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Voice-leading analysis of music 1: the foreground

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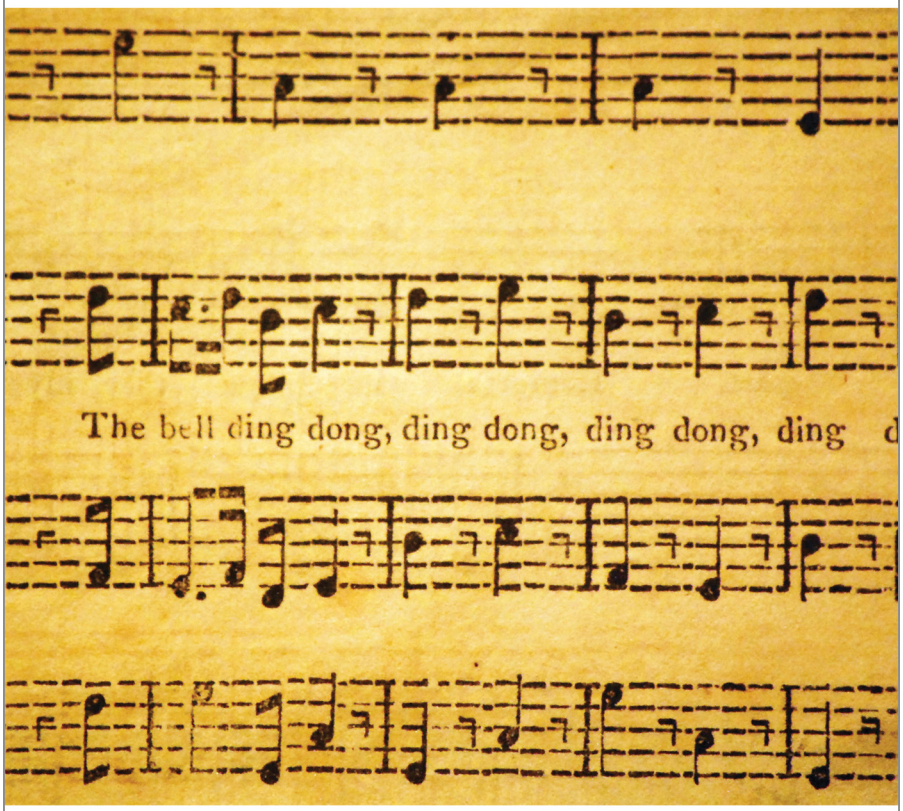

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Introduction

This course introduces ‘voice-leading’ or ‘Schenkerian’ analysis. You will study this technique by exploring harmonic structure in piano sonatas by Mozart. This course will concentrate mainly on the examination of short extracts from these sonatas. Certain specialist analytical terms are glossed at the end of this free course, and these words are emboldened where they are first discussed.

The materials upon which this course is based have been jointly authored by Robert Samuels and Howard Wilde.

This OpenLearn course provides a sample of Level 3 study in Arts and Humanities.

Learning Outcomes

After studying this course, you should be able to:

- recognise an analytical methodology known as 'voice leading analysis'
- recognise five complete movements from Mozart’s piano sonatas, and be familiar with brief extracts from other sonatas by Mozart
- recognise some defining features of Mozart's harmonic style
- understand the principles of the simplest level of voice-leading analysis
- express musical observations by means of the notation developed within this system of analysis.

1 Introduction: Mozart's piano sonatas

1.1 Overview of Mozart's sonatas

Mozart wrote nineteen compositions with the title ‘Sonata’ for the fortepiano, works spanning from his teenage years (the Sonata in C, K279, was written at the age of fifteen) to two years before his death (the Sonata in D, K576, dates from 1789). Although they are less frequently performed than the late piano concertos, they still form an impressive body of work. They are more homogeneous stylistically than the piano sonatas of Haydn and less radical structurally than those of Beethoven. Most of them are in three movements (whereas Haydn experimented freely with two-, three- and four-movement plans), with a first movement in what we now call ‘sonata form’, a slow movement, and a finale, often in rondo form. There are exceptions to this layout: for instance, the A major sonata, K331, is something of a curiosity. Its first movement is in variation form, and its second movement is a Minuet and Trio in place of a ‘true’ slow movement.

1.2 Analysing harmony

The aim of this course is to analyse the character of Mozart's harmony at a chord-by-chord or bar-by-bar level. This is what is called analysing the **foreground**, or musical surface, of the music. You may find this emphasis on microscopic detail rather different from approaches that analyse extended forms such as sonata form by looking at key-schemes and thematic groups. The relationship between the foreground structure and larger levels will be explored in the other courses that make up this series, first in Voice-leading analysis of music 2: the middleground, and then in Voice-leading analysis of music 3: the background.

The approach taken throughout this set of courses will be that of ‘voice-leading analysis’. It is quite likely that you will be unfamiliar with this phrase, and it will be defined below in more detail. Although the primary aim is to introduce the theoretical mechanisms as a means to an end (that is, as a tool for the analysis of Mozart's style), the analytical methods introduced here are useful when considering any music from the ‘tonal’ period (roughly 1700–1900).

If you have come across techniques of analysing music before, these may well have been either what is termed ‘chord-function’ analysis (for example, ‘here is a iib-Ic-V-I progression’), or what is termed ‘motivic’ analysis (for example, ‘here motive X is inverted and appears in the bass under a new theme, Y’). While voice-leading analysis is conceptually no more difficult than these methods, it does tend to be relatively daunting to the newcomer. This is partly because voice-leading analysis carries with it the baggage of its own set of technical terms, and partly because it has its own unique system of notation. The results of a voice-leading analysis are presented as diagrams (normally called ‘graphs’) which are made up of the symbols developed for this system of analysis. Many of these symbols look like conventional musical notation, but in a voice-leading graph they have specific meanings different from those they carry in an ordinary musical score. The result is that a voice-leading graph looks odd, even incomprehensible to someone who

has not learned the meaning of the individual symbols. Do not worry about this: the terms and notations will be explained gradually as we look at short extracts from Mozart's sonatas. Remember that throughout this course (and throughout the two other courses that deal with this analytical technique), the emphasis is on listening rather than on producing complicated diagrams. The aim is that you should be able to understand what an analytical graph says about the way we hear Mozart's harmony work. After all, a diagram is useful only to the extent that it clarifies a particular musical process that might not have been otherwise obvious.

1.3 The origins of voice-leading analysis

I want to begin by putting this method of analysing music into its historical context. Although the basic concepts of voice leading have a long history, the system of analysis you will be starting to use in this course is relatively recent, having been developed over the last hundred years or so. It is often associated with the name of the person who invented many of its terms and methods, the Viennese composer, pianist and music editor Heinrich Schenker (1865–1935) (Figure 1).

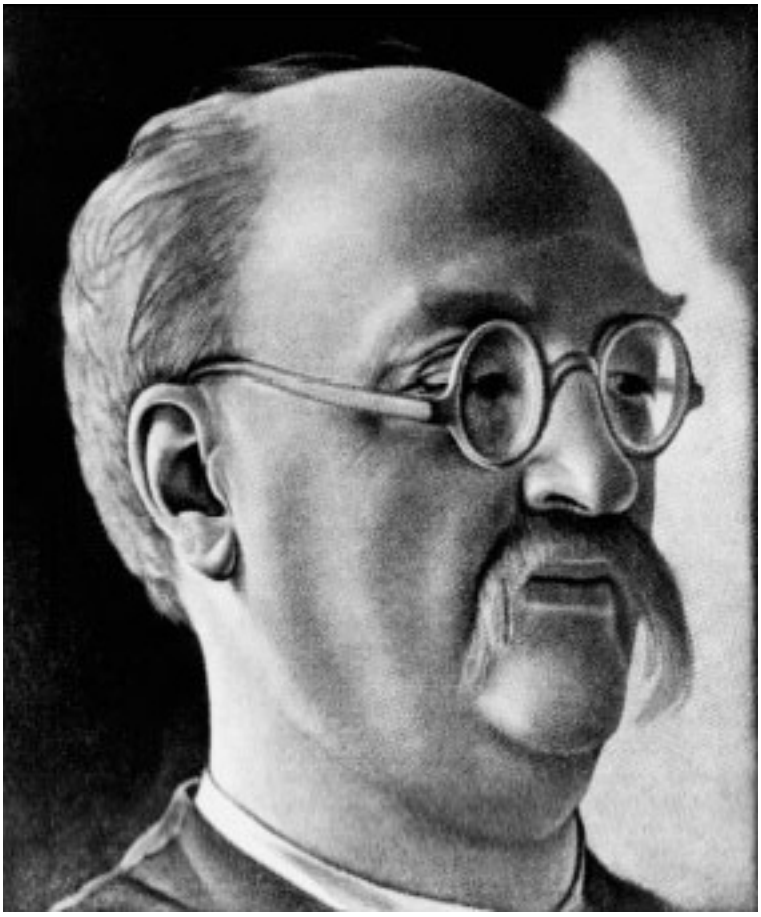


Figure 1 Heinrich Schenker (Historisches Museum der Stadt Wien)

