

# Harmonic Shapes

## A chaos of possibilities

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### 1. Introduction

Throughout the history of music in Western Europe, views on music theory, musical practice, and grouping of notes have been gradually shifting, evolving, and dissolving. All attempts at formulating a theory of musical phenomena seem to be aiming at constructing intelligible patterns of musical logic, which could be used to understand, create, and reconstruct the music. That is also the case here. The aim of this article is to present and discuss grouping of tonal content and its properties in a novel way, different from previous traditions. Instead of sorting a piece of music into a pre-defined diatonic key, music could be examined on its own terms, based on the actual tonal content. Harmony that consistently moves outside the realm of a scale or key seems to be common enough to justify an alternative approach of analysis and grouping of notes. A case in point would be ‘Hey Joe’ (1966) by Jimi Hendrix, a song<sup>1</sup> that does not conform to any traditional key, partly because it has no dominant, and partly because it is made up of five different major chords: C – G – D – A – E. We will return to that song a bit later to discuss in more detail how its harmonic movements might be interpreted. The phrase ‘chaos of possibilities’ (*Chaos der Möglichkeiten*) was coined by Arthur von Oettingen (1866, p. 156) when discussing harmonic function in his theory of infinite transformational paths between chords. Oettingen’s phrase could well be applied to the content of this article, highlighting the overwhelming task of categorising, analysing, and reducing endless harmonic characteristics and variations to clearly defined dogmas.

The practice of categorising musical harmony into keys stems from the Western classical music tradition, and from a time when music largely gravitated towards the diatonic major or minor scale. This can in turn be contrasted against earlier music theories on tetrachords, hexachords and modes (Brodin, 1985; Chadwick, 1981; Ling, 1983; Strunk, 1950). See also Zarlino (1558/1983) via Banchieri (1605) to Simpson (1667), for examples of how the old modes<sup>2</sup> transformed into the familiar major-minor scales, later dubiously labelled ‘tonality’ (Dahlhaus, 1968/1990, p. 7). But the century-old common-practice norms and theories of harmony are not necessarily relevant in the context of more recent rock/pop/soul/hip-hop, which should not be surprising. After all, these theories were developed before the appearance of rock music. The evolving, subjective

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<sup>1</sup> The term ‘song’ will be clarified in section 2.1.

<sup>2</sup> Dorian, Phrygian, Lydian, and Mixolydian.

expressions of music are not likely fixed to a certain set of norms, or governed by ‘basic, ageless principles’ (Everett, 2004, para. 5). Instead, a person’s perception of music in general, and harmony in particular, seems to be learned and not innate (Moore and Martin, 2019, ch. 3; Nattiez, 1990, p. 62; Temperley, 1997, p. 33). To be relevant, music theories need to keep evolving in tandem with the music’s progression. Some theorists will argue that the common-practice theoretical framework will do just fine for modern rock music as well (Biamonte, 2017, p. 90; Everett, 2007, p. 139; Lilja, 2009, p. 17). Others will perhaps say that it is like applying the rules of soccer to basketball, or to divide a piece of cloth with a saw, which could maybe work, but the cloth would be a bit frayed at the edges (Moore and Martin, 2019, ch. 1; Tagg, 2018, p. 12). The main point is that rock/pop/soul/hip-hop seems to lack a coherent theoretical language – applicable to the style – to be used in education and among practitioners.

All in all, it seems very unpractical to regard songs like ‘Hey Joe’ as filled with constant exceptions or modulations from a diatonic scale or key. The subjective impression when listening to a song like that is not one of constant modulating. This problem is definitely not new in the history of music theory. Heinrich Glarean argued in *Dodecachordon* (1547), that if a song in the Dorian mode consistently used the B<sup>b</sup>, it should be considered an Aeolian mode, and likewise regular use of B<sup>b</sup> in the Lydian mode should be called Ionian mode (Glarean, 1547/1965). The point was to acknowledge the regular use of ‘exceptions’ as something ‘normal’ and give it a name. This resulted in the inclusion of the Ionian and Aeolian modes, which Glarean was the first to specify and name (Miller, 1961, p. 164). In this article, there is a similar argument – to make the seemingly irregular a normalised standard in its own right.

### 1.1 A new way of grouping notes

The concept proposed here will be called **harmonic shapes**,<sup>3</sup> and the ambition is that this system will be flexible and scalable enough to embrace harmonic analysis of different kinds of music in a practical, creative, enlightening, and educational way. The basic idea is that the tonal content, both harmony and melody, in a piece of music can form the basis of a harmonic shape. These harmonic shapes can be superimposed over a grid of musical pitches, similar to a Riemannian *Tonnetz*, or ‘pitch space’ (Cohn, 2012; Lerdahl, 2005), where the graphical representation hopefully makes harmonic analysis as easy and clear as possible. Tonal relationships such as shared notes, root movements, and similarity to other music are relatively easily spotted in the pitch space with an overlay of different chord shapes and the larger unit – harmonic shapes. Naturally, the euroclassical keys and the church modes can also form harmonic shapes in the pitch space. Root movements horizontally and to the left in the pitch space result in traditional, dominant-driven chord sequences (falling fifths), while movements in

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<sup>3</sup> Both this and other key concepts are printed in **bold** the first time they are mentioned.

the opposite direction are more typical for rock/pop/soul/hip-hop (falling fourths). Tonal relationship by thirds is also clearly visible in the pitch space. By studying **anchor tones**, parsimonious voice leading, root movements, and flexible tonal centres, the creative person might find a starting point for their own combination of notes. The concepts presented above will be examined and explained more thoroughly in the following. The pitch space will also be called a **donut** for reasons explained later.

## 2. Background

### 2.1 The music in focus

This article will focus mostly on **rock/pop/soul/hip-hop**, and this is meant to imply a very generous interpretation including musical styles such as pop, soul, rock, punk, hard rock, metal, singer-songwriter, blues, hip-hop and EDM<sup>4</sup>, as described by Trevor De Clercq (2017). This broad generalization of music genres will hopefully appear more precise with the help of the musical examples given throughout the text.<sup>5</sup> Sometimes the shorter term ‘rock music’ will be used in the same sense, to reference the many styles in Anglophone music, originally aimed at a youth audience (Covach and Flory, 2018). In this repertoire, a **song** is a piece of music typically lasting 3–5 minutes (Temperley, 2018, para. 8.6). The songs in rock/pop/soul/hip-hop usually feature vocal performances, but extended instrumental parts or completely instrumental songs can be found, especially in certain sub-genres like progressive rock. The songs tend to contain verse-chorus units, often with a contrasting bridge section, and/or an additional pre-chorus or solo section (Temperley, 2018, ch. 8). Western art music – the ‘classical’ music – will be called **euroclassical** (Tagg, 2018). This term should be interpreted as a sum-up of European art music approximately 1650–1850. Typical examples from this repertoire would include works by C.P.E. Bach, Haydn, Mozart and Beethoven. In this text, there is a basic understanding that the roots of rock/pop/soul/hip-hop are multiple and varied, although some aspects are unique to the style (Stephenson, 2002). Some influences clearly come from the euroclassical tradition, while other influences might come from blues, jazz, gospel, electro-acoustical music, music hall, avant-garde, modern and postmodern music, and folk music (Covach and Flory, 2018, p. 256; Lilja, 2009, pp. 31–35; Middleton, 1990, pp. 29–31; Moore and Martin, 2019, ch. 3–4; Temperley, 2018, para. 1.2).

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<sup>4</sup> Electronic Dance Music.

<sup>5</sup> Some might wonder about the lack of references to The Beatles, who definitely are one of the biggest influences in rock music, and whose songs certainly contain plentiful of the harmonic and musical features discussed here. The reason for this exclusion is simply that so much has already been written about the group and their music.

## 2.2 Notation

In this text, chords are written as upper-case lead sheet chords like C and E<sup>b</sup>m. Individual notes are written with lower-case letters like this: c and e<sup>b</sup>. Roman numeral analysis will be used according to the convention described by Biamonte (2010). This means that the notation assumes the default root positions of the major scale and that deviations are marked with an accidental. The reason for using this standard is that it is well established and requires little explanation. However, criticism against this convention would be valid, since it might reinforce the major scale as sole standard unit in music, and this is precisely what this article argues against. The minor variants of the scale will be marked with a flat accidental (e.g., <sup>b</sup>III, <sup>b</sup>VI, and <sup>b</sup>VII), and the major variants without accidental. It could just as well have been the other way around, that the major variants were tagged with accidentals (<sup>#</sup>III, <sup>#</sup>VI, and <sup>#</sup>VII), but that would risk creating unnecessary confusion. So, for pragmatic clarity the widespread convention will be used. Minor tertial chords will be written with lower-case roman numerals (e.g., ii = Dm), and major tertial chords will be written with upper-case (e.g., II = D). Most of the time, rising fifths will be referred to as falling fourths, and falling fifths will be called rising fourths.

## 2.3 Analysing music

Rock/pop/soul/hip-hop is almost always realised as a recording, most often created in a studio but sometimes in a live concert. Scores are rare, and if they exist, probabilities are high that they were produced after a performance or studio production, and not before. More common than complete scores are lead sheet chord analyses of varying interpretations, available online. Analysing rock/pop/soul/hip-hop usually requires close and attentive listening to recordings. Sometimes the analysis can be made solely from listening, and sometimes a transcription of the music is necessary. All musical transcriptions from recordings in this text have been made by the author. Listening to music is a subjective experience and sometimes two people can have differing notions about things like where the tonal centre lies (De Clercq and Temperley, 2011, p. 57). In music theory there should, however, be room for different interpretations.

In musical analysis the harmony is usually of special interest, and this text is no exception. The reason for focusing on harmony here is explained in the introduction. It should be mentioned that harmonic analysis might be redundant for certain music where groove, timbre and periodicity are more important than the harmony (Tagg, 2018). In rap, voice leading and harmony are usually of little or no importance, and conventional use of these elements is often deliberately avoided (Komaniecki, 2019, p. 21). Central to rap music are instead rhythm, sound and flow. But the topics of timbral influence, groove or periodicity in the music are beyond the scope of this text and could easily fill a separate study.

When analysing music as a whole, it is necessary to consider both the creative process of the composer and the perceptive process of the listener, as well as the

actual content of the music (Nattiez, 1990, p. 15). According to Nattiez (1990, p. 17), there is no obvious connection between the creative process (e.g., composing music), and the process of perception (e.g., listening to music). In this regard, music is not something absolute, consisting of unchanging building blocks that can be examined by different people, yielding the same result every time. In this text, focus lies more on the neutral aspect in music – its tonal content – even though there is also an awareness of the creative and the perceptive processes. For example, one reason why major triads are sometimes being moved around in parallel may be the use of open tunings and slide playing on the guitar by the likes of Son House. This has turned into a stylistic feature in blues-based rock and sometimes soul music. In the perceptive process, possible differences in experiencing a tonal centre have already been mentioned. Another example of the perceptive process involves the **power chord**, which is a common feature in rock music. The power chord consists of a root note plus a perfect fifth, and sometimes an octave. When this chord is played with a distorted sound, it is sometimes possible to hear a major third (i.e., a major tenth) as well, due to combination tones. The distorted sound, rich in overtones, can enhance this perception (Doll, 2017, ch. 1). This may or may not have been the intention of the creator. Such phenomena could come into consideration when deciding on the tonal content of a harmonic shape. Sometimes it is hard to decide a chord's quality (major or minor), and sometimes both can be heard (De Clercq and Temperley, 2011, p. 56). Ambiguity and harmonic uncertainty in some songs correspond well with Nattiez' remark about 'music's capacity (with all other symbolic forms) to give rise to a complex and infinite web of interpretants' (Nattiez, 1990, p. 37).

#### 2.4 Rock theory in research and education

Serious attempts to understand, categorise and analyse rock music with a musicological approach started around 1990, according to Cook (2007, p. 119). Early pioneers in this field were Walter Everett, Philip Tagg, John Covach and Richard Middleton. Important contributions have since been given by Ken Stephenson, Nicole Biamonte, Allan Moore and David Temperley, among others. Even though there is more and more musicological research being done in the field of rock/pop/soul/hip-hop, a gap between theory and practice can be found in music education. Schools often offer courses for typical rock band instruments, as well as courses in music theory. But textbooks in music theory tend to focus on the euroclassical repertoire, in order to explain how 'music' works (Benjamin, Horvit, and Nelson, 2008; Benward and Saker, 2009; Clendinning and Marvin, 2016; Eriksson, 2004; Laitz, 2012; Taylor, 1991). This is perfectly natural, necessary and relevant for the student aiming to master euroclassical traditions. There are some textbook exceptions, truly relevant to rock (Gotham, et al., 2022; Ingelf, 2005). Yet some textbooks aimed at creators of rock/pop/soul/hip-hop use the major scale as the only central unit, and harmony

is explained in basically the same way as in the euroclassical tradition (Allen, 2018). The issue of defining a theoretical language relevant to rock has perhaps not been viewed as a matter of concern, because it has been very common that the composers, producers, musicians and critics of rock/pop/soul/hip-hop lack formal musical education anyway (Gullberg, 1999). In many cases this has been regarded as an advantage and a quality stamp: that the musicians are true artists, and that their music is authentic (Folkestad, 2006; Söderman, 2007; Temperley, 2018). This seems to gradually change, yet the theoretical language for rock/pop/soul/hip-hop is still wanting in many regards.

