Title
Volume I Taking the Red Pill: An Analysis of Don Davis' Score for The Matrix Volume II
Dracula: A Ballet in Two Acts

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Volume I
Taking the Red Pill:
An Analysis of Don Davis’ Score for *The Matrix*

Volume II
*Dracula:*
A Ballet in Two Acts

A dissertation submitted in partial satisfaction of the requirements for the degree Doctor of Philosophy in Music

by

Christopher James Heckman

2018
ABSTRACT OF THE DISSERTATION

Volume I

Taking the Red Pill:
An Analysis of Don Davis’ score for The Matrix

Volume II

Dracula:
A Ballet in Two Acts

by

Christopher James Heckman
Doctor of Philosophy in Music
University of California, Los Angeles, 2018
Professor Ian Krouse, Chair

Many of today’s film composers are either oblivious or indifferent to the styles and techniques of concert music throughout much of the twentieth century. Composers throughout the Romantic era aspired to express feelings and emotions in music, giving rise to program music and storytelling through music, all of which translated directly into the early film scores of the 1930s. Throughout the twentieth century, music in the concert world was moving in a vastly different direction, away from the expression of emotion or storytelling. But those film composers who
came from the concert world recognized that all music, even the most experimental and dissonant, can have emotional effect, particularly when paired with visual imagery. Don Davis’ score for *The Matrix* is, to date, the ultimate example of this - a mixture of multiple twentieth-century styles and techniques used for emotional intent and storytelling.

The purpose of Volume I is to thoroughly catalogue and analyze every compositional element that Davis uses in his score, and to briefly describe the origins of these elements including how Davis utilizes them to accompany the film. This analysis will present an in-depth explanation of Davis’ use of leitmotifs, harmony, tonal sets, bitonality, rhythm, orchestration, unusual percussion, extended techniques for piano, electronic instrumentation including synthesizers and samplers, musique concrète, “fantasy” exoticism, and textures that utilize minimalism, aleatory, and twelve-tone technique. I hope that film composers who read this dissertation monograph will be inspired by Davis’ example to investigate concert music of the twentieth century and beyond, so that they too may find creative ways to utilize new styles and techniques to convey feelings and tell stories in their own film scores, further bridging the gap between film music and concert music.

Volume II features an original ballet score somewhat in the spirit of Davis’ ideas in *The Matrix*, often using techniques from twentieth-century concert music. Supplementary materials include a video performance of the ballet, performed by the Winston Salem Festival Ballet in Winston Salem, North Carolina.
The dissertation of Christopher James Heckman is approved.

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2018
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Taking the Red Pill:

An Analysis of Don Davis’ Score for The Matrix

Introduction

Don Davis, born February 4th, 1957, is an American composer and orchestrator, most known for his original scores to The Matrix trilogy. Davis holds a Bachelor of Arts degree in Music Theory from The University of California, Los Angeles, class of 1979. He studied composition with Henri Lazarof and orchestration with Albert Harris. Davis began his career as an orchestrator on the television series The Incredible Hulk (1978-1982). A bit later, he earned two Primetime Emmy awards for his work as a composer on the television series Beauty and the Beast (1987-1990). Davis has also worked since the mid-‘90s as an orchestrator to major film composers such as Randy Newman and James Horner. He has also achieved success as a concert composer, having premiered a full-length opera, Río de Sangre, in 2010.¹

When hired to compose the score for The Matrix, Davis already had a background as a concert composer. The skillset that he brought to The Matrix score that was most unlike many other film composers at the time was his ability to seamlessly integrate twentieth-century compositional styles to create a modern orchestral sound that was (and still is) unique to film music. He was asked by the Wachowski brothers to score this film because of their previous working relationship on the film Bound (1996). In The Matrix DVD Composer Commentary, Davis explains that he was first presented with an opportunity to demo for Bound because the

¹ Lerner.
editor of the film (as well as each of The Matrix films), Zach Staenberg, was a friend of his. Davis was impressed with the screenplay for Bound, enough so that he knew it was a picture he had to score. He was even more impressed the first time he read the screenplay for The Matrix.²

I first became aware of The Matrix project about a good two and a half years before it was released. Shortly after we finished Bound, the Wachowski brothers showed me the script of The Matrix, which incidentally had been written before they wrote Bound. And they had been workshopping these ideas for a good six years now, I think. But after I read the script, I was immediately struck by the incredible layers of structure that they had put into this unusual idea, and I was also excited about the way that they had interwoven these concepts of reality with what I could clearly see would be very fun, thrill park ride sorts of scenes with fights and chases and things like that. But the brothers showed me some of their storyboards and a few of the [pre-production] illustrations… They explained to me what they were planning to do with some of their camera work and the special effects things they were working on. They were really very excited about what they were going to do and got me really excited about it too. So, actually I started thinking about the musical approach right from that point, and I was thinking mostly about what interesting things were happening on the concert stage that I could translate to film music.³

Davis only had from early December 1998 to early January 1999 to create synth demos of his score for The Matrix, which were assembled as part of the temp (temporary) mix for early test screenings. He then spent about another month orchestrating his score before recording with a ninety-piece orchestra, recorded by Armin Steiner at the Alfred Newman Scoring Stage on the Twentieth Century Fox studio lot.⁴

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² The Matrix, Composer Commentary, 0:08:08-0:08:36.
³ The Matrix, Composer Commentary, 1:05:24-1:06:53.
⁴ Don Davis, Liner Notes.
In preparing the score for *The Matrix*, Davis made a number of conscious decisions about his approach. Davis blends traditional compositional devices with experimental compositional devices throughout his score, and one of the more traditional decisions he made was to utilize leitmotifs. Of course, leitmotifs were a concept mastered in the nineteenth century by Richard Wagner as a method of assigning themes to characters in his extensive operas. This serves as an associational memory device for any audience member, to instantly recall feelings and emotions associated with characters when their theme is heard. When the first film scores were written in the early 1930s, Max Steiner took this idea and applied it to film. He assigned a three-note leitmotif to Kong in the 1933 movie *King Kong*. Davis understood the importance of this idea of character memory association, but he does not use leitmotifs in a traditional Wagnerian way. That is to say, he does not use melody as his primary leitmotif texture. Instead, he plays with an idea that any particular texture can become a leitmotif, when it is applied with consistency to characters, places, objects, or thematic concepts within the narrative story of a film. Davis employs in his score for *The Matrix* a concept that any compositional device can become a leitmotif other than just melody - including harmony, rhythm, orchestration, and even textures utilizing twentieth century styles such as minimalism. Davis says that he does not really use any themes in the film, but rather thematic textural ideas. These musical textures, when layered on top of each other, begin to symbolize a multitude of realities that are going on from the onset of the film, of which the audience is unaware, until the character Neo becomes aware. Davis felt that this concept would communicate to the audience that there was much more going on than was shown to them visually.\(^5\)

In the Varèse Sarabande *Deluxe Edition* soundtrack liner notes, Davis comments,
There are some things happening in concert music that I hadn’t heard explored in film. There’s an eclecticism that’s being called ‘postmodern,’⁶ which is a unique mixture of minimalism and total atonality… There are certain minimalistic techniques which I thought would symbolically portray the varying levels of reality which the Wachowskis were trying to present. They were crossing genres a lot and that required kind of a ‘shape-shifter’ aspect to the music. As a composer, I was drawing on a lot of different textures and languages musically, which always brought me back to the postmodernists and the barriers that they’d been breaking down.⁷

Davis answers the question - how can movements and styles from the world of concert music crossover into film? Many of the compositional techniques used in The Matrix are at least in part derived from concert music, the compositional origins of which were generally derived purely for the intellectual advancement of musical art. But because every musical sound in a film score is inescapably associated with story and visual imagery, Davis finds emotional purpose and associative meaning in each of the techniques’ respective uses throughout the film. In Christian DesJardins’ book, Inside Film Music, Davis discusses this idea in his interview with DesJardin,

I had a number of conversations with film editor Zach Staenberg before we spotted⁸ the film. We talked about… the possibility of utilizing what some might call the postmodern⁹ style that is heard in the music of Philip Glass, John Adams, and Steve Reich, among a number of other composers… Actually, I had become interested in exploring that kind of

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⁶ Davis’ use of the term “postmodern” is vague at best, as he does not define this term specifically as it relates to his score for The Matrix. It seems that Davis means “minimalism” - that is, a re-embrace of diatonicism or quasi-tonality within an era of modernism, but not quite “neo-romanticism.”

⁷ Don Davis, Liner notes.

⁸ Spotting refers to an initial meeting with a film’s director, composer, editor, music editor, and possibly producer(s) where each cue in the score is to be determined and discussed, including the in and out timings and purpose to picture.

⁹ Again, though Davis uses the term “postmodern,” he is specifically referring to minimalism.
approach in film scores quite a while before I had the opportunity to work on *The Matrix*, but that movie was the first film to come along in which I felt that the approach could work in an organic way, without imposing a non-germane style to the picture in an obtrusive way. So, I worked on developing an approach that incorporated the sound world of that style, but all the time still enabled the music to function dramatically.\(^{10}\)

*The Matrix* serves as an important example for how the study of concert music can provide a film composer with an extensive array of tools with which to score a film, using a cultured, sophisticated approach to accompany storytelling with music.

This dissertation monograph will catalogue and analyze every compositional element that Davis uses throughout his score for *The Matrix*, including brief descriptions of the origins of these elements, and how Davis uses them for dramatic purposes. The first section will introduce Davis’ harmonic design for both humans and machines, including various examples of how tension is created using clusters and pyramids. The second section will look at how Davis uses minimalism to represent the Matrix itself, as well as to create suspense during action scenes. Davis was heavily inspired by reflective imagery in *The Matrix*, and so section three will break down each way that he musically evokes the concept of reflection. Section four will explain Davis’ use of bitonality to represent the conflict between good and evil, which is possibly the most original and identifiable musical sound of the film. Section five will lay out several of Davis’ harmonic tendencies throughout *The Matrix*, including a modal alteration to represent the concept of awakening. The themes of love, birth, rebirth, and death are all important to Davis’ score, and so section six will explore the various themes and orchestrations associated with these themes. Section seven will describe Davis’ use of aleatory to represent horror. Davis also uses twelve-tone technique for

\(^{10}\) DesJardins, pg.66.
moments of chaos and confusion, to be explored in section eight. Section nine will introduce the concept of “fantasy” exoticism, breaking down all of the exotic percussion used throughout the score, and explaining how Davis suggests an unreal environment using nontraditional combinations of world instruments. Section ten will list and explain Davis’ use of various unusual percussion instruments, with explanations as to their function. Davis also uses multiple extended techniques for piano, which will be broken down in section eleven. Finally, in section twelve, the various additions of electronic instrumentations will be generally catalogued and explained.

Davis’ many combinations of various techniques, styles, and instrumentations from twentieth-century music is unprecedented, not only for a film score, but for a concert work as well. But because he has specific emotional intention for each of these compositional ideas, they each have specific purposes that add up to a much larger whole. This monograph endeavors to unravel the complexity of this score to fully understand its function within The Matrix film, and how the score tells the film’s story from a purely musical perspective.

1. Humans vs. Machines

The first and most important thematic idea to the structure of Davis’ score to The Matrix is tonal in nature. The Matrix is most plainly described as a story about humans vs. machines. Humans are the heroes of the story (with one exception - Cypher), and machines are the villains (with a few exceptions - The Oracle, machines controlled by humans, such as Morpheus’ ship “The Nebuchadnezzar,” and machines directly related to humans, such as the Matrix itself). Davis carefully and consistently uses two distinctive tonal sets when composing music for each side, thus in a sense creating contrasting harmonic leitmotifs for both humans and machines, respectively.
For humans, Davis uses seven-note scales - total diatonicism. Typically, he uses the natural minor scale, or aeolian mode, however in certain places he also uses the major scale and Dorian mode. In set theory, these can collectively be represented as [013568t].\textsuperscript{11} It is interesting to note that in set theory, each of these scales and modes belong to the same set, as they each contain six perfect fifth intervals when arranged according to the circle of fifths. So, Davis’ use of the various transformations of the seven-note scale can essentially be grouped into one harmonic function - the representation of humans, although some scales also have individual thematic meaning as well, as will be explained shortly.

![Example 1a. Human clusters in groups of three, five, and seven.](image)

Throughout \textit{The Matrix}, Davis fragments these seven notes into various combinations of clusters, most commonly using the first four, five and six notes of the scale. Davis composes variations utilizing this tonal leitmotif in several ways - including melodies, running scales, arpeggios and clusters. Davis has a specific function in mind for each of the variations, the minor or Aeolian tends to represent suffering or pain, Dorian for awakening or new understanding, and major for triumph, peace and serenity.

For machines, Davis uses twelve-note scales - total chromaticism. Most commonly, he uses consecutive chromatic notes, usually in groups of three, classified in set theory as [012].

![Example 1b. Machine clusters in groups of three, seven, and twelve.](image)

\textsuperscript{11} I have chosen to abbreviate the numbers ten and eleven as “t” and “e” when classifying sets. It is also possible to use “A” and “B” for ten and eleven, for example [013568A] or [0123456789AB].
Chromaticism has been used to represent villains in films since the very first entirely original film score, Max Steiner’s *King Kong* (1933). In this film, Kong’s leitmotif is three consecutive descending chromatic notes, coincidentally similar to that of machines in *The Matrix*. Chromaticism is not only intellectually appropriate to represent machines (mathematical, more advanced), it is also emotionally appropriate, in that dense chromatic harmonies tend to be less familiar to the untrained ear of the average moviegoer, and therefore can be perceived as inhuman and menacing, especially when presented in atonal clusters.

1. Clusters

Of all the compositional techniques used by Davis in *The Matrix* score, tonal clusters (either representing humans or machines), make the most frequent appearances. These clusters will often crescendo from practical silence to extreme loudness at important events in the film, such as actions, cuts in the film, and changes of scene. This provides a very dynamic and powerful feel to the edits of the film, providing a great deal of intensity to a viewing audience. The first example can be heard in 1m1\(^{12}\) “Logos / Main Titles,” which features a full human cluster in close harmony (stacked as a Lydian scale), that crescendos through a completely black screen directly into the first appearance of what would come to be known as “Matrix code,” which then translates into the film’s primary title card. In example 1-1a, Davis begins a four-note cluster in the trombones, and then adds to that cluster three extra notes in the horns to complete a seven-note diatonic cluster.

