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Analysis of the Use of Silence in Frédéric Devreese's *Passage à 5, Mascarade, Danse de l'Auberge and Valse Sacrée*

ABSTRACT

Frédéric Devreese (1929–) is a prominent Belgian classical and film composer who has written over 200 musical compositions, including 22 film scores. In this paper, we approach the analysis of four of his compositions, including one film score cue. Our analysis is based on the presence and absence of silence. Currently, there are not many modern musicological analyses from the silence perspective. Some of most influential analytical methods and theories developed during the past century did not directly address the silence phenomenon — e.g. Schenkerian Analysis, Set-Theoretical Analysis. Therefore, a theoretical framework is built upon the revision of rather unpopular and segregated theories about silence functions and classifications developed throughout the 20th century. The chosen musical examples for the present study were personally recommended and selected by the composer Frédéric Devreese, as being relevant for their silence usage. Our subject of study is primarily focused on silences that are represented in the score — i.e. rests, phrase marks, staccatos, breath marks, etc. However, a brief comparison with two selected recordings for each score will be made, as part of our comparative analysis. Two new musicological tools are presented and tested in this study, namely: Barcode of Synchronized Rests (BSR), and Barcode of the Silent Waveform (BSW). Consequently, a better understanding of the analysed compositions is achieved, and an analytical method for studying silence functions is suggested, opening horizons to future silence-based musicological studies.

1. INTRODUCTION

1.1 State of the Art

Although there are many writings on silence, surprisingly few scholars have taken a musico-analytical approach for studying the functions of silence in music. In our case, we will be analyzing the use of silence in four selected compositions of Frédéric Devreese (1929–). Even though Devreese is a prolific composer, with a large corpus of concert and film music performed worldwide, the published analyses of his music are scarce — none of which concentrate, specifically, on his use of silence. We believe that it is important to make a difference in this trend, by analyzing some of Devreese's most striking passages that feature fascinating compositional techniques.

Before focusing on the music of Devreese, we believe that it is necessary to briefly describe the state of the art of the current and past musicological studies on silence. Nowadays, there are at least three contrasting approaches for analyzing silence: score-based, recording-based, and perception-based analysis. These approaches rely primarily on the three silence types defined by Margulis (2007): notated silence, acoustic silence, and perceived silence. In our study, we will focus on analyzing scores and audio recordings, by looking at notated silence contrasted with acoustic silence. Some core definitions are:

a. Silence: 'Absence of sounds' (Schafer 1967, 5);

b. Notated Silence: 'Markings on musical scores that may indicate an acoustic or perceived silence' (Margulis 2007, 251);

c. Acoustic Silence: 'Periods on recordings during which acoustic analysis shows below-threshold sound stimulus' (Margulis 2007, 251).

We would like to point out that we will not be defining silence as 'not intended' sound (Cage 1961, 14). The silences studied in Devreese's music are intentionally notated in the scores and/or deliberately played by the performers. Although absolute absence of sound does not exist in the natural musical environment, relative absence of sound is still a valid construct. In a way, the relative absence of sound may be understood as a low-density level, and thus, it could be extended to other types of silence, which shall not be discussed here.

Our literature review has shown us that the vast majority of analytical studies on silence deal seldom with notated silence, mainly in its rest form. One of the first musicologist to theorize and analyze rest-notated silence was Hugo Riemann (1849–1919) defining end-rests, inner-rests, rests at the beginning of a motive, among others (Kim 2013). Although Riemann's harmonic theories have become relatively popular, his writings on silence remain still largely undiscovered. We can find a temporal continuity among the silence studies of the last five decades through the works of Braman (1956), Lissa (1964), Clifton (1976), Dougherty (1979), Gaudibert (1995), Judkins (1997), Harris (2005), Cooper (2011) and Yin Lo (2015).

Unfortunately, each of the above-mentioned authors used its own terminology to express a more or less defined taxonomy of silence types. Hence, different authors can be referring to a similar silence category, while using different terms. Many of these systems are rather comprehensive, but still remain largely unknown in the broader international musico-analytical circles. In this context, we would like to overview how the structural and rhythmical functions of silence have been studied and described. The distinction between rhythmic and structural silence lies mainly in the impact that silence has in the surrounding music. Rhythmic silence contributes to a temporal pattern, while structural silence acts as a separator or highlighter of a formal unit — motive, phrase, section, etc.

