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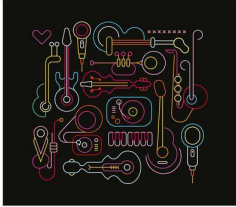
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Publisher: *Routledge*

Informa Ltd Registered in England and Wales Registered Number: 1072954 Registered office: 5 Howick Place, London SW1P 1WG, UK



The Routledge Companion to  
Popular Music Analysis:  
Expanding Approaches



Edited by *Ciro Scotto, Kenneth Smith, and John Brackett*

## **The Routledge Companion to Popular Music Analysis Expanding Approaches**

Ciro Scotto, Kenneth Smith, John Brackett

### **A Tonal Axis to Grind**

Publication details

<https://www.routledgehandbooks.com/doi/10.4324/9781315544700-15>

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**Published online on: 18 Oct 2018**

**How to cite :-** David Heetderks. 18 Oct 2018, *A Tonal Axis to Grind from: The Routledge Companion to Popular Music Analysis, Expanding Approaches* Routledge

Accessed on: 21 Jan 2019

<https://www.routledgehandbooks.com/doi/10.4324/9781315544700-15>

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## 15

# A TONAL AXIS TO GRIND

## The Central Dyad in Sonic Youth's Divergent Textures

*David Heetderks*

When we make up our [guitar] parts, we try to challenge each other's parts—not to go with the flow, but to make it more twisted. If [guitarist] Thurston [Moore] plays a part that seems too easy to go along with, I'll play something to fuck it up.

*Lee Ranaldo of Sonic Youth*<sup>1</sup>

Many Sonic Youth tracks explore textures that are, in Lee Ranaldo's words, "fucked up". That is, the bass and guitars clash and cannot be reconciled to a governing background harmony. These textures, which I will call *divergent*, have received scant analytical attention.<sup>2</sup> But, as the above interview quotation suggests, they are often an essential part of a song's identity, and the clashing parts can sustain over a long span of music. This chapter provides an approach to analyzing many of Sonic Youth's divergent textures through a *central dyad*: a conflict between a bass note and prominent upper pitch that forms the harmonic basis for a section.

The central dyad is made of the two most salient pitches in the texture, and/or it is the referential sonority that is the starting point or goal of chord progressions. The device recalls harmonic and voice-leading features of the music by composers from the first half of the 20th century. As with a tonal axis identified in the music of Stravinsky,<sup>3</sup> Shostakovich,<sup>4</sup> Copland,<sup>5</sup> and others, the central dyad often creates continuous internal tension between two tonal centres, even when one or the other is stronger within a given timespan. As with stratified textures in Stravinsky, when the two members of a central dyad are harmonized and melodically embellished, they can yield dissonant, non-diatonic pitch collections.

Previous analytical engagement with divergent textures, either in general or in Sonic Youth's songs, has not addressed how they might undergird a large span of music. Allan Moore notes that there are rock songs in which the bass does not follow the harmonic pattern of the upper parts, stating that the issue "has been less widely studied, since it tends only to be found among musicians with a prominent DIY approach".<sup>6</sup> Moore gives only a few examples of the phenomena, and concludes by stating that "it makes little sense to try to identify the chords involved".<sup>7</sup> By contrast, I argue that to dismiss these textures, rather than acknowledge them as the foundation upon which sections are built, is to provide a deficient view of Sonic Youth's song-structures. O'Meara analyzes types of conflict in

Table 15.1 Songs using the central dyad discussed in this chapter

Song	Year	Central Dyad	Effects of Central Dyad
“Shadow of a Doubt”	1986	D/F#	internal tonal conflict
“Androgynous Mind”	1994	D/G	internal tonal conflict
“Green Light”	1986	D/G#	non-diatonic collections
“Pacific Coast Highway”	1987	E/G#	non-diatonic collections, tonal uncertainty

early-period Sonic Youth, but not the kind described in this chapter: her readings focus on the union of conventional and unconventional materials, such as a repeated bass line and rock drumbeat combined with unusual guitar performance techniques.<sup>8</sup> In an earlier study of Sonic Youth’s creative misreading of the hardcore style, I identified moments of extreme dissonance between the bass and guitars, arguing that they served to undermine hardcore’s presentation of a unified group identity, but I did not examine songs in which a dissonant interval was harmonically foundational.<sup>9</sup>

Table 15.1 lists Sonic Youth songs discussed in this chapter that use a central dyad. In “Shadow of a Doubt” and “Androgynous Mind”, the central dyad creates continuous tension between two tonal centres. In “Green Light” and “Pacific Coast Highway”, the instruments embellish the central dyad in differing ways in each section, yielding different non-diatonic pitch collections. In the last example, the central dyad also creates tonal uncertainty in some sections.<sup>10</sup>

