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TITLE: On Video Direction as an Application of the Study of Music Theory

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**ABSTRACT:** Involving music theory classes in the video recording of concerts provides opportunities to approach analysis from a new perspective. The process of translating scores into instructions for camera operators and editors invites students to apply theoretical knowledge to a new field, and involves experiences and intuitions from other domains that are not traditionally engaged. A methodology for making and editing multi-camera video recordings is presented, incorporating comments on philosophy, technique, and style obtained from interviews with professional directors.

Interaction between theory and media students and faculty fosters collaboration and new contacts, and the teamwork and wide range of skills brought to bear result in recordings that are more satisfying to performers, going beyond simple feedback tools to become artistic works in themselves. The multi-channel audio, multi-track video, and text results can be distributed through the integration of enhanced CD, DVD, and Internet. As a side benefit, the department and institution can use this material for promotion and recruitment.

ACCOMPANYING FILES: VI\_master.m4v, VI\_edited.m4v

# ***On Video Direction as an Application of the Study of Music Theory***

## **Introduction**

Musical analysis provides insight into how a composition is constructed and how it is *heard*. This information can be used to support an interpretation of a work to help decide how to *play* it. Analysis can also be applied to the next phase: how the music should be *seen*. This could involve the creation of a new visual component, such as the animation seen in *Fantasia*.<sup>1</sup> The visualization in this study, however, is limited to showing real events occurring in live performance.

Being a teacher of both music theory and media, the decision was made to combine students from the two disciplines to produce video recordings informed by theoretical understanding. Students in theory courses analyzed works planned for department events, concluding papers with video direction scripts, which were in turn used by media students to record and edit multi-camera video presentations.

A proposal is made here to use video direction as an application of understanding gained from the study of form and analysis, and a method is outlined for incorporating it into college theory and media classes.

## **Analysis Applied to Video Production**

During the last two years a series of video projects were developed at [our school] in which theory students acted as directors, planning the composition of shots, and cueing the camera operators during concerts. Media students performed audio and video camera work, edited the recordings, and produced DVDs and CDs integrated into websites.

Two events were chosen the first year: a solo piano recital, and the University Orchestra's concert. For the first, the pianist met with the audio class for a recording session of *Desperate Measures* by Robert Muczynski. Two cameras were used, remaining fixed throughout the piece, the first located above over the pianist's head looking down at his arms and hands over the keyboard, while the second camera recorded a side view from the audience's perspective.

The theory class analyzed the work, which follows theme and variations form. The students noted how the melody and bass line are modified in each variation. Some are syncopated, one is a tango, another more dissonant and contemporary sounding. Examples from the videotapes recorded by the two cameras were played, and then students were asked to note in the score when they would like to have the angle switch from one camera to the other in the editing process which had yet to be done. Generally the overhead camera was chosen to show the player's hands during virtuosic passages, switching to the second camera's profile shot during the more lyric parts, in order to show the pianist's facial expressions and body movement. Students were allowed to use their instincts in making the

change in angle, and then discussed how decisions were arrived at. Most students chose to change angles between each of the sectional variations, while some occasionally changed angle in the middle of a variation for the repeat of the A or B section, or in the break between the two halves. Some students became interested in planning a second recording session, this time stopping between variations to reposition the camera in order to obtain a variety of shots to highlight what was being varied.<sup>11</sup> This exercise got students thinking about making choices of what to show visually based on musical imperatives, and prepared them for the second project, in which they took a more active role.

For the second event, students were divided into groups of three or four, with each assigned one of the pieces to be performed on the orchestra concert scheduled for the end of the semester. Groups wrote analysis papers, beginning with a historical context for the composition, followed by a traditional analysis of the piece's harmony, form, motives and treatment of themes, rhythms, dividing points of main sections, instrumentation, and texture. When citing specific examples, reference was made to an attached, marked-up copy of the score.

At the end of the paper, an additional section proposed a plan for making a video recording, explaining how understanding gained from the analysis was reflected in the direction. The plan for making a video recording of the work was meant to be a consequence of the analysis, and more closely tied to the score than had been the case in the first exercise with the work for solo piano.