Braman did not mention rhythmic silence as a distinct category in his list of 24 silence devices. However, he did describe numerous rhythmic devices created by silence, namely: accented beat vacant, anacrusis, asymmetrical separation, augmentation, barking or retarding effect, calando, meter change, symmetrical separation, and syncopation (Braman 1956, 40). Lissa (1964) acknowledged the importance of silence in the creation of rhythmic values, patterns, and flow. In this line, Judkins (1997) insisted that 'musical silences are charged with meaning by the tonal and rhythmic

material surrounding them’. Clifton (1976) spoke of rhythm within a tripartite classification: ‘temporal silences’, ‘silences in registral space’, and ‘silences in motion’. Cooper (2011) questioned whether silence possesses an underlying rhythm, and how it can disorient the listener by being placed on the downbeat of a bar. Dougherty (1979), Gaudibert (1995), Harris (2005), and Yin Lo (2015), did not address rhythmic silence as a separate type in their classifications, granting more importance to structural silence.

Braman (1956) focused his first classification on the position in which the silence occurs, specifying the formal units that are being separated by silence — sections, phrases, or motives. Lissa, defined silence as ‘one of the structural elements of the sound fabric’. Clifton (1976) described how registral silence can emphasize long-span connection and create a ‘structural register’. Dougherty (1979) spoke openly of structural silence, along with pre-performance silence, and post-performance silence, as a subtype of the normative silence, later referenced and criticized by Judkins (1997). Gaudibert (1995) defined three type of silence that have a heavy structural impact: interrogative silence (not-conclusive), integrated silence (recursive) and punctual silence (conclusive). Harris (2005) asserted several types of structural silence in Handel, attributing them to Corelli: silence that demarcates formal and harmonic boundaries, pre-cadential silence, and interruptive silence. Cooper (2011) distinguished two types of silences: structural silence (formal separation), and dramatic (interruptive) — focusing his research on the latter. Cooper added that the structural silences that ‘usually occur on weak beats or half-beats, are commonplace and generally merit no special attention’. Contrarily, Yin Lo (2015) focused his research entirely on structural silences developing a threefold classification: opening silence, closing silence, transitional silence. This classification has a strong connection with Dougherty’s three non-normative silences: predictive silence, retrodictive silence, and juxtadictive silence.

1.2 Aims and Repertoire Studied

This paper aims to analyze the notated and acoustic silences of four scores of Frédéric Devreese: *Passage à 5*: for violin, guitar, accordion, piano and contrabass (2002/2015), the third movement, ‘Variations’, from *Mascarade pour piano* (1953/2015), ‘Danse de l’auberge’ from André Delvaux’s film *Un soir un train...* (1968), and *Valse Sacrée: For Symphonic Orchestra* (1989/2005). The composer selected these compositions himself for their silence usage. Each of these scores is going to be compared with two reference recordings.¹ Our overall analytical goal, materializes into three more specific objectives:

1. To improve our understanding of the constructive functions of silence in the selected compositions by Devreese;
2. To present an analytical tool that allows us to compare condensed representations of notated and acoustic silences;
3. To strengthen the conceptual framework on musical silence through the analysis of scores and audio recordings.

1.3 Methods

To achieve our global goal described above, we have developed two tools for a systematic analysis of notated and

acoustic silence: 1) the Barcode of Synchronized Rests (BSR) dedicated to notated silence; and 2) the Barcode of the Silent Waveform (BSW), reserved for acoustic silence.

The BSR displays with black stripes the instances of rests that occur simultaneously in all written parts. These vertical stripes are indicated in a horizontal timeline of bar numbers. The information that is represented, is manually extracted from the rests of the score and it can be displayed at various level of resolution (Figure 1). The potential danger of using a compressed BSR is the creation of clusters, that may look like a big long rest, when, in fact, we are facing multiple instances of smaller rests. Therefore, to avoid misleading the viewer, we have decided to highlight these clusters in gray, while using the black color for representing the individual rests’ occurrences that do not overlap.

