

The New Digital Documentality of Contemporary Film Scoring Practices.

Preliminary Results Based on Participant Observation at the Studio of North American Composer Christopher Young

Andrea Bruno, University of Turin

Giulia Ferdeghini, University of Turin

Ilario Meandri, University of Turin¹



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The digital transition has radically transformed the atelier of the contemporary composer, leading to the emergence of a new “digital documentality”. This change necessitates a renewal of musicological research methodologies concerning contemporary creative practices. This paper presents the preliminary findings of an ethnographic fieldwork conducted at Christopher Young’s studio, highlighting the need to consider both documents and production practices. This approach has led to the development of an eclectic study methodology that integrates archival work with the investigation of oral histories, utilising a wide range of documentary sources and leading to a redefinition of the inquiry method. Despite the difficulty of replicating such a large-scale study, both synchronically and diachronically, we believe this research can provide meaningful methodological guidance for musicology concerned with source criticism in contemporary productions. Field observations focused on the music production of Christopher Young’s team for three films: *The Autopsy* (David Prior, 2022), *The Offering* (Oliver Park, 2023), and *The Piper* (Erlingur Thoroddsen, 2023). Fieldwork revealed how music teams integrate digital technologies into the compositional process with original technical, experimental, and creative solutions. The flexibility introduced by the digital transition represents one of the most significant challenges for contemporary musicological research on film music interested in reconstructing the compositional process.

¹ The authors developed this text cooperatively and therefore share its contents, methods and perspectives. This work was conceived as part of the research activities of the Turin Unit for the PRIN 2020 project “New Music Writing Processes for Cinema” (PI Roberto Calabretto). Some paragraphs, substantially modified and here placed in a new context, are taken from an earlier study published in Italian (Bruno, Meandri, and Ferdeghini 2021-22). The research was organised as follows: Andrea Bruno carried out the participant observation period in Culver City and Los Angeles, from December 15, 2021 to March 12, 2022. The materials collected and produced during the field research were later analysed by Andrea Bruno and Ilario Meandri from June to October 2022 and October 2023 to March 2024. The writing was divided as follows: Ilario Meandri wrote § 1, 3 (from the words “These terms describe local processes” to the end) and § 6. He also drafted together with Andrea Bruno the flowcharts in [Fig. 2](#). Giulia Ferdeghini drafted the flowcharts in the [Appendix, § 2](#) and the Bibliography. Andrea Bruno wrote the remaining paragraphs.

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While it is not possible to generalize contemporary compositional processes based on a single field observation, however extensive, we believe we have witnessed the end of an era in the artistic, professional, and personal journey of the composer and the beginning of a new creative phase, paralleling the broad aesthetic and production revolution in the contemporary music industry. In this context, some points seem to gain greater importance: the centrality of the collaborative team; the abundance of musical material and the layering of sources; the auralization and marginalization of musical writing.

INTRODUCTION

In this paper, we present the preliminary findings of ethnographic fieldwork focusing on the compositional process of the renowned American composer Christopher Young. The participant observation extended from December 15, 2021, to March 12, 2022, at Christopher Young's studio and residence in Los Angeles and aimed to gain a better understanding of the compositional techniques employed in contemporary practice, as well as of the professional interaction between the composer, members of the music team, musicians, and film production staff. The observation focused on the simultaneous production of the scores for three distinct films: *The Autopsy* (David Prior, 2022)—third episode of the Netflix anthology series *Guillermo del Toro's Cabinet of Curiosities*—and Millenium Media's *Abyzou* (Oliver Park, 2023), released in theatres as *The Offering*, and *The Piper* (Erlingur Thoroddsen, 2023). During the observation period, it was possible to collect a wide range of audiovisual materials and digital documents on the film scoring process of the mentioned works.

While a previous paper, published in Italian (Bruno, Meandri, and Ferdeghini 2021-22), focused on the intertwined compositional processes of these three films, this essay endeavours to explore the new digital documentality generated by the contemporary creative process. It is widely known that the digital transition has radically changed the atelier of the contemporary composer. The resulting emergence of a new digital documentality must necessarily lead to a renewal of musicological research methodologies on contemporary creative practices. The array of digital technologies involved in the composition process constitutes a fertile ground for creative exploration and experimentation, and various artistic teams incorporate these technologies into their daily work, giving rise to innovative technical and creative solutions. Field observation reveals how different music teams can assimilate the new means at hand with original technical and creative solutions. While this attitude is not unique to digital practice and, as we have elsewhere attempted to demonstrate (Meandri 2013) has always characterised creative processes in relation to compositional technologies, the digital transition has opened the door to unprecedented flexibility in the composition process, a reality that remains largely unexplored, representing one of the most significant challenges for contemporary musicological research on film music.

METHODOLOGICAL LIMITATIONS OF THE PRESENT WORK

In recent years, there has been a notable surge in research within media anthropology, transcultural, and transnational studies, focusing on contemporary production systems through ethnographic or *quasi*-ethnographic approach.² This trend reflects the need to consider both documents and production practices, giving rise to an eclectic study methodology that integrates archival work with the investigation of oral memories and exploits a wide range of documental sources, ranging from traditional textual resources to audiovisual, electronic or digital ones. The radical technological transformation in the working environment of composers has led to a redefinition of the method of inquiry. Contemporary musicological practices recognize that no one type of source necessarily has etiological priority over the others, and different types of sources can be complementary in reconstructing the creative processes and production history of a soundtrack.³ Participant observation allows for the granular reconstruction of production practices, contextualising the production of resources (documental traces of the creative process) in the context of the interactions that generated them. Nonetheless, participant observation in these contexts has several limitations. Given the idiosyncratic nature of individual production practices and their continual transformation, a generalization about contemporary practice should flow from the collation of ethnographic data from different production contexts and, even within the same context, observation should be repeated over time. However, replicating the methodology on such a large scale, synchronically and diachronically, is challenging. While Young's cooperation provided unprecedented access for our research, such openness remains an exception in a field traditionally resistant to external observation. Despite these limitations, we believe this work produced significant results leading, in the context examined, to an initial exploration of the new digital documentality of the compositional process. Such an exploration provides meaningful methodological guidance for musicology concerned with source criticism in contemporary productions.

2 We first used the term *quasi*-ethnographic (Meandri 2024) referring to the use of research methods borrowed from ethnography or sociology within disciplines such as musicology or media studies, in which fieldwork has not historically played a central role but is gaining new importance in the research perspectives of the last decade at least. The adoption of these methodologies does not necessarily require the researcher to adhere to the methodological and deontological paradigms of ethnography, hence the prefix *quasi*. For a broader review of ethnographic approaches and methodologies, both in the field of ethnomusicology and popular music, specifically regarding the context of recording studios, we refer to the recent collection of essays edited by Giuriati and Facci (2024).

3 See for example Calabretto (2010), Sapiro (2017), Viviani (2018).

PRODUCTION CONTEXT AND PARTICIPANT OBSERVATION

Christopher Young currently heads a music production company, Ilsley Music Inc., where a small team of collaborators, with whom the composer has developed a carefully structured working method, operates.⁴ At the time of our participant observation, Young's team consisted of six members: composer Jared Banta served as the scoring assistant, while composers Max Blomgren, Jung J. Lee, and Daniel Wehr worked as music programmers, with composer Brandon Brown functioning as Young's personal assistant and aspiring composer Muye Yu participating as an intern.⁵

Although our focus is on the making of *The Autopsy*, it is important to briefly summarize the context in which the field observation began, with key events outlined in Fig. 1. In May 2021, as we were beginning to plan our research period at Christopher Young's studio, the composer was starting to work on the soundtracks for two films funded by the same production company, Millennium Media: *The Piper*, along with *Abyzou*, both belonging to the horror genre. *The Piper's* plot centres on the legend of the Pied Piper of Hamelin and features a diegetic piece, the *Concerto for Children*, a composition for flute, children's choir, and orchestra endowed with evil powers. Since the music is scheduled to be partially performed on set, the composer's involvement is necessary in the pre-production stage. By June 2021, most of the pre-production material needed for *The Piper* had been discussed with the director and handed over to the production company's music department. With the beginning of summer and the completion of this first phase of work, filming of *The Piper* began. Meanwhile, Young started working on *Abyzou*, which required a completely different approach and the creation of an entirely electronic score. Despite using extensively proven processes, the creation of the electronic score of *Abyzou* turned out to be more complex than expected. The work thus overlapped with the beginning of a third project, *The Autopsy*. Between November and December, when our participant observation period began, Young was busy

4 Christopher Young, born April 28, 1957 in Red Bank, New Jersey, studied music at Hampshire College and North Texas State University, completing his training at UCLA under David Raksin. In the early years of his career, he primarily worked in the horror genre, scoring films such as *Hellraiser* (Clive Barker, 1987) and *Hellbound: Hellraiser II* (Tony Randel, 1988), which marked a significant turning point in his style. In the 1990s, he broadened his scope, collaborating with directors such as Norman Jewison, Curtis Hanson, and Sam Raimi, contributing to films like *The Hurricane* (1999) and *Spider-Man 3* (2007). He currently teaches composition at the University of Southern California (USC) and continues to work across various film genres, including recent projects like *Pet Sematary* (2019) and *The Empty Man* (2020).

