Music, Moving Image and the "Missing Majority"

How vernacular media competence can help music studies move into the digital era

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Intro

The other day I heard a music expert on BBC4 call works by the likes of Byrd or Palestrina 'polyphonic' as if recordings by James Brown or chord sequences played on a polyphonic synthesiser were not. A few days before that I heard a respected musicology colleague distinguish between 'modal music', by definition full of tones, and 'tonal music' that was clearly conceived in the ionian mode. That same day I heard another colleague refer to twelve-tone music as 'atonal' even though the style itself relies entirely on twelve tones for its existence and identity. I will not bore readers with other examples of how seriously confused, inadequate and ethnocentric some central concepts in conventional music theory can be. Suffice it here to state that these problems are the tip of an epistemic iceberg adrift in the seas of officially sanctioned knowledge in Western academe and threatening the safe passage of conceptual shipping that could potentially link our understanding of music to other types of human cognition. This text will not rid us of that iceberg.[1] My aim here is rather to suggest how working with music's role in the audiovisual media can make music less of a conceptual mystery to the non-muso majority and less of a guild ritual for musos.[2] The perspective here is in other words that of a music educator who has found that studying music in audiovisual contexts and including the vernacular competence of those with no formal training in music can together help save musicology from ending up like the Titanic. I also believe that this perspective may be useful in the actual production of media involving music.

In order to put across these ideas as clearly and as usefully as possible, I will draw on practical experience gained through teaching Music and Moving Image over a period of sixteen years (1983-2009). But I will first need to clear enough conceptual ground to make sense of that practical experience.

Poïesis, aesthesis and invisible music

About half the music we Westerners hear on average every day accompanies, or is accompanied by, moving images. The vast majority of that music is *invisible* in the sense that we don't see anybody or anything generating the sounds we hear.[3] Taking also into account music for religious and other ritual functions, for the stage, for dancing, on the radio, on smartphones, through speakers in bars, cars, cafés, shopping centres

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1. The following confused concepts are sorted out on the following pages in Tagg (2009): *note, pitch, tone, tonal, tonality, timbre* (17-28); *polyphony* (81-82); *harmony, triadic, tertial, quartal* (91-95).

2. MUSO n. *colloq.* musician or musicologist, more specifically someone who devotes a lot of time and energy to making or talking about music, especially its technical aspects; someone with either formal training in music, or who makes music on a professional or semi-professional basis. NON-MUSO: someone not exhibiting the traits just mentioned.

and so on, it is clear that *most* music, not just most music heard in conjunction with moving images, is *invisible*.[4]

If music in everyday life is overwhelmingly *invisible* for the majority of those who *hear* and *use* it, it's not unreasonable to ask why conventional music studies have been so dominated by *visible music making*.[5] That anomaly can be partly explained in terms of music education's lopsided concern for *poïesis* (≈ production) at the expense of *aesthesis* (≈ perception). While it's obvious that music making cannot exist without being able to see and/or feel 'where the notes are', the actual music-making process (poïesis) is visibly absent from most moments of musical perception (aesthesis). True, the *effects* of the music may well be tactile and/or visual —dancing, goose pimples, tears, synaesthetic connotations, etc.— but these *aesthesic* aspects of touch and sight are not equatable with those involved in music *making* (poïesis). It's from this perspective that analysing music used in connection with moving images becomes an important field of study, not just because music on TV or in films and games reaches our ears and brains more than does music from any other source, but rather because the music's meanings cannot, in the final analysis, be understood without considering the sociocultural and/or audiovisual events with which the music co-occurs.[6]

Two interrelated questions underpin the contradiction just described. The first is 'what do we mean by "music"?', the other 'what does music mean?'. I obviously can't deal with such vast issues here but it's impossible to avoid one aspect that is of direct relevance to notions of the 'missing majority' and 'muso minority'.

Table 1 divides musical knowledge into two main categories: *music as knowledge* and *knowledge about music*. By *music as knowledge* is meant knowledge that relates directly to musical discourse and that is both intrinsically musical and culturally specific. *Music as knowledge* can be divided into two subcategories: *poïetic competence*, i.e. the ability to compose, arrange or perform music, and *aesthesic competence*, i.e. the ability to recall, recognise and distinguish between musical sounds, as well as between their culturally

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3. 120 minutes of music with moving images is a rough estimate (Tagg, 2011: 35, ff.). Music programming on TV, music-based games, adverts showing musical performance and musical films are all the exception rather than the rule. Assuming that the small proportion of visible music on TV (not even music videos need show the music being actually made) is less than the average daily dose of invisible media music heard playing games, DVDs and video files using consoles, computers, smartphones etc., two hours should be seen as a conservative estimate of the average daily dose of invisible music heard by the average Westerner in connection with moving images (see §6, p.36). *Invisible music* is a term borrowed from Austrian twelve-tone composer Hanns Jelinek (1968) who as a young man played piano for silent films and who composed for the cinema under the pseudonym Hanns Elin.

4. In these contexts hearing does not necessarily involve listening. In the theatre, of course, music-making is hidden in the orchestra pit under the stage. In churches the organist is usually placed in an organ loft or in a similar position out of sight.

5. The fact that poïesis in music education focuses on performance rather than on arrangement, composition or recording also skews notions of music towards the visible rather than invisible pole.

6. Even if it's methodologically necessary, as we shall see, to consider the music separately from concurrent audiovisual events in order to establish its own PMFCs (=paramusical fields of connotation) independent of the specific context under analysis, neither the music nor its PMFCs can logically be understood in the specific audiovisual context without being rejoined to that context's concurrent audiovisual events. I apologise for the ugly word *co-occur* to replace *accompany* (implying a hierarchical relationship between music and picture) and *concur* (more often used to mean *agree* than *co-occur*).

specific connotations and social functions. Neither poïetic nor aesthesic musical competence relies on any verbal denotation and are both more usually referred to as skills or competences rather than as knowledge.

Table 1: Types of musical knowledge

Type	Explanation	Seats of learning
1. Music as knowledge (knowledge *in* music)		
1a. Poïetic competence	creating, originating, producing, composing, arranging, performing, etc.	conservatories, colleges of music
1b. Aesthesic competence	recalling, recognising, distinguishing musical sounds, as well as their culturally specific connotations and social functions	?
2. Metamusical knowledge (knowledge *about* music)		
2a. Competence in musical metadiscourse	'music theory', music analysis, identification and naming elements and patterns of musical structure	departments of music(ology), academies of music
2b. Competence in contextual metadiscourse	explaining how musical practices relate to culture and society, including approaches from semiotics, acoustics, business studies, psychology, sociology, anthropology, Cultural Studies.	social science departments, literature and media studies, 'popular music studies'

The institutional underpinning of division between these four types of musical knowledge is strong in the West. In tertiary education, *poïetic competence* (1a) is usually taught in special colleges or conservatories, *musical metadiscourse* in departments of music or musicology as well as in conservatories or colleges, and *contextual metadiscourse* (2b) in practically any humanities or social science department, less so in music colleges and conventional music(ology) departments.

Aesthesic competence (1b) is difficult to place institutionally because the ability to distinguish, without resorting to words, between musical sounds, as well as between their culturally specific connotations and social functions is rarely taught in Western institutions learning. Aesthesic competence is in other words a largely vernacular and extra-curricular affair. There are no courses in when and when not to bring out your lighter at a rock concert, nor when and when not to applaud during a jazz performance or at a classical concert. More importantly, consider our ability to distinguish musically, and almost instantaneously, between degrees of threat, between traits of personality, between social or historical settings, between states of mind, behavioural attitudes, types of love or of happiness, sadness, wonder, anger, pleasure, displeasure, etc.; or between types of movement, of space, of location, of scenario, of ethnicity and so on. These types of aesthesic musical competence are rarely acquired in the classroom. They are usually learnt in front of the TV or computer screen, or through interaction with peers and with other social groups. In fact, the epistemic problem with music, as it has in general been academically categorised in the West, can be summarised in two main points.

Firstly, knowledge relevant to music's production and structural denotation has been largely separated from that relating to its perception, uses and meanings. Established institutions of musical education and research have therefore tended to favour poïetic rather than aesthesic perspectives. Such imbalance, in symbiosis with a long hegemonic

history of metaphysical mumbo-jumbo about 'good' music's 'absolute' and sociocul-turally transcendent qualities, has led to frequent misconceptions about music as a symbolic system. This imbalance has also exacerbated ontological problems of music's intrinsic alogogenicity and made the incorporation of musical knowledge(s) into a ver-bally and scribally dominated tradition of learning a very difficult task.