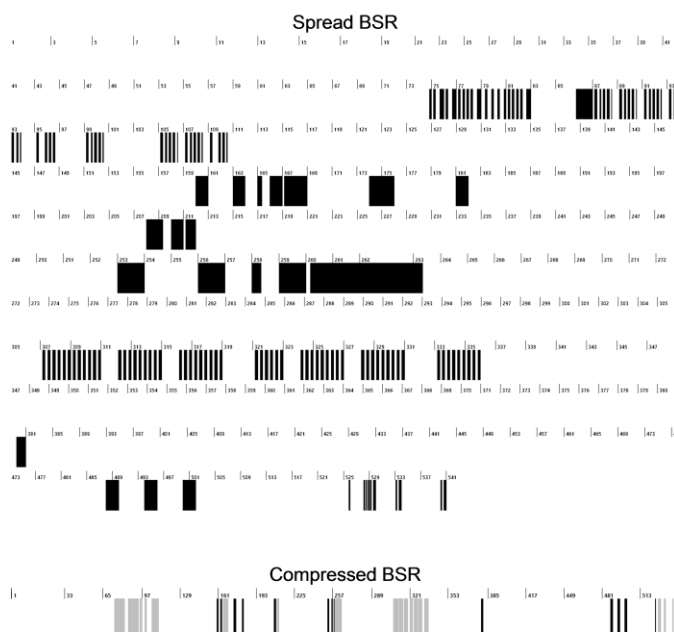


Fig. 1. BSR for *Passage à 5* (2002) at two levels of resolution.

In contrast, the BSW is made by overlapping the empty sections of an audio waveform at various levels of amplitude in a vertical temporal axis, graded in minutes and seconds (Figure 2). In this specific study we zoomed into the waveform at seven levels of amplitude — every 6 dB, starting at 0 dB and ending at -36 dB. We have enhanced the differences between the seven layers using a grayscale palette. Here, white stands for absence of silence, black means presence of silence, and gray reflects the degree of variability between these two conditions.

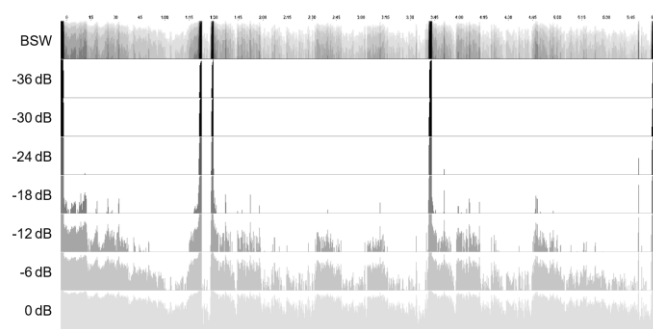


Fig. 2. Unfolding of the Barcode of the Silent Waveform (BSW) for *Valse Sacrée* (rec. 2011) at seven levels of amplitude.

¹ For the full details of these recordings, see references.

Our discussion of the four scores and eight recordings will be arranged in the following manner. First, we will present a brief overview of the synchronized rests of each piece. For the first two pieces, we have provided a small table that groups the rests instances into clusters (Figures 3 and 4). The first column names the section in which the cluster occurs. The second column numbers the clusters (c.) in order of appearance. The third column indicates the span of bars during which the silences occur. The fourth column states the number of rests (NR). Finally, the fifth column indicates the average rest duration of each cluster. Once we have discussed each piece individually, we will proceed with the comparative analysis including the BSR and BSW of all the material (Figure 7).

2. DISCUSSION

2.1 *Passage à 5*

Passage à 5 is a theme with variations structured into 6 sections: Introduction-Theme, Variations 1, 2, 3, 4, and Finale. Altogether, it presents 156 absolute rests grouped in 12 clusters.

Sections	C	Bars	NR	Avg. dur.
Theme	1	74–82	19	0.17
	2	86	1	0.27–1.09
Var. 1	3	87–111	44	0.11
	4	160–168	5	0.85
Var. 2	5	174–181	2	1.23
	6	208–211	3	0.86
	7	253–259	4	0.618
Var. 2/3	8	260–263	1	3.39–5.03
Var. 3	9	307–335	63	0.12
Var. 4	10	380	1	0.83–3.43
Finale	11	488–501	3	1.64
	12	525–540	10	0.18

Fig. 3. Synchronized rests and clusters of *Passage à 5*.