5 As is customary for Christopher Young, all of his collaborators are freelance composers who attended Young's classes within the Scoring for Motion Picture and Television Program (SMPTV) at USC, initially joining the composer's studio as interns. Banta, Blomgren, Lee, Wehr and Brown have been working with Young for several years.

on these two fronts. The team was working at full speed on David Prior's film when, in mid-January 2022, Young was asked to partially rewrite a song for the end credits of *Abyzou*. Also in January, while *The Autopsy* was still in full swing, Young resumed work on *The Piper*, which was finally entering the post-production phase. Complicating matters further, Young and his associates also had to manage a complex relocation at the same time: the changing production conditions required reducing the production costs incurred by the composer's company, necessitating the abandonment of the Culver City studio. On March 1st, 2022, Young thus moved his business to Santa Monica, opening a new studio in the garage of his home, which had been emptied and turned into a temporary location for what would in the future become the composer's new home studio.

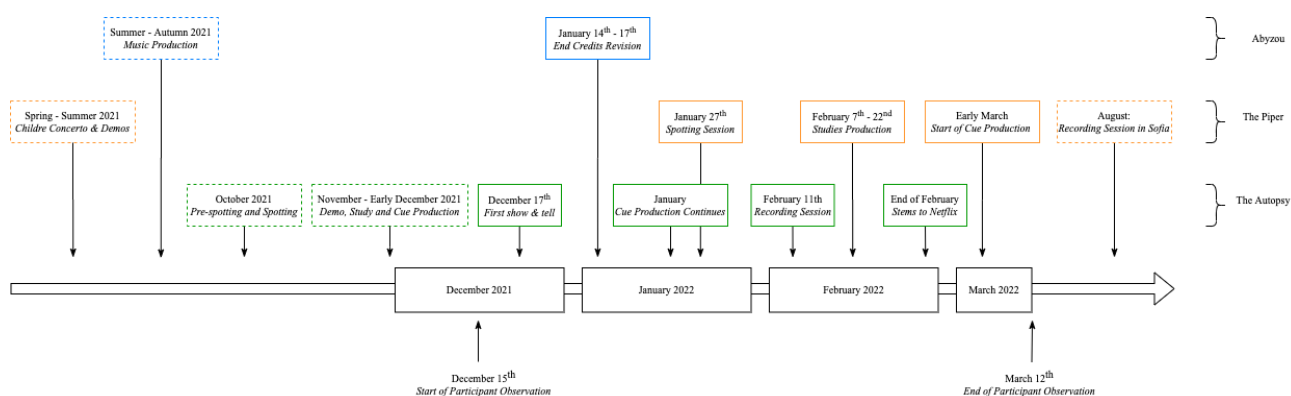


Fig. 1. Work context 2021–2022 and participant observation period.

Young's compositional process underwent radical changes throughout his career. It is important to try to contextualize what was observed in Los Angeles about the different working methodologies Young experienced over time, which have been reconstructed with the composer. It is known that Young's style and professional identity were significantly influenced by the work and figure of Bernard Herrmann (Fichera 2016, 316–317). On the one hand, Herrmann's stylistic elements reverberate in Young's writing (examples include the use of the ostinato technique and particular attention given to timbre that results in meticulous and, to some extent, extreme orchestrations). On the other hand, and this is the aspect that is particularly emphasised here, Young has for years embraced the rigorous and precise professional ethic famously professed by Herrmann, based on the ideal myth of the "total" composer who, while operating within a highly collaborative system based on the division of roles, defends and preserves authorship over every aspect of his work. In Young's case, this ethical approach translated into difficulty in delegating certain stages of the process to other people: especially orchestration, which intimately defines the composer's stylistic identity. Secondly, this ethical stance also resulted in Young's initial resistance to the production changes imposed by the system, leading to reluctance in embracing digital writing technologies and new composition methods, under the belief that it is preferable to conceive and write one's music exclusively with pencil and paper.

Young's early years in Los Angeles were characterised by constant and

exhausting music writing, carried out on the verge of self-isolation. It was not until 1989, during the making of *The Fly II* (Chris Walas), after a series of resistances and to avoid a nervous breakdown, that Young decided to resort to using orchestrators for the first time (Schelle 1999, 412).

While continuing to produce very detailed sketches and retaining the title of co-orchestrator in most of his work, Young took another crucial step at the end of the '90s when, due to unexpected scheduling conflicts, the post-production of two very different films overlapped: *Rounders* (John Dahl, 1998) and *Urban Legend* (Jamie Blanks, 1998), both requiring a substantial amount of music. The composer needed to find a solution to speed up production time without using additional composers, so he devised a system based on dictating the sketches to his assistants. The success of this strategy, refined over time, allowed Young not to use sequencers and music notation software himself. Young explains the principles governing this choice:

My writing process stems from the early days when there were no mockups. Eventually, I sketched my cues, but in the earliest days, I used to orchestrate directly as I composed. Without mockups, the cue was heard for the first time on the scoring stage (except for a piano rendition performed for the director). Ultimately, this means that all you had to depend upon for whether or not the cue was going to work was what you had in your head. [...] These days I have to do mockups like everybody else [...] to preview my cues to the director. The way this works in my studio is that my initial sketch still comes from sitting in a room with the picture and playing on the piano what I hear in my head. [...] The initial musical direction of the cue is still dictated by my head and not by the technology. [...] The aid of a computer can quickly turn into a crutch, and before you know it, the computer is making up your mind for you.⁶

Young's compositional practices underwent another significant change when he produced the complex electronic score for the film *Sinister* (Scott Derrickson, 2012) entirely digitally. Lacking the necessary skills to work independently on the virtual score, Young prepared a series of preliminary compositions, whose conception and structure were detailed on paper sketches, sometimes utilising unconventional notation systems, and whose realisation was entrusted to collaborators (music programmers) who worked under the composer's close supervision. These compositions are referred to as *studies* in the composer's and his collaborator's nomenclature.

In the terminology employed at Young's studio, studies are musical ideas designed to establish an overarching mood and dramaturgy. These ideas are subsequently adjusted, if not drastically recomposed, directly to the images at a later stage. A study is thus a piece composed during the initial phases

⁶ The passage is taken from an unpublished manual of composition for film music authored by Young himself and used by the composer in USC courses (*CY Book* [unpublished] § "Unit III: Scoring a Feature", pp. 169-170). Courtesy of the author.

of devising either a hybrid or entirely virtual score. Studies are proposed to directors as potential conceptual or compositional approaches to follow during the soundtrack production process (consequently, they are not yet synchronised with the visuals). Studies are produced using a library of sampled sounds created specifically for the project. They typically revolve around abstract ideas: no central themes or motifs are developed, rather simpler phrases, rhythmic patterns and unique timbral effects, sometimes with a technique partly reminiscent of pointillism. Originally, the studies technique was primarily employed in the context of films with predominantly electronic soundtracks. However, the effectiveness of this compositional method has led Young and his team to adopt this technique for orchestral scores as well.⁷

Demo is another recurring term at Young's studio. *Demos* are mockups of any musical idea composed for an orchestra or other real ensemble. They offer alternative melodic proposals for what will become the central themes of the film and are presented to filmmakers during the early stages of score conception (and thus, like the studies, are not yet synchronised with the visuals). *Demos* are usually produced for solo piano. Sometimes they can be enhanced by the addition of a solo part integrated into the virtual piano mockup (as, we shall see, will be the case with the banjo for *The Autopsy*). The structure of *demos* is essential (melody + accompaniment). Once completed, the composer and team members listen to them entirely, during some meetings. Each team member is asked to express a preference among the various alternatives. Following these sessions, the selected alternatives are sorted by the composer and the score assistant and sent to the director. The latter, in turn, chooses the final option based on his preferences.