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\(^{12}\) “1m1” is derived from a numbering system that film composers use to approximate where a cue falls within a feature film. The first number refers to the film reel, which usually changes every twenty minutes. The letter “m” is a designation simply for music, and the second number is sequential from cue to cue, showing how many cues fall within a reel. Therefore, 1m1 is the first cue of the first reel, likely falling within the early part of the first twenty minutes. 7m3 is the third cue of the seventh reel, likely falling between two hours and two hours and twenty minutes into the film.
Another example from 3m1 “Switches Brew” shows a clearly heard five-note diatonic cluster scoring a point-of-view shot of Neo opening his eyes for the first time after having been disconnected from the Matrix. It is common for Davis to use the first four or five notes of the human diatonic collection, not only for clusters but also for various minimal textures, to be explored shortly.

When humans are at their very strongest and appear to have the upper hand over machines either in chases or fights, Davis will build larger clusters, including more of the tones available within the human set. The following excerpt from 6m8 “Fast Learning” demonstrates just that. Example 1-1c occurs just as Trinity and Neo use a helicopter with a huge machine gun to demolish the room where Agents are holding Morpheus captive, allowing him to escape.
Davis uses the same concepts of clusters for villains of the film as well. Throughout *The Matrix*, even from the very opening scene, police officers are considered among the villains of the film. The justification for this does not come into focus until about midway through the story, when Morpheus describes that anyone that is a part of the Matrix system should be treated as an enemy. So, much of the opening scene between Trinity and a number of police officers is scored by Davis using machine clusters. This particular early cluster crescendo in example 1-1d scores Trinity as she appears to surrender to the police, just before hitting a quick cut to the hotel exterior.

Example 1-1d. Machine cluster in 1m2 “Trinity Infinity,” m.45-47, 0:02:01-0:02:06.

The character Cypher betrays humans and makes a deal with Agent Smith to participate in a plan to turn over Morpheus to the machines. From that point, Davis scores scenes with Cypher using machine clusters, including example 1-1e from 5m4 “Threat Mix,” in which Neo notices
Cypher smiling at him unusually. The use of a five-note [01234] cluster in the strings at this moment adds a creepiness to Cypher’s smile, reminding the audience that he is not to be trusted, and that bad things are about to happen. Davis indicates for the strings to play without vibrato, which has a much colder sound and tends to indicate the lack of feeling as opposed to playing with vibrato.


Davis will also occasionally use smaller combinations of clusters to create entirely new ones. Example 1-1f from 7m1 “That’s Gotta Hurt” is just as Agent Smith has thrown Neo onto a set of subway tracks, where he approaches and grabs Neo in a choke hold, intending to immobilize Neo in place until an oncoming subway train runs over the both of them.


Just after Agent Smith appears to have finally killed Neo with multiple gunshots to the midsection, Davis scores a complete [0123456789te] cluster utilizing a full twelve-tone set. This
not only signifies that Smith has complete power in this moment, but it also sounds the most emotionally devastating.

Example 1-1g. Machine cluster in 7m3 “He’s The One Alright,” m.1-2, 2:02:42-2:02:45.

It is interesting to note that Davis uses a similar complete [0123456789te] cluster in the strings, also played without vibrato, when Neo is “born” at the start of 2m5 “Switched at Birth.” This marks the first time that Neo is conscious in the “real world.” Thus, Davis is drawing parallels between Neo’s “birth” and his “death” (both of which are symbolic rather than actual), perhaps musically signifying that his “death” is also a re-birth of sorts, since it is Trinity’s love that will seemingly resurrect him shortly after.

Example 1-1h. Machine cluster in 2m5 “Switched at Birth,” m.1-2, 0:32:23-0:32:27.
1-2. Pyramids

In his brief, excerpted analysis of *The Matrix* score, Tim Rodier describes pyramids as “building chords by stacking sustained pitches… resulting in tense, sustained, dissonance that creates a sense of prolonged danger.”¹³ Like clusters, pyramids are used very frequently throughout *The Matrix* score, using both the human and machine tonal sets. All pyramids in *The Matrix* eventually develop into clusters, simply building one note at a time, and similarly crescendo into film cuts or actions.

Example 1-2a from 1m2 “Trinity Infinity” occurs after Trinity has narrowly escaped Agents in a rooftop chase. She gets up and spots the phone booth where she can transmit herself out of the Matrix. Davis scores this heroically using a melodic figure in the brass, orchestrated in such a way that each note sounds and then holds, making way for the complete pyramid structure to build before it loudly crescendos as one collective voice to the cut.

![Example 1-2a. Human pyramid in 1m2 “Trinity Infinity,” m.167-170, 0:05:26-0:05:33.](image)

Davis also uses a descending pyramid in 3m10 “Switch Works Her Boa;” as Neo attempts for the first time to “free his mind” by leaping a great distance from one skyscraper to another, he ultimately fails, and plummets to the street below. This falling action is accompanied by falling brass, building and sustaining four notes of a human diatonic set over three octaves in a downward direction. To use common film scoring terminology, this technique is called “Mickey-Mousing.”

¹³ Rodier, pg.iii.
in this case meaning that a descending line of music mimics a descending action in the film. The sustaining notes crescendo to a peak just as Neo finally hits the ground.

Example 1-2b. Human pyramid in 3m10 “Switch Works Her Boa,” m.20-24, 0:54:37-0:54:42.

At the end of The Matrix, when Neo finally comes to realize his potential as “The One,” he easily defeats Agent Smith in one final confrontation, which ends in Neo diving into Smith and destroying him from the inside out. Clearly at this moment, Neo has realized his full potential, and so Davis uses a new heroic melodic pyramid which evolves into a cluster containing all seven possible notes of the human diatonic set, representing the full culmination of his power.

Example 1-2c. Human pyramid in 7m3 “He’s The One Alright” m.123-127, 2:06:02-2:06:10.

Another of the most frequent techniques to appear in Davis’ score for The Matrix is the machine pyramid. These pyramids are intended to build tension, signify danger, or foreshadow
that something bad is about to happen. Example 1-2d is from very early in the film, just as a group of police officers kick down Trinity’s hotel room door to attempt to detain her. This machine pyramid emphasizes the force with which the officers take to enter Trinity’s derelict hotel room.

Example 1-2d. Machine pyramid in 1m2 “Trinity Infinity,” m.41-43, 0:01:53-0:01:59.

In 5m5 “Exit Mr. Hat,” the pyramid from m.12-18 is in an extremely high and shrill range, played by oboes, trumpets, and strings. During this section, Morpheus attempts to hold down Agent Smith, but is very quickly overpowered and thrown with incredible force off the ground and into the wall. Davis builds two separate pyramids in different ranges that, when added together as one collection, amount to a [01234567] set, representing Smith’s strength at this moment, but not nearly as strong as he will be shown to be during his fight against Neo. Because of the high range, it is clearly heard in the final mix above the various punching sound effects and dialogue.
Another example from later in the film is a rhythmic variation of the machine pyramid, in which each of the four trombones and cimbasso have a short triplet motif with each entrance of a new pitch in the pyramid. During this section of 6m7 “Dodge This,” Trinity and Neo have jointly taken out the various soldiers on the rooftop as they make their way toward saving Morpheus, but an Agent has morphed from the helicopter pilot, and steps toward Neo preparing to confront him. Davis continues his “Mickey-Mousing” ways by hitting each step that the Agent takes in the shot with the first, second, and fourth triplet figure. As with the previous example, Davis once again builds separate pyramids in different ranges that combine to form a continuous chromatic set. Once the pyramid unfolds completely, Davis crescendos into the action of Neo firing his weapons at the Agent.

Davis also makes use of a climbing pyramid, where, using fewer orchestral voices, he can lift the lower sustaining pitches up to higher pitches, presenting the illusion of a continuous rise. In 3m3 “Nascent Nauseous Neo,” Davis uses this climbing technique, creating new chromatic collections of [0123] in various spots along the way up. This figure accompanies the image that Morpheus shows Neo of “the world as it exists today” - a hellish wasteland of what appears to be the ruins of New York City.
Example 1-2g. Climbing machine pyramid in 3m3 “Nascent Nauseous Neo,” m.9-13, 0:40:57-0:41:08.

Another example is in 5m4 “Threat Mix,” just after Neo has had a moment of déjà vu, seeing a black cat walk by a corridor twice in exactly the same manner. Trinity explains that this signifies a glitch, and that the Agents have likely changed something in the Matrix. Davis uses a climbing pyramid technique in the low brass and strings to signify the weight of the danger that the crew is about to find themselves in. After building to an initial [01234] in m.52, Davis twice lifts the lowest sustained note to become the highest, creating two new [01234] clusters over three bars.
The last climbing pyramid variation involves combinations of very aggressive minor second horn trills. Davis is careful to combine them chromatically to create \([012]\)s and \([0123]\)s when combining the tones of each relative trill. The result is a wild and chaotic sound, used specifically at the end of the film when Sentinels enter the Nebuchadnezzar, seeking to destroy all human life among the crew.
1-3. Agent Smith’s Arrival Theme

Following the [012] design, Davis occasionally uses a very brief leitmotif specifically for Agent Smith, the primary villain of the story. This specifically occurs when Smith arrives in various locations, including his very first appearance in 1m2 “Trinity Infinity,” where his theme can be heard just as he is getting out of his car. Davis always orchestrates this theme with a single muted trombone (or cimbasso) doubled with violoncelli.

It is interesting to note the striking similarity of this theme to James Horner’s notorious “danger theme.” It is well known in the film scoring world that Horner regularly used a specific theme to signify danger in many of his scores, probably beginning with *Battle Beyond the Stars*...
(1980), but perhaps more famously recognized in *Star Trek II: The Wrath of Khan* (1982) and *Avatar* (2009), among many others.

![Example 1-3b. James Horner’s “danger theme.”](image)

Perhaps intentionally or not, the danger theme is practically identical to the opening gesture of Sergei Rachmaninoff’s *Symphony No.1 in D minor* (1897). This theme was a calling card of sorts for Horner, as it appears in many of the films that he composed music for, and serves as a leitmotif for impending danger to a character or location in the film.

Like Agent Smith’s arrival theme from *The Matrix*, James Horner’s danger theme also follows the [012] set, and is presented in a short, melodic gesture. Since Davis had been an orchestrator for Horner on several of his scores, Davis would be very familiar with Horner’s danger theme. It is conceivable therefore to conclude that Davis is creating his own variation of Horner’s calling card for his own purposes. For Davis, Agent Smith’s arrival = danger.

<table>
<thead>
<tr>
<th>Cue</th>
<th>Measures</th>
<th>Timecode</th>
<th>Spotting¹⁴</th>
</tr>
</thead>
<tbody>
<tr>
<td>1m2</td>
<td>m.53-55</td>
<td>0:02:14-0:02:20</td>
<td>Agent Smith is introduced as he steps out of car with other Agents</td>
</tr>
<tr>
<td>1m2</td>
<td>m.188-190</td>
<td>0:05:57-0:06:03</td>
<td>Agent Smith steps out of truck after having smashed into phone booth</td>
</tr>
<tr>
<td>5m4</td>
<td>m.180-182</td>
<td>1:22:40-1:22:44</td>
<td>Agent Smith takes his first step after morphing from a soldier</td>
</tr>
<tr>
<td>6m9</td>
<td>m.131-134</td>
<td>1:52:18-1:52:24</td>
<td>Smith and other Agents arrive on rooftop where Neo had just saved Trinity</td>
</tr>
</tbody>
</table>

Table 1. Use of Agent Smith’s arrival theme in *The Matrix*.

2. Minimalism

Minimalism is a style of music composition stemming from the concert world that focuses primarily on the exploration of repetition of harmony and rhythm with subtle variation over long

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¹⁴ The term “Spotting” in this case refers to the location that the music begins and ends, with a description of the dramatic action(s) the score is accompanying.
periods of time. Davis uses minimalism as a stylistic leitmotif for the Matrix itself. The visual representation of the Matrix, presented as columns of code, is in constant motion and appears to be ever changing, but rather slowly over time. Davis applies this logic to his score as well. He uses minimalist cells and patterns to represent numbers. Davis uses a number of subtle variations in his minimalist patterns. He almost never presents the same material twice without some form of variation, either in rhythm, pitch, texture, or orchestration. For each new environment within the Matrix, Davis seems to come up with a new subtle variation on the minimalist texture. The minimalist textures seem to run in endless repetition without development or progression. This is also a commentary for the humans within the Matrix, who live hypnotic fictional lives devoid of meaning, going about their business with total ignorance of the truth that they are living in a “dream world.” In his article for *Film Score Monthly*, “The Matrix Conclusions,” author Doug Adams writes,

> Minimalism was originally designed to evolve at such a slow pace that large-scale change was primarily perceptible at a subliminal level. It was Zen-like, hypnotic music - smaller forms stretched to their limits to create a development more akin to the speeds of nature. Minimalism was designed to develop through the smooth curves of repetition, not the hard corners of change. It was the music of evolution, never revolution. Davis’ creative musical voice drew from concert hall minimalism - specifically the work of John Adams, Philip Glass, Steve Reich and others. But minimalism as a wholesale concept would never work with the film.¹⁵

Davis himself elaborates on this concept,

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¹⁵ Adams, pg.17.
Zig Gron, who did the temp track,\textsuperscript{16} attempted to use some of these minimalist scores in the temp, but it didn’t work very often because that kind of music didn’t have the dramatic thrust that the film needed. The more minimalistic it was, the less it played into the dramatic impetus of what any particular scene was all about. When I was scoring it, I was able to utilize that style but still incorporate some dramatic gestures that made it work with the picture… I could do a minimalism thing for a while, but once anything happened I had to go into something different, whether it was more dissonant or more moving or even just more traditional. I had to change the texture, and that’s what minimalist music typically does not do.\textsuperscript{17}

Adams describes in this article that true minimalism couldn’t work in a film like \textit{The Matrix} simply because of the fact that the drama changes far too often. But a film that was perfect for the concept of true minimalism, practically edited in a minimalist style, was the experimental film \textit{Koyaanisqatsi} (1982). Philip Glass’ score to \textit{Koyaanisqatsi} introduced the world of cinema to minimalist music. A primary theme of \textit{Koyaanisqatsi}, similar to that of \textit{The Matrix}, is that machines control the lives of humans to such a degree that humans are willing to ignore whatever destruction of nature they may incur in order to advance industry. In his essay “Making Time: The Soundtrack and Narrative Time,” Daniel Goldmark compares Davis’ use of minimalism in \textit{The Matrix} to Glass’ score, particularly the cue titled “The Grid.” Goldmark notes that,

“In the more than twenty minutes that [The Grid] lasts, the [frenetic nature of the minimalist] music never comes to a complete cadence… perhaps this was Glass’ and

\textsuperscript{16} A temp track is “temporary” music that is edited onto a film before the score has been composed. It can serve many purposes, such as helping an editor find rhythm and pacing while editing, serve as a point of reference between director and composer, or provide musical support in early test screenings while the score is in progress.