As both the directors and video camera operators were novices in this project, students were advised to devise simple plans, at first concentrating on changing shots at dividing points of main sections in order to clarify the underlying design. For example, in a binary or ternary work two or three shots respectively could be used, with the camera zooming in gradually to accompany movement toward a section's harmonic goal. For a rondo or fugue, an obvious strategy might be to switch to instruments playing the theme each time it returns, and to treat transitions and episodes more freely. For a movement in sonata form a wide establishing shot could be used for the introduction, two shots for the exposition's main theme groups, a more active treatment of the development, one or two shots for the recapitulation, and a return to the opening wide shot for the coda. Within this framework choices for the composition of each shot could be determined by such qualities as the rate of harmonic movement (affecting speed of panning or zoom), general dynamic level (louder sections seen from further back, softer ones seen close up), and instrumentation (choice of subject).

The activity connects abilities and experiences in other fields such as visual art, communication, drama, and psychology to the understanding and appreciation of music. There are no right answers in the process, and many approaches can be successful. In any case, students benefit from increased exposure to a work, and from thinking about it from a new perspective. Students are encouraged to go beyond merely focusing on main themes and orchestration to find the most interesting aspects of a piece, and then use their imaginations in order to visualize them. In the final section of the papers they discuss what parts of the analysis did not lend themselves to being shown cinematically. An anonymous questionnaire provides an opportunity to express opinions about the value of the activity,

and ideas for how it could be improved upon. The assignment evolved over the course of the two years of the project in response to the teacher’s observations and feedback from students and colleagues.

After studying the score, groups attended rehearsals in order to get an idea of how each piece was going to look as well as sound, which resulted in some changes in the plans for recordings. Two weeks before the event a final shooting score was prepared for each piece, with directions to the camera operators of what to capture written above each system.

The example below shows an excerpt from a score used for a professional broadcast of *Symphonie Fantastique*. The cameras are labeled by numbers with circles around them.<sup>1</sup> Dissolves (fading out one shot while the next one fades in) are marked in the script by “(“), while straight cuts one shot to another are indicated with a “|”.

The image shows a page of a musical score for *Symphonie Fantastique*, heavily annotated with camera directions and timecodes. The score includes parts for Flute (Fl.), Oboe (Ob.), Clarinet (Clngl.), Violin (Viol.), Viola (Vcllo.), and Cello/Double Bass (C.B.). Handwritten notes include "CAM DECK SLO PAN L VIOLINS :20", "WIDE COND/VLNS! SLO > COND (150 shot)", "CLAR 1 FACE LT FR", and "FR. HORNS RT PR". Timecodes like 2:15, 2:20, 2:34, 2:48, 3:15, 3:26, and 3:44 are written above the staves. Circled numbers 2, 1, 6, and 5 are placed above specific measures, likely indicating camera shots.

Example of marked up score from *Symphonie Fantastique*

<sup>1</sup> Berlioz, Hector. Sample of Karen McLaughlin’s marked score from *Symphony Fantastique*

Some aspects of analysis do not lend themselves to visual representation, such as harmonic structure, changes in instrumentation, or the relationships between small and large elements. Complimenting texture would require advanced technique, such as controlling the rate of panning and zoom, or by overlaying multiple images. Other aspects are easier for the director to portray, such as marking boundaries of major sections in binary, ternary, or sonata forms. While motives may be too short to highlight, the eye has time to adjust to the representation of a theme, and camera movement can settle for cadences.

Good for beginners	Difficult to represent
Large scale division points	Texture
Pace of harmonic rhythm	Harmonic structure
Development and return of themes	Motives
Cadences	Relationships between small and large elements

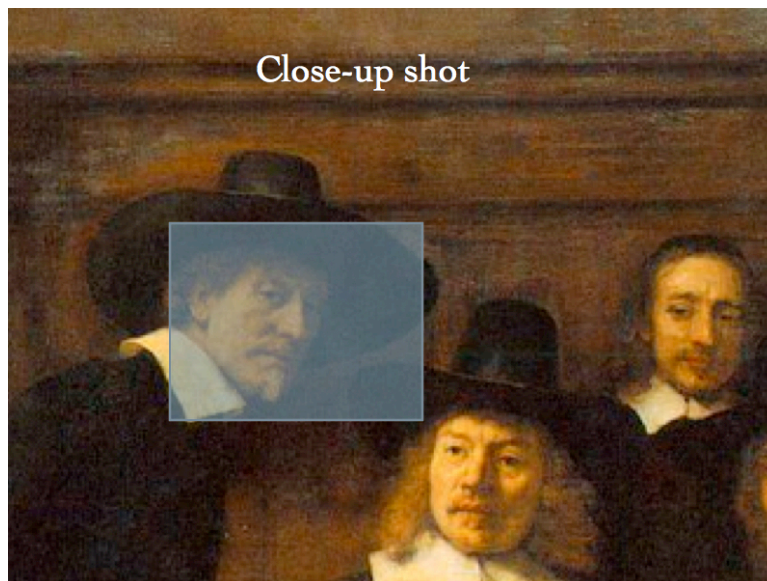
*Some characteristics are easier to represent visually than others*