Historisches Museum der Stadt Wien

Historisches Museum der Stadt Wien

Schenker is best known today for his radical and controversial theories of tonal structure, but these (in particular, the concepts of **foreground**, **middleground** and **background**,

which will be presented in this set of courses) were not developed until fairly late in his life, and were not published until after his death in 1935. Before this, his analytical ideas and observations began to develop through his work as an editor and critic.

Schenker began to make analyses of music when he encountered difficulties in producing editions of musical works. A variety of sources may be used in preparing an edition, in particular the composer's original manuscript where that is available. Occasions arise where there are two or more possible versions of a passage, and in these cases Schenker thought that by analysing each of them, he could prove which was more logical and musical, and therefore identify the one the composer intended to use. Some of Schenker's editions are still in print today: for instance, the complete Beethoven Piano Sonatas (now published by Dover). In his work as a critic, Schenker was (rather unfashionably) opposed to any sort of Modernism, and believed in the supremacy of the tonal system, a stance which brought him into conflict with Schoenberg among others (the list of composers whose music he considered flawed included Wagner, Mahler and Debussy). He was also bitterly opposed to the traditional types of music analysis of the later nineteenth century; in particular, the idea of a stereotyped ‘recipe’ for models such as sonata form. Instead, he was concerned with the unveiling of hidden processes and linear shapes in tonal music (especially that of Bach, Scarlatti, Haydn, Mozart, Beethoven, Chopin and Brahms).

Schenker's ideas have been extended, codified and debated, first by his friends and pupils, many of whom fled to America at the outbreak of the Second World War, and latterly by American, British and other scholars of music worldwide. Many articles in specialist journals such as *Music Analysis* in the UK and *Music Theory Spectrum* in the USA now assume an acquaintance with Schenker's ideas, methods and notations. His analytical method has been one of the most important topics in the theory of music since about 1970, and its applications within and beyond the field of tonal music are widely (and sometimes heatedly) discussed. As a result, the type of activity referred to as ‘voice-leading analysis’ in this course is often called ‘Schenkerian analysis’ by other writers (although the notations I will be using are not identical with those used by Schenker).

1.4 Some introductory listening

I want you to begin by listening to five complete movements from Mozart's piano sonatas. This preliminary listening will give you a flavour of the style you will be examining. This course will be concerned mainly with very short extracts (usually no more than 8 bars) but you will need to have heard the entire movements in advance so that you will recognise the extracts and put them into context when they appear.

Activity 1

Listen to the five complete movements from Mozart's piano sonatas below, following the movements in the scores (also below). This will take about half an hour.

Piano Sonata in B flat, K333, first movement (4 minutes)

Audio content is not available in this format.

Piano Sonata in B flat, K333, third movement (6 minutes)

Audio content is not available in this format.

Piano Sonata in C, K309, first movement (4 minutes)

Audio content is not available in this format.

Piano Sonata in C, K545, first movement (4 minutes)

Audio content is not available in this format.

Piano Sonata in B flat, K570, third movement (3 minutes)

Audio content is not available in this format.

Click to view a pdf of the scores.

What do these five movements have in common? What words do you think best sum up the style of these movements, in general terms?

These five movements are all in major keys, and in a similar tempo. For variety, I have chosen three first movements (all in sonata form) and two finales (both in rondo form). These works are fairly representative of the Viennese Classical style between about 1770 and 1790. Poise, balance, symmetry, urbanity, logic, purposefulness, understatement and wit are all words that writers often use about Mozart's instrumental music. I expect that you chose these or similar words and phrases to describe Mozart's pieces.

This way of describing Mozart's style, while according with what nearly all listeners think of its effect, does not tell us very much about how the music is actually put together. The words suggested in the Discussion above are fairly vague characterisations, and it is much more difficult to define features of the style through precise reference to the notes themselves. How can we describe in detail such things as melodic structure, form and harmonic language? This is the task of music analysis, and something you will be working towards in the three courses of the series (this, Voice leading analysis of music 2: the middleground and Voice leading analysis of music 3: the background).

2 What is voice leading?

2.1 Two examples

To approach this question, I want you to listen first to two examples. The first is the opening phrase from the beautiful and deceptively simple finale of Mozart's Piano Sonata in B flat, K333. The second is a hypothetical version of my own, similar in some respects but, as you will hear, quite different in effect.

Activity 2

Listen carefully to the recordings of the two passages below, following the music in Examples 1 and 2 also below. The examples are marked with roman numerals to identify the chords used in each. Make a list of the musical features that these examples share. What are the differences in effect between Mozart's version and mine? Which is more logical and satisfying, and why?

Click to listen to passage 1

Audio content is not available in this format.

Example 1 Mozart, Piano Sonata in B flat, K333, third movement, bars 1–8

Click to listen to passage 2

Audio content is not available in this format.

Example 2 Hypothetical version based on Example 1

At first glance, the two passages have much in common. Both are eight bars long, and in each case the phrase structure is regular: four bars leading to an imperfect cadence, and another four leading to a perfect cadence.

The chord structure, too, is almost identical in each case, consisting primarily of chords I and V, coloured with the use of chord ii and also submediant inflections (the hint of chord vi, G minor, in the second half of bar 1 and bar 5). The melodic lines, while different, contain a mixture of steps and leaps. Isolated from the accompaniment, it would be quite difficult to explain objectively why one melodic line was more logical and satisfying than the other.

Yet I hope you agree that Mozart's example sounds sublimely logical, with the elegance and easy-going predictability (in the best sense) that we tend to associate with Mozart's mature style, while the second is the musical equivalent of doggerel: the harmony seems correct but the effect is awkward and comical. To put it bluntly, Mozart's theme sounds ‘right’; my theme sounds just plain ‘wrong’. Certainly, my attempt could never pass for Mozart.

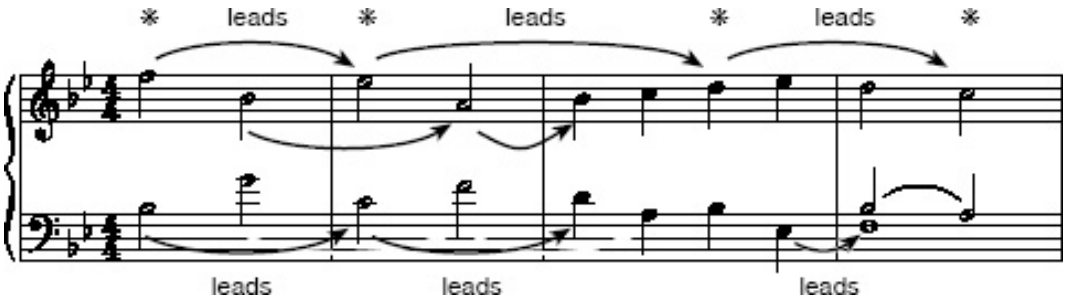
The roman numeral chordal analysis cannot differentiate adequately between Mozart and my pale imitation, so it has failed to explain an important aspect of Mozart's style. But what *can* explain the difference between the two extracts?

The answer lies not in chords as such (that is, vertical sonorities considered in isolation). Rather, the differences between these two extracts are found in the large-scale lines that underpin Mozart's melody and bass, giving them a sense of order and coherence that we do not find in my unlovely example.

