

Analysis of Mr Blue Sky The Electric Light Orchestra – what can this tell us about Harmony Space

1 Claims – to be empirically tested

The point of this paper is not the tentative analyses as such, but the empirically verifiable claims that:

- Given minimal training, a beginner can routinely understand and create such analyses, and compositional insights such as the those developed below, using Harmony Space.
- This can be done with a minimum of specialised technical vocabulary and concepts, using universal spatial/gestalt/navigational concepts.
- Harmony space provides a relatively simple vocabulary and set of embodied, spatial metaphors for discussing such issues.
- Song Walker Harmony space provides a simple practical way to gain the embodied experience to make these metaphors meaningful and to weld links between kinds of movement and to actual musical experience.
- Song Walker Harmony space makes it relatively easy to acquire various bits of culturally specific musical lore and examples (e.g. common devices popularly used with tonal and dorian sequences) needed to join up various dots.
- Many beginners can relatively rapidly and implicitly put the above together to joyfully compose new songs.

To cast light on the above issues we analyse Mr Blue Sky by the Electric Light orchestra using metaphors/ simple vocabulary/ experience that can be relatively easily gained from performing and reflecting on songs using Harmony Space.

2 Introduction

The chords roots (or root journey) in Mr Blue Sky by the Electric Light Orchestra, move like this (figure I). You can see this for yourself by playing the roots into Harmony Space via midi, or by reading them in from a file, or playing them using the on-screen keyboard, in any of which cases, the sequence will be plotted using a maximally economical route (though there may be other equally economical, though not more economical routes), following standard conventions for Harmony Space—see appendix I).

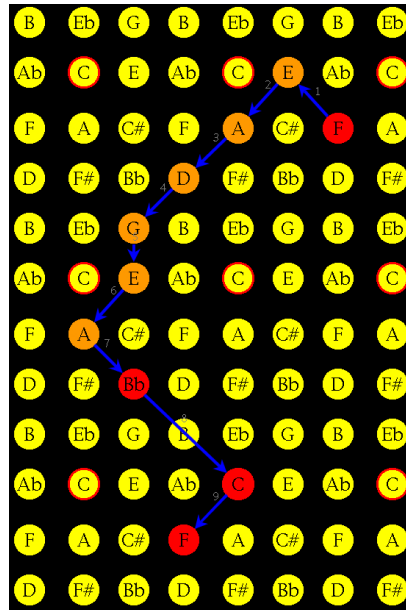


Figure 1: How the chord sequence for My Blue Sky moves in Harmony Space (following standard convention).

3 Finding a compressed description for the chord sequence

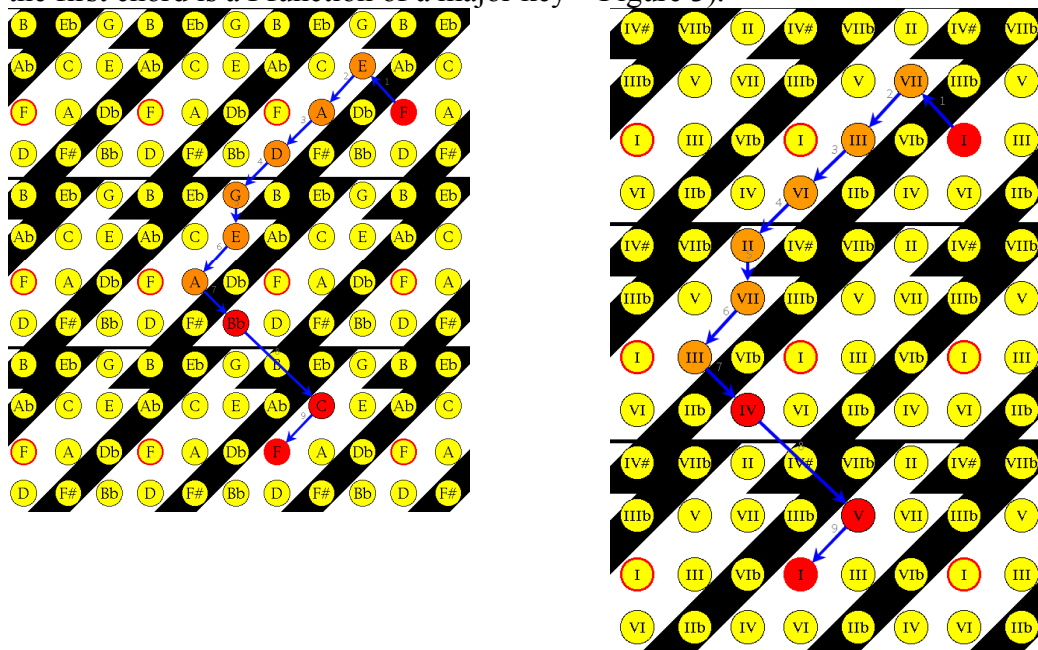
But the root journey alone doesn't tell us the shape of each chord (the chord qualities). So even if we know the whole root journey, there are still 10 chord qualities that we don't know about – so we don't yet know how to play the harmony of the song.