Secondly, the virtual absence of aesthesic learning (knowledge type 1b) in official edu-cation has meant that, compared to analytical metalanguage used with visual or verbal arts, relatively few viable aesthesic denotors of structure exist in musical scholarship. This paucity of user-oriented terminology has restricted musicology's ability to ad-dress the semantic and pragmatic aspects essential to musical semantics. If that were not the case, this presentation would be superfluous. Figure 1 illustrates the problem.

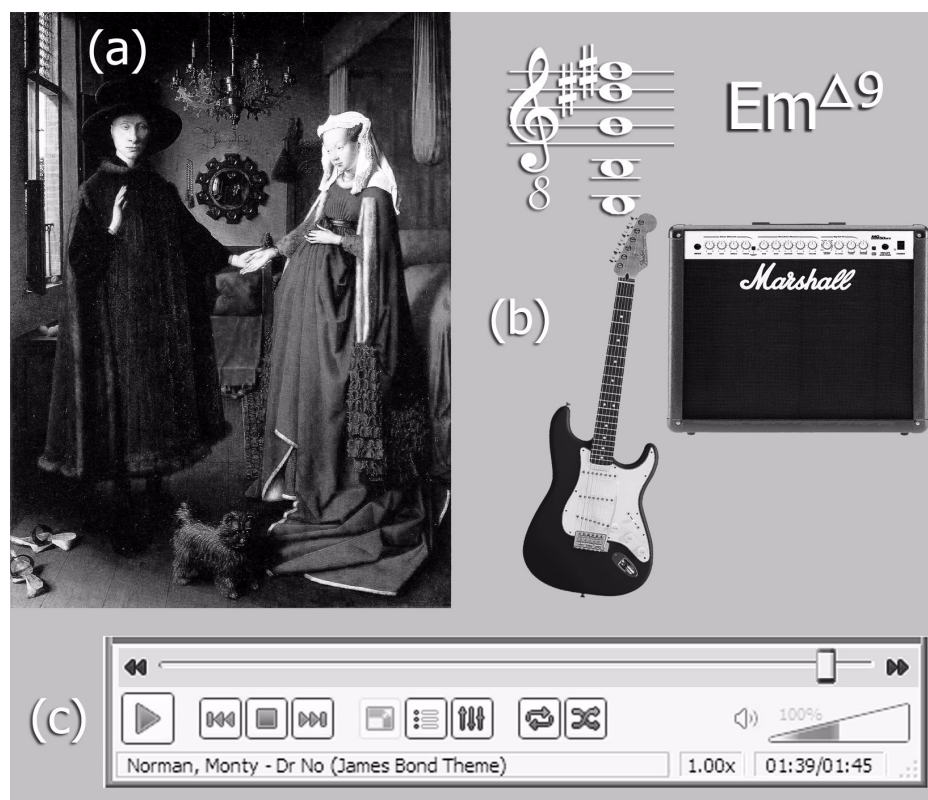***Fig. 1. Van Eyck's dog[7] and the E minor major 9 chord: difference of structural denotation***

Figure 1a shows the famous *Arnolfini Marriage Portrait* by Van Eyck (1434). Asked to name the small object at the woman's feet, most people reply 'it's a dog'.[7] Figure 1c shows, according to the simple display of the ubiquitous media player VLC, the origi-nal recording of *The James Bond Theme* (Norman, 1962) at its famous final chord (at 01:39 of the track lasting 01:45). Asked to name that chord, most people say they don't know, even if it sounds familiar. Some jazz musicians will say it's a 'minor major nine chord';

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7. One student actually answered 'a Yorkshire terrier'. *The Marriage of Giovanni Arnolfini and Giovanna Cenami*; 1434; oil on wood, 81.8 x 59.7 cm; National Gallery, London. A Google Image search for 'Arnolfini marriage Eyck' produced links to hundreds of sites showing the painting (2011-05-17).

music theorists with a good ear might say it's a bitonal B major triad on top of an E minor triad'; while rock guitarists might say 'it's a clean Fender Stratocaster sound with some reverb and tremolo'. The chord is in fact all of the above (Figure 1b) but that's not the point. The issue at stake is that whereas almost everyone will use the aethesic descriptor 'dog' to denote the dog in the Van Eyck picture rather than mentioning the brush technique and colour palette used by the painter to depict the animal, far fewer will denote the famous James Bond chord in aesthesic terms like 'James Bond chord', 'spy chord', or 'detective chord'. This simple example illustrates how we usually denote structural elements of visual representation on the basis of how we perceive them (aesthesis), not on the techniques and tools used to create those elements (poïesis). With music it's round the other way because structural elements are much more commonly denoted in terms of the techniques and tools used to create them ('E minor major nine', 'Fender Stratocaster', etc.), much less so according to how they are perceived ('spy chord', etc.). In short, Westerners tend to use aesthesic structural denotors for visual art and poïetic descriptors for musical structures.

Musicology has a veritable arsenal of poïetic descriptors that are gobbledygook to those who have no conventional musical training and/or very limited experience of making music. These people, the 'missing majority' in the title of this paper, are in a real sense disqualified from denoting musical structures in precise scholarly terms, which means, quite undemocratically, that discussing the causes and effects of music in audiovisual production can at best be no more than a matter of intelligent and intuitive guesswork. Although such intuition usually works quite well in the practical production of film or games, a lot of time, effort and aggravation could be saved if musos and non-musos shared much more of a common vocabulary of terms descriptive of music. Although I have no illusions that a systematic, interculturally viable, vocabulary of this sort will ever materialise, there is unquestionably room for radical improvement. It's improvement that has to come from both sides of the 'muso/non-muso divide' and which can, I believe, be helped by running the sort of course described later in this paper.

One obvious advantage with studying music and the moving image is that it's a subject of equal interest to both those with and those without formal training in music. Although my job has been to teach in university schools of music, a significant minority of students on my *Music and Moving Image* courses have come from disciplines like cinema and communication studies. This mixture of musos and non-musos on the same course has distinct advantages.

- It rhymes better with the reality of audiovisual production where musical experts (composer, music editor, etc.) and others (director, scenographer, etc.) have to collaborate.
- Musos have to learn how to talk about their ideas in ways that non-musos can understand and to try and decipher what non-muso collaborators want by way of music.
- Non-musos, particularly those who want to work in the audiovisual sphere, have to own up to their own aesthesic competence in music and learn how to give composers and music editors a coherent and comprehensible brief.[8]
- Musos have to learn the rudiments of film studies and cinematography, while non-

musos have to plunge their scopocentric and logocentric brains into the invisible, non-verbal world of sonic thought.

- Musos have to learn that music serves other purposes than those extolled by their peers in the music-making community, that their art communicates more than just itself, and that visual narrative rarely aligns squarely with musical patterns of change, continuation and finality.

Moreover:

- Musicologists must learn to take the aesthesic competence of the 'missing majority' seriously and to use their observations as one way in which our discipline's arsenal of structural descriptors can be made more democratic and more efficient.[9]

- Non-musos need to stop claiming they are unmusical and instead learn to trust their own ears as well as eyes; they also need to understand something of how musicians tend to think and act, and to grasp the potential of music's main parameters of expression.[10]

- Since the advent of real-time counters in/on playback software and hardware anyone, muso or non-muso, can unequivocally indicate, to the nearest second, any musical structure by referring to the timecode at which it starts in the recording under review. Lack of familiarity with the poïetic denotors of conventional music theory is no longer a valid excuse for avoiding structural denotation in music.[11]

- *Both* musos and non-musos involved in audiovisual production need also to have realistic notions of what music can and cannot do and of how it can communicate other things than itself.[12]

- Both musos and non-musos need to be aware that their own musical experience, however intense and powerful, is not necessarily that of their audience.

Since the DOs and DON'Ts just listed derive substantially from teaching experience, the rest of this article focuses on the hands-on analyses all students, muso and non-muso alike, had to do as their final coursework in the *Music and the Moving Image* courses I taught most recently in Montréal (2003-2009).[13] This course contained two interrelated elements: [1] theory and history; [2] analysis. The course's main *theoretical* elements were: [i] the functions of film music; [ii] basic semiotic method for film music analy-

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8. Serious problems arising from an inadequate brief to the composer are illustrated towards the end of Chapter 5 in Tagg (2011).

