Chapter 5

IN SPACE EVERYONE CAN HEAR THE CHORD CHANGES (part 1)

This chapter will examine the music for some of the most eminent and successful 'Space movies' in cinema history. The chapter will examine numerous memorable, famous and iconic science fiction films, most of them with a unifying theme of either being set in Space and/or involving Aliens. It will also ask whether there are inherently 'sci-fi' methods of composing music and if there are chord changes, orchestration techniques or melodic devices which are commonly used.

Films and music discussed are: *Alien* (Jerry Goldsmith / Howard Hanson) *Aliens* (James Horner) *Apollo 13* (James Horner) *Independence Day,* (David Arnold) *Star Trek* (Alexander Courage, Jerry Goldsmith, James Horner and Michael Giacchano) *Mission to Mars* (Ennio Morricone) *Batman Forever* (Elliot Goldenthal)

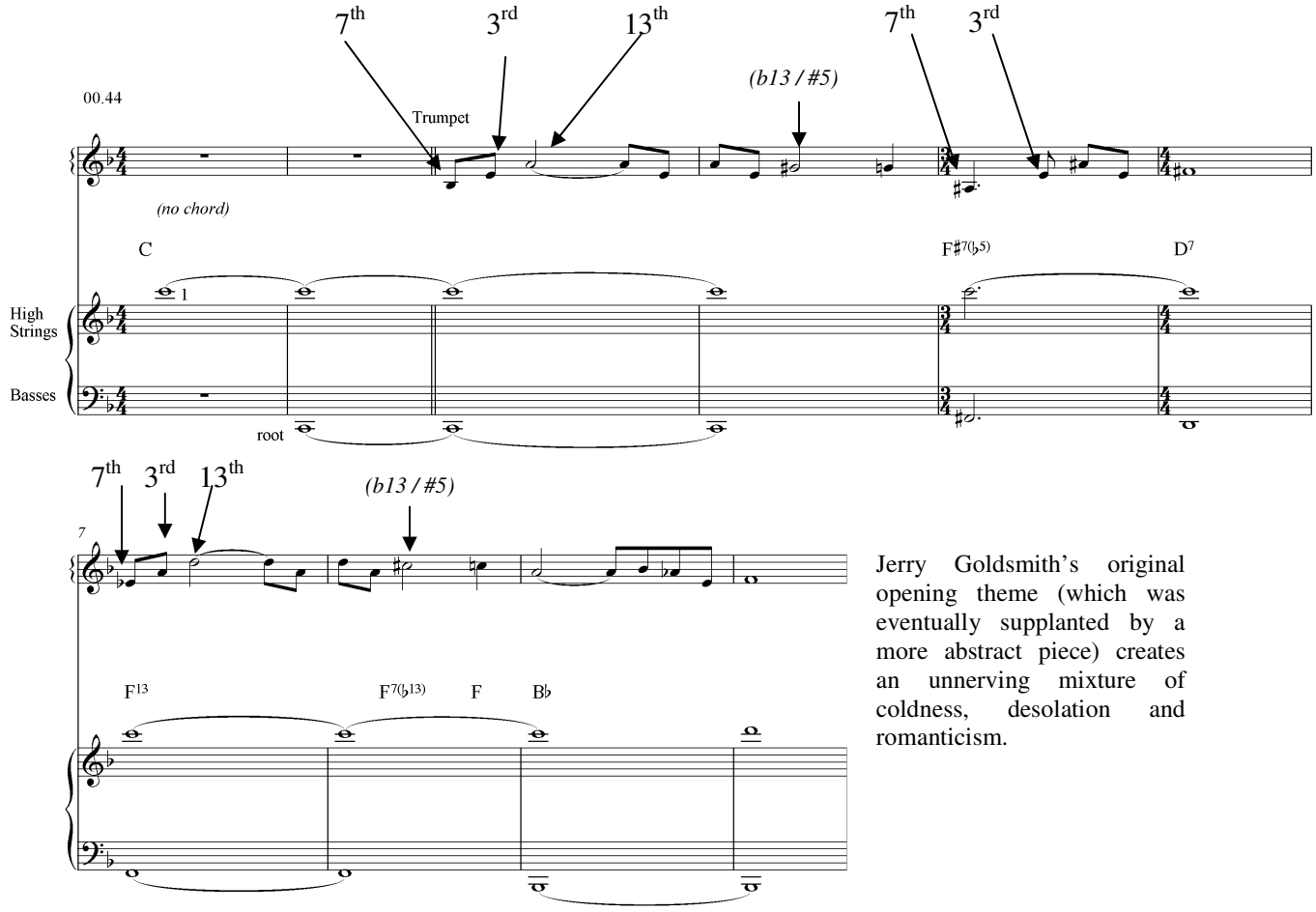
ALIEN *Jerry Goldsmith*

Alien is a 1979 science fiction film directed by Ridley Scott. The lead character is a creature that stalks and kills nearly the entire crew of a spaceship. The common mantra that *Alien* was to *Star Wars* what the *Rolling Stones* were to the *Beatles* goes some way to articulating how the film *Alien* is perceived by cinema-goers. *Alien* offers a subtle, cold, desolate environment; it lacks the usual Hollywood sheen – the razzmatazz, the glitz and the spectacle. It is a slow, plodding, brooding, dark film but one which completely captured the imagination of people who watched it. If *Star Wars* was the big commercial success and *Close Encounters* was an art-house film, what was *Alien? Alien* was essentially a film about a working-class crew on board a spaceship; people argued about bonuses, people smoked, we see the cold, inhospitable inner workings of the vessel. The film doesn't try and glorify' Space' or turn characters into heroes.

The film was about terror, not horror; and if we take it one stage further it wasn't even about terror but the *fear* of terror. Ridley Scott wanted to exploit the effect not of what you see, but what you *fear* you might see. The terror is not the Alien; it is the *thought* of it, the fear of it. In seeing how far you can cock the pistol before releasing the trigger, many of Scott's tactics were Hitchcockian. This is not to say that the *Alien* doesn't look scary. Designed by Swiss surrealist artist H.R. Giger, visually the creature encapsulated the very essence of fear. But the number of times we actually see the creature is minimal and this serves to enhance the fear of it.

The score for *Alien* was composed by Jerry Goldsmith and orchestrated by Arthur Morton. Goldsmith created an orchestral score featuring elements of romanticism but including harmonic tension and dissonance. The suspense and fear of Scott's film owes much of its emotion to the distinctive and communicative music of Goldsmith. Ridley Scott described Goldsmith's music as "seriously threatening but beautiful". Perhaps a great example of this is the opening music, a small part of which is scored out below.

Fig.1 *Original Main Title Theme – Audio 00.33*



Jerry Goldsmith's original opening theme (which was eventually supplanted by a more abstract piece) creates an unnerving mixture of coldness, desolation and romanticism.

The slow legato trumpet phrasing provides a dramatic, romantic and inviting contour, but the harmonies tell a different story – they create an entirely separate emotion – difficult, desolate and bleak. How does one short thematic piece manage to communicate so vividly? The low pedal C in the basses and strings four octaves higher gives the piece an eerie, barren quality, devoid of harmony. Although there is no chordal accompaniment Goldsmith provides a melody which is *suggestive* of a specific chord by virtue of the Bb, E and A (7th, 3rd and 13th). Creating harmony in a staggered, horizontal way, via melody, is an effective device because the listener experiences the harmonic flavour subtly; it is not offered 'on a plate' via accompanying chords.

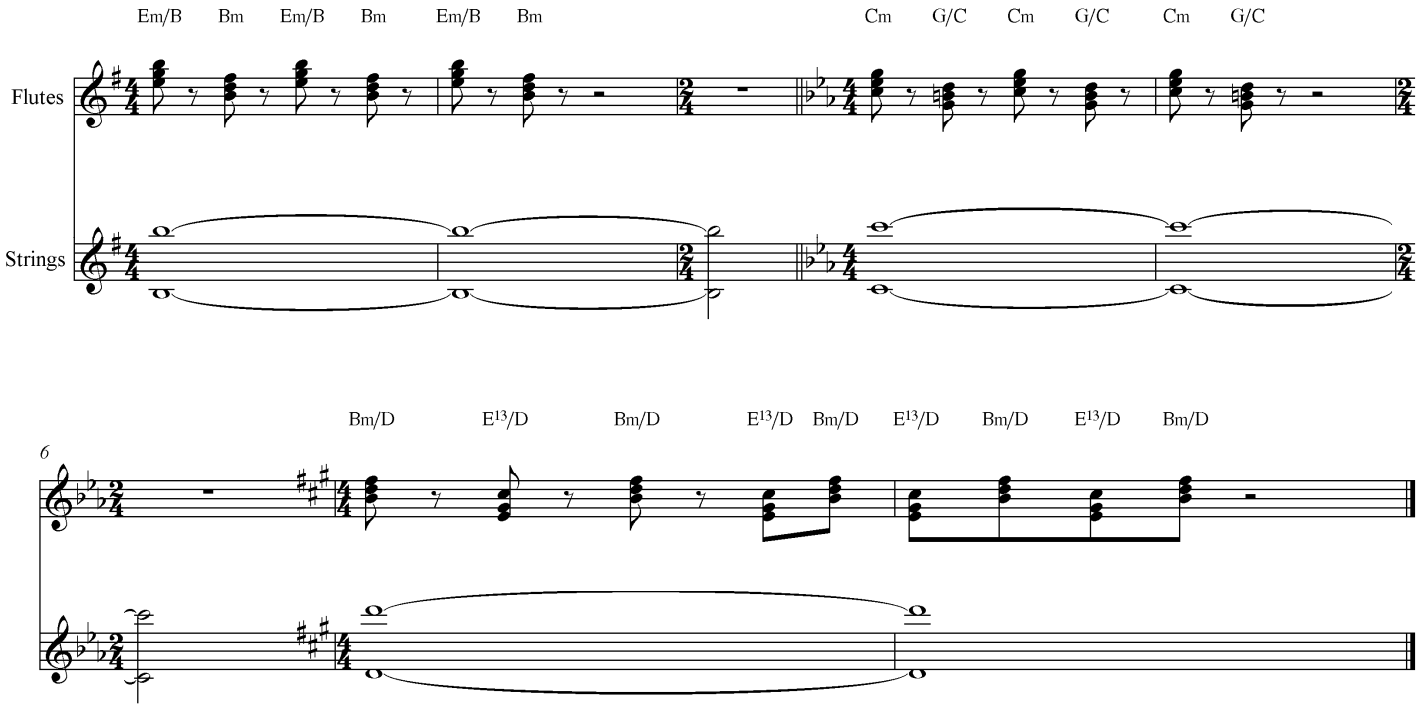
But this, in and of itself, is not particularly noteworthy until you examine the *choice* of melody, which gives us the impression of a C13 chord. If it had merely been a 'normal' chord (C, E and G for example), the effect would still have been suggestive but wouldn't have been as captivating. There are slight tensions between the Bb note (7th) and the A note, stating the 13th; the gap which separates them is itself a maj7. The tension is mitigated by the E (maj 3rd) in between, but it is still there, not least because the interval between the Bb and E is the #4 and the interval between the E and the A is a straight, bare 4th. But what brings the sci-fi element is the G# (augmented 5th, bar four). This odd interval creates a fundamentally skewed tension. One element that helps consolidate the theme is to be found in the first two notes of bar three, which are repeated in bar five. The first two notes (Bb and E) represent the 7th and 3rd of the implied C chord in bar three but in bar five the same two notes now represent the 3rd and 7th of the implied F# chord – thus the intervallic context is reversed.

Listeners hear the same two notes but with mirror-image intervallic context. This simple device helps the piece develop consistency but not tedium. We have the comfort and security of the same 'notes' but the variation of different intervals being attached to those notes.

The next transcription from *Alien* is a section around four minutes into the film just prior to the crew being awakened from hypersleep. The viewer, through the camera, navigates their way through the empty lifeless corridors of the ship before entering the room in which the crew is sleeping.

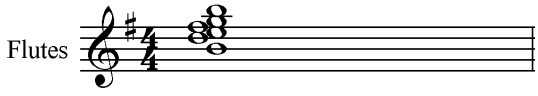
Audio – 'Hypersleep' Film - 00.04.30

Fig.2



The repetitive fluctuation in the flute harmonies between Em and Bm with a string line of B overlaid offers a slightly disorientating harmonic context because we rationalise the two chords almost as one, presenting a 'duality of harmonic perception'. When I say we 'rationalise' I obviously don't mean that every viewer/listener knows which chords are being played, what I mean is that irrespective of our understanding of harmony or our level of aural cognition, we are the beneficiaries of the effect of harmony. Whether we are aware of it or not, we listen to music in context of fairly rigid and preset notions. We categorise and classify music, gradually building up an impressive database of almost subliminal knowledge which then informs how we listen to new music. So when we are confronted with harmony which challenges our assumptions, this process forms part of how and why we respond as we do to harmony. Even something as simple as Goldsmith's use of implied polyharmony has an effect on us.

Fig.3

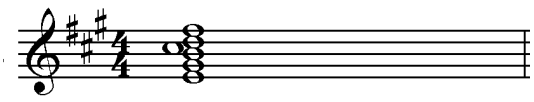


Perhaps a good way of rationalizing the 'duality of perception' is to play and listen to a composite chord containing both the Bm and Em (left, fig 3).

The example in fig.3 is a caricatured and exaggerated version of what we hear in the first two bars of fig.2, but it serves to illustrate the kind of harmonic tensions which are implied. If the piece in fig.2 were to exist minus its string line, its just two different but related chords; but *with* the string line they are more bound to each other and thus are heard almost as one.

What helps create the strangeness is the root-positioned voicings of the chords in bars one-two of fig.2. If we were to try and mitigate the 4th interval that separates Em and Bm we would re-voice one of the chords, inverting it, ensuring a smoother transition. By retaining the root-based voicing we italicise and exaggerate the 4th interval between the two chords and in so doing make the 'duality of harmonic perception' more extreme and obvious. The second entry (bar four, fig.2) is similar but there is slightly more tension because the two 'flute chords' (Cm and G, root positioned as they are) *sound* slightly more chromatic, stark and less obviously related. In the third entry (bars seven and eight, fig.2) although there are two different chords (Bm/D and E13/D) we perceive them collectively as E13.

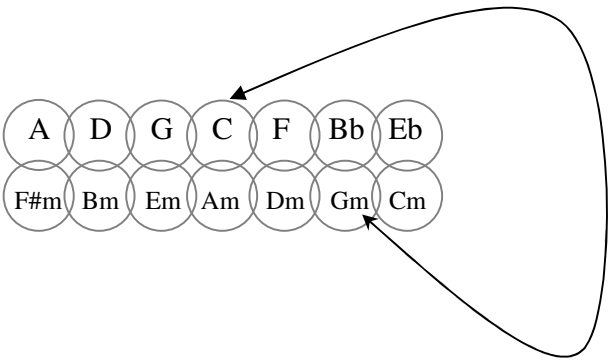
Fig.4



Indeed if we look at the composite example from bar seven of fig.2 (left, fig.4) we can see how much more easily the Bm/D and E13/D fuse together

A subtle but typical example of Goldsmith's eye for detail in terms of tiny harmonic subversions is the way the Bm and E13 chords (bars seven and eight, fig.2) are based over the D bass - the D bass clashing beautifully with the C# (13th of the E chord but a major 7th higher than the D note). A straight E13 would be far too ordinary, too casual. Also the held D notes on the low basses and high strings fluctuate between being an inverted minor 3rd of the Bm chord and a 7th of the E13 chord. So much of the art and beauty in Goldsmith's music is all the more poignant because it is implied rather than completely stated. In vol.1 of 'How Film and TV Communicates a chapter entitled 'Music Theory in Action' introduced the 'chord grid' system. In that chapter we looked at what we called the 'sci-fi chord change', which is simply a popular, effective and oft-used chord sequence which sounds uplifting. In the key of C (fig.5, below) the sequence would be C-Gm or Gm-C.

Fig.5



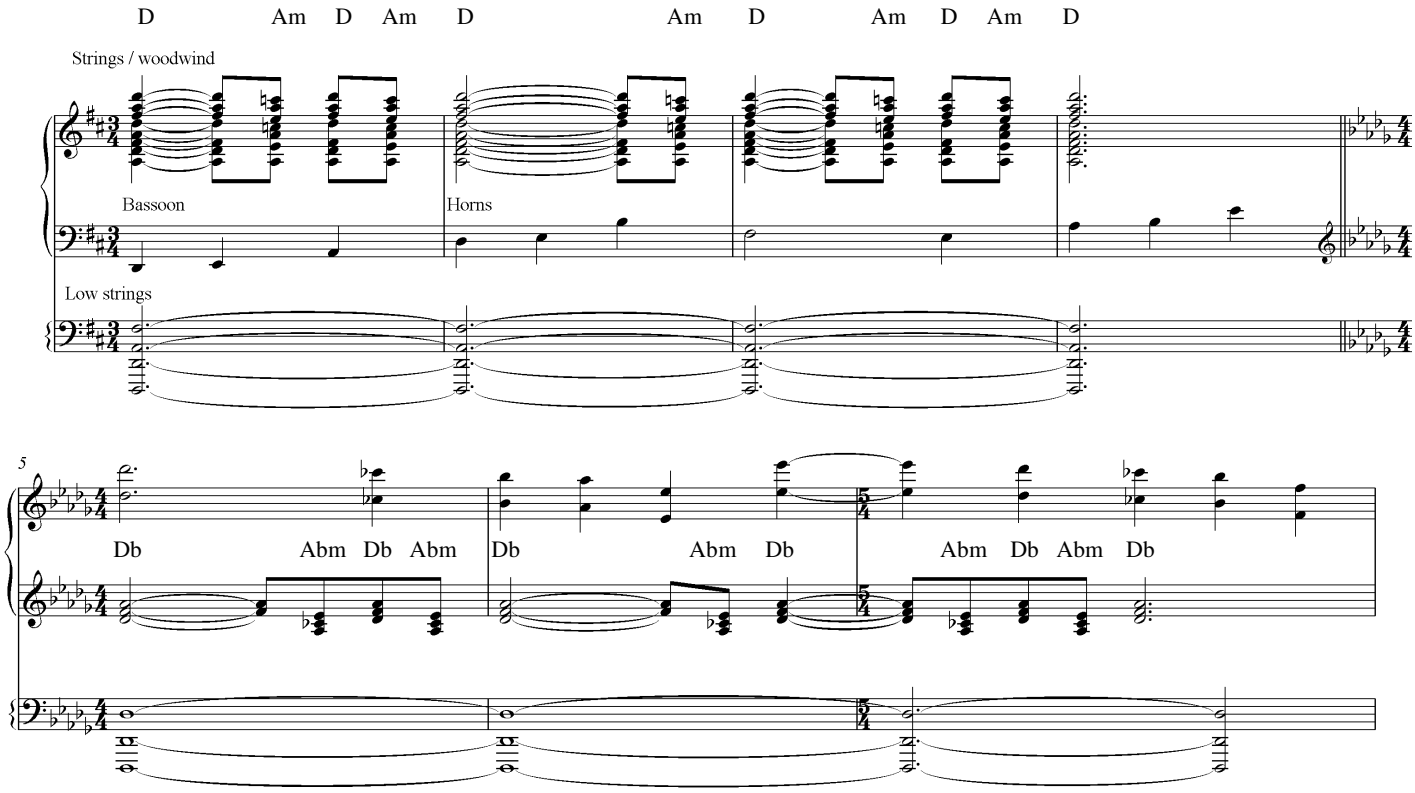
The sequence is relative, so it will work in all keys (for example G-Dm / Dm-G, D-Am / Am-D, A-Em / Em-A, F-Cm / Cm-F, Bb-Fm / Fm-Bb, etc. This sequence appears in hundreds of film scores, but is most prominently used in science fiction films. The sequence seems to convey the profound drama and gravity and the sheer magnitude of what 'Space' is.

The vast context of what 'Space' *is* and what it means is interesting because it often suggests contradictory emotions of excitement and fear, exhilaration and apprehension. But it is not only words or pictures that can describe these vast and complex emotions; music can describe just as clearly. If what Buz Aldrin notably called 'magnificent desolation' had a chord sequence, this would be it.

The sequence below (fig.6), taken from a later section of 'Hypersleep' features the extremely communicative 'sci-fi chord change'. As is always the case with Jerry Goldsmith, he dresses communicative harmonic devices up in the kind of colour that draws out the harmonies and italicises the moment beautifully. The sequence is subtly delivered because the low strings on the lower stave stay on the chord of D whereas the top stave (which contains mid/high woodwind and strings) state the 'sci-fi chord change' (D to Am). This slight, almost imperceptible harmonic blur lessens the clarity but in doing so makes it more effective for the scene. Also in bars one-four there is the slightly distracting bassoon counterpoint. In bar five the woodwind (middle stave) 'take' the sci-fi chord change (Db to Abm) but once again this is blurred beautifully by a low pedal Db and a melodic figure in the strings (top stave). The key characteristic of Goldsmith's use of the chord change is that it displays a kind of majestic subtlety.

Audio – 'Hypersleep' - 01.00

Fig.6

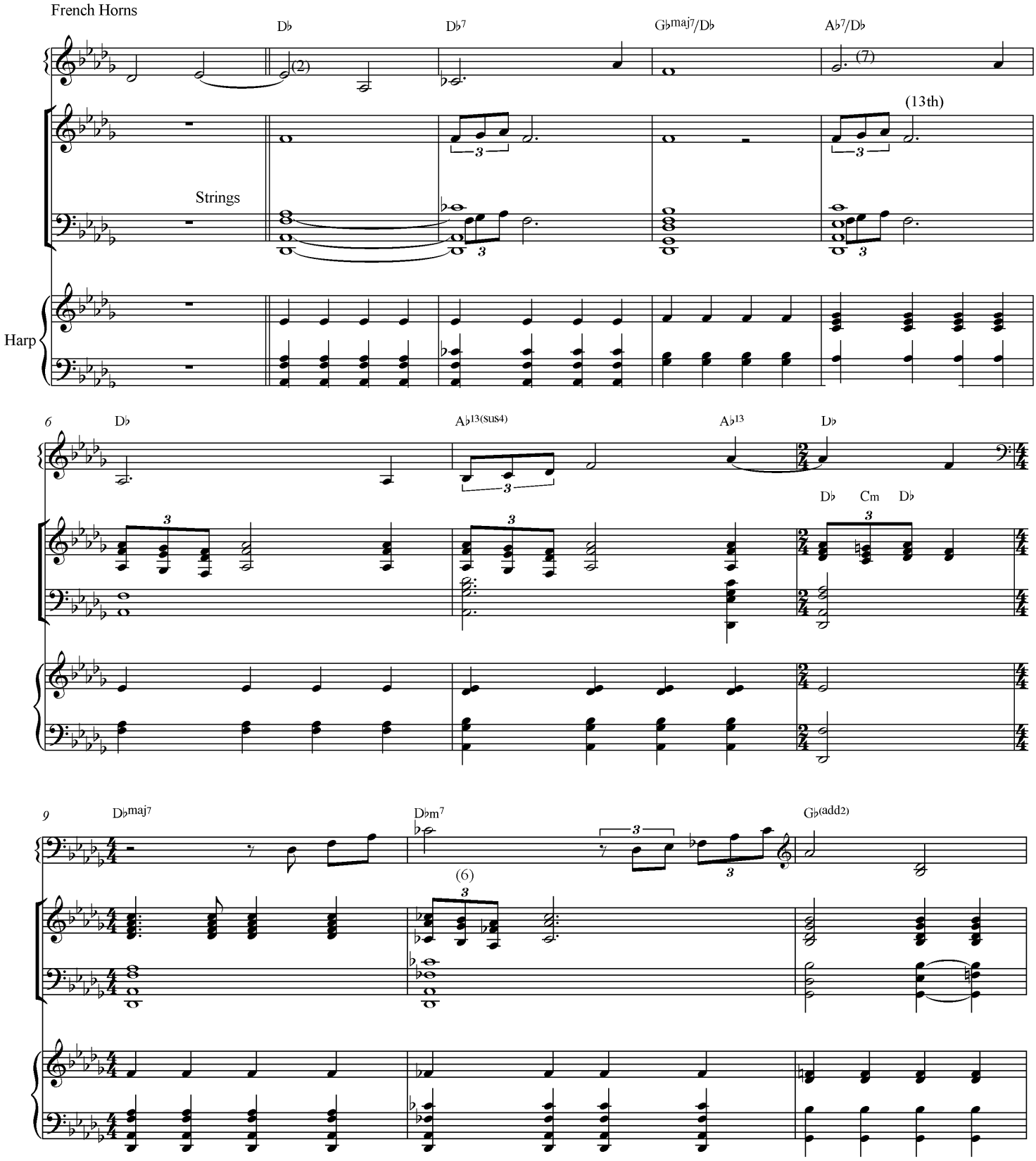


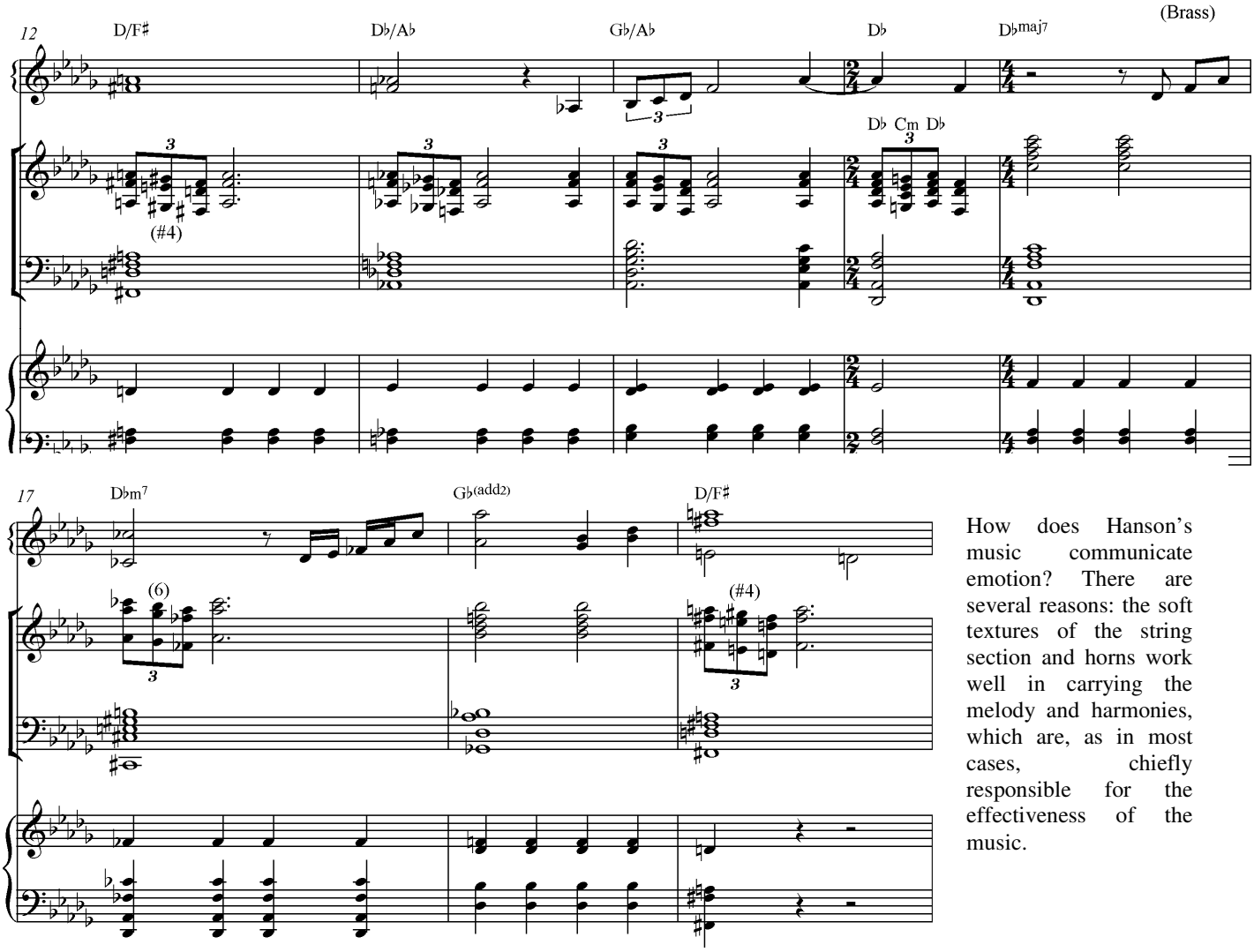
The end title sequence to *Alien* was taken from Symphony No.2 by 20th Century American classical romantic composer Howard Hanson. The inclusion of Hanson's music was allegedly not welcomed by Goldsmith, probably not least because of the excellent end-titles music he himself had written.

