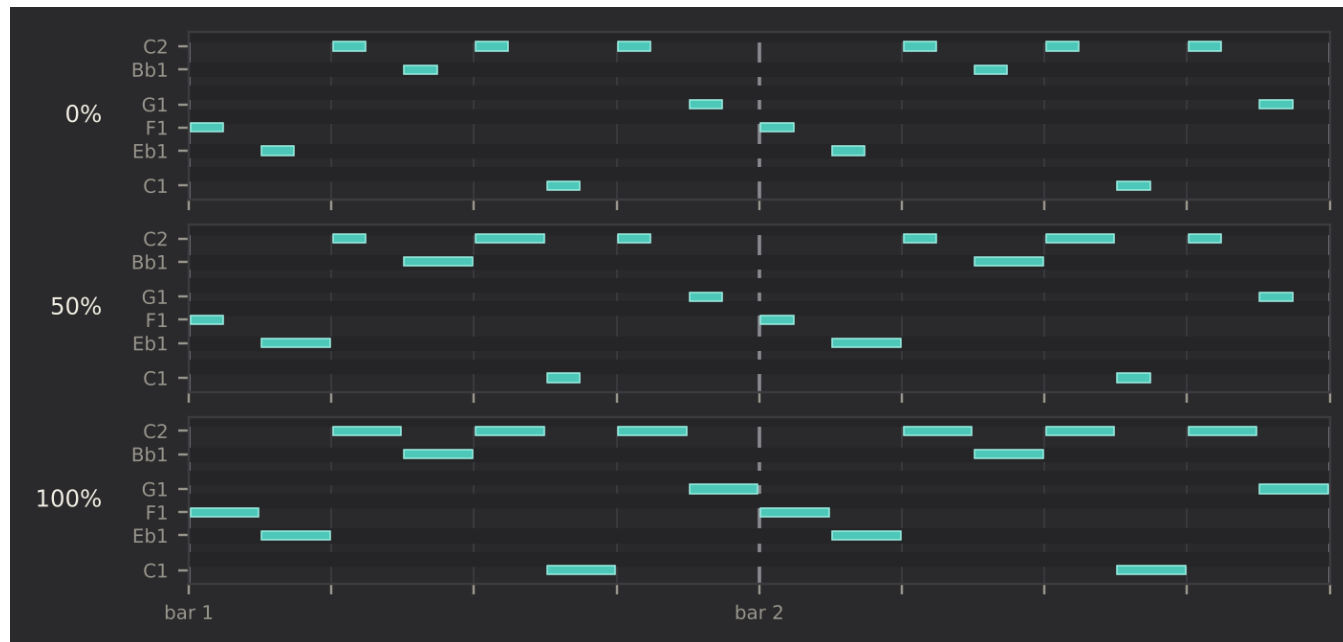
Rows 2–3 choose the values VARIATION may use. Here only 1/16 and 1/32 are on.

Good to know

- **One change shifts the rest of the bar.** The pattern is built step by step, so when one step gets longer, everything after it starts later. A small VARIATION setting can therefore rearrange the whole bar, which is part of what makes it musical rather than just a few odd notes.
- **Longer values eat the bar quickly.** Two or three long notes can fill a one-bar pattern, as in the middle row above. Use smaller amounts, or a longer LENGTH, when turning left.
- **A note that would run past the end of the pattern is cut off** at the loop point.
- **Triplets arrive in threes.** When VARIATION brings in a 1/8T or 1/4T on a straight grid, it plays a full group of three, so the rhythm always lands back on the beat.
- **Which longer or shorter value** it picks is random among the allowed ones, so switching cells on or off in the table changes the flavour of the variations.

LEGATO: how long notes are held

Each note is either **short** or **held**. A short note lasts for the GATE setting in the bottom-left corner (50% of its step by default), then stops. A held note keeps sounding until the next note starts. LEGATO is the chance that a note is held. You can think of it as a probability-driven decay: the higher it is, the more the line flows rather than plucks.



