

Musical Analysis of Key, Pitch Classes, and Scales

Edward Hulme

7 March 2024

1 Introduction

There may be tuning-specific preferred pitch classes, scales, and keys in guitar music. In this document, we provide a brief musical analysis of forty songs from the training set of the Multi-artist Synthetic Audio Dataset – 8 songs were randomly selected from each tuning class. Although this is a small sample, we believe this analysis can still provide some insights regarding tuning specific preferred pitch classes, scales, and keys. All of the songs that were analysed have been ‘normalised’ i.e., songs were transposed so that a capo was never used on the guitar and downtuned/uptuned guitar parts were within the pitch range of Ample’s tuning system. Nevertheless, information about tunings and capo positions used on the original recordings is also provided.

2 Forty Songs: Keys, Pitch Classes, and Scales

2.1 *DADGAD*

1. *The First Time I Ever Saw Your Face* by Bert Jansch:
 - **Key:** D major, modulates to D minor.
 - **Scale:** D major, D minor pentatonic. Diatonic within sections.
 - **Transposition Notes:** Originally in D \sharp major/minor, with a capo at the 1st fret.
2. *My Heart Will Go On* by Sungha Jung:
 - **Key:** D major.
 - **Scale:** D major. Diatonic.
 - **Transposition Notes:** Originally in F major, with a capo at the 3rd fret.
3. *Falling Away* by Our Last Night:
 - **Key:** B minor.
 - **Scale:** B minor pentatonic and B natural minor. Diatonic.
 - **Transposition Notes:** Originally in B minor. No capo.
4. *Nothing More Than That* by The Paper Kites:
 - **Key:** D major.
 - **Scale:** D major. Diatonic.
 - **Transposition Notes:** Originally in E major, with a capo at the 2nd fret.
5. *My Wilderness* by Piers Faccini:
 - **Key:** Predominantly D major and D minor, but the song also modulates to other keys.
 - **Scale:** Mainly D minor pentatonic. Chromatic.

- **Transposition Notes:** Originally in D major/minor. No capo.

6. *Black Mountain Side* by Led Zeppelin:

- **Key:** D minor and D major.
- **Scale:** D natural minor, D minor pentatonic, D major. Diatonic and occasionally chromatic.
- **Transposition Notes:** Originally in D \flat major/minor. Guitar originally tuned to D \flat A \flat D \flat G \flat A \flat D \flat (6th to 1st string). No capo.

7. *Last Night I had the Strangest Dream* by Lizzy Hoyt:

- **Key:** D major.
- **Scale:** D major. Diatonic.
- **Transposition Notes:** Originally in D major. No capo.

8. *Mother I'm Here (Zulf's Theme)* from Bastion: Original Soundtrack:

- **Key:** D minor.
- **Scale:** D melodic minor. Chromatic.
- **Transposition Notes:** Originally in C minor. Guitar originally tuned to CGCFGC (6th to 1st string). No capo.

2.2 Drop D

1. *Fixer* by Josh Phillips:

- **Key:** D major.
- **Scale:** D major. Diatonic.
- **Transposition Notes:** Originally C major. Guitar originally tuned to CGCFAD. No capo.

2. *Roulette* by System of a Down:

- **Key:** D minor.
- **Scale:** D minor. Chromatic.
- **Transposition Notes:** Originally in C minor. Guitar originally tuned to CGCFAD. No capo.

3. *Goodbye Blue Sky* by Roger Waters:

- **Key:** D major, modulates to A minor
- **Scale:** D major and diatonic. A minor and chromatic.
- **Transposition Notes:** Originally in D major and A minor. No capo.

4. *Towing the Line* by Ben Howard:

- **Key:** D minor and B \flat major.
- **Scale:** D minor pentatonic and B major pentatonic. Diatonic.
- **Transposition Notes:** Originally in D minor and B \flat major. No capo.

5. *Inhale* by Killswitch Engage:

- **Key:** D mixolydian.
- **Scale:** D mixolydian. Diatonic
- **Transposition Notes:** Originally uses the C mixolydian mode. Guitar originally tuned to CGCFAD. No capo.

6. *Pathos* by Darkest Hour:

- **Key:** D minor and F major.
- **Scale:** D natural minor and F major. Diatonic.
- **Transposition Notes:** Originally in C minor and E♭ major. Guitar originally tuned to *CGCFAD*. No capo.

7. *April* by Fiersa Besari:

- **Key:** C major.
- **Scale:** C major. Diatonic
- **Transposition Notes:** Originally in D major, with a capo at the 2nd fret.

8. *May You Never* by John Martyn:

- **Key:** D major.
- **Scale:** D major. Diatonic.
- **Transposition Notes:** Originally in E major, with a capo at the 2nd fret.

2.3 *Open D*

1. *Interlude 2* by Alt-J:

- **Key:** D major.
- **Scale:** D major. Diatonic.
- **Transposition Notes:** Originally in D major. No capo.