However, if we can get some minimal additional information, namely where the favoured territory lies during the song (i.e. what key or keys the song is in), then, depending how complex the song is, we may get information about *all* of the chord shapes in the song for free. Even more usefully in the long term, this approach generally helps us to investigate what strategies and tricks make this particular song work. This typically gives hints for strategies to create new songs. Indeed – this is one good way to check heuristically if an analysis is correct – if the analysis can be "run backwards" to help us create new different but interesting chord sequences with some structural similarity, then this is a good sign. Experience shows that the best analyses of a given song are generally the most economical ones (i.e. they contain fewest analytical elements). We will be using Occam's razor frequently in this way – though there are other criteria for judging analyses.

4 A first tentative analysis/compression/explanation

In Mr Blue Sky first chord (F) is repeated several times at the start of the song, and it is a major chord, so the simplest assumption is that this chord can be explained or analysed as a I chord of its own major key. So we may tentatively guess that the favoured territory or key at the start of Mr Blue Sky is F major (figure 2). (In fact we

don't really care what key the song is played in. Our tentative assertion is really that the first chord is a I function of a major key – Figure 3).



Figures 2a and 2b:

Figure 2a: The root sequence for the whole piece, portrayed in the context of the tentatively assumed key of F major. Occam's Razor suggests that that a major chord repeated several times at the start of a song is probably a chord with the default harmonic function of I in the default mode (i.e. Major). Since the chord is F major in this case, this suggests the key is F major.

Figure 2b: More generally Occam's Razor suggests that structurally any initial repeated major chord is tentatively likely to be a I chord in some major Mode. This more general point is illustrated here by changing the labels to Roman numerals, representing the Harmonic functions of any major key.

The above hypothesis about the song could be refuted if the root path for the rest of the song failed to fit in the favoured territory for that key (i.e. the white area), but the above diagrams show that they do fit. A stricter, second level, check will involve checking whether all of the chord shapes for all of the chords fit in the favoured territory – this check is carried out below. The reason for the two different colours in the trace (red and orange) will be explained below.

If we use Harmony Space to find out the natural chord shapes that would get automatically assigned to the first three roots of the song, namely F E and A, if the key were to be F major, and if we assumed chord sizes of three we would find that this guess about the key predicts the shapes (chord qualities) for the first three chords of the song to be the following.

F major E diminished A minor

But as you can hear (or as you can find out by looking up the chord sequence on the web) that that isn't what Mr Blue Sky does. So there is a wrong assumption somewhere.

If you already know about New Horizons (as heard in "Yesterday" by the Beatles and "All the things you are" by Kern and Hammerstein) e.g. from working with Harmony Space, or from working with Conrad Cork's method, then you might guess that this is a "New Horizon" albeit with a twist (discussed below).

However, if you don't know anything about New Horizons, you can always use Harmony Space to find an explanation though a standard approach by going back to first principles (see appendix II) and applying Occam's razor. Although in fact in general there may be more than one explanation for a given song, and for interesting songs there is often scope to find a series of increasingly economical layers of explanation.