That said, the Hanson piece works extremely well. Hanson's music appears first at 01.47.44 in the movie (just after the main protagonist, Ellen Ripley, blasts the Alien out of the spaceship, killing it). The section of Hansom's 1st Movement which is played at this point successfully italicizes the euphoria of the moment; the success, the achievement. But at 01.49.12 a more sedate and pedestrian section of the same piece comes in as the scene briefly shows Ripley, serene and tranquil in hypersleep, before cutting to the final credit roll. At this point the soft textures and lush romantic harmonies of Hanson's music are extremely comforting and captivating. The music successfully and subtly articulates several aspects of the narrative: on a surface level it underscores the relief in the defeat of the enemy. In a broader context it succinctly and expertly distils many emotional aspects of the film, highlighting the vulnerability of humanity in the face of adversity, the sadness of the loss of life and the serene calmness of the aftermath. In other words, it works as an emotional commentary on the film as a whole. Hanson's music does all this and more, which is why it was an inspired choice for the end titles music. Transcribed below is a small edited extract from the end-titles music

Fig.7

Movie - 01.49.13, Audio – Movement 1, Symphony No.2' - 11.30 Howard Hanson





How does Hanson's music communicate emotion? There are several reasons: the soft textures of the string section and horns work well in carrying the melody and harmonies, which are, as in most cases, chiefly responsible for the effectiveness of the music.

Throughout the passage the harp plays repetitive and slightly monotonous crotchet chords offering rhythmic stability, which is juxtaposed by the complex harmonies created by the strings and horns. The string melody note (bar two) begins on the major 3rd (F), a rich, descriptive and romantic interval. This is beautifully contrasted by the French horn which in the back end of bar one plays the Eb, which is held over to bar two, functioning as an 'add2' – another romantic interval; there are no supportive harmonies in bar one so when the horn plays the Eb we are unsure about what that note constitutes, harmonically so we simply default to type and assume either nothing, or that it's the root of an Eb chord. There is therefore a palpable element of emotion when it is *revealed to be* the add2 of the Db chord in bar two. In other words what we react to is not the 'note' but what it turned out to be; what it represents from an intervallic perspective.

The #4 plays a part, as it frequently does in film music; in bar eight the mid strings (middle stave) briefly state a Cm chord over the Db chord being played underneath throughout the bar. Although we see the G note as part of the brief Cm chord, we *hear* it as a kind of subtle #4 of the Db chord. There is more fascinating harmonic interplay in the piece, including bars eleven-twelve where the root note of Gb in the chord in bar eleven evolves to become the F# inverted pedal note of the D chord in bar twelve. This is a well-known filmic device but one which is predated by some of the great classical romanticists.

The string voicing in bar four is interesting in that the maj7 of the Gb chord is buried in the mid/low range which forces the Gb root to be placed an octave lower to avoid a semitone clash. The Gb itself sits over the even lower inverted Db bass. The harmonic tension and ambiguity created by these 'lumpy' voicings creates a slightly dense, almost imperceptible lack of clarity which succeeds, just for a moment, in giving the chord a sense of vagueness. Similarly in bar five there is an effective clash between the 7th on the horn (Gb) and the octave F notes (13th) on strings. This semitone tension sounds more subtle than it would otherwise be due to the lush instrumental textures of the orchestration.

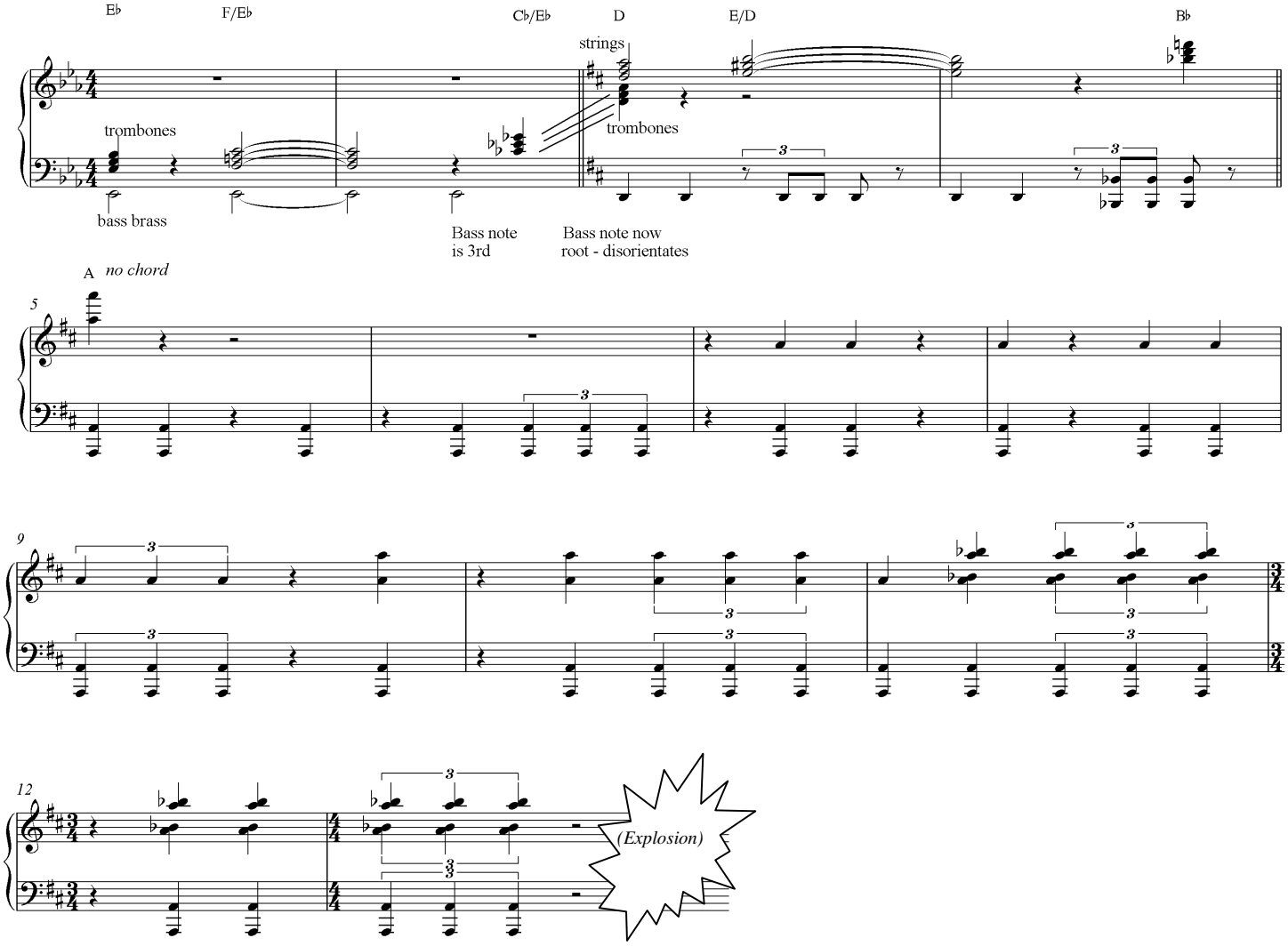
ALIENS *James Horner*

Aliens is probably one of the best examples of great music written under great pressure. Because of overruns Horner wasn't given the amount of time needed to score it. Arriving in England expecting the film to be 'locked' (edited and ready) so he could write it in the agreed six weeks, Horner discovered that filming and editing were still taking place. To make matters worse the overrun was eating into *his* allocated writing time. Further, Horner also realised that the famous Abbey Road studios used to record the score wasn't able to handle many of the technological requirements. Nick Redman said on the soundtrack album sleeve notes "It's not surprising that Horner was Oscar-nominated for *Aliens*, but that he gained it in spite of the fact that almost every cue was re-edited and truncated – only two of the music cues are where they should be and only one cue plays in its entirety". A few weeks from the theatrical release of *Aliens* no dubbing had taken place and the score had still not been written. Horner was still unable to view the completed film. The final cue for the scene in which the main protagonist, Ripley, battles the Alien queen, was written virtually overnight. The director James Cameron had completely reworked the scene, leaving Horner only hours to rewrite the scene. In the end the score was recorded over four days and despite the issues Horner received his first Academy Award nomination. Such was the tension Horner presumed he would never work with Cameron again. In fact they reunited for *Titanic* and *Avatar,* two of the most successful films ever made.

Although we are used to rationalising expertise and talent we don't understand in terms of abstract and unreliable notions of 'persona greatness' and 'genius', as we have discussed before, these are often monolithic, emblematic and unreliable notions and concepts which stand as testament to our inability to rationalise and understand music in a more coherent and less hysterical and dramatic fashion. It is part of a convoluted, empirical system through which society rationalises things it doesn't understand by simple arriving at the conclusion which is the most exciting. The romantic notion of composers sat for weeks and month methodically pontificating and conceptualising their art is not something a film composer would easily recognise. Carving out an emotional and musical response to accompany moving pictures isn't about a non-defined and abstract concept like genius; it's about the appliance and manipulation of fantastic musical skill, craftsmanship and an equally great understanding of structure, architecture and placement. It's about understanding how to create emotion in music. To do this quickly and under great stress composers rely on a vast wealth of knowledge, a massive understanding of voicing and orchestration together with imagination, instinct and professionalism. Although this isn't genius it's still only to be found in a very small number of people.

To rationalise and ultimately understand music we must rob it of its seemingly impenetrable mystique. The myth of genius acts as a convenient fig leaf behind which to hide the rather more believable abilities composers possess. It seems appropriate to examine that final cue, composed overnight, which became one of the most recognisable film music cues. Once we break it down into bite-size chunks, unpick the harmonies and navigate our way through the dense colour of the orchestration the secrets behind the success is that there *are* no secrets – it is the application of consummate skill, judgement and imagination.

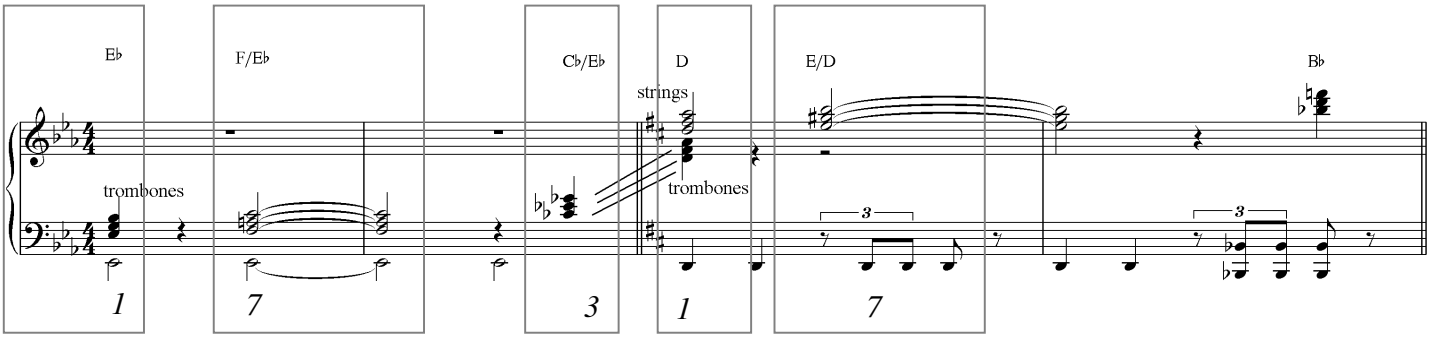
Fig.9 *Audio - Bishop's Countdown 01.01 Movie - 02.15.50*



There are several aspects and issues in this one cue which explain how and why it works and communicates a real sense of excitement, apprehension and even fear. The way Horner works with the sound design and embraces it as part of the music is worth examining first. In film composition the image and sound design becomes part of the fabric of the music; so much so that sometimes the music alone might seem strange. The music is part of the contextual and narrative fabric of the movie, but it works the other way round too; Horner's cue doesn't have an audibly obvious 'last chord'; the on-screen explosion fulfils that role.

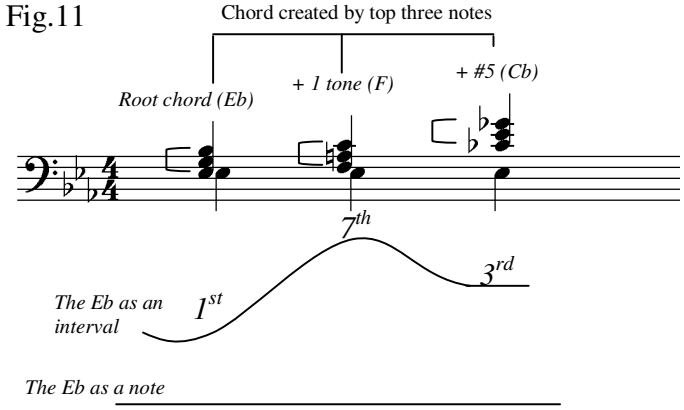
Looking again at the first few bars, trying to find the drama; what's so special? What's going on harmonically or rhythmically to account for the penetrative and exciting nature of the music. Below the first few bars are isolated so as to unravel what harmonic factors are responsible for the dramatic feel of the music.

Fig.10



Looking at the Eb pedal note in the first two bars we can see its intervallic context evolves dramatically from root to 7th to 3rd. Although the vast majority of people will be unaware of how and why this changing harmonic dynamic affect creates such drama, their enjoyment of the music will benefit regardless. The way in which we hear, listen to and rationalise the evolution of the Eb is absolutely key; we subconsciously focus on the Eb in a way we wouldn't if it were simply a note within the chord. Because it occupies the bottom position of the chord it is more exposed; therefore anything we 'do' to the bass note is more apparent and evident. The rapid intervallic rollercoaster ride of the Eb creates drama and emotion not least because it does so without actually changing the note at all. It simply alters what the note *means*.

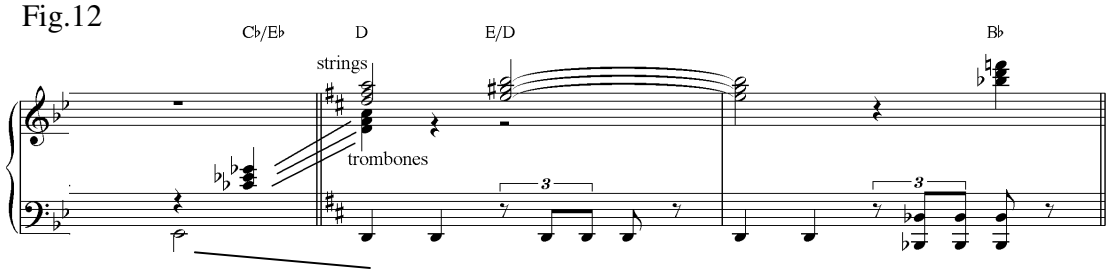
Fig.11



If we look at the example in fig.11 we can see the chords have several different realities: the top three notes of each chord moves upward (Eb, F and Cb). The root note of each chord remains the Eb. However the intervallic context of the Eb itself changes from root, 7th and 3rd. What this all amounts to, is that the music communicates in various different ways.

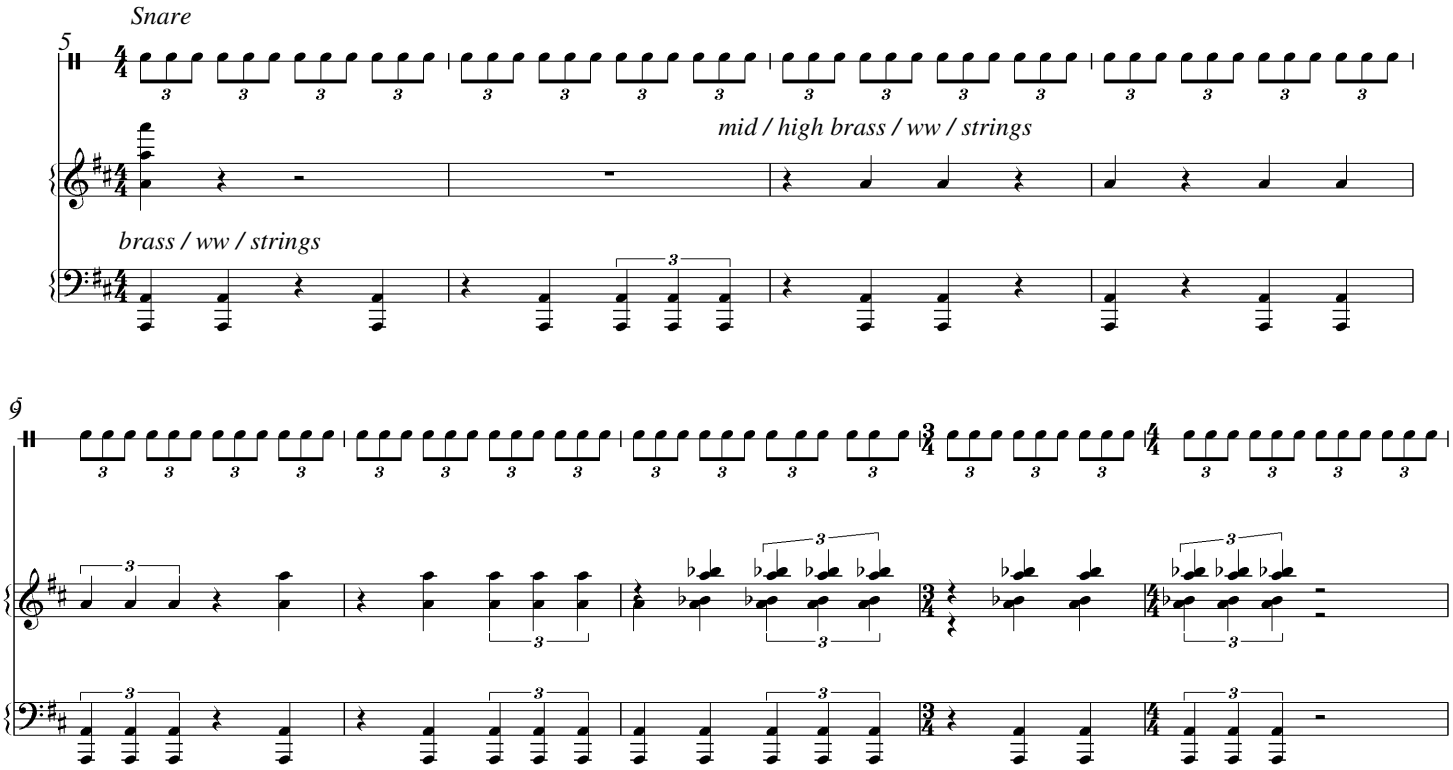
The same type of sequence that had appeared in bar one of fig.9/fig.10 appears again in a different key in fig.12 (below); the transition between the keys of Eb and D contains contrary motion between the chord and bass note. The bass note descends from Eb to D whereas the chord ascends from Cb to D, which makes the transition less abrupt but more dramatic.

Fig.12



The transcription below (fig.13) is taken from bar five of fig.9; this time the focal point of the analysis is the rhythmic interplay between the brass, woodwind strings and percussion.

Fig.13



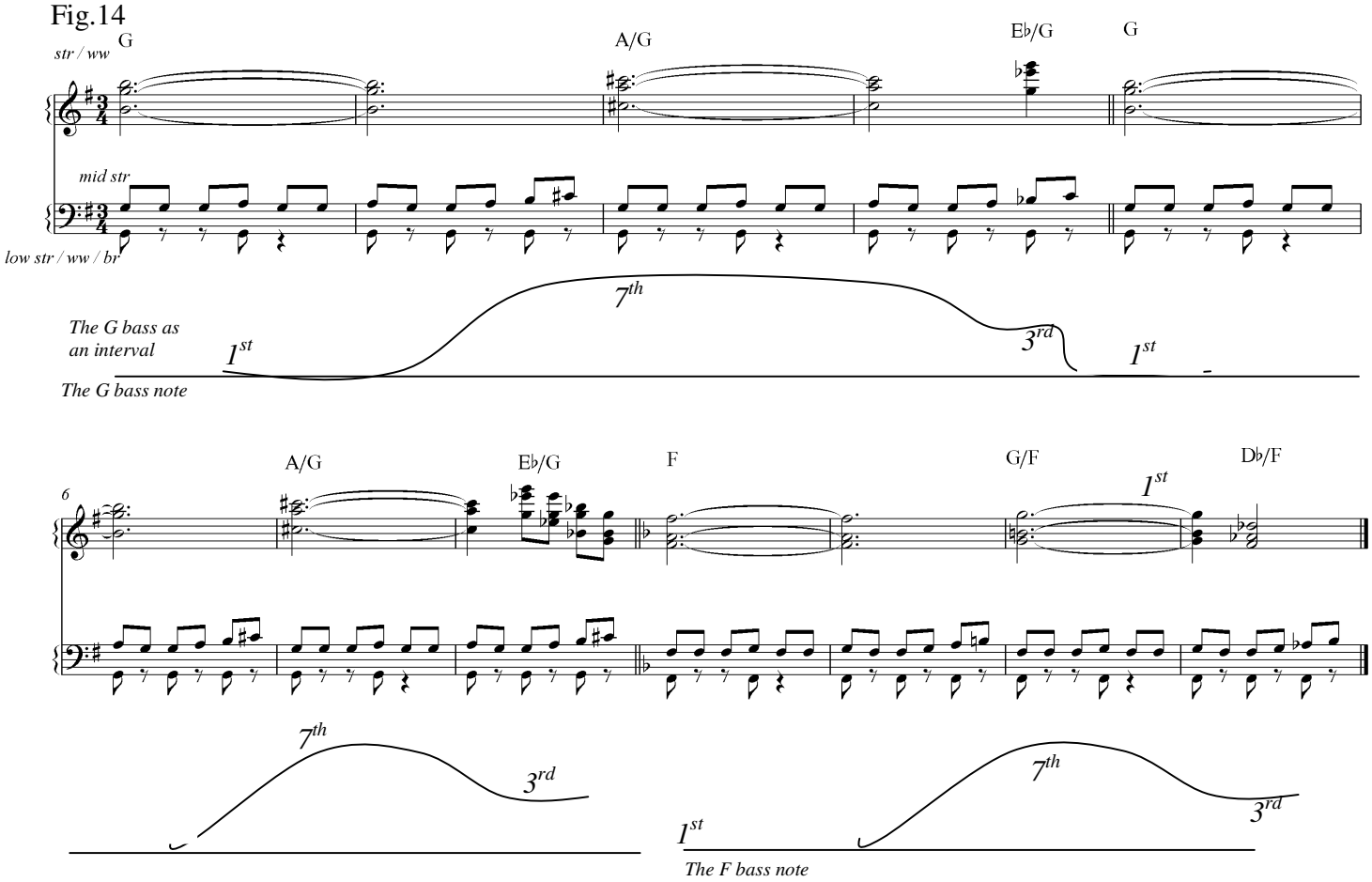
One of the most dramatic elements of this entire cue is the rhythmic syncopation between various elements of the orchestra. We have the contrast and reaction between the crotchet triplets of the strings, brass and woodwind and the quaver triplets of the snare. In addition there are incredibly effective sections where the 4th beat of a bar *is* stated and the 1st beat of the subsequent bar is left *unstated*. This confounds what we would normally 'expect', adding drama and excitement to the listening experience. The offbeat statements coming after an accented 4th beat in the previous bar is disorientating. Finally, as the cue travels inexorably toward the sound design explosion, Horner adds the spectacular semitone clash stated on the mid/high brass.

The cue works well essentially because in various ways, once again it gives us something we didn't expect; it challenges and confounds our expectations and stretches our aural perception with subtle harmonic and rhythmic interplay. That the cue sounds dynamic, dramatic, forceful and vibrant is something listeners know; what they understand to a lesser degree is how and why. Indeed part of the excitement and charm of music is tied up in the fact that most people simply don't know how and why it works, which in turn is what fuels the notion of success being some great unfathomable mystery. Whilst it may be okay for listeners and consumers of music to remain oblivious to how it is created and hide behind the abstract and metaphysical twin notions of greatness and genius to explain that which they don't understand, successful composers *do* understand which buttons to press and why so many of them are so comparatively easy to find. If this were not the case the inherent similarities in music structure wouldn't have evolved in the way they have and film music would not be able to be written at the breakneck speed it mostly is. Indeed Horner himself makes great use of the specific harmonic dynamics he used in *Bishop's Countdown* in a later film score he wrote; *Apollo 13* (below, fig.14).

APOLLO 13 *James Horner*

Audio 'The Launch' 08.03 – Movie 00.36.00

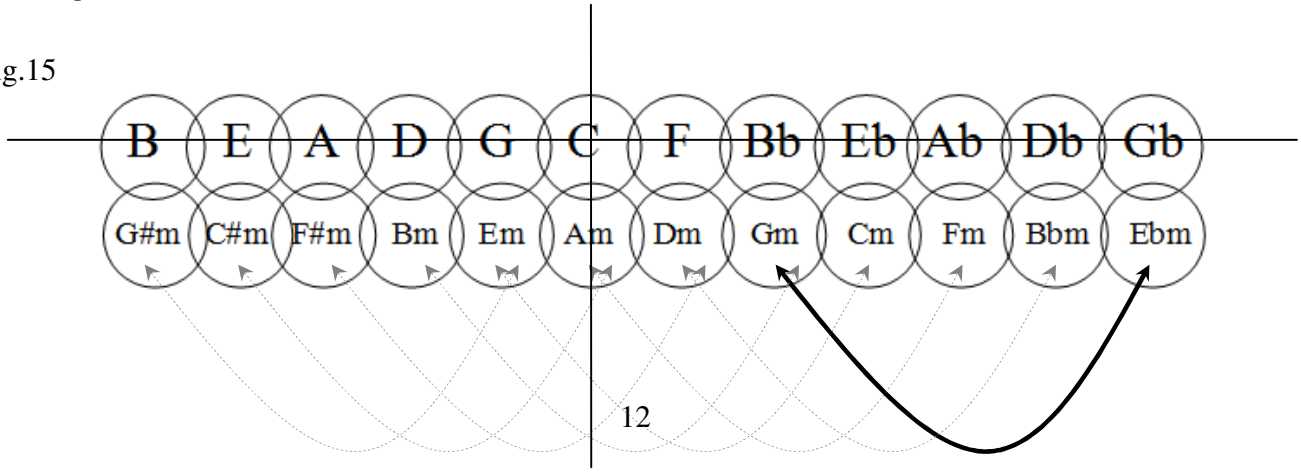
Fig.14



Another great sci-fi chord

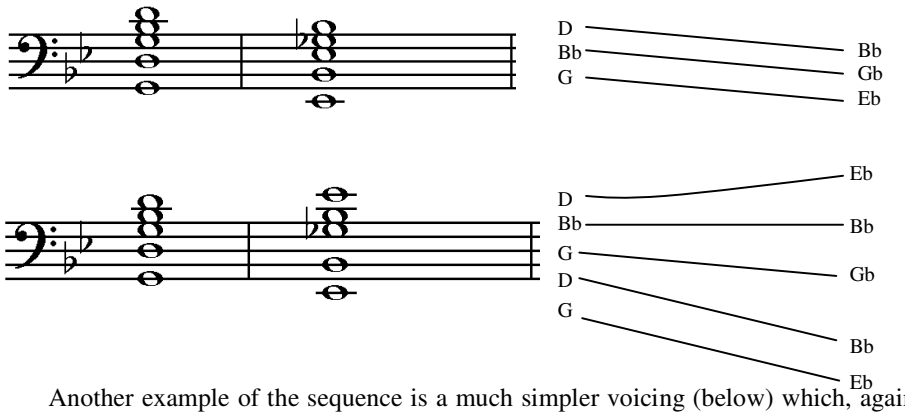
In context of the chord grid system described in the chapter titled 'Music Theory in Action' (in Vol.1) I have displayed the range of root-based major chords revolving around the key centre of C, which lies in the middle, including the relative minors underneath. On this grid I have highlighted the Gm to Ebm (i.e. a major 3rd down) chord shift. The shift is relative and happens whenever you play one minor chord a *major 3rd down* from another. I have highlighted the same maneuver from different starting points via a grey perforated line.

Fig.15



Chords are always hostage to their voicing. Voicing is at the heart of how and why harmony communicates as it does. Simple root position major or minor chords without any extensions are unambiguous, direct, absolute and easy to interpret; all of which means that, in context of film music, which has to communicate vast and complex emotions, such chords are seriously limited. If we play the Gm to Ebm sequence highlighted above in root position the transition is quite stark and chromatic sounding. This is because the chord movement and the individual note movements *within* the chord are parallel and identical; there is no variation. The first two chords in the transcription below (Gm to Ebm, fig.16) sound symmetrical, chromatic and clinical because the intervallic movement (displayed as lines to the right of each two-bar sequence) within the chord *is identical*, whereas the same two chords voiced differently (underneath) work in a different way precisely because the intervals within are varied.

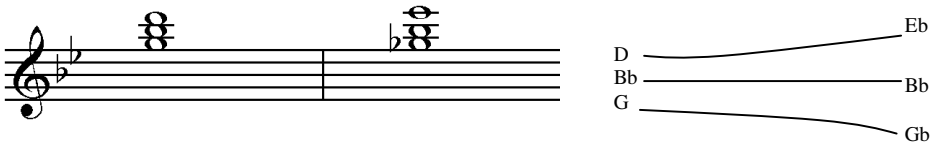
Fig.16



The 'collective chord drop' (Gm to Ebm) is a major 3rd but due to subtle revoicing in the second example the individual intervallic changes are varied. The strangeness of the chord change is retained but now it is delivered in a variable harmonic context

Another example of the sequence is a much simpler voicing (below) which, again, allows for the top note to rise, the middle one to remain static and the bottom one to drop; classic contrary motion. The thinly voiced version is often more effective because of the minimal voicing italicises the intervals.

