A New Modular Approach to the Composition of Film Music

Thesis and accompanying folio of creative works
in two volumes.

VOLUME I

submitted in fulfilment of the requirements for the degree of

Doctor of Philosophy

by

Bartlomiej Piotr Walus

Elder Conservatorium of Music
Faculty of Humanities and Social Sciences
The University of Adelaide

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Abstract

This thesis documents the investigation and development of a new method of composing film music with a flexible structure, which more easily facilitates the mapping and redrafting of music during the film editing process. Frequent editing changes to visual materials are an unavoidable part of filmmaking. Consequently, among the many demands that a film composer faces, the issue of synchronising music to film is frequently a vital one. Since there is no simple correspondence between the temporal structure of music and film, adjustments of music can be difficult. Thus far, a comprehensive method of addressing this problem has not been developed or documented. This project is the first study that specifically addresses the problem of synchronising music with a visual component during film post-production. The approach to this thesis is both practical and empirical. Therefore, the compositions, audio and video files included are an integral part of the investigation, and not merely supporting materials. The method described in this project was created by combining three approaches: a) developing and applying a modular structure for the music; b) using non-linear properties of music; c) applying digital technology where individual modules can be layered, mixed and modified to accommodate changes in duration and structure. The fourth element is a new three-step approach to the composition of music that follows in a general sense the process of film making. Despite the omnipresence of computer technology in film scoring, the compositional approach to film music in many cases is still rooted in functional harmony. As a consequence, traditionally structured linear music does not always allow for non-linear editing, leaving film composers disadvantaged in the use of digital technology in comparison to filmmakers. The proposed new approach to composition of film / media music attempts to provide composers (but also music editors) with means to work with music in a similar fashion to the one applied by filmmakers to film material.

Keywords

Composition; film music; mapping; media music; modular approach; module; synchronisation

Declaration

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List of musical examples

All score examples in the text are in C.

List of audio examples

List of video examples

Glossary of terms

Arpeggiator – A musical device that automatically performs a sequence of notes based on input notes or chords.

Assembly – The first version of the film with scenes organised into sequences in the script order.

BPM – (beats per minutes) – A unit used to measure tempo of the music.

Click track – An audible metronome signal used during a recording session for synchronising music with film.

Cross-cutting – an editing technique that juxtaposes shots from one or more sequences, actions or stories to suggest a parallel action.

Cue – An individual piece of music but also an event within the scene.

DAW – (digital audio workstation) – A system designed for recording, editing and playing back of audio material.

Dissolve – A technique which allows for a gradual transition from one shot to another through superimposition of a fade-out over a fade-in.

DoA – Director of audiography.

DoP – Director of photography.

Dubbing – Recording of all sound elements into one composite version.

Fine cut – The final version of the film.

First cut/Rough cut – An early edited continuous version of the film.

Flexi tool – Logic Pro editing tool that allows for quick manipulations of tempo and timing (i.e. compression/expansion) of editing material without the need for cutting.

Foley effects – Film sound effects produced by performers in studio.

Frame – A smallest compositional unit (i.e. single image) of the film.

Hit – A specific event within the scene that must be highlighted by a composer.

Linear editing – An editing method (tape to tape) that was available before introduction of non-linear editing systems in the 1990s.

Locked picture – A stage of film production where all changes have been done and approved.

Logic Pro – is a digital audio workstation (DAW) and a MIDI sequencer software application for Mac OSX platform.

MIDI – (musical instrument digital interface) - A protocol that allows electronic musical instruments to communicate and synchronise.

Mock-up – A demo of the score prepared using electronic (samples) and/or acoustic instruments.

Non-linear editing – A digital editing method that enables access to any section of the edited material (i.e. audio and video).

Plug-in – A software component which supplements larger software applications.

Post-production – All the manipulations done after the filming and/or recording of the music.

Post-synchronisation – recording of dialogue, sound effects and music in synchronisation with film after it has been shot.

Sampler – An electronic instrument that plays back recorded material with the use of the keyboard or other triggering device (e.g. a sequencer).

Samples – Digitally recorded sounds.

Sequencer – An electronic device, hardware or a computer-based program which can record and play back musical material in form of digital audio or MIDI data.

