

Types of temporal coherence in video-dance postproduction

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Introduction

In the theory of audio-visual perception, one can set various types of congruence between sound/music and image, which can be categorized into the overall qualitative congruence and formal coherence (Payri & Prosper Ribes, 2011; Iwamiya , 2009)

The qualitative congruence encompasses both semantic congruence (Nieto 1996), which refers to the meanings and codes emanating from the music and image, such as codes of period, genre, location, ethnicity; and psychological congruence and empathy/anempathy between music and image (see Payri, 2015 b for a general discussion of these concepts). In dance, we can also include, within the psychological congruence, the congruence of energy in addition to the affective congruence (Eerola & Vuoskoski, 2012), since energy largely determines the quality of movement and body position.

Formal congruence has to do with the development in time of music and image, and it can be subdivided into the structural congruence, which focuses on the parts and repetitions of the structure of music and if they match the dance or image (Martínez and Epele, 2012; Meschini, 2013; Meschini and Payri, 2013), the temporal synchronization between audio and visual events, such as accents, or sound impulses and movements featured in the image (Iwamiya 2009; Lipscomb 1996; Camurri, Lagerlöf & Volpe, 2003), changes in level, etc.

We can also add, halfway between qualitative and formal congruence, the congruence of tempo, which is crucial in the dance, as the underlying tempo of the music usually requires a certain tempo in dance and video-dance, more markedly than in music applied to cinema or theater.

In this article, we address the question of congruence through the poietic analysis of two pieces of the Visions of Santa Teresa: a reflection on video-dance emerging from a previous musical creation on the visions of St. Teresa of Avila. The visions of *The Devil (El Demonio)* and the *Rapture (Arrobamiento)* are chosen. It is an approach with a musical mind in the sense that the dance to is generated on the music, and not the music on the dance, treating the elements of dance as a material for a musical montage. The different elements of the recording and production of video-dance are addressed, but the focus is on temporary congruence that is created in the image postproduction.

The dance was recorded at Spam! (Porcari, Lucca, Italia) in July 2015, with Flora Vannini as dancer and Roberto Lavagna as cinematographer. Editing and video making was made by Blas Payri

Examples can be found in the following link:

<https://drive.google.com/folderview?id=0B16CCldNiv9tfjhIREFtbWJWR29rVGhEQmpRaGdzZ0JLVV9WdlE2VW5sMUxkYXItUEhIN2s&usp=sharing>

Elements of the making process

Musical elements

In Figure 1 we can see the graphic representation of the musical pieces, highlighting the differences between the two in energy and evolution: see Payri (in press) for further details on the genesis of these pieces.