These musical lines are sometimes described as ‘linear motion’ of individual parts or ‘voices’ within the harmony. In order to show how this linear motion works, I have given a reduced form of the melody below (Example 3). If we remove the grace notes (written-out appoggiaturas and so on) and other dissonant pitches, we can see that the Mozart melody is actually a fleshed-out version of a linear, contrapuntal skeleton.

Activity 3

Listen again to the first phrase of Mozart's melody above, and then to this reduced form of bars 1–4.



Example 3 Mozart, Piano Sonata in B flat, K333, third movement, bars 1–4: voice-leading processes

Click to listen to the reduced form of bars

Audio content is not available in this format.

The F on which the melody starts seems to fall logically to the E♭ in the next bar, while the A (bar 2) leads upwards to the B♭ at the start of bar 3. After all, the A here functions as the leading note (supported by the dominant seventh), and it is the normal tendency of leading notes to lead upwards to their tonics in such situations. Meanwhile, the E♭, left hanging in the air in bar 2, would be expected to fall to a D after the dominant seventh in bar 2 (being the seventh of the chord). Mozart gives us this D in bar 3, thus completing a line F—E♭—D stretched over three bars. A similar kind of linear logic controls both treble and bass movement in the whole extract.

This sort of linear process, where the musical foreground can be seen as the elaboration of underlying lines moving contrapuntally in treble and bass, is what is generally known as ‘voice leading’. The musical surface may proceed by leaps, but is controlled by linear, step-wise movements at a deeper level. In order to show this, I used a simple kind of **reduction** in Example 3. To put it simply, I have tried to show that, in the language of tonality, some notes are more structurally significant than others: that tonal music operates within a sort of hierarchy in which the ‘skeleton’ underpins the ‘surface’ and gives it cohesion and order. The treble and bass parts can each be called a ‘voice’, and in this ‘skeleton’, each note ‘leads’ by step to the next.

By contrast, my ‘bad’ example (Example 2) contains several imperfections of voice leading. The leading note (A) at the end of bar 2 in the bass feels slightly awkward, because it does not lead to the tonic note; the same is true of the A in the treble in bar 3, which leaps unconvincingly to the D (the third of the next chord). Instead of Mozart's elegant sweeping downward treble line that spans the first phrase, my example repeats the top F in every bar, so that the melodic line lacks flow. You may have spotted several other similarly unconvincing moments in my pastiche.

To summarise: Mozart's theme makes sense not just as theme and accompaniment, but as counterpoint. By ‘counterpoint’ I mean the motion of melodic lines against one another, rather than imitative polyphony. By contrast, my theme is merely a series of chords with a

randomly superimposed upper line. The roman numeral analysis, while undoubtedly useful, cannot really deal with this underlying linear aspect of Mozart's music.

2.2 Listening for lines within the harmony

Now for an example taken from another first movement. This time the extract comes from the development section of a slightly earlier work, the Piano Sonata in C, K309. Here again, I want to demonstrate that simple chordal analysis can tell only part of the story. In this extract, voice-leading analysis can help us make sense of a rather difficult harmonic progression.

Activity 4

Listen carefully to the passage from the Piano Sonata in C, K309, several times, whilst following the score given in Example 4.

Click to listen to piano sonata

Audio content is not available in this format.

Example 4 Mozart, Piano Sonata in C, K309, first movement, bars 73–8

At first glance, the music seems to modulate wildly. Begin an analysis of these bars by annotating EXA001_004"Example 4 in the following ways. Use the pdf version of the score below to complete your annotation.

Click to open the score for annotating.

- Identify the main key areas through which the music passes. Enter the name of each key under the score in the brackets provided. The first key (A minor) has already been entered for you.
- Enter roman numerals under the score in the places indicated (below the asterisks), to identify the chords Mozart employs at these two points, according to the key you have identified in each section.
- Finally, consider the harmonic progression between bars 74 and 75. How does Mozart create a sense of logical continuity here?

This exercise was intentionally difficult! Example 5 shows my suggestions of how a chord-function analysis might describe the whole of the extract. Clearly it begins and ends in A minor (chord i in bar 73, chord ib in the second half of bar 78), but it seems to pass through the unrelated region of G minor (starting in bar 75) only to return via C major (bar 77; see Example 5).

Example 5 Chord-function analysis of Example 4

If we were to listen to bars 74 and 75 in isolation, the harmonic progression would seem illogical and almost disturbing. An E major chord (Vof A minor) in the second half of bar 74 is followed immediately by a G minor chord in bar 75. These two chords are, after all, harmonically very distant from one another on the 'circle of fifths', as are the two keys (A minor and G minor) that these chords imply. Such a juxtaposition of unrelated chords, we might think, would seem quite radical even in the harmonic language of Wagner or Debussy, let alone in a relatively early piano sonata of Mozart. (If you are able, you might like to play these two chords in isolation on a keyboard.)

In fact, a traditional harmonic approach would run into a few difficulties here. The analysis given in Example 5 does not really address the issue of the relationship between the areas of G minor and A minor. Yet, in the context of the whole passage, the progression seems entirely natural and convincing.

As we found with Example 1 above, the answer to how Mozart 'gets away with' the chord progression in these bars lies in large-scale lines. In the example from K333, we

saw some linear voice-leading patterns in the melody. However, in this extract from K309, the solution to the problem lies in the bass line.

If we look at the bass from bar 73 onwards, we can see a beautifully logical descending line starting with A, and moving step-wise through some chromatic pitches to its goal, the lower C (Example 6).

Example 6 Outline of bass line from Example 4

In technical terms, we would say that the bass outlines a large descending sixth from A to C (from an A minor triad to its first inversion), filled out with passing notes (some of which are chromatic). It is these passing notes that generate the apparently deviant harmonies of the surface; without this large-scale linear process in the bass, the juxtaposition of the 'unrelated' chords would indeed sound anomalous and distinctly out of style. If you missed the sweeping bass line on the first hearing, play the track again, listening for how the bass gives shape to the extract.

In these examples, I have tried to emphasise the importance of listening closely to large-scale lines in the music, as opposed to the simple labelling of chords. You should not think of voice-leading analysis as a mathematical abstraction, but rather as an attempt to explain how we *hear* musical processes. Like any successful form of analysis, voice-leading analysis should always be based on your aural perception of a particular passage; the analysis should be an extension of your musical hearing. Moreover, a voice-leading analysis can actually shed light on certain aspects of Mozart's style (we saw, in my first example, how Mozart's smooth voice-leading was the hallmark of his style, while my hypothetical example was unstylistic).

We can conclude, then, that a simple labelling of vertical sonorities (chords) is not really enough for us to explain the logical processes that underlie Mozart's harmonic language. Even in a simple homophonic texture such as this, the style is rooted not just in harmony, but in counterpoint.

In the next section, you will explore the system of voice-leading analysis that attempts to codify and explain this contrapuntal aspect of Mozart's language.

3 The elements of voice-leading analysis

3.1 Introduction to the elements of voice-leading analysis

Now is the time to begin our detailed look at the process by which we analyse the voice leading of a passage of music. I have already mentioned the idea of a basic ‘skeleton’ which is embellished to produce the foreground. The first step towards a large-scale voice-leading analysis, then, is to be able to distinguish those notes that are *structural* (those that belong to what I have called the ‘skeleton’ of the music) and those that belong only to the surface. The process of doing this is called ‘reduction’ because it involves reducing the number of notes in the score to those which are most essential. Reduction in this sense is central to voice-leading analysis. However, we cannot choose which notes to keep in and which to leave out at random: we need clear rules by which we go about making a reduction of a passage.

