VIDEO GAME MUSIC ANALYSIS

- For Educational Use Only -

A Thousand Leagues Below

from Shovel Knight

Composed by Manami Matsumae
Transcription/Analysis by Seventh Sam
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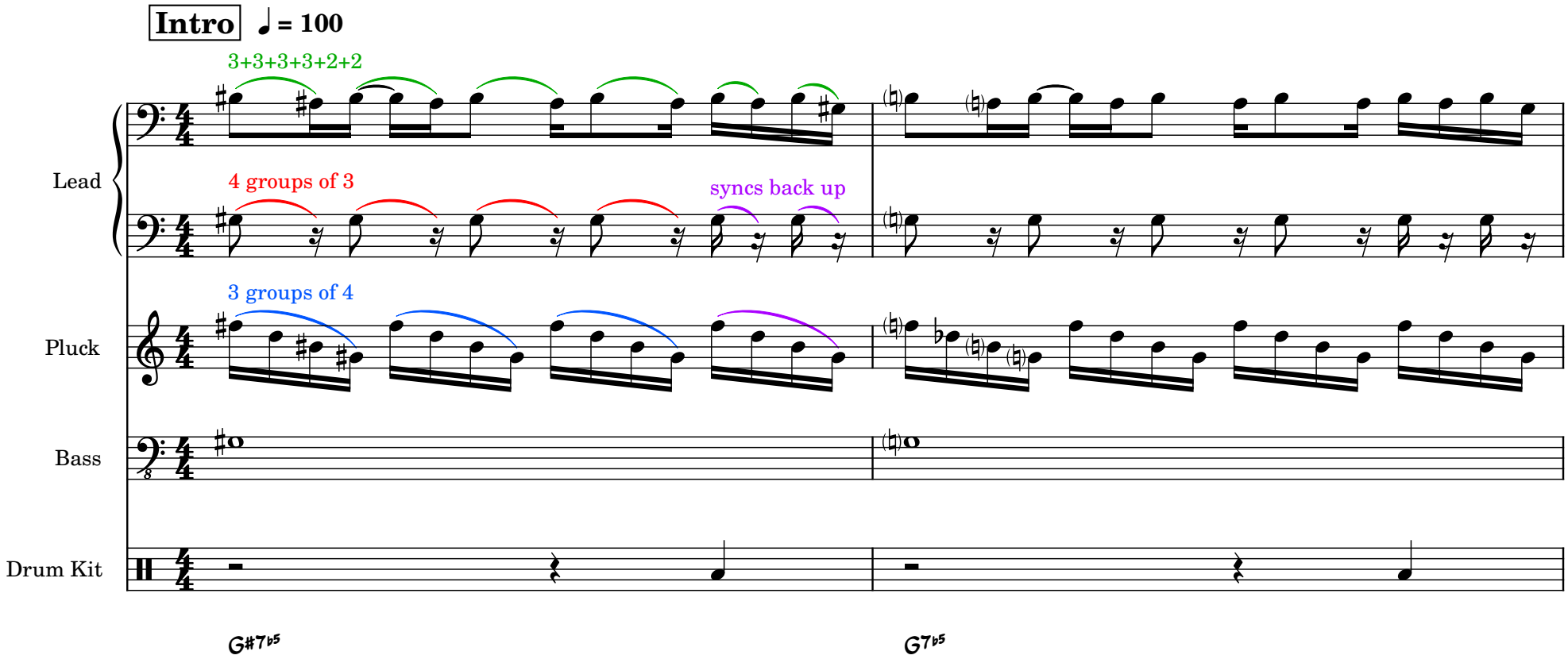
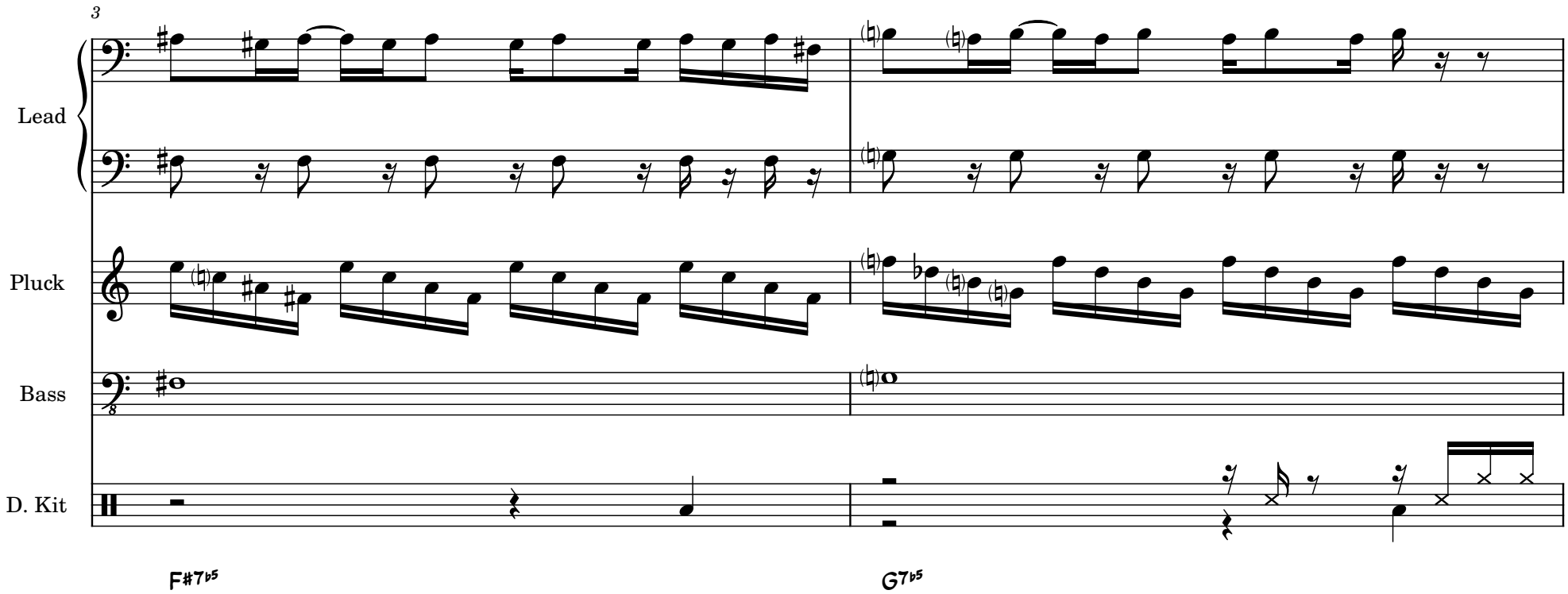