In addition to studies and demos, Young's studio still employs mockups, i.e. the customary virtual simulations of a cue widely used in film music practice. Mockups are synchronised with the visuals and are used for final approval of the cue before the *recording session* for all-analog scores, or before final processing for hybrid scores.

While the actual processes underlying the creation of studies, demos, and soundtrack composition in general can be, as we will see shortly, very complex, it is possible to abstract the logic of demos, studies, and mockups as follows:

1. demos exclusively focus on thematic and motivic materials. They are not synchronised to images and are used in the preliminary stages of the work for auditing purposes (referred to as *show & tell* in Young's studio terminology) with the filmmakers. Additionally, demos serve as a tool for the composer's team to evaluate and select the most effective thematic and motivic ideas;

⁷ In Bruno, Meandri, and Ferdeghini (2021–22) we document how the composer employed the *studies* technique to compose the orchestral score of *The Piper*, with which we will not deal here. In the case of *The Piper*, this technique, originally conceived for the genesis of virtual scores, proves extremely effective even when applied to a traditional score.

2. studies are either musical vignettes or palettes of sounds designed to establish a conceptual framework and general mood or atmosphere for the underscore.⁸ They may or may not incorporate thematic or motivic materials. Like demos, studies are not synchronised to the visuals and are utilized in the initial stages of the process. They function either as a method of internal music team selection of the most effective underscore concepts or as a validation tool during the show & tell stages with filmmakers;
3. mockups can descend from demos and studies when these preliminary materials take on the appearance of actual cues now finally synchronised to the images. Mockups can include both thematic/motivic and non-thematic/motivic material.

These terms describe local processes. They are, at the present state of our knowledge, non-standard practices, and it is therefore appropriate to define them through the use of general schemes [Fig. 2]. These patterns, as we shall see, are abstractions of processes that may be, in the history of a single film production, much more complex; but they nonetheless give us insight into compositional practices in Young's studio.

⁸ *Underscore* and *source* are the pragmatic distinctions that composers (though not all) resort to in technical documents that are drafted during production (e.g., summary sheets. See Karlin and Wright 2004, 45). In practice *underscore* replaces, although the overlap is not total, the term "extradiegesis," while *source* stands for "diegesis." Hagen (1971), also quoted by Kassabian (2001), employs in place of *underscore* the term *dramatic scoring* and further distinguishes as *source scoring* the range of possible situations of *source music* used for dramatic purposes, with an ambiguity that cannot be resolved at either the *source* or *underscore* level (what, with another nuance, Sergio Miceli calls the *mediated level* in Miceli (2000, 359). On the use of these terms and on the diegetic/extradiegetic opposition see Neumayer (2009) and Alessandro Cecchi (2010).

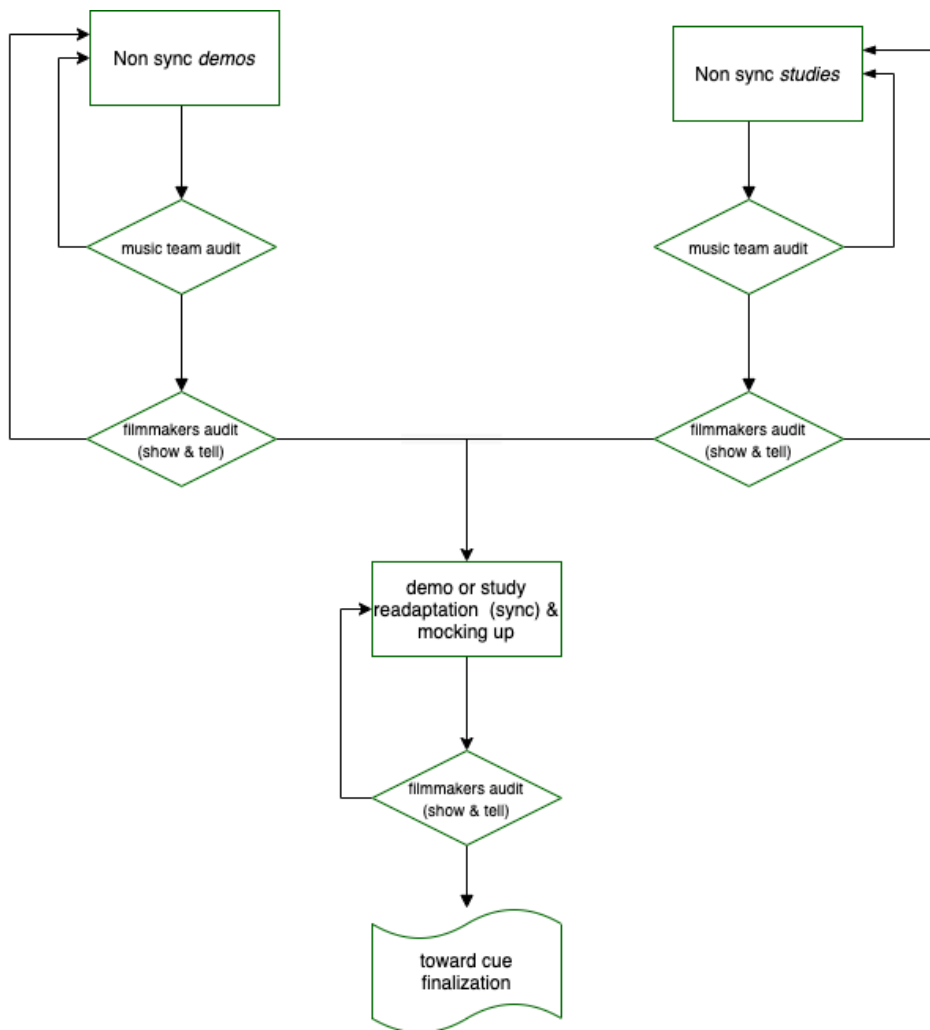


Fig. 2 A generalization of the composition logic of demos, studies, and mockups.

PRODUCTION PHASES OF *THE AUTOPSY*

The making of *The Autopsy* can be examined by delineating the four main phases during which the composer and his team schedule and organize their work: the *spotting session*; the preparation of studies and demos; the actual composition of the underscore; and the *recording session*. To make the various stages clearer, the aforementioned diagram to be found in [Appendix 1](#) could be of some help throughout the reading: each stage and substage of the process has a labelled mark corresponding to the description in the text.

1. The Spotting

It is important to note that, in contemporary film music production, the spotting session no longer marks the composer and his team's first viewing of the film. As a matter of fact, before *The Autopsy's* spotting, the Netflix music department provided Young with the film along with three audio tracks: one for dialogues, one for sound effects, and one for the *temp track*, consisting of temporary music selected by director Prior. Therefore, at the time when the actual spotting session happened, on October 26, 2021, the composer had

already watched the film a few times, either on his own, on his iPad, or with his team, and had identified key issues for discussion. The pre-viewing allowed the team to annotate and comment on the director's music choices (temp track) and to brainstorm on the general mood to be conveyed through the musical score (A1).

1.1. Preliminary Meeting

Preceding the main spotting session, a preliminary meeting with *The Autopsy's* director, David Prior, took place on October 18 (A2). During this initial meeting Prior—a knowledgeable *connoisseur* of film music—discussed with Young his concept for the title track sequence, exemplified by the use in the temp track of a piece by Georges Delerue from the soundtrack of *Silkwood* (Mike Nichols, 1983), written for string orchestra and solo banjo. Although budget constraints necessitated limiting the accompaniment to a string quartet instead of a full orchestra, Young expanded on the idea of using the banjo to characterize not only the opening and closing credits, but also the entire soundtrack and the specific setting of the story: a small mining town in Pennsylvania, where coroner Dr. Carl Winters (F. Murray Abraham) conducts autopsies on miners who died under mysterious circumstances.

As for the core sections of the film underscore, certain technical decisions were taken: on one hand, sequences involving the sheriff and the local police investigation into the miners' disturbing deaths would feature a hybrid score, created by digitally manipulating aleatoric,⁹ non-synchronised music, pre-recorded at Young's studio with a string quartet and banjo ensemble; on the other hand, all sequences concerning the alien with whom the protagonist confronts at the end of the film, would be scored with pure electronics, created by the manipulation of sound samples.

