The Blue Axis

How the jammer plays the blue notes.

1. What the blue notes are

The blues is a pentatonic La-mode whose third, fifth and seventh are optionally bent. On a jammer, the instrument of the MeloPresto™ Music System, the bent notes are three chromatic notes: **Me** (the m3 above Do), **Te** (the m7 above Do), and **Fi** (the note between the fourth and the fifth above Do). Using chromatic notes for the bends gives the player the option of playing some of those intervals bent (a bent foreground) and some not bent (a stable background). They are three notes that bend, not a separate "blues scale": the six-note "blues scale" of jazz teaching is a pedagogical pseudo-scale (*How MeloPresto Smartens-up the Teaching of Scales*, section 8).

A blue note is not one fixed pitch. Players bend into it, and it lands in different places at different moments. The researchers who studied early blues recordings never agreed on where the blue notes sit. Kubik heard the blue seventh as the seventh harmonic. Cutting measured pitch clusters near simple whole-number ratios. Pfleiderer and van der Merwe found the blue third near a *neutral* third, halfway between major and minor. Each was measuring something real. The blue note is a small range of pitch, not a single point.

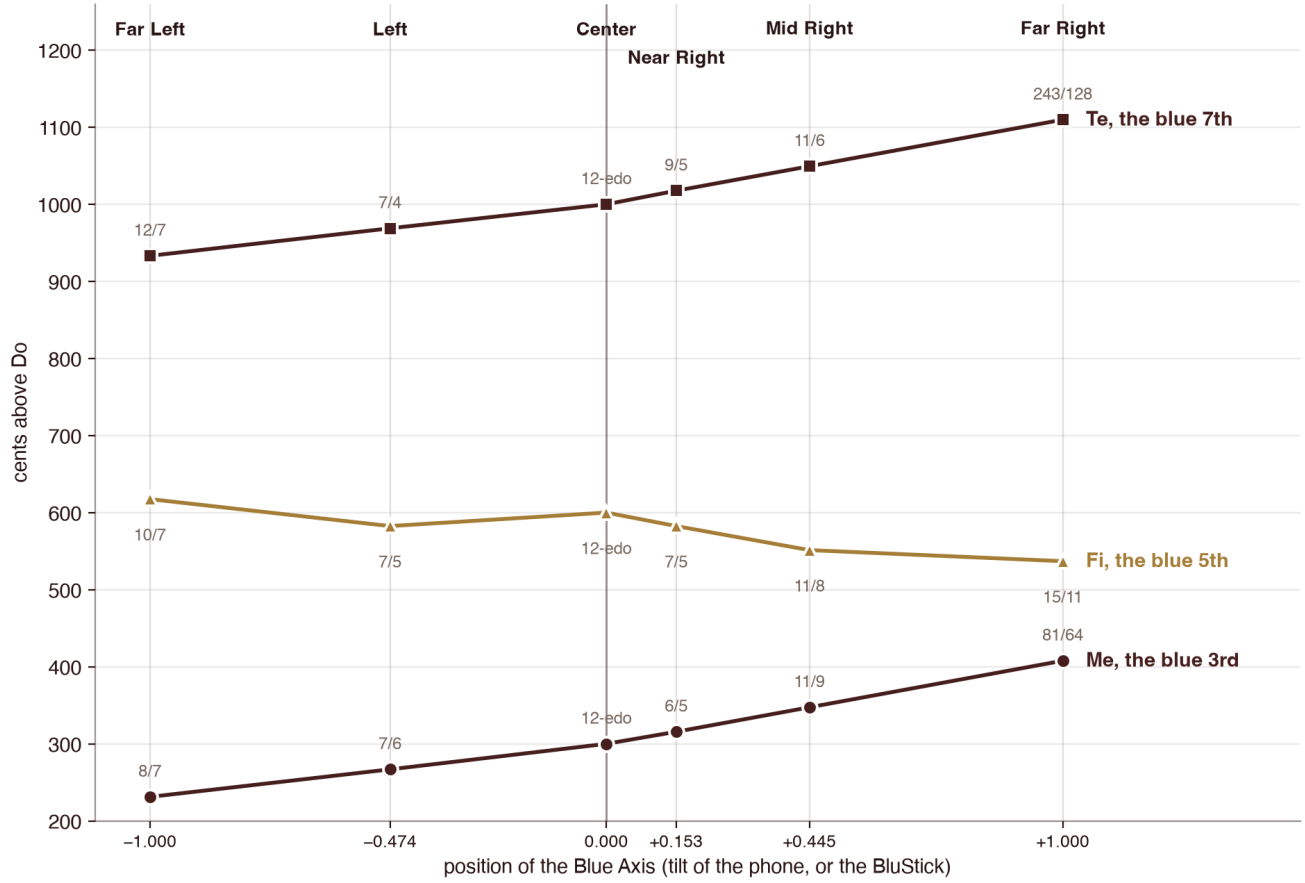
2. The Blue Axis

The jammer plays that whole range with one control. On a phone you tilt the device; on a dedicated jammer you move a thumb-stick, the **BluStick**. Either way the same gesture bends all three blue notes together. That gesture is the **Blue Axis**.

At rest the three blue notes are in plain 12-edo (the tuning that divides the octave into 12 equal steps) — the tuning of a piano — so a learner and a backing band agree from the start: Me = 300 cents, Fi = 600, Te = 1000. Tilting the phone (or pushing the stick) bends each note toward the pitches the researchers measured. The table lists where each note lands at each position of the axis; Figure 1 plots the same numbers.

blue note	Far Left (−1.000)	Left (−0.474)	Center (0.000)	Near Right (+0.153)	Mid Right (+0.445)	Far Right (+1.000)
Me — blue 3rd	231.17 · 8/7	266.87 · 7/6	300.00 · 12-edo	315.64 · 6/5	347.41 · 11/9	407.82 · 81/64
Te — blue 7th	933.13 · 12/7	968.83 · 7/4	1000.00 · 12-edo	1017.60 · 9/5	1049.36 · 11/6	1109.78 · 243/128
Fi — blue 5th	617.49 · 10/7	582.51 · 7/5	600.00 · 12-edo	582.51 · 7/5	551.32 · 11/8	536.95 · 15/11