\textsuperscript{17} Adams, pg.17-18.
Reggio’s (the film’s director) way of conveying their belief that human’s dependence on technology continues unabated, with no end in sight.”\textsuperscript{18}

2-1. The Primary Matrix Minimalist Texture

Though Davis uses a number of varied minimalist textures that all seem to represent the Matrix in one way or another, he continually returns to one particular variation. This particular texture would seem to symbolize in a general sense the Matrix program running. Though the texture is used mostly when characters are inside the Matrix, it is used in other programs, such as the Construct, and sometimes used on the Nebuchadnezzar, though the subject of the Matrix is usually part of the dialogue in some way. The texture is most often scored for clarinets, pianos, and violas, but also flutes, oboes, bassoons, harp, and violins as background texture. The texture is normally presented as continuous sixteenth-notes, but occasionally appears as eighth-notes in half-speed, as well as eighth and sixteenth-note triplets. Rodier describes the friction of every first and third sixteenth note in frequent repetition as an “effect of mounting anticipation.”\textsuperscript{19}

Example 2-1. The primary Matrix minimalist texture in 1m1 “Logos / Main Titles,” m.1, 0:00:01-0:00:04.

Aside from the logos and titles, the first place that Davis begins to use this texture is in 2m4 “Switched for Life.”

\textsuperscript{18} Baur, pg.97.

\textsuperscript{19} Rodier, pg.i.

24
[2m4 “Switched for Life”] is the scene that introduces Neo to the Matrix and sends him on his fateful ride. It was really the first place I could use a minimal idea, which I felt that the hypnotic and repetitive nature of minimal music would signify the Matrix musically the best.20

<table>
<thead>
<tr>
<th>Cue</th>
<th>Measures</th>
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<tbody>
<tr>
<td>1m1</td>
<td>m.1-7</td>
<td>0:00:02-0:00:16</td>
<td>Warner Bros. logo, <em>The Matrix</em> begins</td>
</tr>
<tr>
<td>2m4</td>
<td>m.47-51</td>
<td>0:31:13-0:31:26</td>
<td>Mirror image shifts, the Matrix corrects an anomalous code</td>
</tr>
<tr>
<td>3m3</td>
<td>m.2-5</td>
<td>0:40:37-0:40:47</td>
<td>Within the Construct, the Matrix appears on a vintage T.V.</td>
</tr>
<tr>
<td>3m9</td>
<td>m.9-15</td>
<td>0:53:42-0:53:50</td>
<td>Neo and Morpheus enter the jump program</td>
</tr>
<tr>
<td>4m7</td>
<td>m.1-3</td>
<td>1:06:53-1:07:00</td>
<td>Morpheus announces the crew will enter the Matrix for Neo to see The Oracle</td>
</tr>
<tr>
<td>5m4</td>
<td>m.9-22</td>
<td>1:17:58-1:18:21</td>
<td>The crew is about to leave the Matrix after seeing The Oracle</td>
</tr>
<tr>
<td>5m5</td>
<td>m.52-70</td>
<td>1:24:58-1:25:28</td>
<td>Cypher phones in to Tank, asking for an exit out of the Matrix</td>
</tr>
<tr>
<td>5m5</td>
<td>m.71-78</td>
<td>1:25:28-1:25:41</td>
<td>Trinity phones in to Tank, also asking for an exit out of the Matrix</td>
</tr>
<tr>
<td>6m1</td>
<td>m.1-4</td>
<td>1:31:21-1:31:32</td>
<td>In the Matrix, an Agent arrives by helicopter where Morpheus is held prisoner</td>
</tr>
<tr>
<td>6m2</td>
<td>m.65-72</td>
<td>1:35:25-1:35:40</td>
<td>Neo decides to enter the Matrix to save Morpheus</td>
</tr>
<tr>
<td>6m2</td>
<td>m.105-113</td>
<td>1:36:39-1:36:55</td>
<td>Neo preps to enter the Matrix to save Morpheus</td>
</tr>
<tr>
<td>6m3</td>
<td>m.15-20</td>
<td>1:38:37-1:38:48</td>
<td>Neo and Trinity in the Construct, Neo requests lots of guns</td>
</tr>
<tr>
<td>6m3</td>
<td>m.23-29</td>
<td>1:38:52-1:39:04</td>
<td>Neo chooses guns from the Construct, explains to Trinity his plan will work</td>
</tr>
<tr>
<td>6m6</td>
<td>m.27-32</td>
<td>1:44:59-1:45:08</td>
<td>In the Matrix, Neo preps to sever elevator cables to send bomb down elevator shaft</td>
</tr>
<tr>
<td>6m7</td>
<td>m.4-12</td>
<td>1:45:47-1:46:00</td>
<td>In the Matrix, Neo and Trinity are fighting guards on the rooftop</td>
</tr>
<tr>
<td>6m9</td>
<td>m.36-41</td>
<td>1:49:32-1:49:42</td>
<td>In the Matrix, Neo saves Morpheus from falling, Trinity pulls away in helicopter</td>
</tr>
<tr>
<td>6m9</td>
<td>m.126-130</td>
<td>1:52:09-1:52:18</td>
<td>Morpheus phones in to Tank, asking for an exit out of the Matrix</td>
</tr>
</tbody>
</table>

Table 2a. Use of the primary Matrix minimalist texture in *The Matrix*.

2-2. The Trace Program / Countdown

For Fred Karlin and Rayburn Wright’s book, *On the Track: A Guide to Contemporary Film Scoring*, Davis was quoted describing one use of his trace program motif,

In 1m7 ‘Neo on the Edge’… Starting in bar [26] there’s a repetitive motivic layered device that I use quite a bit. That happens when [Neo] first sees Agent Smith approaching him. I use that as a concept of this multilayered idea of what the Matrix was. It’s not what it appears to be, it’s something else. The short motifs are fugal as well, and that starts in bar [26]. It kind of gradually builds up. By bar 35 I think there are about six lines going. It kind of goes in and out of the action when they’re chasing him…21

---


21 Karlin, pg.206-207.
One of the first images we see in *The Matrix* film is a visual depiction of a trace program running, which is assumedly performed by the Agents, locking in on the location of a phone call between Trinity and Cypher, one number at a time. A series of numbers are running across the screen, with columns disappearing one by one until the program presumably has locked in on the complete phone number from the call’s source location. Davis created his own way of musically depicting this visual, through the use of minimalism.

Example 2-2a. Trace program in 1m1 “Logos / Main Titles,” m.8-9, 0:00:16-0:00:19.

The example above shows Davis’ compositional representation of the trace program, or more specifically to the story, Agents searching (or chasing) for “free” humans jacked in to the Matrix from their own source. What Davis uses is essentially minimalist cells of scalar material that he can use to depict various numbers. For example, the scalar cells would translate like this:

---

22 This can be seen from 0:00:53-0:01:17 in *The Matrix* film.
Example 2-2b. Scalar cells converted to numbers.

According to that translation, the bass clarinet line from above would equate to the following:

Example 2-2c. Bass Clarinet 3 converted to numbers in 1m1 “Logos / Main Titles,” m.8-9, 0:00:16-0:00:19.

If the bass clarinet, bassoons and violoncelli were all to be converted in this manner entirely down to numbers, it would look like this:

| B. Clarinet 3  | 4 4 2 3 5 3 3 2 4 3 3 3 3 3 2 2 4 4 6 5 4 3 2 2 4 4 3 3 3 5 4 2 3 3 |
| Bassoon 1      | 3 3 2 4 2 4 2 3 3 2 4 2 6 5 4 3 2 2 4 2 2 3 3 3 2 4 2 2 4 2 4 2 4 6 |
| Bassoon 2      | 4 2 3 3 3 5 2 4 6 3 3 3 4 2 6 5 4 3 2 2 3 3 3 2 6 3 3 2 3 3 6 3 3 2 2 |
| Violoncello 1  | 2 2 4 3 3 2 6 2 2 3 3 6 5 4 3 2 2 2 4 2 3 3 4 6 2 2 4 6 5 4 3 2 2 2 3 2 4 4 |
| Violoncello 2  | 2 3 3 2 2 2 4 2 2 3 3 2 3 3 2 4 2 2 3 3 6 5 4 3 2 2 2 4 3 3 4 6 5 4 3 2 2 2 3 3 3 2 3 3 |

Table 2b. Trace program as numbers in 1m1 “Logos / Main Titles, m.8-15, 0:00:16-0:00:30.

Now we have a basic picture of exactly how the trace program is depicted in *The Matrix*. In composing each part, Davis would have had to have been careful to make sure that every part is entirely different from one another, otherwise the effect would be quickly lost. Thus, there is a sort of planned randomness to Davis’ compositional intent. Rodier calls this sixteenth-note passage a “perpetuum mobile,” which is Latin for perpetual motion, which in music refers simply to a repetitive stream of notes at a fast tempo.23 Similar to the way the machines’ code is relentlessly running in search of the humans, so are Davis’ minimal cells among the various instruments.

---

23 Rodier, pg.iv.
There is also one other element that Davis placed into this pattern, which can best be seen in this way,

| B. Clarinet 3 | 4 4 2 3 5 3 3 2 4 3 3 6 3 3 3 3 2 2 4 4 6 5 4 3 2 2 2 4 4 3 3 3 5 4 2 3 3 |
| Bassoon 1    | 3 3 2 4 2 3 3 4 4 2 6 5 4 3 2 2 4 2 3 3 3 3 3 3 2 4 2 2 4 2 4 2 4 6 |
| Bassoon 2    | 4 2 3 3 3 5 2 4 6 3 3 3 4 2 6 5 4 3 2 2 2 3 3 3 2 6 3 3 3 6 3 3 2 2 |
| Violoncello 1| 2 2 4 3 3 2 6 2 2 3 3 6 5 4 3 2 2 2 2 4 2 3 3 4 6 2 2 4 6 5 4 3 2 2 2 3 3 2 4 4 |
| Violoncello 2| 2 3 3 2 2 4 2 2 3 3 2 6 5 4 3 2 2 2 4 2 3 3 3 3 2 6 5 4 3 2 2 2 2 3 3 3 3 2 3 3 |

Table 2c. Countdown numbers within trace program in 1m1 “Logos / Main Titles, m.8-15, 0:00:16-0:00:30.

Davis includes a slightly different figure in the midst of all these cells, that of a countdown.

Example 2-2d. Countdown in 1m1 “Logos / Main Titles,” m.9-11, 0:00:19-0:00:22.

Again, Davis is always mindful not to have this countdown figure begin at the same time as another instrument. The idea of a countdown in the midst of a search program makes a great deal of sense. It can hint to the ultimate arrival of an event, or it can signal that the end is near; the Matrix is getting one step closer to finding what it’s looking for. Davis does not have a cell of less than two, likely because of the challenging syncopation it would force onto the performing musician, so instead he repeats the “two” cell twice at the end of each countdown, an easier cellular design for continuous sixteenth-note repetition. At risk of being obsessively investigative to an extreme, if one were to watch the trace program visual effect frame-by-frame, one would notice that the number two is most often the number shown at the top of the column of rotating numbers before each locked number of the traced call source appears.

One interesting variation that Davis uses in 6m9 “Ontological Shock,” occurs as Neo rescues Trinity from a helicopter about to crash into a building. Here Davis composes the trace program texture all in unison among nine different groups of instruments. The effect symbolizes
Neo’s ability to alter the code of the Matrix toward a singular intention - saving Trinity, as he begins to realize his power as The One.

Davis’ use of minimalist cells is particularly indicative of works by American composer John Adams, particularly his composition *Shaker Loops* (1978).

<table>
<thead>
<tr>
<th>Cue</th>
<th>Measures</th>
<th>Timecode</th>
<th>Spotting</th>
</tr>
</thead>
<tbody>
<tr>
<td>1m1</td>
<td>m.8-15</td>
<td>0:00:16-0:00:30</td>
<td>Village Roadshow Pictures logo</td>
</tr>
<tr>
<td>1m2</td>
<td>m.1-20</td>
<td>0:00:41-0:01:17</td>
<td>Trace program: running</td>
</tr>
<tr>
<td>1m3</td>
<td>m.92-136</td>
<td>0:03:23-0:04:35</td>
<td>Agents chase Trinity through hotel corridors and rooftop</td>
</tr>
<tr>
<td>1m4</td>
<td>m.204-210</td>
<td>0:06:27-0:01:17</td>
<td>Camera travels into phone receiver to Neo’s computer</td>
</tr>
<tr>
<td>1m7</td>
<td>m.26-38</td>
<td>0:14:15-0:14:38</td>
<td>Agents looking for Neo (Thomas Anderson) at his cubicle</td>
</tr>
<tr>
<td>1m7</td>
<td>m.53-59</td>
<td>0:15:04-0:15:17</td>
<td>Neo escapes detection through corridors into corner office</td>
</tr>
<tr>
<td>2m5</td>
<td>m.63-72</td>
<td>0:34:28-0:34:49</td>
<td>The Nebuchadnezzar is looking for Neo in sewer</td>
</tr>
<tr>
<td>4m3</td>
<td>m.18-23</td>
<td>0:59:25-0:59:35</td>
<td>Sentinels described as killing machines designed only to search and destroy</td>
</tr>
<tr>
<td>5m4</td>
<td>m.60-72</td>
<td>1:19:21-1:19:44</td>
<td>Police search for the heroes in derelict hotel building</td>
</tr>
<tr>
<td>5m4</td>
<td>m.82-118</td>
<td>1:19:58-1:20:58</td>
<td>After police kill mouse in shootout, they continue search for other heroes</td>
</tr>
<tr>
<td>5m4</td>
<td>m.210-223</td>
<td>1:23:19-1:23:42</td>
<td>Police search for heroes in hotel basement, open fire</td>
</tr>
<tr>
<td>6m9</td>
<td>m.80-88</td>
<td>1:50:47-1:51:04</td>
<td>Neo hangs on to cord, saving Trinity from the helicopter crash</td>
</tr>
<tr>
<td>7m2</td>
<td>m.33-39</td>
<td>1:59:16-1:56:25</td>
<td>Agent Smith is chasing after Neo, morphs into a bystander with a cell phone</td>
</tr>
<tr>
<td>7m2</td>
<td>m.101-102</td>
<td>2:00:47-2:00:50</td>
<td>Agent jumps from apartment scaffolding, continues pursuit of Neo</td>
</tr>
<tr>
<td>7m2</td>
<td>m.129-155</td>
<td>2:01:26-2:02:03</td>
<td>Agents continue pursuit of Neo, fire weapons at him</td>
</tr>
<tr>
<td>7m2</td>
<td>m.170-177</td>
<td>2:02:19-2:02:30</td>
<td>Neo scrambles to find room 303, where he can exit the Matrix</td>
</tr>
<tr>
<td>7m3</td>
<td>m.107-113</td>
<td>2:05:38-2:05:48</td>
<td>Agent Smith re-engages Neo after Neo stops Agents’ bullets in mid-air</td>
</tr>
<tr>
<td>7m3</td>
<td>m.182-192</td>
<td>2:07:45-2:08:01</td>
<td>Recapitulation of trace program: running, this time resulting in system failure</td>
</tr>
</tbody>
</table>

Table 2d. Use of trace program texture in *The Matrix*.