By any of the above approaches, we can arrive at a more successful attempt to frame an economical description for the chord sequence, namely that after the first chord (F major) the key changes from F Major to D major (figure 3).

If we tentatively make this assumption, we find that this dynamic placing of the favoured territory predicts correctly the chord qualities for five out of the next six chords. The problematic chord, which is highlighted below, is predicted to be major, but is in fact minor.

(Key: F major) F Major

(Key: D Major) E min A maj **D maj** G maj E min A maj

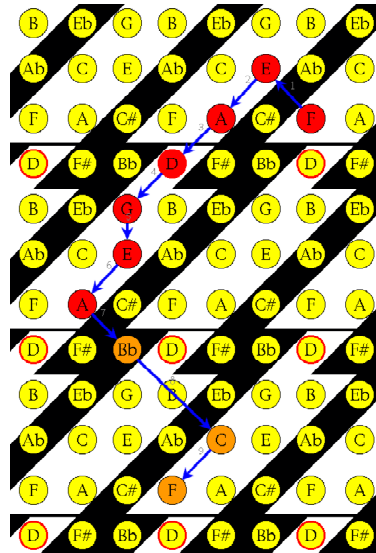
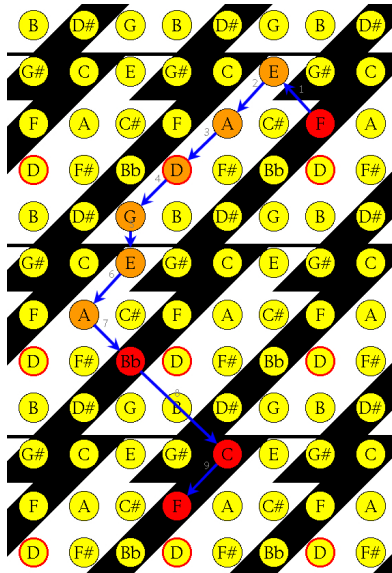
Ignoring this problem for a moment, with the single added assumption that for the last three events, the key reverts back to the original key, these two territory positions correctly account for the chord quality of nine out of ten of the chords.

To make this compressed description, all we need is the root progression and the following assumptions.

- Repeated initial major chord is I of some major Key
- Key changes down a minor third after first repeated chord
- Key reverts to the original for last three chords

We can make our explanation cover every note in the chord sequence if we add just one more assumption – that the second key is a reverse Picardian major mode (i.e. a major mode where I is always minor by fiat). Indeed, the same chord sequence, and the same explanation could be applied to the first four chords of "Yesterday" by Paul McCartney. So our first set of assumptions to predict/ explain/compress all ten chord shapes, given just the root journey are as follows.

- Repeated initial major chord is I of some major Key
- Key changes down a minor third after first repeated chord
- New key is Picardian
- Key reverts for last three chord



Figures 4 a and 4b Under the first tentative analysis, the key changes after the first event to D major (I is minor) (fig 4a), reverting back to the original G major for the last three events (figure 4b).

If we are being conscientious, we should see if we can discover any more economical explanations.

5 An alternative, Dorian Explanation

There is one mode where all of the first seven qualities are correctly predicted, namely D Harmonic Dorian (Figure 5. In the present case, under this assumption, the heavily repeated initial F major chord would be a dorian III.