9. I'm thinking here of musicology's lopsided concern with notatable parameters of expression (the mainly tonal aspects visible on paper) and of the paucity of its terms descriptive of articulation, timbre, and vocal persona (other sonic aspects storable in recorded form but not in music notation).

10. Parameters of musical expression are the subject of Chapter 8 in Tagg (2011).

11. For more detail, see 'Unequivocal timecode placement' in Tagg (2011: 244-247).

12. What music 'can and cannot do' is discussed in Chapter 2 and 'how it can communicate other things than itself' in Chapters 5-7 and 9 of Tagg (2011).

13. In fact, *Music and the Moving Image* was the name of a single-semester undergraduate (BA) course delivered at Liverpool University's Institute of Popular Music between 1993 and 2002, and from 2003 to 2009 in the Faculté de musique at the Université de Montréal. During the Montreal period an average of one in three students was registered with another faculty than music (mostly Cinema or Communication Studies, a few in Anthropology or Psychology). I'm using 'course' here in the sense of the UK term 'module'. In my vocabulary a 'course' is a mandatory or optional part of a degree programme. Much of the material used in this chapter exists in French at tagg.org/udem/musimgmot/musimgmot.htm.

sis;[14] [iii] cinematographic and film-musical terminology. These elements were intro-duced in direct connection with audio or audiovisual examples presented in class. The *historical* elements were: [iv] origins of film music; [v] music for silent film, including comparative analysis carried out in groups (see next); [vi] 'classic' Hollywood film scores; [vii] postwar film scores. This aspect of the course included mandatory histori-cal reading, plus obligatory viewing and listening repertoires.[15]

There is no room here to present the theoretical or historical aspects of the course, save to say that they are vital to the two practical analysis assignments described below un-der 'Silent film music comparison' and 'Feature film analysis'.[16]

Silent film music comparison

This element of the course involves access to Rapée's *Motion Picture Moods for Pianists and Organists* (1924, see Figure 2) in a library with photocopying facilities, dividing the class into groups of four, and the participation of at least one notationally literate key-board-playing student in each group. This group work, called *Musical mood comparison between silent film and recent feature film*, runs roughly as follows.[17]

Each group chooses at least one of the musical mood categories listed in Rapée (e.g. CHILDREN, COMEDY, LOVE, NEUTRAL, PASTORAL, WESTERN, etc., as enumerated on the left of Fig. 2) and photocopies the pages of notation covering that mood (e.g. pp. 10-20 for BATTLE, including *Agitato no. 3*). A group member with some piano skills then either plays representative extracts of the silent film mood live for the other group members or records them to editable MIDI files using a piano preset and appropriate audio soft-ware. Group members then list their impressions, paying particular attention to musi-cal structures they consider typical for their chosen silent film music mood, and noting

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14. Based on Chapters 4-9 in Tagg (2011).

15. The course focused on feature film music rather than on music for TV or games for four practical rea-sons. [1] The feature film has the longest history of any extant type of recorded audiovisual production in which music plays an important part. It is also the type of recorded production with which most people are most familiar and which is still viewed/heard more often than any other. [2] There is more literature of a serious nature about film music than about, for example, music for television or games. [3] Recordings of feature films are in general easier to acquire for analysis purposes than recordings of tv programming, adverts, short films, corporate in-house productions, etc. [4] Since computer game narrative unfolds according to the habits and skills of its players, its music has to adapt to each player's position in the game and to his/her relative speed in confronting each situation where musical change is considered appropriate. Given that the *adaptive music* conceived for such varying conditions cannot be mapped as fixed sync points on the immutable time line of a film or TV production, the composition and analysis of games music demand skills and practices that cannot be effectively included as part of a single-semester course containing 'hands-on' elements.
   Starting in the late 1990s, however, I always saved one session for a visiting expert on games music, wishing that sooner or later games music courses would be established in their own right. An internet search [101003] for |"games music" university course| suggests that my wish has come true. For more on games music, see Collins (2008).

16. The course's history and theory sections are summarised at the start of Chapter 11 in Tagg (2011).

17. This project can also be run as is with a musos-only class. It could also work with a non-muso students only, as long as silent film footage with its original music replaces the sheet music pages from Rapée. In mixed classes I prefer the sheet music option because [a] it more closely resembles the music-making practices of 1924; [b] it involves musos directly in the production of sound for moving images and encourages non-muso participants to treat the musos with some respect.

anything they find surprising, for example (typically) that HORROR music from 1924 doesn't sound very horrific in our ears.

Fig. 2. **Motion Picture Moods for Pianists and Organists** *(Rapée, 1924: 10),*
showing mood categories in left margin.[18]

The second phase of the project entails scouring group members' DVD collections for music from recent films containing scenes that can be characterised using whichever of Rapée's musical mood categories was chosen for the project (ACTION, CHILDREN, COMEDY, LOVE, NEUTRAL, PASTORAL, WESTERN, etc.). The last stage of preparation involves describing the music heard in connection with the relevant scenes in the recent films and comparing that with music for scenes labelled in a similar way back in 1924.

The final phase of the project is its presentation in class in preparation for which group members are expected to have managed their own internal division of labour so that the following tasks are distributed equitably: [1] playing and recording the pages from Rapée; [2] structural description of music in Rapée; [3] structural description of relevant music in the 'recent films'; [3] description of other audiovisual aspects in the 're-

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18. If Schubert had been alive and hired a good lawyer he could have sued Langey, composer of *Agitato no. 3*, for plagiarising the piano part in *Erlkönig* (Schubert 1814, words by Goethe).

cent films'; [4] formulation of comments and conclusions; [5] organising the presentation in class. Standards of presentation usually range from acceptable to excellent, some ambitious in their mode of presentation (e.g. commutation of music for the same visual footage or vice versa), others more in terms of structural detail and conclusions drawn.

Despite inevitable platitudes like 'they only had piano back then', this project can also produce valuable insights. For example, several groups described how recent film-musical notions of CHILDREN and LOVE differ from those in circulation in 1924. Another group concluded that NEUTRAL music is never neutral because it has to be dynamic enough to avoid sounding static, and that music neutral in one context inevitably sounds culturally specific in another.[19] The group work sketched above focuses in other words on musical difference over time and on how changes of attitude towards paramusical phenomena are expressed in music. It provides essential basic insights to which we can refer later in the course when discussing the mediation of ideology through film music in relation to, say, Africa, the American dream, crime and its detection, death, the English, the jungle, Native Americans, nature itself, peace, war, the Wild West and women.[20]

Feature film analysis

Nearly half of the course's sessions, as well as the entirety of what students are expected to do between sessions 7 and 14, is devoted to one mandatory piece of individual coursework. Given also that the course includes no exam, this project —*Cue list and analysis of music in a feature film*— is its most important element. To complete the project successfully students need to read the following text (until just before 'Too much?' towards the end of this article), and to follow its guidelines and instructions.

Overview and aims (addressed to students)

This project consists of the following stages: [1] choosing a film; [2] creating a cue list of the film; [3] choosing one scene to analyse in detail; [4] presenting your analysis scene in class; [5] writing up the project.

After choosing, in consultation with the course leader, a full-length feature film recorded on DVD, you produce a cue list for the film and choose one of its scenes to analyse in detail. You also write up a discussion of the music's uses and functions throughout the film as a whole.

The main aim of this project is to let you discover, through hands-on work with existing audiovisual productions, how music interacts with moving images. This work entails observing, documenting and analysing details of sound and picture with a view to understanding which means of musical expression in conjunction with which visuals can produce which effects.

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19. 'It's as weird as normality', said one member of one NEUTRAL music group: 'it's only normal if you're used to it and if you think that's how things are or should be'.

20. For more on such topics, see *Nature as a musical mood category* (Tagg 1982); *'Universal' music and the case of death* (Tagg 1993); *Tritonal crime and 'music as music'* (Tagg 1998); 'The Virginian: Life, liberty and the US pursuit of happiness' (Tagg & Clarida, 2003: 277-396); 'Gender in the ten tunes' (*ibid*: 667, ff.)

Since scores for audiovisual productions are virtually impossible to come by in the form of notation, music for the moving image has to be analysed by ear and eye without any pre-existing scribal or graphic intermediary. In-depth analysis is a central part of this project because it trains sonic and visual observation skills that are useful to composers, music editors and film directors when deciding what sort of music, if any, should occur with which images at which point in time. However, since such analysis demands great attention to detail it cannot be applied to more than a short extract from the whole film. That's why, in order to understand [i] the musical and filmic functions of the extract chosen in relation to the film as a whole, and [ii] issues involved in the production of a complete score for an entire film, it's also important to study more generally how musical ideas are used throughout the film. Producing a complete cue list (enumerating 'WHAT HAPPENS WHEN') is therefore another key element in this project.