About the rhythm:

The first three beats of each measure are *polyrhythmic* (4 groups/beats against 3 groups/beats). The melody is also asymmetrically subdivided into groups of 3+3+3+3+2+2. All sorts of latin, afro-cuban, and carribean inspired rhythmic devices are used to create a high amount of syncopated, rhythmic complexity.

Why? Not only does it sound fun and energizing, but it introduces an incredible amount of *rhythmic tension* that never *quite* gets resolved. When rhythms don't quite line up, we subconsciously want to keep listening until they *do*. (This is what makes syncopation so effective).

This constant tension is one very effective way to keep looping, platformer-style music continually interesting during gameplay.

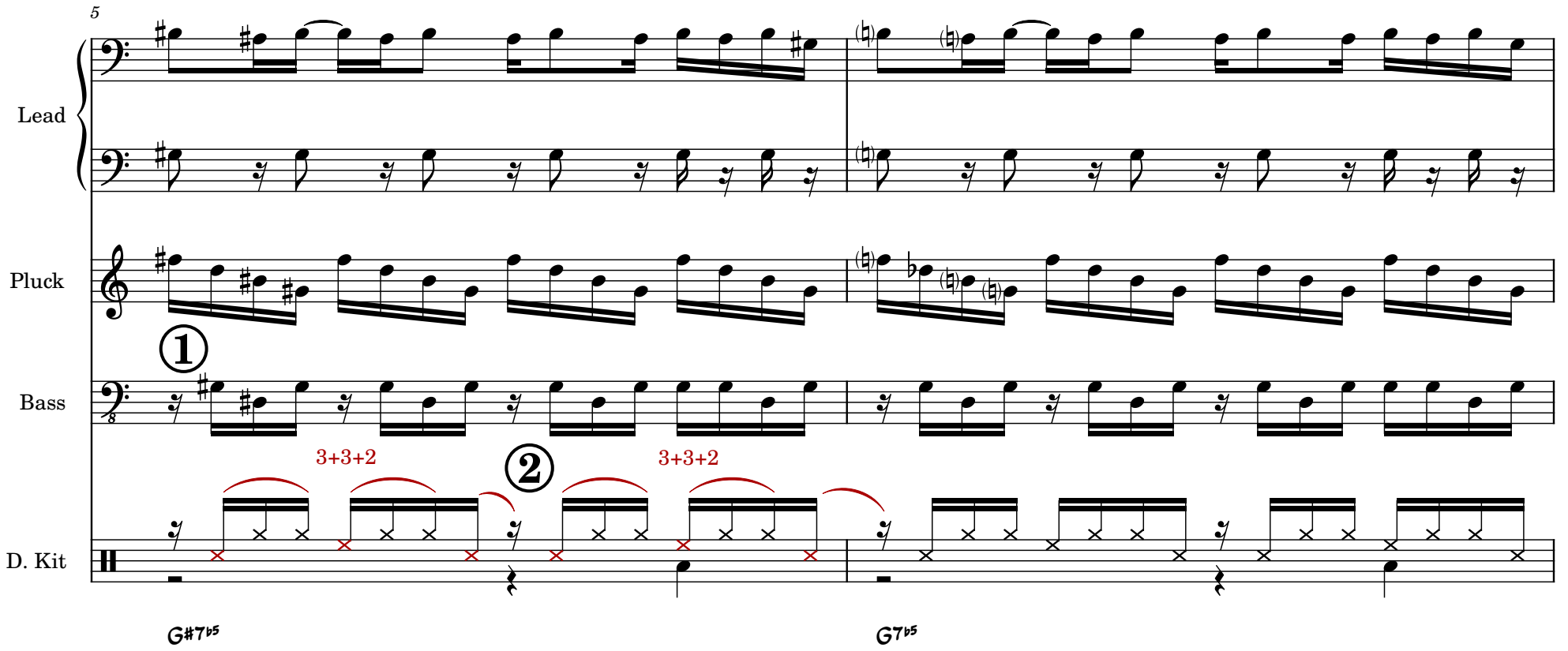


About the harmony:

These dominant 7th flat 5 chords don't actually serve any kind of dominant function (as you can probably tell from listening). These chord symbols are here for reference only. In actuality, the harmony in this section is based on measure-by-measure chromatic steps between the two whole-tone scales.