SMPTE Time Code – The Society of Motion Picture and Television industry standard synchronisation signal.

Spotting session – A meeting during which the director and composer decide where in film the music will be used.

Stem/split mixes – Premixed stereo audio files including all instruments (or sounds) of a certain type.

Temporary track (or temp track) – A piece of music used temporarily in film's soundtrack as a blueprint for the original commissioned score.

Tempo map – A series of tempo changes programmed into a sequencer or other synchronisation device.

Time stretching – A procedure that changes the duration without changing the pitch of the audio signal.

Preface

Musical composition is a problem solving activity (Watson, 2011, 21). Film music which is directly dependent on film requirements and structure (Lexmann, 2006, 14) generates perhaps the most diverse range of problems which composers have to face. One of the most common is the problem of synchronisation between a musical score and a picture (Prendergast, 1992, 151). Frequent editing changes to visual materials, which are an unavoidable part of a filmmaking routine, directly influence mapping and adjustments of music. As there is no simple correspondence between the temporal structure of music and film, and due to the non-linearity of the film medium in conjunction with nonlinear digital editing practices, adjustments of the music can be difficult and time consuming. To address this important practical problem, the present thesis documents the investigation and development of a new method of composing film music with a flexible structure which more easily facilitates the mapping and redrafting of music during the film post-production process. The present work focuses mainly on film, but many of the problems and practices described are also relevant to other media, such as television (TV) or radio, or to other situations where the synchronisation of music with images or other aural elements is vital.

The idea for this research originated from many years of the author's personal experiences dealing with synchronisation issues while composing music for television and radio purposes. Since many of these commissions were done from a distance (i.e. different cities and countries), the synchronisation of music with the production and the flexibility of the arrangement (i.e. pieces were to be adjusted by the consumer) were particularly important characteristics of the prepared music. These features were necessary because the author often dealt with only a brief description of what was needed musically; the visuals or recordings

(radio) were not always available at the time the music was commissioned. It is a standard practice for television and radio producers to ask a composer to prepare short fragments of music (e.g. 15, 30 seconds, or 1 minute in duration) and in many instances this approach provides an adequate support for the story. There are situations, however, when longer fragments of music can provide more suitable dramatic support. With this in mind, during work on several productions the author experimented with short segments of different arrangements that, if desired, could be developed into more complex sequences. These initial experiments demonstrated that, despite requests for standard (library music) durations, during the post-production process those short fragments were frequently combined together (as intended by the author) to provide a more continuous and responsive dramatic support.

Although some solutions on how to integrate music with the production structure using modular components already exist (as discussed in more detail in Chapter 1, section 1.3.5), a research-based systematic method of addressing this issue has hitherto not been developed. Hence the author decided to attempt the development of a method in the computer domain that would address issues related to music composition for film, television and radio. These issues include: simplification of mapping the music to the project structure; and the temporal and structural flexibility of the music. The structural flexibility is here intended not only to help a composer to respond quickly to requested changes, but also to allow for additional editing of the score (i.e. done by a music or film editor, a director or a producer) which does not compromise its musicality and facilitates integration of the music with other soundtrack components (i.e. dialogue and sound effects).

The theoretical background for this thesis is mainly concerned with "mainstream" Hollywood cinema, with a particular focus on the action/adventure genre. There are several reasons behind the decision to explore this particular practice in more detail. Firstly, Hollywood films are made according to well established and commercially influenced procedures (Wierzbicki, 2009, 217; Przylipiak and Szylak, 1999, 52; King, 2002, 2) which despite their evolution over the decades (e.g. a break-up of the studio system and the introduction of the digital technology) remain generally stable with respect to the solutions towards filmmaking and music (Donnelly, 1998, 143; Kalinak, 1992, 189). Further, as indicated by Rick Altman, genres of Hollywood films often share certain essential properties, for example, similar conflicts are resolved in a similar fashion (1999, 24).[1] When it comes to European cinema, however, with its diversity of languages, approaches, ideological influences, practices and financial restraints, it is impossible to distinguish one predominant style or method of filmmaking.