The in-depth analysis and cue list both involve the investigation of WHAT HAPPENS WHEN in the film and are essential to any discussion of what the film's music may be communicating. They also let you more clearly and convincingly discuss to what extent the music, including its absence, makes the visual narrative more effective.

Given that each in-depth analysis extract comes from a different film and that the extracts are presented in class, this project also lets you come into contact with a wide range of styles and techniques used by different composers with different backgrounds for different purposes. The project also helps improve your verbal, visual and oral presentation skills.

With so much attention paid to the composer's work on the film you study, your aural awareness should improve. Involvement in this project, including your participation in feedback sessions presented by other students, should also provide you with insights about what sort of musical ideas you might (or might not) want to use in which way in your own audiovisual production work.

1. Choice of film

In consultation with the teacher you should by week 5 choose a feature film with a typical running time of between 80 and 130 minutes. That feature film will be your object of study for the whole project which constitutes the only assessed coursework during the remaining weeks.

The film's narrative theme should not be primarily musical, i.e. it should not be focused on the production or performance of music, nor contain many scenes of visible musical performance, dance, singing, etc. The film should contain a minimum of thirty minutes of music of which at least twenty are not primarily motivated by on-screen diegesis. Focus should in other words be on underscore or on music accompanying title sequences.

You should personally own a legal copy of the DVD of the film you analyse.[21] You should also carefully note publication details of the DVD you use because scenes can be cut from versions destined for viewing in nations with particular cultural or religious sensitivities and, in those cases, timings may vary radically.

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21. I motivate this instruction by pointing out that: [i] loaning a library item for weeks on end is usually out of the question; [ii] DVDs can be bought quite cheaply; [iii] there's no guarantee that a pirate DVD will have the same running time, timecode locations or chapter division as an original legal version.

After choosing your film (stage 1), four more stages have to be covered: [2] producing a cue list; [3] choosing and analysing an extract for in-depth analysis; [4] presenting your analysis scene for feedback; [5] writing up the project.

2. Producing a cue list

Your cue list should consist of four or five columns containing the following sorts of data (see specimen extract in Table 2, below):

1. the timecode location —in hours, minutes and seconds (frame count not essential in this project)— at which the music enters, exits, or otherwise changes significantly, e.g. '0:00:00' for the start of the film, '1:06:15' for a point one hour, six minutes and fifteen seconds later;

2. a thumbnail still or storyboard-style drawing typical of on-screen events starting at the timing given in the left column and ending at the subsequent timing;

3. a brief verbal indication of important paramusical events —action, dialogue, sound effects (if not contained in a separate fifth column) etc.— occurring between the timing given in column 1 and the next timing in the cue list;

4. a brief verbal indication of music heard during the cue (see 'Creating a table of musical ideas', below).[22]

A specimen final cue list extract, consisting of four columns and covering the first four minutes in *The Mission* (1986), is shown as Table 2.[23] Columns 1-3 in Table 2 are self-explanatory. Column 4 (Music), on the other hand, contains codes —'m1A1', 'm2A', etc.— that save space and act as shorthand for musemes listed in the Table of Musical Ideas, explained shortly (see Table 3).
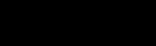
It's much easier to find your way around a cue list if you clearly distinguish between where music is present and absent. How you do so will depend on what software you use. The double-lined bounding box in Table 2 is just one example of how music cues can be highlighted. Other useful devices in a cue list are: [i] indication of DVD chapter starts to facilitate navigation to particular points in the film on DVD; [ii] noting the duration of music cues and of music's absences, for example the '02:46' in column 1 at 0:03:03 indicating that music is present until the end of the cue at 0:03:31 and has been audible since 0:00:45 (0:03:31 - 0:00:45 = 0:02:46).
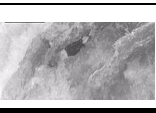
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22. If not already included in column 3 or column 4, a brief verbal indication of important aspects of sound design, including atmoses, important foreground sounds, acoustic mise-en-scène, etc. can be included in a fifth column.

23. The thumbnails are in black-and-white and have been lightened/sharpened to facilitate ink jet print-outs. A musical cue list for the whole of *The Mission* is online at ⌐tagg.org/xpdfs/MissionQ.pdf⌐.

Table 2: Final cue list extract 0:00:00-0:04:22 in **The Mission** *(1986)[24]*

1. TIME	2. STILL	3. ACTION, FX, DIALOGUE, etc.	4. MUSIC
▶▶ 1 0:00:00		▶▶1. **Letter to the Pope**. Warner logo fade in and out	*[no sound until 0:00:45]*
0:00:11		*[black]*	
0:00:15	White on black or just black	Basic production credits; black at 0:00:33	
0:00:37		Fade-in introductory text, then fade to black…	
0:00:45		*[black]*	m1A1 (Sick string slide)
0:00:49		Cardinal, screen left ECU, harshly silhouetted, sweaty, uncomfortable.	m1A1, m2A (Death drum)
0:00:56		Cardinal dictates letter: 'free to be enslaved', 'not the right note', 'begin again' (transscansions).	m1A1, 2A, m3A1 (Indigenous woodwind intermittence: (a) pan pipes; (b) low-reg. wood flutes).
0:01:33		Outdoor sounds at mission, Violin ensemble indoors. Monologue continues until 0:02:07.	Fade in m8A1 (*La folia*): m1A1, 2A, 3A1 stay; death drum at 'Rome'.
0:01:47		View of mission (trees, cows); cut to jungle highlands. Voice-over ends at 'martyrdom' (0:02:07)	Fade out *La folia*; m1A1, 2A, 3A1 stay. hit point at 'martyrdom' across cut at 0:02:07 to…
0:02:07		Jesuit cross and Guaraní leader in dark jungle.	… m2A, m3A1 … … m3A1 …
▶▶ 2 0:02:46		▶▶ 2. **Over Iguazu Falls**. Guaraní talk carrying s.g. heavy through dark jungle	… m3A1 … (*dim.*)
0:03:03 *02:46* *(2:46)*		It's a priest, tied to cross and thrown into river. Floats downstream into rapids.	m3A1 gradually drowned by water FX
0:03:31		Increasing rapids. Priest on cross over falls at 04:11	[1'08"] [water FX only]
▶▶ 3 0:04:22	THE MISSION	▶▶ 3. **Credits** (end 06:23): Iguazu falls with water FX	

etc.…

You obviously don't need to provide much detail in your cue sheet for passages containing no music. For example, while musical events are 'up front' and of great impor-

tance between 0:00:45 and 0:02:07 in *The Mission*, from 0:02:07 to 0:03:31 they assume much more the role of background audio colouring to be eventually drowned out by other sound. This later section does not need to be covered in as much detail as the section preceding it. For the section from 0:03:31 to 0:06:23 (end of table entry at 0:04:22) there is no music at all and cue list entries can be limited to DVD chapter starts, scene changes and other important narrative events.

Before trying to finalise the complete cue list in the sort of form shown in Table 2 you'll need to start with a rough working version containing timings for the film's musical entry and exit points, as well as for the main changes of scenes, the DVD's chapter starts, etc. That way you'll soon have a good overview of WHAT HAPPENS WHEN throughout the film and be in a better position to choose your scene for in-depth analysis, as well as to decide what you'll need to include by way of verbal description in columns three and four, and by way of thumbnails in column 2. At this stage you can just use numbers or temporary labels for the musical ideas and jot down, in poïetic or aesthesic terms, something to help you identify each of them.

Using database or spreadsheet software it's easy to insert, alter or delete cue points in your cue list since you can index column 1 (Time) so that your the list is always presented in chronological order of events in the film. Remember to include, where appropriate, leading zeros in your timings, for example '0:01:20' for one minute and twenty seconds. If you don't, '1:20' will appear *after* '1:19:55'!

A cue list of the sort just described usually occupies between fifteen and twenty pages. If you think that's excessive, please remember that Hollywood breakdown notes, the nearest professional equivalent to your cue list, are much more detailed and usually run to hundreds rather than just tens of pages.[25]

3. Choice of analysis scene

For your in-depth analysis you'll need to choose an extract which contains music, which interests you and which you think could interest other course participants. The extract might be typical of the film or of the film genre to which it belongs, or it might be a key scene in the film. The length of the scene you choose will depend on the following factors.