### The Central Dyad and Tonal Tension: “Shadow of a Doubt” and “Androgynous Mind”

Sonic Youth’s 1986 song “Shadow of a Doubt” shows how a central dyad creates continuous internal tension between two potential tonal centres – D and F#. A listener’s sense of which centre is more likely to be heard as tonic gradually shifts over the course of the section. A transcription of the guitar and bass parts used in the introduction and verse is shown in Figure 15.1. The passage uses only six distinct pitch classes, and it is debatable whether it has any functional chord changes. Accordingly, *perceptual criteria* become increasingly important for determining tonal centrality. Stanley Kleppinger discusses these criteria in detail, building on Fred Lerdahl’s assertion that when stability cues provided by tonal harmony are attenuated, “salience conditions” become increasingly important to determining hierarchically important pitches.<sup>11</sup> Salience conditions assign a central status to the note that is most prominent (repeated most often, appears in registral extremes, and so forth). Similarly, Christopher Doll identifies the perceptual criteria of texture and volume as two types of information, among ten others, used when examining tonally ambiguous passages in pop/rock.<sup>12</sup> In addition, Kleppinger’s salience conditions assign a central status to a prominent note that appears at or near a major formal boundary. Similarly, Stephenson advocates hearing harmonies at the initiation of a song or at the beginning of phrases, both major formal boundaries, as a tonic.<sup>13</sup> Finally, in addition to salience conditions, Kleppinger identifies *CP-cueing* criteria that provide information about pitch centres. For the purpose of analyzing rock music, the most important of these criteria is the presence of a salient  $ic_5$ , which tends to accord a tonic status to the lower member of a perfect fifth or upper member of a perfect fourth, a position Ken Stephenson echoes.<sup>14</sup>

The image displays two musical staves for the introduction and verse progression of "Shadow of a Doubt". The top staff is for Electric Guitars and the bottom staff is for Bass. The introduction section is marked "introduction" and features a "level rhythmic echo" pattern. The verse progression is marked "verse progression (repeats 3x)" and includes "let ring" instructions for both instruments. The score is divided into two systems, each with a 2x and 4x repeat sign.

Figure 15.1 “Shadow of a Doubt” by Kim Gordon, Thurston Moore, Lee Ranaldo, and Steve Shelley, introduction and verse

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These perceptual and CP-cueing criteria give roughly equal status to  $F\sharp$  and  $D$  as pitch centres. The song opens with the two guitars playing overlapping parts that outline an  $F\sharp m^7$  chord without fifth. As the first instruments heard in the song (and thus at the major formal boundary of the song’s beginning), they influence the perceived tonal centre and assert  $F\sharp$ . The pitch  $F\sharp$  is heard more frequently than any other, and it is the only one that appears in two separate octaves.<sup>15</sup> The sole non-chord member,  $b$ , can be interpreted as a neighbour to an implied  $a$ . When the bass enters four bars into the song, it first plays an  $A$  harmonic that is higher than the  $f\sharp$  played by the second guitar, so that  $f\sharp$  is still the lowest note in the texture.

The bass’s low  $D$  – the other half of the central dyad – waits until the last crotchet of its repeated figure to enter (0’10” on the album version), and because the note is played on an open string it sustains through the following repetition. This note is not doubled by another instrument, and it fades out about halfway through each two-bar unit, so that it is not prominent in the mix. But as the lowest note in the texture, and as one that forms a fifth with the  $A$  in the guitars, it gives its own cues for tonal centrality that compete with the cues supporting  $F\sharp$ .

It is unclear whether the bass’s  $D$  signals a change to  $bVI$  before returning to a tonic  $F\sharp$  minor seventh ( $F\sharp-A-C\sharp-E$ ) as the note fades out, or whether it is the root of a tonic major ninth chord ( $D-F\sharp-A-C\sharp-E$ ) that is only sporadically stated.<sup>16</sup> As the  $D$  repeats multiple times over the course of the first section, the latter interpretation accumulates more contextual support. But whichever tonic is perceived more strongly, the internal tension between  $F\sharp$  and  $D$  as tonal centre remains. Straus identifies, in Stravinsky’s music, a “tonal axis” – that is, a seventh chord that expresses tonal conflict between its two constituent triads and functions as a work’s referential sonority.<sup>17</sup> The central dyad in “Shadow of a Doubt” is similar:  $D/F\sharp$  is heard as the referential sonority of the work, so that when it recurs after a contrasting bridge, it is heard as a return home, and its two constituent pitches form the basis for evaluating the stable or unstable status of the other pitches in the texture. And yet these two pitches do not project a single tonal centre. This internal tension gives the song an internal

drama despite the limited pitch content, and it mirrors the internal anxiety evinced by the song's vocal persona, who expresses uncertainty over whether her memory of committing a murder is a dream or not.<sup>18</sup> Previous studies of rock have noted that some songs display tonal ambiguity or a lack of tonal hierarchy through their chord progressions and voice-leading patterns,<sup>19</sup> or that they feature a double-tonic complex that contains two heavily emphasized tonal centres.<sup>20</sup> "Shadow of a Doubt" shows that tonal tension can be present within a single, unchanging chord, provided that listeners attend to salience, register, and formal location.