Secondly, even though European and other cinemas (e.g. Asian) developed their own methods and aesthetic solutions, Hollywood output dominates and influences most local film markets (Everett, 2005, 16; Elsaesser, 2007, 38; Higson, 1989, 42). Thus, commercial film and television productions worldwide are increasingly influenced by Hollywood and particularly by action cinema; although it is worth acknowledging that, despite Hollywood cinema being a part of the European cultural repertoire (Morley and Robins, 1995, 57), European cinema and filmmakers have also had a significant influence on the American film industry in terms of

[1] There is, however, a tendency in new Hollywood films for blurring attributes of different genres together in order to target the production to different audiences (King, 2002, 136).

style, technique and aesthetics (Mera and Burnand, 2006, 4).[2] Due to globalisation, growing costs of feature film productions and a desire to share costs and risks, Hollywood increasingly cooperates with international collaborators, among which Europe is the primary partner (Purse, 2011, 171).

Thirdly, in spite of these interrelations, there are differences when it comes to the dramaturgical function and aesthetic approach to the music, mostly in so called art European cinema (e.g. films by Jean-Luc Godard, Federico Fellini, Andrei Tarkovsky). Such films tend to feature less music than American productions and tend to highlight a certain mood (e.g. music that is often asynchronous to the on-screen action). They may also reflect ambiguity in the narrative which is often non-linear (e.g. where characters express disorientation and roam without a specific purpose) (Hayward, 2000, 10). In mainstream Hollywood action cinema (in the majority of cases, movement orientated), on the other hand, the narrative usually has a precise temporal dimension (i.e. a particular task has to be completed by a specific date) (Belton, 1994, 25), time is predominantly linear and music is usually synchronised closely with the action. According to George Antheil: "Hollywoodian [sic] music is action-crazy" (1938, 251) and this observation remains valid more than seven decades later. Consequently, it is the Hollywood action/adventure genre (and thus films and TV productions in various countries that are influenced by it) which presents composers with the greatest challenges with respect to synchronisation during post-production.

[2] Patrick J. Gorman stresses, however, that Hong Kong films among other international cinemas had the greatest influence on Hollywood (Gorman, 2003).

The sound component of film production is a complex construct that combines together the dialogue, music and sound effects. For some practitioners and scholars, film soundtrack is an indivisible composite entity. Of all components of the film soundtrack, however, it is the music which may most often collide with the non-linearity of the film edit. Thus, as much as the author recognises the importance of the interrelations between soundtrack components in the process of supporting the narrative, this research project has focused on composition of the musical component only. Sound design for film, being a sound-based phenomenon, usually does not impose difficulties in terms of synchronisation with the images and adjustments resulting from editing.[3] While focusing on practical aspects of scoring, with regard to non-linear digital editing practices, this thesis *does not* seek to provide: an overview of World cinema, with its diverse approaches and practices; in-depth analysis of sound in film; or a comprehensive theory of film. Since film editing is frequently the reason for changes in music - and dealing with these changes is the main focus of the present work - the thesis discusses consequences of film editing, and touches on problems of sound and sound design for film.

As an empirical work which tests a method through musical examples, the thesis is particularly addressed to practising film and media composers, music editors and researchers interested in practical aspects of composing for film and other media. The work is not targeted towards film theorists or musicologists interested in the theory and aesthetics of music. Due to its scope it is not directly addressed to filmmakers, but its theoretical component may be of some interest to this group of professionals.

[3] According to Landy: "the term *sound-based music* typically designates the art form in which the sound, that is, not the musical note, is its basic unit" (Landy, 2007, 17).

Structure of the thesis

Volume I of the thesis contains: the theoretical background for the research project and methodology; five compositional case studies (including music for a short film); analysis of interviews between the present author and three directors; and a final chapter which summarises the outcomes of the research project.

Chapter 1 starts with the discussion of major aspects of film editing and its role in film narrative. This is followed by: a general overview of sound in film; its components; the role of the soundtrack in film; its construction and editing practice; and a brief discussion of sound design for film, with emphasis on the technology involved. The chapter explains the role of the musical score in supporting the narrative, looking at structural and psychological means. It then reviews compositional scoring practice including the role of the music editor. It also introduces the problem of changes in the musical score resulting from film editing, discusses solutions developed to date to address this problem, and concludes with the rationale for the new compositional method.