If your graphic score presents a lot of visually and sonically complex detail that is convincingly and thoroughly discussed in your analytical text section (§ 5.3.2.) then the duration of your extract can be much shorter than if you are presenting something simpler. In general your extract will last for between about sixty seconds for a really

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24. The '02:46' in brackets in the table's row 1 at 0:03:03 expresses the total amount of music in the film up until the end of that entry at 0:03:31. Since this is the first music cue in the whole film, the total duration is the same as that of the cue. However, at the end of the second cue at 0:06:26 another 1:47 of music has been heard and the entry at 0:06:00 therefore includes the durations '1:47' (the second cue) and '(4:33)', the latter being the sum of 2:46 (the first cue) plus 1:47. The total duration of music in the film can be incremented in this way. For example, a total of 1:12:05 (4325 seconds) of music is heard in *The Mission*'s running time of 2:04:55 (7495 seconds). That means music is present during 58% of the film.

25. For example, the breakdown notes George Fenton showed my students in Liverpool (March 1998) for the film *Ever After* (1998).

complicated passage treated in great detail and about eight minutes for something really simple. The extract can consist of a single music cue or of several short cues whose lengths add up to the sort of durations just given.

4. Feedback sessions

The aims of the feedback sessions are:

1. to discover what other course participants think the music in your chosen scene connotes and communicates;
2. to discover what other course participants think about the relation between music and other aspects of your chosen scene (sound, dialogue, mise-en-scène, visual action, camera work, etc.).

You have a time slot of 15 minutes of which at least half should be devoted to discussion and to hearing the associations and reactions of the other course participants.

Given that the main aim of this project is to find out 'which means of musical expression in conjunction with which visuals can produce which effects', your in-depth analysis will need to be substantially semiotic. The class presentation of your analysis extract is designed to provide you with intersubjectively generated evidence of the music's possible connotations, meanings and functions. Now, since it's obviously impossible to discover anything about how music works in your chosen scene if you know nothing of what the music communicates on its own, and since most people tend to notice pictures and words without paying much conscious attention to the music, it's essential to start your presentation by focusing on the music alone, without the visuals, preferably also without any dialogue or sound effects.

The best way of isolating the music from everything else in your analysis scene is to try and find an 'original soundtrack' recording of the relevant music because such recordings rarely include dialogue or sound effects that could distract listener attention from the music. Failing that you can just play your chosen scene to the others without showing the visuals. In this case you'll need to create a separate audio file of the extract[s] so that no-one sees the DVD's menu images you otherwise depend on to navigate to your extract, or the first few frames of the extract before you manage to disconnect the visuals. Nor should you let people see your DVD box with its title, colours and images. The less people know at this stage about the scene and its film the better. Besides, with an audio file of your scene you can yourself start work with the sound, musical or otherwise, in your graphic score without being distracted by images or dialogue.

Preparing separate audio and video files of your scene has other important advantages in feedback sessions. You don't have to waste time thumbing through menus, fiddling around with NEXT, PREVIOUS, FAST-FORWARD and REWIND buttons in the hope of eventually arriving at the right place. You just click on the file you need to play.

You are strongly advised to identify in advance of your feedback presentation any problems you may have with the music in your analysis scene. You might need help identifying a musical sound, or in understanding the possible connotations of a particular sound or passage. In those cases it's advisable to isolate those elements and to present them independent of their musical or audiovisual context.

During feedback other participants are asked to note on a sheet of paper whatever comes to mind on hearing the music-only or audio-only version of your chosen scene. They are in other words subjected to a short musical reception test.

You should prepare well for your feedback presentation. You should also: [i] collect in responses; [ii] note or record comments arising during the discussion of your scene. This information constitutes an empirical basis for semiotic aspects of your analysis.

You are also expected to participate actively when others present their chosen scenes at feedback sessions.

5. Written work

Your written work should include the following sections: [1] preliminaries; [2] cue list; [3] table of musical ideas; [3] in-depth analysis including graphic score and discursive text; [4] general discussion of music in the film as a whole; [5] appendices.

5.1. Preliminaries

Filmography and important credits should include: [1] film title and original year of production and/or release; [2] production and distribution companies; [3] film director, composer and producer, as well as principal actors and the roles they play.

Publishing details of the DVD used in this project should be included in the *List of recorded references* (LRR).

Tips. [1] Filmographic details are easily found online at the Internet Movie Database (imdb.com) or at allrovi.com (select "Movies"). [2] Details of music other than that written by the film's main composer, for example pop songs and classical pieces, are normally shown towards the end of the film's final credits and should be included in the LRR.

You should include *a brief summary of the film's story line* in your preliminary comments. This summary would typically include descriptions of the main characters and locations, as well as any traits of mise-en-scène contributing to the overall character of the film. You should also *motivate your choice of film and choice of scene*.

5.2. Table of musical ideas

Since one of film music's functions is to make what the viewer sees easier to understand at an affective level it's hardly surprising if musical ideas recur several times in a film. You should therefore *create a table of all the main musical ideas in your chosen film* for two practical reasons: [i] you will only once need to describe each musical idea for the whole film; [ii] you can refer back to the table of musical ideas not just from the cue list but also from your analysis, your general discussion, even from the graphic score. Creating a table of musical ideas presupposes that you have an overview of what happens musically at which point in the film —you've already done that in your provisional cue list— and that you've named and/or numbered all the ideas you need to refer to.

Numbering musical ideas is normally a relatively simple process. It's easiest to count the first musical idea to occur in the film as number 1 and increment the integer for each new idea that is presented. It can also be a good idea to think of the ideas in terms of what you think they communicate, grouping together those that both sound and feel

similar (e.g. 1a, 1b; 1a1, 1a2). Using that kind of numbering system lets you more easily check which sort of musical idea belongs with which sort of scene, character, action or mood in your film.

Number codes may be shorter than names —useful when saving space in a cue list, for example— but most people find it easier to identify and recall musical ideas when referred to by name rather than by number. There are several viable ways of naming a film's musical ideas.

Original names of film music cues can sometimes be found in the track listings on soundtrack albums. If you can't find such an album, try searching for it on line: several sites let you hear short samples of each track listed.[26] In such cases you can consider using the composer's name for each relevant cue, otherwise DVD chapter names can sometimes give good ideas for appropriate names. In other cases you'll have to invent your own names, either poïetically (e.g. *distorted guitar*; *minor-key strings*) or aesthesically (e.g. *James Bond*; *hounds of hell*) or a mixture of the two (e.g. *celestial choir*; *high-heeled sax*). Sometimes a catch phrase from the dialogue in the relevant scene can work as a music cue name (e.g. *Never again*; *You don't care*). Of course you'll need to explain any labels whose relation to the music or film is not obvious.

Table 3: Musical ideas in **The Mission** *(sample extract)*

1. Diaboli in musica
1A. Sick strings.
1A1. Sick string slithers
0:00:45	Quiet, slithering, string clusters mid register as cardinal reads letter "Your holiness", "free to be enslaved", etc. Also at 0:24:24 (Mendoza *Alone*) and 0:29:23 (Mendoza's *Remorse*).
1A2. Ongoing string screech
0:27:07	Rodrigo totally alone after killing Felipe; also at 1:36:20 – 1:36:20 (Mercenaries scale the falls); 1:40:34 (Battle preparations/*Refusal*); 1:51:11 (Massacre 2).
1A3. Visceral disturbance
0:15:14	Mendoza confronted by Gabriel in forest; also (varied) at 0:16:34 – Nervous plucked strings off-key. as slaves dragged into *Ascunción*; 0:26:03 – Constant quiet string wobble before fratricide; 0:26:26 – Rising timp./str. dissonance before Rodrigo explodes; 0:29:40 – "Jaws" idea: Mendoza *Alone* (jealousy); 0:30:15 – Mendoza's *Remorse*: loud bass (threatens Gabriel); 0:14:44 – Slave Hunt: descending danger woodwind and strings
1B. Tangled woodwind
0:31:46 0:33:00	Mendoza's *Penance* (main theme; break for Dies Irae at 0:32:44); also at 0:34:15 – *Penance*: repeated in woodwind; Blessing the troops at 1:29:39.
1C. Semitone bells
0:26:45	Source sound just before Mendoza kills Felipe (quasi-diegetic)
1D. Tritones
0:15:14	String punctuations in jungle at "making Christians"… "if you have the time" (Confronting Mendoza). Also at 0:24:20, ff.– The jealous Mendoza Alone: strings and/or woodwind, loud; 0:30:15 – Mendoza's Remorse: string punctuations; 0:26:26 – Rising string discord in the Duel with Felipe; 0:39:40 – Knife held to Mendoza's throat by Guaraní (str., bass) repeated); 1:42:01 – Portuguese paddle to battle; 1:51:44 – Off-key trumpet fanfare as mercenaries hack through jungle.