### 3. Methods of harmonic analysis

Before describing and defining the harmonic shapes, it could be helpful to provide brief explanations of some concepts and musical logic involved. This includes new terms and neologisms, common harmonic movements and tonal content, how a tonal centre might be established, as well as modality in rock/pop/soul/hip-hop. An attempt at clarifying some of these things is presented in sub-sections below.

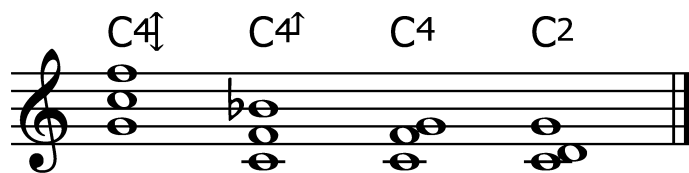
#### 3.1 New terms and neologisms

Philip Tagg (2018) has made important contributions to a theoretical language that is applicable to rock/pop/soul/hip-hop. Among the terms that Tagg suggests are **chord shuttle** (two chords back and forth), and **chord loop** (three or more chords looping), which both describe repeating chord patterns. Two other valuable concepts suggested by Tagg are: a naming convention for pentatonic root movements in relation to the perceived tonal centre, and chord symbols for quartal harmony. He uses traditional solmization as an easy-to-remember internal relationship between the members of the anhemitonic (no semitones) pentatonic scale: DOH, RÉ, MI, SOL, LA.<sup>6</sup> This is a clearer method than the system of rotations suggested by Biamonte (2010), which involves memorizing the arbitrary order of the rotations. An original feature in rock is that the pentatonic scale is often consistently harmonised with major tertial triads (Everett, 2004), like in ‘I’m Not Your Stepping Stone’ (1966) by Paul Revere & The Raiders. That song features MI-pentatonic roots harmonised with major tertial triads.

In Example 1, some of Tagg’s suggested chord symbols for quartal harmony are presented. Keep in mind that these chords are considered independent sonorous identities and *not* chords that are ‘sus’, ‘add’ or ‘omit’. In the cases of C<sup>4</sup> and C<sup>2</sup>, the fifth is implied.

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<sup>6</sup> Clarifying examples of pentatonic solmization: DOH-pentatonic equals c–d–e–g–a (î–2̂–3̂–5̂–6̂); MI-pentatonic equals e–g–a–c–d (î–b̂–3̂–4̂–b̂7̂); LA-pentatonic equals a–c–d–e–g (î–b̂–3̂–4̂–5̂–b̂7̂).



**Example 1.** Some of Tagg’s suggestions for notation of quartal harmony (Tagg, 2018).

As mentioned, chord progressions in falling fourths are often found in rock, while jazz and euroclassical music often move in the opposite direction, with root movements in rising fourths (Stephenson, 2002). A sequence of root movements in rising fourths will be called **domino** or ‘domino sequence’ in the following. The equivalent for falling fourths will be called **subdomino** or ‘subdomino sequence’. In the pitch space, which will be presented below (section 4.1), the subdomino roots move to the right and the domino roots move to the left.

### 3.2 Tonal content in rock

Unlike the euroclassical tradition, rock/pop/soul/hip-hop has no long and established history of theoretical expectations when it comes to harmonic content and movement. Despite this, the harmony rarely seems random, but it has been unclear which harmonic features, chord progressions, or scales are most common in the style. When discussing a theoretical framework for harmony in rock/pop/soul/hip-hop, it is helpful to be aware of these things. One way to acquire this awareness is with the help of statistical methods (Burgoyne, Wild and Fujinaga, 2013; Shaffer, et al., 2020; Temperley and De Clercq, 2013). The findings by Temperley and De Clercq (2013) are of particular interest for this article. Among them is a very common scale called the ‘pentatonic union’ scale:  $\hat{1}-\hat{2}-\flat\hat{3}-\hat{3}-\hat{4}-\hat{5}-\hat{6}-\flat\hat{7}$ , which will be explored later. Other statistical findings indicate that there are several harmonic sub-styles present in rock/pop/soul/hip-hop. Shaffer, et al. (2020, p. 156) present a musically meaningful five-cluster model of common harmonic movements, such as blues-based harmony, falling fourth sequences, and modal progressions. These characteristics can be found in the descriptions of the harmonic shapes, later in the text.

### 3.3 Tonal centre

Identifying a tonal centre, if one exists, can be important for the definition of a harmonic shape. The tonal centre is the heaviest point to which the other notes in a shape gravitate. In rock/pop/soul/hip-hop there are several ways that the tonal centre establishes itself, and the metric placement of chords strongly influences how the tonal centre is identified (Temperley, 2018). The first chord often takes the role of a tonic (Spicer, 2017), but other times it is hard to determine where the tonal centre lies, even if the harmony is fairly simple (Nobile, 2020). A simple shift of chords from strong to weak beats/hyperbeats can make the ear alter its perception of the tonal gravity. This point is made in Example 2, which is similar to what Temperley (2018) argues.

F B $\flat$  C 'My Best Friend's Girl' (1978) by The Cars

C B $\flat$  F 'You Ain't Seen Nothing Yet' (1974) by Bachman Turner Overdrive  
Originally in A

**Example 2.** The metric placement of the harmony decides where the tonal centre is.

In Example 2 the two songs have two different tonal centres, yet they contain exactly the same chords and are based on the same scale notes. The first song is in the traditional key of F major, while the second song is in C mixolydian – and features a modal tonal centre. Doll (2017) states that both tonal centre and tonic are sufficient terms for describing the harmonic centre of gravity, regardless of whether they are tonics in a traditional key or modal tonal centres. In 'Black Coffee' (2000) by All Saints the tonal centre changes from verse to chorus with a simple chord swap on a strong hyperbeat. The pre-chorus at [0:17] features a chord shuttle:  $Bm \leftrightarrow E$  (Dorian mode:  $i \leftrightarrow IV$ ), with the  $Bm$  on a strong hyperbeat. At [0:34] the chorus instead starts on E and then proceeds to  $Bm$  on the weaker hyperbeat, causing the tonal centre to shift from  $Bm$  to E (Mixolydian mode:  $I - iv$ ).

### 3.4 Modality

Songs in rock/pop/soul/hip-hop can sometimes be built around a modal tonic (or tonal centre). This is an important insight for the definition of the harmonic shapes, since different modes can contain the same notes but have different tonal centres. These different modes would render a different meaning to the shape. An example of a modal pop song is 'Solar Power' (2021) by Lorde, featuring a Mixolydian mode:  $I - \flat VII - IV$ . Phrygian mode is common in hip-hop, for example in 'Doo Wop (That Thing)' (1998) by Lauryn Hill ( $i \leftrightarrow \flat vii$ ).

Understanding and appreciation of modality in music has had a renaissance in the 20<sup>th</sup> century through jazz and rock (Björnberg, 1989, p. 2; Lilja, 2009, p. 157).

Moore and Martin (2019) are of the opinion that tonality in rock music should be regarded as exclusively modal. This means that a major key (e.g., G major), should be considered an Ionian mode. Consequently, the number of exceptions would be reduced, and some progressions could be seen as stylistically normative.

### 3.5 Sum-up

The existing systems of tone groupings, like diatonic scales, often do not match the tonal content of songs in rock/pop/soul/hip-hop. In section 5, an alternative way of grouping tones will be accounted for in detail. The topics discussed so far highlight the problem tackled in this text. There are few or no relevant theoretical frameworks, nor consensus regarding harmonic features in rock/pop/soul/hip-hop. On the one hand, practitioners of rock/pop/soul/hip-hop usually lack formal musical training and a way to understand the music theoretically. On the other



hand, there is a shortage of useful theoretical language in music education textbooks, and in practice for rock/pop/soul/hip-hop. So, even if more and more young musicians and composers of rock music go to music colleges today, there simply is no established theoretical language or a set of common terms to be learned that is highly relevant to rock.

#### 4. Musical graphs, pitch grids and harmonic space

To visualise music and tonal hierarchies, theorists have traditionally used artefacts in the form of abstract graphs and signs (Lerdahl, 2005). Staff notation is one example, and the circle of fifths is another familiar graph (Rudbäck, 2020). Lesser known are perhaps Weber's circle of thirds (Weber, 1832/1842) and Schoenberg's key regions (Schoenberg, 1911/2011). Tymoczko (2011, p. 79) writes that geometry can help clarify connections in the music that are not immediately obvious in traditional staff notation. Apart from the circle of fifths and staff notation, theorists such as Helmholtz, Oettingen and Riemann have used various forms of pitch spaces, table of relations,<sup>7</sup> or *Tonnetze* (tone-networks) to visualise tonal connections (Mooney, 1996). The distance between notes in such a pitch space often illustrates the intuitive musical distance, and not a proximity in frequency. It is believed that the ear, accustomed to Western music, perceives a fifth as a closer relative than a whole tone, and the whole tone as closer than a semitone (Lerdahl, 2005, para. 42). The idea of a pitch space was first presented by the mathematician and music theorist Leonhard Euler. In his *Tentamen novae theoriae musicae*<sup>8</sup> (1739) we can find the first seed to what was later called the 'mirror of music' (Mooney, 1996, p. 2).<sup>9</sup> In Euler's table, the pitches were arranged according to mutual consonance with other pitches. Basically, this meant perfect fifths on the grid's x-axis and major thirds on the y-axis, although Euler's table did not use equal temperament. Christopher Longuet-Higgins used Euler's table, which he called the 'harmonic space', to show how pitches outlined a shape when played at the same time, and how a diatonic key can be represented by a geometrical graph (Longuet-Higgins, 1979).

The neo-Riemannian theory uses a *Tonnetz* similar to Riemann's, where the pitches are spread over a diagonal grid. The theory, first formulated by David Lewin (1982) and Brian Hyer (1989), is inspired by Riemann's (1916/1992) ideas on harmonic transformations that are not necessarily a part of a dominant-tonic harmonic flow confined to a specific key (Lewin, 1982). The basic idea of the harmonic transformation is to keep one or two notes in a tertial triadic chord and move the other(s) a semitone or a tone. The neo-Riemannian theory can be called 'tonic-blind', and that is perhaps one of the greatest strengths of the system. Cyclic and/or symmetrical harmonic progressions with tonal ambiguity can be analysed

<sup>7</sup> Original German term: 'Verwandtschaftstabelle' (Oettingen, 1913, p. 103).

<sup>8</sup> Translation: *An attempt at a new theory of music*.

<sup>9</sup> Original Latin term: 'Speculum musicum' (Mooney, 1996, p. 2).

in a beneficial way, while simple and traditional chord progressions often receive unnecessarily complex, and sometimes mathematical, explanations; see, for instance Cohn (1997), or Fiore and Noll (2018). Common to most of the variants of a pitch space, *Tonnetz*, table of relations or harmonic space is that they have some combination of perfect fifths in one dimension, and major or minor thirds in a second dimension.

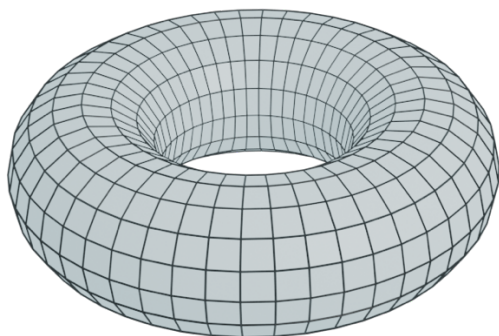
#### 4.1 The donut

The harmonic shapes suggested in this article will be presented using a pitch space resembling the ones described above. It is basically a table of pitches with perfect fifths horizontally and minor thirds vertically. This pitch space uses equal temperament and **pitch classes** (Pearsall, 2012). To clarify: the tone **d#** is the same as the tone **e<sup>b</sup>** with no regard to octave.