7b5 chords fall into those scales (as do many other altered chords). The precise label or chords implied in this section aren't as important as the *feeling* the wholetone-derived harmony gives:

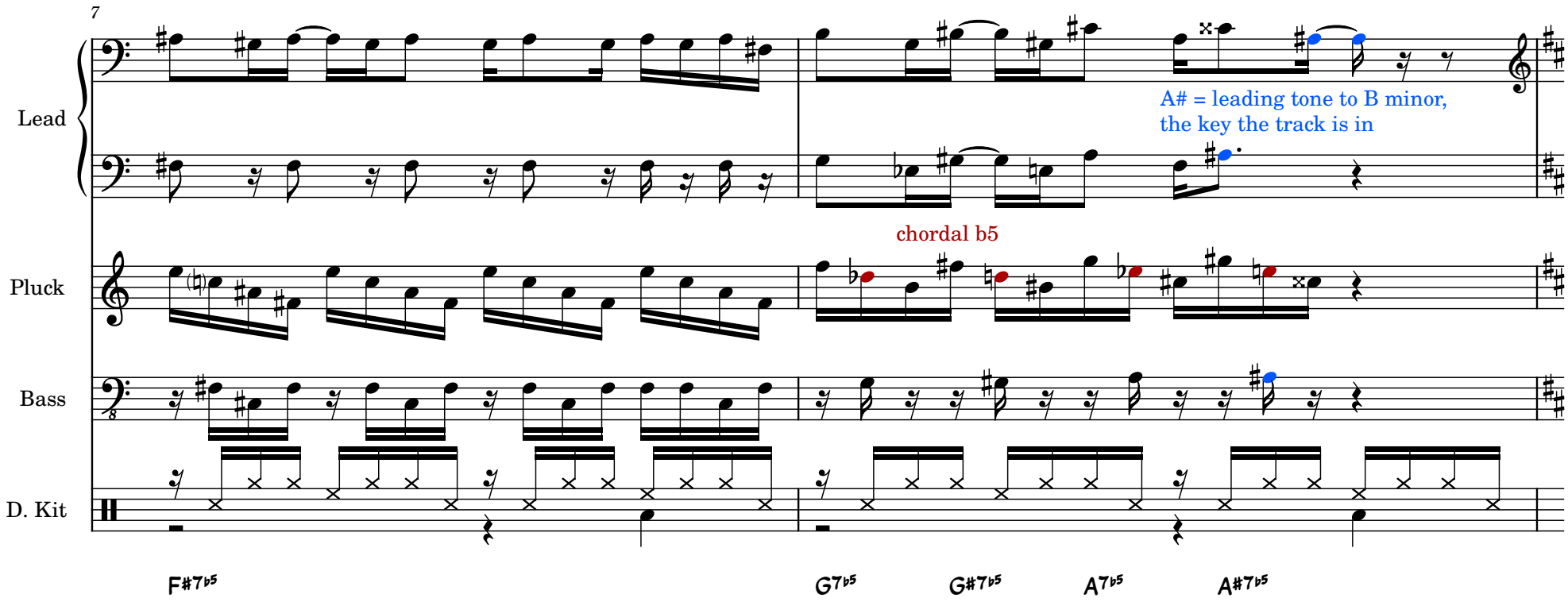
- They're harmonically ambiguous, slightly mysterious, and never quite *settle*...kind of like being deep underwater in a murky, expansive ocean.
- The strict chromatic movement creates a "floating" effect in the mind of the listener. This is doubly effective as it matches the gameplay: during this underwater level, the player character is subject to underwater physics.
- The chordal arpeggios are *descending*, subtly illustrative of a "sinking" or "downwards" motion. Furthermore, the specific timbre chosen (this is in the *style* of retro games, but is a modern game itself, so there weren't any strict technical limitations) sounds to me very much like beeps on a sonar. That's probably reading too much into things, but what fun is musical analysis if you don't pick *every single thing* apart? :-)