During the meeting, the scoring assistant took notes to draft the so-called *preliminary notes* [Fig. 3]. This file lists all the music cues of the temp track. For each cue a working title, an "M number", time-in and time-out codes are annotated, along with a brief description of the corresponding film action or differing music entry and exit points suggested by the composer. Young's commentary, if any, is added at the bottom of each cue. The spotting notes also include a list of categories in which each cue finds place.

- Character Music: title track and end credits music for string quartet and banjo, to be recorded during the recording session that will take place near the end of the process.
- Hybrid: the musical commentary for the police investigation, made of aleatoric music, first recorded at Young's studio and then digitally manipulated.

⁹ In the "emic" context of Hollywood mainstream music production, the meaning of "aleatoric music" differs slightly from the concept, aesthetics, and formal technique of avantgarde music, which is well-known by "classically trained" musicologists (e.g. Pendereckyan writing for sound masses, extended techniques for strings, woodwinds, etc.). On this topic we refer to: Meandri and Guizzi (2014–15); on "aleatoric" virtual instruments see Meandri and Gilodi (2022).

- Alien: the music related to the alien, composed around digitally manipulated sampled sounds.

1m1	OPENING		SCORE
*** ENDS MUCH LATER ***			
Alien			
MUSIC	TEMP		
IN	+01:00:03:01	+01:00:03:01	On first title card
OUT	+01:02:19:00	+01:00:47:00	Tail out under mining equipment sounds
	02:16	00:44	
1m2	MINE EXPLOSION		SCORE
*** STARTS MUCH LATER ***			
Alien			
MUSIC	TEMP		
IN	+01:02:19:00	+01:01:14:13	On cut to elevator bell for quitting time
OUT	+01:02:19:00	+01:02:19:00	Hard out on explosion FX
	00:00	01:04	CY suggests we merge 1M1 and 1M2 into one cue
1m3	CARL ARRIVES TO MEET WITH NATE		SCORE
*** STARTS LATER ***			
W-PA Character Music			
MUSIC	TEMP		
IN	+01:02:28:15	+01:02:21:07	Before fade up to spider web
OUT	+01:04:30:02	+01:04:30:02	As they start talking in the hallway
	02:01	02:09	CY - Start a few seconds later to allow time to digest the explosion
1m4	FLASHBACK - FINDING ABEL'S BODY		SCORE
*** STARTS LATER ***			
Hybrid			
MUSIC	TEMP		
IN	+01:07:39:09	+01:07:28:01	Dissolve to recollecting what happened
OUT	+01:09:17:13	+01:09:17:13	Begin hold + tail before officer vomits
	01:38	01:50	CY - Start a little later as we push in on Nate's hands clasped on the desk

Fig. 3 Excerpt from the preliminary notes of *The Autopsy*.

1.2. The Spotting Session

By the time of the actual spotting session, there had already been several preliminary meetings where, by examining the temp track, some important issues had already been looked through. This is why this particular session could be completed in just a few hours, whereas in the past, spotting sessions might have lasted over a couple of days.¹⁰ Despite remaining a crucial step in the process, it no longer carries the same thrilling sense of creative excitement, as recalled by Young.

The session was held at Young's studio, lasted about three hours and was fully recorded on digital audio devices. Director David Prior, composer Christopher Young, scoring assistant Jared Banta and programmer Max Blomgren (A4) were all present, with Blomgren responsible for the film's playback. In a relaxed and cozy atmosphere, guided by the predetermined temp track list, Young and the filmmaker went through the music spots, without rewatching the entire film. Prior shared his observations on each cue, explaining the motivations behind each temp track choice, and detailing the inner characteristics and dramatic needs of the related sequences. Whenever the picture was incomplete—editing

10 See Karlin and Wright 2004, especially chapter 4.

was yet to be refined, special effects or other features were still missing—, Prior provided a vivid description of what the final version would look like. Young and scoring assistant Banta—who was free to interact with the director—questioned him and speculated on the possibility of adding cues to the various thematic categories. Entry and exit points of cues were discussed among the participants and occasionally changed based on the composer's suggestions, as well as the opportunity to combine two subsequent cues to form a longer, composite one. Sporadically, Young expressed his puzzlement about the presence of a cue where he would have preferred to allow silence to speak. After about three hours, *The Autopsy's* spotting session came to an end.

1.3. After the Spotting

To ensure that the information was accessible to all members of Young's team throughout the film's post-production process, immediately after the meeting Banta transcribed the spotting notes. He initially stored the audio recordings of the session on the studio's cloud storage (Dropbox), divided them into chapters using Cubase, and then summarised the content in a document which contains all the remarks and instructions provided during the spotting session for each cue. With this information at hand, the scoring assistant updated the preliminary notes and converted them into the definitive cue list, outlining the correct timing and label for each cue to be composed (A5). This new document served as a vital reference during working sessions, facilitating the quick creation of summary diagrams. These diagrams, regularly printed and provided to the composer, allowed the scoring assistant to monitor progress and update the studio team's schedule as needed.

2. Demos and Studies Preparation

Once the key elements upon which the score would have been grounded had been fixed, its actual composition could begin. The first step consisted of creating different materials for each of the dramatic categories outlined within the score, providing director Prior with alternatives for later selection.

Young began to tackle the opening and closing credits of the film—the tonal material that falls under the "Character Music" category and must be composed for string quartet and banjo—by producing a series of demos. It might be worth repeating that in Young's team's jargon, the term *demo* indicates the piano mockup of a melodic idea, which, if accepted, will either establish the leitmotivic architecture of a score or, as in the present case, be integrated into the opening credits sequence.

Young's customary working method during this phase is to seclude himself with a piano (whether at home or in his studio) and, instead of writing down a standard score on music sheets, record every concept that comes to mind (or fingers) onto audio devices (A6). These recordings include all necessary indications to transcribe the music into sketch form. After Young finalized four different ideas, all in song form (one in ABA structure, two in AABA, and one in AABB), the takedown of the sketches was accomplished by the scoring assistant on November 3-4, 2021 (A7). These sketches were shared with the programmers,

who created piano mockups for each of them (A8, A9, A10). As Young owned a banjo among his many instruments, and one of the programmers was skilled in guitar, the latter was asked to record the banjo line for each idea. These recordings were later incorporated into piano mockups (A11). During a specific team meeting arranged for demo playback (A12), Young encouraged everyone to express their preferences and advocate for them, before submitting the chosen material to the film director for evaluation. After listening, Prior's request was to adapt two different mockups to the picture, as he was still undecided about which fitted best (A13, A14).

Next, the development of the "Hybrid" and "Alien" categories of music began. When dealing with fully electronic or hybrid scores, Young employs a tested method, strongly reliant on close collaboration between the composer and the programmers, as well as on an iterative set of actions. This is, in fact, what happened with *The Autopsy's* underscore portions. These materials stemmed from a series of preliminary studies (inspired by the repeated viewing of the film, though not yet synchronised with it) which, as previously said, are preparatory pieces, generated from sampled sounds either created or collected by Young and his team for the specific project. Typically, the thematic or motivic texture of the studies is quite rarefied; rather, they may be based on the development of rhythmic patterns and on timbral experimentation. As the process progresses, the studies will be integrated and adapted to fit the film, forming the backbone of its underscore.

The creation of the studies followed a similar process to that used for the demos: Young either improvised on the piano or vocalised a set of ideas, which he then captured using memo records (A15). These recordings were then provided to the programmers, who, in the meantime, had been thoroughly instructed to build a library of original sounds (A16). The leading voice of the soundtrack, the banjo, was the first element to be sampled, using Young's own instrument. Then the composer resorted to a favourite practice to create an ominous, tangible musical presence for the alien: he recorded his own breaths and moans, providing some raw material to be digitally manipulated. This technique, also referred to as *body music* (2016–17, 48–58), represents a peculiar trait of Young's style.

What remained for the composer to accomplish was the most challenging aspect of the underscore, namely the sampling of a string quartet. Young would have preferred to sample a real quartet, though the available budget did not permit doubling the recording session already scheduled in February. Therefore, Young opted to gather suitable string quartet samples from the digital libraries he already owned, albeit considering this a temporary solution. These samples would eventually need to be replaced in the hybrid mockups once the real quartet was recorded and the necessary parts composed anew (A17, A18, A19).