## **Video Production**

What the camera sees is different than what a human sees. During a concert, an observer's eyes wander over the stage finding objects of interest to pay attention to. A camera operator has to actively seek out what the viewer will see, since the screen used eventually for display will be a smaller window on the action. One might assume that students would intuitively understand how to make video recordings, having watched so many themselves. However, it was found that a discussion of the basics and feedback from exercises was helpful for both the directors and camera operators in order to end up with usable material.

There are three basic types of shots. Long, "wide" establishing shots gives the viewer a feeling for the locale and size of a group. Long shots are typically used at the beginning and ending of pieces or movements. Medium shots show one or a few performers in context from head to toe, while still including some detail when seen on a small screen. Close-ups, or "tight" shots are the most intimate type, obtained by zooming in on part of one player, for example their upper body, face, or hands. These are especially effective in television productions, providing the viewer with an intimate view that is unavailable to the audience seated in an auditorium.

A useful class exercise is to give students multiple copies of a classic work of art or snapshots of an ensemble taken during rehearsal, and then ask them to indicate several alternatives for shots by drawing boxes with 16:9 or 4:3 dimensions over the images. <sup>iii</sup>



*Two framing possibilities from class exercise.*

This gives everyone a chance to understand the task, and helps identify students with a natural eye for composition, who become candidates to be camera operators. Simple stick figures can be drawn inside frames to create a storyboard series of shots when planning recordings.

During the concert two students from the theory class work in the auditorium's booth. One is the director and needs to have good communication skills, and the ability to stay calm under pressure. The other is the score reader, who has to be able to keep their place in the music. The score reader points to the passing bars while the director communicates any instructions written there to the camera operators. For example, the director will be saying things to the operators over headsets like "Camera 2, prepare to record violins... Camera 3, prepare to record soloist... Camera 2, hold on violins...". Operators stop making adjustments once the direction is given to hold, since this becomes the starting point from which their material will be taken during editing. At least one rehearsal is needed to give operators a chance to practice, ideally during a dress rehearsal the day of the performance, so that more detail can be retained in memory.

The direction of live broadcasts takes place in a remote unit that receives the images from all cameras, which are connected to a switcher to perform the cuts from one angle to another. Since we have neither the capability to transmit all images to a control room, nor the equipment necessary to do live switching, we record each camera's images on tapes that are later edited following the theory students' plans.

## **Directorial Technique**

A number of interviews were conducted with professional directors to get insight into their process, and to find out what use they make of the musical score. At times it was difficult for them to articulate how they work, since so much of it is intuitive. They suggested using one's imagination, and in general looking for the most interesting part of the performance. Those with musical training are best able to articulate the structure of the piece, but in the end go for entertainment value and what will hold the viewer's attention. For our purposes we look for a balance between a literal, academic interpretation resulting from a theoretical analysis with an intuitive approach to surface details that appeals to the eye, helping to maintain the viewer's attention.

Kirk Browning is one of America's most prolific and versatile directors of televised performing arts. The consistent high ratings of Live From Lincoln Center, which he has directed for over 30 years, suggest that audiences, in addition to enjoying the quality of the performances, accept the way he utilizes cameras. He has gone from 150 shots in programs starting in 1976 up to 500 to 600 shots now for a two-hour program. He believes that the audience expects variety and involvement, with the camera taking an active approach rather than just being an observer. For him, the camera should represent the music in visual terms, interpreting the music in addition to supplying information. He said that there is no formula for translating a musical score into directions for a video production, though he does continue to use what he knows works, like going to a wide shot during diminuendos and ritards. He uses "syncopation" at times, surprising the viewer by cutting earlier or later than what might be expected, or showing an accompaniment rather than a main theme. While he can read a score, his background is not as a musician, and he makes his choices by listening to recordings and watching rehearsals, choosing shots he thinks the viewer would like to see if he were able to move:

“I’m using the camera as the viewer’s eye. All the choices I make about movement, close-ups, the rhythm of the shots, is an effort to translate what I think the viewer would do in a concert hall if ...he were in a position to see the performance in detail... sitting in the middle of the orchestra, or above it, or from any one of the eight to ten positions where I have cameras...The choices I end up with are not really my choices. They are choices I am assuming an average listener would make.”<sup>2</sup>