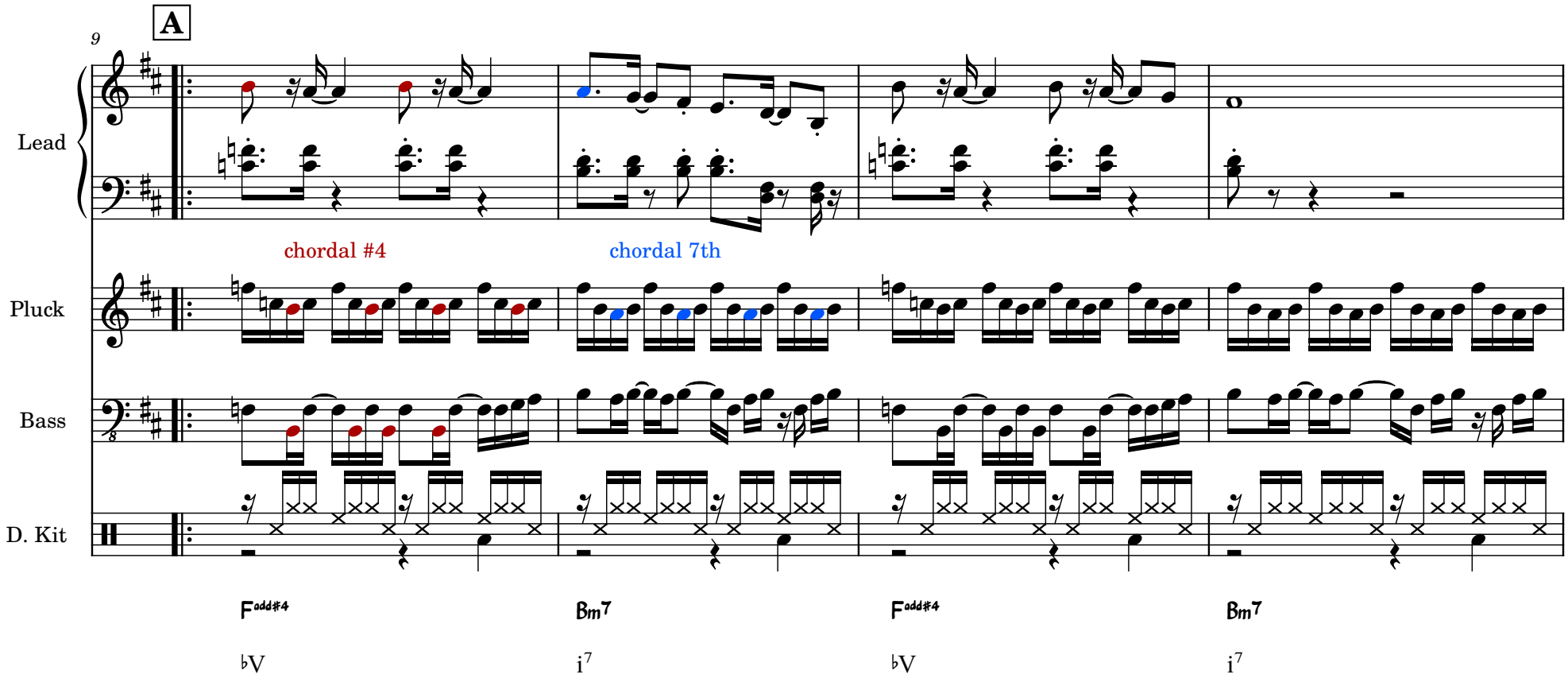


(1) - The bass voice is:

a) Extraordinarily low in pitch. Such a low pitch is very evocative of "the deep", as in the depths of the ocean. This is appropriate, since this music is the background to an underwater level.
b) Very round and hollow in timbre (close to a sine wave). This reminds me of how things sound different while underwater: the treble frequencies get dampened and everything starts to sound muffled. To my ears, this same effect is achieved with the bass' sound. A great technique to remember, regardless of genre or instrumentation!

(2) - If you're wondering why I have slurs on drum notation, it's so that I can illustrate the offset subdivisions the hat pattern implies. A good chunk of the rhythmic material in this track is grouped into the 3+3+2 subdivision (called the *calypso rhythm* or *half-clave*). What better way to introduce rhythmic tension than by taking that rhythm and offsetting it by a single sixteenth note in the percussion section? You only have to listen to how this perpetually destabilizes the track, never letting any of the elements fully sync up. As mentioned before, this creates an ongoing, subconscious desire in the listener's mind to keephearing the music until it resolves; this, in turn, serves the purpose of an endlessly looping platformer track perfectly!