"Androgynous Mind" (1994) likewise shows how conflicting salient cues create tonal tension. But the instruments have a greater variety of gestures and frequently shift allegiances in their assertion of the two members of the central dyad, D and G. The dynamism creates a markedly different musical environment: instead of the brooding slow burn found in "Shadow of a Doubt", there is overt conflict. The song contains, in addition to the drums, three distinct instrumental layers, shown in reduction in Figure 15.2. Although they are often in the same register, each occupies a distinct stereo location and has a different timbre. Guitar 1, played by Ranaldo, is panned sharply to the right, is relatively prominent in the mix, and plays brief solo figures interrupted by rests. Guitar 2, played by Moore, is panned sharply to the left and is slightly quieter. It continuously plays power chords with slightly detuned strings that give them a "beating" effect that is not heard in guitar 1. The bass, played by Kim Gordon, lies in the centre and alternates between different levels of distortion. The instruments' similar register, combined with their distinct stereo locations, prevents them from either blending or falling into complementary roles, instead placing them in a conflictual relationship.

The song divides into four sections, labelled with time stamps above the staff in Figure 15.2. In section I, the instruments give conflicting cues that support both D and

The figure is a musical score for three instruments: Electric Guitar 1, Electric Guitar 2, and Bass. It is divided into four sections:

- Section I (0:00-1:23):** Electric Guitar 1 and 2 play power chords. Bass plays clean notes. Annotations: "enter ca. 2 secs. into song, improvise centered on boxed pitches" for both guitars.
- Section II (1:24-1:43):** Similar to Section I. Annotation: "improvise centered on boxed pitches" for both guitars.
- Section III (1:43-2:38):** Electric Guitars 1 and 2 play "unpitched noise and slides". Bass plays clean notes.
- Section IV (2:38-3:30):** Electric Guitars 1 and 2 play "unpitched noise and slides". Bass plays clean notes. Annotation: "repeat with free rhythm, add chromatic variants" for both guitars.

Figure 15.2 "Androgynous Mind" by Kim Gordon, Thurston Moore, Lee Ranaldo, and Steve Shelley. Rhythms simplified

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G as tonal centre. Guitar 2, which plays the song's repeated chord progression, is the first instrument heard in the section. The progression places a D<sup>5</sup> power chord every hypermetric downbeat, embellished with both whole-tone and semitone upper and lower neighbours. When Moore begins singing, he doubles the roots of the first four chords, so that each of his vocal phrases also begins on D. By contrast, guitar 1, played by Ranaldo, asserts that the tonal centre is G. Ranaldo freely improvises numerous gestures that nearly all begin with, end with, or repeat G in one of three different octaves. For most of the section, the bass plays a descending and ascending third from G (its rhythm sometimes varies from the notated version) in the same register of the guitars, reinforcing the G centricity of guitar 1. Moreover, the G forms a fifth with the D, giving a strong cue for its centricity. But on the hypermetric downbeat, where the bass might play a low G that would re-interpret guitar 2's chord as a G<sub>3</sub><sup>9</sup>, the bass consistently remains silent. Moreover, at the end of each hypermeasure, the bass switches allegiance by playing two low D crotchets, doubling the rhythm of guitar 2. As the lowest notes in the section, they reinforce D as a tonal centre, but fail to clinch it because their high level of distortion prevents their pitch from being easily perceived. The instruments show little concern with agreement between instrumental melody and backing chords in the section; instead, they provide structural and salient cues that create continuous tonal conflict.

New instrumental gestures are introduced in the following sections. In sections I and IV, they maintain tonal conflict; in section III, which functions like a bridge, they replace tonal conflict with unpitched noise. In section II, the bass fully switches allegiance to the guitar 2. It plays a new repeating part whose first two notes are the ascending fourth A–D, asserting D as a tonal centre. Other musical elements maintain tonal tension by weakening this D centricity: guitar 1 continues to assert G, and the bass's D is rhythmically displaced from guitar 2's D<sup>5</sup> (as shown by the dotted line in Figure 15.2), so that a consonant D chord never sounds in the other two layers.<sup>21</sup> In section III, the bass continues its previous part that asserts D tonicity, while the two guitars become increasingly indeterminate in pitch through the use of a phaser, feedback, and whammy bar, replacing tonal conflict with conflict between pitch and noise that threatens to occlude it. In section IV, the bass returns to its original part, while guitar 1, as if its energy were spent from the previous noise-fest, shifts to its lowest register and plays long notes that roughly double the guitar 2's chord progression. Despite its repeated, unchanging chord progression, "Androgynous Mind" presents a dynamic, evolving tonal conflict through its parts that undermine each other's tonal cues and switch roles. The conflict among the instrumental parts actively supports Moore's lyrics, which describe two forms of conflict: the first is negatively portrayed and describes a transgender person being beaten by a group, the second is positively portrayed and describes the fight for intellectual and political freedom by the same transgender person.

### **The Central Dyad and Non-Diatonic Collections: "Green Light" and "Pacific Coast Highway"**

In other Sonic Youth songs, the central dyad creates non-normative pitch collections as a by-product of how instruments embellish it. The instruments can embellish *harmonically*, with an upper third or perfect fifth; or *melodically*, with neighbouring motion. The combination of the two members of the central dyad and their respective embellishments can yield pitch collections that are strikingly dissonant and non-normative to hard-rock styles. These dissonant textures are similar, though not identical, to textures that often occur in the



music of Stravinsky when non-diatonic collections result from embellishing two opposed structural fifths.<sup>22</sup>

“Green Light” (1986) represents one of the band’s most extensive explorations of non-diatonic collections. The song’s central dyad is D/G $\sharp$ ,<sup>23</sup> and different sections are characterized by the band’s different means of embellishing the two members of this dyad with either whole-tone neighbour notes or fragments from a minor pentatonic scale. The changing modes of embellishment create collection changes in each section: the verse uses a rotation of the acoustic scale, the opening of the bridge is primarily octatonic, and a partial reprise of the verse changes to a different acoustic scale. The result is haunting and eerie: pentatonic scale fragments and whole-tone neighbours are recognisable elements of blues and hard-rock styles but they are made strange and unfamiliar through their novel harmonic environment.<sup>24</sup> This environment supports the song’s quasi-surreal lyrics, which give a first-person account of an erotic scene that is at one level quotidian and at another level is transported to an altered state (whether spiritually transcendent or merely hallucinatory is left undetermined) through being bathed in an unnatural green light.