Cents · just ratio at each position. Center is 12-edo. The named positions are where the researchers landed: Left is Kubik's reading of the third and seventh, Near Right is Cutting's, Mid Right is Pfleiderer and van der Merwe's. The far ends are expressive extremes; only Fi's far right lies near a measured value, Cutting's 534 cents — and at the far right the flat third and seventh bend so high they pass above their plain major-scale versions, so out there they are colour rather than literally lowered notes.



Two things about the motion are worth stating. First, the blue third (Me) and the blue seventh (Te) stay a fifth apart the whole way; they move as a pair. In the twelve-bar blues they are the flat sevenths of the two main chords — the tonic and the subdominant — which are themselves a fifth apart. Kubik hears the third rise toward 386 cents over the tonic chord while the seventh stays near 969, so over that chord a player moves the Blue Axis between the two notes. Second, the blue fifth (Fi) moves on its own, and reaches the same pitch (7/5) at two different tilt positions. It is the one blue note that behaves independently.

3. You do not have to choose

Because one control moves all three notes at once, the player never has to decide which blue note is the "right" one. Hold the chord, move the axis, and the note passes through every pitch the researchers argued over. A hundred-year-old disagreement — is the blue seventh this ratio or that one? — turns from a question anyone must settle into a range the player can move through. Spanning that whole disputed range from one control is what the jammer adds to the blues. Whether a player actually feels it that way — whether tilting the phone reads as playing through the note rather than adjusting a setting — is still to be tested (§7).

4. The blues is not alone

Many musical cultures split their notes into a stable background and a mobile foreground. A drone or a fixed scale gives the ear its bearings; against it, certain notes are meant to move — bent, slid, shaded — and their exact pitch at any instant is expression, not error. Hindustani and Carnatic music set mobile swaras against a drone; maqam and dastgah traditions shade particular degrees by modal context; flamenco's cante bends over the guitar's fixed anchors; Byzantine chant moves its ornamented degrees

over a held ison. The blues is one member of this family: Do, Fa, So and the rest of the scale stay put while Me, Te, and Fi roam.