7
Lead
Pluck
Bass
D. Kit
A# = leading tone to B minor,
the key the track is in
chordal b5
F#7b5
G7b5
G#7b5
A7b5
A#7b5

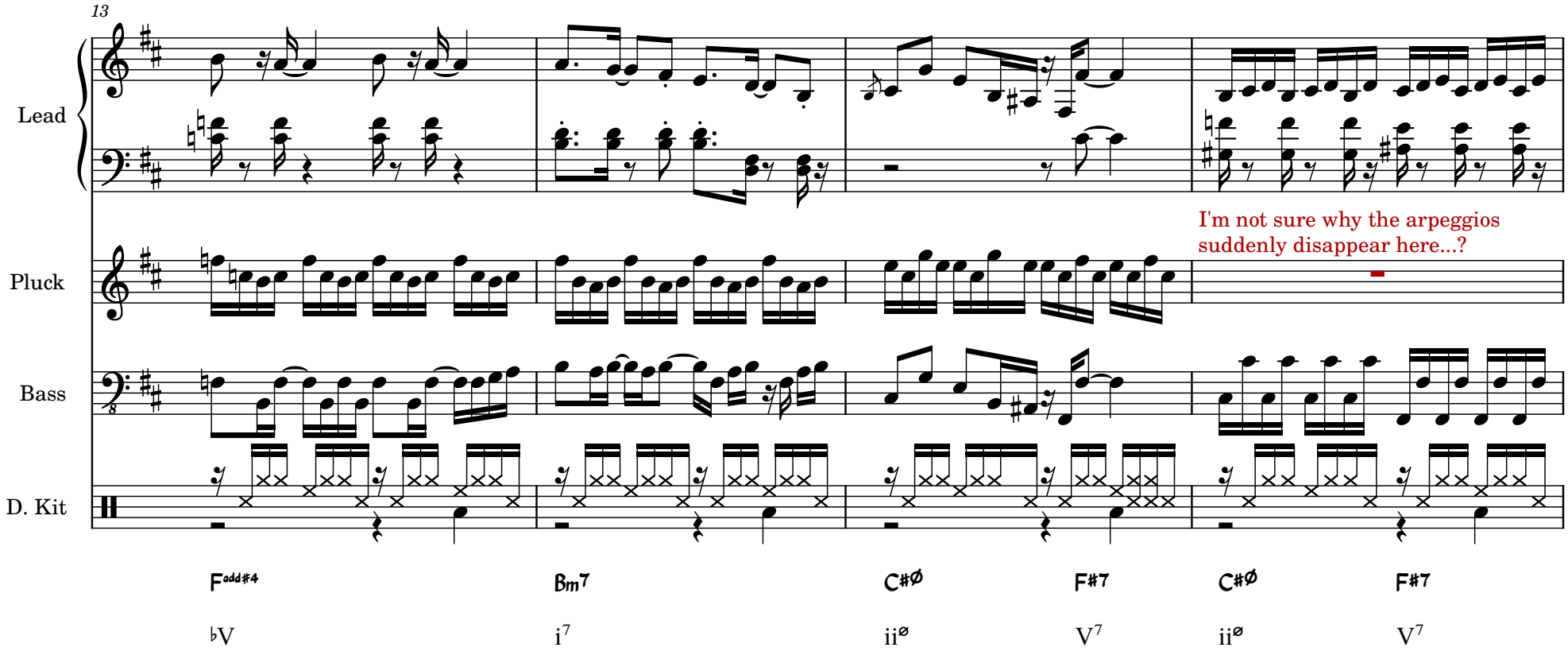


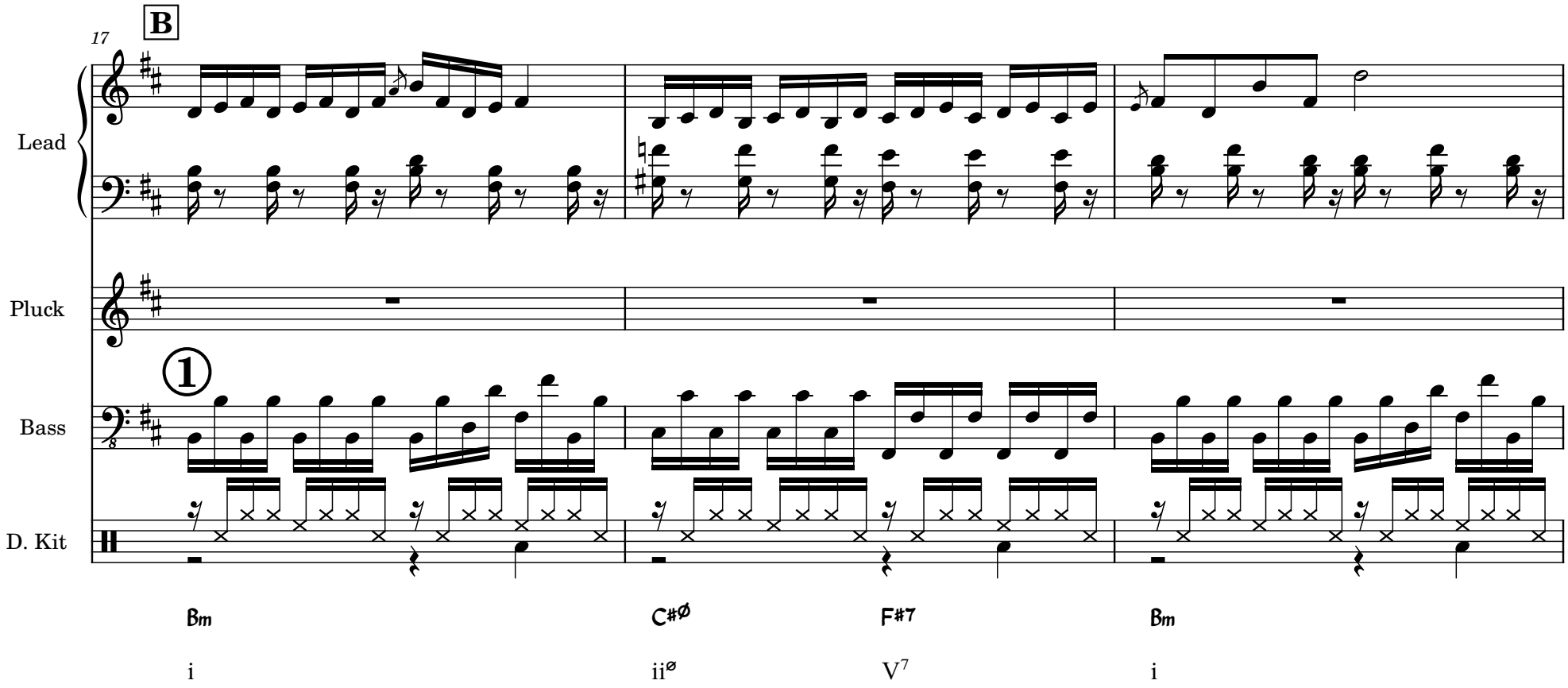
I *love* the harmony in this section. Here's why:

- The mood created by a i-bV vamp (oscillation between two chords) is *very* compelling to me. It sounds like a cross between wonder and trepidation, very much like we're exploring the mysteries of the deep. However, Matsumae spices things up with a #4 lydian-esque sound in the bV chord and a m7 in the tonic chord, which makes the overall color more nuanced and modern. Words only go so far describing things like mood, feel, and "aural coloration", so suffice it to say that I love the ambience this harmony creates.

- It facilitates the ostinatos in the "Pluck" section; these kinds of patterns (P4/P5leap followed by a minor or m2) have such a sparkly, enchanting sound that I think really help transport a listener to another world. The voice leading is great, with the pattern "expanding" and "contracting" throughout the vamp.