### 2-3. Sentinels / Bug

Sentinels, more commonly referred to as “Squiddies” in *The Matrix*, are killing machines designed only to search and destroy. A Bug is a tracking device that is used by Agents to track humans within the Matrix. Davis regularly represents both Sentinels and the Bug with similar thematic textures. Because Sentinels and the Bug are both machines, they follow the machine tonal set, most commonly in short, chromatic [012] gestures. Through each variation of this thematic
texture, the starting pitch of each chromatic gesture is intentionally varied so as to achieve maximum atonality. The first appearance of this texture is in 2m2 “Unable to Speak.”

Example 2-3a. Bug texture in 2m2 “Unable to Speak,” m.2, 0:20:28-0:20:32.

In 2m2 “Unable to Speak,” Davis uses the Sentinels / Bug texture for two thematic purposes, first to underscore Neo’s horror at having his mouth mysteriously sealed shut, and second to represent the Bug that the Agents place inside his abdomen. This Bug is the first machine presented in its true appearance in The Matrix, resembling a type of insect or worm with several tiny tentacles and a single red eye. Davis’ quick canonic imitation mimics these tentacles flailing around quickly and seemingly at random. Since 2m2 “Unable to Speak” is composed in an entirely aleatoric style, this sense of randomness is increased by the notation which directs the musicians to repeat these motives ad lib. The minimalist cells always consist of three ascending chromatic notes forming a [012] set. Each time that Davis uses the Sentinels / Bug texture in groups of three, it is always composed in this manner.

Davis then uses this texture in the following cue, 2m3 “Bait and Switch.” In this scene, Trinity uses a machine to locate and remove the Bug from Neo’s abdomen. Again, Davis uses a
similar thematic texture for the Bug. This is the first use of Davis’ most common notation for this texture, which is short [012] sixteenth-note triplets in various chromatic groups of three, again always ascending. Davis commented about the use of his Sentinel texture in this cue,

[2m3 “Bait and Switch”] had a bit of thematic writing, I mean insofar as I used themes or really motives. I had a motive that I actually started in [2m2 “Unable to Speak”], which was something for the tracking device (also called a Bug) and was a triplet figure that played against itself in a complicated way. That figure became the Sentinel theme that showed up later in the picture… It seemed to me that the two devices were related - something that the Agents had concocted… to illuminate the people that were rebels.24

Example 2-3b. Bug in 2m3 “Bait and Switch,” m.29-30, 0:23:57-0:24:03.

From m.29-52, Davis develops this texture canonically, almost fugue-like, across multiple instruments, building in intensity as Trinity attempts to locate the Bug moving around inside Neo’s body, until the Bug is sucked out violently into a glass jar, when Davis abruptly stops the texture. Through m.50-52, Trinity throws the Bug out the window, and the Bug dies. Davis slows the texture as its red eye dims, calling out one final [012] cry before failing.

---

24 The Matrix, Composer Commentary, 0:25:46-0:26:37.
Though at this point in the film we are yet to be introduced to Sentinels, Davis nevertheless chooses to compose similar thematic textures to represent Bugs and Sentinels, which are both insect-like machines. Because Sentinels always fly in swarms, Davis always scores them using quick canonic repetition in various instruments. Their appearance is similar to squids, hence the nickname “Squiddies,” however they also resemble various types of insects because of their multiple sensors that resemble eyes and multiple appendages. Davis’ theme for the Sentinels is not unlike Nikolai Rimsky-Korsakov’s “Flight of the Bumblebee” (1900) in direct comparison.

Davis also associates the Sentinels texture with Neo feeling sick in 3m3 “Nascent Nauseous Neo.” After hearing the truth about humans and machines from Morpheus, Neo breaks down in disbelief, feeling dizzy, vomiting, and then passing out. The use of the Sentinels texture here makes a thematic connection to when Neo was implanted with the Bug in 2m2 “Unable to Speak,” during which Neo had similar feelings of disbelief and imminent sickness.

Davis’ use of the Sentinels theme is fully realized during their first appearance in 4m3 “Switch Woks Her Boar.” Here Davis uses another cellular approach to the composition of the Sentinels theme, much like the trace program.
Example 2-3d. Sentinels in 4m3 “Switch Woks Her Boar,” m.15, 0:59:20-0:59:21.

Example 2-3e illustrates the various possible cells from which Davis composes the Sentinels theme. The cells are each four sixteenth-notes, entirely chromatic, using as many combinations of ascending and descending motions as possible, while still representing an overall [012] machine harmonic set. For example, four sixteenths that move up, down, up, and down would only comprise tones from a [01] set. Davis does however make use of [01] minimalist textures, to be explained in 2-4.

Example 2-3e. Minimalist cells used in Sentinels thematic texture.
2.4. Human and Machine Ostinati

Davis frequently makes use of scalar ostinati in *The Matrix*, particularly in scenes leading up to the big action sequences of the film, as somewhat of a teaser of the excitement to come. These ostinati, which follow the human harmonic set, appear in various groupings of four, five, and six throughout the score. Example 2-4a shows one such scalar ostinato which gives drive and purpose to Trinity just after she has very quickly “learned” to fly a B-212 helicopter.


Another repeated technique that Davis uses in *The Matrix* to create sustained tension in quiet moments, usually under dialogue, is a repetitive ostinato that only moves by a single step. Davis uses variations of both minor second [01] and major second [02] intervals. As expected, these separately represent tension concerning machines or humans. Both sets of ostinati mark the passage of time leading up to important developments in the film’s story.
Machine ostinati are usually composed in long passages of eighth-notes, eighth-triplets, or sixteenth-triplets, orchestrated in low-register clarinets, bassoons, piano, and violas. The clearest example can be heard in 6m1 “Mix the Art” from m.5-37, starting just as Agent Smith begins to interrogate Morpheus, and continuing under his dialogue throughout the entire scene.

Example 2-4b. Machine ostinato in 6m1 “Mix the Art,” m.5, 1:31:32-1:31:34.

Human ostinati could be seen as a deconstruction of the primary Matrix minimal texture, consisting of only the top voice. Additionally, the two are occasionally paired together at different speeds or in different registers. Davis uses a similar orchestration, normally in clarinets, bassoons, and violas. The human ostinato in particular seems to illustrate the passage of time, especially when leading up to important decisions made by human characters. The most interesting example can be heard in 3m1 “Switches Brew,” which accompanies a montage sequence lasting an unspecified amount of time, during which Neo’s muscles are rebuilt after his initial awakening and rescue from the machine’s “Power Plant” in the real world. Here Davis uses a boy soprano to symbolize Neo’s innocence in “rebirth,” accompanied in unison by a lightly shimmering vibraphone.
2.5. Minimalist Pyramids

Davis again utilizes the pyramid technique, but this variation includes a minimalist approach with continuous repeating rhythms. This technique is used in scenes with great tension, although predominantly in the film’s major fight scenes. The pyramids build from unisons to clusters, then are interrupted by eighth-note rests occupied by percussive pile drivers (to be discussed in 10-1), subsequently resetting back to unison every few bars. As with the sustained pyramids discussed earlier, Davis uses variations that follow either a human or machine harmonic set. Whether he uses one or the other depends on which character appears to have the upper hand in the fight at any given moment. In each case, Davis largely orchestrates these driving rhythmic pulses with brass and strings. Davis describes this technique as “essentially a distillation down to basic fundamental elements of rhythm and dynamics.”

---

Example 2-5a demonstrates a use of the minimalist pyramid during the climactic fight between Neo and Agent Smith. The human clusters signify that Neo is in control of the fight at this moment. The pyramids build to either three [013] or four-note [0235] clusters, suggesting a slightly dissonant yet heroic sentiment.

Davis of course also uses minimalist pyramids that build chromatically, following the machine harmonic set. The machine minimalist pyramids only appear in the two fight scenes between Morpheus and Agent Smith, and Neo and Agent Smith. Because of the dissonant quality of either the [012] or [0123] clusters to which these pyramids build, the machine pyramid evokes much more tension than the human pyramids. Example 2-5b also demonstrates the use of the minimalist pyramid in the fight between Neo and Agent Smith, this time conversely signifying that Agent Smith has the upper hand in the fight.

Another variation that Davis uses is the “machine gun” pyramid, which is essentially the same technique at twice the speed. This technique is the musical device used primarily for when Neo and Agent Smith punch with superhuman speed, but also to accompany the firing of automatic weapons. Because of the incredibly fast repetition, the technique sounds analogous to both the firing of guns, and the rapid punches accompanied by multiple-fist visual effects. It is often scored for flutes and trumpets, both of which can double-tongue at high speeds with great intensity. Example 2-5c demonstrates the use of a machine gun pyramid following the machine harmonic set, underscoring a police officer firing an automatic weapon into the wall where Morpheus, Neo, and others are hiding.

2-6. Rising Clusters

Example 2-6a is a slight variation on the machine gun pyramid, not a pyramid exactly like the other examples. Instead it is a series of rising human clusters that vary in increasing intensity as Neo moves with superhuman speed, besting Morpheus with a fist to his face. Neo’s use of super speed is the first indication of his powers yet to be fully awakened.
The technique of rising clusters is usually composed in the Dorian mode (to be discussed in 5-5), signifying moments where Neo is beginning to realize his potential as The One. Its primary function is to build to moments of important decisions or discoveries made by Neo along his journey.
3. Reflection

A recurring theme of *The Matrix* revolves around the idea of reflection. This is presented visually in the film by shots containing various types of reflective surfaces, such as computer monitors, mirrors, glass from buildings and phone booths, sunglasses, and even spoons. In *The Matrix Revisited*, Davis shares his thoughts about reflection in *The Matrix*,

> It wasn’t really until I saw the movie that I saw how important that the concept of reflections [was], as far as the Wachowskis were concerned. Almost every scene has some kind of aspect of a reflective subtext. When Trinity first encounters Agent Smith, she’s sitting on a motorcycle and she sees him in the rear-view mirror of her motorcycle. Almost every time when Laurence Fishburne is on the screen in his dark glasses you see Neo reflected in his glasses. The scene with the spoon moving around - [it’s] always got somebody’s face in it. I think I was able to take that ball and run with it and use reflections in the orchestra of one section against the other or just a contrapuntal idea placed [one] on top of the other that would represent this reflection that we see on the screen. That was really the key to it for me.\(^\text{26}\)

On *The Matrix* DVD’s Composer Commentary, Davis suggests that these shots were intended by the Wachowski brothers as “a symbol of the different states of reality that were going on - that one could look into a spoon that was reflecting your face and actually see what was real rather than the unreal world.” He goes on to describe his intention to achieve this idea of reflection compositionally. One idea he describes is “[echoing musical statements… different parts of the orchestra will state something, and another part of the orchestra will restate it just slightly later.”\(^\text{27}\)

Davis is basically attempting here to describe to the layman how a canon works in music.

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\(^{27}\) *The Matrix*, Composer Commentary, 0:12:28-0:13:30.
3-1. Reflection Theme

Again, for Karlin Wright’s book *On the Track*, Davis is quoted describing the first appearance of his reflection motif,

[Just before Neo] gets out on the ledge… that’s where I have this high string line that’s basically kind of a simple fugue, but the idea I had with these two lines that are kind of hugging each other was to represent the idea of the mirrors and the reflections which were very strong images in the entire movie. And that starts in bar [77] and goes through [87].

In example 3-1, Davis is simply repeating an idea in two voices one quarter note apart. Again, this material is minimalistic in rhythm, and consists of fragments of motives that stutter and reset, similar to that of the trace program texture.