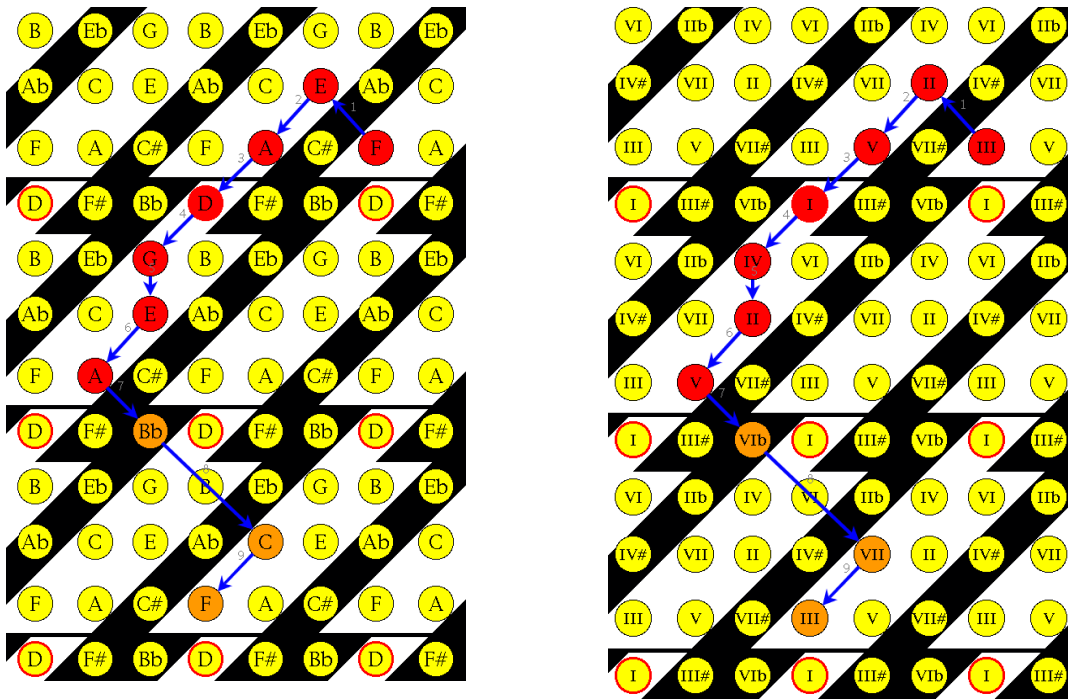
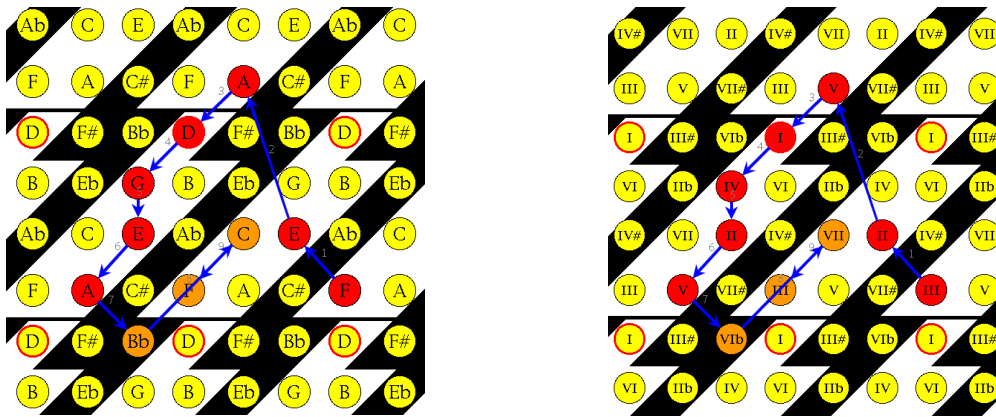


Figure 5a and b. Analysing Mr Blue Sky as a piece in the harmonic dorian (first seven chords)

The dorian mode, and the harmonic dorian in particular set up certain expectations. (we didn't explicitly spell out the corresponding expectations for the major scale previously, as these expectation are relatively well known). In the Dorian case, given that we start on III, we might expect the movement towards home to reduce to III II I (though not necessarily) – See Figure 6. More generally if the mode were harmonic Dorian then we would probably (though not necessarily) expect some common dorian cadential (closing) moves such as III II I or VII I, and perhaps decorations of both of these standard Dorian moves. More generally still, *Dorian movement normally proceeds on the diatonic scalar axis, not on the fifths axis, as in the cases of major and minor keys.* Because of the *harmonic* qualifier to the mode, at the end of major sections we might expect to see moves such as V dom I. Finally, fairly commonly, in the Dorian mode, IV is used as "a contrasting place". Let us see how well these expectations support the idea that Mr Blue Sky might be a harmonic dorian piece.