	1	2	3	4	5	6	7	8	9	10	11	12	1
1	D <sup>b</sup>	A <sup>b</sup>	E <sup>b</sup>	B <sup>b</sup>	F	C	G	D	A	E	B/C <sup>b</sup>	G <sup>b</sup>	D <sup>b</sup>
2	B <sup>b</sup>	F	C	G	D	A	E	B/C <sup>b</sup>	G <sup>b</sup>	D <sup>b</sup>	A <sup>b</sup>	E <sup>b</sup>	B <sup>b</sup>
3	G	D	A	E	B	F <sup>#</sup>	D <sup>b</sup>	A <sup>b</sup>	E <sup>b</sup>	B <sup>b</sup>	F	C	G
4	E	B	F <sup>#</sup>	C <sup>#</sup>	G <sup>#</sup>	D <sup>#</sup>	A <sup>#</sup> /B <sup>b</sup>	F	C	G	D	A	E
1	C <sup>#</sup>	G <sup>#</sup>	D <sup>#</sup>	A <sup>#</sup>	E <sup>#</sup> /F	C	G	D	A	E	B	F <sup>#</sup>	C <sup>#</sup>

**Figure 1.** The pitch space consists of perfect fifths horizontally and minor thirds vertically.

The sequence of pitches starts over after four steps vertically. If converted to a three-dimensional figure it would be a cylinder. From left to right, the sequence starts over after twelve steps. If we were to attach the three-dimensional cylinder's ends to each other after twelve steps, the graph would be a torus, or a donut, and the sequence of pitches would seamlessly continue in an endless loop.



**Figure 2.** 3D-representation of the pitch space – a donut.

For practical reasons, a two-dimensional version of the donut will be used hereafter. In Figure 3, various intervals from the reference pitch (c) are displayed in the donut pitch space.

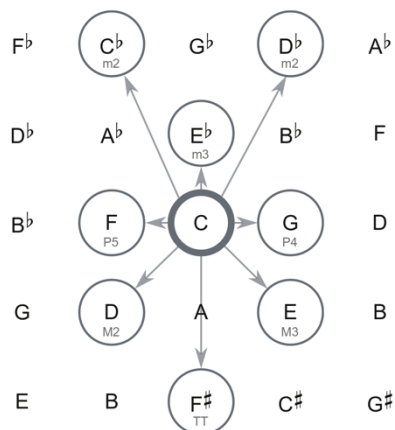


Figure 3. Map of intervals in the donut pitch space.

The layout of the pitches represents the intuitive musical distance between notes as described above, which means that a semitone is farther away than a fifth. Combining various notes and chords superimposed over the donut pitch space will visualise connections and common notes through different shapes, as will be demonstrated later.

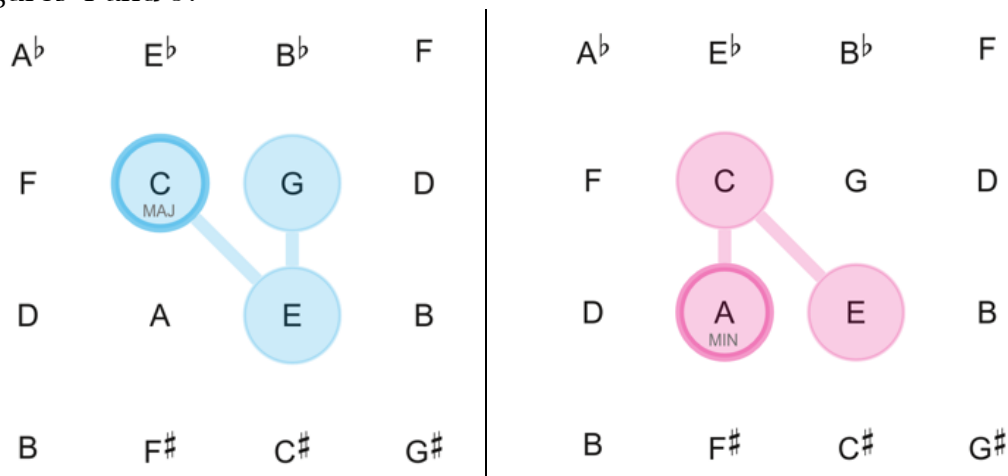
## 5. Harmonic shapes

Godfrey Weber (1832/1842) criticised previous music theorists for not examining qualities in the combination of tones *first*, and *then* constructing a system of rules. Since it seems difficult to establish a definite set of rules for all harmonic movement in every context (Kopp, 2002, p. 137), it is perhaps better to describe the phenomenon specific to each context. The characteristics defined for one context naturally need not be applicable to another. Harmonic shapes differ from previous systems for grouping tones (e.g., hexachords) in that it does not require any pre-defined rules for which combination of tones to include or exclude. The music in focus will determine the rules and set the borders of its harmonic shape. The tonal content (chords, melody, bass line, etc.) of a piece of music can be combined into a harmonic shape. It is also possible to have one shape for the harmony, and another shape for the melody, if this is beneficial for clarity, and if the two are structurally ‘divorced’, yet compatible (Temperley, 2007). A harmonic shape can also have one or more sub-shapes, which do not use all the pitches contained in the larger shape. When looking for common features between songs in a larger corpus, it can be kept in mind that songs with similar collections of tones can be grouped together, if the typical tonal behaviour within the harmonic shape is akin between the songs. Similarities can be used to strengthen the evidence of a musical phenomenon, for example with regard to root movements,

tonal centre, blues influences or quartal harmony. The two things mentioned above should be considered when defining a more general harmonic shape. For example, the Ionian mode in C contains the same notes as the Mixolydian mode in G, but the tonal behaviour is different so they should be considered as individual shapes. Below, there are more examples and detailed discussions on this topic. Songs need not always be categorised together with similar songs. A song can basically have a harmonic shape of its own, highlighting its internal tonal relationships and characteristics, which can be a valuable insight. In this text, tertial triads are present in most examples, but the donut pitch space can obviously be used for extended chords, quartal harmony or power chords as well. Some songs use all twelve semitones, and in such cases it might be more practical to divide the harmonic shape into sub-shapes, based on the structure of the song.

### Chord-shapes in the donut

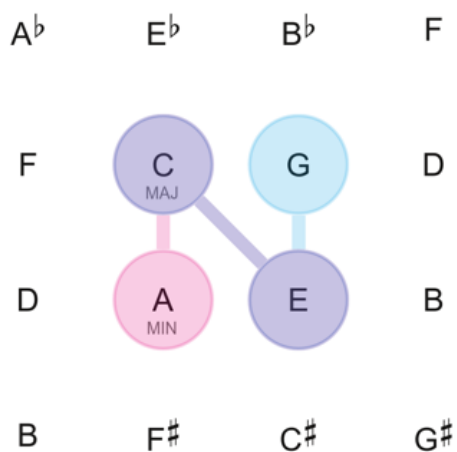
To bring contour to the donut pitch space, some shapes must be added. A good starting point could be chord-shapes, like the major and minor tertial triads shown in Figures 4 and 5.



**Figure 4.** The shape of tertial triads in the donut.

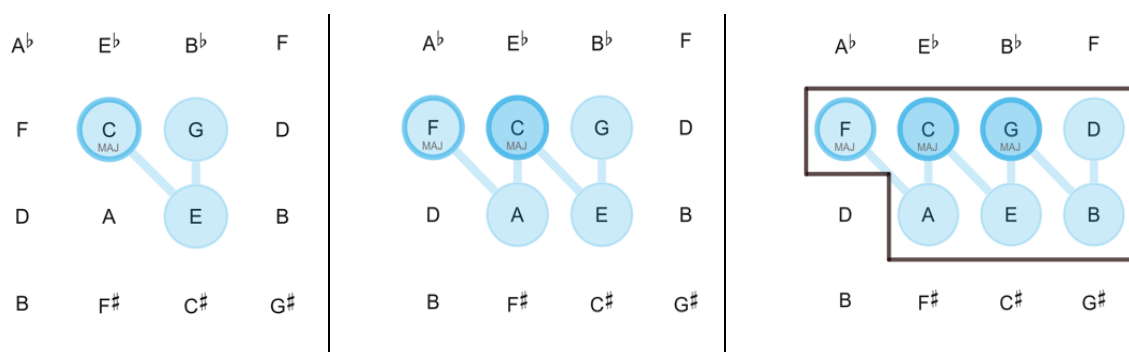
(a) Usually, the major tertial triad will be displayed as shown above. The connections in this figure are made up of rising, diatonic thirds. P1-M3-m3.

(b) Usually, the minor tertial triad will be displayed as shown above. The connections in this figure are made up of rising, diatonic thirds. P1-m3-M3.



**Figure 5.** The relative chords C ↔ Am represented in the donut. Shared notes get a purple colour.

In Figure 6, a step-by-step illustration of the construction of a ‘classic’ harmonic shape is shown.



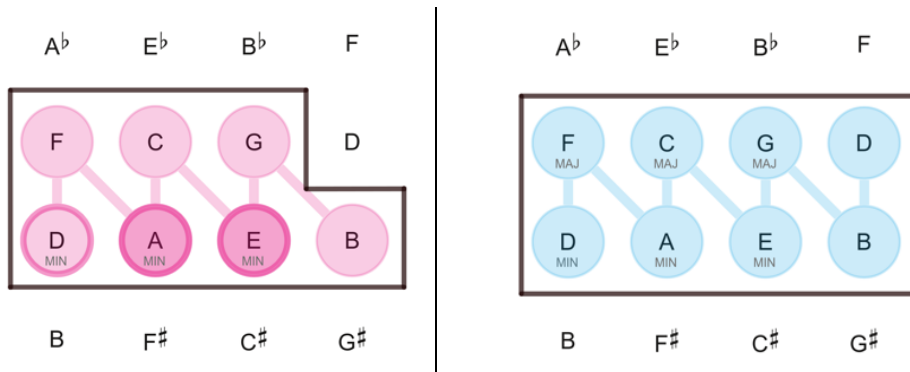
**Figure 6.** The main chords of a traditional key represented in the donut pitch space.

(a) The major tertial triad C.

(b) Major triads C and F, shown as chord shapes in the pitch space. The shared note c gets a darker colour.

(c) Major triads C, F and G. When combined, these chords can be outlined in a ‘classic’ harmonic shape, equal to the C major scale/key.

The harmonic shape in Figure 6 can be framed in various ways. For example, the tone d under f can be included instead of d above b. That way the harmonic shape is better adapted to show the relative submediants. For pedagogical reasons, a duplicate of the tone d can be included, creating a rectangular harmonic shape. These things are shown in Figure 7.



**Figure 7.** Diatonic submediants (a), and a variant of the harmonic shape of C major (b).

(a) The minor tertial triads (submediants) of C major. Shared tones are somewhat darker.

(b) The duplicate note *d* is included in the harmonic shape – for clarity.

The harmonic shapes shown in Figure 7 are outlined from the tonal content of the familiar major scale (i.e., the key of C major). If one starts at the bottom left, it is possible to follow the diatonic stacking of thirds that forms the tertial triads: *d-f-a* = Dm, *f-a-c* = F, *a-c-e* = Am etc. In the figure below, the shape of C major is shown in pitch space context, and modal centres are indicated.

	1	2	3	4	5	6	7	8	9	10	11	12	1
1	D <sup>b</sup>	A <sup>b</sup>	E <sup>b</sup>	B <sup>b</sup>	F	C	G	D	A	E	B/C <sup>b</sup>	G <sup>b</sup>	D <sup>b</sup>
2	B <sup>b</sup>	F LYDIAN	C IONIAN	G MIXOLYDIAN	D DORIAN	A	E	B/C <sup>b</sup>	G <sup>b</sup>	D <sup>b</sup>	A <sup>b</sup>	E <sup>b</sup>	B <sup>b</sup>
3	G	D	A AEOLIAN	E PHRYGIAN	B LOCRIAN	F <sup>#</sup>	D <sup>b</sup>	A <sup>b</sup>	E <sup>b</sup>	B <sup>b</sup>	F	C	G
4	E	B	F <sup>#</sup>	C <sup>#</sup>	G <sup>#</sup>	D <sup>#</sup>	A <sup>#/B<sup>b</sup></sup>	F	C	G	D	A	E
1	C <sup>#</sup>	G <sup>#</sup>	D <sup>#</sup>	A <sup>#</sup>	E <sup>#/F</sup>	B <sup>#</sup>	G	D	A	E	B	F <sup>#</sup>	C <sup>#</sup>

**Figure 8.** Framing of the traditional key of C major (Ionian), and the modes using the same collection of pitches.

If the whole shape in Figure 8 is moved one step to the right, we would be framing the traditional key of G major, or one of the other modes with a new corresponding tonal centre.