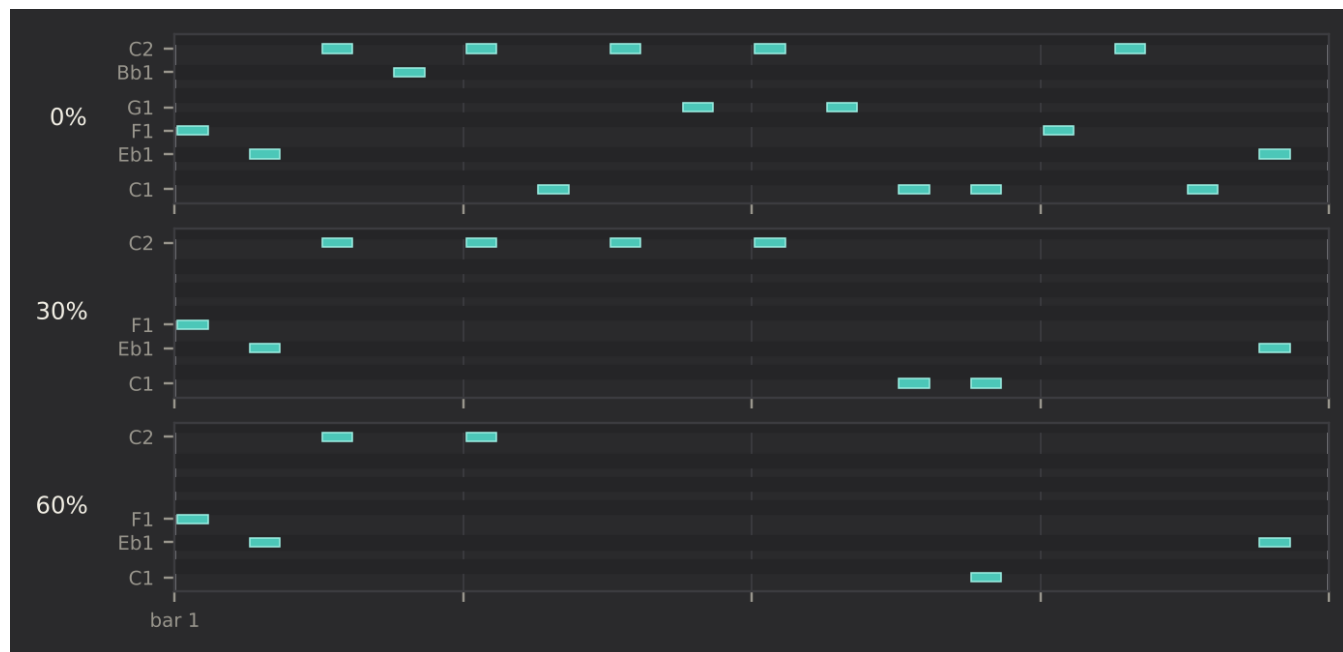
One 1/8 line at LEGATO 0%, 50% and 100%. The pitches and timing don't change, only how long each note lasts.

Good to know

- **Held into the same pitch = one long note.** If a held note is followed by the same pitch, the two merge into a single longer note with no re-trigger (a tie). At high LEGATO with only a few pitches allowed, this produces long sustained tones.
- **Notes never overlap.** Dicey is monophonic: a held note stops at the exact moment the next one starts. Synths that only glide when notes overlap will re-trigger rather than slide between different pitches.
- **A held note stops at a rest.** Holding means “until the next step”, so a rest still cuts it.
- **LEGATO and GATE work together.** GATE sets how short the short notes are. Turn GATE down to about 25% for plucky staccato, so the held ones stand out more.

REST: silence, by chance

REST is the chance that a step stays silent. The step still takes up its time; it just doesn't play. So REST never moves notes around. It only removes them, which is what makes it the easiest knob to play live.



A 1/16 line at REST 0%, 30% and 60%, using the same dice as the chart on page 2. Each row keeps only notes from the row above it.

Good to know

- **0% plays every step, 100% plays none.** Somewhere between 20% and 50% is where most grooves live.
- **Rests add syncopation.** On an even grid, knocking out a few on-beat steps immediately makes the line push and pull. Re-roll RHYTHM until the gaps fall somewhere you like.
- **Sweep it as a build.** Because higher settings only add rests, automating REST from 70% down to 0% over eight bars fills a pattern in note by note, and the reverse thins it out.
- **REST and LEGATO interact.** More rests means held notes get cut off more often, so a high-LEGATO pattern sounds choppy as you raise REST.