3.2 Simple reductive processes

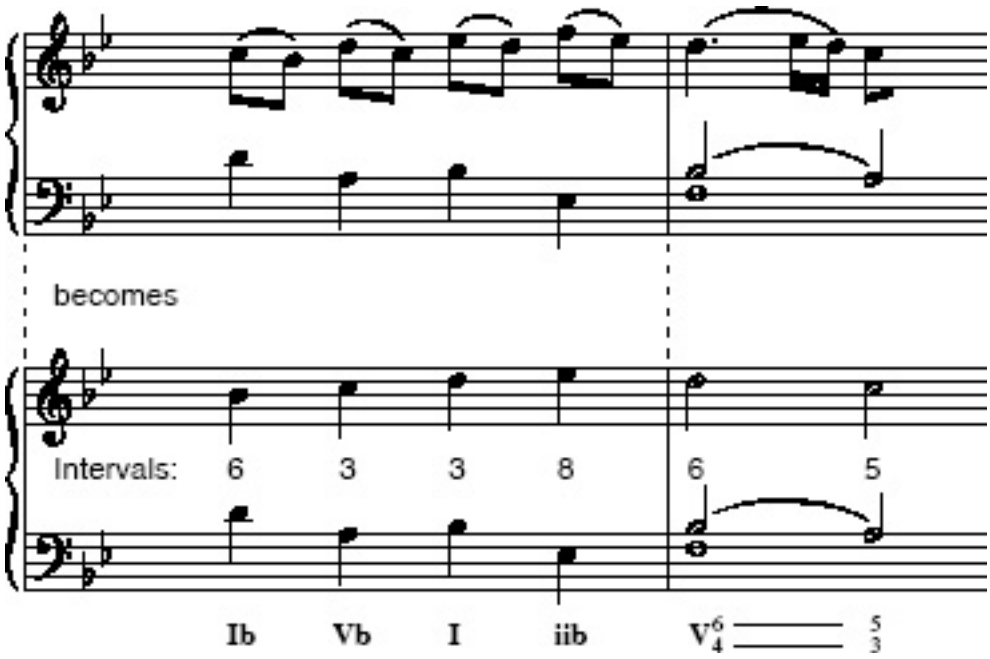
Activity 5

Return to Example 1 and consider bars 3–4 of Mozart's theme. Here we have an ascending line through a third (B♭, C, D). Each of the three notes in this line is elaborated by an upper appoggiatura (C, D, E♭), which in each case is dissonant and must resolve down to the harmony note. One possible reduction of these two bars is shown in Example 7a and can be heard in the audio clip below.

Click to listen to audio clip

Audio content is not available in this format.

Examples 7a and 7b show two attempted reductions of this passage.



Example 7a

Example 7b

In making the first reduction (Example 7a), I have distinguished the harmony notes (i.e. those which are consonantly supported by the harmony) from the elaborating notes (the dissonances). The appoggiaturas could, in theory, be taken out, and the music would still make perfect sense within the style. However, if we were to analyse the passage incorrectly, and remove the harmony note in each case (Example 7b), the result would be horribly out of style.

Activity 6

Listen to these two reductions to hear what I mean by this.

Click to listen reduction 1

Audio content is not available in this format.

Click to listen to reduction 2

Audio content is not available in this format.

Here I sometimes find it useful to invoke a parallel with language. In a sentence such as ‘The grey cat sat idly on the mat’, we might reduce this to the more basic form ‘The cat sat on the mat’ and the sentence would still conform to the rules of syntax and impart the same basic meaning. This is because the adjective ‘grey’ qualifies its noun and only makes sense in that context; likewise the adverb ‘idly’ qualifies the verb ‘sat’ and would make no sense on its own. In this example, the adjective ‘grey’ and the adverb ‘idly’ occupy a lower level of hierarchy in the syntax. Thus ‘the grey idly on the mat’ would be an incorrect reduction, and would of course make no sense within the rules of English syntax, just as Example 7b makes no sense within the harmonic language of the late eighteenth century.

Most musicians would reduce this instinctively, on the basis that one version sounds right and the other sounds wrong. However, there are objective criteria for the reduction, namely the criteria of **consonance** and **dissonance**. In Mozart's style, dissonances make sense only in relation to the consonances into which they resolve. In the correct simplification of bar 3, the intervals between treble and bass are all consonant (6–3–3–8). Thus, the reduced version eliminates the dissonances and retains the consonances.

Here it might be useful to define ‘consonance’ and ‘dissonance’. The distinction between the two has been fundamental to the analysis of music at least since Guido d'Arezzo in the eleventh century, and has largely been consistent through centuries of music theory. Mozart himself was familiar with so-called ‘strict counterpoint’, in which dissonances and consonances are used according to a strict set of rules whereby dissonances could be introduced only in certain circumstances and were obliged to resolve to the nearest consonance. For our purposes, intervals are calculated above the lowest pitch (the bass). Intervals of an octave, perfect fifth, sixth and third are considered consonant, while intervals of a fourth, second, seventh and ninth are considered dissonant. Bear in mind that a fourth above the bass is almost always considered dissonant, even in Mozart! The tritone (augmented fourth or diminished fifth) is normally considered a dissonance and must likewise resolve to a consonance. In tonal music such as Mozart's, the tritone normally occurs between the fourth scale-degree and the leading note (in C major, this would be F/B; here the F would normally resolve down to an E and the B up to a C).

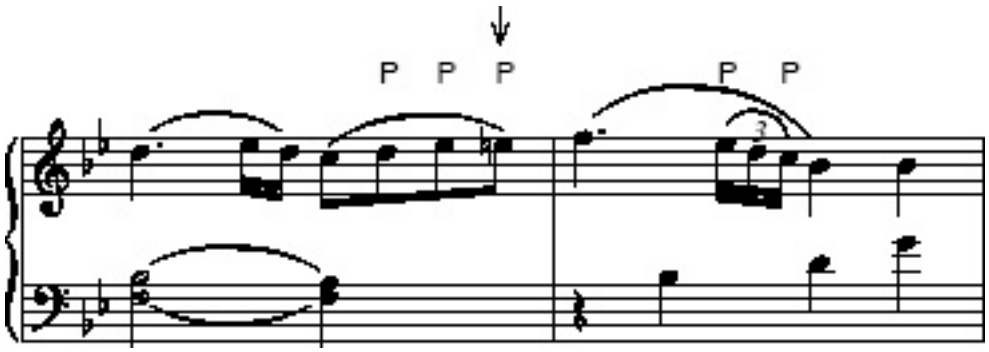
3.3 Categories of dissonance in tonal music

In tonal music, dissonances only occur in specific, controlled contexts. These hold true not just for Mozart but for virtually all western music between the seventeenth and nineteenth centuries. This enables us to establish some rules for how dissonances are treated, which fall into three basic categories: **passing notes**, **neighbour notes** and **suspensions**. Let's look at each of these in turn.

3.3.1 Passing notes

Here, a dissonant pitch (**P**) is introduced between two different consonant pitches. The commonest situation is where the consonant notes are a third apart, and the dissonant passing note is placed between them to create a smooth line through the third. It is also possible to introduce more than one passing note to connect consonant pitches that are a fourth, a fifth, a sixth, or even an octave apart.

Example 8 is a part of an extract we have heard already, with the passing notes indicated by placing the symbol ‘P’ above each one, which is the usual way of analysing this form of dissonance.



Example 8 Mozart, Piano Sonata K333, third movement: passing notes

Activity 7

Listen to this recording of Example 8.

Click to listen to recording.

Audio content is not available in this format.

Passing notes may be either diatonic or chromatic. The chromatic variety (such as the one in Example 8 indicated with an arrow as well as a 'P' symbol) is especially favoured by Mozart, and appears frequently in his music. Here, it has a delaying effect, momentarily increasing the tension at the approach to the F at the beginning of bar 5, which is the local goal of motion. In some contexts, chains of chromatic passing notes can achieve effects of great pathos, especially when descending through sixths or octaves (you may know the famous lament 'When I am laid in earth' from Purcell's *Dido and Aeneas*, or the moment in *Don Giovanni* when the Don is dragged down to hell).

3.3.2 Neighbour notes

Here a consonant note is elaborated by a dissonant pitch lying immediately next to the main note. Usually, the neighbour note is placed above the main note, and returns to it (an 'upper neighbour note'). Occasionally, however, the neighbour note may lie below the main note (a 'lower neighbour note'). Sometimes, too, the main note may come only after the neighbour note, and not before it as well (an 'incomplete neighbour note').