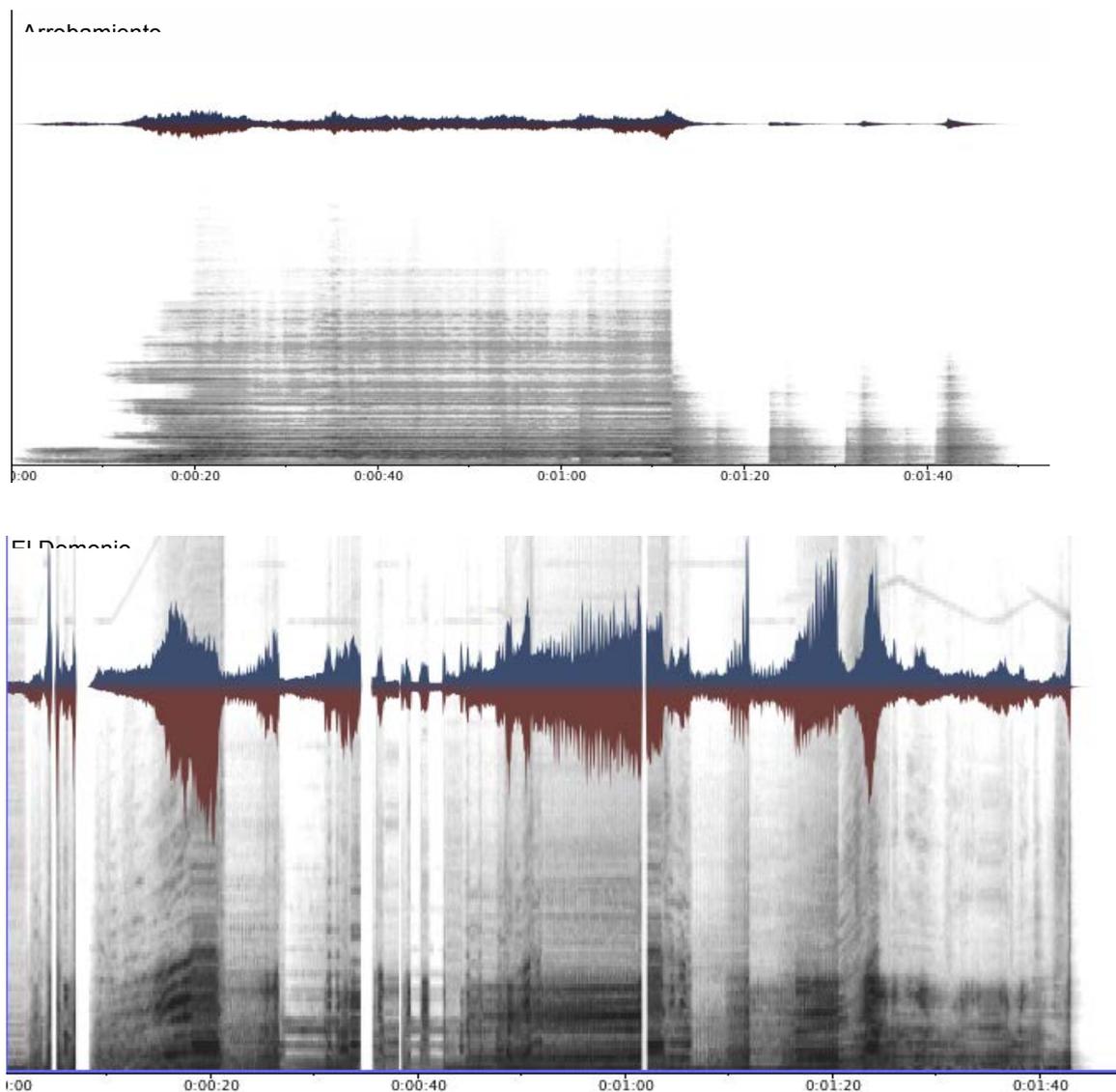


Figura 1: Representación del espectrograma y la amplitud de *Arrobamiento* (arriba) y *El Demonio* (abajo).

Both pieces consist of electro-acoustic music with abstract materials obtained from sound sources whose reference is partially recognizable.

In *Rapture*, there is a harmonious complex texture of slow evolution (source: String) very horizontal, interrupted by a low-pitched attack-resonance sound type with a very different spectrum distribution.

Link: <https://soundcloud.com/bpayri/santa-teresa-arrobamiento>.

The original description by Saint Teresa of Avila is as follows (Vida, XX, 7)

Verse así levantar un cuerpo de la tierra, que aunque el espíritu le lleva tras sí y es con suavidad grande si no se resiste, no se pierde el sentido; al menos yo estaba de manera en mí, que podía entender era llevada... Dios, envuelto en grandísimo amor que se cobra de nuevo a quien vemos le tiene tan grande a un gusano tan podrido, que no parece se contenta con llevar tan de veras el alma a Sí, sino que quiere el cuerpo, aun siendo tan mortal y de tierra tan sucia como por tantas ofensas se ha hecho.

También deja un desasimiento extraño..., y hácese una extrañeza nueva para con las cosas de la tierra, que es muy penosa la vida.

In *The Devil*, the composition is more vertical, with accents and abrupt stops, impulses that use a large displacement of energy, iterative loops, and generally energetic sounds that start and are interrupted abruptly and unpredictably. In this case vocal sources shouting can be recognized along with sounds without obvious references. The sounds are rather noisy with some elements with a defined pitch. Link: <https://soundcloud.com/bpayri/santa-teresa-demonio>. The original description by Saint Teresa of Avila is as follows (Vida, XXXI, 1, 2, 3):

Quiero decir, ya que he dicho algunas tentaciones y turbaciones interiores y secretas que el demonio me causaba, otras que hacía casi públicas en que no se podía ignorar que era él.

Estaba una vez en un oratorio y aparecióme hacia el lado izquierdo, de abominable figura; en especial miré la boca, porque me habló, que la tenía espantable. Parecía le salía una gran llama de el cuerpo, que estaba toda clara sin sombra. Díjome espantablemente que bien me había librado de sus manos, mas que él me tornaría a ellas. Yo tuve gran temor y santigüéme como pude, y desapareció y tornó luego. Por dos veces me acaeció esto. Yo no sabía qué me hacer; tenía allí agua bendita y echélo hacia aquella parte y nunca más tornó.