The Blue Axis is therefore one culture's instance of a general control: declare which notes are foregrounded, and give the player one gesture that moves them along that culture's own paths. On a jammer this generalizes as part of a culture pack — the bundle of sounds, staff lines, lessons, and mobile-note declarations appropriate to a tradition. Each pack names its stable background, its mobile foreground, and the motion its music expects; the blues pack declares Me, Te, and Fi, moving on the curves of Figure 1.

5. How it ships

On a phone — first, and for years. The first jammers are phone apps. Most of the world already owns a phone and few own a dedicated instrument, so this is where the jammer will live for the foreseeable future. The three blue notes are Me, Te, and Fi because those are the notes the blues adds — the flat third, the flat seventh, and the blue fifth. It also happens that they are the three that fit a small screen: a four-inch phone has room for only about eleven notes (Figure 2), and the sharper alternatives fall off it. At rest they are 12-edo; the player bends them by tilting the phone.

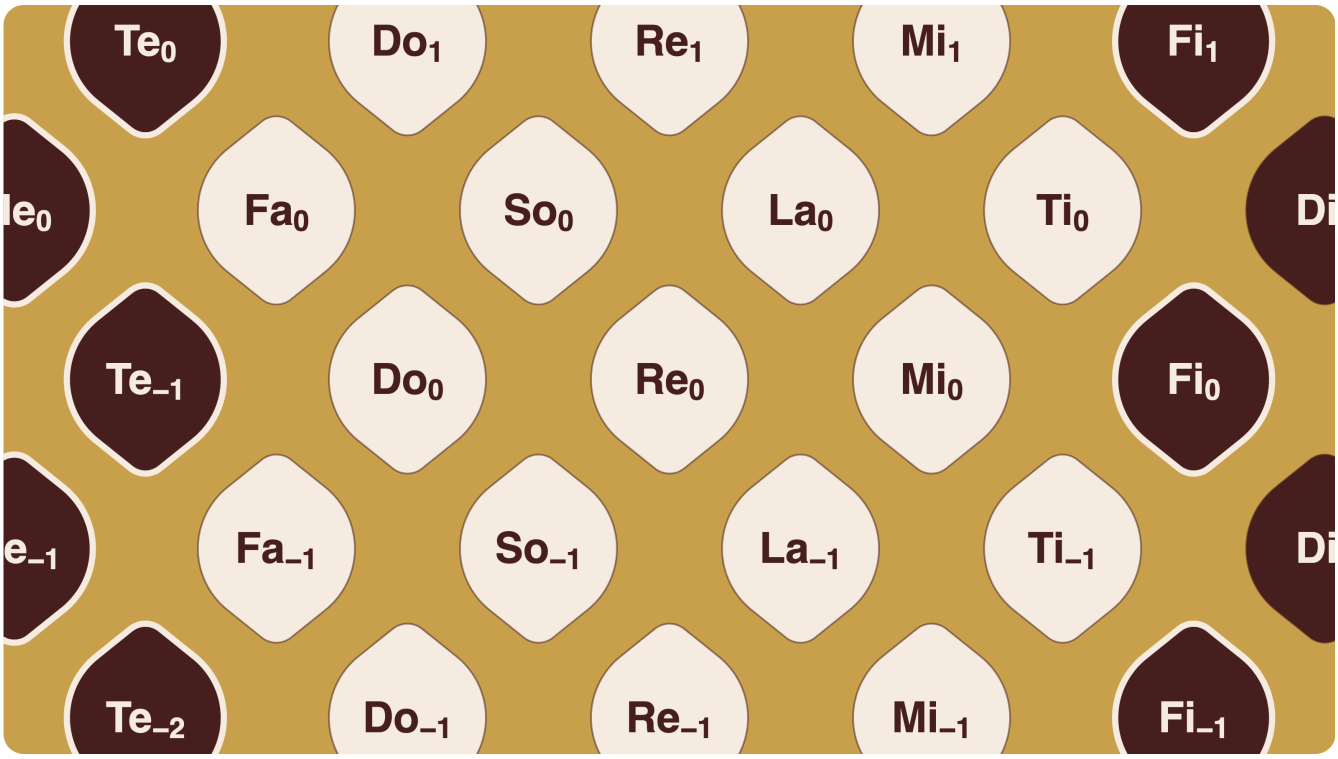


Figure 2: the button-field on the minimum phone (a four-inch screen), drawn at the standard fingertip width. The three blue-note buttons are ringed. Te and Fi sit next to the White Notes; Me is one step out, cut by the edge of the screen; the sharper alternatives fall off the small screen entirely.