You may be used to the terms 'auxiliary note' to describe upper and lower neighbour notes, and the term 'appoggiatura' to describe an incomplete neighbour note. Indeed, these are standard terms used particularly in British music scholarship.. However, the single term 'neighbour note' covers all these cases, and this is the standard term used in voice-leading analysis. As you will see later, it also has wider applicability at deeper structural levels. It is a translation of the German technical term '*Nebennote*' or '*Nebenton*'.

As an example of the dramatic use Mozart can make of neighbour-note features, look at Example 9. This is from later in the Piano Sonata K333. Here, a chain of upper neighbour notes (appoggiaturas) embellishes a huge upward line leading to a top A♭ (the music has modulated to the subdominant, E flat major, at this point). The neighbour notes are shown by the symbol 'N', their standard analytical notation.

Example 9 Mozart, Piano Sonata K333, third movement, bars 84–7

Activity 8

Listen to this recording of Example 9.

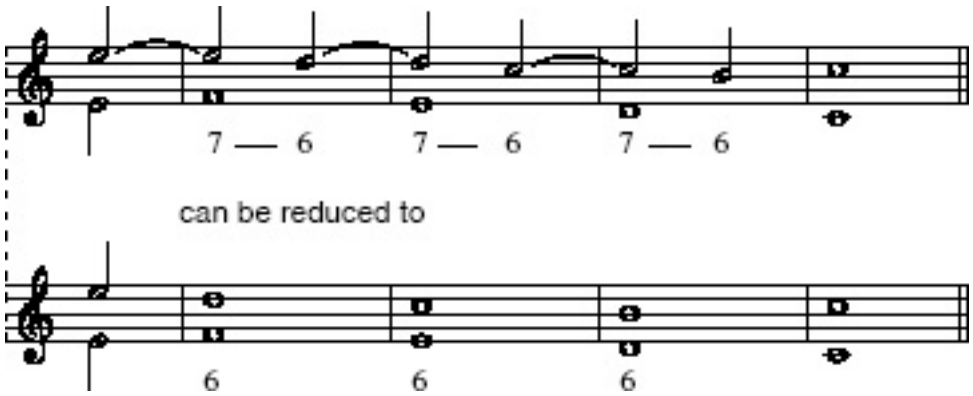
Click to listen to recording

Audio content is not available in this format.

Because all the notes marked ‘N’ are dissonant, it would be theoretically possible (as with passing notes) to remove each of them, and be left with a simpler form of the music which would still make sense as a piece of counterpoint between upper and lower parts.

3.3.3 Suspensions

Here a dissonance is created by delaying a fall to the main harmony note, so that the treble and bass are ‘out of step’ with one another. The dissonance in this case must be prepared and resolved downwards by step. Suspensions are usually referred to by two figures indicating the interval between the dissonant notes and the interval between the consonant notes to which they resolve. The commonest forms of suspension (using numerals to indicate intervals above the bass) are 4–3, 7–6 and 9–8 (6–5 patterns are not strictly suspensions, since the sixth and fifth are both consonant). Example 10 shows a simple chain of 7–6 suspensions. In reducing suspensions to a more fundamental linear progression, we simply need to realign the two voices such that they are consonant with one another.



Example 10 Chain of 7–6 suspensions as an elaboration of a chain of sixths

Activity 9

Listen to the recording of Example 10.

Click to listen to recording

Audio content is not available in this format.

In Example 11, taken from the rondo finale of the Sonata in F, K533, Mozart deploys a chain of suspensions, breathing new life into a somewhat hackneyed late Baroque formula. Each seventh (shown in my reduction as minims beneath the score) is prepared as the third of the previous chord, and resolves downwards by step onto the third of the following one.

Example 11 Mozart, Piano Sonata in F, K533, last movement, bars 95–9

Activity 10

Listen to the effect created by this in the audio clip below.

Click to listen to audio clip

Audio content is not available in this format.

3.4 The concept of prolongation

These three basic ways in which dissonant notes occur in music all share one notable feature. They make a note or a harmony extend over a longer period of time than just its bare statement. Two notes of a chord may be stretched out by having a passing note placed between them; a single note may move to a neighbour note, and then return; a harmony may be extended by a suspension, such as a $\frac{4}{3}$ before a cadence. In all these cases, we say that the note or chord involved is being 'prolonged' by the use of dissonance. The concept of **prolongation** is absolutely central to voice-leading analysis, especially when we come to consider deeper levels of structure than the foreground.

3.4.1 Arpeggiation

In addition to passing notes, neighbour notes and suspensions, there is one more method by which a chord can be prolonged. This is where notes which belong only to the very surface level of the music are nevertheless consonant rather than dissonant. This occurs when a part leaps from one note on to another of the same chord. Such leaps are called **arpeggiations** of chord notes. ('Arpeggiation' is the commonly accepted English translation of the German term '*Brechung*', which can mean a broken chord as well as an arpeggio in the usual sense.) Sometimes, a less important note in the arpeggiation comes between two other notes of the chord, rather like a passing note; sometimes, it appears above or below the main chord note rather like a neighbour note. In this second case, because only two notes are involved, the motion is sometimes called a **consonant skip**. Both sorts of arpeggiation occur in the well-known melody in Example 12, the opening of the Sonata in C, K545. They are shown in the example by a bracket and the abbreviation 'arp.', which is the usual way of indicating them in an analysis.

Example 12 Mozart, Piano Sonata in C, K545, first movement, bars 1–4

The second note of the melody (E) is part of an ascending arpeggiation from C to G. Similarly, the top C (bar 3) does not actually participate in the large linear process, but merely elaborates the pitch G by leaping a fourth and then returning to the main note. So if we want to analyse the deeper level of the harmony, we have to reduce the surface of the music by missing out these notes.

Activity 11

Listen to this melody, keeping in mind the discussion in the above paragraph. (The recording is of bars 1–8[1], not just of bars 1–4 as in Example 12.)

Click to listen to melody

Audio content is not available in this format.

3.5 Making a foreground reduction

Now I want you to make your own reduction of the melody and bass lines of bars 1–8 of the Sonata in C major, K545. You may wish first to read through the previous section again, so that you are clear about the different sorts of dissonant notes which are found in tonal music. Then read the whole of the following guidelines carefully before you try this Activity.

Activity 12

Listen to the previous extract, repeated below several more times, while following the music in Example 13 below.

Your task is to write out just the principal harmony notes of the treble and bass, in the manner of my Example 3 at the beginning of this course. To do this, you should print out the sheet of music manuscript paper from the link given immediately below Example 13. Work over your answer on the manuscript paper until you are satisfied that it represents how you hear the overall lines in this extract.

I suggest that you listen to the large-scale lines first in bars 3–4, then in bars 5–8, and then return to bars 1–2. Here are some other things to bear in mind.

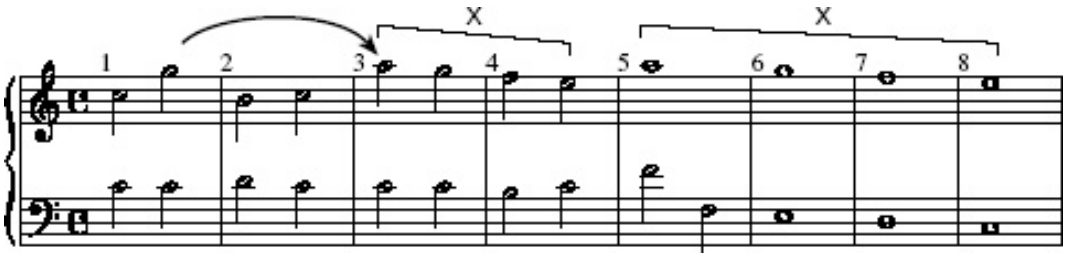
- You need to work out which pitches of the melody are essential to the underlying harmony and which are 'surface' events such as passing notes, appoggiaturas and the like. If it helps, feel free to write 'N' or 'P' over the appropriate notes in the original.
- When completing this exercise, you will find that the rate of harmonic change is a crucial criterion. This example has an irregular rate of harmonic change. The first chord lasts a whole bar, then there is a change of harmony every minim in bars 2–4, and every semibreve in bars 5–8. Write your reduction in minims (in both treble and bass) for bars 1–4 and semibreves for bars 5–8.
- For the first minim in the treble line of bar 4, choose the pitch that gives the strongest sense of musical line (remembering that voice-leading analysis is all about large-scale linear movement).
- Write out each passage in this simpler, skeletal form (this should reveal larger-scale linear formations which we can consider later). Write the passage in two parts – do not bother with the inner parts. Where the left hand part has broken chords (very common in Mozart), only one pitch in each chord will be the true bass note; the other pitches are effectively inner parts.
- There is no need to write in every single consonant pitch, if you feel that the large-scale lines 'sing through' more clearly by omitting some pitches (such as the top C in bar 3, mentioned earlier. This process rather resembles the Activity of writing a variation on a theme, but in reverse.).
- You may find it interesting to play through your finished result on a keyboard, if you are able to do so. As with the correct reduction in Example 7a earlier, it should make sense as a piece of music, albeit simpler than the original.