Fig.17

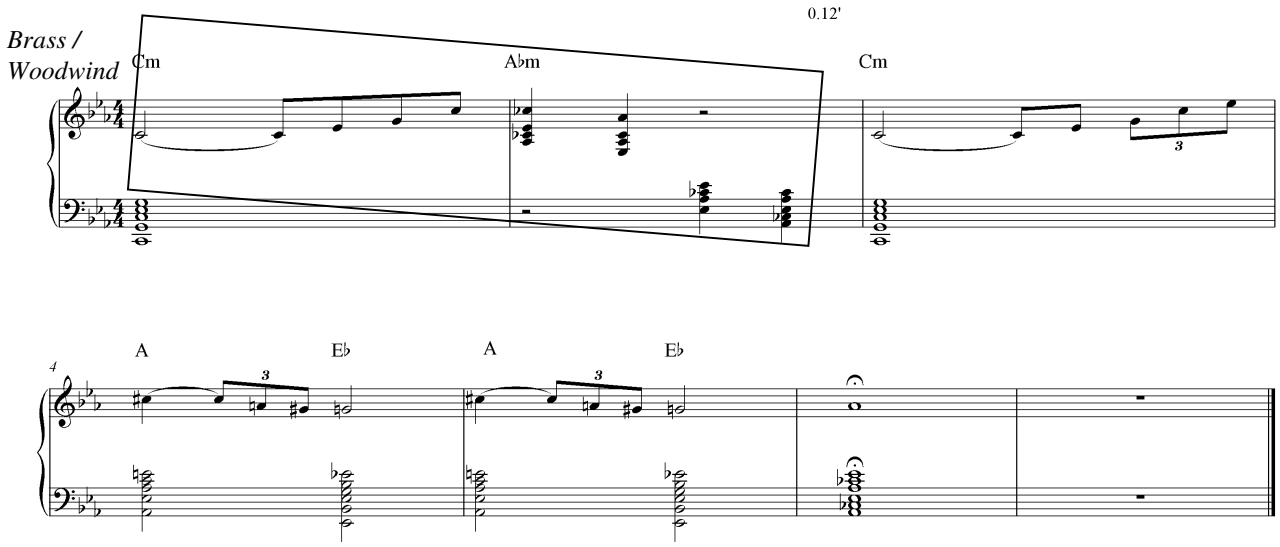


The reason this chord shift works well in science fiction is because it represents two chords from outside each other's key centre. The harmonic dynamic contained in this situation causes unease in the listener. The other reason it sometimes works so well is because the strangeness contained in the shift is delivered with soft instrumentation (usually subtly voiced strings, brass and/or woodwind). That said, in highlighting three examples of the numerous occasions when this sequence has been used, it is perhaps fitting for the first example to show it in its most obvious, dramatic, non-subtle and theatrical context, within the main title theme for *Batman Forever* by Elliot Goldenthal. The transition this time is from Cm to Abm.

BATMAN FOREVER *Elliot Goldenthal*

Fig.18

Batman Forever Main Title theme – Audio 00.012

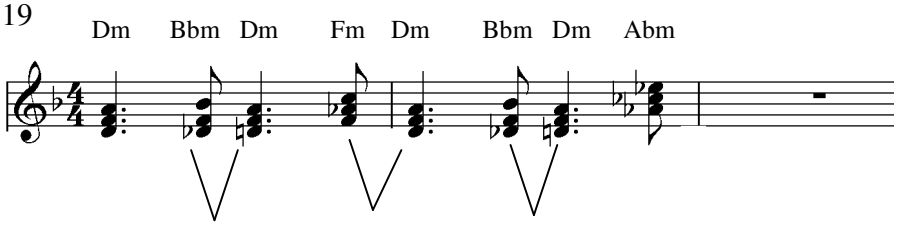


While we're on Batman Forever, it is worth pausing to look at the other great sci-fi chord change in this cue, the A to the Eb. The reason this one works so well isn't just because of the starkness of the Eb being outside the key centre of the A (or vice versa) but because the chords are a #4 apart. When we hear the Eb chord in bar four we remember the A chord which precedes it; we experience the tri-tone manouvre. Another example of the chord trick from fig.15 is in the film *Aliens* (James Horner) in a track entitled 'Going after Newt'.

ALIENS *James Horner*

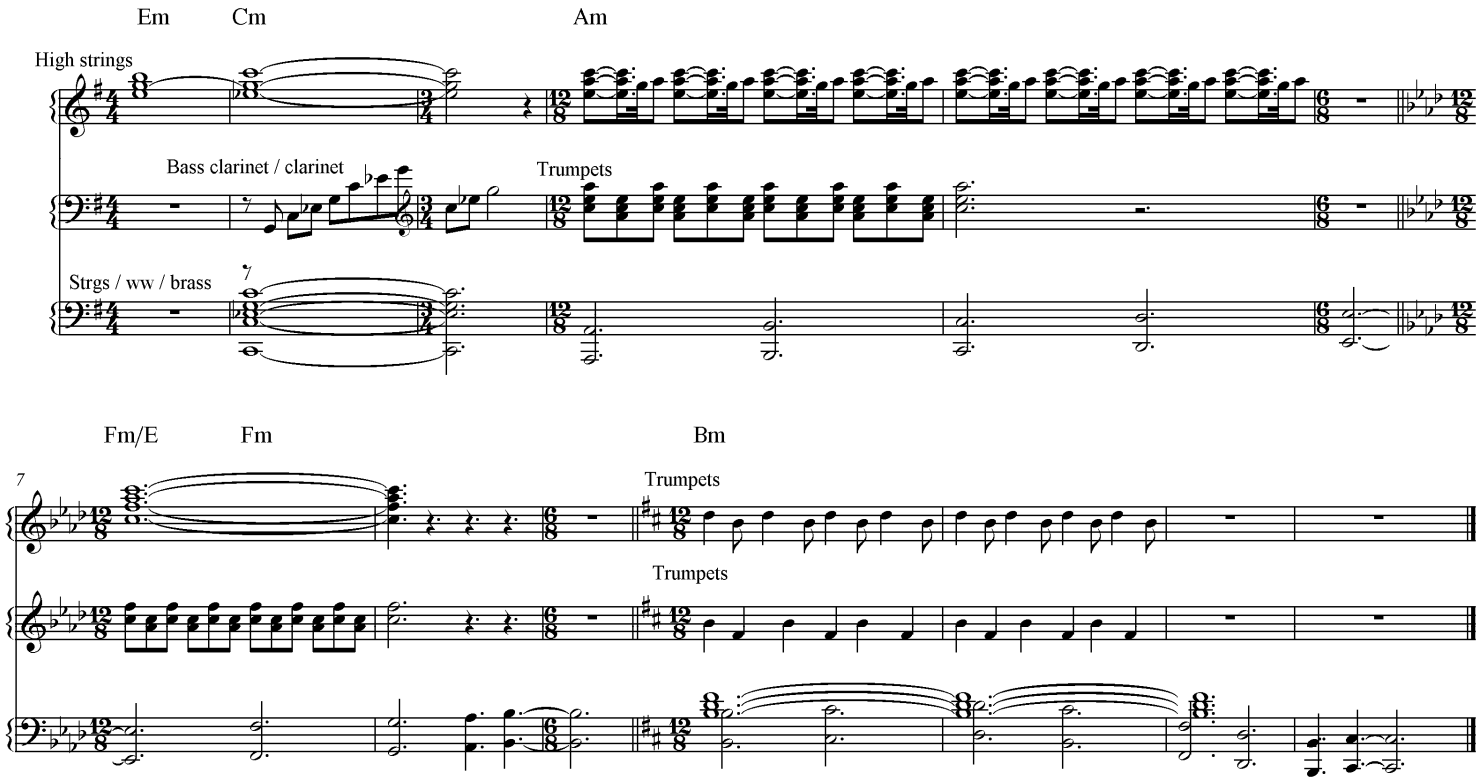
Audio – 'Going after Newt' (from 'Aliens')

Fig.19



Another example from the same film is to be found in a track entitled 'Dark Discovery / Newt's Horror'. As we can see from the transcription below the first chord change is from Em to Cm which is an identical harmonic ratio to fig.15, but the second chord change, instead of being from Cm to Abm, is from Cm to Am, which is a variation on the original chord change but still as effective. The main point is that these types of chord changes involve harmonic movement and shifts into different key centres *but* whilst one note remains common to both, which insures a level of harmonic communication and contact that makes the change effective and disorientating but not alienating. Also within this cue note the wonderful rhythmic interplay between the quaver triplet trumpets (2nd stave) and the subtly rhythmically different strings (top stave). The interplay between the straight quavers (trumpets, middle stave, bar ten) and the more 12/8 oriented phrase also on trumpets in the same bar (top stave).

Fig.20 *Audio – 'Dark Discovery/Newt's Horror' (from 'Aliens')*

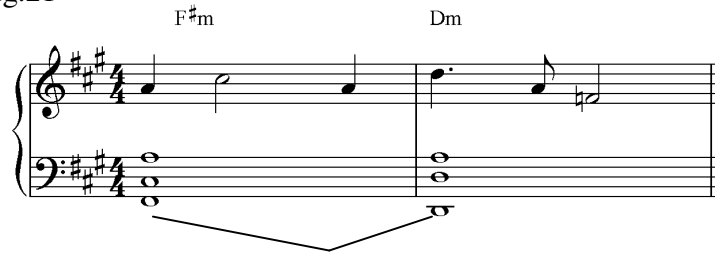


The last example of the chord exchange we looked at first in fig.15 is to be found during the opening scene of *Independence Day* by David Arnold (fig.21). As the camera pans up from the surface of the moon toward the earth we see the first shot of the alien mother ship coming into view.

INDEPENDENCE DAY *David Arnold*

Audio - Main Title 01.42 Movie - 00.02.07

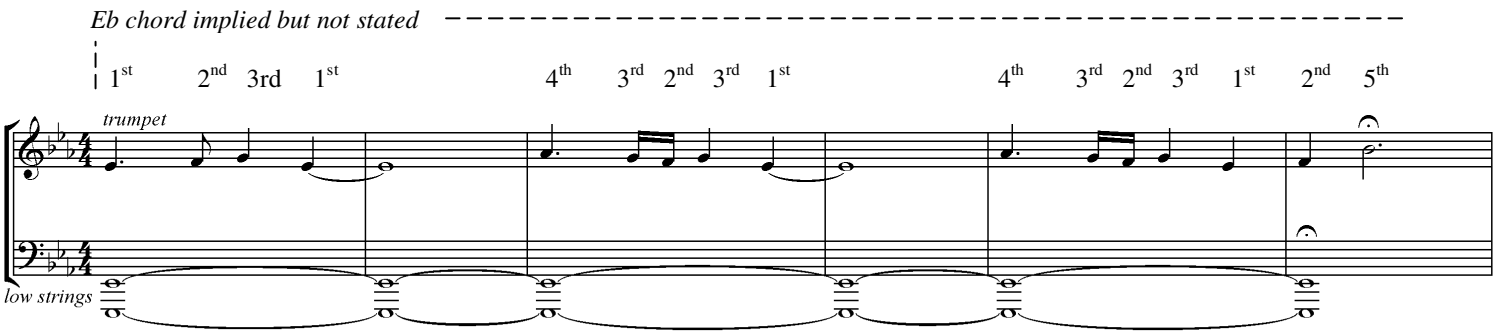
Fig.21



Independence Day is a 1996 science fiction film about an alien invasion of earth; on July 2nd an alien mother-ship enters earth orbit and deploys numerous saucer-shaped crafts over major cities. One of the film's characters, played by Jeff Goldblum, discovers transmissions which turn out to be a countdown to a coordinated attack on earth. As testament to the power of advertising and marketing, *Independence Day* is thought to be the only film where the release date was factored into the film's title. Allegedly the iconic and pivotal president's speech never originally said 'today we celebrate our independence day'. The director wrote the line to ensure its release date could not be tampered with. *Jaws* was set during the July 4th weekend, but 'ID' was the first movie to have it in its title.

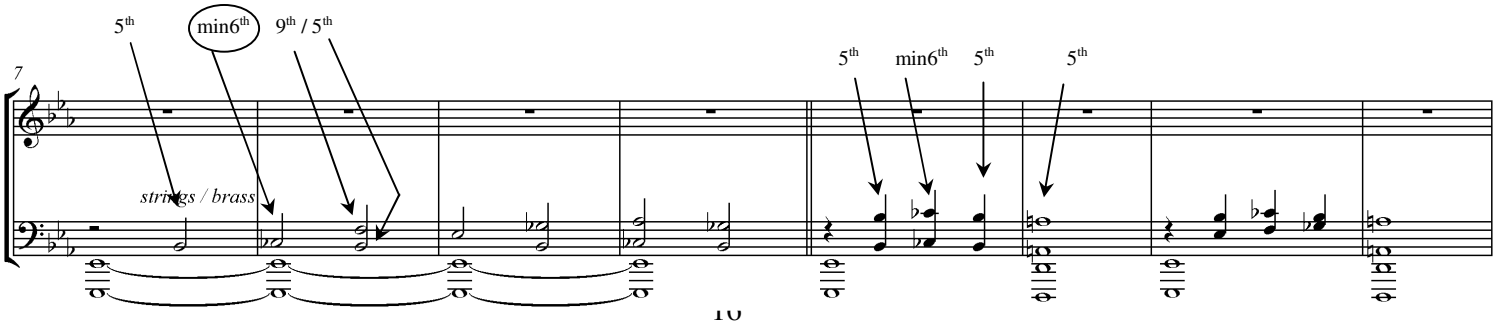
The variously bombastic and romantic score is by *Bond* composer David Arnold, and arguably was one the film's most successful elements. The score encompasses some classic film score devices; firstly its theme makes great use of the solo trumpet, an instrument used time and time again in science fiction movies. Its militaristic context and rich romantic textures reference the twin virtues of heroism and might; surviving against all odds is a central theme of many 'alien invasion' movies. The subtext of many early films of this genre was the portrayal of strength and success in the face of adversity, which was sometimes an antidote to post-war paranoia and anxiety. I say this only because in such cases the music was often the main carrier of this context. The opening solo trumpet theme works to underpin the sense of strength, tradition and determination; the other virtue of the opening theme is that its harmonies are largely inferred and not stated. To portray a strong harmonic character subtly, almost by stealth, is one of the great devices film composers often employ. The harmony is delivered melodically, hence the term 'horizontal harmony'.

Fig.22 *Movie 00.00.44*



The next part of this transcription (below, fig.23) features a much more subtle use of 'harmony by suggestion'. This time the counterpoint describes a minor chord without stating it. When we hear the first couple of bars with its low, slightly menacing strings and brass, it feels like a minor chord even though no minor chord is stated. This happens by virtue of the notes stating intervals found in a minor scale, not a major scale. Of the moving line on the bottom stave in bars one and two the only note which is implicitly *not* part of an Eb major scale is the Cb – the m6 - which implies a minor chord without having to state it, via the power of association, suggestion and memory. The other thing worth mentioning is the interval between the Cb and the next note, the F, which is the filmic #4.

Fig.23 *Movie 00.01.49*

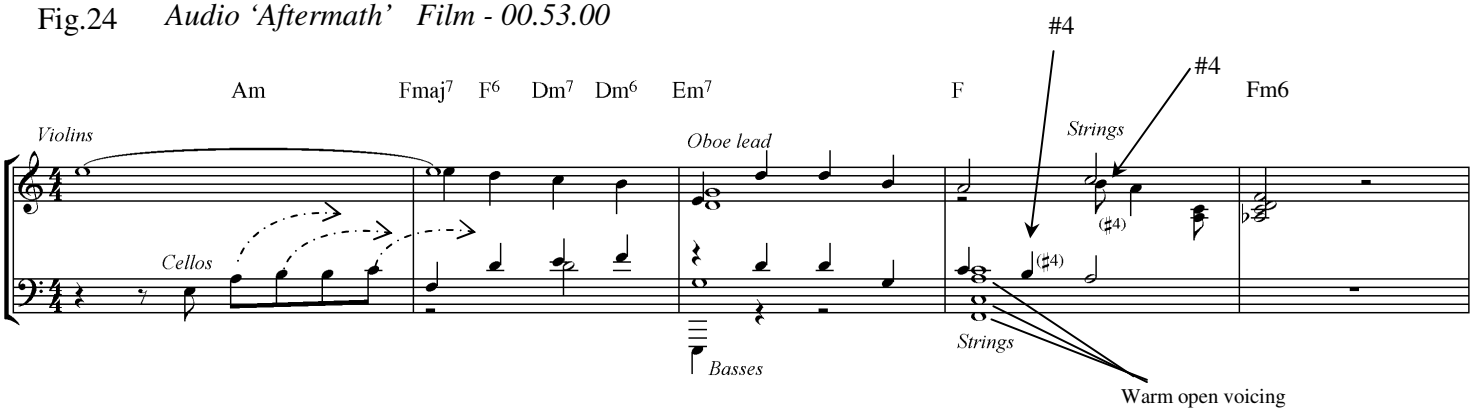


The same thing happens in bars five and six; the min6th of the Eb scale is stated in octaves which gives us a minor chord 'feel' despite there being no min3rd. This aural suggestion, or illusion, leaks over onto the D chord, which also has no 3rd to define it as either major or minor.

The next section from *Independence Day* highlights rich, romantic, warm writing and orchestrating which invokes a feeling of sadness and helplessness and underpins perfectly a sense of desolation. The voicings are sparse; the first beat of bar two (fig.24, below) features a maj7th chord by virtue only of the root (F) and maj7th (E).

Played in isolation, without the bar before, this is stark and bare, but the missing context actually came the bar before by virtue of the violins (E) and particularly the cello line which includes the A and C notes, the memory of which provides the maj 3rd and 5th of the Fmaj7th chord (highlighted with perforated lines). This simple observation serves to highlight once more how, although we *hear* a piece of music in a gradual, linear context (left to right, start to finish and beginning to end) we *listen to* it in much more of a cumulative and aggregate way. The reaction between bits we've already heard and bits we listen to *now* is at the centre of how and why music communicates as it does. Something that, for the sake of argument appeared four bars ago or the bar before can have an impact on something we are listening to *now*. Music is not just about 'now'.

Fig.24 *Audio 'Aftermath' Film - 00.53.00*



As this cue begins we see people on the ground in a motorhome surveying the chaos around them; easily the most effective section of this cue is in bar four, which coincides beautifully with a picture of the President's aeroplane flying in the sunset flanked by fighter jets. On the one hand the F chord display the richness and warmth created by the open voicing of the lower strings, and, on the other hand, the exquisite tension created by the #4 (B) hitting the 5th (C).

The point behind the analysis of *Independence Day* and many other films in this book (and volume 1) is that film music is rarely the imposition of a series of defined, finished, closed-off musical segments which simply bolt onto each other in a linear sequence. Film music evolves in a much more subtle way. It contains hints, intimations and insinuations along the way, some of which might make sense eventually but not always at the time they're heard, almost in the same way a fictional book might work. Sometimes we hear harmonic clues about what is to come. Although chords appear to be individual and defined, closer analysis reveals intimate, subtle relationships between one bar and the next. All of this conspires to deliver music which is subtle, delicate, understated and restrained. I do not mean to necessarily suggest that composers are always aware of such relationships, or indeed that they *ought* to be. Nor do I suggest that to *not* be aware of the structural complexities is a bad thing for a composer. Analysis is, after all, a *subsequent* study. I expose these inner workings because they appear time and time again. They are embedded in what music is.

Musical structure delivers a magnificent and enormous set of possibilities; a maze of options, potential, promises and chances which composers borrow from.

Some of these work in precise ways, which is why composers are drawn to them. Remember, composers are responsible for choosing which chords and lines to use, but they are not literally responsible for the fact that they work; they are responsible for realising and knowing that they work and perhaps using them in a reasonably new context. Ultimately composing is about choice and architecture and assembly.

STAR TREK *Alexander Courage, Jerry Goldsmith, James Horner, Michael Giacchano*

Star Trek is arguably the most successful American science fiction television and movie franchise in the history of moving pictures. The franchise has become a phenomenon and a part of popular culture. The core of the franchise is the original television series, which has spawned numerous successful movies and subsequent television series. Its long musical history has been graced by the work of some of the world's most gifted composers.

Star Trek (original television theme) *Alexander Courage*

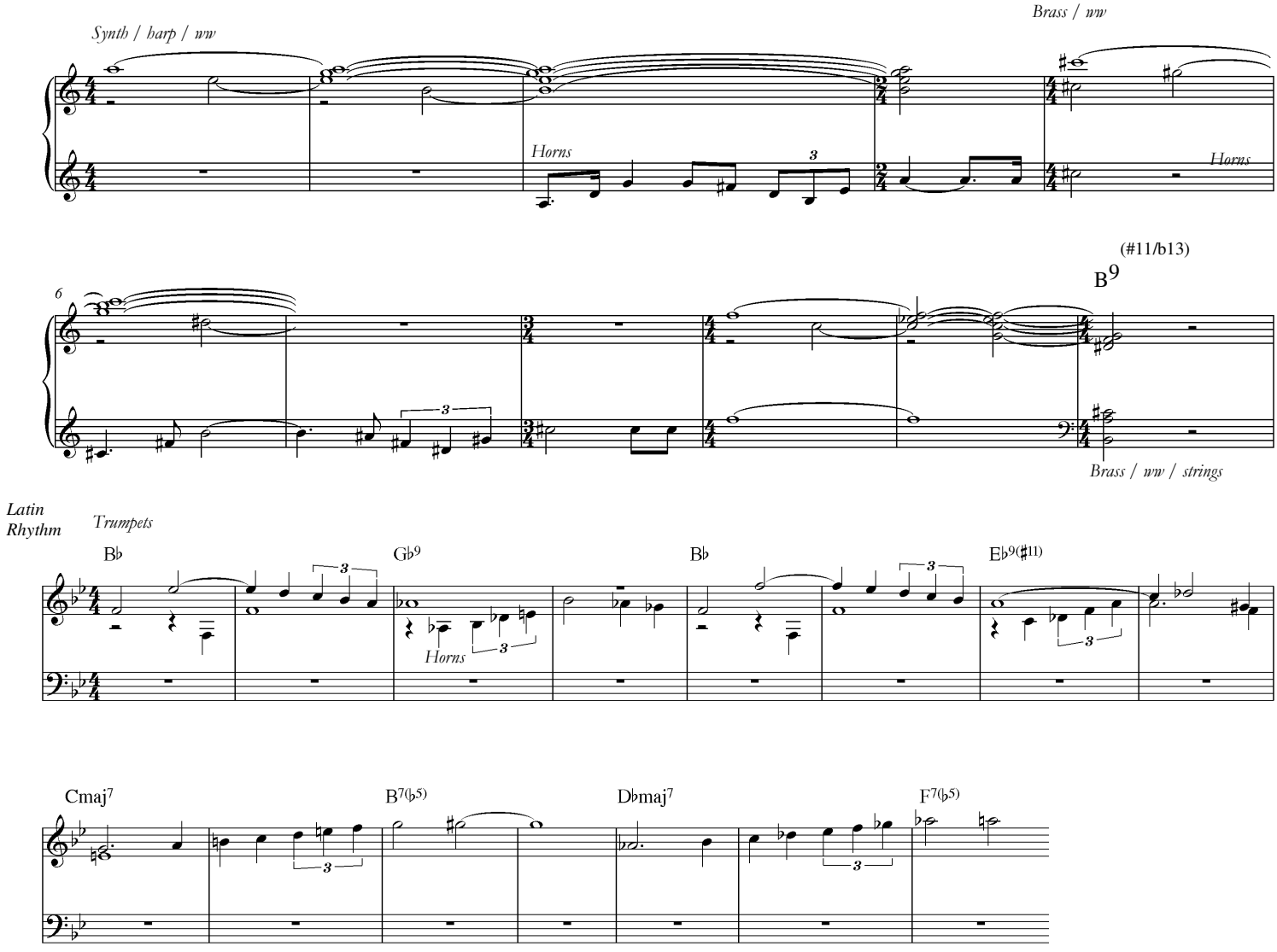
In the beginning there was the original television series, the theme from which was scored by Alexander Courage, a giant of orchestration and indeed perhaps more famous as an orchestrator than as a composer. Elements of his iconic theme from the original *Star Trek* television show have reappeared in most of the subsequent movies which followed, such is its communicative power. The most memorable section of music plays at the opening of the show; a slightly longer version, minus the famous fanfare, plays over the closing credits, overlaid visually with a series of still images from the episode.

One of the reasons the *Star Trek* phenomena his survived is that it was always more than simply a science fiction show set in space. It was always more than the sum of its parts because it allowed viewers to experience it and interpret it in different ways. Moral dilemmas and ethics have always been at the centre of the show. Many have said that in some ways the show's mission, coming as it did from a paranoid post-war society, mirrored the exploits of America and its on-going mission to extend its values beyond its own shores and deal with the new threat of Soviet Russia. *Star Trek* went way beyond 'boldly going where no man has gone before'; beyond its surface level need to entertain and excite, questions of morality and debates over rights and wrongs had always been at the forefront of the episodes. To save money the original series of *Star Trek* made use of 'tracked' music (music written and used in several episodes). Of the 79 episodes broadcast only 31 had dramatic underscores created. The remainder were tracked using music from other episodes. Much though this is seen as an issue by some, in fact it consolidated and compressed the use of the music to an extent where it became easy to remember specific styles of cues and associate them with particular events or types of scenes. The music was as much part of the enduring contextual fabric of the show as the characters and the rather economic 'planetary surface' sets.

When decisions about music are left to composers, we often get the kind of distinctive and memorable music that lives forever. All too often composers have to grapple with temp tracks or other issues and 'suggestions' which, whilst sometimes important and laudable, can cloud their judgement or interfere with their natural conceptualisation skill. For example, director Tim Burton left Danny Elfman free to conceptualise the score for the original 1992 *Batman* movie, resulting in one of the most distinctive styles of composition and orchestration for movie music in decades, one which has been often copied. Indeed the only guidance given to Elfman was to follow *his own* style already established for other Burton films. If Elfman had been given a temp track or advised to emulate another soundtrack, we would have missed his distinctive style. I say this because if, in 1966, as a composer, you'd been given the job of writing a theme for a new science fiction television series, you might have felt compelled to write something overtly 'eerie' or something 'mysterious' or cliched; maybe electronic music or dynamic bombastic orchestral music, perhaps even a 'swashbuckling' approach to mirror the naval 'space ship' narrative. If you had encapsulated and capitalised on other science fiction approaches you might well have been sucked into cliched sci-fi composing. In fairness to Rodenberry, he said to Courage "no space music".

But still, only someone exercising the outermost reaches of his conceptualisation and imagination would have dared to suggest a Latin-influenced piece, and yet that is precisely what Alexander Courage gave us, albeit with some 'spacey' sounds. The theme he wrote has such a strong and communicative melodic presence, with dynamic counterpoint and accompanying chords. The original television series theme has lived on and has reappeared in most of the successful *Star Trek* movies. Latin music was big at the time Courage wrote the theme, so in many ways he was simply tapping into an existing popular style. But in order to put this into sharp focus and contemporary context, it might be the same as being asked to write a television sci-fi theme in Britain in 2012 and suggesting Dubstep as a central style. To imagine to what degree one might be ridiculed for this is to grasp to what degree composers are nowadays forced to write according to rigid formula with more than a nod to pastiche.

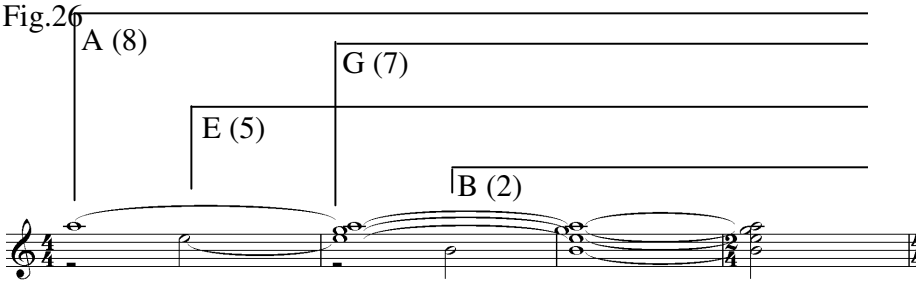
Fig.25 *Audio - Star Trek TV Theme*



Harmonies which imply but don't state

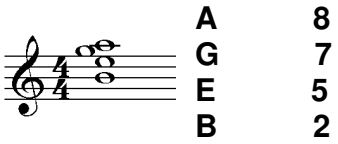
The initial three bars of the theme are interesting and almost transfixing, primarily because they lack the clarity, identity and definition of the 3rd *but* they possess other colourful intervals such as the 7th and 2nd.

Fig.26



The chord is slightly abstract in that the normal harmonic identifiers are missing but the chord has two extensions. The chord is delivered horizontally, so instead of reacting once, to a complete chord, our reaction is gradual.