Finally, as mentioned earlier, three films were in production simultaneously: *The Piper*, *The Autopsy*, and *Abyzou*. Although recycling and reusing materials is hardly a common practice at Young's studio—due to the composer's policy

of creating, cataloguing, and storing all sets of specific sounds for each new electronic project—this figured out to be a good opportunity to benefit from some discarded sound material collected for *Abyzou*.

After completing timbral and sample selection, one of the programmers began developing the studies for *The Autopsy* (A20). Subsequently, upon finishing work on *Abyzou*, Young and the other two programmers joined in (A21, A22). This phase of the process granted Young's working partners some autonomy, but despite the composer's lack of skills with Cubase and Logic, he retained control of the musical writing: for example, he vocally performed effects and timbral figures he had in mind, frequently confronting with the programmers who used Young's recordings as a steady reference. Having long been working together made the understanding of Young's peculiar kind of *grammelot*—which resumes and codifies the composer's recurring stylistic features—immediate for the programmers and translatable into music.

Once initial drafts of the studies were complete, Young entered a comprehensive review phase, with his guidelines evolving over time into more precise directives. This and other steps in the process took on a highly iterative nature (A23). Each programmer utilised their own digital audio workstation to implement and edit the studies, before submitting the work to Young. Young would always conduct revisions by sitting beside them, attentively listening to the compositions once or twice at first, often with closed eyes, and then providing his general remarks or identifying specific areas for further improvement. Minor adjustments were addressed immediately in Young's presence, while more substantial revisions required new and detailed instructions from the composer. Young actively encouraged team members to contribute their perspectives and opinions on the project outcomes. The composer frequently sought validation, and he openly recognised how regular interactions with his team helped him foster confidence in the music he was producing.

During this crucial phase, the scoring assistant, although not directly involved in programming, could act as a mediator between programmers and the composer. If a study presented particular challenges, Young would ask the scoring assistant or even a second programmer to join him in examining a specific workstation's output. Programmers, in turn, might seek the scoring assistant's opinion before submitting what they had been working on to the composer.

Following each review session, as the programmer implemented the requested changes, the composer evaluated output from another workstation. This iterative process continued until the composer deemed a piece ready for submission to the director for approval. Notably, during periods of peak activity, when all workstations were fully operational, Young tirelessly alternated between them, reviewing different studies or, as it has been documented during field observation, assessing music written for various projects.

Once all studies received validation from Young, the composer convened the team for a comprehensive review of the entire music production (A24). After having solicited everyone's feedback, if no further changes were needed, the

scoring assistant was tasked with forwarding the material to the film director (A25). Ultimately, the director received seventeen studies, totaling approximately sixty minutes of music.

By the first week of December 2021, Prior had listened to the work and responded to Young via email. Intrigued by the results, he expressed interest in immediately synchronising some studies with the edited film (A26); and, as the outcome pleased him, he granted approval to the composer's work, allowing him to progress to the next phase of the process, by the onset of the second week of December.

3. The Underscore

The same iteration of collaborative actions undertaken by the composer and programmers during the production of the preliminary studies continued into the transition from the studies and demos to the actual underscore (A28, A29, A30, A31), which unfolded as follows.

Director Prior selected two out of four demos of the cue for the opening credits—belonging to the “Character Music” category—which constituted the initial portion of the underscore that had to be completed. In a relatively straightforward task, considering that the demos already roughly matched the dramatic outline of the sequence, Young and programmer Jung J. Lee worked on adapting them to the film, improving synchronisation, refining orchestration, and augmenting the cue mockup by adding some sampled strings to the piano melody and previously recorded banjo accompaniment. The finished work would then be presented to the director.’

The studies for the remaining sections of the underscore—“Hybrid” and “Alien” categories—were in the meantime handled by scoring assistant Jared Banta, who was attempting to synchronize some of them to the film. In so doing, he took on a leading role—that once would have been played by the music editor—in determining the dramatic and narrative structure of the score. Such an endeavour essentially generated a second temp track, this time comprised of original music and adapted to the film's dramatic deployment. Some studies fit a sequence so seamlessly that it later required relatively few adjustments to turn them into proper cues, while other times the final cue would have differed significantly from the base laid down by the scoring assistant.

In early December 2021, when Banta had synchronised a certain amount of sequences that underwent Young's evaluation and approval, it was time for the programmers to convene for assignment of the processing of the various cues (A27): the three had known each other for many years, therefore they managed to allocate tasks themselves according to each one's inclination, fostering a collaborative and non-competitive environment.

A robust practice at Young's studio involves employing a multiple-choice strategy when beginning to edit the cues. Initially, a variety of alternative versions are developed for as many cues as possible, although this approach gradually fades as Young gains confidence in the overall balance of the score. Nonetheless, it is worth noting that, in the making of *The Autopsy*, only a single musical option was prepared for the most complex cues. Additionally,

finding suitable preliminary studies for certain film sequences proved quite challenging. In particular, the final act of *The Autopsy*, which is almost scored wall-to-wall with music, posed significant difficulties for Young to such an extent that, despite the abundance of material already available with the studies, new cues had to be composed from scratch. Pressed for time, Young worked directly at the sequencer with the assistance of the programmers, maintaining close contact with director Prior either via email or in person. As a matter of fact, the director visited the studio multiple times to participate in cue audits, as we already mentioned referred to as *show-and-tell* (A32). The first of these audits took place on December 17, 2021. At least four cues were ready for Prior's review during this session, allowing him to hear the first thirty minutes of the underscore. Prior participated in three more audits at Young's studio, with the final one, on February 7, 2022, being the most significant as it preceded the recording session. During these meetings, the director and composer discussed, among many things, Young's proposal to depart from strict synchronization of the music with the film events, aligning with contemporary trends in film music, while Prior favoured a stronger, more traditional music-to-picture approach.

Finally, in the later stages of underscore production, Young deviated from some of the principles that initially guided the creation of the music. The most notable change concerned the prominent feature of a string quartet and solo banjo as the score's defining sound. In fact, string arrangements were expanded to mimic an orchestra in more than one cue through layering tracks and adding double bass lines. This made it necessary to record a string quintet during the recording session.

4. Recording Session

The recording session focused on capturing the performances of the string quintet, tasked with playing the music for both the opening and closing credits, as well as the aleatoric sections intended to replace the temporary samples in hybrid mockups. With a limited budget to invest in this operation, two key individuals were of fundamental help: the scoring assistant, Jared Banta, and a music contractor recommended and contacted by him. Banta played a pivotal role in negotiating with Netflix to plan and set up the recording session within the allocated budget (A33). He participated in the meeting between the contractor and the composer, where they selected the musicians and arranged the recording session's breakdown (A34). He was also responsible for finding and booking a suitable recording studio and hiring sound engineers to oversee the recording process. Finally, he was tasked with preparing various materials, such as the scores for each cue to be consulted in the control room—including those containing the passages of the hybrid cues to be re-recorded that had been spotted earlier by a programmer (A35)—; the score parts for the musicians; the click tracks for cues requiring synchronization; and orchestrating all the music to be recorded (A36).

The night before the recording session for *The Autopsy*—which took place on Friday, February 11, 2022, from 9 am to 2 pm at Sonic Fuel Studios owned by

composers Christopher Lennertz and Tim Wynn (A37)—Young and Banta met to review once more every part scheduled for recording, while checking the scores prepared by the latter for the following day.

One hour before the session began, Banta and Daniel Wehr, the latter designated as “librarian” for the occasion, arrived at the recording studio to set everything up with the sound engineers. While director Prior was unable to attend due to illness, the music contractor, despite being indisposed, oversaw the session remotely to ensure compliance with the contract terms between Young’s studio and the musicians, and provide breaks for them every thirty minutes.

Throughout the session, Young remained standing in the control room examining the scores, and, in between the takes, he instructed the musicians, particularly focusing on the challenging aleatoric passages. This meticulous work came right after Young and his team were satisfied with the recorded takes of the opening and closing credits. There was constant interaction between the composer, performers, and the rest of the staff: especially during the most difficult parts, Young ensured that everyone understood the results he wanted to achieve by gathering them in the booth to listen to the mockups.

No pre-mixing was conducted during the session, and once concluded, the raw material was promptly sent to Young’s studio by the sound engineers (A38). Integrating the newly recorded parts into the mockups was a time-consuming activity entrusted entirely to the programmers, who also handled a significant part of the music mixing, which required little supervision from Young, as he was preoccupied with studio relocation (A39, A40, A41). After the edited mockups were finalised, Young validated them. Then, Max Blomgren, the programmer who had participated in the spotting session and overseen the integrations, prepared stems¹¹ for each cue and forwarded them to Netflix for the final soundtrack mixing (A42, A43).