On a dedicated jammer — later. A purpose-built jammer replaces the tilt with a physical thumb-stick, the BluStick, and gives the player a larger button-field. Nothing else changes: the same 12-edo, the same three notes, Me, Te, and Fi.

6. Naming the chords

Blue chords name their blue notes **Me**, **Te**, and **Fi** — the three notes that exist on every jammer. The blues tonic is Do-Mi-So with Te added; the subdominant is Fa-La-Do with Me; the dominant is left plain. The names a player reads are always the notes the instrument can actually play.

One overlap with the fuller chord-naming rules is worth heading off. "Me, Te, Fi" is the list of three blue *notes* — it is not a ban on the syllable **Ri**. When the blue third is stacked on top of a chord that already holds the ordinary major third — the gritty C7♯9, the "Hendrix" tonic — the chord-naming rules spell that blue third **Ri** (a sharp ninth), because one chord name cannot carry both the major third and the flat third as "thirds." In the 12-edo the jammer ships in, Ri is the very same pitch as Me; it is a spelling used inside that one chord, not a fourth blue note. So the blue notes stay Me, Te, and Fi, and the Hendrix chord keeps its name.

7. Open questions

- **Where do real players put the note?** No working blues musician has had this instrument. Give one to a player, log where the tilt rests over a month, and we would learn where the blue notes really sit — from someone who plays them rather than from old recordings.
- **Does tilt-control work?** Bending three notes by tilting a phone is untried at any scale. It has to feel like an instrument, not a gimmick — a thing to test, not to assume.
- **What do other cultures' axes look like?** Carnatic gamaka, maqam shading, and flamenco cante each foreground different notes with different motions. Which notes a culture foregrounds, and how its mobile notes should be represented across a Blue-Axis-style control, is a question each culture pack must answer — with that culture's musicians, not on their behalf.
- **Does it teach the ear, or replace it?** If a learner can find the blue notes only with the tool, the tool is a crutch. The test is simple: teach with it, take it away, and see whether the note stays.

Sources

The four readings named above are not four interchangeable measurements; the researchers reached the blue notes by different methods, which is part of why they disagree.

- **Gerhard Kubik**, *Africa and the Blues* (Jackson: University Press of Mississippi, 1999). Derives the blues from the harmonic series sounded over the I and IV chords, rather than from measured recordings: the blue seventh is the seventh harmonic (about 969 cents), the blue fifth the eleventh (about 551 cents). This is the paper's **Left** landmark — the septimal blue seventh, 7/4.
- **Gerhard Kubik**, "Bourdon, Blue Notes, and Pentatonicism in the Blues: An Africanist Perspective," in *Ramblin' on My Mind: New Perspectives on the Blues*, ed. David Evans (Urbana: University of Illinois Press, 2008), 11–48. Sets the model out in detail: a pentatonic scale from the sixth to eighth harmonics over two fundamentals a fifth apart; the blue third as one area of pitch, from 267 to 386 cents; the blue seventh near 969 cents; and the third blue note, which he says is no kind of fifth, near 551 cents or, following Evans, near 534.
- **Court B. Cutting**, "Microtonal Analysis of 'Blue Notes' and the Blues Scale," *Empirical Musicology Review* 13, no. 1–2 (2018). Measured the sung pitches on early blues recordings and found them clustering near simple whole-number ratios — the blue third near 6/5, the blue fifth near 7/5. This is the paper's **Near Right** landmark.
- **Martin Pfleiderer**, "Commentary on Cutting's 'Microtonal Analysis of Blue Notes and the Blues Scale,'" *Empirical Musicology Review* 13, no. 1–2 (2018). Re-reads Cutting's broadest blue-third cluster as a *neutral* third — a mean near 352 cents, halfway between major and minor. With van der Merwe, this is the paper's **Mid Right** landmark.
- **Peter van der Merwe**, *Origins of the Popular Style: The Antecedents of Twentieth-Century Popular Music* (Oxford: Clarendon Press, 1989). Traces the blue third historically to a neutral third between major and minor — the same reading Pfleiderer reaches from Cutting's numbers.