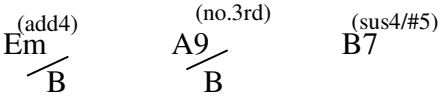
Fig.27



If we transcribe the notes in the first four bars of the *Star Trek* theme (fig.25) as one chord (left) we are perhaps more able to see how the harmonies suggest *two* possible descriptions and chord symbols. This is not just a theoretical debating point, it is key to our aural cognition; chord symbols articulate and rationalise not just an abbreviated description of the harmony – they also reference in what way we rationalise or 'hear' the chord.

Readers and non-readers alike rationalise harmonic groupings in similar ways; this is how harmony manages to communicate a feeling of common meaning to many, irrespective of ability, intellect or aural cognition. We don't need to *know* that the chord is actually a composite of two different chord suggestions (A and Em) in order to benefit from the sound it produces. We hear it even if we don't understand it. We benefit from the abstraction it creates even if we don't *know* we do. Considering all this, there are actually three ways of interpreting the chord above; they are:

Fig.28

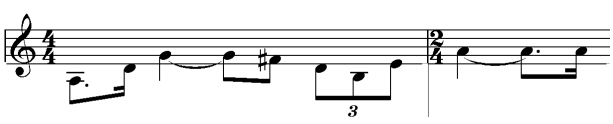


This seemingly abstract and theoretical observation is actually key to how this chord works; the fact that there are three potential different but plausible ways of rationalising it as a chord symbol is precisely why is contains such mesmerising and appealing qualities.

Harmonic contrast and juxtaposition

Looking at the second aspect of the theme (the iconic fanfare, below, fig.29) again we can see and hear how it challenges our normal musical preconceptions and raises the level of excitement. Our preconditioned acceptance of roots, thirds and fifths makes us slightly less receptive toward, and more questioning of, fourths, sixths and seconds. The first two notes (5th and root of the unstated but implied D chord) speak of authority, power and drama (think *Star Wars, Superman*); whereas the 4th, 6th and 9th intervals are what literally make it unique and stand out from the crowd.

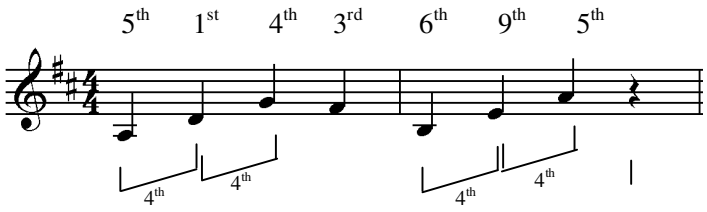
Fig.29



If we isolate the main intervals from the fanfare in fig.29 again (below, fig.30) they are 5th, 1st, 4th, 3rd, 6th, 9th and 5th. The use of the 4th, 9th and 6th in relation to the singular 3rd succeed in slightly blurring the harmonic clarity, flavour and identity of the line

Intervals in context of the unstated D chord

Fig.30

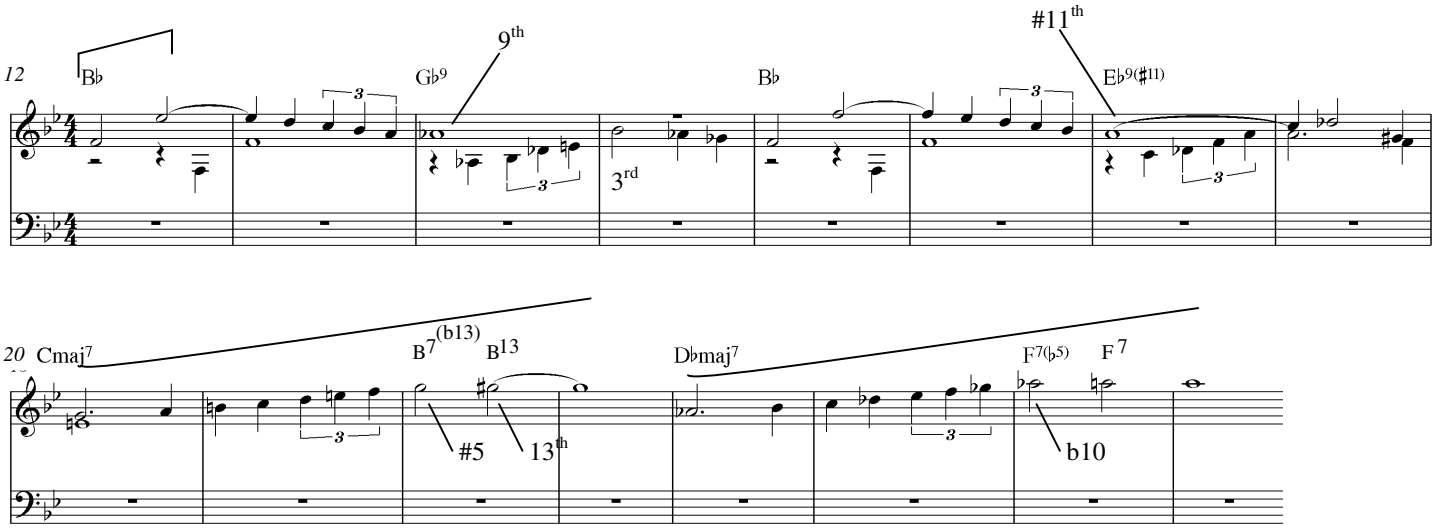


This is further reinforced when we look at the intervallic context of each note in relation to the *next* note. Except for two, these are all fourths. This again makes the intro slightly devoid of the 'safe' harmonic context we normally get. This makes it more noticeable and striking.

The main body of the theme itself (below, fig.31) is littered with noteworthy and interesting harmonic, rhythmic and instrumental dynamics which all conspire to make the piece memorable. The issue as far as we're concerned, as ever, is how does this happen? What characteristics does the piece have that make it distinctive? Instrumentally the use of an operatic-style solo voice is texturally distinctive and draws out the communicative harmonies used in the melody; if we analyse the points at which the theme makes the most impact we see they all revolve around either melodic leaps or odd intervals; such devices penetrate and give the piece a tangible melodic identity. After all, how many pieces do you know that start on a leap of a 7th? Bar one and five both feature leaps; the first leap of a 7th is crucial because it is completely unexpected. We respond to it because it is odd. Whereas an octave is a fairly characterless leap, a 7th possesses real identity. If you play an interval of a 7th to a handful of people, anyone who's ever heard *Star Trek* will reference it immediately. It is one of the only 'tunes' to start with this distinctive leap. This is how composers carve out and sculpture such memorable music.

The longest notes of the melody come in bars fourteen and eighteen of the main transcription, fig.25 (i.e. at the end of each four bar phrase) and on both occasions hit extension intervals (the 9th and the #11th). These melodic aspects lend the piece real colour at crucial strategic structural places in the piece's evolution (see fig.31, below). The second eight bar section (below, from bar twenty) has two effective upward melodic phrases which give the piece a great sense of inevitability; of momentum and purpose. According to interviews this was one of the primary ideas Courage had when designing the piece – that it should have an 'upward momentum'. But again, the tail-end of each phrase has odd intervals - b13th and 13th in bar twenty two and b10 in bar twenty-six. On top of all that we have the rhythmic interplay of the melody, featuring crotchet triplets which juxtapose the semiquaver and quaver oriented frantic Latin rhythm which supports the piece.

Fig.31



Moving on, by examining the brilliant use of counterpoint we can see to what degree this was also crucial to the piece. In interviews Alexander Courage references the influence that songwriter Richard Whiting's song 'Beyond the Blue Horizon' had on him when writing the *Star Trek* theme. The aspect that appealed to Courage was what he called 'a long tune with triple time underneath it'. This encouraged him to create what he called 'a long thing that just keeps going into space'. What he doesn't say is how crucial the counterpoint was in supporting that 'long melody'. If you play the *Star Trek* theme minus its counterpoint, the theme drags and falters when it hits the semibreves. One of the main aspects of the theme that is so captivating is the sense of momentum created by the interplay between melody and counterpoint. Above anything else the original theme from *Star Trek* is a triumph of arranging, no surprise considering Courage is a master of orchestration. Merging the melody and countermelody of this theme effectively gives you a cumulative contour, or the 'long tune' Courage spoke of. The intervals that the counterpoint hits are worth mentioning; in the abbreviated transcription below (fig.32) the melody hits the 9th (Ab) on the third bar of the phrase. The piece would have stopped dead in its tracks were it not for the rhythmic counterpoint underneath but also the fact that the countermelody hits the maj3rd, bringing the piece into focus with it the colour and richness inherent to that most defining of intervals.

Fig.32

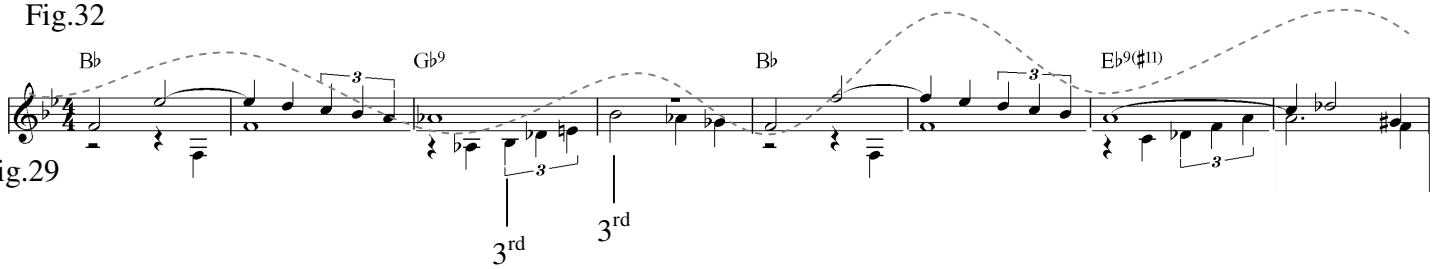


Fig.29

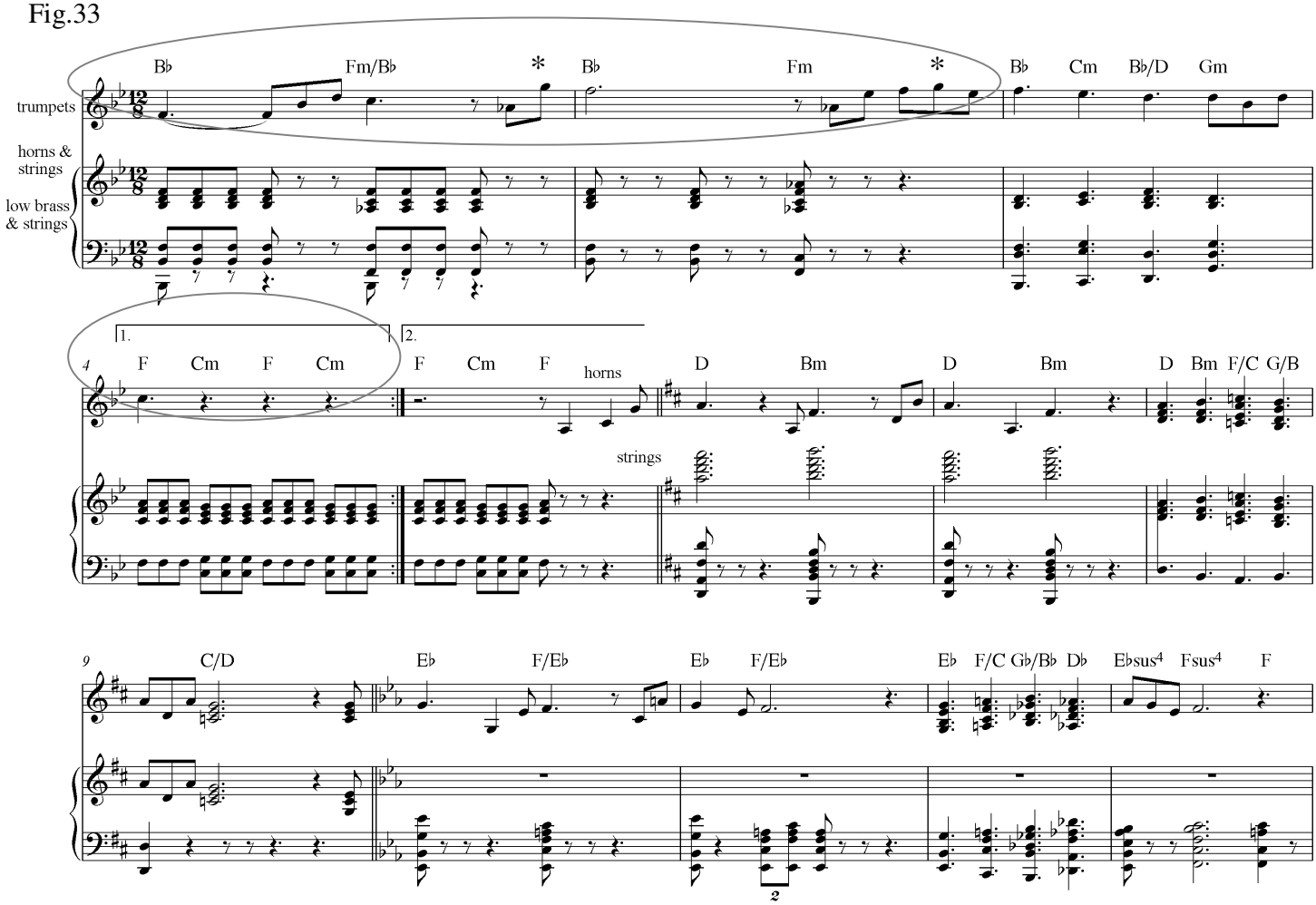
The only questionable aspect of the whole legendary and iconic theme tune is that *Star Trek* creator Gene Roddenberry owns half the royalties. Pressured by Roddenberry, composer Alexander Courage had made a 'handshake deal' that gave Roddenberry the option of composing lyrics for the *Star Trek* theme. Roddenberry exercised that option, writing lyrics and then asserting his right to half the publishing / performance royalties as a co-composer. The lyrics were not seriously intended to be used in the show, as anyone who has ever seen them would acknowledge. They have never been released and indeed their existence is hardly known, but as the 'lyricist', Roddenberry was entitled to an equal share of the royalties whether or not the lyrics were ever used. So every time the estate of Alexander Courage received royalties, as well as his publisher, so does Gene Roddenberry. Courage protested that the whole thing was unethical but to no avail. Roddenberry's lyrics added nothing to the value of the music, have never been heard or used publically and were created for no reason other than to usurp half the composer's performance royalties.

STAR TREK - THE MOTION PICTURE *Jerry Goldsmith*

Star Trek - The Motion Picture is the first film based on the television series. The plot is drawn from an old sci-fi story and revolves around a powerful alien cloud called 'V'Ger', which, as one might imagine, is approaching earth destroying everything in its path. Captain Kirk – now an Admiral –ruffles a few feathers and assumes his old command of the *Enterprise* reuniting his old crew. Perhaps inevitably, he leads it on a mission to save the world. Overall the movie wasn't well received; it could be said that the two good things to come out of it was Goldsmith's grand, sweeping, majestic and romantic score and the certainty that subsequent and better films would be made, as indeed they were.

Audio - STTMP Main theme 00.10

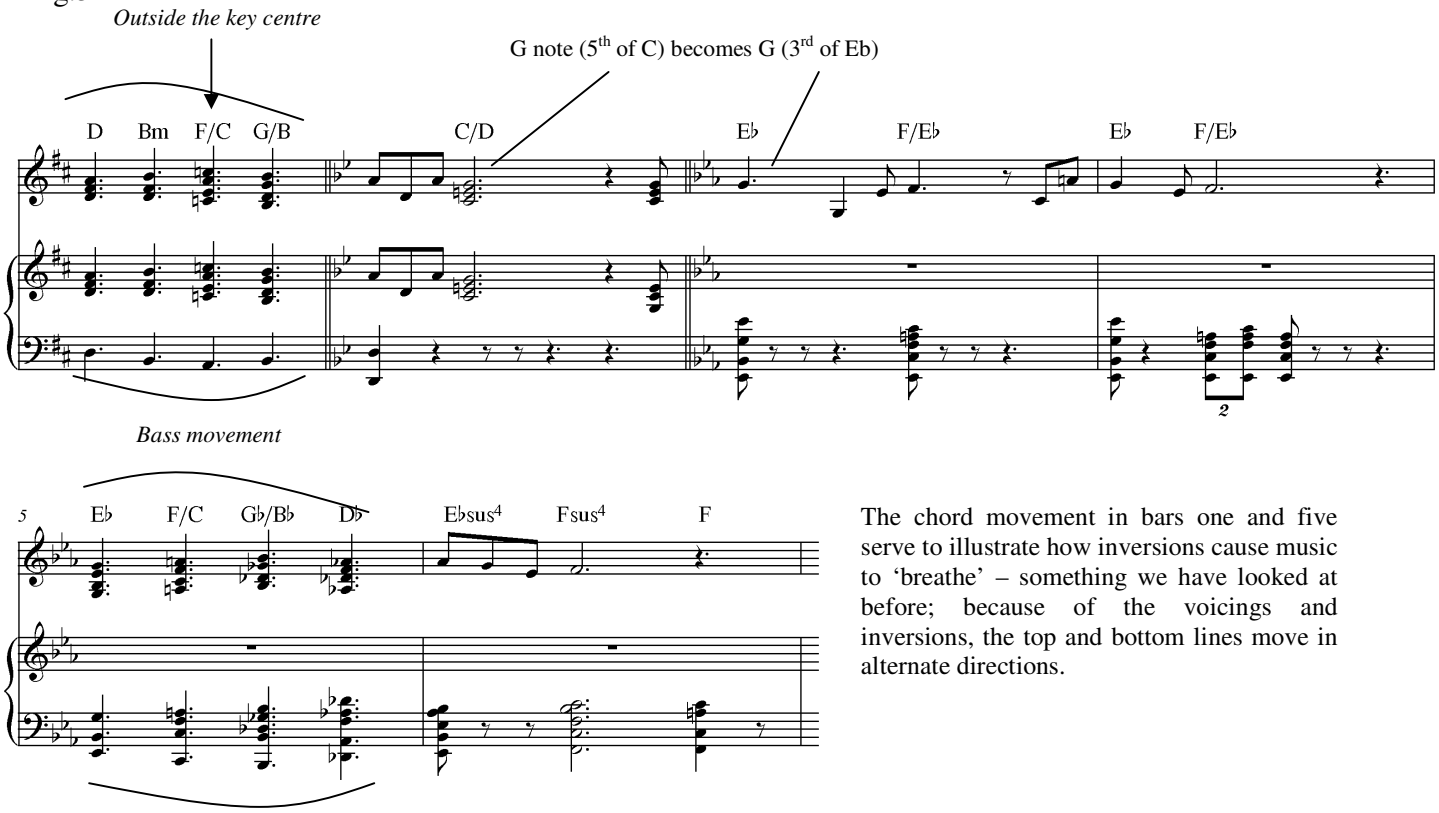
Fig.33



The first thing to note in this striking theme by Goldsmith is its use of the 'sci-fi chord change' (mentioned in the chapter entitled *Music Theory in Action* in Vol.1 and earlier in this chapter too). In the key of Bb this transition is from the chord of Bb to Fm, which happens in the first few bars of the theme. But Goldsmith also squeezes the same type of chord change (but from a different starting chord) in the 1st x and 2nd x bars (Cm to F). Also, certain notes in the melody manage to dramatically cut through the harmony; the G notes in bars one and two (*) cut through by virtue of being not simply the highest note, but also by being the 9th of the Fm chord, an interval that is naturally more exposed than most because of the maj7 interval between *it* and the min 3rd interval of the Fm chord (Ab).

The way Goldsmith navigates rapidly to and from different key centres really helps retain the momentum of this piece. The D chord at the start of bar eight of the original transcription (fig.33) and bar one of the abbreviated version below (fig.34) navigates its way to a C/D (second beat of bar two) via a complicated and disorientating route which involves briefly going outside the key centre. The use of 2nd and 1st inversion chords (F/C and G/B in bar one, below) further acts to harmonically disorientate the listener, but is juxtaposed by the consistent bass movement (D, B, A, B). At the end of bar two a resolution from C/D to G is expected but what we get is a key change to Eb, made smoother by the consistency of the G note in both chords (see fig.34, below).

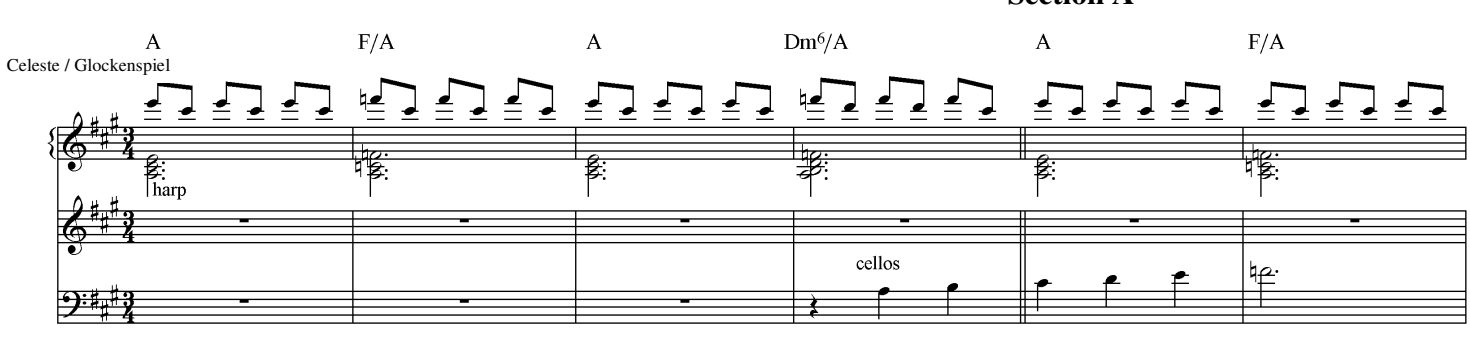
Fig.34

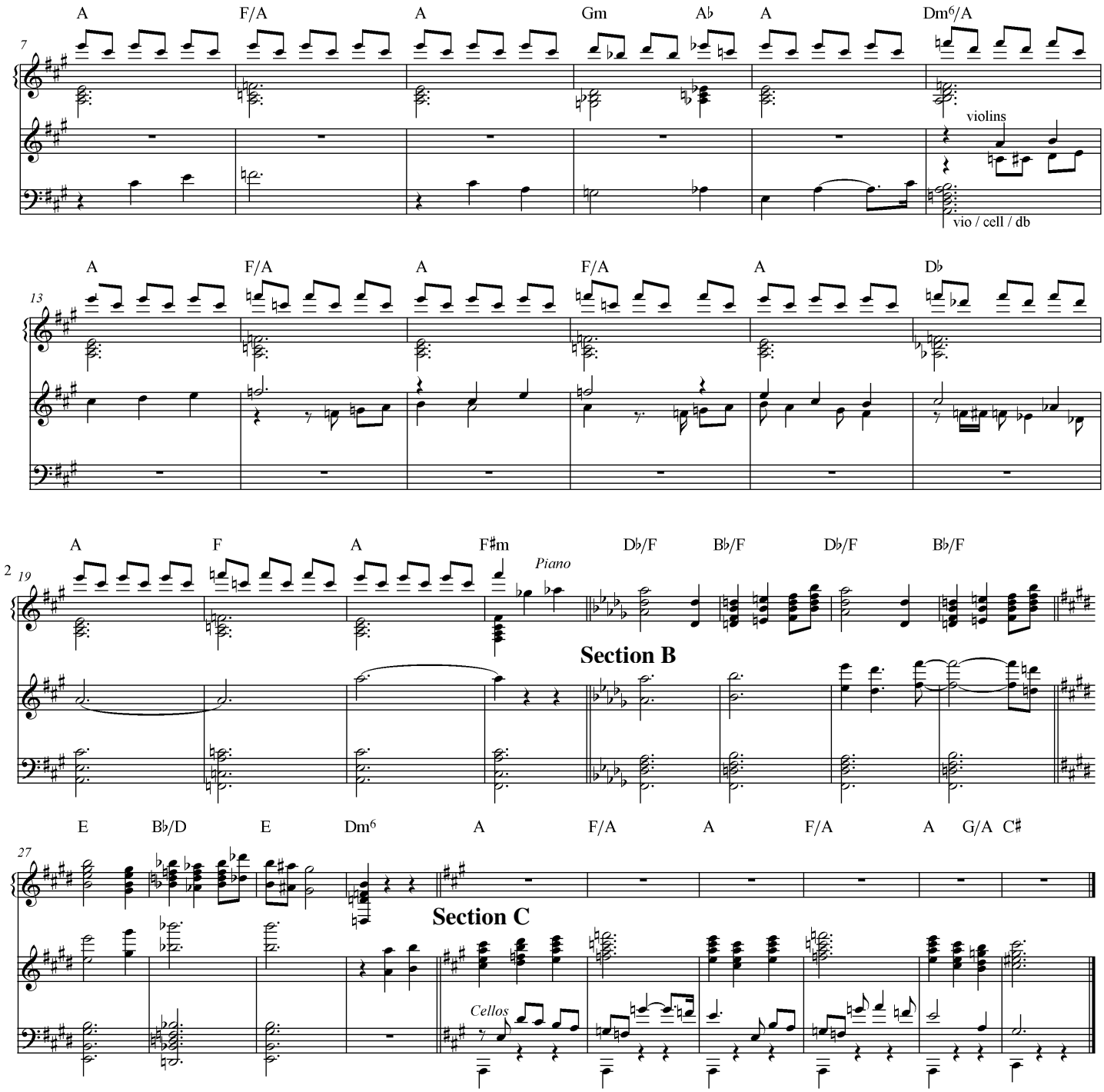


The chord movement in bars one and five serve to illustrate how inversions cause music to 'breathe' – something we have looked at before; because of the voicings and inversions, the top and bottom lines move in alternate directions.

One of the most emotionally communicative pieces in the film is *Ilia's Theme*, named after one of the female characters emotionally involved with the Enterprise's Commander Decker.