PUTTING IT TOGETHER

How a step is decided

For every step, from the start of the pattern to the end, Dicey answers these questions in order:

1	How long is it?	NOTE VALUE, possibly changed by VARIATION.
2	Is it a rest?	REST. If yes, the step is silent and that's it.
3	Is it held?	LEGATO. If not, it lasts for the GATE setting.
4	Which pitch?	The melody dice pick a note, weighted by the twelve faders, within RANGE.
5	How loud?	VELOCITY, spread by VEL RAND.

Quick reference

Knob	Decides	Random?	At minimum / centre	At maximum
NOTE VALUE	Length of each step	No	—	—
VARIATION	Whether a step uses another value	Yes, per step	Centre: off	Every step changes
LEGATO	Whether a note is held to the next	Yes, per note	All notes short (GATE)	Every note held; one continuous line
REST	Whether a step is silent	Yes, per step	Every step plays	Silence

Habits that help

- Bring in one knob at a time from the Straight Line preset. Each one is much easier to hear on its own.
- Press **LOCK** before a big move. The current pattern keeps playing while you set up the next one; release LOCK to switch on the beat you choose.
- Every knob can be automated in Live. Small automated sweeps of REST and VARIATION keep a loop alive for a whole track.
- When a roll sounds great, record the synth track. The notes land in a clip you can keep and edit.

PRESETS

Seven starting points

Each preset lists the four knobs plus anything else you need to change from a freshly loaded Dicey. All of them use the same melody so you can hear only the rhythm changing: set **ROOT** to C and click **PENTA** in row 4 of the table (C minor pentatonic), then set RANGE as listed.

Under each preset is the pattern the engine generated for it. The top strip shows the steps (hatched = rest); below is the piano roll in Live's note names. Remember your dice differ, so expect the same feel, not the same notes.

Straight Line



NOTE VALUE	1/16
VARIATION	Centre (off)
LEGATO	0%
REST	0%
Also	RANGE 1.00 → 2.00 oct



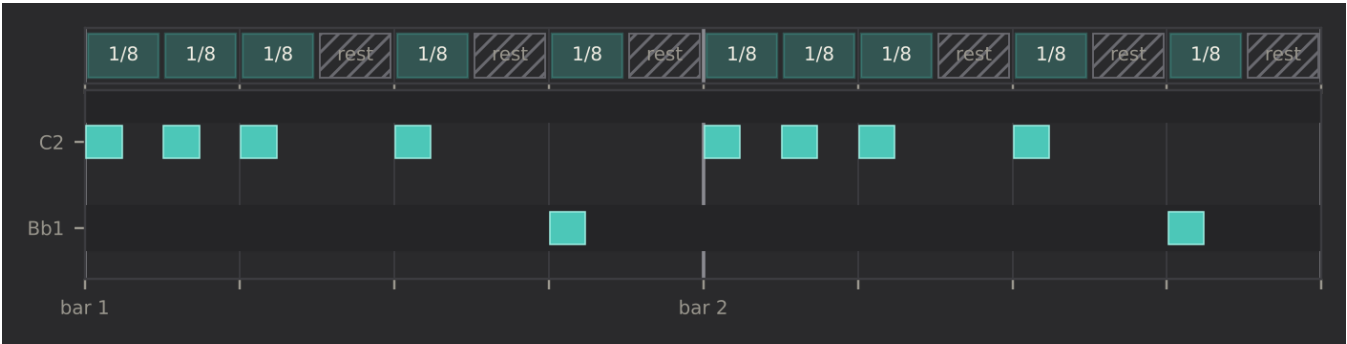
What you'll hear. An unbroken stream of sixteenth notes. Every step plays, every note is short and separate. The starting point for everything else.

Try. Use it to hear what the melody faders are doing on their own, then bring in one rhythm knob at a time.

Breathing Pulse



NOTE VALUE	1/8
VARIATION	Centre (off)
LEGATO	0%
REST	45%
Also	RANGE 1.00 → 2.00 oct



What you'll hear. Eighth notes with a few steps knocked out. Here the gaps fall on the offbeats, so a plain eighth-note line starts to push and pull.