The reflection theme does not have a particular leitmotif function the way that many other themes in *The Matrix* do, though it tends to be used in places where important realizations are made by either Neo or Morpheus. The theme is always orchestrated for violins, though sometimes doubled with flutes. The two parts of the canon are normally two notes apart from one another, though occasionally three notes apart. This theme normally takes a secondary role to other textural ideas, acting largely as a sort of accompaniment.

\[\text{Karlin, pg. 207.}\]
<table>
<thead>
<tr>
<th>Cue</th>
<th>Measures</th>
<th>Timecode</th>
<th>Spotting</th>
</tr>
</thead>
<tbody>
<tr>
<td>1m7</td>
<td>m.77-87</td>
<td>0:15:50-0:16:12</td>
<td>Neo (Thomas Anderson) goes out onto skyscraper ledge</td>
</tr>
<tr>
<td>1m7</td>
<td>m.93-98</td>
<td>0:16:22-0:16:33</td>
<td>Neo gets trapped on skyscraper ledge</td>
</tr>
<tr>
<td>2m3</td>
<td>m.1-7</td>
<td>0:22:34-0:22:55</td>
<td>Neo Waits for a car under an arch in the rain</td>
</tr>
<tr>
<td>2m3</td>
<td>m.53-69</td>
<td>0:25:02-0:25:39</td>
<td>Neo travels through derelict building to meet Morpheus</td>
</tr>
<tr>
<td>4m3</td>
<td>m.7-14</td>
<td>0:59:07-0:59:20</td>
<td>The Nebuchadnezzar attempts to outrun Sentinels</td>
</tr>
<tr>
<td>6m9</td>
<td>m.7-12</td>
<td>1:48:45-1:48:55</td>
<td>Morpheus wills himself out of a drug-induced state</td>
</tr>
<tr>
<td>6m9</td>
<td>m.16-22</td>
<td>1:48:59-1:49:10</td>
<td>Morpheus wills himself to break free of his handcuffs</td>
</tr>
<tr>
<td>7m3</td>
<td>m.79-94</td>
<td>2:04:51-2:05:20</td>
<td>Neo stops bullets shot by Agents in mid-air</td>
</tr>
<tr>
<td>7m3</td>
<td>m.214-232</td>
<td>2:15:19-2:15:46</td>
<td>During the End Credits finale</td>
</tr>
</tbody>
</table>

Table 3a. Use of reflection theme in *The Matrix*.

3-2. Canon

As stated already, the use of close canon is Davis’ most common musical emulation of reflection in *The Matrix* score. Normally, the canon is very simple, such as in example 3-2a in 6m2 “Whoa, Switch Brokers,” which scores the requiem-like moment when Neo, Trinity, and Tank are about to pull the plug on Morpheus, which would result in Morpheus’ death.

![Example 3-2a. Canon in 6m2 “Whoa, Switch Brokers,” m.41-48, 1:34:40-1:34:56.](image-url)
Here the four-note descending canon is spread over two bars between various groupings of horns, trombones, and violas. Additionally, Davis uses a similar motif in the violins that is moving in contrary motion at half speed. The contrary motion in this case is like a mirror reflection at an Eb tonal axis.

Other times throughout *The Matrix* score, Davis’ uses of canons are much more complex, such as this six-voice canon in example 3-2b from 1m1 “Logos / Main Titles.”

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Example 3-2b. Canon in 1m1 “Logos / Main Titles,” m.16-17, 0:00:30-0:00:34.

This canon underscores the first visual appearance of the Matrix code. Davis uses only two groupings of four ascending notes, starting at E and G, respectively. He is careful to start each iteration separately from any other, so that the compounding pitches will create a jumbled assortment of tones in motion, much like the streams of text comprising the Matrix code.

**3-3. Numerology**

Davis explains in his Composer Commentary that he was particularly astonished by the elements of the storytelling written by the Wachowskis that were, as he describes, “under the
surface.” As examples, he points to Neo’s copy of Jean Baudrillard’s *Simulacra and Simulation* (1981), which he hollowed out for storing disks containing assumedly illegal software (exactly placed at the chapter “On Nihilism”), and that the character named Choi (who is buying the software) describes Neo shortly after as “My own personal Jesus Christ,” and then immediately follows up with the statement “You don’t exist.” Davis similarly tried to keep many elements of the music just under the surface enough that the audience would be aware that more was going on than met the eye. There is perhaps no better example of that “under the surface” concept than Davis’ allusions to numerology in his score.

One particular scene in Davis’ score for *The Matrix* stands out as compelling evidence that Davis is trying to send messages by way of his score through numerology. Just after Neo receives a call from Morpheus for the first time, Neo agrees to meet. Especially after his nightmarish encounter with the Agents in the scene before (which may or may not have been a dream from his perspective), Neo feels more than ever that something is wrong with his life and with the world around him, and he does not know what the answers are. The beginning of 2m3 “Bait and Switch,” in which Neo is waiting to meet with Morpheus to hopefully find these answers, is probably the most crucial moment in the film where Neo is seeking truth.

---


Looking at example 3-3 from 2m3 “Bait and Switch,” nearly everything about it seems to be pointing to the number seven. First, the textures are a total of seven measures long. The primary asymmetrical minimalist texture in the winds and marimba is seven eighth-notes in duration before it recycles. The violoncelli and contrabasses, upon close dissection, are given the exact same asymmetrical texture as the winds and marimba, only exactly seven times slower. Finally, the two violin parts are given canonical patterns of exactly seven quarter notes before they too recycle. So, if Davis has gone through these great lengths to present variations of the number seven, what is he trying to tell us?
In his book, *The Seventh Major Understanding*, Jordan Gray describes the significance of the number seven in numerology and his concept of the “Seventh Major Understanding,” which he defines as “Oneness.”

In numerology, the number seven resonates with the energy of seeking answers and finding truth. [Oneness] reveals the nature of our reality, and it answers many questions about our existence. The vibration of seven compels introspection and internal searching for answers. [Oneness] aligns perfectly with this vibration as it strongly asserts that the truth about the nature of reality and who you are must come from within. Meaningful answers about who we are and why we are here arise from the One being that dwells in all forms and permeates the formless. You are the One.30

This description could not be more perfectly suited for *The Matrix* if it had been written by the Wachowskis themselves, specifically in regard to Neo searching for answers on his journey to discover himself as The One. This example is of course completely arcane to anyone simply listening to the score, but it is Davis’ way of sending messages in the music “under the surface.”

3-4. Augmentation

Another of Davis’ compositional devices for emulating reflection in *The Matrix* score is that of augmentation, in other words, when a texture is reused at a reduced speed from its original appearance. The best example of which appears once again in the opening seven bars of 2m3 “Bait and Switch.”

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30 Gray, pg.16-17.

Just minutes earlier, during the cue 2m1 “Through the Surveillance Monitor,” the Wachowskis created a shot centered on the rear-view mirror of Trinity’s motorcycle, where people in the background were moving in real-time, while the reflection of Neo, accompanied by Agents, was moving in slow motion. In 2m3 “Bait and Switch,” Davis accomplishes an analogous depiction in his music, where two of the same textural ideas are presented simultaneously, each at differing speeds. The lower texture in the violoncelli and contrabasses moves exactly seven times slower than the upper texture in the bass clarinets, bassoons, and marimba. Not so coincidentally, throughout m.1-7, Davis also includes the reflection theme in the first and second violins.

3-5. Heroic and Tragic Horns

Davis is very consistent throughout The Matrix to score moments of nobility, honor, and heroism with brass, but especially with French horns. The horn has traditionally been used as a heroic instrument for hundreds of years, dating back to when they were used primarily to call out various hunting signals. The heroic horns are an orchestrational leitmotif only, as the various melodies are never the same from one iteration to another. Each iteration consistently makes use
of some sort of counterpoint, however, and it is that use of counterpoint that connects the heroic horns to Davis’ concept of reflection in *The Matrix*.

In 3m2 “Cold-Hearted Switch,” Neo is officially introduced to the crew of the Nebuchadnezzar for the first time. As soon as Morpheus goes around the room to introduce them, they each stand one by one. Davis scores this moment with two sets of parts in the French horns, marked to be played “proudly.” Clearly this sound is meant to give the crew a sense of honor, that they are to become the primary heroes in the war against the machines.

![Example 3-5a. Heroic horns in 3m2 “Cold-Hearted Switch,” m.13-18, 0:38:20-0:38:36.](image)

Davis does not exclusively use French horns for moments of heroism. He frequently doubles bassoons and violas with the primary melodies and/or counterpoint. Davis will also include trumpets and trombones, especially in the moments that are much larger in scale. One moment in 6m9 “Ontological Shock” is such an example. In this case from m.7-12, the counterpoint to the primary melodic material is a canon, in octaves with the trumpets. This two-bar canon is another clear use of reflection in Davis’ score. This is a hugely triumphant moment in the film, when Morpheus wills himself from captivity and narrowly escapes with the help of Neo and Trinity.
Example 3-5b. Heroic horns in 6m9 “Ontological Shock,” m.7-12, 1:48:45-1:48:55.

It is interesting to note that late in the score for *The Matrix*, Davis switches combinations of horns to “tuben” (as in Wagner tuben or tubas), which were developed by Richard Wagner and used in his opera *Das Rheingold* (1869) as the instrument of choice for the Valhalla leitmotif, the great hall where heroes go when they die.

Davis also occasionally flips the expectation on its head, and scores horns for moments of great tragedy, however still representing the primary heroes of the story. This moment in 7m3 “He’s The One Alright” begins just as Neo flatlines. Tragic horns are accompanied in sorrowful counterpoint with violas as Trinity and Morpheus look on with disbelief. Two Agents then confirm that Neo’s heart has in fact stopped.

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31 Bryant.
Example 3-5c. Tragic horns in 7m3 “He’s The One Alright,” m.18-30, 2:03:11-2:03:33.

Davis’ use of horns as both heroic and tragic is in itself yet another way in which Davis emulates reflection in his score, using similar instrumentation for opposite sides of the emotional spectrum.

3-6. Loading the Construct

A very brief theme appears in association with loading the “Construct” - that is, the white nothingness from which programs are loaded within characters’ minds when they are “jacked in.” The theme is canonic in nature, essentially in three parts with each part stating ascending scales following the Dorian mode in sixteenth notes, followed immediately by fragments of descending scales presented in similar approach. It seems that Davis presents this change in direction in the theme to follow the manner in which the visual depicts the program zoom in toward the characters and then quickly out. The theme utilizes the reflection concept in its use of canon and short echoic figures. The combination of a close canon with minimalist scalar rhythms makes this theme procedurally similar to much of the music of Steve Reich. Davis describes the first appearance of this thematic texture as his favorite scene to score in The Matrix,
A lot of people ask me what my favorite scene [was] to score in *The Matrix*, and the scene when Laurence Fishburne and Keanu Reeves are standing there and the buildings rise up to them was actually my favorite moment because I could get very close to the action and do something very interesting with dynamics as the buildings come up and the camera pulls back just before they start the jump program. It’s really one of the most quintessentially “Wachowski” moments in the picture, and I was able to recap that musical moment later on when Trinity and Neo are again in the Construct and they choose all their weapons for the lobby shootout.\(^{32}\)

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\(^{32}\) *The Matrix*. Composer Commentary, 0:54:53-0:55:35.
<table>
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<tr>
<td>3m9</td>
<td>m.6-8</td>
<td>0:53:38-0:53:42</td>
<td>Loading the jump program</td>
</tr>
<tr>
<td>3m10</td>
<td>m.17-18</td>
<td>0:54:32-0:54:35</td>
<td>Neo prepares to jump from skyscraper</td>
</tr>
<tr>
<td>6m3</td>
<td>m.21-22</td>
<td>1:38:49-1:38:17</td>
<td>Loading an arsenal Construct</td>
</tr>
</tbody>
</table>

Table 3b. Use of loading the Construct theme in *The Matrix.*

3-7. Polyrhythm

One reflective compositional device that Davis uses in *The Matrix* to represent the concept of multiple realities within the story is polyrhythm. Davis describes the first scene in his DVD commentary,

[2m4 “Switched for Life”] is the scene where the idea of reflective imagery in the camerawork manifested itself most completely… In Morpheus’ eyeglasses, we can always see Neo and the puzzled look on his face. There’s also a reflection off the case in Morpheus’ hands that holds the fateful pills. In the following sequence, Neo looks into a mirror and he sends his finger into the mirror, and the mirror then spreads up his hand and up his head into his mouth. And that’s how he is transported into the Power Plant, which is the location of his actual existence.\(^{33}\)

At this moment in 2m4 “Switched for Life” where Neo encounters the mirror (m.47-51), Davis scores eighth-note triplets against sixteenth notes using two separate minimal textures. The texture in the clarinets and piano one is the normal motif for the Matrix program, and the other in the harp and piano two is something entirely different, a new plain of existence that Neo is just beginning to discover in this moment.

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\(^{33}\) *The Matrix.* Composer Commentary, 0:27:09-0:27:57.
The significant thing that’s happening is that there are a multitude of realities that are going on, and the audience really isn’t aware of that yet; they don’t become aware until the character Neo becomes aware of it. I was able to symbolize that by layering different musical textures on top of each other… I felt that that would communicate to the audience that there was much more going on than was actually shown to them visually.\(^{34}\)

Just after Neo’s interaction with the mirror in m.52-67, Davis begins a new texture (now in 6/8) that fluctuates between eighth-notes and 4:3 quadruplets. This texture mimics the concept that Neo is at this moment fluctuating between planes of existence.

Davis’ use of polyrhythm continues to amplify as bits of liquid from the mirror continue to absorb Neo, moving from his fingers all the way up his arm. In m.68-79, Davis now uses three separate textures in eighth-notes, 4:3 quadruplets, and sixteenth-notes. The fluctuation also continues, in which both sets of eighths and eighth quadruplets increase speed briefly and sporadically. Clearly this increasing intensity mirrors Neo’s growing sense of panic. Interestingly,

\(^{34}\) The Matrix, Composer Commentary, 0:07:31-0:08:05.
the sixteenth-note texture in this section begins to resemble that of the trace program texture, which makes sense considering that Apoc and Tank are hard at work searching for Neo’s location in the real world. This fluctuating variation of rhythm is particularly indicative of Philip Glass, including in his aforementioned score for *Koyaanisqatsi*.

Example 3-7c. Polyrhythm in 2m4 “Switched for Life,” m.68-69, 0:31:51-0:31:54.

It all culminates into even more intensity in m.80-85. Davis increases to one sixteenth-note texture against three separate 8:6 octuplet textures. There are now two trace program-like textures indicating the search for Neo’s location has intensified greatly at this moment. Most of the textures are now in unified rhythm, with no further intermittent fluctuations, which would seem to indicate that Neo is no longer as intensely between realities, and his consciousness is instead entering his true reality in the real world.
Example 3-7d. Polyrhythm in 2m4 “Switched for Life,” m.80-81, 0:32:04-0:32:07.

3-8. The One

Davis’ uses a triadic texture specifically in places where Neo comes to realize that he is The One. The texture is in complete tonal balance, always centered around a major triad. Because The One can see many layers of reality at once, as shown when Neo sees the Agents entirely in Matrix code toward the end of the film, Davis uses multiple layers of polyrhythm, or simultaneous groupings of contrasting rhythms in duple and triple meter. This texture always appears in the two piano parts, additionally a few times in harp, and one example in 7m3 “He’s The One Alright” that adds yet another layer of woodwinds. Among the four layers, a polyrhythm is produced of three + four + six + eight.
Example 3-8. The One in 7m3 “He’s The One Alright,” m.214-215, 2:15:19-2:15:23.