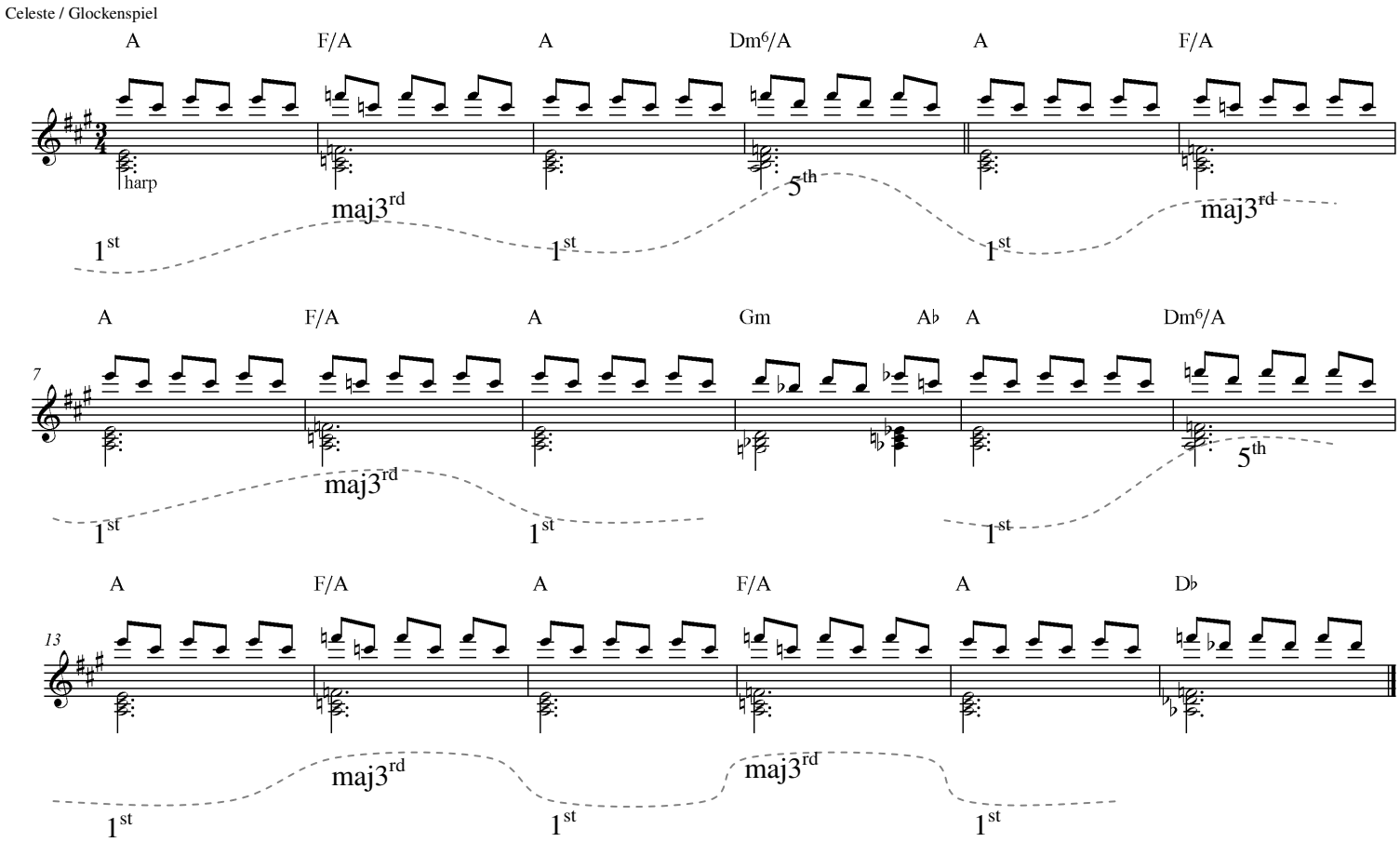
Fig.35 *Audio - Ilia's Theme 00.00.01 Movie*





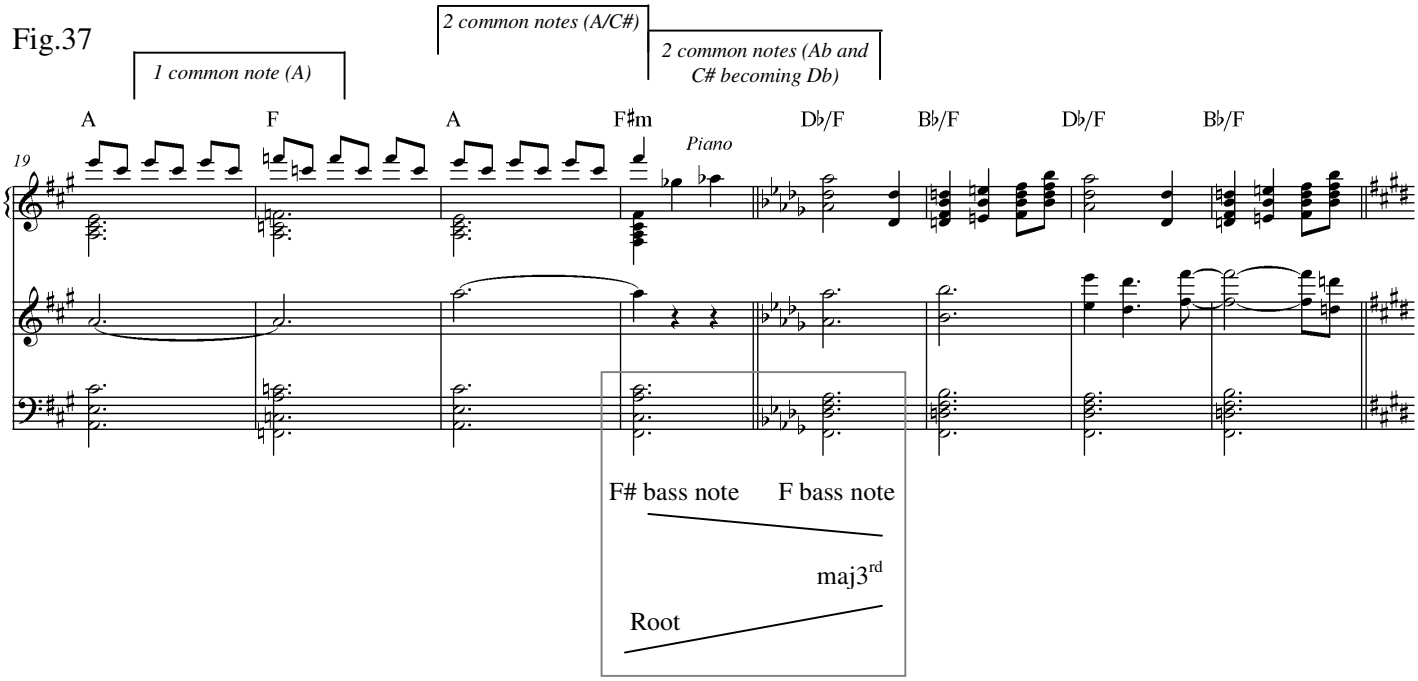
In order to understand how this piece communicates we have to analyse subtle harmonic interactions, choices of instrumentation, specific orchestration technique, effective and dynamic key changes and certain harmonic intervals which work particularly well in context of a science fiction setting. In order to unpick this vastness let us look firstly at the subtle harmonic reaction between the chords Goldsmith uses.
Below is an abbreviated transcription of the first 18 bars, isolating the Celeste / Glockenspiel quaver motif and the chords underneath. When we look and listen to the sequence we would tend, for obvious reasons, to rationalise according to melody and harmony; they are the two dynamics which interact and create colour and identity.

However, analysing the chords in this surface-level way doesn't really get us very far; it simply shows us a sequential group of simple chords which repeat. The reaction between the A chord and the F chord is truly what creates the emotion and romance that defines this piece; if you play the accompanying Harp chords alone you will feel an enchanting and irresistible relationship between the chords. What defines *that* is the changing intervallic context of the A note *within* the A and F chords; a note that doesn't physically move is at the heart of why those two chords work so well. The A note as a 'note' remains constant, but as an interval it changes. We therefore have the slightly mesmerizing and hypnotic feeling of a note remaining the same *but also* simultaneously moving. Underneath each stave I have added a contour which describes the A note with the chord in terms of the interval it represents.



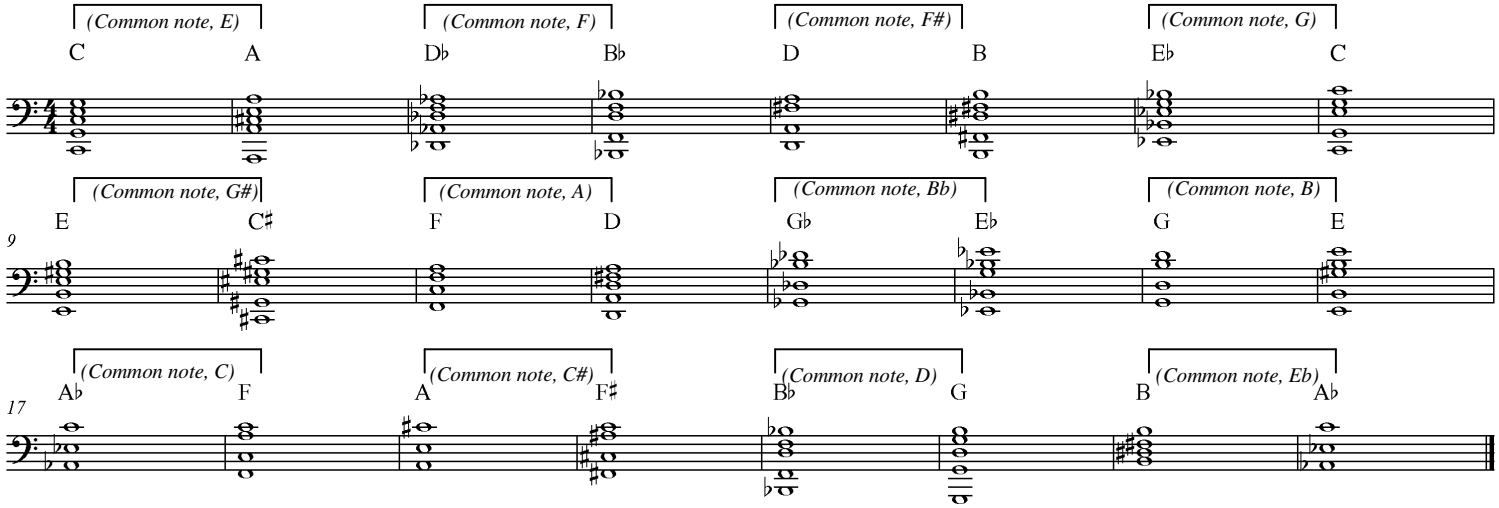
The lilting intervallic movement of the 'A' note is what makes two perfectly ordinary chords, lying outside each other's key centres, work so well together. Another example of subtle harmonic interaction can be found from bar nineteen (of fig.35 and separately transcribed in fig.37) in the section leading up to the key change from A to Db. The chords of A and F share the A note (as we've already established) but as we move closer to the key change the chords share *two* notes (the link between A and F#m) *and* at the crucial key-change point the chords of F#m and Db/F share the Ab and C#/Db. This device of notes having different intervallic contexts is at the heart of the effectiveness and the drama of the key change. The fact that certain notes have two intervallic realities just at the point of the key change is what makes the key change from A to Db seem more natural. Another effective aspect is Goldsmith's use of inversions in the pursuit of more vivid harmonic colour and variation. Beginning the new key of Db on a Db/F may seem innocuous but doing so allows for a smooth bass transition down from the F# to the F. What brings added colour is the fact that although the notes F# and F represent a musical downward slide of a semitone, the *intervals* they state, relative to the chords they appear in, represent an upward slide of a maj3rd. Once again, this is one of the ways music 'breathes'.

Fig.37



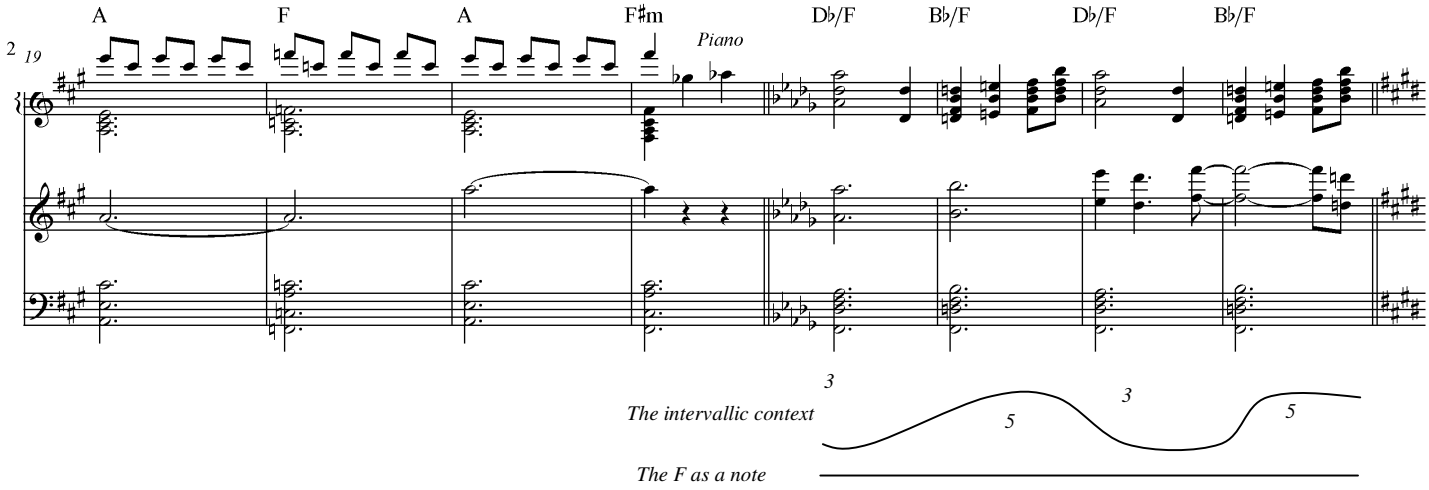
A great two-chord change (and one which, in a sci-fi setting, can create a feeling of wonderment and awe) is where we go from any major chord to another major chord a min3rd below (every possible example is scored out below, fig.38).

Fig.38



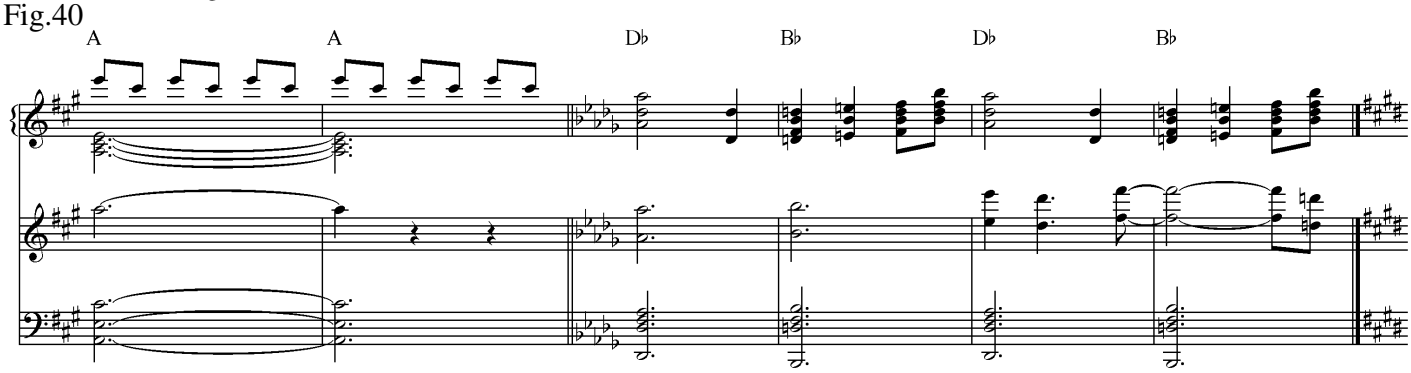
If such chord sequences were voiced using the same kind of root positions it would create a stark, bare parallel feeling, but if we vary the voicing of the root-positioned chords (as in the examples above) the effectiveness of the manouvre (of two chords outside each other's key centre being played consecutively) does begin to seep through. Part of the 'wonderment' element is, as I have stated, buried in the fact that the second chord of each two-chord sequence lies outside the key centre of the *first* chord. *But* if the notes in the first chord were completely different from the notes in the second chord with no notes common to both chords (i.e. C to F# for example) then the result would be much more extreme. The effective aspect of the two-chord sequence is that despite the two different key centres, one 'note' remains constant whilst its intervallic context changes consistently from maj3rd to 5th. Considering all these factors, returning to *Illia's Theme* from *Star Trek - The Motion Picture*, we can see Gerry Goldsmith's use of the type of chord sequence described in Fig.38 from bar five of the abbreviated transcription below (fig.39). The interesting thing in this section is his pedal note of F from bar five to eight; the F is only the note that unifies the chords, and, as we have established already, has a varying intervallic context. Therefore in italicizing the F note by inverting it, Goldsmith highlights the differing intervallic context in which the note exists.

Fig.39



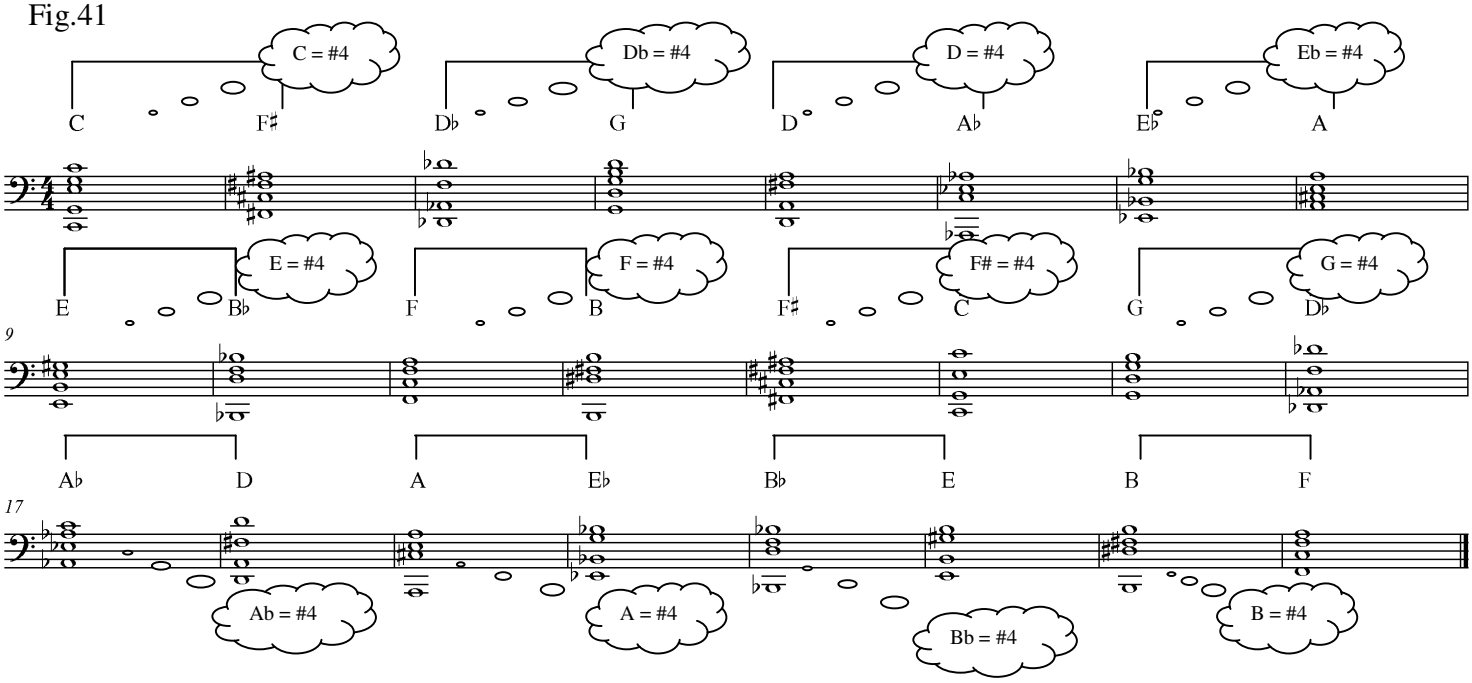
In order to fully grasp the importance and effectiveness of the various, and at times almost imperceptible, harmonic subtleties, below is a 'straight' version of Fig.39 where Goldsmith's deft brushstrokes have been taken out. The move from the key of A to Db still works but lacks the colour created by Goldsmith's passing chord of F#m. Similarly the lack of inversions makes the Db section quite 'square' and extreme sounding.

Fig.40



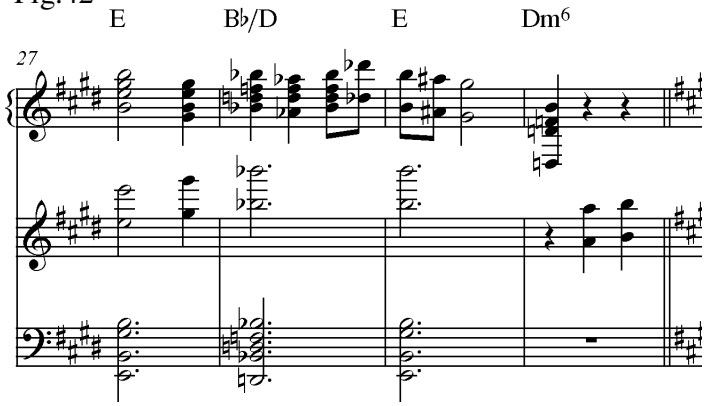
One of the most enduring science fiction chord changes is when a major chord is followed by another major chord either a sharpened 4th down *or* up (i.e. C to F#, Db to G). A full list of every possible example of this is given below (fig.41). Traditionally we hear the #4 most obviously when it appears as an interval in a chord, but another much more subtle way to invoke the #4 is to place two chords next to each other that are themselves a #4 apart. The way we 'hear' the #4 is by virtue of the reaction between the two chords. If we play a C chord followed by an F# chord, when the F# chord hits we hear the 'ghost' of the previous chord; specifically we hear the 'C' root note because this was the most prominent root note *of* the C chord. Hearing the 'ghost' of the previous chord is not something we can switch off or choose not to be influenced by. The point is that when we hear the 'ghost' of the C note in the F# chord, we hear it as a sharpened 4th of the F# chord. Therefore the '#4 feel' is contained within the relationship between two chords, not merely as one interval in a chord.

Fig.41



I say all this because this is precisely how Goldsmith invoked the #4 in bar twenty-seven of *Illia's Theme* (abbreviated below, fig.42). The inversion in bar twenty-eight of the original transcription (bar two of the example below) works both as a tool to enable a smoother bass line and serves to dramatize the Bb chord by altering the harmonic dynamic.

Fig.42



The historical context of orchestration

To presume that composing is an autonomous creative act or event, independent of arrangement, orchestration and production is to completely miss the point that usually composition is a collaborative consummation of different characteristics and features which together create music (even if those collaborative efforts are from the mind of one person). We label the different areas such as composition, arrangement, orchestration and production so as to define what they are, not to pretend that they exist separately in a vacuum, divorced from each other. A composition that works well is one that has been sculptured and structured whole of its 'sound'. Most people would consider the notion of music without sound as fanciful and absurd, and yet a majority of composers (although not a majority of film composers) write their music on a piano or guitar without much regard for what it will eventually 'sound' like. As an orchestrator I have done countless sessions with singer-songwriters who do not conceive a piece whole of its eventual sound. Instead it is constructed inside the restrictive textural box offered by acoustic guitar or piano. If a composer has conceived the idea deliberately for such a simple arrangement, fine, but in so many cases composers simply do not think about the sound or the arrangement, almost as if 'the sound' is something which can simply be added later.

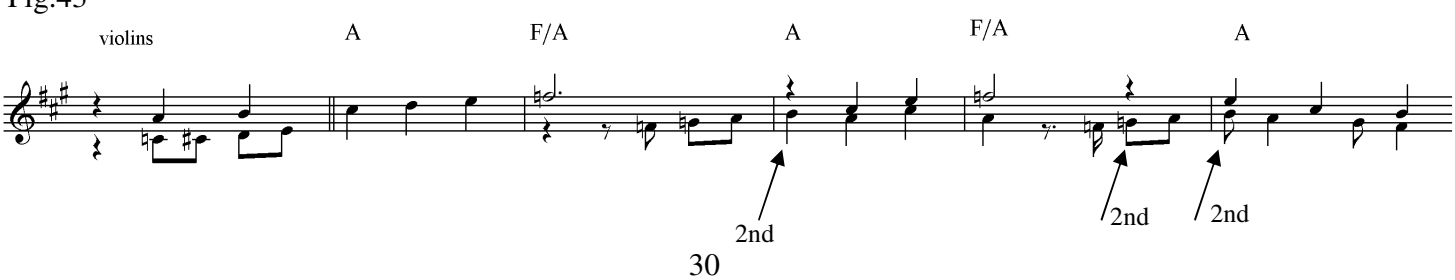
If 'great' film composers share anything that can be rationalised and defined it is that, like classical composers before them, they conceive music whole of its arrangement. Though most film composers historically don't orchestrate, most provide good sketches of what instruments they envisage providing which functions within the score; in this context they therefore function as arrangers. The level to which various skills within the creation of music have splintered into specialist areas might surprise the likes of Beethoven and Mozart, who considered orchestration to be at the centre of composition. For them the thought of giving orchestration over to a professional orchestrator would be absurd. It would seem almost as daft as letting someone decide the harmonies that accompanied their melodies, or vice versa. The various elements of composition were inextricably linked. And much as the notion of trying to compare and judge radically different eras alongside each other might be equally absurd, it remains the case that splitting composition so emphatically into 'composing and arranging' might be seen by some as representing a deskilling of the art of composing and a decline of the integrity of the process. If film composers were split into two sets of skills, one that wrote the harmony and one that wrote the melody, we would consider this odd and probably unworkable. And yet, annexing orchestration from composition seems to most to be completely rational.

How to grow an orchestration

I make the point about composing and arranging being one art as a precursor to analysing the orchestration and instrumental colour present in 'Illia's Theme'. It is an almost perfect example of expert and sensitive arranging being *at one* with the composition. It is hard to envisage someone writing this piece independent of any thought about the instruments that would breathe life into it. Some composers make the mistake of presuming that arranging and orchestration are things that are *done* to music after it is composed. Jerry Goldsmith represents the antithesis of this approach. His choices of instrumentation and specific arranging technique are absolutely key to the success of 'Illia's Theme' and to his music generally. With reference to Fig.35 and the sections headed A, B and C, it's interesting to look at the way Goldsmith 'grows' and evolves the orchestration to add colour and in so doing intensifies and italicizes the emotion of the music. Section A features low/mid cellos carrying the melody with no accompanying counterpoint. Section B (featured separately on one stave below, fig.43) features the melody stated by violins with a rhythmic 2nd violin line underneath.

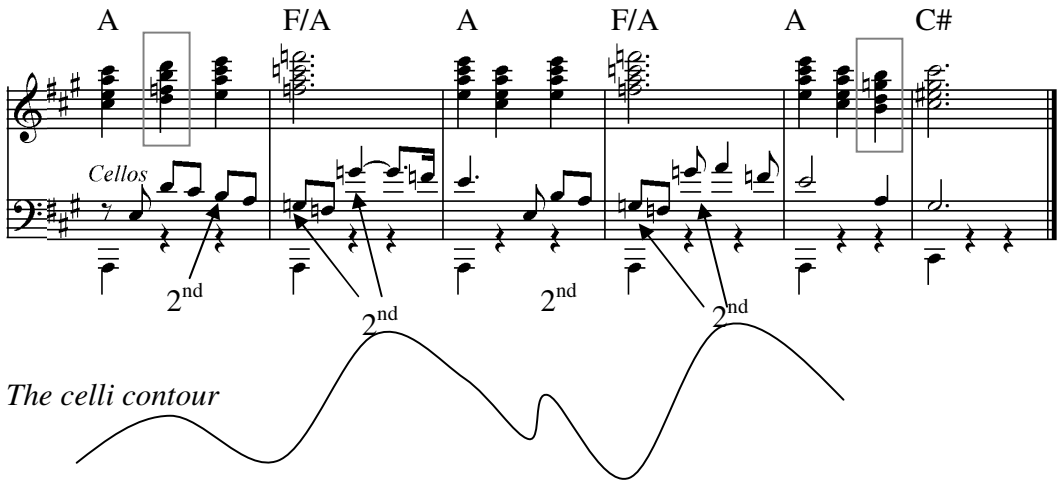
Fig.43

'Section B'



This is interesting because the counterpoint not only offers rhythmic variation; it also develops a unilateral identity by consistently hitting the romantic and effective maj2nd interval several times (highlighted). This adds significant colour and emotion to the counterpoint. Section C (featured separately on two staves below, fig.44) comes after the main melody has been established and stated in sections A and B.

Fig.44 **'Section C'**



It features high strings in close, lush harmony and is supported by a lyrical and dramatic cello counterpoint which, once again, hits the maj2nd interval.

Note also the careful use of passing chords (boxed) which offer a momentary, ephemeral and barely perceptible quality.

STAR TREK – THE WRATH OF KHAN *James Horner*

Star Trek II - The Wrath of Khan was the second movie in what was to become a long-lasting and successful film franchise. It sees the *Starship Enterprise* up against a genetically engineered psychopath named Khan. James Horner provided an excellent score which successfully encapsulated the nautical feel asked for by director Nicholas Meyer, who wanted music that would speak of seafaring. This was James Horner's first major film score; he wrote it in just over a month, providing 72 minutes of music. One of the ways Horner delivers the sense of tradition and history is by using powerful harmonic devices such as the 'Haydn Horn progression'. Below is an example of the progression (fig.45, which revolves around specific intervals).

The first few bars of the beginning of *Star Trek II – The Wrath of Khan* is transcribed in fig.46 where the Haydn progression is used dramatically to evoke history and tradition.