## 5.2 Blues roots

American blues is an important influence in rock/pop/soul/hip-hop (Moore and Martin, 2019, ch. 3; Lilja, 2009, p. 154). In a traditional twelve-bar blues the following chords are used: *I*<sup>7</sup> → *IV*<sup>7</sup> → *V*<sup>7</sup>. The seventh in the chords should be considered as stable and not as a dissonance waiting to be resolved, i.e., ‘dissonance-as-identity’ (Biamonte, 2010, p. 96). It is pointless to relate the three

seemingly functional dominant-seventh chords in a blues as derived from three different euroclassical keys. The chords of the blues can be outlined in the donut pitch space, perhaps in a more enlightening way than a far-fetched connection to a traditional key (Figure 9).

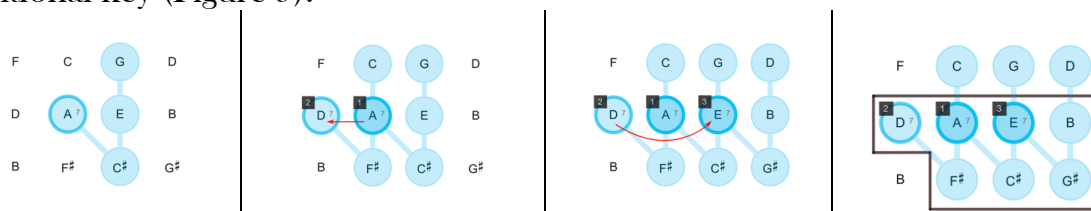


Figure 9. The seventh chords of a blues laid out in the donut pitch space.

(a) A<sup>7</sup> - The first chord of a blues in A. The chord shape illustrates the stacking of thirds.

(b) The second chord of a blues in A is added: A<sup>7</sup> → D<sup>7</sup>

(c) The third chord of a blues in A: A<sup>7</sup> → D<sup>7</sup> → E<sup>7</sup>

(d) The shape of the euroclassical key must be extended to accommodate the blues.

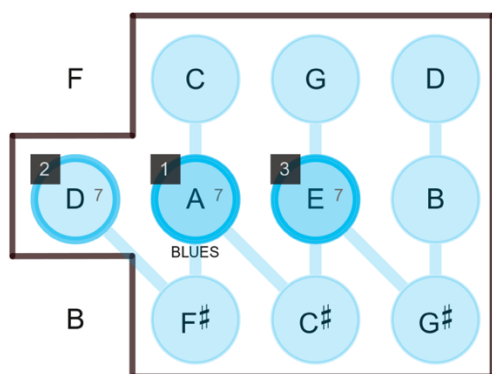
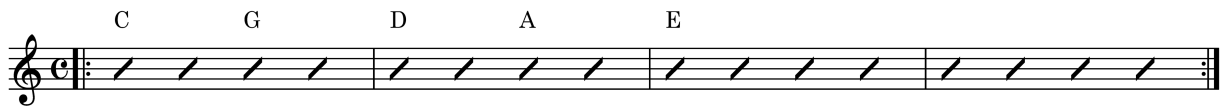


Figure 10. The harmonic shape of a standard blues. This shape will be called DELTA.

In Figure 10, the notes that are used in a standard blues are framed by the DELTA-shape. This shape can be given an intrinsic value and a unique identity, separated from previous notions about pitch-collections. One aspect that this shape covers is the stylistically ambiguous use of the major and minor third. The harmony can be playing major chords while the melody is on the minor or ‘neutral’ third. This major-minor ambiguity is a trademark of the blues that has been passed on to other styles of music. It is common for soloists to use the LA-pentatonic scale (see footnote 6) over these major chords. By giving the blues a shape of its own, no exceptions from a traditional key need to be accounted for. It is not only a standard blues that is uncomfortable in euroclassical theoretical clothes. The song ‘Hey Joe’ (1966), mentioned in the introduction, is equally hard to get a grip on with traditional tools of harmonic analysis. The key of that song could be interpreted as G, D or A, based on the chords used in the song. But the tonal centre is clearly E, and the question is how this should be accounted for. The

short answer is that the tonality is MI-pentatonic, with E as tonic. An attempt at clarifying more details follows below.



Example 3. ‘Hey Joe’ (1966) by Jimi Hendrix.

When using the donut pitch space, the chords fit neatly in the DELTA-shape as shown in Figure 11.

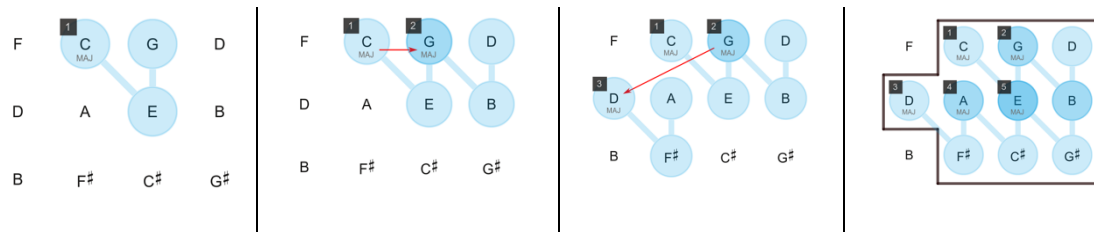


Figure 11. The chords of ‘Hey Joe’ placed in the DELTA harmonic shape.

(a) First chord of ‘Hey Joe’: C

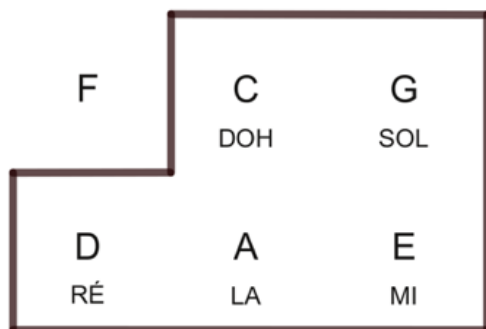
(b) The second chord is added: C→G. A falling fourth. The arrow indicates how the chords move.

(c) The third chord: C→G→D. Another falling fourth. The numbers indicate the order in which the chords are played, and they are placed on the root of the chord.

(d) The last two chords, A and E. The whole progression is a subdomino-sequence (falling fourths).

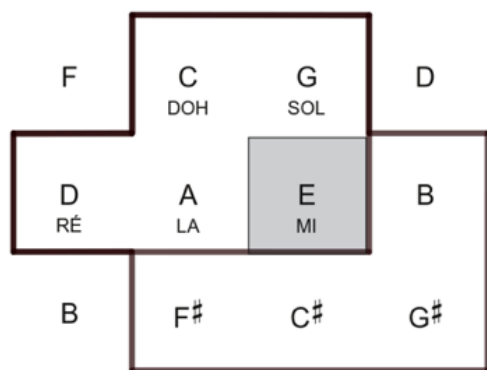
Perhaps it is not a coincidence that the blues-influenced version of ‘Hey Joe’ would fit in the DELTA-shape. This is an example when the tonal content of a harmonic shape is used in a new way, like forming various tertial triads while the music is still stylistically close to the blues. Another thing to note regarding ‘Hey Joe’ is that the chord roots are all members of the same pentatonic scale. The layout of the pentatonic roots over the pitch space is shown in Figure 12.





**Figure 12.** The pentatonic scale with solmization identifiers.

‘Hey Joe’ has its tonal centre on E and can be called **MI-centre** in a pentatonic context, which is relevant for this song. In Figure 13, the pentatonic shape is mixed with the DELTA-shape (with the duplicate **d** omitted). The MI-centre is indicated with a grey coloured square.



**Figure 13.** The pentatonic shape superimposed over the DELTA-shape.

In ‘Hey Joe’, chordal roots move through the pentatonic scale in a subdomino-sequence (falling fourths) from C to E. It is difficult to determine which traditional key this song belongs to, as mentioned earlier. With some new terms and new thinking, we could say that the song is **MI-pentatonic** in E, moving within the DELTA-shape.

## 6. Harmonic shapes and their character

As mentioned earlier, every song can basically have its own harmonic shape, and that is a key feature – the flexibility and scalability of the system. The method is intended to describe what is happening in the music after the fact in an educational and creatively inspiring manner – in a ‘hands-on’, practical sense. Naturally, there are many songs that share the same harmonic shape, just like in a traditional key. In what follows, some examples of typical harmonic shapes are presented. Some of these harmonic shapes correlate with recent statistical findings regarding tonal content in rock/pop/soul/hip-hop (Burgoyne, Wild, and Fujinaga, 2013; Shaffer, et al., 2020; Temperley and De Clercq, 2013), while others might

be new suggestions. It is worth remembering Oettingen's expression 'chaos of possibilities' (Oettingen, 1866, p. 156), realising that the number of possible combinations and variations of harmonic shapes that could be defined in the future is substantial. However, a compulsory sorting of songs into existing harmonic shapes would not serve any reasonable purpose. Some songs may well be regarded as unique.

The following process has been used when trying to determine harmonic shapes shared by several songs:

- The chord-shapes were positioned in the donut. The harmonic shape was outlined around the tonal content in a song, which would typically include chord notes, melody and/or other tonal features not part of the chord. The shape was modified to what subjectively best represented the movements of the song's harmony. Duplicate notes could be included in the shape for clarity. Sometimes only a section of a song was categorised into a shape.
- The tonal centre was identified, according to the description in section 3.4.
- When the tonal content, root movements, tonal centre, and/or other tonal trademarks had an obvious likeness, these songs were regarded as belonging to a common harmonic shape.

The first shape presented below (CLASSIC) is identical to a traditional key.

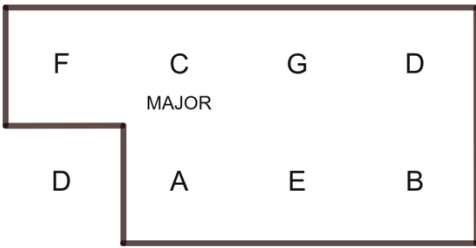
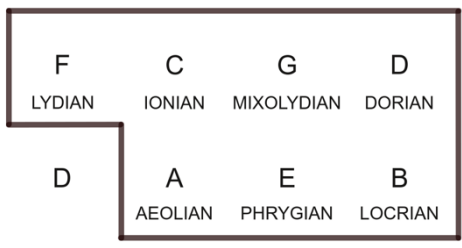
Main shape		Example of shape variation	
<p><b>CLASSIC</b></p>  <p><b>CHARACTERISTICS</b></p> <p>Dominant-governed major or minor tonality and harmony in line with euroclassical conventions. The harmony typically moves in falling fifths and falling thirds.</p> <p>When secondary dominants are used, the shape can be modified to accommodate this. The same goes for the major dominant if the song is in a traditional minor mode.</p>		<p><b>MODAL</b></p>  <p><b>CHARACTERISTICS</b></p> <p>Modal variations where the tonal content is identical to the CLASSIC shape, but the tonic can be found on any of the seven notes.</p> <p>The harmony does not necessarily follow euroclassical traditions.</p> <p>Minor mode without a major dominant is common, for example in the Aeolian mode, where G (<sup>b</sup>VII) can act as a dominant.</p> <p>The Dorian and Mixolydian modes are common. The Lydian mode is rare. In Mixolydian mode, a subdomino of <sup>b</sup>VII–IV–I, is common.</p>	
Tertial triads in the shape: C – Dm – Em – F – G – Am – Bm <sup>o</sup>		Tertial triads in the shape: C – Dm – Em – F – G – Am – Bm <sup>o</sup>	
Music examples	Tonal centre	Music examples	Tonal centre
<i>C.P.E. Bach</i> Cello concerto in B-flat major H.436: I (1751)	B <sup>b</sup> (major)	<i>U2</i> 'In God's Country' (1987)	D – mixolydian
<i>The Crows</i> 'Gee' (1953)	E <sup>b</sup> (major)	<i>Bruce Springsteen</i> 'The River' (1980)	E – aeolian
<i>Ritchie Valens</i> 'La Bamba' (1958)	C (major)	<i>2Pac</i> 'Keep Ya Head Up' (1993)	G <sup>#</sup> – phrygian
<i>The Zutons</i> 'Valerie' (2006)	E <sup>b</sup> (major)	<i>Miles Davis</i> 'So What' (1959)	D/E <sup>b</sup> – dorian
<i>The Housemartins</i> 'Happy Hour' (1986)	B <sup>b</sup> (major)	<i>Laurie Anderson</i> 'O Superman' (1982)	Cm/A <sup>b</sup> – shared tonic
<i>The Kid Laroi</i> 'Without You' (2020)	A (minor)	<i>Tom Petty</i> 'Mary Jane's Last Dance' (1982)	A/E – dorian

Table 1. Traditional major key (CLASSIC) and modal variations (MODAL).