Figure 15.3 shows the instrumental introduction, whose melodic figures also appear in the following verse. The song begins with a two-bar double-neighbour figure around g $\sharp$  played by the lead guitar (although b is a minor third above g $\sharp$ , it is an adjacency on the pentatonic scale from which the part draws.<sup>25</sup> As the introduction continues, it adds c $\sharp$  to its repertory of pitches, so that it draws from the pentatonic fragment (F $\sharp$ –G $\sharp$ –B–C $\sharp$ ). When the bass enters, it forms a tritone with the lead guitar, establishing the song’s central dyad and clashing with the guitar’s pentatonic fragment. The bass moves from D to F $\sharp$ , which can be heard as a harmonic embellishment, and then to an upper whole-tone neighbour E. Its notes form their own pentatonic fragment (D–E–F $\sharp$ ). The backing guitar, which is further back in the mix, strums an A $\sharp$  diminished triad, as if imitating the tritone created by the

The image shows two systems of musical notation for the instrumental introduction of "Green Light". The first system (measures 1-4) includes staves for Lead Guitar, Backing Guitar, Bass, and Drums. The second system (measures 5-8) includes staves for Lead, Back, Bass, and Drums. The notation includes various musical symbols such as clefs, time signatures, and specific drum parts labeled "low tom", "snare", and "hi tom".

Figure 15.3 “Green Light” by Kim Gordon, Thurston Moore, Lee Ranaldo, and Steve Shelley, introduction

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Figure 15.4 “Green Light”, start of instrumental bridge

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lead guitar and bass. The entire texture uses the pitch classes (D–E–F#–G#–A#–B–C#), a rotation of the E acoustic scale that is tonally unsettled and gives no clear cue for a centre.

At the beginning of the instrumental bridge, shown in Figure 15.4, the instruments introduce new melodic figures and, as a by-product, change to an octatonic environment. But the passage remains centred on the D/G# dyad. At the beginning of the section, the bass and lead guitar exchange their central pitches: the lead guitar strums a long d every downbeat, while the bass plays a two-note figure centred on G#. Because this section, like the previous one, uses dissonant pitch content, stability conditions cannot determine whether the bass’s g# or A# represents a chordal root (or whether the term “root” has any purchase at all), but the g# appears more frequently and is more likely to be heard as centric. The bass’s A#, a minor seventh below g#, is an inversion of an ascending whole tone, recalling the embellishment by descending whole tone in the introduction. In the fifth bar of the bridge, the lead guitar introduces a new recurring four-bar melodic figure, c#2–f#1–g1–a#1–b1–g#1 (later appearances omit the f#1). This figure contains as a subset the same pitches from the minor pentatonic fragment used in the first section (G#–B–C#–F#), while the extra pitches (G1 and A#) add lower semitone neighbours to the pentatonic notes. The semitonal adjacencies are shown with dotted slurs on the last three bars of Figure 15.4. The addition of chromatic neighbours to notes of a pentatonic collection is also characteristic of blues-influenced hard rock, grounding the section in earlier styles despite its rarefied harmonic environment.<sup>26</sup> Further contrast with the verse is created by the backing guitar, which plays a new melodic figure. Unmoored from any recognisable chord progression, the melodic line is highly chromatic and meandering, although the pitches e and a#, which also appeared in the introduction, recur frequently. The line perhaps shows the influence of the atonal guitar solos of Greg Ginn of Black Flag, whose musicianship the band admired.<sup>27</sup> Save for the notes



transformed, partial restatement of verse

2'28" 2'35"

Lead

Back

Bass

Drums

*p*

coda

2'43" 2'51"

Lead

Back

Bass

Drums

*mf*

2'59" etc. 3'22"

Lead

Back

Bass

Drums

Figure 15.5 “Green Light”, partial restatement of verse and coda

marked with an asterisk, the band uses an octatonic collection (D–E–F–G–G $\sharp$ –A $\sharp$ –B–C $\sharp$ ), placing the pentatonic fragments from the introduction in an environment even further removed from diatonic or pentatonic systems that are most common in rock.<sup>28</sup>