Fig.45

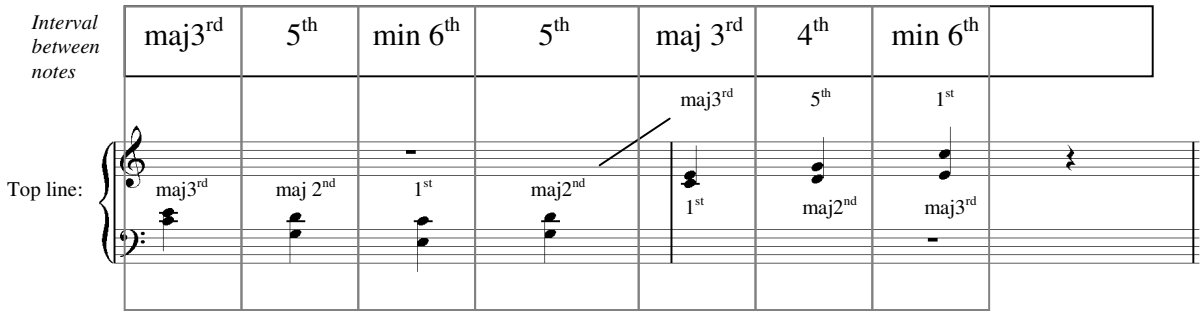
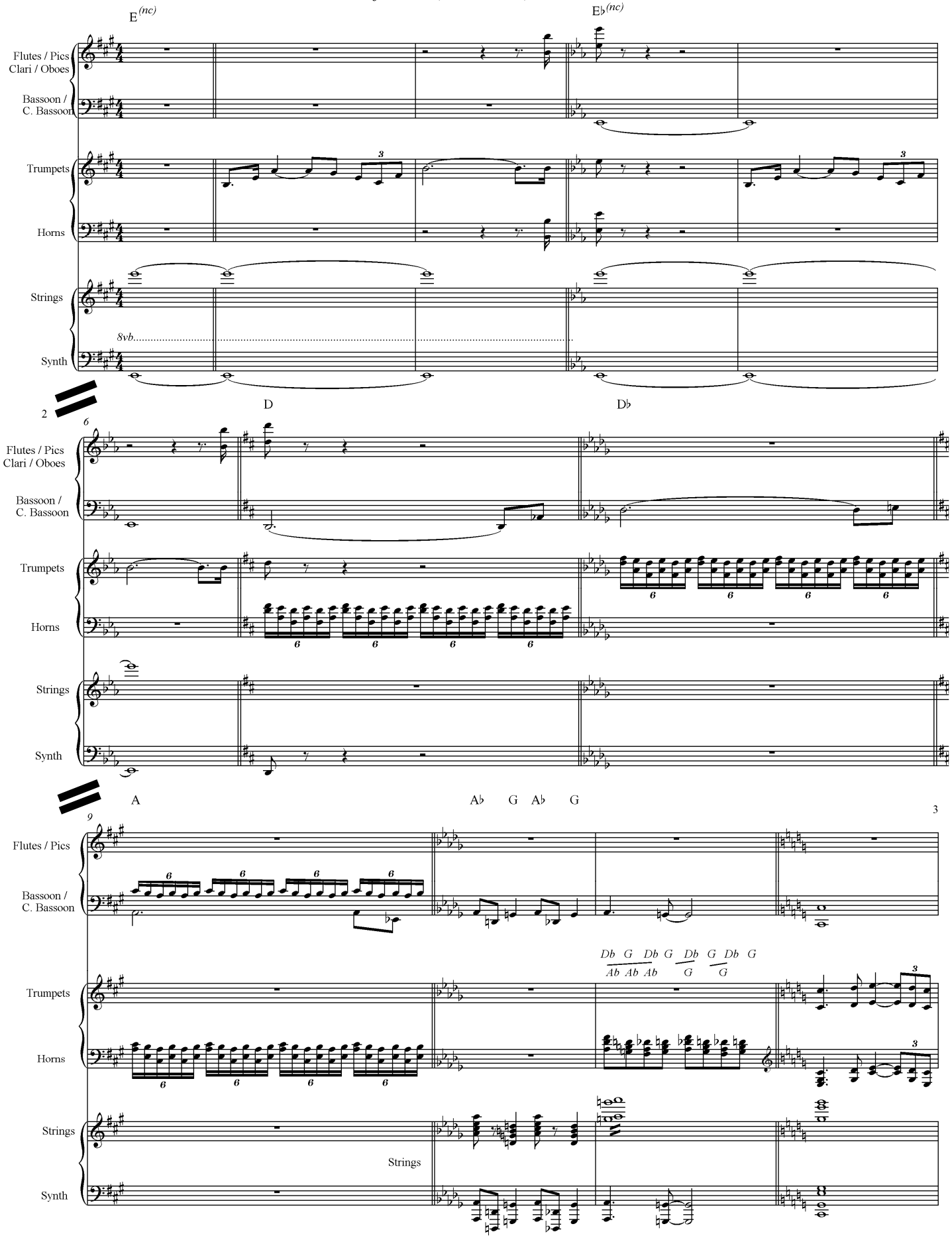


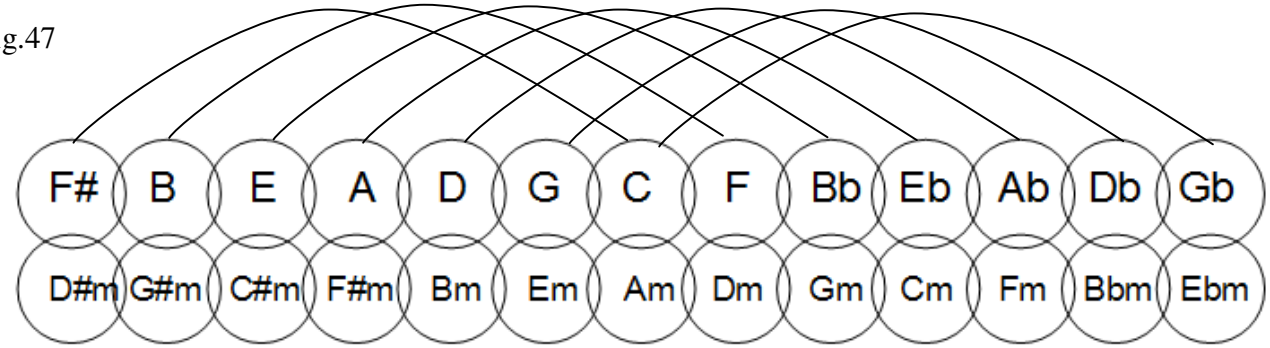
Fig.46 *Audio - Star Trek – The Wrath of Khan (Main title)*



The first few bars opening sequence to STTWOK, even before the main theme itself arrives (on bar twelve) is incredibly effective and communicative, crammed full of musicality, classical tradition, *Star Trek* tradition and emotion. First of all we have the iconic original TV theme from *Star Trek* quoted right at the start; then we have the rousing classical tradition of the 'Haydn Horn Progression' (stated in bars seven, eight and nine). But less obvious aspects are just as important; Horner's use of voicing and inversions is particularly effective. Bar ten contains an Ab to G chord sequence, but this potentially chromatic sounding event is mitigated and dramatized by virtue of the specific [string] voicing of both chords; the Ab is voiced in root position whereas the G chord is voiced (from top down) 5th, 3rd, root, low 5th. This means that although Ab and G as *chords* are only a semitone apart, the intervallic distance between them *seems* bigger, less chromatic and more dramatic and pronounced.

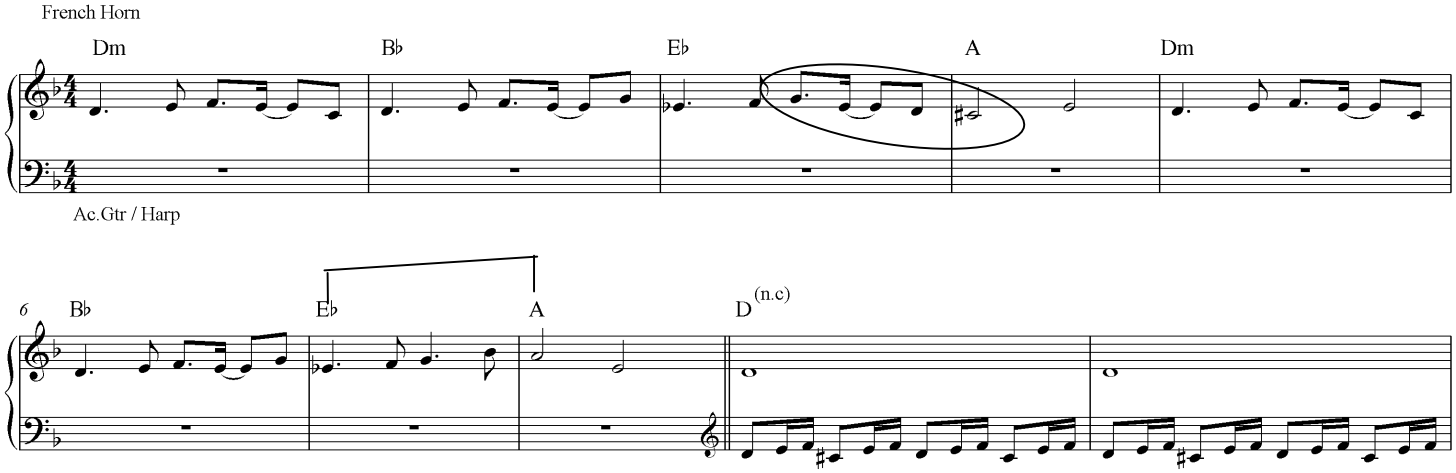
Add to this Horner's bass pattern (Ab-D-G - bar ten) which contains excessive and dramatic movement (specifically a #4 from Ab to D) and we have an outstanding array of dramatic harmony accentuated by great voicing. The horns in bar eleven fluctuate between chords of Db and G but to lessen their movement the Db chord is inverted over the Ab and the G chord is in root position. With the #4 in mind I have restated the well-trodden '#4' chord change I also alluded to in fig.41 which comes time and time again in movies which need harmonies which evoke a specific sci-fi feeling of wonderment, drama and tension.

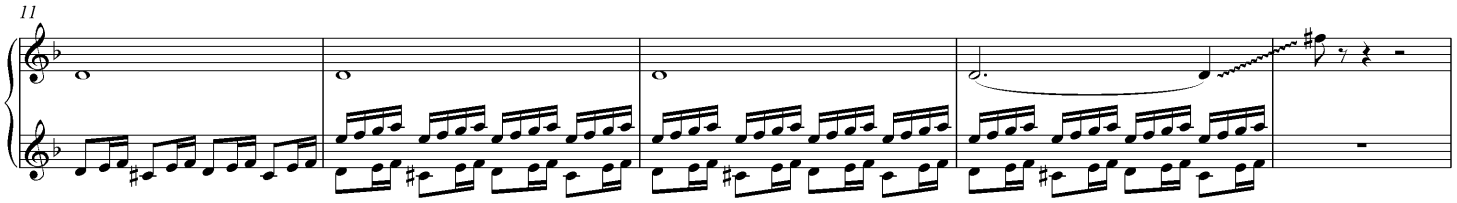
Fig.47



As stated earlier, one of the most effective science fiction chord changes is when any major chord is followed by another major chord either a sharpened 4th (or a tri-tone) down. The way we 'hear' the #4 is by virtue of the reaction between the two chords. As I stated earlier James Horner uses this in bar ten (of fig.46) by virtue of the bass movement, and in bar eleven by virtue of the rapid interchange between Db and G. Horner only slightly alludes to it but the intrinsic and specific characteristics and qualities are still evident. Keeping the #4 in mind let's turn briefly to Michael Giacchano's intro music for the 2009 movie *Star Trek* in which the use of this type of chord trick is much more obvious.

Fig.48 *Audio - Main title – Star Trek (Michael Giacchano)*

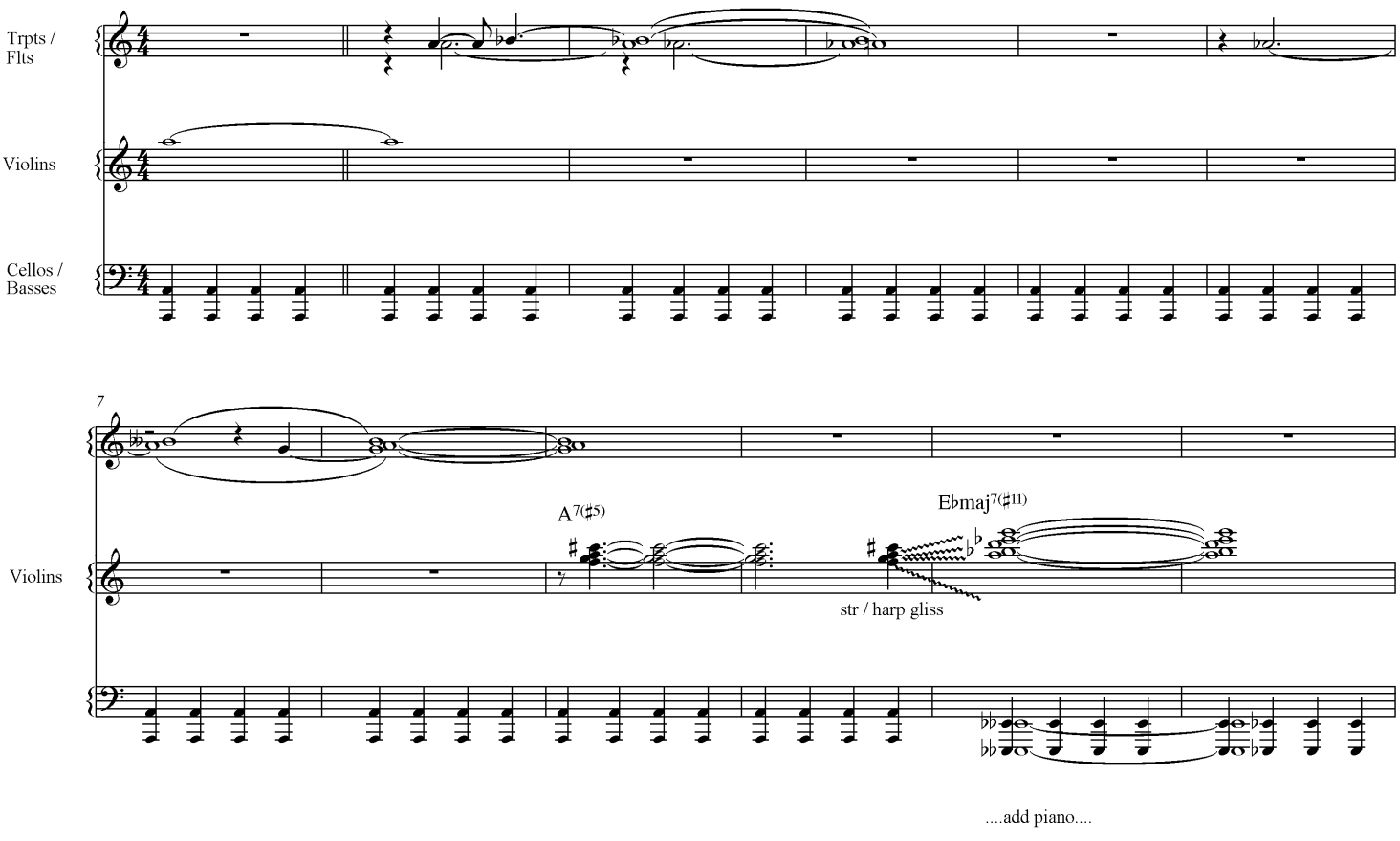




The #4 chord change is much more prevalent in this example because Giacchano's melody draws it out and italicises it; the first time this appears is between bar three-four (Eb to A chord change) when the line hits the major 3rd of the Eb chord (halfway through bar three) and the same interval of the A chord (bar four) making the chords obvious, clear and communicative. The other statement (bars seven-eight) utilises the root of both chords. The enduring musical and harmonic image of this theme is still the #4 transition between the chords of Eb and A.

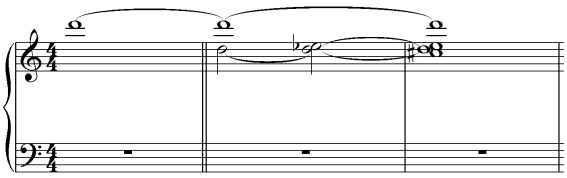
Returning to *Star Trek: The Wrath of Khan*, it's interesting to see another of James Horner's favourite tricks – cluster chords. In this sequence, from a scene 18 minutes into the film and titled 'Khan's Pets' on the expanded soundtrack album, he uses a trademark evolving trumpet cluster on bars two/three and seven/eight; on bar two a single note of A gets augmented by a Bb then an Ab. What began as one note became the centre of a cluster with semitones on either side. The same thing happens in bar seven. The whole time the piece has a menacing low bass motif which runs throughout. The focal point of the scene is in bar ten where Checkov, one of the Enterprise's crew who has been captured on a desolate planet, realises as his captor takes off his mask that the man is none other than Khan, a murdering psychopath who had appeared in one of the television episodes many years ago.

Fig.49 *Audio – 'Khan's Pets' - Film – 00.01.18*



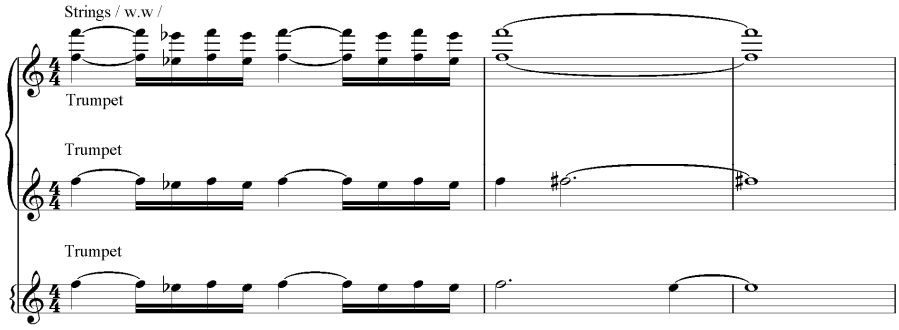
Horner uses the same trademark dissonant effect in a track from the film *Aliens* entitled 'Newt is taken' (below, fig.50) and again in 'Ripley's Rescue' from the same film (fig.51).

Fig.50 *0.46 Newt is taken (from Aliens)*



What makes these kinds of events interesting is not just that they are dissonant; it is the fact that the dissonant harmony comes gradually, horizontally, as each of the notes in the chord appears. The effect this cue has is a product of our desire to categorise and make sense of what we're listening to.

Fig.51 *0.04 Ripley's Rescue (from Aliens)*



The initial note is clear but then it is followed first by a semitone clash and eventually by a three-note clash. Our alienation is gradual, not immediate

The #5, although lacking the Lydian flavour of the #4, does share its tendency for exuding two key centres at once (something I will expand on later) which sometimes creates a sense of 'wonderment'. A great use of the #5 can be found in James Horner's excellent scores for *Star Trek II - The Wrath of Khan* and *Star Trek III - The Search for Spock*. The section below (fig.52) features one of the main themes and displays Horner's legendary soaring melodic figures. However, in the transcription below I have deliberately removed one of its defining characteristics: the accompanying counter-melodic #5 line, which appears in the second example (fig.53). The addition of the #5 delivers the piece straight into the sci-fi genre.

Fig.52 *Audio 03.26 – 'Star Trek III Prologue & Main Title' Film - 00.03.27*

Without 5 line

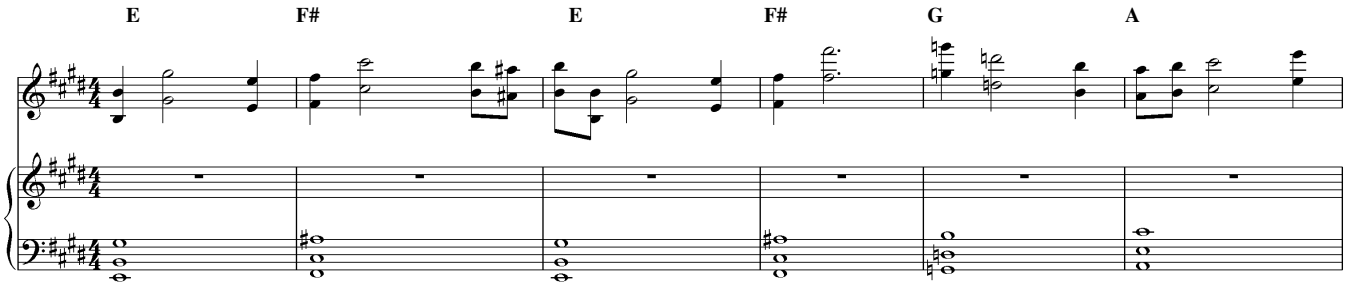
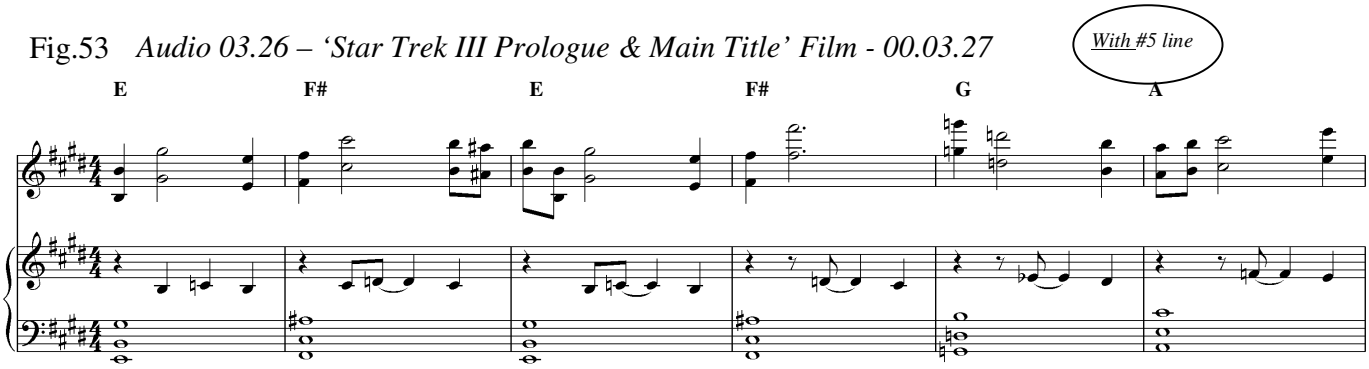
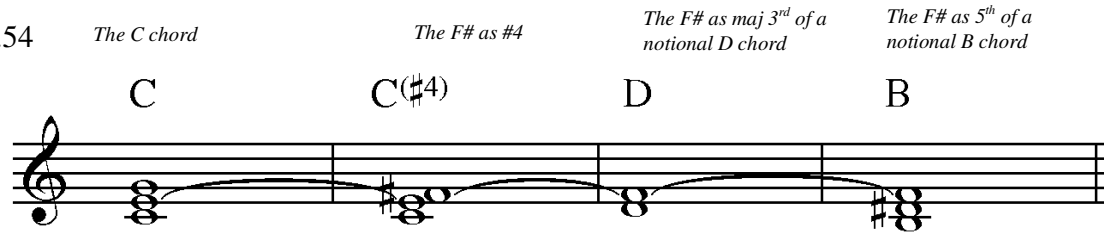


Fig.53 *Audio 03.26 – 'Star Trek III Prologue & Main Title' Film - 00.03.27*



The countermelody, containing the sharpened 5th, is everything. Without this the melody on the top stave is simple but lacking the distinctive counterpoint which contextualises is so well. Why are the #4 and #5 such potent harmonic identifiers? If we replace the 5th of any major chord with a #4th or alternatively with a #5th the chord is still a major chord, albeit skewed, because it has retained the potent and communicative root and maj3rd elements. The #4 and #5 both make the chord sound strange; odd. One reason is because the addition of either the # 4th or a #5th both allude lightly to polyharmony. To look at it in context of a C chord (fig.54, below) the F# (#4) subtly, discreetly and almost imperceptibly suggests a chord of D because the F# *could* be the colourful maj3 in an implied D chord. Also the F# might even suggest, albeit distantly, a chord of B by virtue of being its 5th of that chord. In both of these cases the F# would constitute either a maj3rd (of the D chord) or a 5th (of the B chord). This is possible because the initial oddness of the F# (#4 in context of the original C chord) is what draws attention to it and makes us try and place it in an alternative and more normalised (albeit poly-harmonic) context.

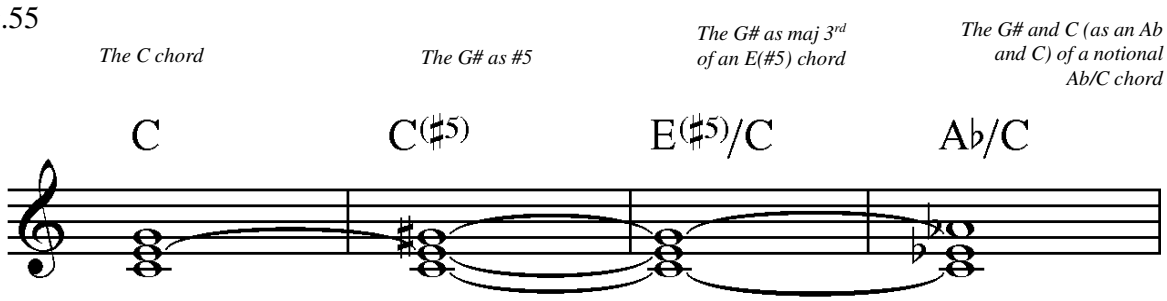
Fig.54



This goes beyond idle theoretical speculation and into the realms of something which can be argued to be one of the reasons the #4 communicates so well and so vividly within a major chord; because by trying to rationalise it and place it, we are offered a polytonal alternative context. The fact that most people hearing these chords would remain happily (and perhaps rightly) oblivious to these facts, does not mean they aren't the beneficiaries of the effects.

Similarly if a C chord has #5th rather than a 5th, because of the difficulties and inherent oddness of the #5 we may attempt to normalise it by placing it in a different context, which allude to polytonality. If you play a C(#5) you get the notes of C, E and G#. If you simply rearranged the same notes you would have a chord of E(#5) e.g. E, G# and C. In addition, the root and #5 of the C(#5) chord can also function theoretically as the maj3rd and octave of an Ab chord.

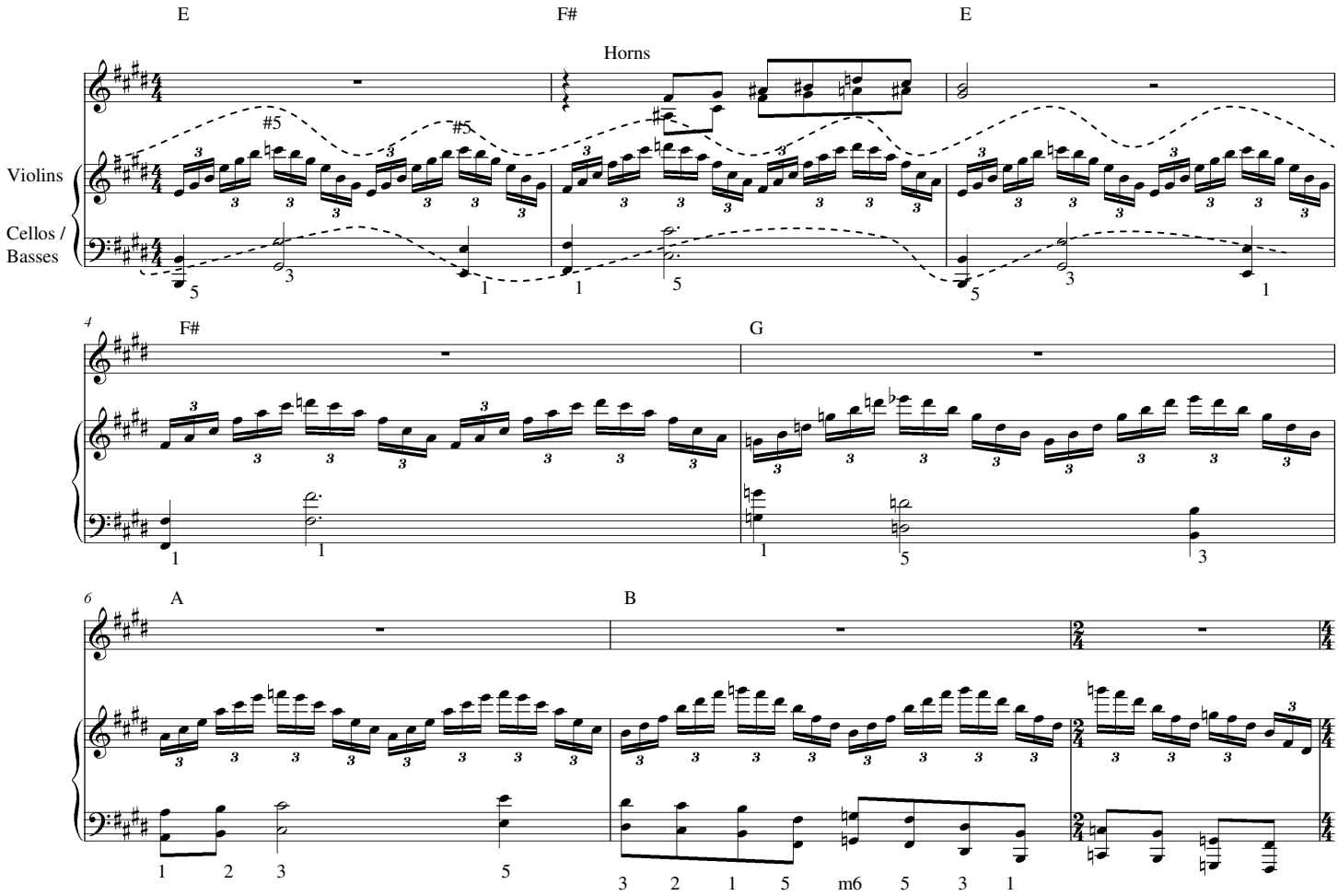
Fig.55



How the colour of orchestration delivers the sound of music.

Looking again at *Star Trek III – The Search for Spock* we can see how Horner has embedded the #5 in the semiquaver triplet accompaniment to the theme (which is carried by the basses and cellos). We can also see how the colour of orchestration delivers the sound of music.

Fig.56 *Audio 03.04 – 'Star Trek III Prologue & Main Title' Film – 00.03.00*

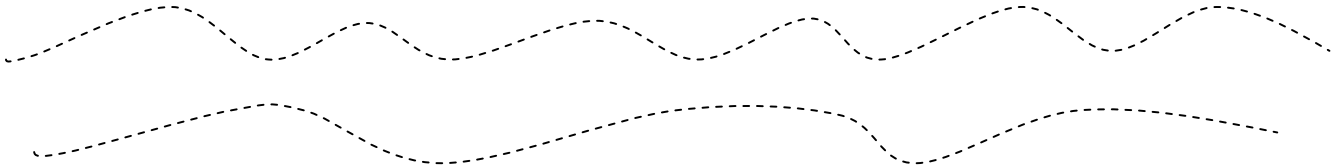


The C is the highest note in the triplet semiquavers in bar one; because of this and because it is a sharpened 5th the note sticks out, which it is designed to do. The same thing happens in every bar; the triplet semiquaver line features the #5 on top of each contour, drawing us to the interval and the colour it contains. The triplet semiquavers are running so fast that it's hard to deduce any meaningful sense of harmony from them; but in a way this doesn't matter because Horner's melody on basses and cellos is of the 'bulletproof' variety we have discussed elsewhere; it is melody which is harmonically self-descriptive; bar one features the 5th, 3rd and 1st intervals (the primary ingredients for a major chord). This happens again in bar three, five, six and seven.