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26.   Try for example CD Universe at ⌐cduniverse.com⌐.

Every musical idea you include in your Table of Musical Ideas must be given an unequivocal timecode placement indicating where in the film it first occurs. It also helps if you provide timecode placements for other occurrences of the same idea, especially if it's a variant. Once columns 1, 3 and 4 of the cue list are ready, a table of musical ideas for a feature film can be compiled, using database or spreadsheet software.

Table 3 shows the first of seven main sets of musical ideas used in *The Mission*. This first set is called DIABOLI IN MUSICA because: [i] musemes labelled 1D are entirely based on the tritone, an interval which, in the history of Western music, was also called the *Diabolus in musica*;[27] [ii] all the musemes in category 1 are heard in conjunction with unpleasant ideas, statements, actions or feelings in the film. Museme 1A1 is called SICK STRING SLITHERS because glissando means sliding, because the ideas are played by strings, and because slow glissandi between neighbouring tones, by stating no fixed pitches, seem tonally instable and are often used in situations of mental, emotional or even gastric instability.[28]

5.3. In-depth analysis

Your analysis should be presented in two parts: [5.3.1] a graphic score; [5.3.2] a discursive analysis (p. 20).

5.3.1. Graphic score

It is vital that your graphic score clearly shows —in hours, minutes and seconds counting from the start of the film, not of the extract— the timing at which your analysis scene starts.

Graphic scores usually consist at least of the following vertically stacked parts, each of them running horizontally left to right:

1. time line showing timecode in relation to the start of the film;
2. storyboard line, i.e. visual events represented by thumbnail photos, or by storyboard drawings or by brief verbal descriptions;
3. paramusical sound line showing speech, sound effects, etc.;
4. musical line[s].

The next three pages contain a specimen five-line graphic score covering the first scene in *The Mission*. The time line is at the top, in the middle and at the bottom, speech on the second line, sound effects (mostly shown as icons to save space) on the third, thumbnails on the fourth, and the scene's three different strands of musical events on the fifth (strings, drum and 'ethnic' flutes).

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27. It doesn't matter if you don't know what a tritone is. Just find the DVD and play the cues listed for m1D at 0:15:14, 0:24:20, etc. You'll soon hear what it sounds like.

28. For more on the link between semitone glissandi and moaning, wailing, hallucination, weirdness, drunkenness, madness and other types of instability, see the 'Groanin' Low' section of the *Streetcar Named Desire* analysis in Tagg & Clarida (2003:573-577), including references to a crying Buck Owens, a drunk Porky Pig and to the asylum inmates in *One Flew Over the Cuckoo's Nest*. The most striking piece of IOCM for the sick strings is, however, at one minute into Penderecki's *Thrénodie pour Hiroshima*.
    The other main museme categories in *The Mission* are DANGER DRUMS (2), INTERMITTENT BURSTS (3), SMOOTH EURO-HARMONIES (4), MAIN THEME (5), GABRIEL'S OBOE (6) and DIEGETICS (7). For all *Mission* musemes, including IOCM and audio recordings, see |tagg.org/teaching/mmi/themission/MusemesEn.ppt|. The complete museme listing is at |tagg.org/xpdfs/MissionMusemes.pdf|.
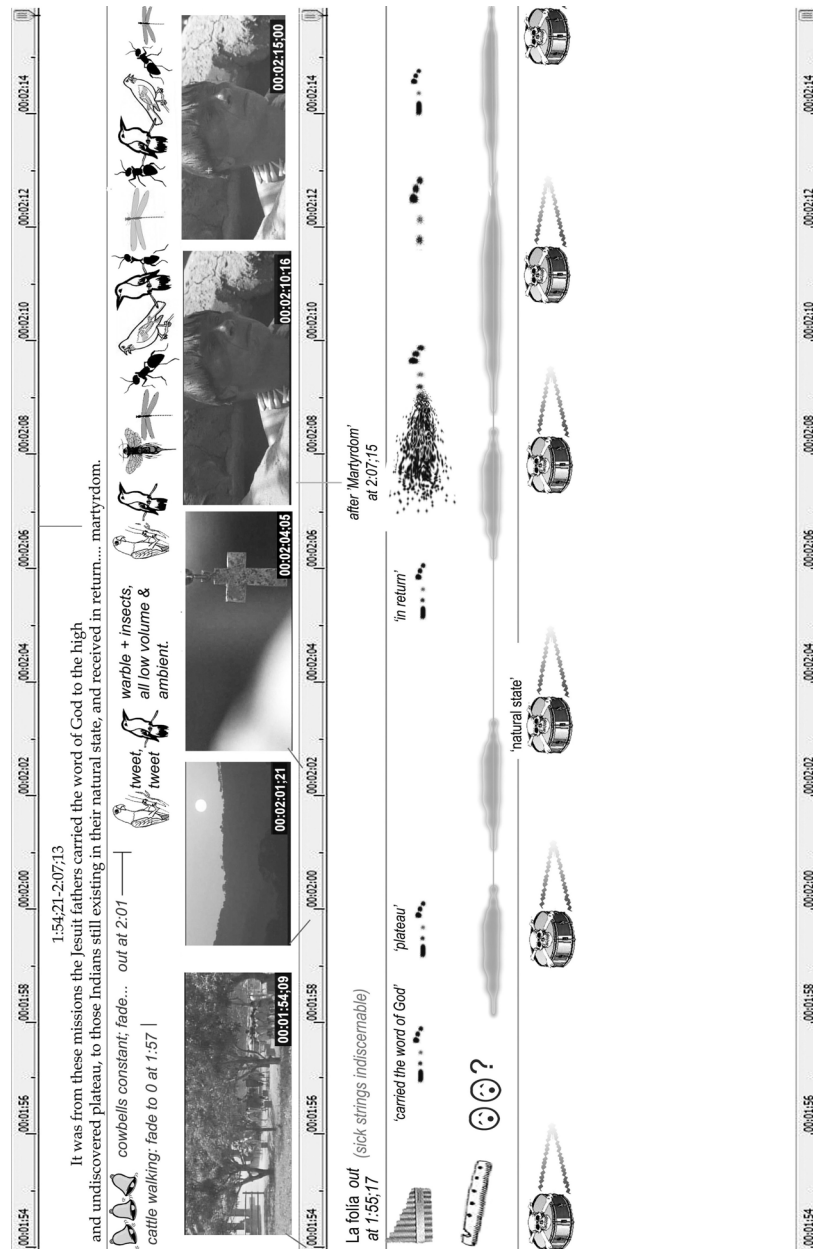
Fig. 3. The Mission *0:00:37-0:02:15 – Graphic score (page 1 of 3)*
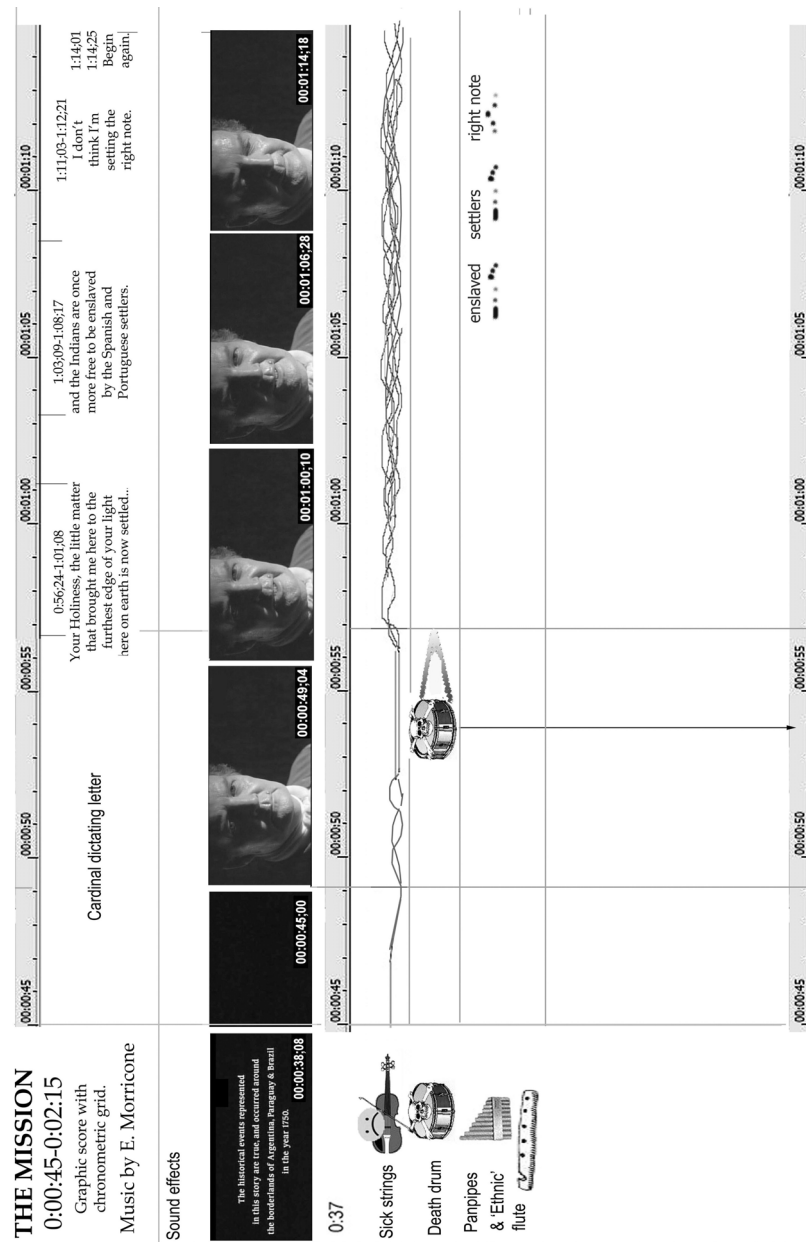
The Mission *0:00:37-0:02:15 – Graphic score (page 2 of 3)*
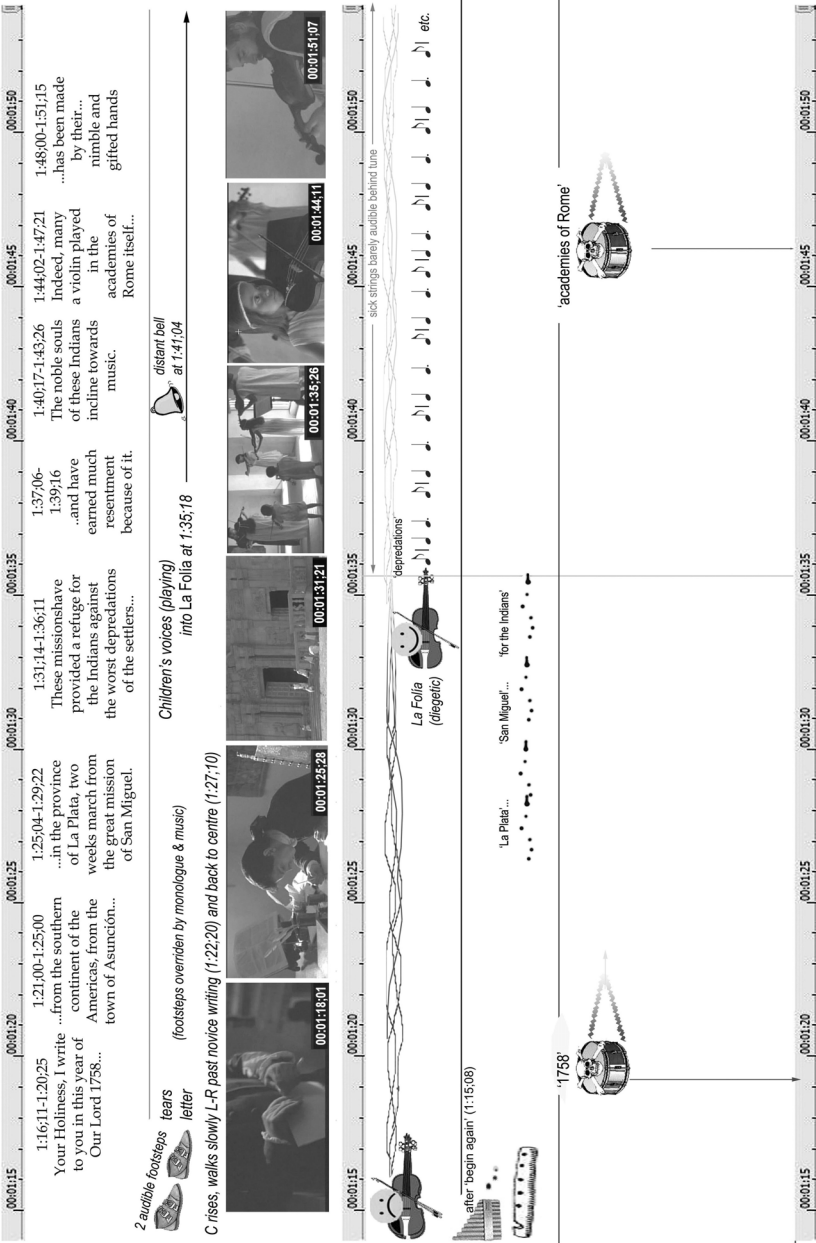
The Mission *0:00:37-0:02:15 – Graphic score (page 3 of 3)*