Try. Roll RHYTHM dice until the gaps land somewhere you like, then leave it in dice mode so it repeats.

Acid Bass



NOTE VALUE	1/16
VARIATION	Centre (off)
LEGATO	40%
REST	30%
Also	RANGE 1.00 → 1.65 oct GATE 35%



What you'll hear. Sixteenths with gaps, short stabs and the odd note held into the next. Repeated pitches that are held merge into one longer note. Feed it to a mono bass synth.

Try. Set GATE to about 35% so the short notes snap. Put the melody in realtime (hold MELODY) and keep the rhythm frozen for a groove that keeps changing pitch.

Slow Melody



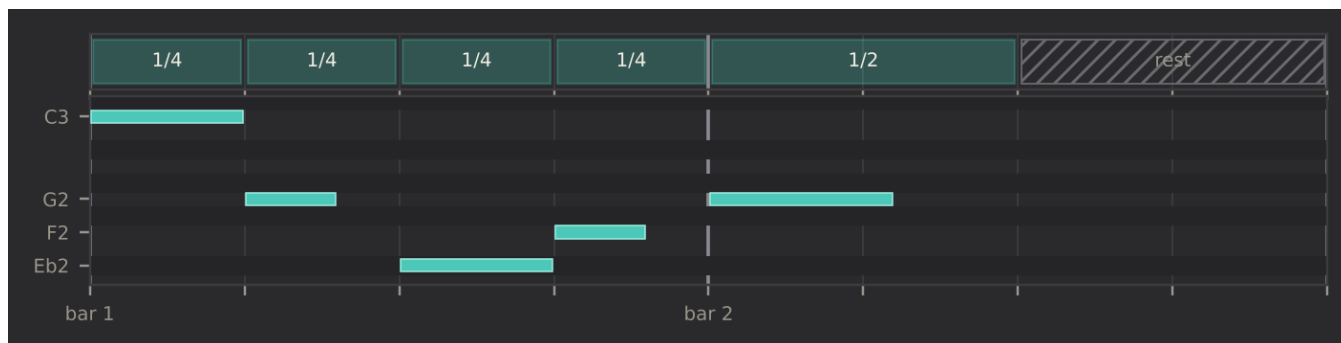
NOTE VALUE 1/4

VARIATION 50% longer

LEGATO 50%

REST 20%

Also RANGE 2.00 → 3.00 oct
LENGTH 2 bars
GATE 60%



What you'll hear. Quarter notes that often stretch into halves and wholes, with about half of them held into the next. It plays like a sung phrase over two bars.

Try. Push the G fader higher so phrases keep settling on the fifth, or widen RANGE for bigger leaps.