In doing all this, what Horner achieves is a real sense of harmonic colour, none of which is actually stated chordally. All the harmony is horizontal which means the piece, despite the wealth of harmonic information within, has a great sense of space. In addition we can see that in bar two (of fig. 56) Horner provides a kind of 'harmonically twisted' version of the horn progression we discussed earlier.

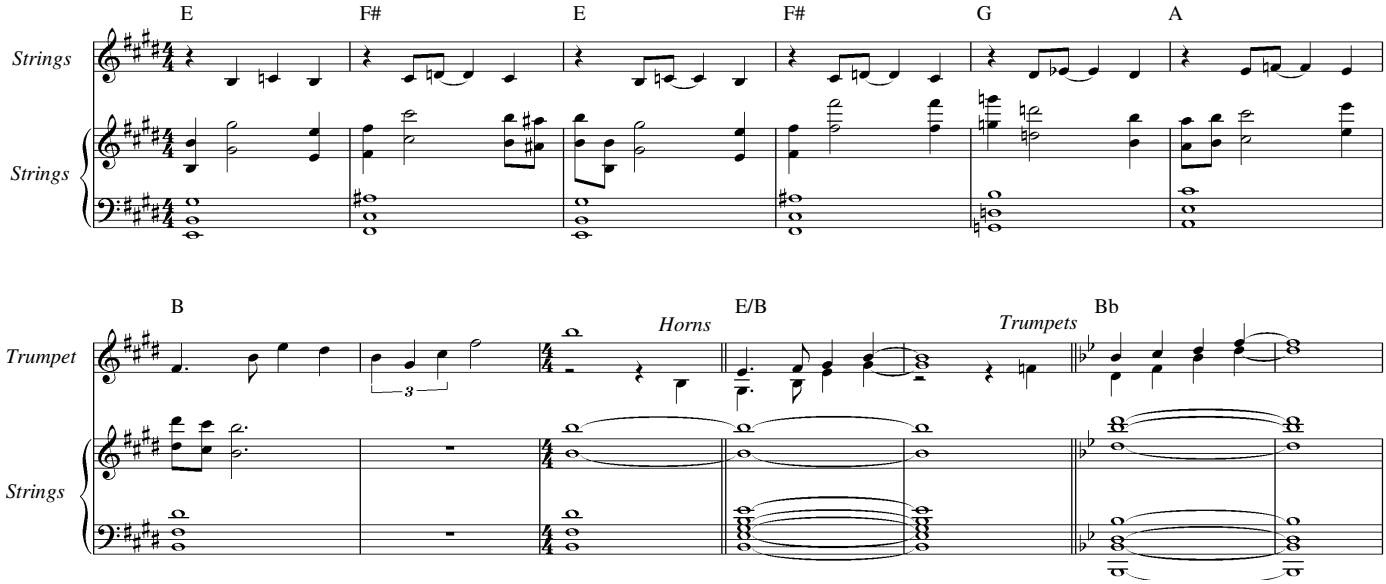
Also, if we look at the two perforated contour lines from fig.56 highlighting melody and counterpoint (featured separately, fig.57) we can see a sense of alternate/contrary motion which helps the piece 'breathe'.

Fig.57



Looking one more time at the intro section from 00.03.27 of the movie, we can see how Horner eventually brings both the original Alexander Courage *Star Trek* fanfare (bar seven) and the Haydn horn progression (bar ten and twelve) back into the piece to give it a sense of tradition and drama.

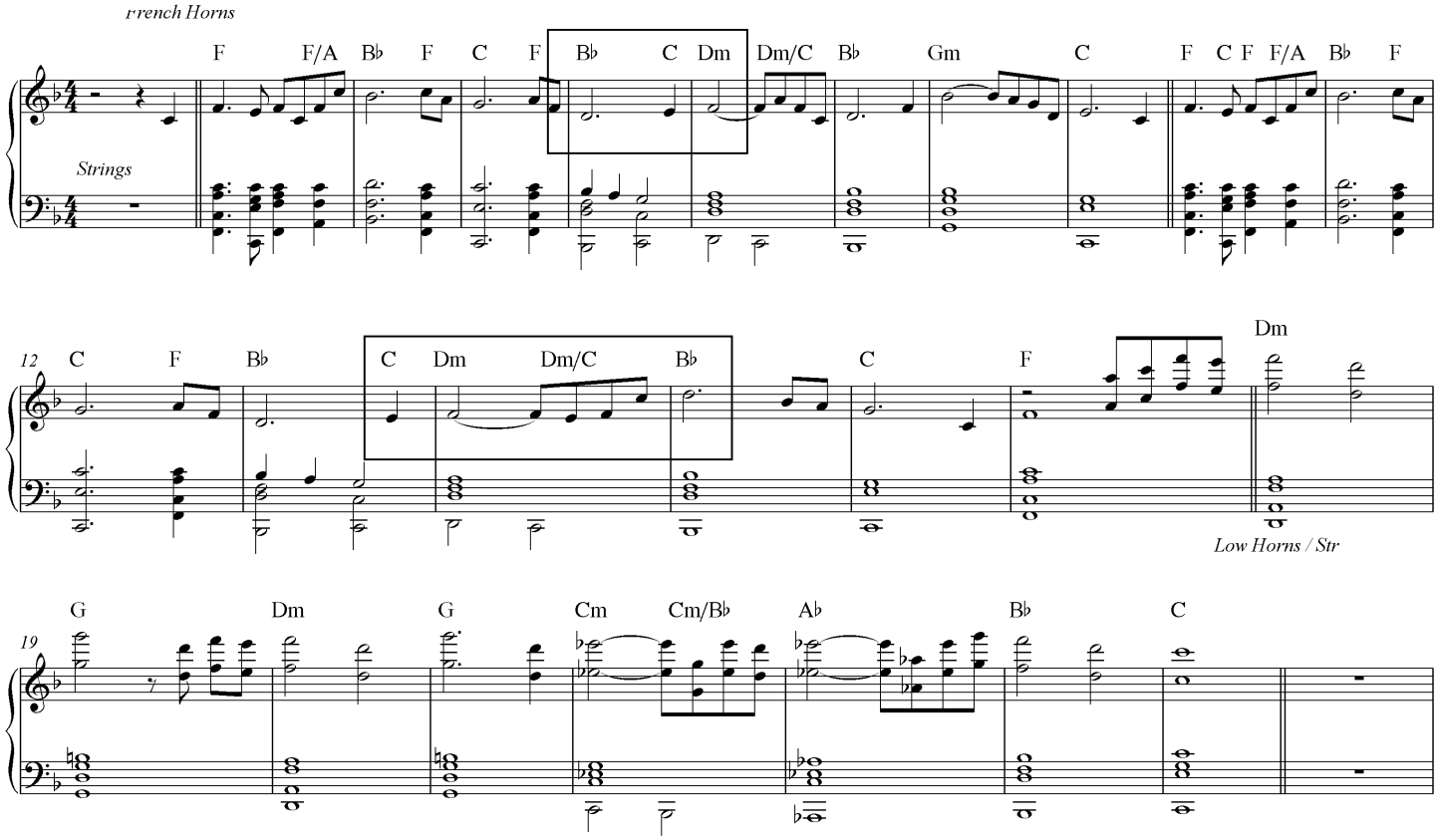
Fig.58 *Audio 03.26 – 'Star Trek III Prologue & Main Title' Film - 00.03.27*



STAR TREK – FIRST CONTACT *Jerry Goldsmith*

Star Trek: First Contact is the eighth *Star Trek* film. In the film's plot, the crew of the USS *Enterprise* travel from the 24th to 21st century to save their future after an alien race called the 'Borg' conquer Earth by going back in time. Jerry Goldsmith returned to the franchise to compose the music for the film and in doing so crafted one of the all-time classic sci-fi film music intros. His lush, strong and beautifully romantic theme plays over the opening credit titles, so there is little in the way of moving image to restrict the access of Goldsmith's fine melody.

Fig.59 *Audio 'Main Title/Locusts' 00.37 – Film 00.00.35*



There are several characteristics which communicate emotion in this piece. Its feeling of serene simplicity is perhaps the biggest obvious feature but there are others; the melody begins on strong intervals (bar two and three – root) but the end of the first phrase (bar five) and beginning of the second phrase (bar six) both feature thirds (boxed) which communicate great warmth and emotion, particularly with the soft textures of the French Horns. Perhaps what truly distinguishes this opening theme from other *Star Trek* themes is that it does not, at first glance, overtly suggest 'outer space'. The theme is played out over the intro credit roll which means it is alone in reflecting the film's narrative. This wonderfully understated, elegant and serene melody alludes to the romance of *Star Trek.*

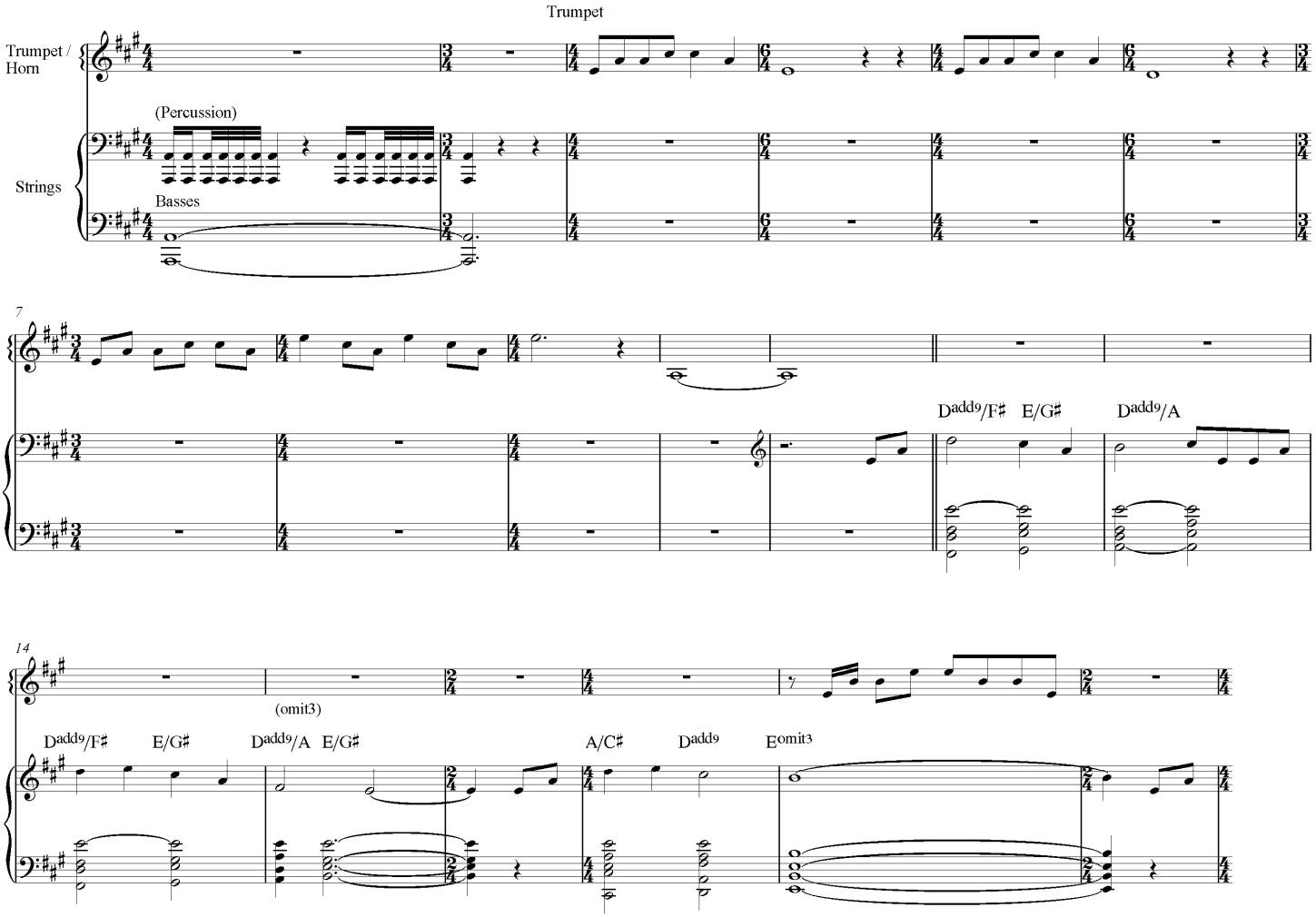
It functions in a similar way to his other great and memorable *Star Trek* piece – 'Illia's Theme' from STTMP. Although the piece is not overtly suggestive of 'space', the second phrase (bar eighteen onwards) begins with and repeats a Dm to G chord change, the classic sci-fi chord change we have discussed at length elsewhere; but this is a much more subtle, mainly due to its placement within the piece as a whole.

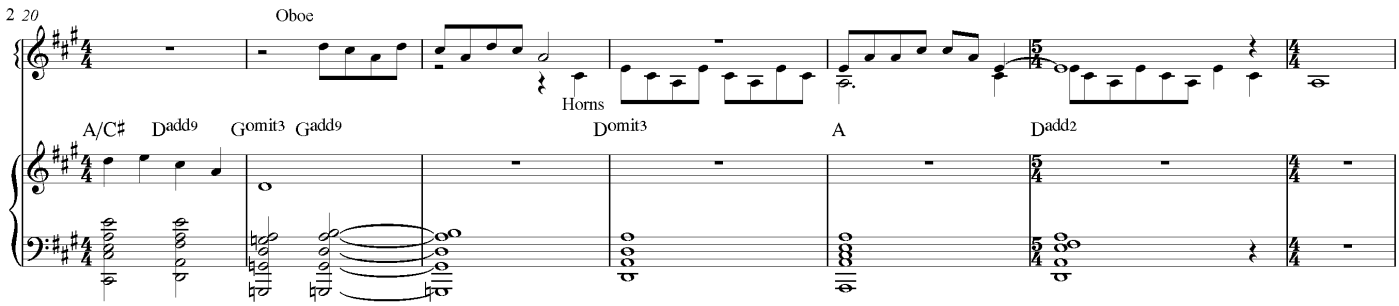
APOLLO 13 *James Horner*

James Horner's score for *Apollo 13* tends towards italicising the romantic, heroic, gallant and courageous elements of the story. Because the film is based on a *true* story, many of the melodramatic and tension-filled harmonies and approaches found in modern science fiction films are sometimes redundant or inappropriate in that they evoke the kind of sentiment normally associated with films dealing with 'outer space', 'aliens' and 'terror'. In film, music is often required to provide a deeper context; the Main Title theme to *Apollo 13* underpins the heroism, bravery, fearlessness, courage and gallantry associated with the story. This is, after all, what the film was about and essentially it is the reason it was made. It is not primarily a 'space movie'. If they'd wanted to do an authentic fact-based movie about Apollo, arguably they would have done Apollo 11. *Apollo 13* is a true story about survival against the odds, set in space. Although it was made to celebrate our technological achievements, it was primarily a vehicle to explain how NASA brought three men safely back to earth following what could have been the worst disaster in space at that time. The film celebrates the triumph of the human spirit; the triumph of success in the face of adversity, how NASA rescued victory from the jaws of defeat.

How do composers convert the wishes and narrative aspirations of the director into actual music; in other words, when we say heroism, bravery and courage, what does this actually mean in terms of music? How do these complex and specific emotions convert into music; into melody, harmony, instrumentation and orchestration? From a purely 'sound' perspective, Horner's music draws on clear textural appropriations; trumpet and snare, both of which evoke a clear sense military traditionalism. The other, equally big issue is how the music Horner *writes* for the traditional sounds, itself exudes that sense of traditionalism.

Fig.60 *Audio - Apollo 13 Main Title Theme Film 00.00.01*

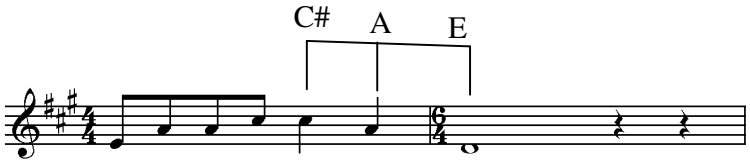




The initial solo trumpet alludes clearly to a military 'bugle call' and in doing so appropriates the symbolism associated with heroism. There are, however, softer, more subtle harmonically 'filmic' events which shape our perception of how the 'militarism' is articulated and interpreted. In other words, naked, raw symbolism rarely works subtly in a film music environment unless it has clear touches of the kind of soft harmonic tensions associated with *film* music. Frequently it needs to be toned-down or 'filmed-up' and usually this is done with harmony.

Looking first at the last two crotchets of bar five of fig.60, leading into the first note of bar six, we see the notes C#, A and D.

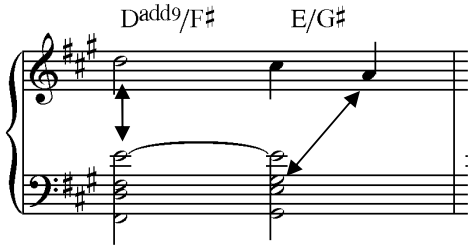
Fig.61



In context of what we 'expect', the D sounds the 'wrong note' for this phrase to go to. This is one way we can 'film it up'. It sounds odd because if we hear the C# and A as maj3rd and 1st of an A chord (which is how we are 'fed' the notes by virtue of the phrase) the D doesn't fit. We expect an E to complete the military association. Even if we hear the C# and A as maj7th and 5th of a D chord they still lack the maj3rd (F#) which makes the line sound stark. Non-musicians / non-readers will be aware of the slight tensions in this line. The lack of understanding as to 'why' or 'how' this happens doesn't prevent audiences from being beneficiaries of an effect they don't understand but still hear. I say this because there is a natural tendency to presume that the only people who would benefit from such subtle nuances would be people who *understood*.

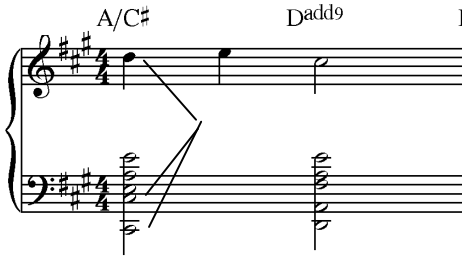
But all the various subtle intricacies which make up what film music is, are still communicated (albeit in different ways) to everyone depending on their level of aural engagement and emotional awareness. If we look at the following three small chord excerpts from the original transcription (fig.60) paying particular attention to the chord extensions and voicings, we can see again how Horner introduces tiny snippets of subtle harmonic ambiguity and tension to lessen its 'absoluteness'. Looking at bar twelve of fig.60 (transcribed separately, below, fig 62) we see that the harmonic flavour, complexion and dynamic of the first chord have been altered by virtue of the inverted bass (F#) and the added 9th (E).

Fig.62



These two small almost imperceptible alterations are italicised by the specific choice of the D melody note itself, which creates tension between *it* and the added 9th (the E note) which lays a 7th below. This is classic example of the kind of harmonic tension Horner creates by way of his choice of chord, melody note and voicing. More obviously we have the clash between the low maj3rd (G#) of the E chord and the 4th (A) of the melody note a flattened 9th higher.

Fig.63

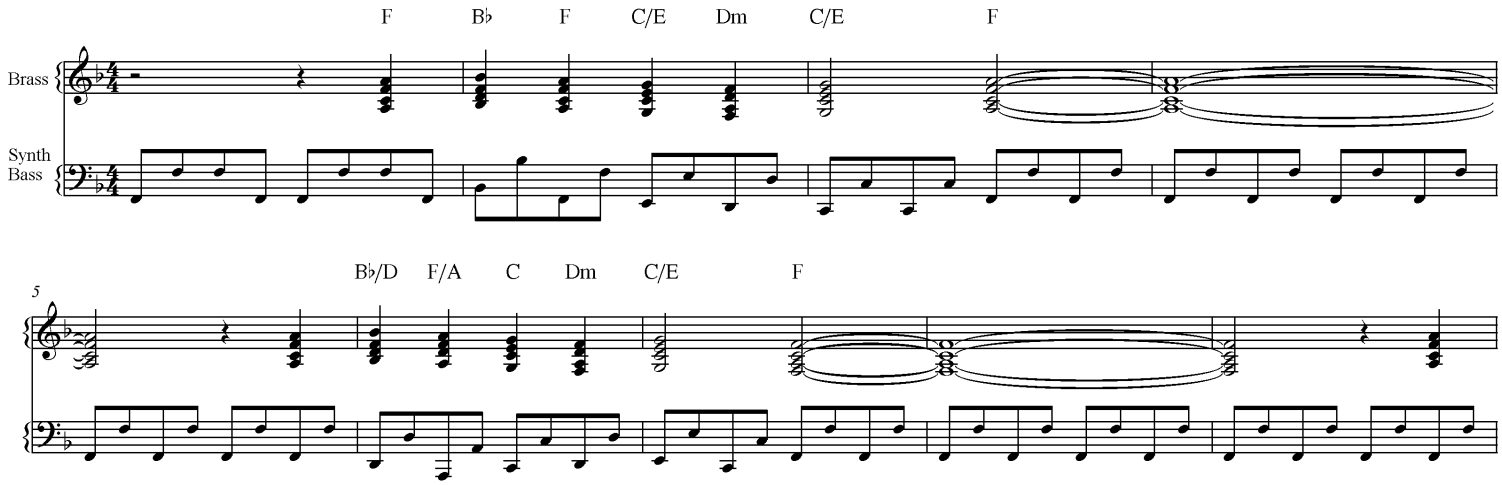


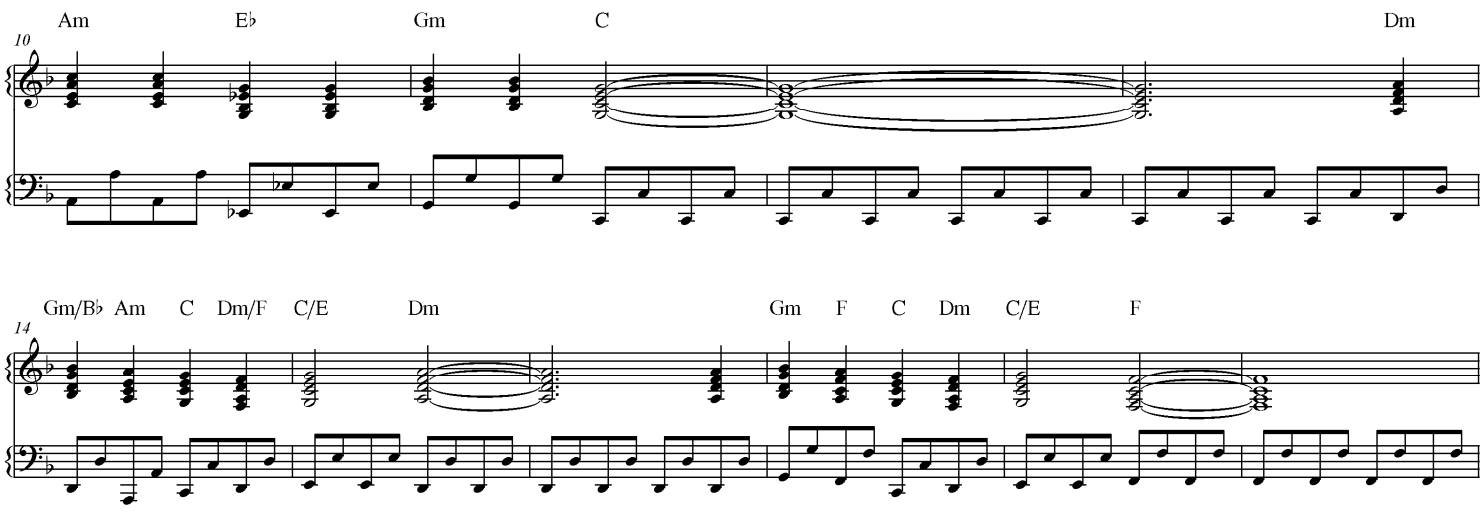
Another small but effective tension is to be found in bar ten of fig.60 (transcribed separately, fig.63, right), in which the top note of D clashes with the chord of A underneath. Horner italicises the clash by placing the A chord on the 2nd inversion, e.g. over the C# bass).

Since these alterations qualify as 'filming it up', we need to ask why film music needs these tensions? Subtle tensions where harmonic tolerances are explored *work* because they give an 'edge' to the sound. If each of the examples shown had been voiced 'straight' with no tensions, the sound becomes 'normal', predictable and lacking in distinctiveness and, more importantly, colour. When James Horner talks about his work he frequently uses the word 'colour'. Often people assume this is 'obvious' colour in the way he crafts melodies; but often the kind of colour which really distinguishes his work are the type of almost-but-not-quite imperceptible harmonic nuances detailed above. That isn't to say that we should always place these slight tensions to subvert chords; only that it works in *some* filmic contexts where the music is otherwise quite straight.

When used properly and sensitivity, tensions challenge our assumptions and confound our expectations. They surprise us, which draws our attention and raises our sense of excitement. These emotional reactions are often so quick and so deeply embedded in the music to be noticed. But the point is that they *are* noticed and they serve the greater endeavour – the film – by making our awareness heightened. In terms of how music 'speaks to us' and what emotions it suggests, implies and alludes to, the piece entitled 'Launch' which comes 28 minutes into the film and plays initially over the astronauts being suited up, speaks with one very strong voice – that of a Hymn. It's simple, mostly harmonically hymn-like and plodding rhythmic qualities and characteristics lend the scene a solemn and respectful sense of quiet reverence. But even in this sequence we have 'film music fingerprints' at various points, most notably and obviously the move from Am to Eb (#4) in bar ten. The chances of finding this particular 'cadence' in any Hymn are extremely remote.

Fig.64 *Audio - 'The Launch' – Movie - 00.28.00*





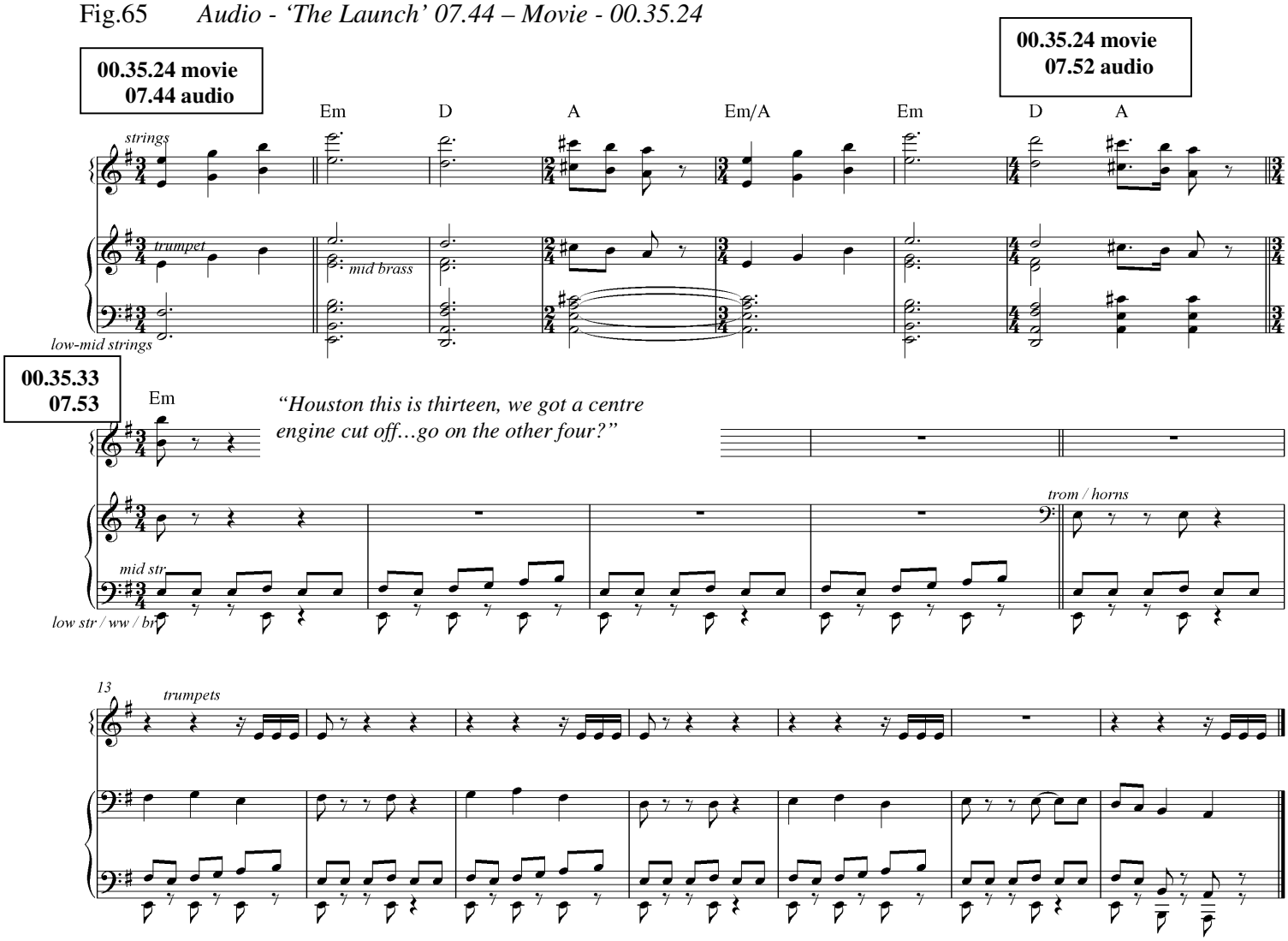
Horner provides a serene and pedestrian harmonic sequence which is juxtaposed by the filmic chord shift (Am to Eb) and the octave synth bass line.