Otra vez me estuvo cinco horas atormentando con tan terribles dolores y desasosiego interior y exterior, que no me parece se podía ya sufrir... Quiso el Señor entendiéndose cómo era el demonio, porque vi cabe mí un negrillo muy abominable, regañando como desesperado de que adonde pretendía ganar perdía. Yo, como le vi, reíme, y no hube miedo, porque había allí algunas conmigo que no se podían valer ni sabían qué remedio poner a tanto tormento, que eran grandes los golpes que me hacía dar, sin poderme resistir, con cuerpo y cabeza y brazos; y lo peor era el desasosiego interior, que de ninguna suerte podía tener sosiego.

Dance shots have been made after the dancer listened to the musical elements, and providing the instructions that she had to follow the structure and movements suggested by the music. Shooting dance takes was performed to enable the effect of overlapping, given that the project is based on the simple

superposition of several shots to create an aesthetic effect that simultaneously expresses the division of body and soul that describes Teresa of Avila. The following aspects of implementation were taken into consideration.

Lightning



Figure 2: Top: light key to the left and right during the recording. Bottom: frame from *The Demon* (22s) where figures overlap with incoherent illumination.

Lighting is crucial in any choreographic production, for its expressive, aesthetic effect and the influence it has on the visual composition. As shown in Figure 2, the lighting is quite effectist, creating a well marked *chiaroscuro* effect with a

warm tone, as a reference to the “tenebrism” paintings that are contemporary to the beatification of Teresa of Avila. A black background is also created, which only emphasizes the figure, so that different shots can be overlaid without resorting to the technique of chroma. *Nascent*, produced by Gina Czarneck 2005, also used a lighted figures on black background to create overlapping effects and blurring similar to those described here: <http://www.reeldance.org.au/moving-image-collection/mic?sobi2Task=sobi2Details&sobi2Id=1350608>

In the field of video-dance, lighting has also a technical aspect of continuity and raccord, and especially in the current case where several shots are superimposed, spatial coherence.

In Figure 2, one can observe two overlapping video shots made with lighting from the left and slightly in front, and with a lighting from the right and slightly behind: this highlights the separation into two bodies, more than when lighting is consistent and a blur effect is created.

Movement energy and quality

The capture, during the recording, of the tempo, the energy and the quality of dance movements is essential for video-dance resulting since editing or post-production can not really change the quality of the movements. On the set, I have insisted especially that the dancer perform movements with an energy and a speed fitting the music.

Some takes were recorded with the music played at half speed (in order to playback the take at double speed in the editor and have unrealistically sudden movements) and the music played backwards, also to re-reverse the order in editing for strange movement qualities. This is detailed in figure 5.

At first I wanted to explore "capturing" the movement by increasing the exposure time at shooting (Figure 3), but this technique is adapted to the static photographic image but not the motion picture video.



Figure 3. Effects of motion blur Above picture with an exposure time of 0.5s. Effect realized in postproduction at the center (*The Demon*) and down (*Rapture*).

Camera movement and shot framing

The camera can be an essential element in the realization of video-dance, creating movements and changes that are part of a new "choreography". In this case, we opted to maintain a fixed plane with the same frame for different shots, emphasizing the effect of splitting the character in the montage.



Figure 4. Top: preparation of recording overhead camera on a black cloth. Center: frame with dancer horizontally (left) and vertical (right, tilted image). Below: overlap of horizontal and vertical shot.

In the vision of the rapture, some takes were shot with the character standing and the camera in front with a horizontal axis, and other takes were shot with

the character lying and the camera in overhead position, to create the effect of weightlessness mixing both takes, as illustrated in Figure 4.

Postproduction and temporal congruence

The temporal consistency has been performed primarily in post-production, both using time editing, and overlapping images and the evolution of the overlay. It has favored a musical montage more than a continuity editing, where edited, overlapping fragments are chosen for their rhythmic value and the quality of movement in relation to music. The fragments used do not have the original speed, and its montage with the music does not generally correspond to the segment where the music was played at shooting. We have used motion blur effects mimicking high time of exposure to create visual effects that somehow freeze motion in time, and this overlapping has been used to render a supernatural unfolding of the character. The montage has created rhythms using loops and loops investment and using the courts to black