The rests from clusters 1, 3, 9, and 12, display primarily a rhythmic function, creating both symmetrical (c. 9) and asymmetrical (c. 1, 3, 12) separations. Considering the brief average rest duration and the overall dynamics (*f–ff*), we have noticed that the release tails of the sound fill almost completely these rests. In a way, rhythmic rests help to sharpen the staccato articulation. Clusters 2, 8, and 10, were written as a span duration, because they are followed by an end-bar, c. 8 has also a fermata sign, while c. 10 is preceded by a fermata note. For our calculations, we presumed that the end-bar with or without a fermata sign, could add an extra measure of silence. These clusters and the last rests from c. 4, 6 and 12 are end-rests, because of their conclusive structural function. The last two rests of the score can also be interpreted as a detached-ending. Clusters 4, 6 and 7 have a motivic function associated to the interrupted motif of the accordion that culminates with a *tutti* chord (*ff* C. 4 and 6, *pp* c. 7). This motif follows a shrinking progression in eighth notes: 12, 6, 4, 1 (c. 4, 7); and 12, 4, 1 (c. 6). If we examine the rest durations, we see an irregular sequence: 6, 6, 2, 6, 11/19 (c. 4, 7); and 8, 6, 5 (c. 6). This ternary distribution (ABA), defines the start, middle and end of the second variation. The longest inner-rests are found in c. 5 and 11, where the rests interrupt a longer musical phrase (4–5 bars). There is a contextual difference between both clusters though, c. 5 has two silences — 2 and 1 measures long, respectively — and uses only guitar and double bass (*p* crescendo to *f*); while c. 7 has 3 symmetrical silences (2 measures long each) in *tutti* (*ff* in crescendo). The latter con-

stitutes the climax of the piece, because of its abruptness, insistence, and position.

2.2 ‘Variations’ from *Mascarade*

The third movement, ‘Variations’, from *Mascarade* presents 40 absolute rests spread between 5 sections: theme, variations 2–3, and coda. Variation 1 has no rests.

Sections	C	Bars	NR	Avg. dur.
Theme	1	8, 38	2	0.5
Var. 1	–	–	–	–
Var. 2	2	78–9	1	1.34
	3	113–121	3	0.60
	4	122–3	1	1.34
Var. 3	5	130–141	12	0.61
	6	142–5	6	0.23
	7	157, 161	2	0.23
	8	162–6	6	0.23
	9	173	1	0.91
	10	177, 181	2	0.23
	Coda	11	207–213	3

Fig. 4. Synchronized rests and clusters of *Passage à 5*.

The theme (bars 1–40) has only 2 rests (bars 8, 38): 0.25 and 0.75 s, respectively. These are, primarily, end-rest, likened to the breath-marks of a phrase end, as the ones of bars 40, 44, 61, 69 and 77. Variation 1 (bars 41–77) has no synchronized rests, but only the abovementioned breath-marks. The 5 rests in Variation 2 (bars 78–129) define an ABA form: A (bars 78–9), B (bars 113, 115–16, and 121), and A (bars 122–3). The first and the last silences (1.34 s each) have a motivic function, detaching and reiterating the head of an 8-measure phrase. The 3 inner rests of B (0.45, 0.45, and 0.91 s) are placed as a culmination of a rising passage, followed by the reprise of A. Variation 3 (bars 130–181) is more complex: 29 rests grouped in six clusters (c. 5–10). The first 12 rests (bars 130–141) arrange as 3 + 4 + 5. Most of them play a rhythmic and motivic role, except for rests 3, 7 (interruptions for greater impact), 11 (anacrusis) and 12 (end-rest). The clusters 6 and 8 are identical, 6 rests (0.23 s each) in 3 + 3. They continue the rhythmic function of the c. 1 adding a new melodic line. Clusters 7 and 10 are also twins, 2 rests (0.23 s each) equivalent to bar 8. The long rest of bar 173 (0.91 s) is a variant of bar 153. This omission marks the climax of this variation. The coda (bars 182–216) has 3 rests (excluding the final rest) with an augmenting duration: bar 207 (0.3 s), bar 211 (0.6 s), bars 212–13 (1.32 s). The first is analogous to bar 177, while the second and third form a double detached-ending, deluding the listener with a false ending.