In fact, if we re-plot figures 5 to emphasize a scalar view point for the first four events, we can see (figure 6) that they do indeed reduce to a dorian III II I with a Harmonic V decoration. Previously we read this as a reverse picardian II V I – a plausible view given the fifths powered harmonic movement. But if we treat the middle V chord as a decoration to a II I movement then it becomes more like decorated scalar motion). Indeed this is a fundamental ambiguity or tension that is often exploited in tonal/modal music.



Figures 6a and 6b Re- plotting the first 4 chords as a dorian III II I decorated by a cadential harmonic dorian V I

For the fifth event, the journey moves to the dorian IV often used as a "contrasting place" – a reasonable dorian move, then moves to II (already visited) and then dom V (a likely cadential move). This motion is rather fifths powered in character, more reminiscent of a major/minor setting, but it is as if the standard harmonic dorian cadence is to be given an extra fifths powered boost - though given the minor quality of dorian I, it may feel a bit muted or anti-climatical on arrival. But that doesn't happen. Instead, in a highly original move, we modulate to the relative major and execute a standard IV V I close. This is very unexpected but ingenious. So our commentary can be summarised as follows.

- Dorian D repeated III*
- (interesting ambiguity – a listener would expect this to be a major I)*
- III II (dom v) I*
- (standard dorian cadence but with neatly inserted Harmonic V I intensified close)*
- IV*
- (standard dorian contrasting place)*
- II V*
- (approach to an interesting extended harmonic dorian close – denied)*
- Modulation to relative major*
- IV V I*
- V I (repeated decorative ending)*
- And on that last event we implicitly modulate back to the dorian start*

5.1 The assumptions needed for the alternative Dorian explanation

So, on this alternative analysis the needed assumptions to predict or explain all ten chord shapes (or 12, if we count the decoration at the end), given just the root journey is as follows.

- Repeated initial major chord is III of Harmonic Dorian Key
- For last three events (the surprise close), modulates to relative major

This explanation is much more economical, so appears to win on grounds of Occam's razor of the two considered so far. But even better, it shows that the song is much

more ingeniously, robustly and sneakily constructed than we first thought. Here is why.

1/ the shapes of events 2- 6 are all predicted wrongly by the most obvious assumption about the first repeated chord (that it is a major I)- so there is a big expectation failure to be accounted for by the listener.

2/ Our first explanation posited that a change occurred *after* the first event to repair matters. But we needed *four* assumptions in all to make this work. And there was no real explanation for the reverse picardian element – it seems like an unexplained stylistic choice. If that were the only explanation available, it would be acceptable, but might perhaps suggest that the song had some structural weakness (too many seams).

3/ The second explanation reveals a much sturdier song. No structural alterations (mode changes or altered chords etc) are needed after the song sets off for the first seven events. The shapes all perfectly fit the actual original position of the favoured territory, right till it moves, ingeniously and economically, to give us a strong, though original cadence. (Dorian to major modulation is unusual).

6 What the dorian explanation tells us about the quality of the song

Hence the song ultimately feels consistent and right, even though it initially appears to break numerous expectations. The stream of initially broken standard predictions pique the interest of our pattern finders, but they are not ultimately frustrated, since the implicit explanation is very tight and economical, though highly unusual. This balances great apparent unpredictability at a low level with novelty, great simplicity and thematic unity at a higher level, a very desirable quality in music.

7 Comparing the two competing explanations/analyses/compressed descriptions.

The unusual dorian explanation has two fewer seams than the tonal explanation, and no unmotivated features, territory shift or chord qualities. This song will survive if thrown violently down hill. Another good quality for songs.

In terms of dorian songs, it is a tour de force- Jeff Lynne has invented a new and very unusual dorian cadence – Compare this with three other ingenious strategies for dorian cadences, drawn from Billie Jean, Van Morrison and Keef Hartley.