Click to listen to extract

Audio content is not available in this format.

Example 13 Mozart, Piano Sonata in C, K545, first movement, bars 1–8

Click to open blank staves.



Example 14 Reduced version of Example 13

Example 14 shows my solution. Do not worry if your result is not identical to mine. Here are some points at which you may have decided to analyse the melody slightly differently from my version.

- You might have analysed the melody of the first bar differently, keeping the E as the second minim in the treble and omitting the G, or even keeping the C as a semibreve. These would not be straightforwardly wrong as analyses. My reason for hearing the melody as an ascent from C to G is based on large-scale lines in the whole of the phrase. The G is the highest consonant note of the bar, and I think this makes the ear connect this top G with the A that follows in bar 3, giving a smooth sense of line. This connection is indicated by the arrow in Example 14. The same consideration – the influence of large-scale lines – leads me to leave out the top C at the end of bar 3, as I mentioned when discussing types of arpeggiation in Section 3.4 above.

- Similarly, you might have been tempted to write a minim G in the treble at bar 4. This would be more consonant than the F that follows it. Here, though, I think that the F is truly the main melodic note, because this analysis shows it to be part of a smooth descending line. In addition it forces us, by the very fact of being locally dissonant, to expect the **resolution** to E over C (which is the goal of the phrase) far more strongly. If you are able, you might like to try playing both versions.
- You might also have written the semibreve descent A–G–F–E (bars 5–8) an octave lower. This is equally good, as the line occurs in both octaves, filled in by semiquaver runs. My reason for preferring the upper octave will become clear in a moment.

Your analytical reduction may have differed from mine in other ways. In any case, make sure that you understand the reasons why I have favoured the solution given as Example 14 before you continue.

This simple analysis presents a foreground analysis of these bars. The foreground, in analytical terms, means the consonant harmony that makes the actual notes of the musical surface make sense. The analysis also reveals something interesting that may not have been immediately apparent from your initial hearing of the work. In fact, the semiquaver passage (bars 5–8), which seems very different in gesture from the opening four-bar theme, is exactly the same in its underlying voice-leading as bars 3–4. In both cases, as the reduction reveals, there is a large line (which I have marked as motive 'X' in my suggested solution) moving downwards from the A, though G and F, to E. In bars 3–4, motive X is supported by the repeated bass note C (which moves down to B and back), and in bars 5–8 it is supported by a bass line which moves downwards in parallel tenths. In effect, Mozart has produced a continuation of his first subject which is nothing less than a hidden variation, rhythmically augmented, of the linear motion of bars 3–4. I point this out at this stage to illustrate just how useful even the simplest voice-leading analysis can be in illuminating hidden aspects of a composer's style, and demonstrating hidden links between parts of a composition which may seem highly contrasted at the musical surface.

3.6 A second reduction: analytical levels

Next I want you to make another foreground reduction, in order to demonstrate how the sorts of analytical observations found at this level always lead on to considerations of issues at deeper levels of the harmony. This next activity, which is based on Mozart's Piano Sonata in B flat, K570, is presented partly on video, in four sections.

Activity 13

Watch the first section of the video

Voice-leading analysis, Mozart Piano Sonata in B flat K570 (part 1, 1 minute)

Video content is not available in this format.
Voice-leading analysis, Mozart Piano Sonata in B flat K570 - Part One

Activity 14

You have been asked to make your own foreground analysis of the first four bars of Mozart's Piano Sonata in B flat, K570, which is shown as Example 15 below. Just as you did with K545, choose the notes in the top and bottom lines which are consonant harmony notes, and write these out on two staves. To do this, you should print out the sheet of music manuscript paper at the link below. To help you, I would suggest that you look for repeating patterns. Note that, as in K545, the rate of harmonic change is not constant. In the first two bars, the harmony changes every crotchet. In the third bar, the rate changes to minims, and in the fourth bar leading up to the imperfect cadence, the rate speeds up to quavers.

Example 15 Mozart, Piano Sonata in B flat, K570, third movement, bars 1–4

Click to open blank staves.

Activity 15

Watch the next clip from the video now, where my solution will be explained, and the analysis will be taken a stage further.

Voice-leading analysis, Mozart Piano Sonata in B flat K570 (part 2, 4 minutes)

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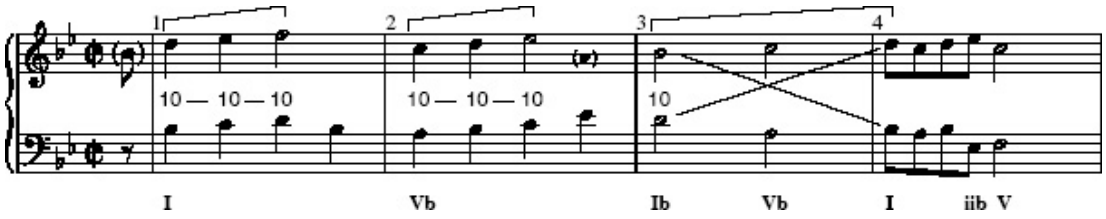
Voice-leading analysis, Mozart Piano Sonata in B flat K570 - Part Two



Example 16 Reduction of Example 15

Activity 16

Next, compare your solution to Activity 14 with my graph (Example 16). I hope your reduction looked similar to mine, apart from the 10–10–10 (showing **interval patterns**) and crossing lines (showing **voice exchange**) which the video has now explained. This completes a foreground analysis of these bars. Notice that, like all musical foregrounds, it makes a good piece of simple counterpoint on its own, with no parallel fifths or octaves. This is why Mozart's harmony makes sense – we have analysed the way he was thinking of the harmonic movement in these bars.

Activity 17

As you watch the next part of the video, you may find it helpful to have Examples 17a–d to hand, which reproduce the next stages of analysis as demonstrated on the video. The examples are labelled ‘Level 1’, ‘Level 2’, ‘Level 3’ and ‘Level 4’. These ‘levels’ will be explained on the video, but before you watch, it might help you to know that they represent a progressive reduction of the notes of the original music. Thus Level 4 gives just the harmony notes, but still including the appoggiaturas, and Level 1 is a simple representation of the basic harmonic structure of the passage. These examples are discussed on the video *beginning with Level 4* and working through to Level 1, to show you this process. Continue with the next video clip now.

Voice-leading analysis, Mozart Piano Sonata in B flat K570 (part 3, 5 minutes)

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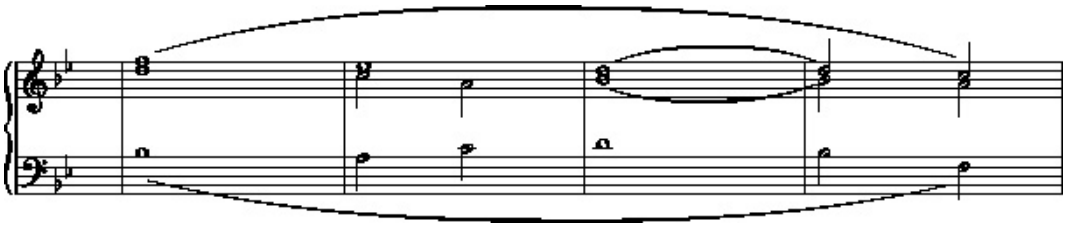
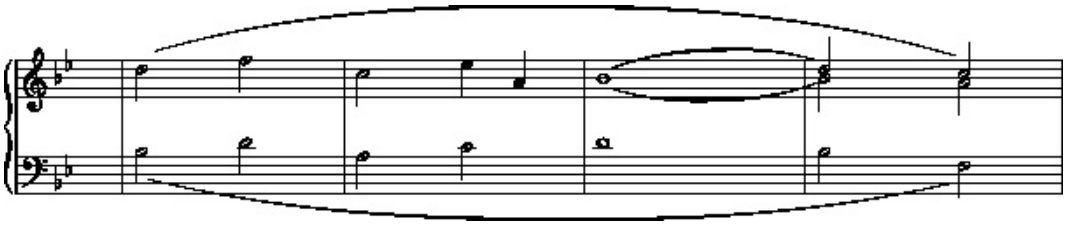
Voice-leading analysis, Mozart Piano Sonata in B flat K570 - Part Three



Example 17a Level 1



Example 17b Level 2

Example 17c Level 3

Example 17d Level 4

Activity 18

When we start to analyse more deeply than the foreground level of the music, we have to spot those harmonies which are consonant in the music as it is played, but are dissonant at a deeper level – they are passing notes or neighbour notes within the same harmony.