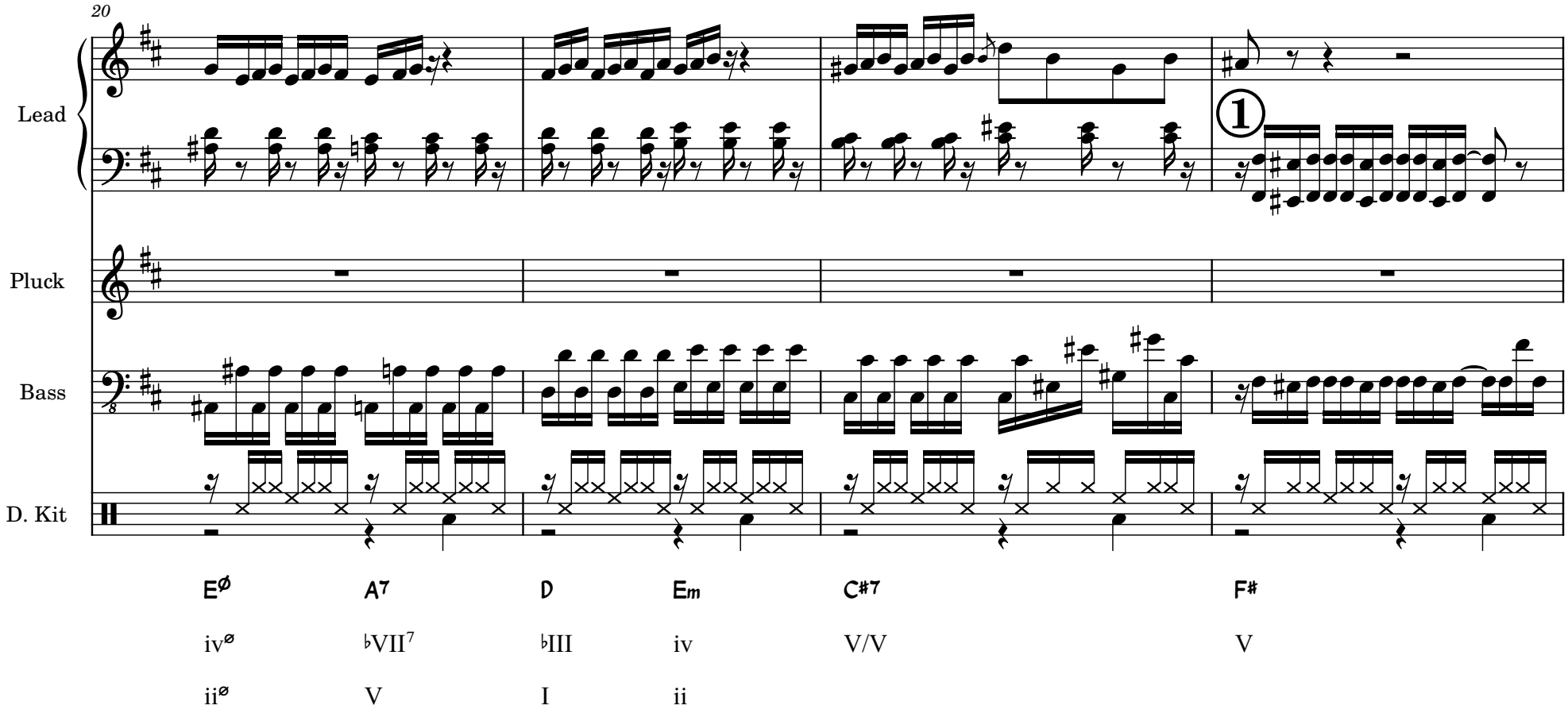
- The rumbling, almost "bubbly" bass line oscillating between a tritone in the bV measures and a M2 in the tonic chord measures is such a non-traditional, creative usage of the bassline; it's the icing on the whole "thinking outside of the box" cake for me.


13
Lead
Pluck
Bass
D. Kit
I'm not sure why the arpeggios suddenly disappear here...?
Fadd#4
Bm7
C#ø
F#7
C#ø
F#7
♭V
i7
iiø
V7
iiø
V7



(1) - Shovel Knight's OST does not restrict itself to the limitations of the old hardware its retro-themed sound is attempting to emulate. Even so, Matsumae uses several techniques in this track that were common in the 8-bit era of game composing.

One such technique is used here: broken octaves in the bass. At a tempo like this, it gives the listener the impression of *two* voices in the bass where there's really only one. Furthermore, Matsumae places the higher pitch of the octave (the one that's heard more prominently) on the *upbeat*, "off-setting" the rhythm and driving the track forward with insistent syncopation.