DOCUMENTARY TRACES OF THE COMPOSITIONAL PROCESS

In this section, we aim to summarize, from a broad perspective, the various documental sources generated during the process of composing the film’s soundtrack. Of course, it is not possible to draw generalizations based on a single case study. A collation of diverse case studies, possibly belonging to different production systems, may eventually lead to a real census of digital and analogue sources utilized in contemporary production processes.

However, we believe that this work can at least offer an initial framing of the

11 In the world of film audio mixing, the term “stem” refers to recordings that are created from multiple individual tracks. These stems are stereo mixes that are produced cue by cue and are derived from various audio tracks or virtual instruments samples that are used to create the final audio mix.

documentary types that can be employed in contemporary practice and that are crucial for a reconstruction of the compositional process. For each of the previously identified phases, [Appendix 1](#) will present, alongside the flowchart, a synoptic table listing the different resources (R) produced in each phase, while the following paragraphs have the task of contextualizing their use or production.

The documents we consider in this study were obtained during the field research through sharing with researchers the Dropbox folders used in the course of composition. They consist of approximately 150 Gb of materials pertinent to the making of *The Piper*, *Abyzou*, and *The Autopsy*. Here we will only consider materials related to *The Autopsy*. It is important to note that the Dropbox folders do not contain all the documents produced during the compositional process. For example, the processing files of the individual DAWs are not stored in the materials we have. The fact that no mention will be made of this document type—such as Logic X folders or packages, Digital Performer or the like¹²—does not mean that these files do not exist or cannot be found in further investigation, but they are simply not part of the types of documents used for the exchange of musical information among the members of the music team during the composition process. The fact that files in the proprietary format of the individual DAWs are not exchanged during the composition process or that exports in platform-independent formats (such as AAF or OMF)¹³ are not used, but that the team prefers to work on more manageable and portable files, is obviously worthy of comment and we will return to it in the conclusion.

Even limiting the discussion to only the materials in *The Autopsy* we are still faced with an impressive amount of resources (about 7300 files). We have therefore decided to adopt a synoptic rather than merely enumerative criterion, which would have been sterile as well as impractical here. The criterion is as follows: for each phase we list one or more significant documents present in the studio's project folder, avoiding dealing with similar documents (e.g., all the .wav takes of a recording session) but taking care to list at least one resource per document type produced in each single phase.

1. Watching the film (A1)

The first phase of the process revolved around the copy of the film sent by the Netflix music department to the composer's studio (R1). Among the various pieces of information contained within the file's title, we learn that it is version

12 Interestingly, Young's studio has not standardized music production software in use, which are at the discretion of music programmers. Each programmer uses his or her own preferred DAW and Cubase and Logic are the main DAW used for music production at Young's studio.

13 These are platform-independent standards designed precisely for the interchange of materials between different audio or video editing software. The format is designed to encapsulate the information needed to transport digital media "such as audio, video, graphics, and still images as well as the rules for combining and presenting the media" (Open Media Framework 1994,1).

1.0 of the *Picture lock*, in other words, an edit of the film closely resembling the final version, ideal for refining special effects and working on the soundtrack. Subsequent updated versions of the edit (fortunately limited to special effects, with no significant alterations to the film's duration) were regularly sent to the composer.

The film was accompanied by the three channels of the temporary soundtrack (R1, R2, R3)—dialogue, music (MX), sound effects (SFX)—specially separated to facilitate the realisation of the music.

2. Preliminary meeting with David Prior (A2)

An audio file, lasting 41' 51", contains the recording of the first meeting between David Prior and Christopher Young, which took place at the composer's studio on October 18, 2021 (as indicated in the document title). Upon listening, it is possible to recognize the voices of the composer, the director, and the scoring assistant, Jared Banta.

3. Spotting (A4, A5)

The spotting phase produced at least two documents of primary importance. The first encompasses the recording of the entire session, which, for *The Autopsy*, spans a total of 2 hours, 47' 47", and is actually divided into two audio files (R6, R7).

The third document consists of the spotting notes. Although still titled *Preliminary notes* (R8), it is already complete with the information meticulously transcribed by the scoring assistant during the spotting (updated entry and exit time codes for each cue; cue category; and any comments provided by Christopher Young).

4. Demos: voice memos (A6)

This audio document (R9, untitled, but belonging to the category of voice memos) is a recording of Christopher Young working at the piano on one of the melodies proposed to the director for the film's opening credits sequence (here referred to as the *opening tune* by the composer). Young can be heard playing the harmony on the piano and singing the melody over it; later he can also be heard playing the melody, several times and at different speeds. Later on, the composer looks for a variation of the melody that could serve as contrasting material. The recording has a duration of 12' 07".

5. Demos: takedown (A7)

The primary documents generated at this stage of the process consisted of recordings of working sessions during which Christopher Young provided the scoring assistant with instructions for transcribing the melodic ideas to be presented to the director. The composer demonstrated, using the piano, the material intended for each instrument (banjo, violin I, violin II, viola, cello). These instructions were organised into three audio files (R10, R11, R12).

6. Demos: realization (A8 to A11)

The making of the demos resulted in a multitude of documents (around 131 resources). Here, we highlight only a small selection, specifically those files related to the third proposal, whose melody was selected by David Prior as the foundation for the film's opening credits cue. A folder, titled Idea 3, contains the stems of the demo, which at this stage are still performed on the piano (R13, R14). Additionally, the same folder includes a subsequent version of the demo where the banjo part has already been incorporated.

7. Studies: Sampling and Library Creation (A15 to A19)

The development of a library of sounds specifically sampled for the film is one of the project phases that yields the most extensive documentation. Among the approximately 2800 resources stored, we present here a condensed selection.

- In a voice memo (R16, again untitled) Christopher Young demonstrates, using his typical method of singing and playing at the piano, various effects he aims to achieve with the banjo.
- A textual note (R17) outlines the naming conventions for files at this stage of the process. Such instructions were regularly compiled by the scoring assistant, distributed among team members, and adhered to by the music programmers to ensure the clear and orderly circulation of materials between locations.
- An audio file (R18) contains a recording of a session of breaths and moans performed by Christopher Young himself. The initials "DW", which can be read in the title of the document, indicate that the recording was edited by music programmer Daniel Wehr. Wehr selected the most compelling sounds from the recording and, following Young's instructions, transformed them into a palette of sounds used to create the musical material associated with the alien and his spaceship. These samples are stored in audio resources R19 to R23.
- Within a project folder (R24), most of the material obtained from sampling the banjo is compiled. For example, two recordings realised by programmers Daniel Wehr and Jung J. Lee (the latter being the instrumentalist) are included. The first recording (R25) features a series of experiments where the banjo strings are played with a bow (*Banjo_bowed*, duration 38' 01"). In the second recording (R26), the performer executes patterns suggested by Young by plucking the banjo strings and then uses the bow again to create sound textures, which are subsequently manipulated digitally to produce a series of pads (*Banjo_phrases to Pads*, duration 12'16").

8. Studies: realization (A20 to A27)

The studies created for *The Autopsy* total seventeen in number. Mixed and exported in WAV format, they were sent to the director and archived in a folder labeled *STFULL MIX*. Additionally, stems were prepared for each of them. As an example, we consider study number 15, which is constructed around a series of

rhythmic patterns performed on the banjo. Its production yielded the following materials:

- an audio file of the fully mixed track (R28), sent for David Prior approval;
- the track is further broken down into its constituent parts, resulting in an additional four audio resources (R29 to R32).

9. Cues: realization (A28 to A30)

Here we outline the types of sources originating from this stage of the work, detailing some documents related to the production of cue 1M01, one of the most intricate pieces in the entire soundtrack of *The Autopsy*.

The archiving system adopted at Young's studio for *The Autopsy* entailed collecting various versions of the cue gradually exported by the music programmer for validation by the director in a designated folder (R33). Through the analysis of this material, it is possible to reconstruct the key stages of refinement of the cue under examination, before the final version was approved. As per the norm, the letters "dw" indicate that Daniel Wehr is the music programmer assigned to implement the cue.