The song ends with a brief instrumental reprise of the verse followed by an extended coda, excerpted in Figure 15.5. In both sections, the band revisits ideas from the introduction, but transposes motives up or down by semitone, creating new harmonic relationships among the instruments. In the restatement of the verse (the first eight bars of Figure 15.5), the lead guitar transposes a fragment from the verse melody up a semitone, so that its A forms a perfect fifth with the bass. This consonant interval gives slightly more contextual reinforcement for D as a pitch centre, although the note also forms a semitone with the bass’s G $\sharp$ , forming a powerful “beating” effect and making perception of any pitch difficult. The collection used in the passage (D–G $\sharp$ –A–C) is a subset of a transposition of the acoustic collection that appears in the song’s verse. In the coda that follows, the drums gradually dissipate the song’s energy while both the lead and backing guitars alternate between c’ and d’, introducing the final whole-tone neighbour note to a member of the D/G $\sharp$  dyad that had not yet appeared in the song. The bass continues alternating between d and g $\sharp$ , but two times, which are enclosed in a box in Figure 15.5, it drops to a lower register and plays a C–D motive, imitating the lead guitar. At the beginning of the coda, the backing guitar plays the same lower-neighbour motive, but at the end of the section, it mutates the figure

through semitonal transposition. It first lowers the D to form a minor third b-d' in the ninth bar of the coda. Six bars later, it lowers this third to a $\sharp$ -c $\sharp$ <sup>1</sup>, and five measure before the end of the song it adds a passing note b $\sharp$ , the enharmonic equivalent of c', the previous neighbour note. The pitch is thus a musical pun, as it plays a role in both the original and chromatically altered motives, and it forms the final note of the song. The final chord lacks a sense of resolution, connecting the conclusion to the unresolved dissonant dyads that occur throughout the song.

“Green Light” was a milestone for Sonic Youth: the song allowed the band to extract, out of a single dissonant dyad, an unprecedented variety of melodic gestures and harmonic environments. Its subtle harmonic effects are likely difficult to convey in the context of a live performance, and the song was dropped from set lists after 1987.<sup>29</sup> Nonetheless, it paved the way for future songs that combined a similar exploration of dissonant relations. One such song is “Pacific Coast Highway” (1987). Like “Green Light”, this song explores multiple ways of embellishing a central dyad. But it combines this technique with a more sharply etched structure, featuring vivid dynamic and harmonic contrasts and dramatic gestures.

Figure 15.6 shows a transcription of the opening of the three primary sections. As with nearly all of Sonic Youth’s songs, the unusual harmonies result in part from the unconventional tuning of the two guitars, whose strings are tuned only to E and G $\sharp$ . In many

The figure displays a musical score for the opening of "Pacific Coast Highway" by Sonic Youth, organized into three main sections: introduction, verse, and instrumental bridge.

- Introduction (in live performances):** Labeled "create different types of feedback", it features a single staff for Electric Guitars with a treble clef and a key signature of one flat (Bb).
- Verse (begins at 0'00" on album version):** This section involves three staves: Electric Guitars (treble clef, Bb), Bass (bass clef, Bb), and Drums (percussion clef). The guitar part includes a "half muted, half harmonic" effect. The bass part is marked "enter second time". The drum part includes "overturned cymbal on tom tom?", "crash cymbal", and "open hi hat". A "repeat many times" sign is present at the end of the verse.
- Instrumental bridge (begins at 1'12" on album version):** This section also features three staves: Electric Guitars (treble clef, Bb), Bass (bass clef, Bb), and Drums (percussion clef). The guitar and bass parts are primarily sustained notes. The drum part includes "ride cymbal", "bass drum", "low tom", "snare", and "etc.".

Figure 15.6 “Pacific Coast Highway” by Kim Gordon, Thurston Moore, Lee Ranaldo, and Steve Shelley. Smaller noteheads are less prominent; noteheads in parentheses do not appear in every repetition

live performances, the song begins with the two guitarists repeatedly strumming a chord containing E, G, and Ab, created by depressing the third fret on the lowest E string and leaving the other strings open. They explore a variety of types of feedback before launching into the verse progression, shown on the next system (the album version begins immediately with the verse progression). The central dyad in the song is E/A $\flat$  (or E/G $\sharp$ ): in the verse, these two pitches are either in the foreground or remain a shadowy presence in the background. This harmonic environment results from the guitar tunings and strumming technique. The primary progression is played in unison by the guitars (shown with stems up in large noteheads in Figure 15.6) and consists of an alternation between G $\flat$  and Ab/G $\sharp$ . The secondary notes, shown in small noteheads, result from what might be called a “deliberately sloppy” strumming technique: the guitarists’ picks occasionally lightly touch the other strings, causing the secondary pitches to appear with less prominence. They are sometimes audible in the background, sustaining the central dyad; at other times they are masked by the primary line, so that their effect is more to “dirty” the timbre than to change the pitch content. The bass enters four bars after the guitars and sustains E for most of the verse, reinforcing the lower note of the central dyad and providing a cue for E centrality. Whether the Ab resolves to G $\flat$ , or whether it is better heard as G $\sharp$  and part of a “split-third” triad (E–G–G $\sharp$ –B) is left undetermined.<sup>30</sup> Drummer Steve Shelley does not play a snare and eschews a standard “backbeat” rock pattern; instead, he alternates each bar between two different figures: a syncopated semiquaver pattern on an unidentified instrument (perhaps an inverted cymbal resting on a tom-tom), which reinforces the guitars’ part by accenting the second quaver in the bar; and a hit on a suspended cymbal or open hi-hat on beat 3. The unusual timbres and rhythmic patterns reinforce the strange harmonic content, and these abnormal musical elements match the song’s discomfiting lyrics. They are from the viewpoint of a driver, who possibly has violent intentions, attempting to sexually entice another individual to enter his or her car (although the lead singer, Kim Gordon, is female, the persona she adopts is of undefined gender).<sup>31</sup>