2.3 ‘Danse de l’auberge’

The score of ‘Danse de l’auberge’ has only 3 rest-notated silences, in bars 8, 11 and 14, with a duration of 2.5, 1.88, and 1.25 s, respectively. In the film, these three rests get filled diegetically by footsteps in eighth notes. Similarly, in bars 1–6 we encounter 3 ‘silences’ filled with a resonance written for strings and electronic organ. If we combine all six silences, we obtain a shrinking silent progression (7, 6, 5, 4, 3, 2 quarter notes) that complements an expanding sounding material (1, 2, 3, 4, 8, 8 quarter notes). Thus, an effect of interruption, acceleration and gradual thematic exposition is achieved, baring both a structural and a rhythmic value. The rhythmic value comes from the *accelerando*, while the structural, from the detached head of the opening motive, through a liquidation and progressive introduction.

2.4 *Valse Sacrée*

In *Valse Sacrée*, 4 rest-notated silences were found in bars 31–2, 163, 171–2, and 238. The first and the third are 1.67 s each, while the second and the fourth are 0.69 s each. An interesting effect of incomplete ending is achieved by finishing the composition with the same material that has been sounding before the first and third silences (bars 25–30, 165–170, 240–5). The second and the fourth rests act as the resolution to a climax, preceded by a rising section. However, due to a shorter duration, these rests are likely to get covered by the resonance of the *tutti* chord. A pause that is not rest-notated is found in the double bar that separates the introduction from the waltz, potentiated by a fermata sign (bar 24).

2.5 Comparative Analysis

In Figure 5 we have represented the silence barcode diagrams for all four scores and eight audio recordings, allowing us to easily compare the rest position within the form.

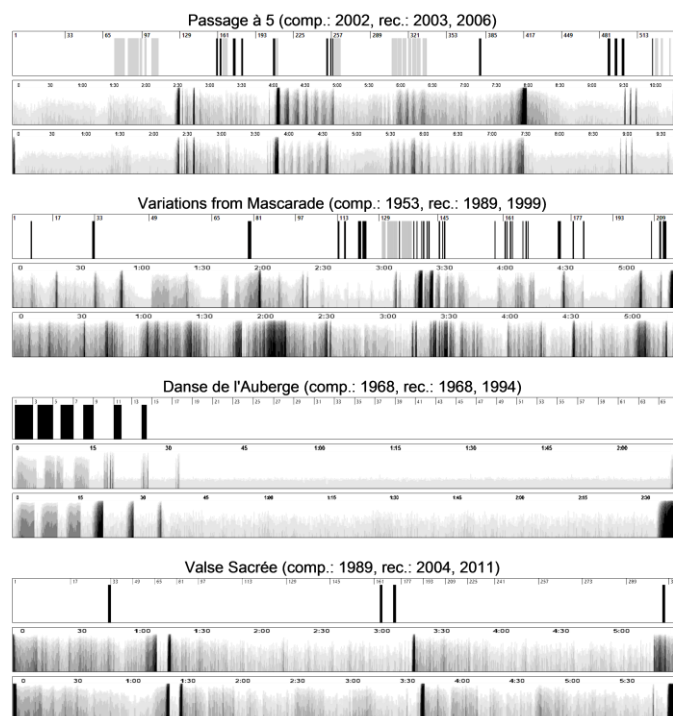


Fig. 5 BSR and BSW of our four case studies.

The discussion of each of these pieces individually has shown us the wide variety of silence devices in Devreese’s music. In terms of quantity, the first two pieces present more silence instances than the last two. In this sense, the BSR and BSW help us to visually identify the density and position of silence. Figure 5 shows us the degree of variability that exists between the mechanical reading of the score — following precisely all the tempo indications — and the recording of a real performance. We have selected two recordings to prove that there is a considerable degree of variability between different performance too, though a relatively strong correlation in silence presence can be drawn between the different performances. Also, we can see how many acoustic silences are not notated as rests, and how some synchronized rests are not reflected clearly in the waveform.

From all four pieces, ‘Danse de l’auberge’ has the strongest correlation between BSR and BSW, and it also seems to be the

clearest to graphically illustrate. As described in the section 2.3, the silence devices of ‘Danse de l’auberge’ can be classified as rhythmic and structural silence simultaneously, since there is an accelerando effect produced by the shrinking silences and a progressive presentation or motivic introduction to the dance.