Drone Pad



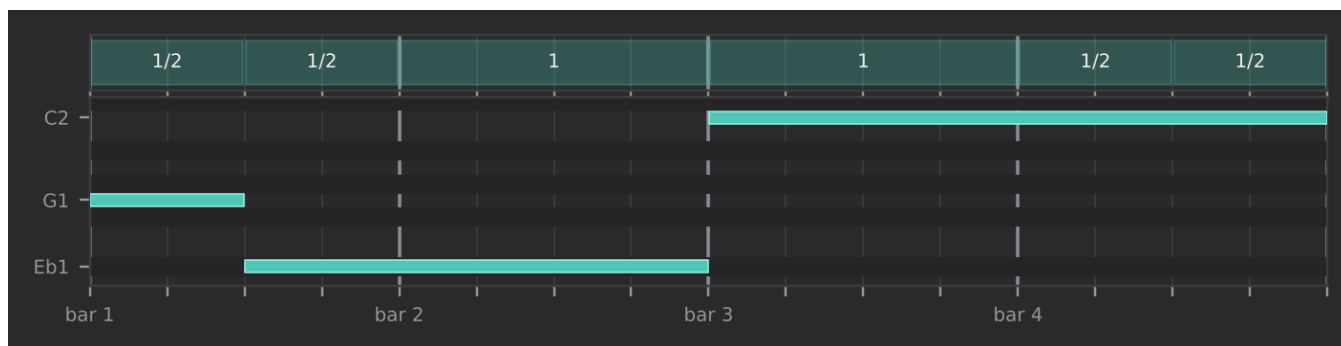
NOTE VALUE 1/2

VARIATION 40% longer

LEGATO 100%

REST 0%

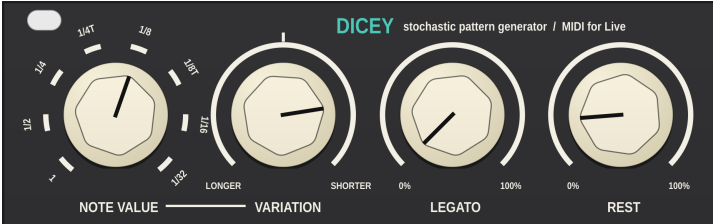
Also RANGE 1.00 → 2.00 oct
LENGTH 4 bars



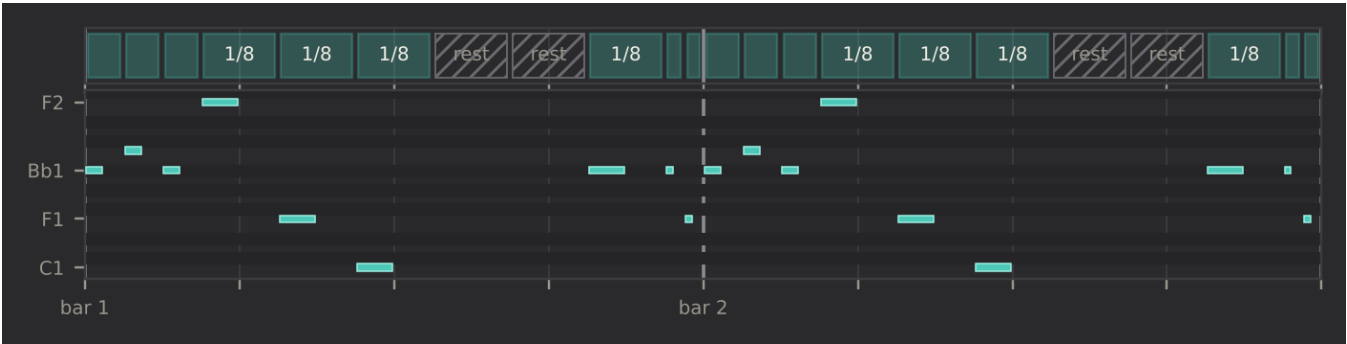
What you'll hear. Half notes, some stretched to whole notes, all fully legato. One sustained tone slowly changes pitch across four bars. Repeats merge into very long notes.

Try. Put a pad or string patch on it with long attack and release. Try a little REST for breaths of silence.

Glitch Fills



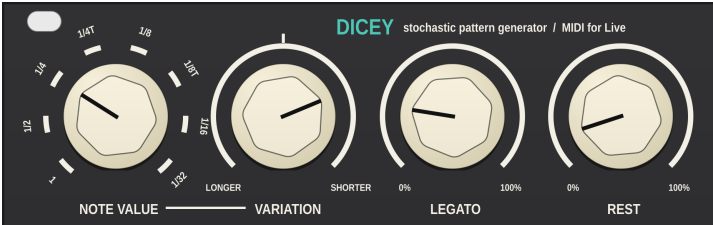
NOTE VALUE	1/8
VARIATION	60% shorter
LEGATO	0%
REST	15%
Also	RANGE 1.00 → 2.50 oct Table rows 2–3: only 1/16 and 1/32 on



What you'll hear. An eighth-note line that keeps breaking into 1/16 and 1/32 bursts, like a ratchet or drum fill. It needs the 1/32 cell turned on in the table.

Try. Works on percussion too: send it to a Drum Rack with a narrow RANGE so it only hits a few pads.

Triplet Roll



NOTE VALUE	1/4
VARIATION	50% shorter
LEGATO	20%
REST	10%
Also	RANGE 1.00 → 2.00 oct Table rows 2–3: only 1/8T on



What you'll hear. A quarter-note line broken up by groups of three 1/8T notes. Each group fills exactly one beat, so the line always lands back on the grid.

Try. Allow only 1/8T in the table (row 3, column B) so triplets are the only thing VARIATION can bring in.