5.3.2. *Discursive analysis text*

In this part of the project you discuss how the musical events detailed in your graphic score give rise to particular moods, effects or connotations. You should also discuss how those musical 'meanings' combine with the visuals, sound effects, dialogue, etc. to create an overall audio-visual complex of meaning. The discussion should in other words be semiotic and take into account comments and reactions gathered during the feedback session.

In the case of the graphic score just presented I would probably start the analysis by dividing feedback responses into three categories: [1] tense, worry, headache, inner turmoil, ill, sick, confused, repressed terror; [2] unpredictable, fateful, ominous, foreboding, death, funeral, execution; [3] 'ethnic', South America, 'Indians', tropical birds, jungle. I would relate these categories to musemes 1a1 (*Sick strings*), 2a (*Death drum*) and 3a1 (*Worrying woodwind – ethnic*), more specifically to 3a1a (*Panpipe punctuations and breathy blasts*), 3a1b (*Wood flute hoots*), 3a1c (*Screaming bird flutes*). I'd try to substantiate this interpretation for museme 1a1 using musical references like [i] a very similar-sounding section one minute into Penderecki's *Threnody for the Victims of Hiroshima* and [ii] various snippets of film music linked to seediness, drunkenness, motion sickness, madness, etc.[29] I'd try to argue similarly for the *death drum* and the *ethnic woodwind* musemes, pointing out the temporal unpredictability but semantic consistency with which the latter are inserted at words relating to colonisers and the colonised ('enslaved', 'settlers', 'La Plata', 'San Miguel', 'Indians', 'plateau'). I'd draw attention to the co-occurrence of the *death drum* with [i] the film's first image (a European man of authority sweating uncomfortably in tropical heat at 0:00:54), and [ii] references to Rome ('Your holiness'…'year of Our Lord 1758' at 0:01:19 and 'the academies of Rome' at 0:01:46), noting how the drum is struck more regularly and repeatedly towards the end of the excerpt (from 0:01:54), accompanying the change of location (visuals and sound effects) from the enclosed European colonial mission out on to the plateau and into the jungle. It would also be worth noting how the *sick strings* linked to the moral turmoil inside the cardinal's head give way at 0:01:35 to pleasantly melodic and harmonious quasi-diegetic music linked visually to the film's 'good guys' —Father Gabriel and his indigenous pupils dressed in angelic white— and verbally to 'the noble souls of these Indians'. Other musical events worth discussing might be: [i] the 'ethnic' flute figure after 'I don't think I'm setting the right note' (0:01:12); [ii] the transscansion after 'Begin again' (0:01:15); [iii] the loud, spluttered pan pipe burst at 'martyrdom' (0:02:07); [iv] the fact that the very first audiovisual event in this film, at 0:00:45 and lasting four seconds, consists of total darkness containing a single note of music sliding uneasily down to reveal (at 0:00:49) the cardinal's immobile face in extreme close-up; and [v] another sick string slither plus a death drum hit before the cardinal finally moves and opens his mouth to speak (0:56:24).