Look at the four levels of the music printed as Examples 17a–d. Put 'P' and 'N' above the passing notes and neighbour notes in Level 3 that are missing from Level 2, and then do the same with Level 4; that is, put 'P' and 'N' above the notes that are missing from Level 3. To do this, you should print out Example 17 at the link below.

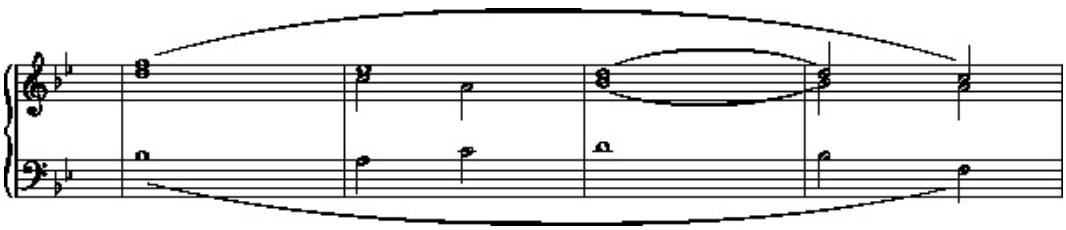
Click to view pdf of Example 17

Activity 19

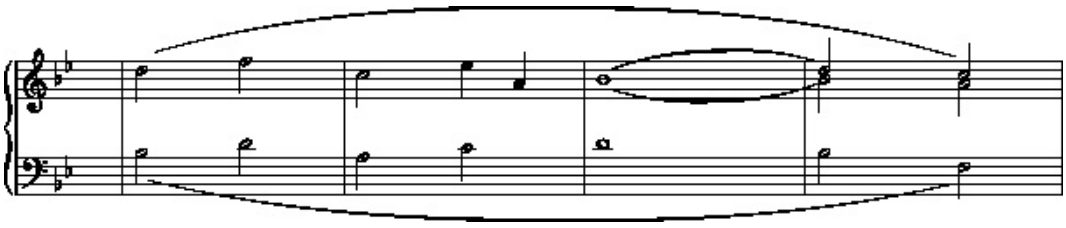
When you have marked in the neighbour notes and passing notes, please return to the next video clip to see my solution. This time I work through *from Level 1 to Level 4*, showing the gradual elaboration from the middleground to the foreground and then to the full score. For your reference, Examples 18a–d reproduce my solution as demonstrated on the video.

Voice Leading Analysis Mozart Piano Sonata in B flat K570 (part 4, 2 minutes)

Video content is not available in this format.
Voice Leading Analysis Mozart Piano Sonata in B flat K570 - Part Four



Example 18a Level 1



Example 18b Level 2

Example 18c Level 3

Example 18d Level 4

3.7 Analytical notation

An analysis set out on several levels, such as that given in Example 18a–d, is one way of demonstrating some linear progressions and hidden patterns underlying the musical surface. This is rather unwieldy, however, especially when it comes to analysing longer sections of music. What we need is a way of showing these levels clearly and succinctly all on a single pair of staves. This is the reason for the development of **analytical notation**.

The notation used to assemble voice-leading graphs was originally evolved by Schenker in the 1920s and 1930s, and has been extended since. Some of Schenker's symbols have already been used in this course: the use of ‘P’ and ‘N’ to label passing notes and neighbour notes respectively; the use of figures such as ‘10–10–10’ to indicate interval patterns; the use of crossing straight lines to show a voice exchange. What is needed, in addition to labels of this sort, is a method of indicating a hierarchy between notes, without having to write them out on several different levels as you did at the end of the video activity. The way that analytical notation achieves this is by the use of some ordinary musical symbols: **noteheads**, **stems**, and **slurs**.

In an analytical foreground graph, showing insights such as those we have been studying in this course, these symbols have the meanings listed below.

- Noteheads are used for all the notes that the graph wants to analyse. This means that, in comparison with the score, some notes may be missed out – either because they are very local elaborations (grace notes and the like), or because the graph chooses to concentrate on other voices in the harmony (many graphs analyse only the bass and the treble, and miss out inner parts).
- Stems are added to noteheads to indicate locally consonant notes. In other words, bass notes and treble notes that form consonant harmonies with each other each receive stems and may often be aligned one above the other (even if they are not literally simultaneous in the score). Stemmed noteheads look like crotchets, of course: but in an analytical graph, this indicates *structural* importance, and not rhythm or duration in time.
- Slurs are used to show the relationship of unstemmed noteheads to the stemmed notes. This relationship will generally be one of the cases discussed in Sections 3.3 and 3.4: the unstemmed note will be a passing note, neighbour note, or part of an arpeggiation, and a slur will connect it to the consonant note with which it belongs.

One further piece of explanation at this stage: because the use of noteheads, stems and slurs can make even a simple graph look cluttered very quickly, analytical graphs often miss out bar lines altogether. To enable you to keep track of the relationship between the graph and the score, bar numbers are included above the graph at strategic points.

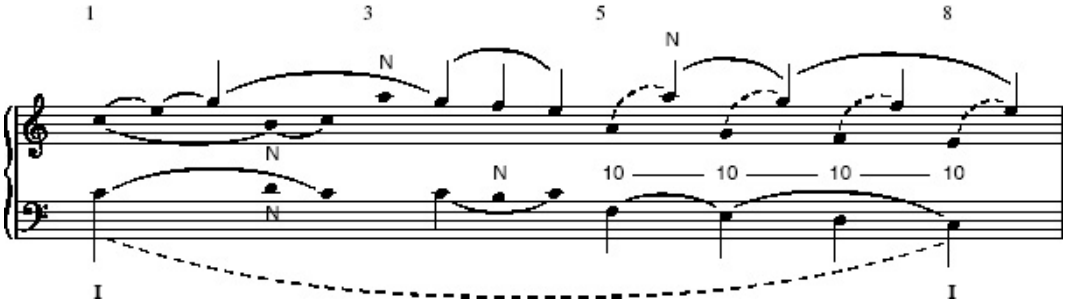
If you keep these rules in mind, you should be able to make sense of any voice-leading graph, although these can look daunting at first. I now want you to try interpreting graphs of the two passages you have spent most time with in this course.

Activity 20

Examples 19 and 20 show foreground graphs of Sonata K545, first movement, bars 1–8 and Sonata K570, last movement, bars 1–4, respectively. Compare the graphs with their related scores by clicking on the link below immediately before Example 19. Refer to the explanations above of the meaning of the symbols used. In each case, write notes answering the following questions.

1. What does the graph tell us about the structure of the music?
2. What are the deepest-level events in this extract, and how are they shown in the graph?
3. What types of prolongation (i.e. neighbour notes, passing notes, suspension, arpeggiation) are used to transform the skeletal model into the musical surface?

Click to view a pdf of the scores.



Example 19 Mozart, Piano Sonata in C, K545, first movement, bars 1–8: foreground analysis

Example 20 Mozart, Piano Sonata in B flat, K570, last movement, bars 1–4: foreground analysis

I hope that you can see how Example 20 tries to represent many of the things brought out by the four levels of Example 18 (which you saw explained in the video). Your answers to the questions above may have included the following points.