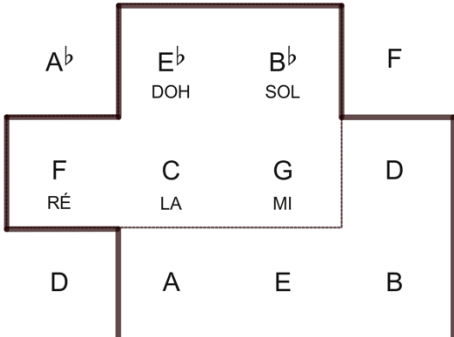
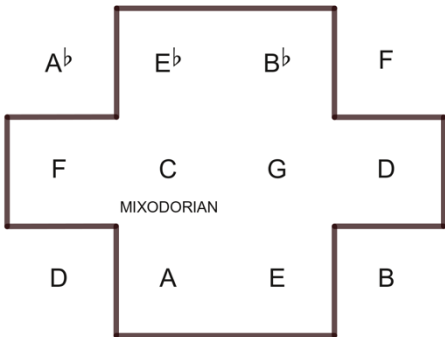
Main shape		Example of shape variation	
<p><b>DELTA</b></p>  <p><b>CHARACTERISTICS</b></p> <p>Harmony and stylistic features are blues-based, for example the relaxed attitude towards major/minor modes.</p> <p>Pentatonic root movements are common and moves in the solmization area indicated above. Usually, these roots are harmonised with a major tertial triad, possibly with an extended seventh as well.</p> <p>In extended chords, the dissonant note is usually stable and should be considered an identity, not a function.</p> <p>Subdomino-sequences, as well as rising thirds are common.</p> <p>The tonal centre can vary among the pentatonic roots. MI-centre is common.</p> <p>The duplicate tone f can also be included in the shape for clarity in certain cases.</p> <p>This shape holds two pentachords: c-d-e<sup>b</sup>-e-f and g-a-b<sup>b</sup>-b-c</p> <p>Tertial triads in the shape: C – Cm – Dm – Em – F – G – Gm – Am – E<sup>b</sup> – B<sup>b</sup></p>		<p><b>MIXODORIAN / Pentatonic Union</b></p>  <p><b>CHARACTERISTICS</b></p> <p>Root movements and other harmonic features as described under the DELTA-shape.</p> <p>Various combinations of ‘Guitar Box Patterns’ are common.</p> <p><sup>b</sup>VII often functions as a dominant.</p> <p>Soft ending from IV to I is common.</p> <p>The tonic can be major, minor or both.</p> <p>This collection of tones is the second most common in Temperley and De Clercq’s statistical analysis (2013). They call it the ‘pentatonic union scale’.</p> <p>The tonal content is a mixture between the Mixolydian and Dorian modes: c-d-e<sup>b</sup>-e-f-g-a-b<sup>b</sup>-c</p> <p>Tertial triads in the shape: C – Cm – Dm – F – Gm – Am – E<sup>b</sup> – B<sup>b</sup></p>	
<p><b>Music examples</b></p> <p><i>Jimi Hendrix</i> ‘Hey Joe’ (1966)</p> <p><i>The Who</i> ‘Bargain’ (1971)</p> <p><i>The Spencer Davis Group</i> ‘Gimme Some Lovin’ (1967)</p> <p><i>Smashing Pumpkins</i> ‘Cherub Rock’ (1993)</p> <p><i>The Shins</i> ‘Sea Legs’ (2007)</p>	<p><b>Tonal centre</b></p> <p>E (MI-centre)</p> <p>B<sup>b</sup> (MI-centre)</p> <p>G (MI-centre)</p> <p>E (MI-centre)</p> <p>G (LA-centre)</p>	<p><b>Music examples</b></p> <p><i>Rolling Stones</i> ‘Jumpin’ Jack Flash’ (1968)</p> <p><i>Robert Palmer</i> ‘Sneakin’ Sally Through the Alley’ (1974)</p> <p><i>Spoon</i> ‘My Mathematical Mind’ (2007)</p> <p><i>Guns N’ Roses</i> ‘Paradise City’ (1987)</p> <p><i>Wilco</i> ‘Handshake Drugs’ (2001)</p>	<p><b>Tonal centre</b></p> <p>B<sup>b</sup>- mixodorian</p> <p>B - mixodorian</p> <p>G - mixodorian</p> <p>F<sup>#</sup> - mixodorian</p> <p>D - mixodorian</p>

Table 2. DELTA and MIXODORIAN

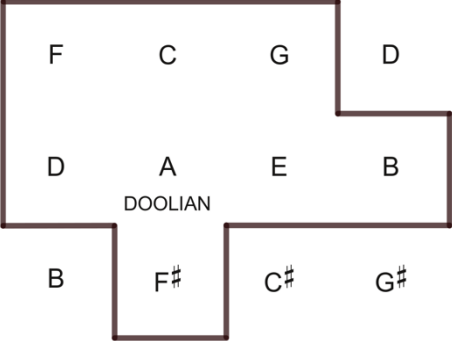
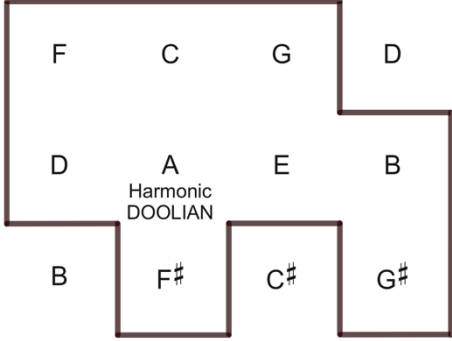
Main shape		Example of shape variation	
<p><b>DOOLIAN</b></p>  <p><b>CHARACTERISTICS</b></p> <p>Minor mode tonality.</p> <p>Chord progressions are often a mixture of the Aeolian progression <math>i-bvii-bvi</math>, and the Dorian signature chord <math>iv</math>.</p> <p>Root movements in thirds and steps (whole and half) are common.</p> <p>The tonal centre is located where indicated in the shape above.</p> <p>The tonal content is a mixture of the Dorian and Aeolian modes: <math>a-b-c-d-e-f-f\#-g</math></p> <p>Tertial triads in the shape: Am – Bm – Dm – Em – D – F – C – G</p>		<p><b>HARMONIC DOOLIAN</b></p>  <p><b>CHARACTERISTICS</b></p> <p>Same as DOOLIAN but with a major dominant.</p> <p>Descending bass lines are common.</p> <p>This collection of tones is also known as a traditional melodic minor scale, where step <math>\hat{6}</math> and <math>\hat{7}</math> are raised when ascending, but ‘natural’ or ‘lowered’ when descending (<math>b\hat{6}</math> and <math>b\hat{7}</math>).</p> <p>The tonal content is a mixture of Dorian and Aeolian modes with a major dominant: <math>a-b-c-d-e-f-f\#-g-g\#</math></p> <p>Tertial triads in the shape: Am – Bm – Dm – Em – E – D – F – C – G</p>	
<b>Music examples</b>	<b>Tonal centre</b>	<b>Music examples</b>	<b>Tonal centre</b>
<i>Radiohead</i> ‘Karma Police’ (1997) - verse	A – doolian	<i>The Animals</i> ‘House of the Rising Sun’ (1964)	A – harmonic doolian
<i>Supertramp</i> ‘The Logical Song’ (1979) - verse	C – doolian	<i>Led Zeppelin</i> ‘Stairway to Heaven’ (1971)	A – harmonic doolian
<i>Led Zeppelin</i> ‘Kashmir’ (1975) - verse	D – doolian	<i>Chicago</i> ‘25 or 6 or 2’ (1970)	A – harmonic doolian
<i>Foo Fighters</i> ‘The Pretender’ (2007)	A – doolian	<i>XTC</i> ‘Dear God’ (1986) - vers	A – harmonic doolian $bII$
<i>Air</i> ‘All I Need’ (1997)	G – doolian	<i>The Kinks</i> ‘Sunny Afternoon’ (1966) - vers	D – harmonic doolian
<i>The Beatles</i> ‘Eleanor Rigby’ (1966)	E – doolian	<i>J.S. Bach</i> Bourrée BWV 996 (1708)	E – harmonic doolian

Table 3. DOOLIAN

The harmonic shapes presented so far are valid for several songs, but naturally there are other closely related shapes as well. Among the music examples given for the Harmonic Doolian shape was the song ‘Dear God’. That song has clear Doolian characteristics, but at the end of the verse the following Phrygian flavour enters:  $\flat\text{II}-\text{V}^7-\text{i}$ . This regular exception from the Doolian shape can be added as an extension, shown below. A suitable name for the shape might be Doolian  $\flat\text{II}$ .

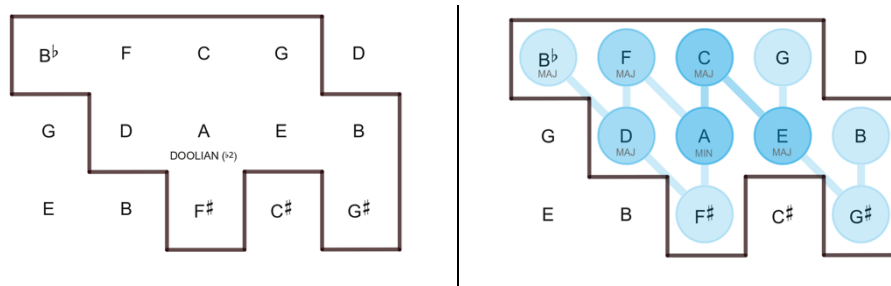


Figure 14. A variation of Harmonic Doolian featured in ‘Dear God’ (1986).

(a) DOOLIAN $\flat\text{II}$ . The song has DOOLIAN-characteristics, but the shape needs to be extended to accommodate the  $\text{B}^\flat$  at the end of the verse. The tonal centre is  $\text{A}$ .

(b) The shape contains a Phrygian spice due to the  $\flat\text{II}$  chord. The tonic chord notes are a little darker due to shared notes with other chords.

This section could go on and on with endless examples of possible variants of harmonic shapes and sub-shapes. But for the purpose of this text, only a few of the possible shapes have been exemplified.

## 7. Analyses in the donut

Lastly, analysing anchor tones, quartal harmony, and symmetry in the donut pitch space will be briefly explored below, as use cases. This can hopefully also inspire music creation.

### 7.1 Anchor tones

A new suggested new term - **anchor tone** - is similar but not identical to a couple of existing concepts. One of these concepts is the traditional ‘pedal tone’, and the other is what Kopp (2002) calls ‘common tones’ in neo-Riemannian theory. A ‘pedal tone’ means that a note is sustained in one instrument through several chords or over a long period of musical time. The ‘common-tone tonality’ in neo-Riemannian theory is largely built upon the existence of shared tones between two chords played in succession. The definition of an anchor tone is like a mixture of the two, and it is a phenomenon commonly found in rock/pop/soul/hip-hop. Basically, it means that one or more notes stay put while the surrounding notes change. The anchor tone differs from the pedal tone in that it does not have to be a sustained tone played by a single instrument. An anchor tone can be played by

several instruments or be sung, either alternately or at the same time, and can be articulated as staccato or in different octaves. It can be a part of a chord or played as a single note. The anchor tone differs from the common-tone tonality in the sense that the anchor tone does not have to be a part of a tertial triad, although it can be. The anchor tone can just as well be part of a quartal harmony or introduce a spicy dissonance to the harmony. An example of the latter is found in the song ‘Jacob’s Ladder’ (1980) by Rush. At [1:19] the guitar plays a chord sequence where the two top strings are played unfretted, producing two anchor tones that grind against the other, fretted, notes, creating rich harmonic content. The anchor tones are indicated by the red arc in Example 4. The chord  $B^4$  is not a ‘sus 4’ but an independent quartal harmony as described in the next section.

[1:19]  $B^4$   $C\Delta$   $F\#7(\text{add}4)$   $G^6$   $/A$

Guitar

Example 4. Anchor tones (b and e) in ‘Jacob’s Ladder’ (1980) by Rush.

In this passage, it is not clear where the tonal centre lies – a phenomenon common in rock music. This passage is an example of a chord loop, where the unclear tonic keeps the music constantly moving. It is also an example of when rock music is not compatible with a euroclassical key in any natural way, as was mentioned earlier. In Figure 15, the harmonic shape of the passage is shown. The shape could perhaps be called ‘harmonic phrygian’ if one assumes that  $B$  is the tonic. Other interpretations are of course possible. Characteristic of this harmonic shape is the presence of both  $c$  and  $c\#$  as well as  $a$  and  $a\#$ , facilitating a traditional dominant to  $B^4$  (which is never realised as such). In the figure below, the anchor tones (b and e) have a black border, and a bit darker shade of blue, signifying their frequent use. The note  $a$  is detached, since it is only played by the bass in passing over the  $G^6$  in the guitar.