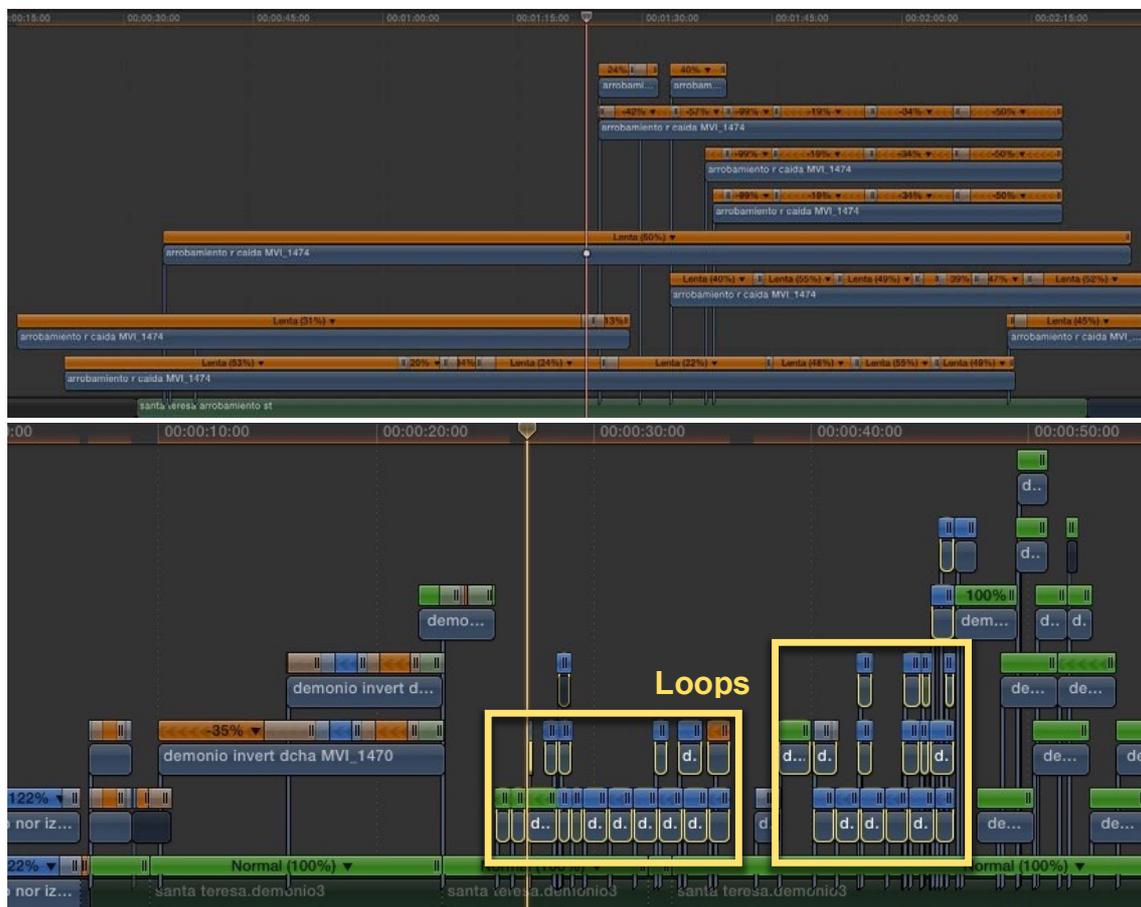


Figure 5. Top: Editing timeline on Final Cut X for a version of *Rapture*. Below: timeline of Final Cut X editing for the start of the *Devil*. The numbers indicate the playback speed for each region.

As seen in Figure 5, for editing *rapture* slowed-down versions were used ranging from 19% to 99% of the normal reading speed, both in the normal reading direction and reversed (negative numbers).

For *The Devil*, we see as much slowdown as acceleration and superposition of many layers at times, in normal and reverse speed, to really create a new choreographed motion with the montage (Figure 5).

We highlight some procedures.

Sharp silence

In *The Devil*, there are frequent abrupt sound stops, leaving a total silence. The end of this passage is also an abrupt silence following an increase in the volume of sound. In this case, the visual correspondence was made with a sharp cut to black. This is a "nondiegetic" effect in the sense that it is not thought to have any correspondence or realizability in real "diegetic" dance, except if we had an extremely fast and accurate way to turn off the lights.

In previous versions it has also tried to use the freeze frame, which has been discarded for being visually very expressive contrast and removes the whole.