It is debatable whether the verse of “Pacific Coast Highway” contains a functional chord progression. But, as in “Green Light”, each instrumental layer makes neighbouring motion around the members of the central dyad. The guitars play a semitone below the upper member (ab–g–ab), and the bass plays a displaced semitone above the lower member (E–F–E) that resolves when the figure is repeated. The only other note in the texture, the b played by the bass, harmonizes the lower member of the dyad with a perfect fifth. The entire passage uses the non-diatonic fragment (E–F–G–Ab–B), a subset of either an octatonic or harmonic major collection, so that section is highly dissonant and non-normative.

The verse ends with a dramatic closing gesture: a two-bar E in the guitars. The instrumental bridge provides immediate contrast with its softer volume and new drumbeat. Yet the central dyad persists. The guitars and bass change from a semitone to a coordinated whole-tone neighbour pattern around this dyad, creating a diatonic collection.<sup>32</sup> As shown in Figure 15.6, every two bars, the bass and backing guitar alternate between an F $\sharp$ /A $\sharp$  dyad and an E major seventh chord (E–G $\sharp$ –B–D $\sharp$ ), which contains as a subset the central dyad. The progression is tonally underdetermined – that is, there is not enough contextual information to state whether it represents II–I, V–IV, or I– $\flat$ VII.<sup>33</sup> The first option, II–I, is the most likely if judged by inertia: E had the strongest cues for centrality in the previous section, and nothing in the new section suggests that it has changed. But of the three options, II–I is least normative in the rock style, which makes hearing E as the tonal centre provisional and uncertain.

The song exploits the undetermined tonal centre, as well as the dyad held in common between verse and bridge, in order to affect a dramatic retransition. At the end of the bridge, the solo guitar ascends by step to  $f\sharp^2$ , its highest note in the section, and holds this note for six full bars (2'47"–2'58" on the album version), gradually becoming increasingly distorted. The long duration of this pitch provides a contextual cue for  $F\sharp$  centrality, re-interpreting the section's repeated progression as the more normative  $I-\flat VII$  beneath a melodic  $\hat{I}$  pedal.<sup>34</sup> But distortion is added to the lead guitar, suggesting that the grip of  $F\sharp$  centrality is tenuous, and the passage fails to end with a satisfying resolution to the tonic. Instead, the last two bars of the lead guitar's  $f\sharp^2$  occur over  $\flat VII$  in the bass and backing guitar. As the bass and backing guitar return to  $I$ , the lead guitar leaps down to its lowest register and plays an  $F\sharp/A\sharp$  dyad in unison the backing guitar, so that the placement of the  $F\sharp$  tonic in both high and low registers is thwarted. After eight bars, the guitars change to strumming the  $E/G\sharp$  dyad, which provides a smooth pivot back to the verse texture. In other words, as the melody is about to make a triumphal statement of a high  $\hat{I}$  in unison with the bass, its melodic climax is denied, leading to both a return of the opening pitch material and a change in pitch centre. The denial of a melodic arrival on a high  $\hat{I}$  is ripe with expressive potential: it suggests that the band inches towards normative tonal resolution, but rears back and collapses, showing a temporary victory of the abnormal over comfort and established order. After a reprise of the verse, the song ends with a loud, unpitched staccato attack in the guitars.

The collapse of the bridge back into a reprise of the verse has further ramifications for the form of the song as a whole. Figure 15.7 summarizes the relation between the two sections. In the initial verse and bridge, the song gradually progresses from non-normative to normative pitch relationships. The verse uses primarily dissonant harmonies embedded in a non-diatonic scale. The bridge changes to a diatonic scale, and at its onset, tonal centrality is either underdetermined or the section uses a non-normative progression centred on  $E$ . As the section re-interprets the progression to be a normative one, it fails to reach a concluding gesture, instead transitioning back to the dissonant verse section. The verse sections, by contrast, have clear closing gestures: the long-held  $E$  and sharp attack. This sequence of events creates an inverted relation between formal stability and relative consonance: the two dissonant and non-diatonic passages are the only ones with clear closing gestures.



section	verse		instrumental bridge				transition	verse (reprise)	
time	0'00"	1'08"	1'11"	1'39"	2'48"	2'59"	3'19"	4'13"	
guitar & bass gestures	primary riff 	closing gesture (long E)	primary riff 	guitar solo begins above primary riff	guitar solo climaxes	resolution denied, melts into transition	primary riff	closing gesture (staccato attack)	
harmonic features	uncoordinated neighbour motion dissonant non-diatonic		coordinated neighbour motion consonant diatonic tonally underdetermined → tonally determined				uncoordinated neighbour motion dissonant non-diatonic		
tonal centre	E		E? F#?				E		

Figure 15.7 Formal diagram of “Pacific Coast Highway”. Members of central dyad shown in open noteheads, non-dyadic notes shown in black noteheads. Neighbouring motion shown with arrows