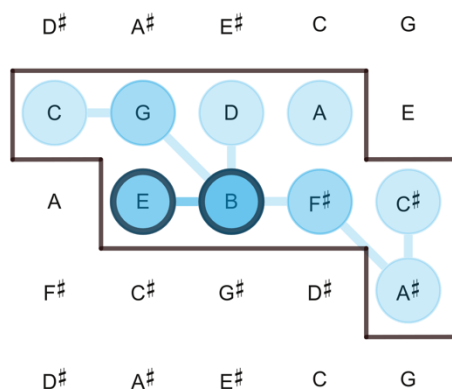


Figure 15. The harmonic shape of the looped section from [1:19] of ‘Jacob’s Ladder’ (1980).

Another example where an anchor tone plays a central role is in ‘Shine On You Crazy Diamond’ (1975) by Pink Floyd (Example 5). In that song the anchor tone  $b\flat$  is present in (almost) all chords and appears as a stylistic compositional idea. The anchor tone in that song functions as a kind of musical lubricant that makes all chord changes sound effortless and smooth.

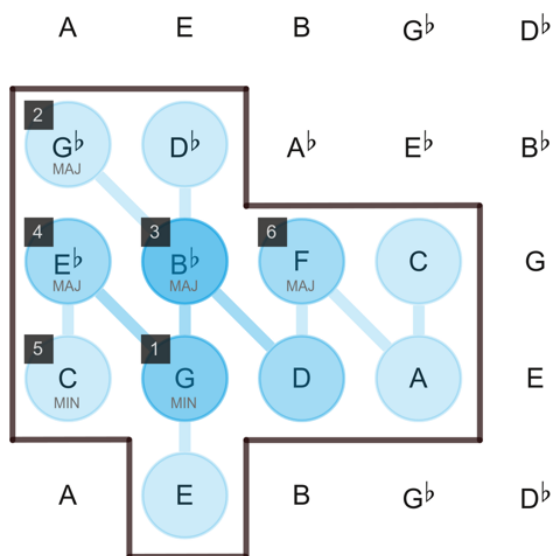
Section A (8:41):  $Gm$ ,  $G\flat$ ,  $B\flat$

Section B:  $E\flat$ ,  $/D$ ,  $Cm$ ,  $Cm7/B\flat$ ,  $F$

Section B (continued):  $Gm$ ,  $G\flat aug$ ,  $B\flat/F$ ,  $C7/E$ ,  $E\flat$ ,  $E^\circ$ ,  $B\flat/F$ ,  $Dm$ ,  $Daug/F\sharp$

**Example 5.** ‘Shine On You Crazy Diamond’ (1975). The anchor tone is notated to clarify the point, and not to represent an exact transcription of the recording.

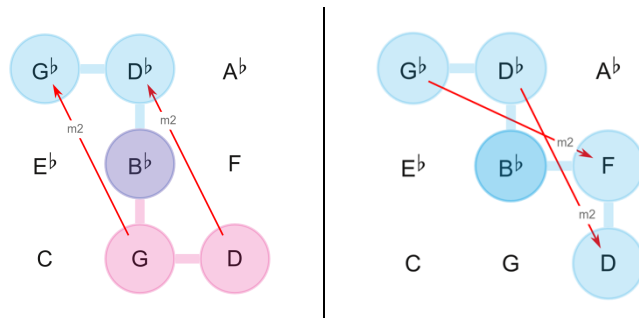
Anchor tones can open harmonic wormholes and make obscure chord progressions sound surprisingly smooth. Anchor tones are easily spotted in the donut when superimposing the chord shapes. In Figure 16, the harmonic shape of ‘Shine On You Crazy Diamond’ is shown. The anchor tone  $b\flat$  is central in the shape and present in the chords at the following positions: in  $Gm$  as minor third, in  $G\flat$  as major third, in  $B\flat$  as root and in  $E\flat$  as fifth. All this should be intuitively easy to visualise in the donut. The harmonic shape is a bit reminiscent of a Doolian shape, which contains both the Dorian  $\hat{6}$  and the Aeolian  $b\hat{6}$  and was presented in Table 3. The numbers over the roots indicate the order in which the chords are played in the A-section.



**Figure 16.** The harmonic shape of ‘Shine On You Crazy Diamond’ (1975).



It might be valuable to look at a couple of chord changes in this song more closely. The first chord change happens from  $Gm$  to  $G^b$ , two seemingly unrelated chords. But if we take the vantage point of the anchor tone  $b^b$ , we can see that the  $G^b$  is an intervallic mirrored image of the  $Gm$ . That is: a minor third up and a fifth down for  $G^b$ , and a minor third down and a fifth up for  $Gm$ . This can be seen in Figure 17, where the chord notes are laid out in the pitch space.



**Figure 17.** Movements in semitones around the anchor tone.

(a)  $Gm - G^b$ : The anchor tone  $b^b$  stays put while the other two notes are shifted a semitone down.

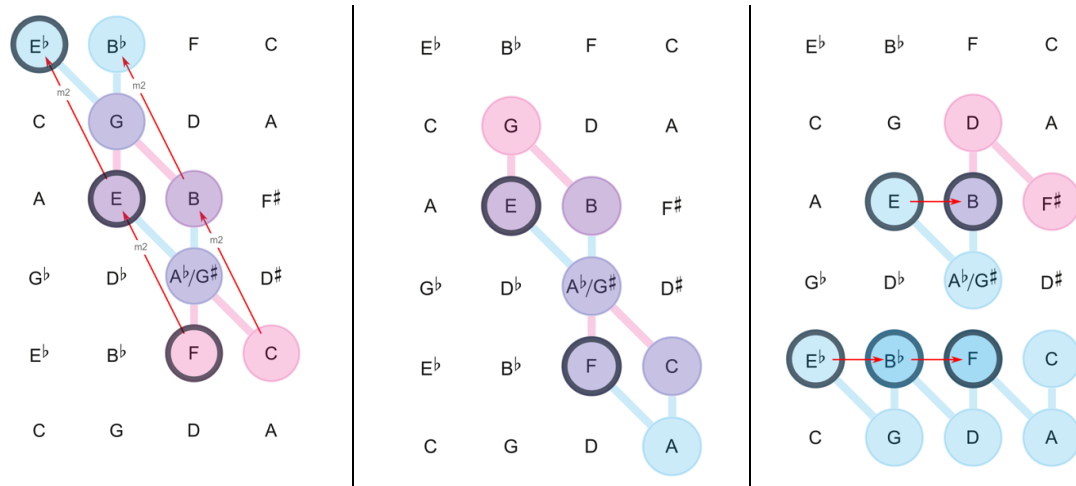
(b)  $G^b - B^b$ : The anchor tone  $b^b$  does not move while the  $g^b$  moves a semitone down, and the  $d^b$  moves a semitone up.

The movement in Figure 17a is called a ‘slide transformation’ in neo-Riemannian theory (Lewin, 2007, p. 178). This chordal movement is also featured in the song ‘Hollow Earth’ (2019) by Pye Corner Audio (Example 6). ‘Hollow Earth’ uses common-tone tonality (anchor tones) between every chord change, making the somewhat unconventional changes seem smooth.



**Example 6.** ‘Hollow Earth’ (2019) featuring common tones between the chords.

The slide transformations happen from two strong hyperbeats - bar 1 and bar 5. The song uses eleven pitch-classes (all except  $c\sharp$ ), so it seems sensible to divide the analysis into separate focal points. Figure 18 shows three significant relationships between the chords in ‘Hollow Earth’. Chord roots are circled with a thicker black border.

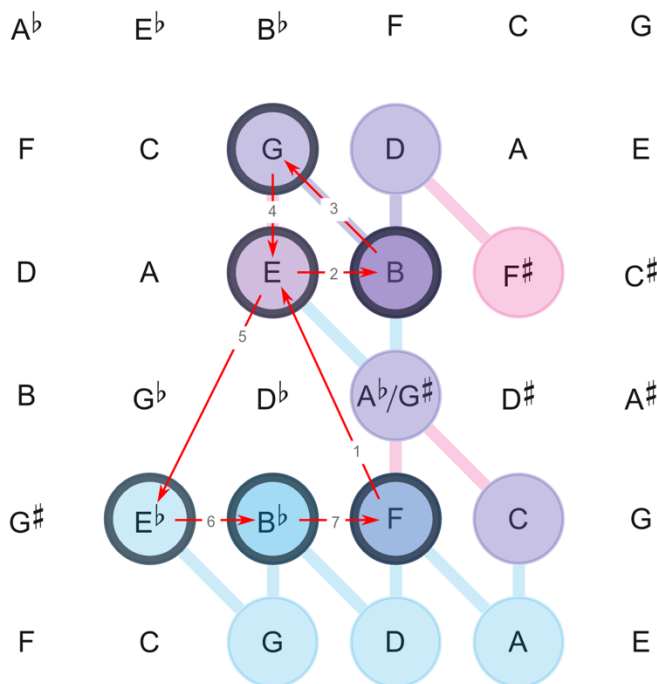


**Figure 18.** ‘Hollow Earth’ (2019). Chord interactions displayed in the donut.

(a) There are two slide transformations:  $Fm \rightarrow E$  and  $Em \rightarrow E^b$ . The anchor tones between these chords are  $a^b$  and  $g$ , respectively.

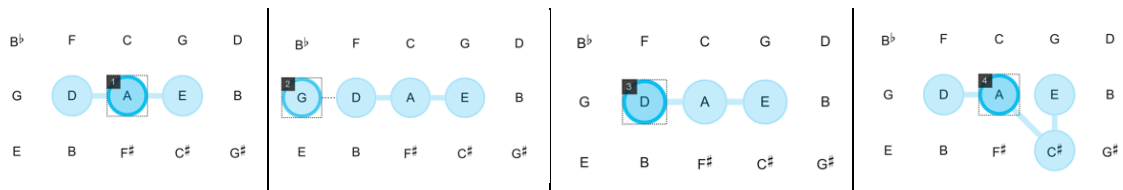
(b) Two of the chords,  $F$  and  $E$ , change modes at different points in the sequence, to  $Fm$  and  $Em$ , respectively. When focusing on the two chord roots, this is clearly reflected in the donut. The root and the fifth stay put, while the third changes.

(c) Two subdominos are present in the chord sequence:  $E \rightarrow Bm$  and  $E^b \rightarrow B^b \rightarrow F$ . In each subdomino the first chord’s fifth becomes the next chord’s root, and acts as an anchor tone. The first subdomino is also an intervallic mirror between the two chords.



**Figure 19.** All chord changes in ‘Hollow Earth’ (2019). Roots are circled, and the movements are indicated by arrows.





**Figure 20.** ‘Teardrop’ (1998) displayed in the donut. The roots are indicated by squares with dashed borders.

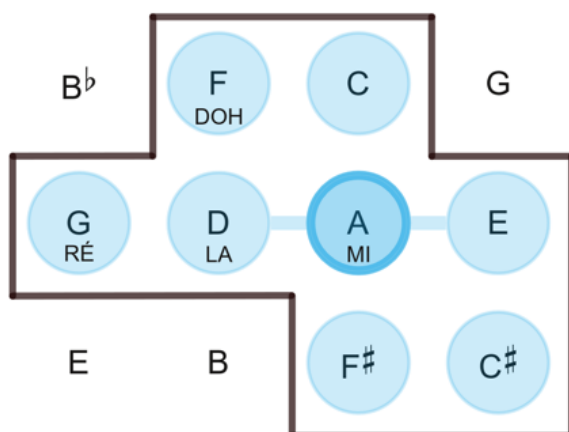
(a) The first stacking of fourths: e-a-d with a as root. The f# in the melody is excluded here.

(b) Stacking of fifths: g-d-a-e with g as root.

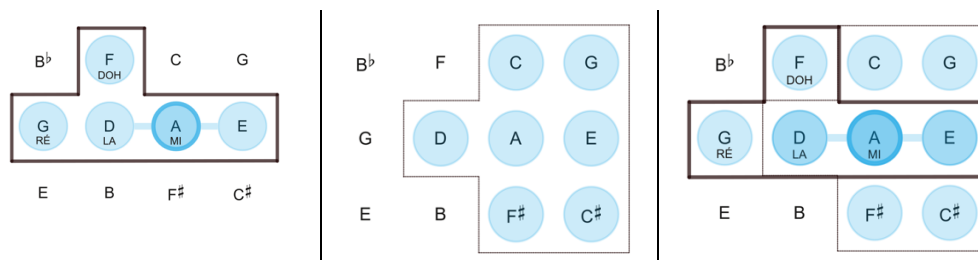
(c) A featured ninth: d-e with d as root and a as implied fifth. This is also a stacking of fifths: d-a-e.