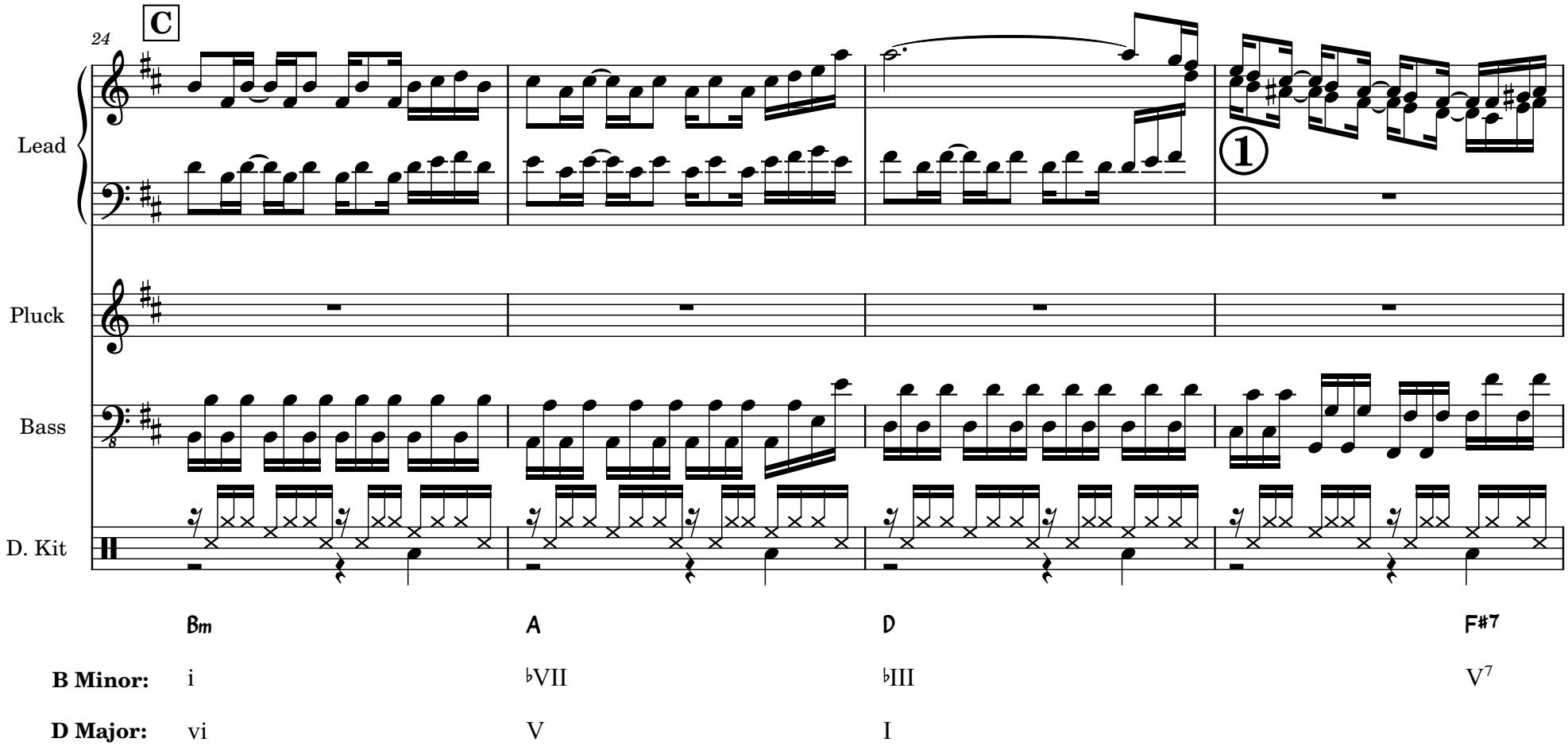


(1) - Another common 8-bit composing technique is used here:

By suddenly shifting the voices down in pitch during this measure and doubling the top voice at an octave *below*, the same waveform takes on a different, grittier timbre without actually changing what the waveform is or the timbre itself. The effect is that of a "different ensemble" popping in with a quick phrase.

The reason this works has mainly to do with the perception of contrast. The listener doesn't have time to adjust to the sudden change in pitch, so - at a tempo like this - it briefly sounds like a different group of instruments is playing the measure.

B Minor:
D Major:

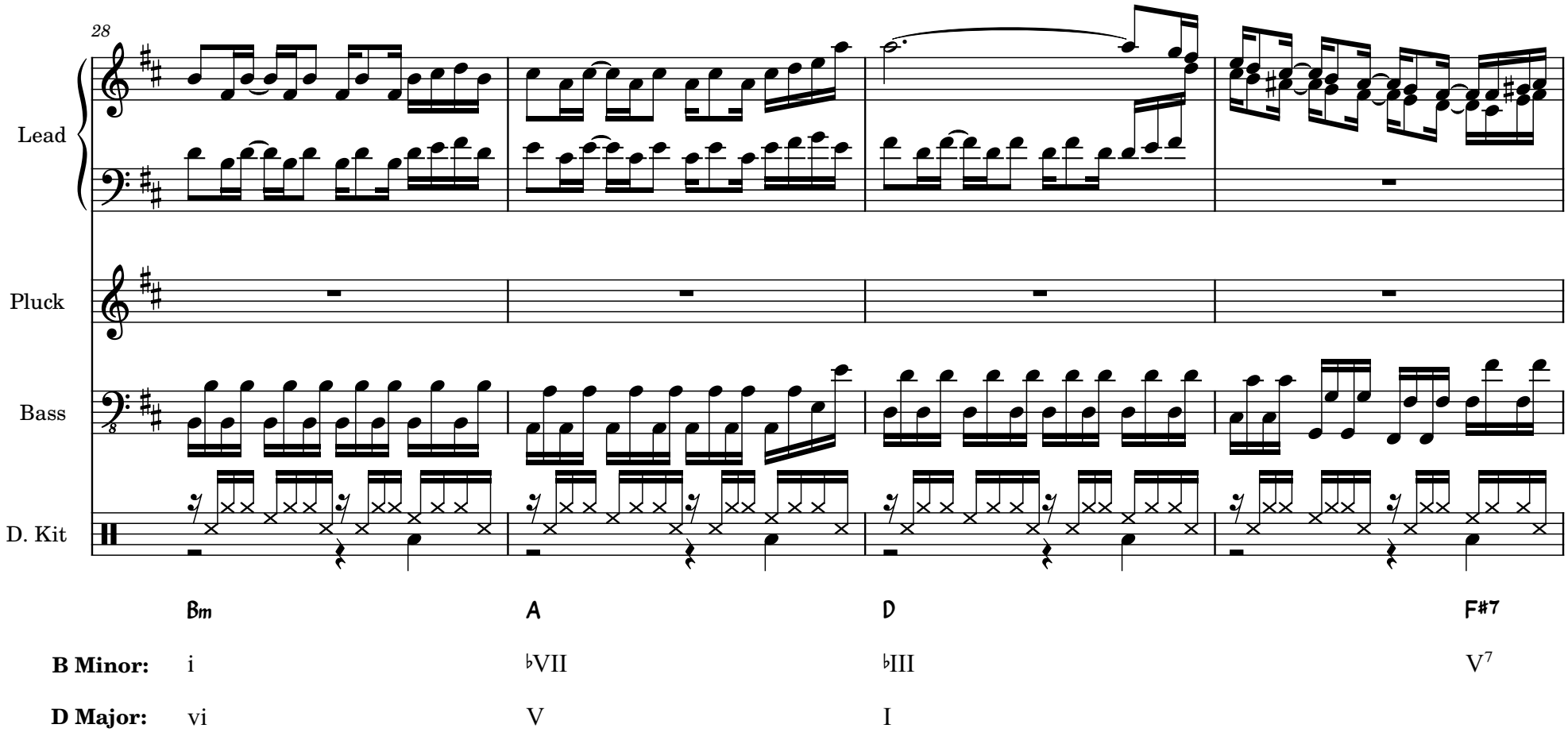


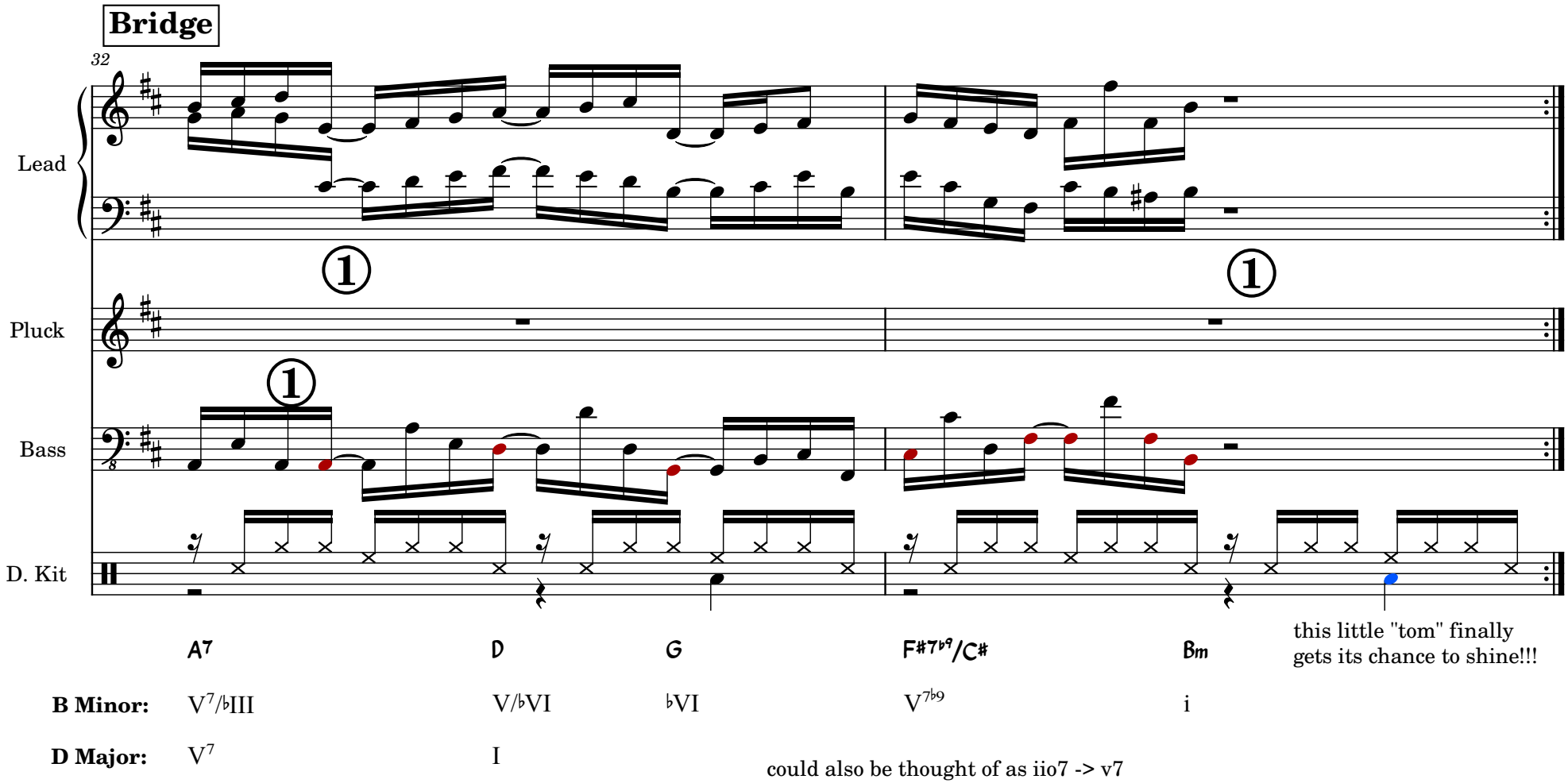
Where are the rest of the chord symbols in mm. 27?

Two things to note about this measure:
a) Almost the entirety of the melody is syncopated.
b) The melody consists of descending thirds in the B Harmonic Minor scale.

The result of this melody against the bass line is a rapid-fire flurry of suspensions and implied chords that are *incidental* to the *horizontal* motion of the music. One *could* go beat by beat and plot out every single chord change and inversion, but it won't tell you anything useful as far as chord function is concerned. What's important here is that the scale *lands* on the notes needed to imply the dominant chord at the end of the measure, which launches the listener very decisively and dramatically into the next part of the music.

What's also important is that the melody is in the descending *harmonic* minor scale. Why? ***Why not?*** It gives the measure a sharp, dramatic flourish, reminiscent of a lot of darker sounding styles of folk music (klesmer, romani, flamenco, etc.) that just sounds *fun*.


28
Lead
Pluck
Bass
D. Kit
Bm
A
D
F#7
B Minor:
i
♭VII
♭III
V7
D Major:
vi
V
I



(1) - The harmony of these last two measures consists of a chain of secondary dominant chords that land on a bVI->V->i cadence. A harmonic sequence like this (root mov't through the circle of fifths) is what facilitates:

a) somewhat smooth contours in the contrapuntal melodies

b) the basic, patterned structure of the bass-line (illustrated via the notes in red)

Despite the rhythmic chaos and irregular passing tones, this harmonic sequence grounds these two measures in a basic symmetry that leads to a satisfying cadence.

(2) - I love how Matsumae ties all the lines *right* through each beat, as if she wants no syncopated stone left unturned...

(3) - The music comes to a half-measure halt (save for the drum pattern). This is an interesting choice for the loop point, but one that makes a lot of sense to me. The rhythm in this entire track is so unstable and syncopated that this brief rest "resets" the listener's ears.

chain of secondary dominants