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<td>m.1-7</td>
<td>0:00:03-0:00:15</td>
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<tr>
<td>6m9</td>
<td>m.110-115</td>
<td>1:51:41-1:51:54</td>
<td>Morpheus asks Trinity is she now believes that Neo is The One</td>
</tr>
<tr>
<td>7m3</td>
<td>m.77-90</td>
<td>2:04:51-2:05:14</td>
<td>Neo stops Agents’ bullets in mid-air, realizing his power as The One</td>
</tr>
<tr>
<td>7m3</td>
<td>m.95-106</td>
<td>2:05:29-2:05:38</td>
<td>Neo sees his surroundings entirely in Matrix code</td>
</tr>
<tr>
<td>7m3</td>
<td>m.130-139</td>
<td>2:06:14-2:06:30</td>
<td>Neo, inside Agent Smith, deletes his program code</td>
</tr>
<tr>
<td>7m3</td>
<td>m.208-235</td>
<td>2:15:09-2:15:56</td>
<td>During the End Credits finale</td>
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</table>

Table 3c. Use of The One texture in *The Matrix*.

4. Bitonality

Bitonality was used early on by Charles Ives and Modest Mussorgsky, but was perhaps more famously noted in the music of Igor Stravinsky, particularly in his ballets for *Petrushka* (1911)\(^{35}\) and *The Rite of Spring* (1913)\(^{36}\). One notable use of bitonality in early film music is in Bernard Herrmann’s iconic score for *Vertigo* (1958). During the opening rooftop chase scene of the film (which is very similar in concept to Trinity’s opening rooftop chase scene in *The Matrix*),

\(^{35}\) Whittall.

\(^{36}\) Karlin, pg.233.
Herrmann uses a polychord consisting of one major and one minor triad whose roots are one half-step apart to accompany the famous “Hitchcock shot” (commonly called a dolly zoom), which is a camera trick used by Alfred Hitchcock to warp perspective, creating a dizzying effect. This polychord has come to be referred to as “The Vertigo Chord.” Similarly, Davis uses bitonality most notably for what have been come to be known as “bullet time” shots in The Matrix. His use of bitonality can also be seen as yet another extension of his ideas of reflection.

4-1. “Bullet Time” Polychord Swells

“Bullet Time” is the name given to the unique visual effect invented for The Matrix, in which a camera seems to photograph action in a way that is totally detached from the physics of time and space. Davis’ polychord swells that normally accompany this effect are easily the most identifiable sound of Davis’ score for The Matrix. There are several ways to describe this motif, but in the most basic terms, it is two or more triads that crescendo and diminuendo at opposite times from one another. The effect is that separate tonalities move quickly from the foreground to the background, all in turn with one another. The first example is at the very front of the film in m.2 of 1m1 “Logos / Main Titles.”

Example 4-1. “Bullet time” polychord swells in 1m1 “Logos / Main Titles” m.2-6, 0:00:05-0:00:14.

37 Cooper, pg.30.
38 Karlin, pg.233.
In example 4-1 Davis uses two triads, E minor in the horns, followed by C major in the trumpets. The two chords are in many ways mirror images of one another. There is perfect symmetry among the collective intervals, meaning the entire collection is identical when inverted. In set theory, both triads, major and minor, are classified as [03 7], making them indistinguishable from one another because they both contain one major and one minor third. In his DVD Composer Commentary, Davis had this to say about the bullet time polychords:

The “bullet time” sequence has given me a chance to experiment … [with] making time stand still by playing two different chords at the same time in different parts of the orchestra, and they would fight each other dynamically. And the net result was, whichever chord was loudest at the moment was the chord that you perceived.39

Indeed, the concept of “making time stand still” was the primary experiment with the “bullet time” effect, as well as Davis’ conceptual intention with his use of polychord swells. Goldmark notes that the technique “uses a musical form of stasis,” mirroring the distortion of time inherent to the “bullet time” technique.40

This technique can be perceived as a symbolization of many of the themes in \textit{The Matrix}, including good vs. evil (humans vs. machines), life and death, freedom vs. oppression, and what is real vs. what is perceived.41 If we are to interpret E minor as “dark” and C major as “light,” the polychord swells represent the struggle of all of these themes (to quote Davis) “under the surface.” As one of the first musical sounds heard in \textit{The Matrix} film, Davis lays out the fundamental themes of the film right from the start.

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40 Baur, pg.96.

41 Rodier, pg.i.
Functionally, Davis uses this technique for a specific purpose, to represent the impossible. Davis’ choice of chords is not totally at random. Minor triads tend to represent darker situations, as opposed to major triads which represent situations that are more heroic. The more impressive the feat, the more distantly the chords will be related. There is a clear influence from John Adams’ 1985 concert work, *Harmonielehre*, which contains similar polytonal (actually tritonal) brass crescendos near the end of the third and final movement.

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<td>m.2-10</td>
<td>0:00:06-0:00:21</td>
<td>Warner Bros. logo</td>
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<tr>
<td>1m2</td>
<td>m.21-27</td>
<td>0:01:17-0:01:27</td>
<td>Travelling through electrical grid into the Matrix</td>
</tr>
<tr>
<td>1m2</td>
<td>m.137-139</td>
<td>0:04:35-0:04:40</td>
<td>“Bullet time“ - Trinity jumps between buildings</td>
</tr>
<tr>
<td>1m2</td>
<td>m.155-159</td>
<td>0:05:06-0:05:13</td>
<td>Trinity leaps through a window</td>
</tr>
<tr>
<td>1m7</td>
<td>m.87-94</td>
<td>0:16:10-0:16:24</td>
<td>Neo believes climbing outside building to be impossible</td>
</tr>
<tr>
<td>2m3</td>
<td>m.53-66</td>
<td>0:25:02-0:25:32</td>
<td>Neo travels to meet Morpheus for the first time</td>
</tr>
<tr>
<td>2m5</td>
<td>m.73-77</td>
<td>0:34:49-0:34:59</td>
<td>Neo is rescued from the Power Plant sewer</td>
</tr>
<tr>
<td>3m3</td>
<td>m.1-5</td>
<td>0:40:35-0:40:47</td>
<td>Morpheus explains to Neo what the Matrix is</td>
</tr>
<tr>
<td>4m2a</td>
<td>m.25-35</td>
<td>0:58:13-0:58:43</td>
<td>Morpheus explains to Neo that he can break the rules of the Matrix</td>
</tr>
<tr>
<td>5m4</td>
<td>m.114-119</td>
<td>1:20:50-1:20:57</td>
<td>Apoc hands Neo a gun to defend himself</td>
</tr>
<tr>
<td>5m4</td>
<td>m.205-209</td>
<td>1:23:12-1:23:19</td>
<td>Trinity &amp; Neo impossibly slide down space in the wall</td>
</tr>
<tr>
<td>6m1</td>
<td>m.33-38</td>
<td>1:33:02-1:33:20</td>
<td>Agent Smith explains that machines ruling humans is natural evolution</td>
</tr>
<tr>
<td>6m3</td>
<td>m.43-46</td>
<td>1:39:28-1:39:35</td>
<td>Tank tells Morpheus to hold on - “they’re coming for you”</td>
</tr>
<tr>
<td>6m7</td>
<td>m.29-36</td>
<td>1:46:23-1:46:34</td>
<td>“Bullet time“ - Neo dodges bullets</td>
</tr>
<tr>
<td>6m9</td>
<td>m.27-32</td>
<td>1:49:17-1:49:28</td>
<td>“Bullet time“ - Morpheus is shot as he escapes</td>
</tr>
<tr>
<td>6m9</td>
<td>m.110-125</td>
<td>1:51:41-1:52:09</td>
<td>Morpheus explains that The Oracle only told Neo what he needed to hear</td>
</tr>
<tr>
<td>7m1</td>
<td>m.69-73</td>
<td>1:54:50-1:54:57</td>
<td>“Bullet time“ - Neo and Agent Smith meet while firing weapons in mid-air</td>
</tr>
<tr>
<td>7m2</td>
<td>m.65-68</td>
<td>1:59:58-2:00:04</td>
<td>Neo is trapped, needs help from Tank for his next move</td>
</tr>
<tr>
<td>7m2</td>
<td>m.95-100</td>
<td>2:00:39-2:00:48</td>
<td>Neo jumps in slow motion from apartment scaffolding</td>
</tr>
<tr>
<td>7m3</td>
<td>m.69-77</td>
<td>2:04:37-2:04:51</td>
<td>Resurrection - Impossible</td>
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Table 4. Use of “bullet time” polychord swells in *The Matrix*.

4-2. Minimalist Polychord Swells

Davis also uses minimalist variations of the polychord swells, particularly in the more exciting action scenes of the film. Example 4-2a from 4m3 “Switch Woks Her Boar” underscores the Nebuchadnezzar flying at breakneck speed to find a safe place to hide from a group of Sentinels. Here the repetitive eighth-notes add a great sense of urgency to the swelling sets of triads. Davis uses E minor in the French horns against Eb major in the flutes and trumpets (forming the same polychord as the aforementioned “Vertigo chord” by Herrmann). The two triads only
share one common tone, creating a rather stressed sound against one another, much like the feelings of the Nebuchadnezzar crew as they rush to safety away from the Sentinels.

![Example 4-2a. Minimalist polychord swells in 4m3 “Switch Woks Her Boar,” m.1-3, 0:58:57-0:59:02.](image1)

Davis does also use minimalist variations of the polychord swells for moments depicting the impossible, similar to those used in “bullet time”. Example 4-2b underscores the moment from 7m1 “That’s Gotta Hurt” in which Neo, with Agent Smith gripping him in a choke hold, impossibly leaps approximately twenty-five feet off the ground, smashing Smith into the ceiling above them. Neo then backflips in slow motion off the subway tracks to safety, as Smith is left to be flattened by an oncoming subway train. Here Davis scores a C minor triad in the tuben against an Ab major triad in the trumpets. These triads are a transposition of the aforementioned C major and E minor triads, which serve as a metaphor for the struggle of good against evil.

![Example 4-2b. Minimalist polychord swells in 7m1 “That’s Gotta Hurt,” m.213-216, 1:58:11-1:58:15.](image2)
4-3. Accelerating Rhythms

During *The Matrix*'s most climactic moments of adventure journeying “down the rabbit hole,” Davis uses complex syncopation in addition to bitonality to further signify the multitude of realities in the film’s story. Each time that Davis uses this technique, the complex sets of rhythms accelerate as they approach significant events. Similar to many other rhythmic devices in his score, Davis is once again careful to create rhythms that do not overlap, so as to maintain the individuality of each of the multiple layers.

Example 4-3a from 7m3 “He’s The One Alright,” is the final climactic moment of the film when Neo, realizing his full potential, destroys Agent Smith from the inside out. Davis begins with Bb major triads in the horns, which begin to accelerate into faster syncopated rhythms. He then adds Gb major triads in the trumpets, which also accelerate faster and faster, until both horns and trumpets crescendo into the final event - Agent Smith exploding into many tiny digital pieces. Similar instances of accelerating, highly syncopated rhythms, particularly with brass, can be found in the works of John Adams, especially the aforementioned *Harmonielehre* and *Short Ride in a Fast Machine* (1986).
Similar to this technique, Davis also uses rhythmic accelerations elsewhere in the score to build to the arrival of certain events. Example 4-3b from 1m7 “Neo on the Edge” builds subtle intensity in the tam tam as Neo begins to stand to peer over his cubicle wall. Just as the acceleration reaches its conclusion, Neo spots three Agents and several police officers who turn their attention in Neo’s direction. This rhythmic acceleration builds tremendous anticipation for what is about to be revealed.

This rhythmic acceleration using the tam tam was also used commonly in the scores of James Horner, particularly two films for which Don Davis was an orchestrator - the thrillers Clear and Present Danger (1994) and Ransom (1996).
5. Harmonic Devices

Aside from the harmonic sets revealed earlier for humans and machines, there are a few key harmonic devices that Davis uses regularly throughout The Matrix to create various emotional reactions in the score to key events in the film’s story.

5-1. Pedal Notes

Though it may be very simple and obvious to point out, the occasional use of pedal notes is very important to Davis’ score for The Matrix. Pedals are either voiced in octaves or fifths, and are scored during moments of anticipation, stillness, waiting, and finality. Example 5-1 shows Davis’ pedal as Trinity, just having narrowly escaped an Agent after an exciting rooftop chase, waits, with guns drawn, in anticipation of the Agent continuing his pursuit. The use of tremolo in the strings especially mimics Trinity’s feelings of nervousness and anxiety at this moment.

![Example 5-1. Pedal notes in 1m2 “Trinity Infinity,” m.159-166, 0:05:13-0:05:26.](image)

5-2. Dissonant Pedal Notes

Davis also on many occasions uses a high pedal note sustain that moves from unison to a minor second dissonance. Normally scored using violin artificial harmonics, it is always used in quiet moments to create suspense, often when characters are hiding or avoiding detection. The violin harmonics have a vulnerable and frail quality to the sound, which sits very well in these moments, such as example 5-2 from 1m7 “Neo on the Edge,” when Neo is attempting to avoid detection from the Agents, following Morpheus’ directions as he guides Neo’s every move.
5-3. Common Tone Chord Changes

Similar to the fateful E minor and C major polychords discussed earlier, much of Davis’ harmonic language can be linked by common tones. Davis’ harmonies in *The Matrix* are far from what could be described as functional, with no tonic or dominant relationship anywhere in sight, but they are still triadic. In fact, much of film music harmony over the last fifty-plus years could be described in this manner. In example 5-3, Trinity is attempting to tell Neo that The Oracle had told her that she would fall in love with The One, and that she did not (to that point) feel that way about Neo. Davis uses a sustain pedal note, an artificial harmonic on Db, and moves between three simple minor triads, Bb minor, Db minor, back to Bb minor, then finally F# minor. Each of these triads share a common tone, in this case the pedal note of Db (Db is of course enharmonically C# in the tonality of F# minor). Because Trinity is doubting her love for Neo at this moment, there is no love theme (explained further in 6-1), instead Davis only oscillates between three minor triads over a long pedal note, keeping Neo in suspense just as the two of them are about to leave the Matrix.