(d) The last harmonic sonority in the first part. The melody briefly touches c#, which indicates a major mode tonic on the last hyperbeat.

In Figure 21, the entire harmonic shape of ‘Teardrop’ is shown. The shape includes the notes in the arpeggiated loop, the piano bass notes, and the melody. The shape and the root movements are compatible with the DELTA-shape, even though the song is not clearly influenced by the blues. It can perhaps be regarded a sub-shape to the DELTA-shape. Or, if one chooses to leave out the notes that the melody adds (f#, c and c#), it is a pentachord (a-d-e-f-g). The A-section loops around in a subdomino-sequence (I<sup>4</sup>–<sup>b</sup>VII<sup>5</sup>–IV<sup>2</sup>–I<sup>4</sup>), with a turnaround from I to <sup>b</sup>VII. The B-section consists of an Aeolian ending with a touch of a Picardy third in the melody. This song can be divided into two shapes: one for the harmony, and one for the melody. This shows that the melody and harmony operate in different yet compatible domains (Figures 21 and 22).



**Figure 21.** The harmonic shape of ‘Teardrop’ (1998). Root movements are indicated with pentatonic solmisation. A is the tonal centre in a MI-pentatonic context. The notes a-e-d are at the core of the harmony.



**Figure 22.** A melodic-harmonic divorce in ‘Teardrop’ (1998).

(a) The foundation of the harmony, which basically is a MI pentatonic in A, with an added e as anchor tone. The c is not included in the shape, but it could be since it is implied in the deep synth bass.

(b) The melody is basically in A mixodorian, not using the b.

(c) A mixture of the melody and harmony shape. Together they form a sub-shape of the DELTA-shape, only omitting the b.

### 7.3 Symmetry in the donut

The donut can be used to reveal symmetry and patterns not immediately obvious when studying staff notation and lead sheets. The following example illustrates how patterns can be found in John Coltrane’s composition ‘Giant Steps’ (1960). The song is complex in the sense that it uses all twelve pitches. It is therefore beneficial to divide the harmonic analysis into smaller parts. We can start with the broad strokes of the harmony, which are roots moving in major thirds (or minor sixths) on strong metrical positions – the downbeat of bar 1–3 in a 4-bar sequence. This pattern is repeating two times. Secondly, each move by a major third is preceded by its dominant chord. These dominant chords are naturally also a major third apart. Thirdly, in bar 9–16, the root moves by a major third every other downbeat, preceded by a domino sequence: *ii – V*, then on to *I*, typical in the style. In every fourth bar there is a minor chord on the downbeat, also moving the root by a major third in each occurrence. These minor chords are approached by a tritone jump, and the tritone root movement consequently repeats every fourth bar, except bar 15–16. The principal major and minor chords in the song are circled in Example 8.

Example 8. ‘Giant Steps’ lead sheet.

In the donut, these chord-collections form a distinctive pattern, as seen in Figure 23.

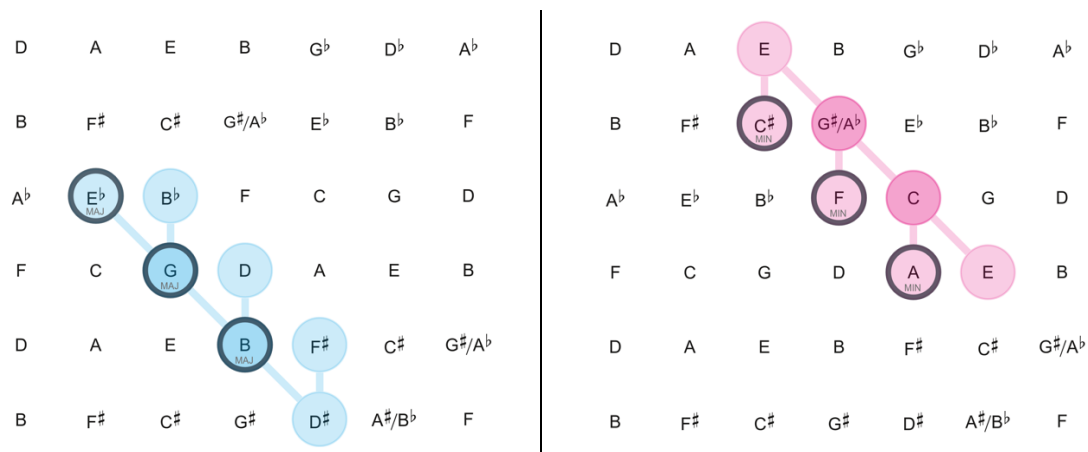


Figure 23. Layout of the principal major and minor chords of ‘Giant Steps’.

(a) B – G – E<sup>b</sup>. The principal major chords of ‘Giant Steps’.

b) Am – Fm – C<sup>#</sup>m. The principal minor chords, occurring every fourth bar.

These chord structures form an enlightening and appealing symmetry in the donut, just as in the combined harmonic shape, shown in Figure 24. Worth noting is that the other chord shapes (e.g., B<sup>b</sup>7 and D<sup>7</sup>) can naturally be fitted in the harmonic shape as well. These chords form a sort of bridge between the principal major and minor chords, and are related in multiple ways. For example, Am and D are intervallic mirrors if the vantage point is a.

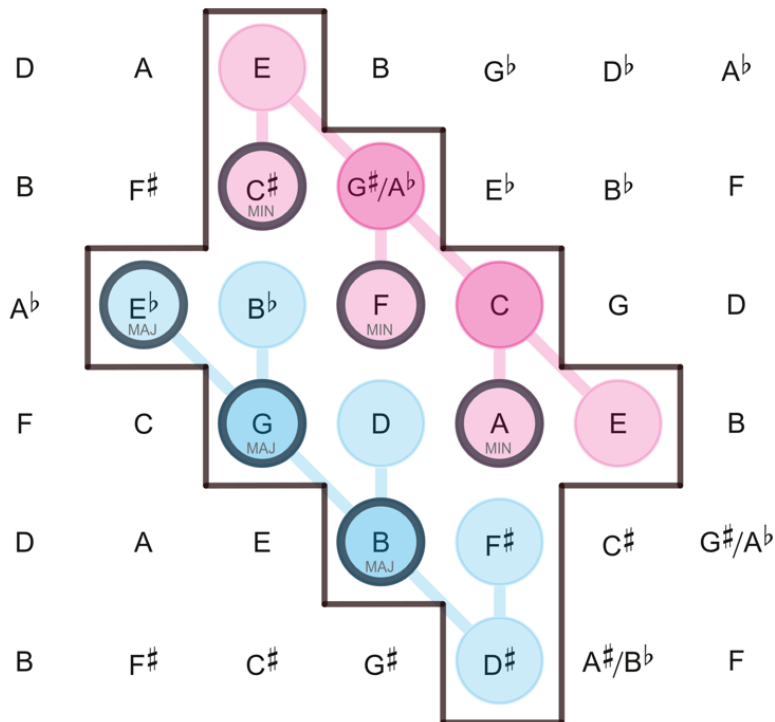


Figure 24. Harmonic shape of ‘Giant Steps’ (1960).

## 8. Conclusion

To summarise, a need for new ways of describing and analysing rock/pop/soul/hip-hop has been identified in this text. Some new and some revised older terms have been reviewed, and a note-grouping system that is flexible and can be adapted to the uniqueness of the music has been suggested. Structural connections such as common tones and patterns in root movements can be displayed using the neutral canvas of the donut pitch space. Hopefully this article will contribute something to renewed and flexible concepts of music theory that are practical and relevant to rock/pop/soul/hip-hop as well as to other forms of music and their performers.

## References

### Literature

- Allen, A., 2018. *Music theory for electronic music producers*. Minneapolis: Slam Academy.
- Banchieri, A., 1605. *L'Organo suonarino*. Venetia: Ricciardo Amadino.
- Benjamin, T., Horvit, M., and Nelson, R., 2008. *Techniques and materials of music - from the common practice period through the twentieth century*. 7th ed. Belmont: Thomson Schirmer.
- Benward, B. and Saker, M., 2009. *Music in theory and practice*. 8th ed. New York: McGraw-Hill.
- Biamonte, N., 2010. Triadic modal and pentatonic patterns in rock music. *Music Theory Spectrum*, 32 (2), pp. 95-110.

- Biamonte, N., 2017. Pop/rock tonalities. In: F. Wörner, U. Scheideler and P. Rupprecht, eds., *Tonality since 1950*, pp. 89–100. Stuttgart: Fritz Steiner Verlag.
- Björnberg, A., 1989. On aeolian harmony in contemporary popular music. *IASPM-Norden Working Papers, Nr. DK-1*.
- Brodin, G., 1985. *Musikordboken*. 4th ed. Stockholm: Forum.
- Burgoyne, J., Wild, J., and Fujinaga, I. (2013). Compositional data analysis of harmonic structures in popular music. In: J. Yust, J. Wild and J. Burgoyne, eds., *Mathematics and computation in music: 4th international conference, MCM 2013, Montreal, Canada, June 12–14, 2013, Proceedings*. Berlin: Springer, pp. 52–63.
- Chadwick, H., 1981. *Boethius – the consolations of music, logic, theology, and philosophy*. Oxford: Clarendon Press.
- Clendinning, J., and Marvin, E., 2016. *The musician's guide to theory and analysis*. 3rd ed. New York/London: W. W. Norton & Company.
- Cohn, R., 1997. Neo-Riemannian operations, parsimonious trichords, and their 'Tonnetz' representations. *Journal of Music Theory*, 41 (1), pp. 1–66.
- Cohn, R., 2012. Tonal pitch space and the (neo-)Riemannian Tonnetz. In: E. Gollin and A. Rehding, eds., *The Oxford Handbook of Neo-Riemannian Music Theories*. New York: Oxford University Press.
- Cook, N., 2007. *Music, performance, meaning: selected essays*. Aldershot: Ashgate.
- Covach, J., and Flory, A., 2018. *What's that sound? An introduction to rock and its history*. 5th ed. New York: W. W. Norton & Company.
- Dahlhaus, C., 1968/1990. *Studies on the origin of harmonic tonality*. Translated by R. O. Gjerdingen. New Jersey: Princeton University Press.
- De Clercq, T., 2017. Interactions between harmony and form in a corpus of rock music. *Journal of Music Theory*, 61 (2), pp. 143–170.
- De Clercq, T., and Temperley, D., 2011. A corpus analysis of rock harmony. *Popular Music*, 30 (1), pp. 47–70.
- Doll, C., 2017. *Hearing harmony*. Ann Arbor: University of Michigan Press.
- Eriksson, O., 2004. *Musiklära, gehörsträning, visharmonisering*. Stockholm: Prisma.
- Euler, L., 1739. *Tentamen novae theoriae musicae (An attempt at a new theory of music)*. St Petersburg: Academiae scientiarum.
- Everett, W., 2004. Making sense of rock's tonal systems. *Music Theory Online*, 10 (4), [online] Available at: <[https://www.mtosmt.org/issues/mto.04.10.4/mto.04.10.4.w\\_everett.html](https://www.mtosmt.org/issues/mto.04.10.4/mto.04.10.4.w_everett.html)> [Accessed 13 July 2021]
- Everett, W., 2007. Pitch down the middle. In: W. Everett, ed., *Expression in pop-rock music: critical and analytical essays*. 2nd ed. New York: Routledge, pp. 111–174.
- Fiore, T., and Noll, T., 2018. Voicing transformations of triads. *SIAM Journal on Applied Algebra and Geometry*, pp. 281–313.
- Folkestad, G., 2006. Formal and informal learning situations or practices vs formal and informal ways of learning. *British Journal of Music Education*, 23 (2), pp. 135–145.
- Glarean, H., 1547/1965. *Dodecachordon*. Translated by C. A. Miller. Basle/n. pl.: American Institute of Musicology.
- Gotham, M., Gullings, K., Hamm, C., Hughes, B., Jarvis, B., Lavengood, M., and Peterson, J., 2022. *Open music theory*. 2nd ed. [online] Creative Commons Attribution-ShareAlike 4.0