5.4. General discussion of music throughout the film

This discussion should be based on observations presented in the *Cue list* (§ 2), the *Table of musical ideas* (§ 5.2) and the *In-depth analysis* (§ 5.3). You should summarise your findings about the association of particular musical ideas with particular characters, locations, actions, attitudes and moods throughout the film, drawing on your knowledge of film music's functions and other relevant concepts to make your arguments more convincing.[30] You should discuss any eventual ethical or ideological dimension you think the music adds to the film, pointing out, if applicable, which individuals or

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29.   Thanks to Simon Bertrand for the Penderecki connection. For the SEEDY and DRUNK film music IOCM (=interobjective comparison material), see Tagg & Clarida (2003: 573-7). Interobjective procedures are explained in Chapter 7 of Tagg (2011).

30.   These concepts are set out at the start of Chapter 11 in Tagg (2011).

groups of people, which locations, which types of action and attitude etc. are scored in positive, negative or neutral terms. This section of the project also gives you the chance to express your own opinions about how well or badly the music works in the film. In the case of *The Mission* I think the following sort of points would be worth discussing.

1. Music is heard during 58% of the film's total running time.[31] Does the film really need that much music? Why is there relatively little music in the middle of the film?

2. Morricone's score contains a wide variety of musical styles, ranging from dissonant European modernism (for the cardinal's inner turmoil and colonialist acts of violence) to idealised indigenous music,[32] and from finely crafted exemplars of classical tonality (for attitudes and acts of hope and generosity) to the *death drum* and other 'threatening' uses of percussion.

3. The score contains several cues in which 'humanist' classical ideas combine with the idealised indigenous music to accompany scenes of concord where the common interests of the lowly Jesuit brothers and the indigenous Guaraní are presented visually or verbally.

4. The unpredictable intermittent woodwind bursts on 'ethnic' instruments heard in the first scene become successively less threatening as the story unfolds. By the end of the film they are an integral, consonant part of the combination EUROPEAN HUMANISM PLUS INDIGENOUS RIGHTS AND DIGNITY mentioned under point 3.

5. The film's main theme is really more of a motif. Built on three notes, it appears in many different guises, for example: [i] played by full symphony orchestra with classical harmonies for the main titles in front of the falls (0:05:01-0:06:26); [ii] much more discordantly for Rodrigo's anguish and outburst in prison (0:29:23-0:31:40); [iii] sung in a very high register by an indigenous treble voice ('innocence') as a *Miserere* (= 'Have mercy') accompanied by almost dirge-like mid-to-low-register strings playing very simple held chords (1:59:59-2:00:50).

6. One of the film's recurring 'humanist' themes, *Gabriel's Oboe*, occurs only once and very briefly as diegetic music (0:10:59). It is otherwise used for longer underscore cues (at 0:14:13, 0:40:41, 1:15:58, 1:26:02, 1:27:13, 1:38:26, 1:55:22) and in the end credits. Despite being used mainly as underscore, *Gabriel's Oboe* is one of the world's most popular tunes, published in every conceivable type of arrangement, played at weddings, in concert halls, on bandstands, in bars and clubs, at figure skating competitions, in airline adverts, performed by amateurs and professionals, set to lyrics so it can be sung, used as soundtrack for 'beautiful nature' montages of stills on YouTube, available as a ringtone, etc., etc. Why has this technically demanding tune that features long phrases and contains several subtleties of timing become such a popular piece to perform as well as to hear?[33]

5.5. Appendices

Your written project should correctly list all verbal and audiovisual references you

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31. 1:12:05 (=4325 seconds) out of 2:04:55 (7495") is equivalent to 57.7%.

32. 'La musica degli *indios* perlomeno idealizzata' is how the composer refers to that music in the BBC2/ ZDF TV documentary *Ennio Morricone* (1995).

33. 2010-10-23 there were 1,870 recordings of *Gabriel's Oboe* posted on YouTube. Most of the postings were European, North American or East Asian (particularly Korean). A few also came from Latin America and South Africa. I have put together a video montage of 42 different performances of the piece (including versions for bagpipes, rock guitar, ukelele, harmonica, brass bands, etc.) and posted it online at |http://tagg.org/Clips/GbObs.mpg|.

have used in your work. Norms for formulating these appendices are online at |tagg.org/xpdfs/assdissv5.pdf|.

The *Bibliography* should contain all written verbal references (books, articles, web pages etc.) you have used in your work.

The *List of Recorded References* (LRR) should similarly list all recorded or broadcast materials (films, TV programmes, games, discs, etc.) you refer to in your work.

5.6. Procedure and presentation

To complete this project successfully it's best to do its various tasks in the following order: [1] Choice of film; [2] Preliminaries (film details, motivations, etc.); [3] Cue list; [4] Choice of scene for in-depth analysis; [5] Table of musical ideas; [6] Graphic score; [7] Discursive analysis; [8] General discussion of music throughout the film; [9] Appendices; [10] Table of contents. This order of *working* is not the same as that in which the projects various parts should be *submitted*.

Your project should be *submitted* with its constituent parts in the following order: [1] Table of contents; [2] Preliminaries (filmography, motivations); [3] Table of musical ideas; [4] Cue list; [5] Graphic score; [6] Discursive analysis; [7] General discussion; [8] Appendices.

5.7. Technical considerations

- This project requires an *absolute minimum* of the following software:[34]
- word processing or desktop publishing application;
- indexable spreadsheet;
- audiovisual playback capable of reading DVDs and standard video file formats.

Also extremely useful are the following sorts of software:

- audiovisual recording and editing;
- audio and MIDI recording and editing;
- audiovisual format conversion and DVD decryption;[35]
- still image editing;
- metronome and time calculator.

With all these applications you will be able to:

- convert DVD format (VOB) to editable video formats;
- join DVD VOB files;
- add timecode to your film;
- split your film into manageable lengths showing the right timecode in relation to the start of the movie;
- dump screen stills to image files for use as thumbnails;

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34. Since computer software is, unlike this published article, in a state of constant change, I tried, when I was still teaching, to post updated software tips for this project online at |tagg.org/zmisc/VideoTips.htm| and |tagg.org/zmisc/softwarefavs.htm|. I have since abandoned all hope of keeping the list up to date.

35. It is *not* illegal to use software like DVD DECRYPTER for individual study purposes like this project. It is, however, illegal to distribute such software.

- put different music to picture or different pictures to the same music;
- export sound, including music, to a separate file;
- manipulate sound files for presentation in feedback sessions;
- manipulate (still) image files (e.g. reduce to thumbnail size);
- establish metronome rate of music (in bpm);
- calculate bpm from durations and number of beats;
- calculate total duration of cues in part or all of your film.

Too much?

'It's too much.' 'You can't expect students to do all of that, especially if they've no formal training in music.' These are some of the objections I've heard from other teachers of both music and other subjects when I've talked, often enthusiastically, about some of the student projects submitted by musos and non-musos alike. I've even had to ask students to lend me their work after it's been graded and it's back in their hands so that I can show the doubting teachers who won't check the examples of student work I've put on line that I'm not exaggerating.[36] True, some students regret having registered for the course when they discover the extent of what they are expected to produce, and one or two abandon the course in week 2 after hearing what sort of work is in store for them. But even those who initially swore while slaving over their cue list must have found it worth the effort because anonymous student evaluations have been consistently positive and the generally high standard of student work suggests that there must be considerable interest and motivation for the subject.

The scepsis of some colleagues towards the work described in this article contrasts starkly with the enthusiasm of many students for the work they have to do on the course. This contrast may well reflect some of the differences between knowledges discussed at the start of this paper, in that skills involved in *Music and the Moving Image* rely largely on aesthesic competence *in* music (knowledge type 1b) and its conventional status as a largely vernacular, extracurricular affair. Moreover, the projects just described demand interaction with an intrinsically non-scribal medium including large amounts of invisible music: there is little or no notation to follow, there are no canonic texts to ingest, and, to quote Simon Frith, it's 'literally not the sort of thing you [can] photocopy'.[37] And yet, knowing that films, TV programmes and video games are media with which every student on every *Music and Moving Image* course I've run since 1993 has been familiar since birth, it strikes me not so much as absurd as wasteful not to help students understand and systematise their aesthesic competence in reacting to the messages, musical and otherwise, circulating in those media.

To put it bluntly, given the ubiquity of invisible music in contemporary media, raised at the start of this article, what, I wonder, should general music education be about if not the sort of thing I've just tried to describe?

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36. Examples of student work are on line at |http://tagg.org/studtxts.html#MMI|.
37. Phone conversation with the author, 2002-06-17.

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