- R34: The second version of the cue ("v2"), here titled *Opening*, in full mix. The file's title also provides the exact time code of the cue entry.
- R35: The fifth version ("v5") of the cue. The cue's entry time code is slightly different from that of the previous version.
- R36: the ninth version of cue 1M01 ("v9") bears a new title (*Mine Explosion*).
- R37: Cues could be exported not only in WAV format but also in an audiovisual format, enabling filmmakers to experience them synchronized with the scene. Such fragments contain only images and music, but no dialogue or sound effects.
- R38: This document comprises a recording of a working session between Christopher Young and the music programmer, during which the composer listens to and provides feedback on the cue. Daniel Wehr and his colleagues often recorded these sessions, as the directions provided by the composer were often numerous and highly detailed.

10. Show-and-Tell with David Prior (A32)

A PDF document, compiled by the scoring assistant, consolidates the information gathered during the initial review with David Prior. Using the recording of the meeting as a reference, the scoring assistant created a table documenting the director's comments and requested revisions for each cue. Similar documents were generated for internal use at Young's studio following each show-and-tell session, as well as after the spotting.

11. Orchestration and Recording Session Preparation (A33, A36)

The scoring assistant was responsible for orchestrating the cues to be recorded during the recording session and must also prepare the instrumental parts. As the implementation of hybrid cues progressed, the originally envisioned string quartet passages evolved and became denser, necessitating the use of

overdubbing during recording. For example, in the case of cue 1M01, the string quintet was expected to record three layers (or “passes”) of different materials, which were subsequently recomposed and overlaid during mixing.

The instrumental parts are organised in folders, each labelled with the title of the corresponding cue. In the synoptic table, we detail the documents (R41 to R55) contained in the folder pertaining to cue 1M01 (R40).

12. Identification of Sections to be Re-recorded (A35)

A PDF document (R56) was derived from an Excel table prepared by music programmer Daniel Wehr. It outlines several hybrid cues and, for each of them, specifies the sections to be re-recorded during the upcoming recording session.

13. Recording Session (A37, A38)

Given that much of the material to be recorded involved extended playing techniques, the recording session was structured to allow instrumentalists to rehearse and record a few bars at a time. The resulting multiple tracks are stored in dedicated folders, each labelled with the M number of the cue, the recorded bars, and the take number.

For instance, the folder *AU 1m1 m17 tk07* (R57) contains rough recordings of select measures (starting from bar 17) of cue 1M01. Each take was captured from different microphones, which were set up by the sound engineers before the recording session began (R58 to R64).

14. Cue: Finalisation and Delivery of Stems (A39 to A42)

The finalisation and mixing of the cues were overseen by music programmer Max Blomgren. He assembled a folder for each cue containing the complete mix and the stems. In the synoptic table, we outline the contents of the folder dedicated to cue 1M01 (R65), which, in its final iteration, retains the title *Opening* and encompasses 10 audio resources comprising the cue (full mix, R66) and the stems (R67 to R75).

CONCLUDING REMARKS

As we argued in the introduction, considering the methodological limitations highlighted in the opening, it is not possible to propose generalizations about contemporary compositional processes from this certainly intensive yet very limited field of observation. In a production context traversed by continuous technological, creative, and production changes, it is even less possible to consider the processes examined as representative of the current compositional activity of Christopher Young’s studio. However, the impression, resulting from numerous exchanges with both the composer and members of the music team, is that of witnessing the end of an era in the composer’s artistic, professional, and personal journey and the beginning of a new creative phase. This change is intensely symbolised by the final closing of the Culver City studio and the opening of a new workspace at the composer’s home, a direct consequence

of the broad aesthetic and production revolution that the contemporary music industry has gone through. Several times Young has manifested before us and his collaborators the feeling of having seen the definitive disappearance of a production system that had its artistic and emotional zenith in the stages of the *spotting* and *recording session*, during which the maximum crystallization of a project's creative tensions was reached, and which today, we have seen, are drastically downsized by the systematic anticipation of the stages of approval of the general concept of the soundtrack and the thematic-motivic structure through demos, studies and mockups.¹⁴

In the changed landscape, some nodes seem to gain central relevance, useful to point out especially from the perspective of collating data and evidence from different production contexts.

- *Centrality of the collaborative team.* The importance of collaborators in the management of the composer's daily activity is a central node.¹⁵The team takes the form of a kind of sui generis family, whose various members work harmoniously, often following unwritten rules, providing support to the composer, who is constantly seeking feedback about the smooth running of the production machine and the effectiveness of the composed material.
- *Overabundance of musical material and layering of sources.* We have seen the extent of the preparatory material produced by Young and his team for each project: the music alone that the composer makes in the start-up phase of *The Autopsy* exceeds the length of the film (about eighty minutes between demos, studies, and later discarded alternate versions of the first cues for a film that lasts just over fifty) and almost doubles that of the actual underscore. The more Young has to forgo traditional writing approaches, delegating the *hands-on* work on the music to his collaborators, the more the amount of preparatory musical material increases. This condition also proposes a paradox: on the one hand, the new digital documentality presents an exponential growth of sources which document every step of the process and allow it to be reconstructed with a granularity potentially unknown to previous practices. On the

14 This is a shift that now seems generalizable, although not necessarily achieved through the methodology we saw at work in Young's study. On this topic see also Sapiro (2017, 253–59).

15 Obviously, this phenomenon is not confined to Young's studio, but is part of a broader multivocality within the contemporary compositional process, which has shaped film music since its early days. To our knowledge few studies in the literature analyse these phenomena in contemporary film productions. A good example with regard to the relationship between composer and orchestrator is Sapiro (2017), while numerous anecdotal references can be found in interviews with composers: see for example Sapiro (2013, on Ilan Eshkeri and his relationship with Michael Kamen's production team). The aim of this article is to describe how this multivocality is fostering new creative and collaborative practices, particularly among composers who, after beginning their careers in the analogue era, have transitioned over the past two decades to digital workflows.

other hand, these materials are increasingly ephemeral and difficult to access. This is for reasons of privateness, let us say, and difficulty to access the compositional setting, but also, in perspective, for reasons of rapid obsolescence of formats, media and setups that are difficult to reproduce in an external context.

- *Auralisation and marginalisation of music writing.* This is probably the most striking node. Music writing, which already constituted a medium of service in analog practice, is further marginalised in a context in which the initial stimulus and medium of communication within the music team or between composer and filmmakers is primarily aural. Interestingly, musical information is conveyed between members of the music compartment primarily via aural medium (voice memos, demos, studies, mockups) and, in the later stages of processing, via audiovisual medium (synchronised demos, studies, and mockups). Alphabetic writing in digital media certainly still has a role in conveying and organising enumerative and hierarchical information (pre-spotting notes, spotting notes, cue lists). Only in third place comes music writing produced digitally and printed (scores for the recording session). Increasingly, however, in the context of hybrid scores, music writing is not delegated the representation of a cue, but only the annotation for the recording of cells entrusted to analog instruments, which must then be digitally reprocessed. It seems that music writing has assumed an entirely epiphenomenal statute with respect to the means of conveying musical information in the compositional process. Score processing in all its stages takes the form of a complex operation that combines tactile-visual and aural work on the part of music programmers (composition and digital sound manipulation operations on sequencers and DAWs) with aural feedback (the audits between programmer and composer and between composer and filmmakers). The voice of the composer recorded in the voice memos—the *grammelot* mentioned above—is certainly among the most interesting nodes that emerged from this research.¹⁶ The composer's voice now stably embodies the functions previously assumed