The device creates an ironic critique of the integrity of the song's boundaries, and, arguably, suggests that listeners ought to be similarly critical of the persona Gordon adopts.<sup>35</sup>

Disagreement among instrumental layers in a rock song is more than a signifier for looseness or a transgressive attitude. As shown by the analyses above, these clashes can provide the foundation for a section or an entire song. The central dyad is a useful tool for examining these divergent textures: it reveals commonalities between Sonic Youth and 20th century composers, and it shows the importance of analytical techniques that, when necessary, favour salience conditions over structural conditions when determining pitch structures. While not every band uses a central dyad in the same manner of Sonic Youth, the analyses in this chapter demonstrate the value of a mode of listening that attends to, rather than brackets from consideration, clashes between instrumental layers. The clashes remind us that pop and rock are created by a collection of individuals who respond to each other's gestures – gestures that carry vestiges of their tonal functions – sometimes with agreement, and sometimes with deliberate conflict.

### Notes

- 1 Interview for *Guitar Player* magazine: Gore, Joe, "A Method to Their Madness: Sonic Youth," *Guitar Player* XXIII, no. 2 (1989): 29.
- 2 Divergent textures are distinct from so-called "divorced" textures, in which different instrumental layers do not always imply the same harmony, or in which non-chord notes in one layer do not resolve by step. Divorced textures were first identified by Temperly, who noted that the vocal melody does not always match the chord progression and contains non-chord tones that do not resolve by step. Temperly, David, "The Melodic-Harmonic 'Divorce' in Rock," *Popular Music* XXVI, no. 2 (2007): 323–42. Similarly, Covach identifies "uncoordinated" textures where instrumental or vocal parts do not simultaneously play the same harmony. Covach, John, "When Things Just Don't Line Up: Textural Stratification in Rock Music," Keynote address at Music Theory Midwest's annual meeting, Bowling Green State University, 17 May 2008. A similar study of contradictory overlaid parts can be found in Doll, Christopher, "A Tale of Two Louies: Interpreting an 'Archetypal American Music Icon,'" *Indiana Theory Review* XXIX, no. 2 (2011): 71–104. Drew Nobile has expanded on Temperly's study by arguing that the conflicting chords serve to prolong or embellish a background harmony, and de Clercq argues for similar types of divorce between the harmonic layer and bass. Nobile, Drew, "Counterpoint in Rock Music: Unpacking the Melodic-Harmonic Divorce," *Music Theory Spectrum* XXXVII, no. 2 (2015): 189–203; and de Clercq, Trevor, "The Harmonic-Bass Divorce in Rock: A Method for Conceptualizing the Organization of Chord Extensions," Presentation at Music Theory Midwest's Annual Meeting, University of Arkansas, 6 May 2016. In the examples cited by these authors, the instrumental parts converge on a hierarchically important chord, usually the tonic, as a means of prolonging it. By contrast, divergent textures lack this convergence, making impossible either identification of hierarchical importance or point of resolution.
- 3 Straus, Joseph, "Stravinsky's Tonal Axis," *Journal of Music Theory* XXVI, no. 2 (1982): 261–90.
- 4 Brown, Stephen, "Axis Tonality and Submediant in the Music of Shostakovich," *Music Theory Online* XV, no. 2 (2009).
- 5 Mathers, Daniel, "Closure in the Sextet and Short Symphony by Aaron Copland: A Study Using Facsimiles and Printed Editions" (MA diss., Florida State University, 1989). Heetderks, David, "A Tonal Revolution in Fifths and Semitones: Aaron Copland's *Quiet City*," *Music Theory Online* XVII, no. 2 (2011).
- 6 Moore, Allan, *Song Means: Analysing and Interpreting Recorded Popular Song* (Burlington: Ashgate, 2012), 81.
- 7 Moore, Allan, *Song Means*, 81.