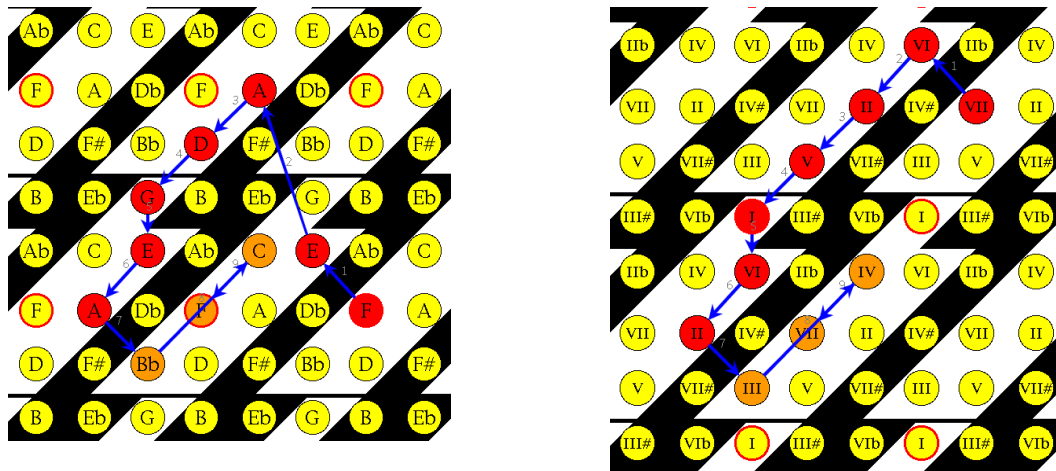


Figure 6a and b – Final modulation from harmonic dorian to F major, given a neat and decisive tonal cadence in F major

<Summarize final explanations in paired diagrams?>

Appendix A

<Standard root plotting conventions>

Appendix B

If you look up the chord sequence for Mr Blue Sky on the web, it actually starts
F major E minor A major

Standard procedure in Harmony Space to analyse exhaustively what key a fragment of a chord sequence might be in, is as follows

- Switch on "trace all", so that you will get a trace of *all* of the notes making up the successive chords
- Play the actual chords in harmony space by using altered chords as needed
- Now move around the key window to see where you get the best fit

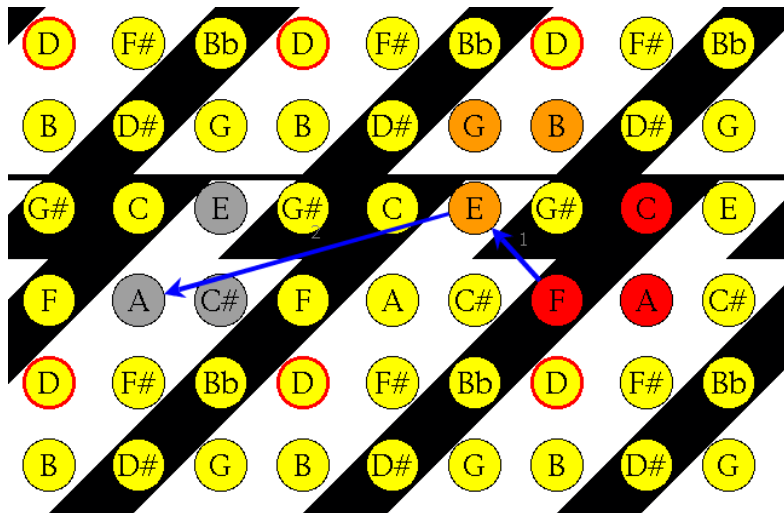


Figure B1

In this case it can easily be shown that it can't be done. We need to find a position of the favoured territory where F A and C# all fit in, but there is no such position. As the white favoured territory is slid across left and right into trial positions, it is wide enough to include any two of three notes in any row. However one note in any row must fall into the black area. But F A and C# tries to span all three notes in a row, SO it cant be done.

Hence either there is an altered chord, or we changed key somewhere.

Looking at the song, and using Occam's razor,

We find that the smallest number of changes that yields the actual chord sequence is a change of key from F major to D major (with I as minor), and then a reversion to the original key