As with any type of musical analysis, there is more than one valid point of view in planning for what to shoot. One approach would be to guide the listener towards the most important melodies and other surface elements in a piece. The highlighting in the Norton Scores is done, in part, to make it easier for inexperienced listeners to follow the most easily heard parts. Leonard Bernstein, who appeared on broadcasts of the *Young People’s Concerts* from 1958 to 1972 told Browning that the only reason to televise music is to represent what’s in the score, to take a didactic approach and always focus on the instruments playing the most important lines. Another director, Merrill Brockway agrees with Browning that such an obvious approach becomes boring: “It has to be entertaining, not just be accurate reporting. Illuminate the audience. Make them interested in what they’re seeing. Do close-ups on players, you don’t always have to show instruments.”<sup>3</sup> Going deeper in the score and attending rehearsals helps find alternatives, such as showing a counter melody or interesting physical movement. The camera may switch to the conductor when nothing particular is happening, instead of when they are marking a change or serving as the focus of energy during a climax.

As a trained musician, Brian Large makes of his understanding of music theory when choosing shots:

“The director should be anonymous...I look at the score as the camera script. When you work with a Mozart symphony it’s he that wrote the script, not you...In visualizing the piece you start with the formal structure. For each piece there is a different combination of factors: the instrumentation, harmony, harmonic progressions, and so on...The list of shots can start out from a literal perspective. For example, you might start with the oboes for three measures, and when the clarinet takes over, you switch to the clarinet. This becomes mechanical, predictable, and boring, but it is the best way for students to begin...In a Beethoven sonata following a ternary ABA design, you can follow the underpinning of the structure. You could begin with an establishing shot on the subject, go off somewhere for the B, and return to the same framing and structure for the final A. In a theme and variations you can treat each variation differently. One could capture minute finger work,

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<sup>2</sup> Browning, Kirk. Interview by author.

<sup>3</sup> Brockway, Merrill. Interview by author.



another elbow shots or hand shots. You try to marry the visuals with the variations.”<sup>4</sup>

Directors interviewed for this study were asked what type of music is the easiest for beginners to work with. Roger Englander (who directed most of the *Young People's Concerts*) suggested that pieces from the classical period are more suited to television than those of later periods.<sup>5</sup> Whereas Beethoven and Mozart are “clean”, Brahms lines go in and out, calling for dissolves, which become tedious. Karen McLaughlin prefers doing Romantic and contemporary music.<sup>6</sup> For her, Baroque music has a static movement pattern, with less ebb and flow, making it harder to treat imaginatively. For that reason, however, she feels that its simpler structure might be easier for beginners, changing angle upon the arrival of a new section, with a slow camera zoom in or out applied over the length of the shot. Even professionals might use this approach. Roger Englander used only three shots for a twenty minute production of Bach's Chaconne in D minor for solo violin—the first from the beginning with its start in minor, a second when the piece moves to a major key, and the third for the conclusion in minor.

To be expressive on a musical instrument requires technique and experience, and the same is true with a visual instrument such as a camera. Pan and zoom attract the eye with an extra layer of movement, but are difficult for beginners to control with inexpensive equipment. Planning and practice are needed in order to end up with material that moves smoothly.<sup>iv</sup>

## **Demonstration**

Kirk Browning commented that we live with an overabundance of information, and therefore, rather than covering the standard repertoire that every orchestra has released, the *Live From Lincoln Center* series concentrates on one-of-a-kind types of concerts, events that the viewer feels could never be repeated. During the first two years, our most successful production was a surround sound / five-camera production of “Requiem of Psalms”, a choral work commissioned from a local composer, which required an orchestra and the blending of eight choirs.

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<sup>4</sup> Large, Brian. Interview by author.

<sup>5</sup> Englander, Roger. Interview by author.

<sup>6</sup> McLaughlin, Karen. Interview by author.

**Video clip 1 ([VI master.mov](#)) [see website]**



*Static master shot*

The first video clip is of the sixth movement (“Sing To The Lord”), showing the master shot recorded from the back of the auditorium. This is what the performers would usually get from the auditorium staff. No one is left out, but the viewer can’t see much detail. The second video clip is the edited video of the same movement, and shows how changes in distance, angle, pan, zoom, and opacity of images provide visual variety following a plan derived from a theoretical analysis of the work.