- International License. Available at: <<https://viva.pressbooks.pub/openmusictheory/>> [Accessed 29 Nov 2022]
- Gullberg, A., 1999. *Formspråk och spelregler: en studie i rockmusicerande inom och utanför musikhögskolan*. PhD diss. Luleå: Luleå University of Technology.
- Hyer, B., 1989. *Tonal intuitions in Tristan und Isolde*. PhD diss. New Haven: Yale University.
- Ingelf, S., 2005. *Jazz- & popharmonik*. 7th ed. Hjärup: Sting Musik.
- Komaniecki, R., 2019. *Analyzing the parameters of flow in rap music*. PhD diss. Bloomington: Indiana University.
- Kopp, D., 2002. *Chromatic transformations in nineteenth-century music*. Cambridge: Cambridge University Press.
- Laitz, S., 2012. *The complete musician: an integrated approach to tonal theory, analysis, and listening*. 3rd ed. New York: Oxford University Press.
- Lerdahl, F., 2005. *Tonal pitch space*. New York: Oxford University Press.
- Lewin, D., 1982. A formal theory of generalized tonal functions. *Journal of Music Theory*, 26 (1), pp. 23–60.
- Lewin, D., 2007. *Generalized musical intervals and transformations*. New York: Oxford University Press.
- Lilja, E., 2009. *Theory and analysis of classic heavy metal harmony*. Helsinki: IAML Finland.
- Ling, J., 1983. *Europas musikhistoria -1730*. Uppsala: Esselte Studium.
- Longuet-Higgins, H. C., 1979. The perception of music. *Proceedings of the Royal Society of London. Series B, Biological Sciences*, 205 (1160), pp. 307–322.
- McCandless, G., and McIntyre, D., 2018. *The craft of contemporary commercial music* [e-book]. New York: Routledge. Available at: <<https://www.vitalsource.com>> [Accessed 29 Nov 2022]
- Middleton, R., 1990. *Studying popular music*. Bristol: Open University Press.
- Miller, C. A., 1961. The ‘Dodecachordon’: Its origins and influence on Renaissance musical thought. *Musica Disciplina*, 15, pp. 155–166.
- Mooney, M., 1996. *The ‘Table of relations’ and music psychology in Hugo Riemann’s harmonic theory*. New York: Columbia University.
- Moore, A., and Martin, R., 2019. *Rock: the primary text*. 3rd ed. New York: Routledge.
- Nattiez, J.-J., 1990. *Music and discourse: toward a semiology of music*. Translated by C. Abbate. Princeton and New York: Princeton University Press.
- Nobile, D., 2020. Double-tonic complexes in rock music. *Music Theory Spectrum*, 42 (2), pp. 207–226.
- Oettingen, A., 1866. *Harmonieystem in dualer Entwicklung*. Dorpat und Leipzig: Verlag von W. Gläser.
- Oettingen, A., 1913. *Das duale Harmoniesystem*. Leipzig: Verlag von C.F.W. Siegel’s Musikalienhandlung.
- Pearsall, E., 2012. *Twentieth-century music theory and practice*. New York: Taylor & Francis.
- Pike, K., 1954. *Language in relation to a unified theory of the structure of human behavior*. Glendale: Summer Institute of Linguistics.
- Riemann, H., 1916/1992. Ideas for a study ‘On the Imagination of Tone’. Translated by R.W. Wason and E.W. Marvin. *Journal of Music Theory*, 36 (1), pp. 81–117.

## Fredrik Lidin

- Rudbäck, N., 2020. *Circumscribing tonality: upper secondary music students learning the circle of fifths*. PhD diss. Högskolan för scen och musik. Göteborg: Göteborgs Universitet.
- Söderman, J., 2007. *Rap(p) i käftan: hiphopmusikers konstnärliga och pedagogiska strategier*. PhD diss. Malmö: Musikhögskolan i Malmö.
- Schoenberg, A., 1911/2011. *Theory of harmony*. Translated by R. Carter. Berkeley Los Angeles London: University of California.
- Shaffer, K., Vasiete, E., Jacquez, B., Davis, A., Escalante, D., Hicks, C., McCann, J., Noufi, C., and Salminen, P., 2020. A cluster analysis of harmony in the McGill Billboard dataset. *Empirical Musicology Review*, 14 (3-4), pp. 146-162.
- Simpson, C., 1667. *A compendium of practical musick*. London: William Godbid for Henry Brome.
- Spicer, M., 2017. Fragile, emergent, and absent tonics in pop and rock songs. *Music Theory Online*, 23 (2), [online] Available at: <<https://mtosmt.org/issues/mt0.17.23.2/mt0.17.23.2.spicer.html>> [Accessed 1 July 2022]
- Stephenson, K., 2002. *What to listen for in rock: a stylistic analysis*. New Haven: Yale University Press).
- Strunk, O., 1950. *Source readings in music history*. New York: W.W. Norton & Company Inc.
- Tagg, P., 2018. *Everyday tonality II: towards a tonal theory of what most people hear*. Larchmont: The Mass Media Music Scholars' Press.
- Taylor, E., 1991. *The AB Guide to Music Theory (part 1)*. London: The Associated Board of the Royal Schools of Music.
- Temperley, D., 1997. An algorithm for harmonic analysis. *Music Perception: An Interdisciplinary Journal*, 15 (1), pp. 31-66.
- Temperley, D., 2007. The melodic-harmonic 'divorce' in rock. *Popular Music*, 26(2), pp. 323-342.
- Temperley, D., 2018. *The musical language of rock*. Oxford Scholarship Online. Available at: Oxford Academic <[oxford.universitypressscholarship.com](https://oxford.universitypressscholarship.com)> [Accessed 16 Feb 2021]
- Temperley, D., and De Clercq, T., 2013. Statistical analysis of harmony and melody in rock music. *Journal of New Music Research*, 42 (3), pp. 187-204.
- Tymoczko, D., 2011. *A geometry of music: harmony and counterpoint in the extended common practice*. Oxford and New York: Oxford University Press.
- Weber, G., 1832/1842. *An attempt at a systematically arranged theory of musical composition*. 2nd ed. Translated by J. Warner. Boston: Wilkins & Carter.
- Zarlino, G., 1558/1983. *On the modes*. Translated by V. Cohen. New Haven and London: Yale University Press.

## Recordings

The recordings can be accessed through Spotify and/or Tidal. For convenience, the recordings have been added to playlists. Follow the links below for access.

### Spotify

<<https://open.spotify.com/playlist/24yPXl7C7prZqn6rXLQB1X?si=e6b4f0d451464827>>

### Tidal

<<https://tidal.com/browse/playlist/3ab090da-965b-4af1-94c0-540cc7c51ac7>>

2Pac, 1993. *Keep Ya Head Up*. [online] Available through: Spotify [Accessed 8 June 2022].

- Air, 1997. *All I Need*. [online] Available through: Tidal [Accessed 25 Nov 2022].
- All Saints, 2000. *Black Coffee*. [online] Available through: Tidal [Accessed 29 Nov 2022].
- Anderson, L., 1982. *O Superman*. [online] Available through: Spotify [Accessed 8 June 2022]
- Animals, The, 1964. *House of the Rising Sun*. [online] Available through: Spotify [Accessed 8 June 2022]
- Bach, C.P.E., 1751/2009. *Cello concerto in B-flat major, H.436: I*. [online] Available through: Tidal [Accessed 25 Nov 2022]
- Bach, J.S., 1708/1993. *Suite in E Minor, BWV 996: V. Bourrée*. [online] Available through: Spotify [Accessed 8 June 2022]
- Bachman Turner Overdrive, 1974. *You Ain't Seen Nothing Yet*. [online] Available through: Spotify [Accessed 8 June 2022]
- Beatles, The, 1966. *Eleanor Rigby*. [online] Available through: Tidal [Accessed 5 Dec 2022]
- Cars, The, 1978. *My Best Friend's Girl*. [online] Available through: Spotify [Accessed 8 June 2022]
- Chicago, 1970. *25 or 6 or 2*. [online] Available through: Spotify [Accessed 8 June 2022]
- Crows, The, 1953. *Gee*. [online] Available through: Spotify [Accessed 8 June 2022]
- Coltrane, J., 1960. *Giant Steps*. [online] Available through: Tidal [Accessed 10 Dec 2022]
- Davis, M., 1959. *So What*. [online] Available through: Spotify [Accessed 8 June 2022]
- Foo Fighters, 2007. *The Pretender*. [online] Available through: Spotify [Accessed 8 June 2022]
- Guns N' Roses, 1987. *Paradise City*. [online] Available through: Tidal [Accessed 19 Dec 2022]
- Hendrix, J., 1966. *Hey Joe*. [online] Available through: Spotify [Accessed 8 June 2022]
- Housemartins, The, 1986. *Happy Hour*. [online] Available through: Spotify [Accessed 8 June 2022]
- Kinks, The, 1966. *Sunny Afternoon*. [online] Available through: Spotify [Accessed 8 June 2022]
- Lauryn Hill, 1998. *Doo Wop (That Thing)*. [online] Available through: Tidal [Accessed 25 Nov 2022]
- Led Zeppelin, 1971. *Stairway to Heaven*. [online] Available through: Spotify [Accessed 8 June 2022]
- Led Zeppelin, 1975. *Kashmir*. [online] Available through: Tidal [Accessed 5 Dec 2022]
- Lorde, 2021. *Solar Power*. [online] Available through: Tidal [Accessed 25 Nov 2022]
- Massive Attack, 1998. *Teardrop*. [online] Available through: Spotify [Accessed 8 June 2022]
- Palmer, R., 1974. *Sneakin' Sally Through the Alley*. [online] Available through: Spotify [Accessed 8 June 2022]
- Petty, T., 1982. *Mary Jane's Last Dance*. [online] Available through: Spotify [Accessed 8 June 2022]
- Pink Floyd, 1975. *Shine On You Crazy Diamond*. [online] Available through: Spotify [Accessed 8 June 2022]
- Pye Corner Audio, 2019. *Hollow Earth*. [online] Available through: Tidal [Accessed 25 Nov 2022]
- Radiohead, 1997. *Karma Police*. [online] Available through: Spotify [Accessed 8 June 2022]

## *Fredrik Lidin*

- Rolling Stones, 1968. *Jumpin' Jack Flash*. [online] Available through: Spotify [Accessed 8 June 2022]
- Rush, 1980. *Jacob's Ladder*. [online] Available through: Spotify [Accessed 8 June 2022]
- Shins, The, 2007. *Sea Legs*. [online] Available through: Tidal [Accessed 4 Dec 2022]
- Smashing Pumpkins, 1996. *Cherub Rock*. [online] Available through: Spotify [Accessed 8 June 2022]
- Spencer Davis Group, The, 1967. *Gimme Some Lovin'*. [online] Available through: Spotify [Accessed 8 June 2022]
- Spoon, 2007. *My Mathematical Mind*. [online] Available through: Tidal [Accessed 4 Dec 2022]
- Springsteen, B., 1980. *The River*. [online] Available through: Spotify [Accessed 8 June 2022]
- Supertramp, 1979. *The Logical Song*. [online] Available through: Spotify [Accessed 8 June 2022]
- The Kid Laroi, 2020. *Without You*. [online] Available through: Spotify [Accessed 8 June 2022]
- U2, 1987. *In God's Country*. [online] Available through: Spotify [Accessed 8 June 2022]
- Valens, R., 1958. *La Bamba*. [online] Available through: Spotify [Accessed 8 June 2022]
- Who, The, 1971. *Bargain*. [online] Available through: Spotify [Accessed 8 June 2022]
- Wilco, 2001. *Handshake Drugs*. [online] Available through: Tidal [Accessed 25 Nov 2022]
- XTC, 1986. *Dear God*. [online] Available through: Spotify [Accessed 8 June 2022]
- Zutons, The, 2006. *Valerie*. [online] Available through: Spotify [Accessed 8 June 2022]

## **Abstract**

The seven notes of the major scale have since long formed the basis for music theory and music analysis in a European and Anglo-American context. Diatonic music is divided into different keys based around a specific tonal centre – the tonic. This article highlights music that does not conform to the traditional harmonic movement within a key. Such music usually requires an unnecessarily complex theoretical explanation using established theoretical concepts when analysing tonal content. Some musicologists use traditional analysis to demonstrate how, for example, rock music differs from more traditional key-centred music. Other musicologists claim that certain music has established a practice and a tonal language of its own and should be analysed as such. So, how should harmony in music be defined, if not through the notion of traditional keys? In this article a new concept is proposed – harmonic shapes. These shapes are outlined over a pitch space, and can serve as a tool both for analysis and for creating music. Maybe a concept like this can help creators break free from a traditional framework, and still have a kind of dogma and direction for their creativity?

**Keywords:** harmony, key, modal, harmonic shape, rock music, scales, pitch space, music theory

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Fredrik Lidin has been musically active in various capacities since the late 1980s. He holds a master's degree in music education. His present professional musical activities are shared between composing, performing and teaching. He has composed the soundtracks of ca. 20 films, including the series 'Den inre cirkeln' ('The inner circle'), the documentary 'Opprørsskolen' ('The school of revolt') and the comedy 'Prästen i paradiset' ('The priest in Paradise'). As a performing musician, Mr. Lidin has toured the Nordic countries, the United Kingdom and the United States, and has been engaged by, among others, Manfred Mann.