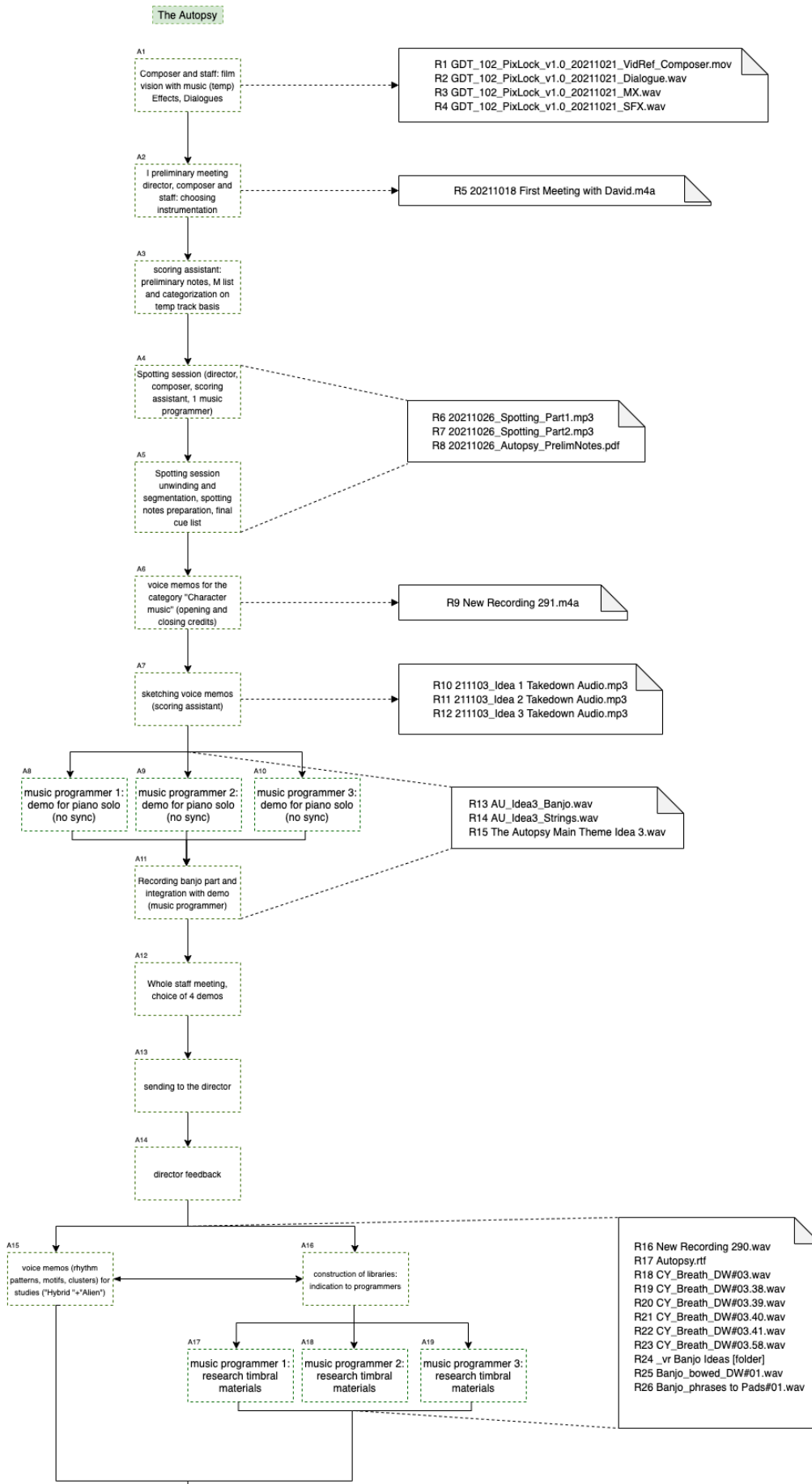
16 This is certainly not an isolated case, nor is it a phenomenon that can be ascribed to the digital transition alone. However, we can say that the digital transition has made these "exceptions" more frequent and to some extent stable. Sonny Kompanek thus listed, not without irony, the various types of materials he received in his career as an orchestrator: "as an orchestrator, I have been asked to create film cues from the following: 1. Humming, grunting, whistling, and/or the stamping of feet; 2. A single-word description of a scene—'chaos'—for 30 seconds; 3. Four bars of melody and a request to 'fill out' the music for a four-minute, full-orchestra cue; 4. A four-voice hymn texture to be made into a thrashing, swirling, and bombastic Star Wars-type action cue; 5. 'Do something like Bartok's *Music for Strings Percussion & Celeste* for three minutes'; 6. 'Make a new cue from the previous one, but maybe more like ...'; 7. A MIDI file to be 'filled out' (added to) as a sequence, e-mailed back to the composer for additions without it ever being put on paper—'electronic orchestration'; 8. A piano demo, which I first transcribe, then arrange; 9. A two to three-line sketch with dramatic words of instruction" (Kompanek 2004, 4–5).

by the sketch on paper, and that summarises, through the use of different vocal parameters, genre codes and stylistic qualities of the composer or stylistic features born out of the relationship between composer and his programmers, in the collaborative workshop of the music team.

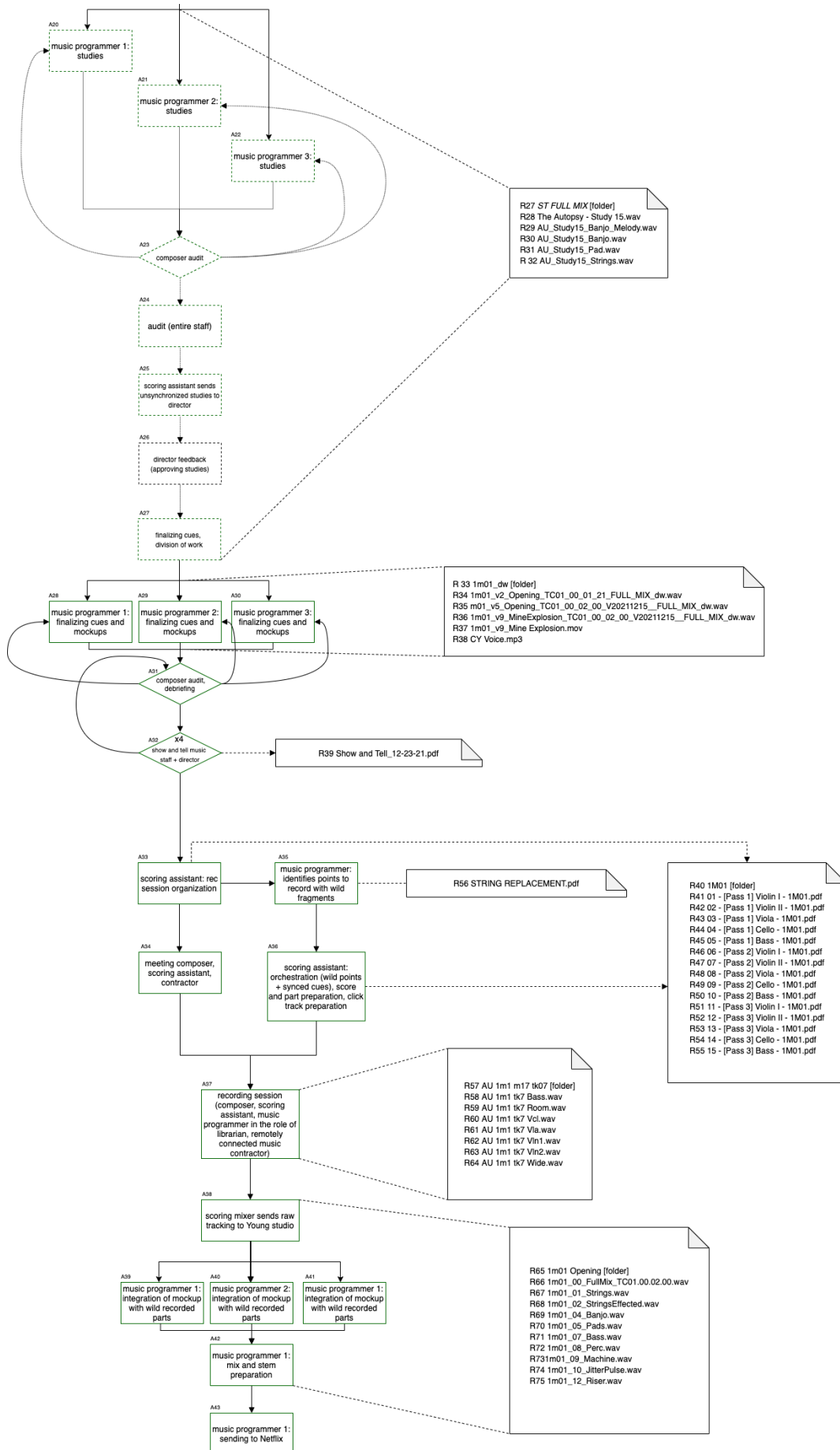
Appendix

Flowchart representation of the compositional processes analysed and synoptic representation of the relevant documents for each of the stages. The dashed lines in the boxes indicate the passages we did not witness directly and were reconstructed with the help of oral sources, the composer and his collaborators; the solid lines indicate the episodes we were able to witness during our period of field observation.

APPENDIX 1:



APPENDIX 2:



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