- 8 O'Meara, Caroline Polk, "Clarity and Order in Sonic Youth's Early Noise Rock," *Journal of Popular Music Studies* XXV, no. 1 (2013): 13–30.
- 9 Heetderks, David, "Hardcore Re-visioned: Reading and Misreading in Sonic Youth 1987–8," *Music Analysis* XXXII, no. 3 (2013): 363–403.
- 10 A note on the transcriptions is warranted since Sonic Youth songs are noisy and often difficult to capture in notation. I transcribed each song by ear from the album version, and checked my work against tablature transcriptions created by fans and available on the *sonicyouth.com/mustang* website. Because fan-made tablatures are not always complete or accurate, I also analyzed videos of band performances, which are widely available on YouTube. Some features (such as the precise number of repetitions, improvised solos, and small variants in riffs) differ in live performance, but the features of each song discussed here appear in all known live recordings and can be considered essential. In a few cases, I discuss significant musical events that occur in live performances but not on album tracks.
- 11 Kleppinger, Stanley, "Reconsidering Pitch Centricity," *Theory and Practice* XXXVI (2011): 76; and Lerdahl, Fred, *Tonal Pitch Space* (New York: Oxford University Press, 2001), 313–5; 320.
- 12 Doll, Christopher, "Listening to Rock Harmony" (Ph.D. dissertation, Columbia University, 2007), 63–78. Perceptual criteria are also discussed by Guy Capuzzo, "Sectional Tonality and Sectional Centricity in Rock Music," *Music Theory Spectrum* XXXI, no. 1 (2009): 160, and Ken Stephenson, *What to Listen for in Rock: A Stylistic Analysis* (New Haven, CT: Yale University Press, 2002), 34–46, and melodic criteria considered independently of harmony are discussed by David Temperly and Trevor de Clercq, "Statistical Analysis of Harmony and Melody in Rock Music," *Journal of New Music Research* XLII (2013): 187–204.
- 13 Stephenson, *What to Listen for in Rock*, 34–7.
- 14 Stephenson, *What to Listen for in Rock*, 35.
- 15 In later live performances, the repeated parts played by the guitars vary slightly, and the constant quaver pulse is created with repeated picking rather than with a rhythmic echo, but the features identified are invariant.
- 16 In some live performances of this song, bassist Kim Gordon plays the high A harmonic on the same string as the low D, so that the D is cut off at the beginning of each repetition of the figure, further strengthening the centricity of F#.
- 17 Straus, "Stravinsky's Tonal Axis".
- 18 Although music and lyrics reinforce each other in imaginative ways in this song, we should not assume that the lyrics are conceptually prior or that the music "illustrates" the lyrics, since most often the band created the music first. Browne, David, *Goodbye 20th Century: A Biography of Sonic Youth* (New York: Da Capo, 2008), 112–3.
- 19 Doll, "Listening to Rock Harmony," 70–77; Tagg, Philip, *Everyday Tonality* (New York: The Mass Media Music Scholars' Press, 2009).
- 20 Everett, Walter, *The Beatles as Musicians: The Quarry Men Through Rubber Soul* (New York: Oxford University Press, 2001), 179–80.
- 21 Rhythmic displacement between the bass and guitars is a strategy that Sonic Youth occasionally uses to undermine the stability of a tonal centre, appearing in the verse of "Catholic Block" and instrumental bridge of "Sleepin' Around".
- 22 The harmonization and melodic embellishment are different in Stravinsky's music, because the opposed members are fifths or fourths, rather than single notes. Specifically, in Stravinsky's music, harmonization consists of an added third (or thirds), and melodic embellishment is created through passing, not neighbouring, motion. Straus, Joseph, "Harmony and Voice Leading in the Music of Stravinsky," *Music Theory Spectrum* XXXVI, no. 1 (2014): 1–5.
- 23 Sonic Youth's 1985 song "I'm Insane" prominently features the same two pitches; it is possible that the earlier song provided the impetus for the more elaborate exploration of the dyad in "Green Light".
- 24 Everett, Walter, "Making Sense of Rock's Tonal Systems," *Music Theory Online* X, no. 4 (2004): [13]–[18].
- 25 Temperly, "The Melodic–Harmonic 'Divorce' in Rock," 327.



- 26 Everett, "Making Sense of Rock's Tonal Systems," 23–25.
- 27 Chick, Stevie, *Psychic Confusion: The Sonic Youth Story* (London: Omnibus Press, 2007), 74.
- 28 Instances of octatonicism in rock music are discussed briefly by Everett ("Making Sense of Rock's Tonal Systems", [13]) and Dmitri Tymoczko, *A Geometry of Music: Harmony and Counterpoint in the Extended Common Practice* (New York: Oxford University Press, 2011), 387, but neither author discusses octatonicism as a by-product of embellishment of two central pitches.
- 29 Information on set lists was obtained from *setlist.fm* (accessed 28 June 2016).
- 30 A "split-third" triad is a triad that contains both a major and a minor third. Its use in rock is discussed in Stephenson, *What to Listen for in Rock*, 84.
- 31 For more on the distinction between performer and persona, see Moore, *Song Means: Analysing and Interpreting Recorded Popular Song*, 180–4.
- 32 The alternation between two fret positions in the guitar and bass, followed by a contrasting section that minimally alters the interval in these two positions, is a strategy also used in Sonic Youth's "Silver Rocket" (1988) analyzed in Heetderks, "Hardcore Re-visioned: Reading and Misreading in Sonic Youth 1987–8," 372–3.
- 33 The passage uses a "shuttle" – i.e., a two-chord progression that spans a section in which the presence of tonal hierarchy is of secondary importance – as defined by Tagg (*Everyday Tonality*: 173–4, 189–94). See also Heetderks, David, "Hipster Harmony: The Hybrid Syntax of Seventh Chords in Post-Millennial Rock," *Music Theory Online* XXI, no. 2 (2015): [3.0.2].
- 34 In rock, the melodic line often sustains members of the harmony that is prolonged in the background while the other parts execute chord changes; Nobile labels this phenomenon "hierarchy divorce". Nobile, "Counterpoint in Rock Music," 189–203.
- 35 In an earlier study of Sonic Youth's "Silver Rocket" (Heetderks, "Hardcore Re-visioned: Reading and Misreading in Sonic Youth 1987–8," 378–81), I analyzed a related formal device through Bloom's technique of deliberate misreading and reconstruction. The device in "Pacific Coast Highway" also recalls the romantic concept of the fragment, discussed by Ramon Satyendra, "Liszt's Open Structures and the Romantic Fragment," *Music Theory Spectrum* XIX, no. 2 (1997): 190–6.