2. *Green* by The Tragically Hip Fiddlers:

- **Key:** D major.
- **Scale:** D major. Diatonic.
- **Transposition Notes:** Originally in E major, with the guitar tuned to *open E*. No capo.

3. *NFWMB* by Hozier:

- **Key:** D minor.
- **Scale:** Blues scale and D minor pentatonic. Predominantly diatonic with the occasional *blue note*.
- **Transposition Notes:** Originally in D♯ major, with a capo at the 1st fret.

4. *Still Clean* by Soccer Mommy:

- **Key:** D major.
- **Scale:** D major. Diatonic.
- **Transposition Notes:** Originally in D major. No capo.

5. *Stick* by Snail Mail:

- **Key:** D major.
- **Scale:** D major. Diatonic
- **Transposition Notes:** Originally in D♯ major, with a capo at the 1st fret.

6. *Walkin' Man* by Seasick Steve:

- **Key:** D major.
- **Scale:** D major pentatonic. Diatonic with the occasional blue note.

- **Transposition Notes:** Originally in D major. No capo.

7. *Pay Day* by Mississippi John Hurt:

- **Key:** D major.
- **Scale:** D major pentatonic. Diatonic with the occasional blue note.
- **Transposition Notes:** Originally in D major. No capo.

8. *She* by Dodie:

- **Key:** D major.
- **Scale:** D major. Diatonic.
- **Transposition Notes:** Originally in D major. No capo.

2.4 *Open G*

1. *Longer* by Dan Fogelberg:

- **Key:** G major.
- **Scale:** G major. Diatonic.
- **Transposition Notes:** Originally in G major. No capo.

2. *Come and Go Blues* by Greg Allman:

- **Key:** G minor.
- **Scale:** G blues. Chromatic.
- **Transposition Notes:** Originally in G minor. No capo.

3. *Am I Wrong* by Keb Mo:

- **Key:** G minor.
- **Scale:** G minor pentatonic. Diatonic.
- **Transposition Notes:** Originally in A minor. Guitar originally tuned to $EAEAC\sharp E$. No capo.

4. *Willin* by Little Feat:

- **Key:** G major.
- **Scale:** G major. Diatonic.
- **Transposition Notes:** Originally in G major. No capo.

5. *Come on in my Kitchen* by Robert Johnson:

- **Key:** G major.
- **Scale:** G minor pentatonic. Chromatic (e.g., B and B \flat are both used).
- **Transposition Notes:** Originally in A major with a capo at the 2nd fret.

6. *Crossroad Blues* by Robert Johnson:

- **Key:** Modulates between G major and G minor.
- **Scale:** G major pentatonic and G minor pentatonic. Chromatic.
- **Transposition Notes:** Originally in B major (not tuned to $A440$, so actually between the keys of B major and B \flat major). Capo at the 4th fret.

7. *The Cove* by Jack Johnson:

- **Key:** G major.
- **Scale:** G major. Diatonic.
- **Transposition Notes:** Originally in G major. No capo.

8. *That's the Way* by Led Zeppelin:

- **Key:** G major.
- **Scale:** G major. Mainly diatonic, but in some sections the harmony is chromatic and blue notes are used.
- **Transposition Notes:** Originally in F# major. In the original recording a twelve-string guitar was tuned down a semitone from open G. No capo.

2.5 *Standard*

1. *Wild World Theme* by Animal Crossing:

- **Key:** A major.
- **Scale:** A major. Diatonic.
- **Transposition Notes:** Originally in A major. No capo.

2. *Leaves* by Ben & Ben:

- **Key:** F# major. The final section is in G major.
- **Scale:** F# major and G major. Diatonic within sections.
- **Transposition Notes:** Originally in F# major and G major. No capo.

3. *Start* by Depapepe:

- **Key:** Predominantly A major.
- **Scale:** A major, but some 'jazzy' sections shift away from this key. Diatonic and chromatic sections.
- **Transposition Notes:** Originally in A major. No capo.

4. *Hello in There* by John Prine:

- **Key:** G major.
- **Scale:** G major. Diatonic.
- **Transposition Notes:** Originally in C major with a capo on the 5th fret.

5. *2 Girls in 1 Cup* by Jon Lajoie:

- **Key:** E major.
- **Scale:** E major. Diatonic.
- **Transposition Notes:** Originally in E major. No capo.

6. *Easy Flamenco Fingerstyle* by Guitar Pro Guitar Lessons:

- **Key:** E minor.
- **Scale:** E harmonic minor. Diatonic.
- **Transposition Notes:** Originally in F# with a capo at the 2nd fret.

7. *Lonely* by 2NE1:

- **Key:** C major.

- **Scale:** Predominantly C major. Chromatic harmony.
- **Transposition Notes:** Originally in E major with a capo at the 4th fret.

8. *5:11 AM The Moment of Clarity* by Roger Waters:

- **Key:** C major.
- **Scale:** C major. Diatonic.
- **Transposition Notes:** Originally in C major. No capo.

3 Discussion