**Video clip 2 ([VI edited.mov](#)) [see website]**

Notes on main angle changes:

The sixth movement has an introduction with the baritone soloist, followed by an **A** section in C major leading off with a dotted rhythm motive, with the text based on Psalm 96.

The camera switches to the brass as they double the vocal lines.

The strings transition to the **B** section in G major, where the woodwinds are accompanied by the harp. The text comes from Psalm 84.

The camera looks for the women’s entrance and then widens out to show the whole choir.

A slow pan follows the *pp* vocal marking.

The angle switches to the other side as the choir swells.

We pan across the ensemble through the strings and timpani preparing for the return to the **A** section.

There is a modulation to D major with a canon in unison between the men and women.

For the coda we switch to the conductor, adding emphasis to the dramatic conclusion.

## **Conclusion**

Students generally enjoyed the assignment. Knowing that their work would be publicly displayed increased their desire to do quality work. Individual teams appeared more involved in planning their shooting scripts than when analyzing a score's form or harmony in a regular assignment.

Students grew under the pressure of producing non-repeatable events. Rehearsal and performance schedules created deadlines and a sense of urgency which traditional theory assignments don't have.

Roger Englander, when asked for suggestions on how to make the work as meaningful as possible for students replied, "It is stimulating. Push them. Get them to understand the problems they will need to solve. It opens up something broader in the study of music."<sup>7</sup> This work makes students look at music theory from a different perspective, and some students who do not participate much in class became more active as their abilities in other areas, such as interpersonal communication or visualization are engaged. Those who analyzed the scores, attended rehearsals, and planned the video production had more invested in the concert, and consequently had stronger reactions to the performance.

Video direction informed by a study of music theory may result in more enjoyable and educational presentations. A combination of medium shots and close-ups, well-timed sequences, and a balance between predictability and surprise can increase a viewer's concentration and enjoyment. Alternating shots from two or more cameras provides a variety of perspectives and intimacy that is not available from seats in the auditorium. After completing the work students seemed more aware of directorial style in published recordings seen in class.

The finished productions provide quality feedback for performers, documentation for the school, and educational and entertaining material for audiences, especially for those unfamiliar with the concert experience.

Further analysis is underway to order to quantitatively describe the common practice of professional productions.

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<sup>7</sup> Englander, Roger. Interview by author.

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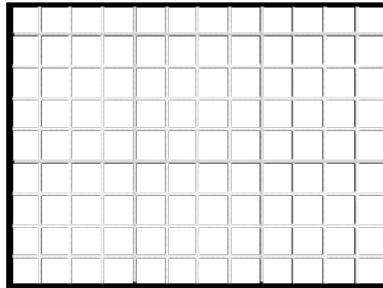
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## End notes

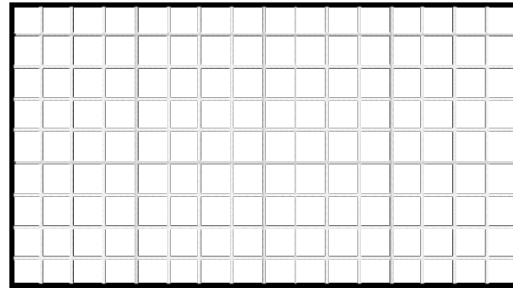
<sup>i</sup> *Fantasia* is an animated movie, a collection of interpretations of classical works released by Walt Disney in 1940.

<sup>ii</sup> This resulted in a second recording session in which a single camera was used, with thirteen angles chosen, one for the theme and each of the twelve variations. Each of the angles was showed the piano from a different angle and a different aspect of the pianist's performance, such as movements of the arms, wrists, fingers, or pedals. This was done to complement the eclecticism in the composition. See the website for screen shots [*URL—http:...*]

<sup>iii</sup> At the time of writing, 4:3 (four units wide for each three unitshigh) is the traditional ratio of dimensions for the rectangular picture displayed on televisions. The trend is towards a 16:9 ratio, a “widescreen theater” shape that suits motion pictures, and is the standard for HD (high definition) TV.



4:3



16:9

<sup>iv</sup> Zoom and pan are more difficult to edit than fixed shots. One conductor suggested starting to pan before engaging zoom, since it is visually easier to accept a cut into a pan than a zoom. To prepare for a pan, the operator should adopt a comfortable body position for the end of the pan, then move the camera to where the shot is to start and begin recording and panning. In this way the operator moves *into* a comfortable position.