Valse Sacrée presents silences of structural type only, since they appear isolated, structuring the piece in a palindrome. It is interesting to notice how the BSR and BSW seem to be inverted. This happens because between bars 24 and 25 there is a double bar, with a fermata sign on the last chord of bar 24. According to the score, there should not be any silence between those two bars, since there are no clear silence marks. However, both the orchestral and piano recordings present a silence in that place, that becomes equivalent in duration to bars 31–2 or 171–2, which last two empty bars. On the other hand, the rests from bars 163 and 238 are two beats and a half, but have surprisingly little impact as acoustic silence as it is shown by the BSW, remaining almost hidden. The most striking and clever silence device in this waltz cannot be easily understood only by looking at the barcodes, since it is based on the music that precedes the silences. As explained in the section 2.4, the waltz ends with the introduction, puzzling the listener, since he expects the music to continue, when, in fact, it has ended.

Both *Passage à 5* and *Mascarade* present multiple instances of rhythmic and structural silence. With BSR and BSW we can discern the nature of these silences by paying attention to their frequency and periodicity. The silences that are relatively isolated tend to be structural, while the silences that repeat at regular interval are more likely to create a rhythm. There is a stronger correlation in *Passage à 5* between acoustic and notated silence than in *Mascarade*. In part, this happens because of the dynamic contrasts of the latter. Sometimes, these are more effective in creating acoustic silence than the other annotations of the score. The greatest silences according to the score are the interrupted notated silences, found in *Passage à 5* in bars 488–9, 494–5, and 500–1; and in *Mascarade* in bars 78–9, 121, 122–3, 131–2, 135–6, 173, and 212–3. Nevertheless, according to the audio recordings, the largest acoustic silences are found in the double bars that separate sections: in *Passage à 5* between 380 and 381, and in *Mascarade* at bars 61–2 and 203–4.

3. CONCLUSION

In this paper, we have argued how Frédéric Devreese’s use of silence can reveal rhythmic and structural functions. To make this claim, we have analyzed four scores — selected by the composer himself — to shed light on how silence operates in a specific musical context. Our analysis has shown us that *Passage à 5* and the third movement of *Mascarade* are the most sophisticated pieces from our corpus, in terms of silence usage. These two pieces display multiple silence instances of rhythmic and structural functions, in a wide variety of musical situations. On the contrary, *Valse Sacrée* presented only four structural pauses arranged as a palindrome. ‘Danse de l’auberge’ opens with six striking pauses where the rhythmic and structural functions blend in a large-scale motivic expansion rendering an accelerando gest.

Presently, no other analytical studies on the silence usage of Frédéric Devreese were found. However, there are several analyses on the use of silence in other composers. Diverse approaches were taken by scholars for analyzing musical si-

lence, prevailing the analysis of scores and the creation of new silence classifications. Currently, there is, to some degree, a conceptual chaos in terminology between these classification of silences types and functions. Although we have tried to draft a brief chronology on silence classification in the state of the art, there has not been found a well-established and precise taxonomy for silence functions. Our contribution here is focused on shedding some more light on silence identification and structural distribution.

For our comparative study, we have developed two tools: 1) a Barcode of Synchronized Rests (BSR) for scores; and 2) a Barcode of the Silent Waveform (BSW) for recordings. These two barcodes have proven to be a convenient tool for comparing silence presence and distribution in different pieces, and can be used to validate and analyze ‘Notated Silence’ and ‘Acoustic Silence’ (Margulis 2007, 251). Also, the differences between these two silences prove that not all rests are silent and not all silences are rests. The natural resonance of the instruments can fill certain short rests. At the same time, some silences are created by extremely soft dynamics, sometimes, as part of the natural decay of the sound — e.g. long chords on the piano.

It is hoped that the results of the present research will benefit musicologists, composers, performers, and listeners. For musicologists, this study attempts to define some new musicological tools, such as the BSR and BSW, for approaching the musical analysis of silence. For composers, the compositional techniques discussed here, could inspire a creative implementation in their own music. For performers, this research provides some more insight on the importance of score-represented silence and pauses, with the potential of increasing conscientiousness and expressiveness in silence execution. For listeners, the information of this study can help to raise awareness and appreciation for the constructive functions of musical silence in the music of Frédéric Devreese.

KEYWORDS

Silence, Rhythm, Contemporary Music, Film Music, Instrumental Music.

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