**Example 5-3.** Common tone chord changes in 7m1 “That’s Gotta Hurt,” m.10-23, 1:53:21-1:53:42.

### 5-4. Octatonic Scale

The octatonic scale (also diminished scale, whole-half, and half-whole) is well-known to have been used extensively in the music of Igor Stravinsky. It is also the second of Olivier Messiaen’s seven modes of limited transposition.\(^\text{42}\) Among film composers, Alan Silvestri stands out as likely having made the most use of the octatonic scale as a common sound of his film music, particularly in his early scores, such as *Back to the Future* (1985) and *Predator* (1987). Davis only uses the octatonic scale on three occasions in *The Matrix* score, but each time is to indicate imminent danger, such as this use in 1m2 “Trinity Infinity,” when Trinity immediately turns to run after first encountering an Agent.

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\(^{42}\) Wilson.
5-5. Dorian Mode

In moments in which Neo is “awakening,” that is, beginning to discover and believe in his abilities as The One, Davis makes an alteration to the human diatonic set - raising the sixth scale degree to become the Dorian mode. Some examples of its use include when Neo bests Morpheus with superhuman rapid-fists in their sparring match, as Neo is choosing guns before executing his daring plan to save Morpheus from the Agents’ captivity, and a literal awakening when Trinity first kisses Neo (to be discussed in 6-1). Each “loading the Construct” theme is also composed using Dorian, so it can be seen that Dorian is Davis’ way of representing sudden changes in scene or in character development. Karlin describes the use of modality in film music as often evoking a sense of other-worldliness, especially in science-fiction or fantasy films to suggest the presence of an alien being or element. Neo’s demonstration of superhuman abilities within the Matrix would certainly fit the description of appearing “other-worldly.”

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43 Karlin, pg.227, 233.
Example 5-5. Dorian mode in 3m8 “Switch or Break Show,” m.8-11, 0:52:26-0:52:33.

6. Love, Birth, Rebirth, and Death

The concepts of love, birth, rebirth, and death are each important to The Matrix film, as well as to its score. As hinted at before, Davis uses several recurring devices for connecting to each of these concepts in various ways thematically.

6-1. Trinity’s Love Theme

Trinity is the only character to whom Davis chooses to give a traditional melodic leitmotif. As with much of the thematic material in The Matrix score, Trinity’s theme is organic and develops throughout the film; though it mostly appears in the violas, it never quite repeats exactly from one appearance to another. As learned in the film, The Oracle had told Trinity that she would fall in love with The One. And so, nearly every time Davis presents Trinity’s love theme, Trinity’s thoughts seem to dwell on this prophecy. Trinity’s theme is dreary and incomplete in the beginning, as she is doubtful and afraid for most of the film as to whether or not this prophecy will come true for her, especially that she is somehow destined to become romantically involved with
Neo. As Trinity begins to fall in love with Neo, the theme develops, and Davis gradually begins to add harmonic support to Trinity’s theme. Trinity is of course often represented by the number three, in direct correlation to the connotation of her name - the Christian doctrine of God as three persons. Davis too chooses to compose Trinity’s theme often in short varying phrases of three notes. A visual example of this reference to three would be the hotel room number (303) where Trinity is first introduced in the beginning of the film. Neo is also killed just outside the same hotel room, then resurrected, seemingly by Trinity’s declaration of love. Trinity is therefore connected both visually and musically with Neo’s death, as well as his rebirth.

![Example 6-1a. Trinity’s love theme in 2m3 “Bait and Switch,” m.21-26, 0:23:35-0:23:53.](image)

Davis also on a few occasions fractures the melody, such as this very subtle hint at Trinity’s fundamental three-note motive as she brings Neo dinner in example 6-1b from 4m1 “Bring Me Dinner.”

![Example 6-1b. Trinity’s love theme in 4m1 “Bring Me Dinner,” m.3-5, 0:55:44-0:55:56.](image)

A key function of any leitmotif in a film is the representation of an idea, person, or place, which can potentially reveal what a character is thinking at any particular moment. As we know from the climax of the film, The Oracle told Trinity that she would fall in love with The One.
Davis uses this love theme throughout the movie, and so (often requiring a second viewing) we can associate that thought of Trinity falling in love with the One each time that she sees Neo, thus adding a dimension to the film that would otherwise have been impossible.

As expected, since Trinity is of course a human character in *The Matrix*, Trinity’s theme follows the human harmonic set. However, Davis’ first use of Trinity’s love theme from m.61-68 in 7m3 “He’s The One Alright” is presented with a raised sixth scale degree following the Dorian mode, featuring harmonies expected within Dorian - i-IV, or in this case G minor to C major. As stated earlier, Davis uses the Dorian mode to represent “awakening” in Neo. Since Neo comes back to life in m.69, this time “awakening” is completely literal.

![Example 6-1c. Trinity’s love theme in 7m3 “He’s The One Alright,” m.61-66, 2:04:24-2:04:34.](diagram)

Trinity’s love theme culminates in one final statement toward the end of 7m3 “He’s The One Alright,” when Trinity and Neo share a loving kiss after Neo is pulled from the Matrix just before imminent destruction of the Nebuchadnezzar. It is interesting to note that Davis’ resolved harmonization of Trinity’s love theme is to use E minor and C major, the two triads first presented in the “bullet-time” polychord swells, representing the duality of *The Matrix*, both light and dark.
Example 6-1d. Trinity’s love theme in 7m3 “He’s The One Alright” m.172-178, 2:07:26-2:07:38.

<table>
<thead>
<tr>
<th>Cue</th>
<th>Timecode</th>
<th>Measures</th>
<th>Spotting</th>
</tr>
</thead>
<tbody>
<tr>
<td>2m3</td>
<td>0:23:35-0:23:57</td>
<td>m.21-28</td>
<td>Trinity persuades Neo not leave the car</td>
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<tr>
<td>4m1</td>
<td>0:55:44-0:55:56</td>
<td>m.3-5</td>
<td>Trinity brings Neo dinner and gazes upon him</td>
</tr>
<tr>
<td>4m8a</td>
<td>1:08:52-1:09:14</td>
<td>m.26-38</td>
<td>Neo asks what The Oracle told Trinity</td>
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<tr>
<td>5m6</td>
<td>1:30:53-1:31:06</td>
<td>m.73-76</td>
<td>Neo allows Trinity to leave the Matrix first after Tank kills Cypher</td>
</tr>
<tr>
<td>6m9</td>
<td>1:51:34-1:51:41</td>
<td>m.106-109</td>
<td>Neo rescues Trinity from helicopter, she realizes that Neo is The One</td>
</tr>
<tr>
<td>7m3</td>
<td>2:04:24-2:04:37</td>
<td>m.61-68</td>
<td>Trinity reveals The Oracle’s prophecy to her, proclaims her love for Neo</td>
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<tr>
<td>7m3</td>
<td>2:07:26-2:07:45</td>
<td>m.172-181</td>
<td>Trinity and Neo kiss</td>
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</tbody>
</table>

Table 6a. Use of Trinity’s love theme in The Matrix.

6-2. Choir

Davis occasionally scores for choir in The Matrix. Throughout the history of film music, choir is generally given one of two associations, either with religion or humanity itself. In the case of The Matrix, it is the latter. Davis says that he and the Wachowski brothers determined fairly late in the game that they wanted to use a choir for cues like 2m5 “Switched at Birth” - when Neo awakens in the real world and first glimpses the endless towers of human beings jacked in to the Matrix. Davis intended that the choir would symbolize the fate of humanity and the desperate nature of what had happened to human beings. Davis was also able to use a boy soprano for the montage sequence when Neo’s atrophied muscles were rebuilt by Morpheus and Dozer, to symbolize innocence and rebirth.

“In [3m3 “Nascent Nauseous Neo”], we were able to utilize the choir once again as Morpheus explained to Neo what happened to humans, and I was able to signify a crying out of

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the human race through the choir.”45 Here, as Morpheus describes to Neo what is known of human and machine history, Davis composes pyramids following the chromatic machine harmonic set. Since human voices are essentially singing the songs of the machines, it is his way of indicating musically that humans are hopelessly and blindly under the complete control of the machines.

Example 6-2a. Choir in 3m3 “Nascent Nauseous Neo,” m.18-23, 0:41:19-0:41:35.

Davis also uses choir triumphantly, particularly when Neo realizes his full potential as The One in 7m3 “He’s The One Alright” by destroying Agent Smith. Here he composes simple major triads in growing intensity to support the theme of The One, representing a redeemed hope for all humans as they rejoice in Neo’s fulfillment of the prophecy.

Example 6-2b. Choir in 7m3 “He’s the One Alright,” m.134-140, 2:06:21-2:06:32.

45 The Matrix, Composer Commentary, 0:44:44-0:44:59.
Davis recorded members of the Mormon Tabernacle Choir at L.A. East Studio in Salt Lake City, Utah.  

6-3. Death Theme

Though only used on three occasions in the score for *The Matrix*, Davis uses a short tragic motif to represent death in three of the characters - Mouse, Dozer, and Neo. As expected, this motif falls within the human (diatonic) harmonic set, and features unison voices among the orchestra, as though the characters are crying out in a singular unison for the last time. Similar to his fighting motifs, Davis separates the melodic interjections with visceral “pile driver” rhythms in percussion and bass instruments (to be discussed in 10-1). The first appearance is in 5m4 “Threat Mix,” when Mouse is killed by police officers inside the Matrix.

![Death Theme in 5m4 “Threat Mix,” m.73-76, 1:19:44-1:19:50.](image)

Example 6-3a. Death theme in 5m4 “Threat Mix,” m.73-76, 1:19:44-1:19:50.

Davis again reprises this motif in 5m5 “Exit, Mr. Hat” when Tank and Dozer are killed by Cypher in the real world. He chooses this time to center his tonality in D minor, used on several instances in *The Matrix*, though not exclusively, as the key of death. Following the idea that Davis does not like to strictly repeat material verbatim, Davis also varies the rhythm slightly from the

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47 Don Davis, Back cover.
previous instance. Though Tank is later revealed to have survived the attack, Davis scores the moment as though we are to assume he and his brother have both died.

Example 6-3b. Death theme in 5m5 “Exit, Mr. Hat,” m.104-107, 1:26:22-1:26:29.

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<th>Timecode</th>
<th>Spotting</th>
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<tr>
<td>5m4</td>
<td>m.73-79</td>
<td>1:19:44-1:19:54</td>
<td>Mouse is killed</td>
</tr>
<tr>
<td>5m5</td>
<td>m.104-110</td>
<td>1:26:22-1:26:33</td>
<td>Dozer is killed, Tank is presumably killed</td>
</tr>
<tr>
<td>7m2</td>
<td>m.145-155</td>
<td>2:01:48-2:02:03</td>
<td>Foreshadowing - Neo is about to be killed</td>
</tr>
</tbody>
</table>

Table 6b. Use of death theme in *The Matrix.*

6-4. D Minor

In music, the key of D minor has occasionally though certainly not exclusively been associated with death for hundreds of years, probably most famously with Wolfgang Amadeus Mozart’s *Requiem* mass (1791). Other examples include Mozart’s Queen of the Night aria “Der Hölle Rache” from his opera *Die Zauberflöte (The Magic Flute)* (1791), and Franz Schubert’s string quartet known as *Death and the Maiden* (1824). In Rick Altman’s book, *Silent Film Sound,* Altman points out that one of the most significant early collections of music for silent film accompaniment, *Sam Fox Moving Picture Music* (1913) by J.S. Zamecnik (who studied with Antonín Dvořák), included an original “Death Scene” and “Funeral March,” both in D minor.48 Two famous examples from modern film scores would include much of the “Death of Titanic” cue

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48 Altman, pg.260-261.

Davis too favors D minor for use in several scenes in *The Matrix*. One example has already been mentioned - Davis’ use of the death theme for when Dozer is killed. Davis also arrives powerfully on D minor triads in moments depicting humans as slaves to machines, including in 2m5 “Switched at Birth” (m.30) when Neo first gazes upon the endless towers of humans encased in oval capsules at the Power Plant, and in 3m3 “Nascent Nauseous Neo” (m.50) over a shot of the endless fields of humans being harvested by machines for sustained power. Davis also centers in on D for three moments featuring Agents - when Agent Smith arrives before fighting Morpheus in 5m4 “Threat Mix” (m.180), when an Agent is just about to shoot Neo in 6m7 “Dodge This” (m.26), and when Agent Smith is destroyed in 7m3 “He’s The One Alright” (m.128).

Example 6-4. D minor in 2m5 “Switched at Birth,” m.30-33, 0:33:24-0:33:32.

### 6-5. Death Chimes

Nearly every occurrence of death throughout *The Matrix* is orchestrated with chimes, using one technique or another. This includes the deaths of Mouse, Apoc, Switch, and Neo. The one exception is that of Dozer, whose death theme does not include any strike on the chimes. Davis’

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49 Don Davis was an additional orchestrator for James Horner on the film *Titanic* (1997).
also uses chimes to foreshadow death, such as the steady pulse of clock-like chimes before Cypher’s death, and an aleatoric smattering of ad-libbed pitches just as Sentinels are about to kill everyone on board the Nebuchadnezzar, just before Morpheus is able to activate the electromagnetic pulse. The most prominent uses of chimes occur in 5m6 “On Your Knees, Switch,” when Davis instructs all bells of the chimes to be struck with a 2x4, underscoring the deaths of both Apoc and Switch.

![Chimes](image)


It is interesting to note that chimes also accompany the concept of birth in two places - when Neo is “reborn,” awakening for the first time in the real world, and when Agent Smith reappears after having been hit by a subway train, apparently having simply assumed the identity of another innocent bystander.