- Each of these graphs suggests that the music is structured hierarchically, in the way described throughout this course.

- The deepest levels analysed in each graph are those indicated by the longest slurs. In Example 19, the longest slur (shown as a broken slur – more on this later) connects the first and last notes, which both support tonic chords of C major. In Example 20, the longest slur also connects the first and last bass notes. Another long slur in the top lines, marked ‘a’, links together the F of bar 1 and the C at the end, to show that the melody line moves in a linear progression from the first of these notes, by step, to the other. Roman numerals have been added to make the overall progression in each graph clearer.
- In both graphs, the symbols ‘N’ and ‘P’ have been used to show some passing notes and neighbour notes. Slurs within slurs have been used to show how harmonic lines are nested inside each other.

Example 19 is rather less complicated than Example 20, in that it sums up fewer levels of analysis (in other words, it has fewer sets of slurs within slurs). But it does show many of the musical observations we made earlier about this passage of music. The repeated figure in the melody of A–G–F–E, where the A is a neighbour note to the G, is quite clearly shown by the slurs over the top of the graph. The different harmonisation of this line, first over a C♮ in the bass (with upper and lower neighbour notes) from bar 1 to bar 4, and then over a bass line descending in tenths with the trebles, is also shown.

There is one new sort of notation in Example 19, and that is the broken slurs. These show places were one note is connected to the same note an octave away from it. The semiquaver runs in bars 5–8 each do this (which is why I said earlier on that it didn't really matter to which octave we assigned the A–G–F–E line). Also the C at the beginning in the bass is connected in this way to the C at the end. These octave displacements, indicated by broken slurs, are called **register transfers**. The long broken slur in the bass of Example 19 analyses the whole of these eight bars as being a prolongation of just one chord, the tonic.

Activity 21

Compare Example 19 with the reduction you made of these bars earlier. Make sure that you understand the different analytical insights that it sums up. Then listen to the music below,, following the graph (Example 19) rather than the score.

Piano Sonata in C, K545, first movement (4 minutes)

Audio content is not available in this format.

In Example 20, notice how slurs have been used to show levels of the analysis. I mentioned above that the slur marked ‘a’ indicates the deepest-level structure, which is the F—E♭—D—C line in the melody: compare this to Level 1 in Example 18a. The slurs marked ‘b’ show how the first three notes of this deepest-level line are each approached by an upwards movement through a third: D—E♭—F, C—D—E♭, B♭—C—D. Compare this with Level 3 in Example 18c. And furthermore, the ‘P’ symbols given to the middle note of each of these three-note lines show that these notes are less important than the other two in each case, and are simply passing notes, at a level deeper than the foreground, within prolongations of chords. Compare this with Level 3 of Example 18c.

So you should be able to see how all four levels of analysis set out in Example 18 are also contained in Example 20, but are here summed up on just a single pair of staves through the use of analytical notation.

Activity 22

Compare Example 20 again with Example 18, making sure that you understand how it sums up different levels of analysis. Then listen to the music once more below, following the graph (Example 20) rather than the score. Listen several times, trying to follow first the large-scale lines, and then the more local elaborations.

Piano Sonata in B flat, K570, third movement (3 minutes)

Audio content is not available in this format.

Notice that in each of the graphs, every note has its place in the music analysed by a stem or a slur. There are no notes simply left 'lying around'. Notice, too, that not all the symbols that could possibly be incorporated have been used. The crossing lines indicating voice exchange, which were used in Example 16, for instance, have been left out of Example 20. This is simply because the graph is already quite cluttered enough with symbols. And, in particular, many more 'N' and 'P' symbols could have been inserted, but they are often unnecessary, since a slur between two stemmed notes that covers an unstemmed one already says that the unstemmed notehead must be a passing or neighbour note. So 'N' and 'P' are used only to make specific observations clearer.

This must always be remembered when you are reading or making an analytical graph. Voice-leading analysis is not a scientific or mathematical process; it is rooted in aural experience. A graph uses symbols to express the analytical insights that its author particularly wants to make with it.

You have now covered all the basic principles associated with voice-leading analysis, and the analytical notation that is used for making graphs of the foreground level of the harmony. As we saw at the end of the video section, a foreground analysis always leads inevitably to the consideration of deeper levels of structure. These deeper levels are the topics of the other two courses in this series, which continue this exploration of voice leading, courses Voice leading analysis of music 2: the middleground and Voice leading analysis of music 3: the background.

4 Conclusion

Now that you have worked through several extracts from Mozart's sonatas in quite a lot of detail, I hope that you agree that making reductions enables you to understand better the way that the harmony works.

There are two questions that you might naturally have been asking yourself. First, what is the point of making reductions of Mozart's music when the original is so much more beautiful and satisfying than the simple structure with which we end up? And second, did Mozart himself really think of music as composed of a series of levels in this way?

The answer to the first question should be clear by now. We are not interested in making reductions simply to make Mozart's wonderful harmony look simpler. Rather, we are trying to show how the surface of Mozart's music is generated by a series of elaborations of a deeper-level linear logic. The process is somewhat akin to grammatical analysis of a sentence.

The answer to the second question is rather more complex. It is almost certain that Mozart would not literally have worked in this way, conceiving of the 'skeleton' first and then elaborating on it in a series of steps. But it is equally certain that outlines such as the one shown in Example 17a were a standard feature of the eighteenth-century style, and indeed of eighteenth-century textbooks. Mozart was certainly familiar with the processes of elaboration and variation that underpin this type of analysis. A certain progression would have sounded satisfying to Mozart just as it does to us, because he had internalised the principles of the underlying processes that give it coherence.

You have now covered most of the basic ideas behind voice-leading analysis. Chief among these is the notion that Mozart's style (like all tonal styles from Bach to Brahms) is rooted in a contrapuntal relationship between treble and bass, where surface gestures are controlled by large-scale linear movement at a deeper level. When this overall linear logic is absent (as in my pastiche, Example 2, with which we started) the music sounds unconvincing and out of style. Developing from this idea is the concept of a system of hierarchical levels, similar to the structures of grammar, where a simple deep-level line may be elaborated rather like a series of 'variations' to produce the musical surface. Each level is transformed into the next by a process of elaboration (sometimes called **diminution**), using four main types of transformation: passing note, neighbour note, suspension and arpeggiation.

It is worth pointing out that this type of analysis has produced mixed reactions among writers on music. Some have embraced the system with almost evangelical zeal, others have dismissed the entire theory as pointless or as unmusical. Obviously, I believe that there are great insights into the workings of harmony that one can express only by using this kind of approach. You may well come across opinions much more critical of analysis in general and voice-leading analysis in particular elsewhere.

As a checklist of the things that voice-leading analysis can achieve which other forms of writing about music cannot, I suggest the following.

- Voice-leading analysis enables us to understand at least one aspect of our aesthetic response to music we consider 'well-written'. In other words, it can explain why one passage sounds 'logical' and another 'illogical'.
- Voice-leading analysis allows us to establish some of the workings of Mozart's musical syntax. It gives us insights into his style which we could not achieve by other sorts of analysis. For instance, we saw with Examples 1, 2 and 3 at the beginning of

the course how simple chordal analysis alone cannot explain what makes Mozart sound like Mozart.

- Simple reductions of the musical surface can sometimes reveal hidden motivic connections (for instance, the replication of motive X in Example 14).

However, it has to be admitted that the analytical method will work equally well, and give almost identical results, with the music of other composers contemporary with Mozart. Because the shapes at the deepest level of analysis are so generalised, and because the rules of counterpoint and diminution are general procedures of the time, the method cannot easily distinguish between the styles of, say, Mozart and Haydn. Defining a composer's individual style is a thorny issue; voice-leading analysis can only ever be one small part of a larger study of the Viennese Classical style. However, I hope that you have found that working through this analytical course has complemented and deepened your musical understanding and that getting to grips with analysis remains rewarding as you continue to learn about and appreciate music.

Once you have completed this course, you can move on to the second of the three courses on harmonic analysis, *Voice-leading analysis of music 2: the middleground* .

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Figure 1 Historisches Museum der Stadt Wien

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