Chapter 2 starts by listing research questions (the main one and subsidiary ones) and the hypothesis and continues by discussing relevant definitions. It then presents the significance of the present research and its contribution to the discipline. Finally, the chapter describes the methodology for the present project.

Chapter 3 provides a literature review, which discusses source materials in the field of film music studies, and then indicates the ones particularly relevant to the topic of the thesis. It

reviews research on and approaches to synchronisation of music to picture, and discusses relevant literature on tonal and non-tonal music in film.

Chapters 4 to 8 focus on five compositional case studies (including music for a short film). Each case study is preceded by a rationale for a particular experiment and includes experimental re-cuts of compositions which were used to test the flexibility of the method. Case study No. 1 (Chapter 4), *Collection Basket*, is focused on the structure of melody and the possibilities for composing a musically coherent piece from previously composed modular components. Case study No. 2 (Chapter 5), *Skippy's Adventure*, explores the correlation of the horizontal (i.e. melodic) and vertical (i.e. harmonic) planes in a modular composition. Case study No. 3 (Chapter 6), *Oxygen*, presents the music composed for a short science-fiction film, directed by Dave Norris. The music for *Oxygen* applies the modular compositional method to a specific film project. Case study No. 4 (Chapter 7), *Ostinatello*, focuses on rhythm and explores possibilities for creating a work from various types of melodic and rhythmic ostinati (and their aggregations), as well as minimalist techniques such as extensive repetition, use of ostinato, static harmony. Case study No. 5 (Chapter 8), *Cut the Moon in Half*, is centred on the problems of orchestration and texture, in conjunction with a dramaturgical context. The composition refers to the achievements of selected twentieth century composers. Case studies are pragmatic in nature, documenting steps undertaken during each experiment and presenting the most significant observations.

Chapter 9 presents a discussion of the three interviews conducted with professionals involved in different fields of the media: film, commercials, and radio drama. In this chapter the outcomes of the case studies are supplemented by the three directors' perspectives.

Chapter 10 concludes the discussion by presenting the outcomes of the project and its contribution to knowledge and practice in the discipline, a personal perspective, limitations, and potential for future research.

Volume II comprises musical scores and two DVDs. This supporting folio of original creative works presents various aspects of the modular approach. It contains four compositions and music for short film *Oxygen* (DVD No.1). The overall duration of the composed music is approximately 80 minutes (including additional versions of the pieces). Each musical piece has been composed in a modular way with a focus on flexibility, and addresses a different problem relevant to film scoring (e.g. melody, tonality, rhythm, and orchestration).

Section 1, *Collection Basket*, consists of three scores:

Collection Basket for clarinet v (version) 1- main version

Collection Basket for viola v2 - transcribed version

Collection Basket for clarinet v3 - extended version

Section 2 *Skippy's Adventure*, consists of five scores:

Skippy's Adventure for orchestra – main version

Skippy's Adventure for orchestra – 15" cut version

Skippy's Adventure for orchestra – 20" cut version

Skippy's Adventure for orchestra – 25" cut version

Skippy's Adventure for orchestra – 30" cut version

Section 3, *Ostinatello* consists of one score:

Ostinatello for two pianos, drum kit and percussion ensemble (Movements I-V) – score

Section 4, *Cut the Moon in Half* consists of two scores:

Cut the Moon in Half for orchestra and sampler v2

Cut the Moon in Half for orchestra and sampler v3

DVD 1 contains *Oxygen*, a 24-minute film directed in 2008 by Dave Norris and produced by Deborah Kol (both from the Victorian College of the Arts). The soundtrack for *Oxygen* exemplifies the application of the modular compositional method to film. **DVD 2** contains the audio and video clips for the case studies 1-5 as well as selected Logic Pro files for case studies which were prepared to illustrate how the modular structure was used in conjunction with the video material.

Please note: Apple QuickTime player software is necessary to watch DVD 1 and DVD 2. Streaming directly from DVDs may result in some interruptions during playback. In this case for PC users, please employ alternative versions of the clips (*Oxygen* individual cues) or copy video clips to a computer hard drive. The application for both Mac and PC computers can be found in DVD2, Folder 06, in folder Additional files, and subfolder QuickTime. The application can also be downloaded directly from the Apple website: http://www.apple.com/quicktime/download/