Progressive final silence

In *Rapture*, the end is progressive, *perdendosi*, into silence. Importantly, it was decided to make the fade to black after the music has stopped completely, leaving a timeless image of the dancer in the frame. This gives a different relationship with music in the video-dance: if we had the fade to black in the picture with the diminuendo in the sound, indicating that the image appears and disappears with the sound, which is the result; as the image endures after the sound, the effect is desired for this passage, namely that music represents the mystical experience that moves the character, but the disappearance of the music, the character is in its very human quality after mystical experience.

Before the music starts

In both cases it has chosen to put the image of the dancer before the music starts playing. When the music started, a change is made in the image change color / texture in the devil; beginning of the movement and splitting in Rapture. The effect is the same as previously indicated, the music acts as the vector of mystical experience happens to the character. The character appears before, recorded at a time of waiting, and when the music starts action arises. If the character appeared with music, it means that it is "consubstantial", and only exists as part of the music.

Sound accents and attacks

We define the attacks and sonorous accents as the elements involved quickly and suddenly, having a clear attack. This type of sound element requires a reaction on the image, otherwise, it is perceived as a mistake or as the dancer is not hearing the music. More specifically, the synchresis effect is formed - to use the term of Michel Chion (2012), which mixes "synthesis" to "synchronicity" - as when quick and synchronized sound and visual events occur, our brain fuses them into one perceptual object. Jose Nieto (1996) also specifies different types of synchronicity, hard or soft, depending on the progress or delay of sound relative to music.

Both pieces lack a beat or a regular metric, thus synchronizing the movement of the dancer with the sound attacks is difficult. One of the advantages of video-dance is to "correct" or re-choreograph the dance, so that can be mounted on

the right visual events sound events. In the case of this work, we have chosen to adjust movements, but overall the result is not entirely satisfactory. The main process on sound accents has consisted in making changes such as adding new postproduction superimposed layers, usually with different overlay mode parameters to create a change of color, saturation and contrast.

Sound impulses

In this case it is a rapidly evolving sound but not abrupt like an attack or accent, and usually it has an energy or pitch evolution evoking a gesture or a sharp movement. Such impulses are found only in *The Devil*, with a somewhat histrionic and figurative function of the attacks of the Demon.

We have selected the movements of the dancer that had a relationship or equivalence to what is perceived in the sound energy, correcting eventually the speed. In many cases they have been accompanied by a motion blur effect so that the sense of momentum and the trail the body movement is leaving, is increased. It has also been used progression transparency effects to create a progression of color or contrast that follow the progression of sound.

Long sound evolutions

In this case we have a listening that has to do with the overall structure of the piece and developments within a part of the sound piece. In this case we used the dancer's movements, but playing with evolution in the montage, to progressively overlap more layers or exacerbate the effects of motion blur, in a more subtle and progressive way than for sound impulses. For example, at the start of *Rapture*, brightness increases through transparency effects and by adding more overlapping layers to accompany the onset of progressive music and harmonic enrichment.

Loops

In *The Devil* loops appear very marked, with small rhythmic repetitions of elements with great energy and a changing voltage. Because they are loops that start and stop suddenly, having a rapid evolution, it is difficult to do during the recording of the dance.

Indeed, as can be seen in Figure 5, visual loops are entirely made in postproduction, with repeating series of fragments dance creates a relatively plausible and hectic visual effect, especially when accelerated fragments are used. In addition, we have added other fragments overlays repeatedly to create another loop effect is clearly seen as an effect of postproduction.

Conclusions

With this approach to video-dance, we have been able to explore some of the resources obtained from the editing and postproduction in combination with the dance itself. In this way, much of the design of the final work occurs in postproduction, and we have even edited on different music pieces, dances that were performed on another original music piece.

One of the possibilities offered by video-dance is the possibility to study the different parts to generate the temporal and formal congruence in general. But beyond this video-clip-like approach, postproduction allows expressive resources that cannot be obtained in pure dance: the image overlay, motion blur effects, changes in color and contrast through filters or overlaps by multiplication (or other overlay effects) create resources that can be highly expressive and increase or modify the expression pure choreography.

But we must not forget that many features of the dance are essential and cannot be obtained in post-production. In particular, the quality of the dancer's movement and technique are essential, and even if in post-production we can adjust and modify the recorded movements, we can never change the expressive and technical quality of the choreography of the dancer. Likewise, we can only get an emotionally expressive video-dance if the dancer responds emotionally to the music and is carried away by the movements that the music suggests. Although we can make convincing video montages on different music pieces, if the visual material is devoid of emotional expression, then the postproduction product will lack this emotion.

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