Interaction, punctuation and sonic architecture:

Music is often not about melody or the grand gesture; it's about interaction, placement, punctuation and architecture. This issue is perhaps articulated well by a later section of Horner's music for the launch in *Apollo 13*. Scenes which are fast-paced or action oriented are often prevented from being musically 'over-melodic' by the clear and obvious limitations of a fast moving and complex visual environment laden with sound design and dialogue. Melodic structure, and the need for an absolute identifiable definable shape, can sometimes be a limiting device when applying music to a scene which has lots of action**,** dialogue or movement.

With this in mind let's take a look at a section 33 minutes into the movie during the launch where Horner switches effortlessly from the grand, majestic, heroic theme straight into more rhythmically oriented music which is designed to strategically punctuate the cacophony of sound design and dialogue without compromising it. This appears following an alarm which goes off in the space capsule. The heroic thematic music gives way as soon as we see an alarm flashing on the instrument panel. Immediately Horner's music begins the punctuated dramatic quick-burst trumpet semiquavers, trombone 'melody' and accompanying strings. The emphasis here is to allow the picture and narrative to breathe. This approach manages to accommodate the narrative whilst also punctuating it effectively. The constant rhythmic uncertainty doesn't ever settle long enough to be detract from the scene.

Fig.65 *Audio - 'The Launch' 07.44 – Movie - 00.35.24*

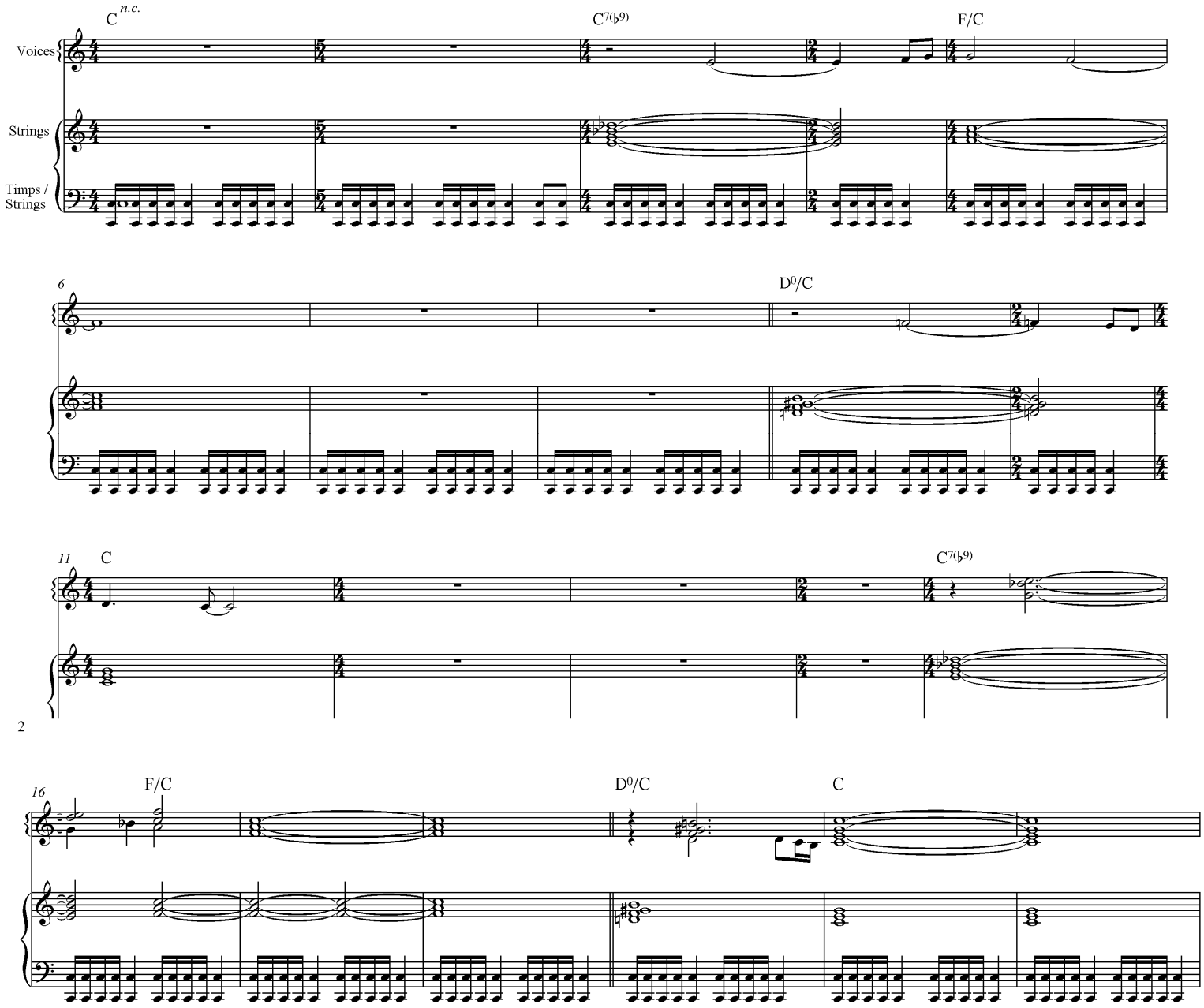


Syncopated music punctuates the visual and on-screen drama. 'Complete' music (obvious chord changes, strong melody) would be inappropriate and would get in the way of the dialogue and on-screen action.

01.07.30 into the film, just prior to the crippled spacecraft disappearing behind the moon to 'slingshot' into a path which would bring it back to earth, Tom Hanks' character (astronaut Jim Lovell) says to the rest of the crew "You wanna look" [at the moon]. At that point a deeply evocative and haunting cue entitled 'The Dark Side of the Moon' begins. The cue itself is divided into two sections.

The second section, transcribed below, begins with Hanks' character saying wistfully "So long, earth. Catch you on the flip side". Buzz Aldrin's autobiography was titled *Magnificent Desolation,* a phrase he used to describe his feelings about the moon on the Apollo 11 lunar mission. I mention this because Horner's incredibly expressive cue 'The dark Side of the Moon' conjures up feelings of desolation. It invokes feelings of isolation and loneliness and works perfectly for the scene. The point, as ever, is how? How can a piece of music conjure up 'desolation' and 'isolation'? How is that even possible?

Fig.66 *Audio - The Dark Side of the Moon 01.00 Film 01.07.30*



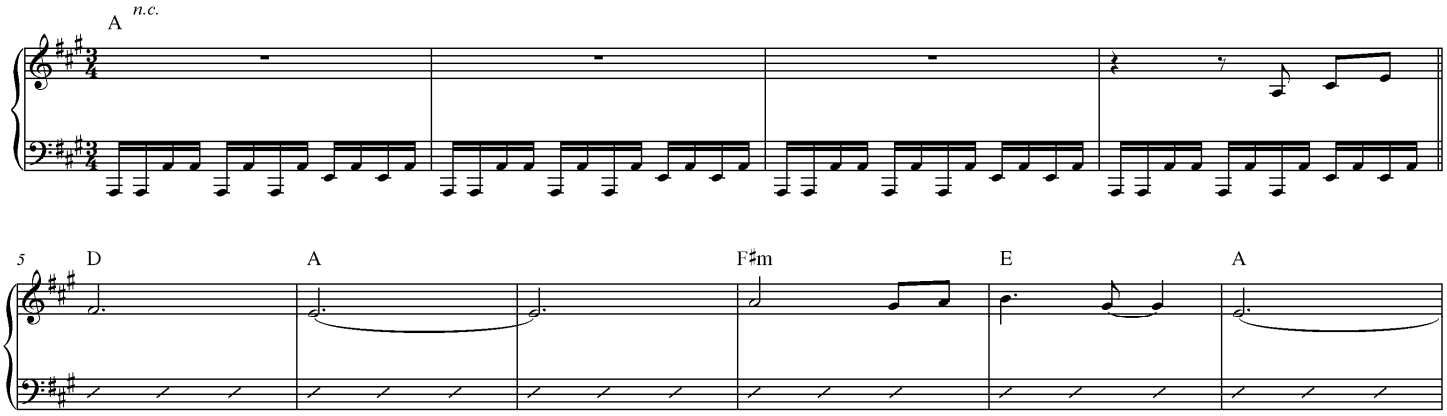
The constant mesmerising monotony of the pedal bass note on piano and timpani lends the piece a texturally disturbing and unnerving air. This is juxtaposed by the heavily emotive and subtly romantic C7(b9) chord. The chord is, in essence, an E diminished chord over a C bass. The 'diminished element' of the chord - three minor 3rds stacked over the E note – create a specific tension. Another issue which creates a feeling that might be interpreted as 'isolation' is the length of time that elapses between the beginning of the piece and the first string / vocal entry (bar three). As a listener we slightly lose track of pulse and time which makes our reaction to the C7(b9) all the more intense. The same thing happens in the three bars between bar twelve and fifteen; we are so used to hearing music which makes its point quickly and succinctly that the long sections where all we hear are the low piano and timps are a little unsettling.

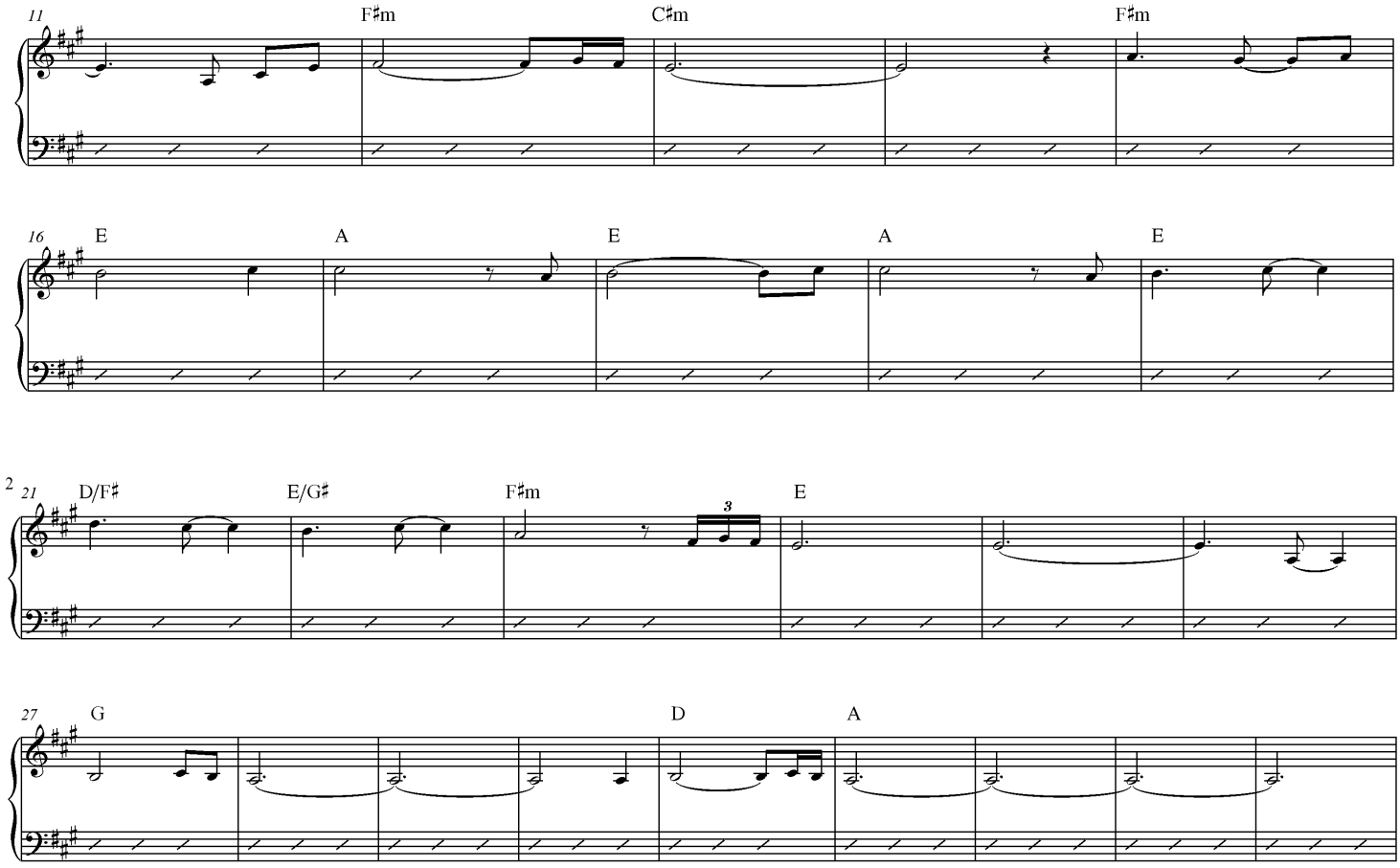
When listening to music we rely heavily on being guided and lead. The BPM is quite slow in this cue and hearing the low C-note phrase alone for a couple of bars at the beginning becomes a little ethereal, causing us to 'zone-out' of what we assume is the key centre. For listeners the first string / voice entry becomes effectively the beginning of the piece; but few pieces begin on a 7th chord: the 7th chord is normally a transitory chord. To hear an elongated 7th chord with the flattened 9th being so prominent at the beginning of a chordal sequence is quite strange, which adds to the slight strangeness. Bar fifteen onwards is essentially a harmonic repeat of the chords from bar three, but the addition of the high choir is an effective textural inclusion and is reminiscent of the so-called Golden Age of film scores.

The final section of *Apollo 13* to be analysed is, accordingly, the end titles sequence, another classic Horner piece this time featuring a modern synth-driven semiquaver bass line and a haunting solo voice. Addressing what elements conspire to deliver such an effective and strong theme, we're drawn to the simplistic melody and chords, which allow the piece to function almost in a traditional Hymn-like fashion. What really gives the melody strength and character is a combination of the rich vocal textures but also the *lack* of any accompanying harmony. Denied the usual harmony and voicing, we listen more intently to what *is* there, which becomes disproportionately more important and thus more acute. Bar five starts with a strong, emotive major 3rd. There is no need for any harmonisation because we have the root and 3rd which dominate and define. The E melody note which follows represents a bare 5th over an A bass with no harmonic filler but the A note in bar eight represents a strong vibrant minor 3rd over the F# bass.

Glancing over most of the piece we realise the melody is a collection of notes which alternately hits the major or minor 3rd (strong defining intervals which create a strong harmonic feel, despite the lack of actual supportive harmony) *and* stark 5ths with no harmonic colour. The juxtaposing works well. Listening to the heavily reverbed B and G# melody notes in bar nine resolving to the E note in bar ten (over the A bass) is interesting; over the presumption of an A chord we hear the 'ghost' of the B and G# notes, which we rationalise for a moment as an E/A chord which creates interesting ambiguity and slight tension. The other interesting fact about this piece is how it seems not to have a distinct time signature at first; it is difficult initially to find where '1' is due to the frantic semiquaver bass motif and lack of percussive rhythm.

Fig.67 *Audio – 'End titles' Film - 02.08.37*





MISSION TO MARS *Ennio Morricone*

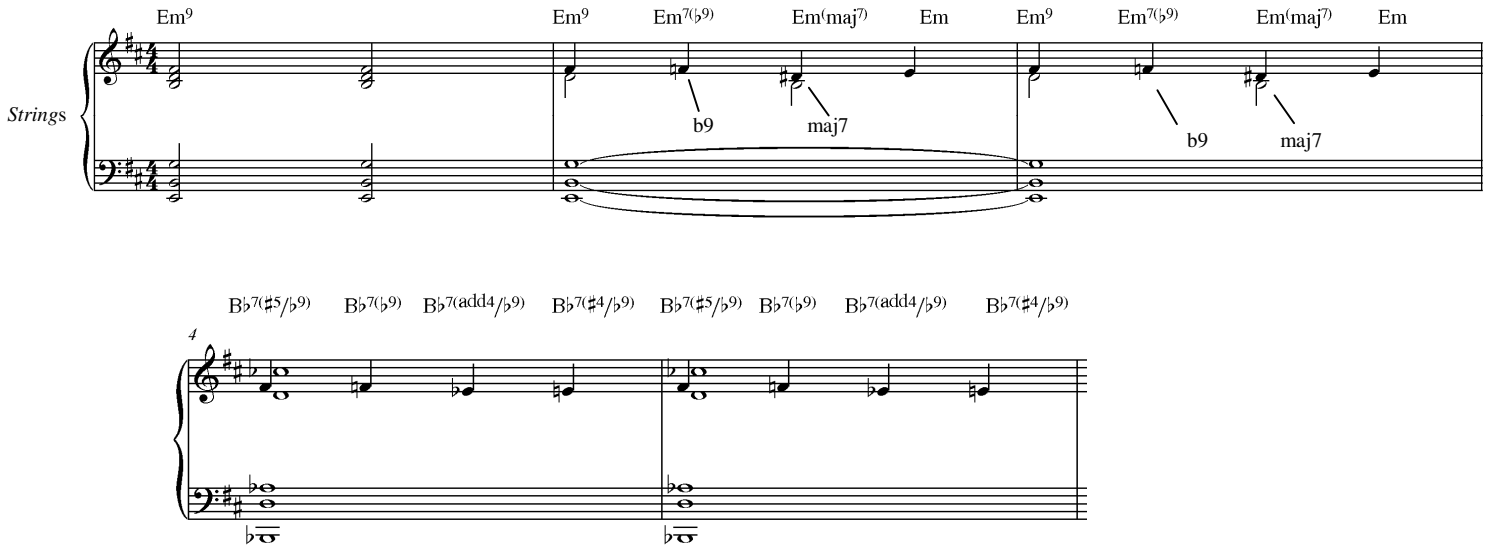
Mission to Mars is a 2000 film about a rescue mission to Mars following a disaster during the first manned voyage to the planet. The film was panned relentlessly by critics and was not a critical or commercial success. Equally criticised was the score, composed by Ennio Morricone. Granted it was a strange score which in many ways was at odds with what cinemagoers might have expected from a film made in the year 2000 about a mission to Mars; it was atmospheric, vivid, harmonically abstract and dissonant in places, featuring odd electric guitar and synth lines. But also it featured examples of string writing which had a very dated, romantic air. Possibly this is what confused people. A *filmtracks* revue from June 2000 referred to the score as 'extremely dated', adding "awkward, dissonant counterpoint and instrumentation [remind me] of cheap, 60's fantasy scores" with "a few singularly awful and simply unlistenable cues being painful to the ears".

This absurdly hysterical revue misses several fundamental points about Morricone's style and approach, but also seems not to understand the underlying narrative of *Mission to Mars.* Brian De Palma's film is science fiction only at surface level. Underneath, like many great 'science fiction' films it was principally about humanity; *people*. It was a film laced with tragedy and triumph, life and death. The score exudes a warm, affectionate, romantic and positive air in most of its cues. The music does not always fit in an obvious sense with the film in that Morricone often uses quite dated harmonic devices.

Anyone who remotely understands what Ennio Morricone is about will realise he has done this before, just as effectively; his music for the film *Wolf* (which is analysed elsewhere) features some warm, affectionate and romantic scoring with a distinctly dated feel. In context of *Mission to Mars* this deliberate move lends the film a curious sense of skewed time. Clearly a current film set maybe ten or twenty years in the future, its music draws mostly on the past with a few admittedly clumsy references to modern synth sounds. It harks back to a time before cinemagoers became addicted to bombastic formulaic scoring. The score isn't entirely unlike Michael Nyman's music to the 'science fiction' film *Gatacca* in that it offered a placid and serene sense of romanticism which belies the surface level narrative of the film.

In a scene 00.09.40 into the film an astronaut who is unable to be a part of the first manned mission to Mars says goodbye to his fellow astronauts at a 'Bon Voyage' party. The character's fellow Mars project scientist wife died recently and, as a result he is deemed mentally unfit to be a part of the mission. As he leaves the gathering he is obviously deep in thought. The cue below manages to convey *his* morose state of mind, along with a deeper suggestive sense of unease and foreboding conveyed for the benefit of people watching the film.

Fig.68 *Mission to Mars: 00.09.40*

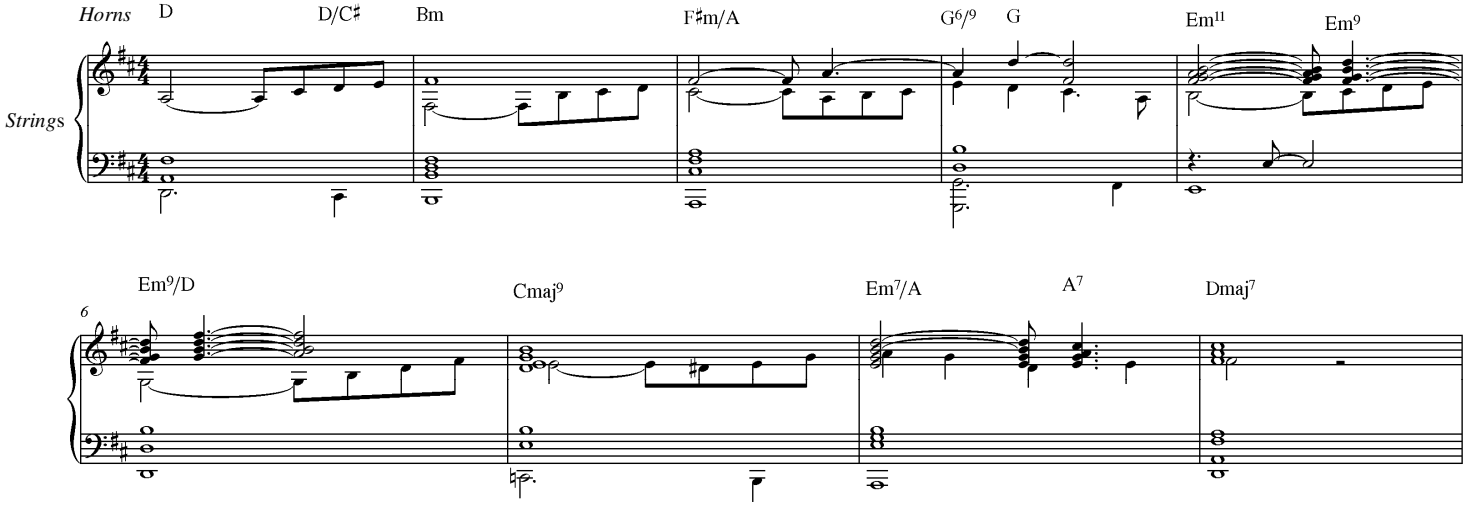


The cue is a curious mix of intervals and harmonies which manage subtly but successfully to convey competing and conflicting emotions. The lush Em9 chord (bar two), voiced expansively at the bottom (root, 5th, 10th) with the melody taking the 9th, is at odds with the unexpected appearance of the Em7(b9) – a rarely used and odd chord with obvious tensions between the F and the low E. This is followed by the Em(maj7) featuring the D# in the melody; again, there is tension between *it* and the low E bass. The chords are odd but, more importantly, their placement, context and order of appearance (following the conventional and soft Em9) is odd too. For example the Em(maj7) is a definite 'Bond' chord and yet used in this context it is deliberately robbed of the familiar harmonic terrain which accompanies it.

Thus it is the context which gives us the skewed harmonic feeling: Chords do not transmit their characteristics in isolation; there is no such thing as a *good* chord or a bad chord. If a chord appears to sound effective or exude specific qualities it is nearly always the context which has been effective; the chord relationship. The cue is made more effective because the same line continues in bar four and five accompanied by different supporting harmonies, making the F#, F, Eb and E melody line represent the #5, 5, 4 and #4 of the underlying Bb7 chord.

At 00.10.40 into the film we cut to '13 months later' by which time the crew is busy exploring Mars.

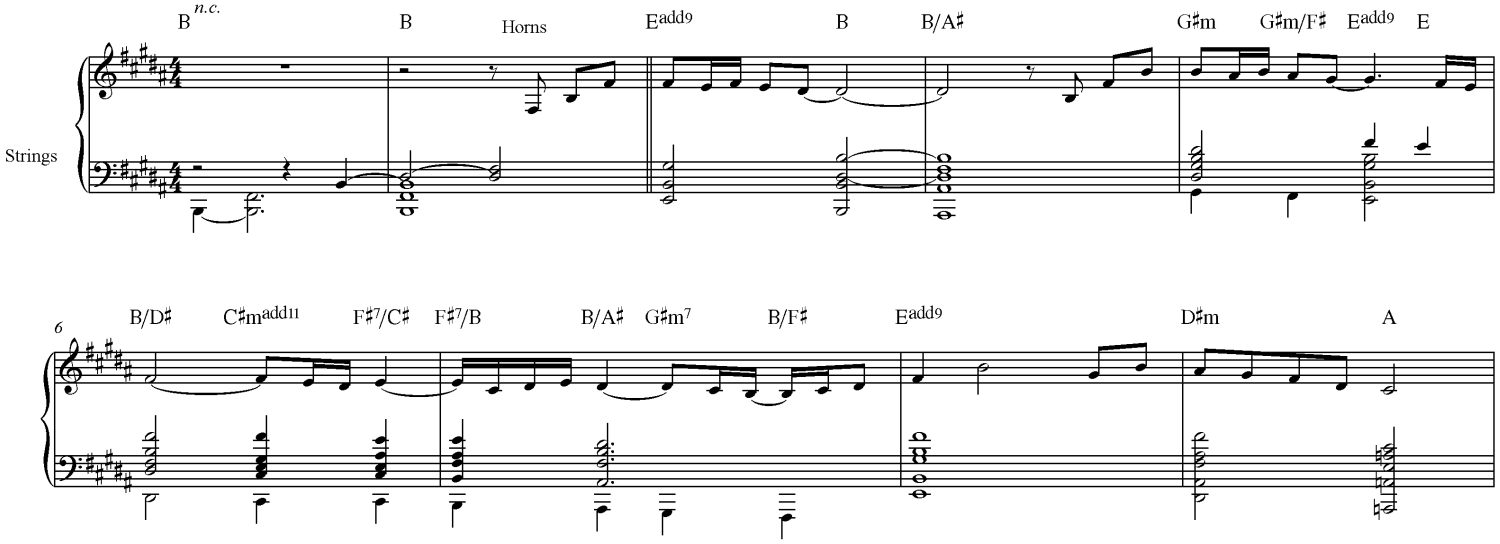
Fig.69 *Mission to Mars: 00.10.40*



The music once again conveys a mixture of subtly different emotions. On the one hand we hear an imposing Horn line reminiscent of regal majesty. The momentum and sense of inevitability of the ascending bass line helps the feeling of grandeur. But we also have the soft, lush romantic chords (Em11, Em9, Cmaj9, Em7/A) to suggest more relaxed emotions. This mixture of gravity and almost theatrical melodrama once again underpins characteristics of Morricone's style, which is always multidimensional and never obvious. Again, by doing this he avoids the quicksand of duplicative or cliched scoring. His fondness for slightly obscuring chords through vivid cluster voicing is particularly noticeable here, in the Em11 in bar five.

The next cue to be examined comes at 00.26.28. After the choice of a rescue mission crew has been passionately debated back at the earth-orbiting 'world space station', we cut to an external shot of the rescue mission space ship en route to Mars. Once again we have a beautiful typically Morricone sweeping romantic Horn melody. The emotive melody is extremely effective in suggesting both a stately, imposing feel whilst the chords offer a soft, lush accompaniment with trademark tensions such as the B/A# chord in bar four and the almost separate musical narrative offered by the sliding bass (bar five to nine). Once again we have the glorious inevitability of the downward bass from bar five through to bar seven, with the inverted accompanying chords, which together create an evocative feeling of tradition, romance and inevitability.

Fig.70 *Mission to Mars: 00.26.28*



The last cue to be examined is the pivotal scene where the astronaut who has been marooned on Mars for over a year reveals his discovery to his rescuers - the famous 'face on Mars' which turns out to be an enormous carved out perfect human face. Morricone's almost childlike music for this scene, again, is a deliberate attempt to play the immediate sense of disbelief and wonder with simple mesmerising mildly dissonant chromatic chords (played by strings, woodwind and tuned percussion) over a lushly scored major chord on low/mid strings. Morricone could have played the spectacle and the astonishment but chose to simply play the wonder, almost as if it were magic.

Fig.71 *Mission to Mars:* 01.12.22