7. Aleatory

In music, aleatory refers to a concept of randomness or chance. The most common aleatoric notation is simply to give a musician a gesture or a suggested motion with the phrase ad lib. Because of the chaotic nature of an aleatoric sound, these techniques often appear in horror scores or scenes that depict chaos. Multiple aleatoric techniques appear throughout The Matrix, yet additionally there is one cue, 2m2 “Unable to Speak,” that is composed entirely using aleatoric gestures.
…the scene in which the Agents place a tracking device in Neo’s stomach [is] probably the most overtly “horror” moment in the picture, and it gave me an opportunity to do something that I’ve been wanting to do for quite a while… There’s a technique amongst the Polish school of composers, Lutoslawski and Penderecki, where they would come up with a bit of music that would repeat itself in one section, and another bit of music that would repeat itself somewhere else. And these little… musical mobiles would sort of float in time in and out with loudness and softness, and I was able to cue each of these things with points in the picture that would come up… I’d like to do a whole picture that way sometime… this clearly wasn’t the picture for that, but this certainly was the moment for it.50

A few composers have already beaten him to the punch. John Corigliano composed a largely aleatoric score for the film *Altered States* (1980). Corigliano’s use of aleatory is representational of hallucination, transformation, and metamorphosis, as well as human evolution into the next state of consciousness. John Williams has also composed scores heavily utilizing aleatoric effects, especially *Images* (1972), but also *Close Encounters of the Third Kind* (1977). Aleatoric effects have become a common technique for the horror genre in film. This is most likely attributed to the use of Penderecki’s works in the films *The Exorcist* (1973) and *The Shining* (1980), among others.

In 2m2 “Unable to Speak,” Davis spotted the scene with eleven separate markers for various events, each marked by timecode. As the conductor, Davis would have watched for visual streamers51 which would have been given to indicate where these markers fall, so that he would

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51 Streamers are vertical lines of various colors that are added to film projection for a scoring session. The lines move from the left to right edges over a period of a few seconds. The streamers are visual indications of important events, such as starts, stops, tempo changes, or important downbeats, which fall immediately upon the streamer reaching the right-side edge.
be able to precisely cue the timings of entrances at each of these separate events. In the score, the various members of the orchestra are instructed to play approximate gestures, each at their appropriate cue. The gestures are typically variations creating machine [012] sound masses, or twelve-tone rows, that are designated to repeat ad lib until a given marker. Thus, the cue is designed ironically with a great deal of structural predetermination despite the overall disorderly sound. The cue is designed to be a continuous crescendo from beginning to end, with each marker adding more and more intensity to the overall chaos of the scene. This style of “limited” aleatoric composition is largely accredited to Witold Lutosławski, beginning with *Jeux Vénitiens (Venetian Games)* (1961).52

[2m2 “Unable to Speak”] was really kind of a departure stylistically from something that I had determined I wanted to express in this score. When the Wachowskis first approached me about the music, the main thing they wanted was something as creatively different as what they were putting on the screen.53

7-1. Long Slow Gliss

The aleatoric technique that Davis uses most often in his score for *The Matrix* is that of a long, slow gliss. This texture is extremely effective at creating an increasing sense of anxiety. Davis uses it in both directions throughout the score, either ascending or descending. In general, it also features machine clusters, most often [012]. Example 7-1 shows two separate [012] clusters in strings that rise by an interval of a tritone over nine measures, arriving on two entirely new [012] clusters. This moment accompanies Agent Smith’s explanation to Morpheus of his peculiar theory that humans should not be classified as mammals and are actually more akin to a virus.

52 Stucky, pg.133.

53 *The Matrix*. Composer Commentary, 0:21:32-0:21:54. Davis humorously refers to 2m2 “Unable to Speak” as “The shrimp in the belly music.”
7-2. Gliss Up to Highest Pitch Possible

At two places where Davis scores sharp moments of surprise, he asks for strings to gliss up to their highest pitch possible. The first moment (Example 7-2) marks the very sudden scene change where Neo wakes up after his early interrogation/torture scene with the Agents. The second is at the end of the film when Neo steals a random businessman’s cell phone; the man calls for help and as he turns around, it is Agent Smith, accompanied by a similar string gliss. Both occurrences of this technique are accompanied by rips in the French horns, which are not aleatoric effects because their notes are strictly specified.

Example 7-2. Gliss up to highest pitch possible in 2m2 “Unable to Speak,” m.10, 0:21:25-0:21:31.

7-3. Highest Possible Note

At a few places in The Matrix where Davis wants to create the most aggressive high frequency cacophony he can, he will ask the upper strings to tremolo at whatever the various musicians’ feel is their highest possible note. The result is an unpredictable microtonal mass of sound. Example 7-3 shows Davis’ use of the technique the first time that Neo is jacked in to the Matrix. The aleatoric effect signifies Neo’s sudden and extreme level of discomfort that is (just as
suddenly) taken away as Neo finds himself alone and pain-free in the Construct. This is easily one
of the most dissonant moments in the film.

Example 7-3. Highest possible note in 3m2 “Cold-Hearted Switch,” m.36-38, 0:39:18-0:39:21.

7-4. Bow Between Bridge and Tailpiece

This technique, which appears a few times in the violas, asks the instrumentalists to bow
across each of their strings in the space between the bridge and the tailpiece. This is very similar
to a technique used by Penderecki in Threnody for the Victims of Hiroshima (1960). Example 7-4
shows the technique during the scene from 5m6 “On Your Knees, Switch,” in which Trinity calls
Tank to exit the Matrix, and unexpectedly, Cypher answers instead. This glassy atonal texture
supports the notion that Cypher has completely lost his humanity, having betrayed his shipmates
by making a deal to serve the machines. Davis again uses this same technique in 6m4 “It’s the
Smell” during Agent Smith’s interrogation of Morpheus. Davis uses this effect to draw a
connection between Cypher and Agent Smith, the two primary villains, who are similarly
complaining maniacally about how they can no longer tolerate being a part of their individual
surroundings.

Example 7-4. Tremolo between bridge and tailpiece in 5m6 “On Your Knees, Switch,” m.5-8, 1:26:54-1:27:05.
8. Twelve-Tone Technique

Twelve-tone technique has rarely been used in music for film, perhaps because of the tedious and time-consuming nature of its use, or perhaps simply a total rejection or ignorance of the compositional style. Yet twelve-tone technique has been used by several film composers to achieve various emotional effects. In Leonard Rosenman’s score for *The Cobweb* (1955), Rosenman uses twelve-tone technique to insight horror. Miklós Rózsa uses it for Satan’s theme in *King of Kings* (1960) to represent temptation and evil. Jerry Goldsmith uses it in *Freud* (1962) to represent the mysteries of the unconscious human mind. Goldsmith uses it again to a different end in *Planet of the Apes* (1968) to represent the future and the unknown, as well as part of the primitive and alien sound of the apes’ culture. David Shire uses it in *The Taking of Pelham 1 2 3* (1973)54 to accompany crime and chaos. Davis utilizes twelve-tone technique in his score for *The Matrix* as well. What’s interesting here is not simply that he uses it, but rather that, like other film composers who have used twelve-tone composition in their film scores, Davis has an emotional effect in mind for the technique.

Davis first uses the technique in 1m2 “Trinity Infinity” at m.78 of both piano one and piano two. As a side note, piano two is marked to be prepared with metal objects between strings, thus creating a wildly contrasting timbre between the two pianos.

![Example 8a. Piano 1-2 “Trinity Infinity,” m.78-79, 0:02:59-0:03:03.](image)

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54 Karlin, pg.235-236.
The row is first presented as E, F#, C, Bb, F, G, C#, D#, B, A, D, and G#. From these first twelve notes, it is easy to derive a tone-row matrix.

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<td>G</td>
<td>F</td>
<td>C</td>
<td>D</td>
<td>G#</td>
<td>Bb</td>
<td>F#</td>
<td>E</td>
<td>A</td>
<td>D#</td>
</tr>
<tr>
<td>P₂</td>
<td>F#</td>
<td>G#</td>
<td>D</td>
<td>C</td>
<td>G</td>
<td>A</td>
<td>D#</td>
<td>F</td>
<td>C#</td>
<td>B</td>
<td>E</td>
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<tr>
<td>P₈</td>
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<td>A</td>
<td>B</td>
<td>G</td>
<td>F</td>
<td>Bb</td>
<td>E</td>
</tr>
<tr>
<td>R₁₀</td>
<td>R₁</td>
<td>R₂</td>
<td>R₃</td>
<td>R₄</td>
<td>R₅</td>
<td>R₆</td>
<td>R₇</td>
<td>R₈</td>
<td>R₉</td>
<td>R₁₀</td>
<td>R₁₁</td>
<td>R₁₂</td>
</tr>
</tbody>
</table>

Table 8a. Tone-row matrix used in The Matrix.

Of course, Davis’ use of a tone-row matrix for a movie titled The Matrix is somewhat of an inside pun, likely known only to himself and to those who have intensely studied the full score. Davis clearly enjoys word play, evidenced by his clever and sometimes esoteric naming of cues in his score for The Matrix.

From m.78-91 of 1m2 “Trinity Infinity,” Davis utilizes four of the transformations within the tone-row matrix. First of course is P₀, followed by R₁₁, then I₈, and finally R₁. Each of these iterations from m.78-80 contain all twelve notes in order in a continuous minimalist ostinato of sixteenth notes, directly followed by each subsequent transformation. After completing these four transformations, they each then repeat in the same sequential order. The only anomaly from m.78-91 is in m.87, where only eight of the twelve notes are used, most likely to set up a complete unfolding of each of the rows by the downbeat of m.91.
In the film, this example accompanies the very first fight scene in *The Matrix* between Trinity and four police officers, including the very first “bullet time” shot, during which Trinity seems to ascend in slow motion into the air before a violent and powerful kick to one of the officers, the force of which impossibly sends him flying across the room. At this point in the film, the audience does not know that Trinity is to become a hero in the film, nor would they know how any of the actions from Trinity are possible. All they know is that the officers are clearly no match for Trinity, who seems to possess God-like powers, able to bend the rules of physics by running across walls and outrunning bullets, as well as demonstrating superhuman speed and strength. Davis’ use of twelve-tone technique here adds a musical element of chaos and confused panic on the part of the officers trying to detain Trinity. On a deeper level, Trinity’s fighting actions, like the twelve-tone rows accompanying them, are precise, calculated, and perhaps even pre-determined.

Davis again uses another twelve-tone section toward the end of 1m2 “Trinity Infinity” as Trinity attempts to outrun Agent Smith in a speeding truck to a phone booth, so that her consciousness can be safely transmitted out of the Matrix through the phone line. Here the twelve-tone composition creates wild tension, and only resolves when it appears at as though Trinity is crushed to death by the head-on collision of the truck with the phone booth. However, when Agent Smith discovers no body in the aftermath, it is clear that Trinity did in fact escape in time.
From m.177-182, the two piano parts are very similar to those used from m.78-91, continuing with the transformation order of P, RI, I, and R, but this time swapping the transpositions from zero, eleven, eight, and one to one, eight, eleven, and zero, respectively. This would seem to fit with Davis’ ongoing implementation of reflection in his score, flipping orders around like a mirror so as to create retrograded variations. He also presents two other rows, RI₁₀ and RI₆. RI₁₀ begins with a B♭ in m.177 of the flute and oboe parts, then continues with the second through seventh notes of the row in the trombones, cimbasso, timpani, violoncelli, and contrabasses. RI₆ begins with a G♭ (F♯) in the trombones etc. and continues with the second through ninth notes of the row in the horns.
Twelve-tone rows are also a technique of choice for Davis as he composes his limited aleatoric sections for 2m2 “Unable to Speak.” Example 8d shows the first iteration of rows in the two piano parts.
Example 8d. Twelve-tone technique in 2m2 “Unable to Speak,” m.4, 0:20:40-0:20:47.

At this moment during the interrogation scene between the Agents and Neo (then Thomas Anderson), Neo’s mouth has just mysteriously disappeared, and Neo, confused and panicked, stumbles up from his chair and backs quickly into a corner as Agent Smith looks on with a sinister smile. In both piano parts, Davis uses the last note of the first row as the first note of the second. This is a technique that he will continue to use throughout the score, using the last note of a row as a springboard to the next. Davis does not complete the second row in either piano part, instead he only uses ten of twelve notes. Feathered beaming is also used to further randomize the rhythms of the individual parts; as one speeds up, the other slows down, and vice-versa. This also plays into Davis’ themes of both reflection and the manipulation of time, speeding up and slowing down. Rows of various transformations are continued to be used throughout the cue in the violoncelli, pianos, flutes and piccolo, xylophone, vibraphone, contrabass clarinet, bassoon and contrabassoon, and contrabasses.

During the next twelve-tone appearance in 2m5 “Switched at Birth,” Neo, having awoken in the Power Plant from the Matrix and determined to be disposable by a machine, violently disconnects the various cables from Neo’s body and drains the gelatin from his tube-shaped pod,
sucking Neo out with it. He is dumped through a long series of pipes out through an opening down into a sewer main. The rows here once again reflect Neo’s sense of total confusion, panic, and helplessness as he is sent spiraling down into the unknown.

The use of twelve-tone technique in 2m5 “Switched at Birth” is presented slightly differently from previous iterations. In example 8e, Davis uses two rows, P₆ and I₁, in close canon with one another separated by one quarter note duration.

Example 8e. Twelve-tone technique in 2m5 “Switched at Birth,” m.54-55, 0:34:10-0:34:14.

The rows are orchestrated among each of the six horns, the three trumpets, and the first two trombones. For brass, playing complete rows (especially with large intervallic leaps) in rapid succession would be nearly impossible on an individual basis. To make it playable for the brass as a whole, Davis orchestrates so that the triplets are broken up among the available players, carefully arranging to always have three players to a part, dovetailing one into another so that no single brass instrument is playing more than six triplets at a time without rest. This particular orchestration makes twelve-tone mapping a bit trickier, but Davis’ intentions are still clear. Table 8b diagrams the orchestration for each transformation of the row among each brass instrument.
Davis continues to use twelve-tone rows in 2m5 “Switched at Birth” through m.56-62. The piano, violin I (doubled by oboes), violin II (doubled by clarinets), viola, and violoncello (doubled by bassoons) all have separate transformations. The presentation of each of these rows is similar to that of 2m2 “Unable to Speak,” in which the last note of each row is also the first note of the next.\(^{55}\)

In review, Davis seems to have used twelve-tone technique for moments of chaos, confusion and panic among primary characters, especially Trinity and Neo. This puts The Matrix in a very small group of film scores that have ever used twelve-tone composition as a tool to enhance the emotional impact of the score.

<table>
<thead>
<tr>
<th>Cue</th>
<th>Timecode</th>
<th>Measures</th>
<th>Spotting</th>
</tr>
</thead>
<tbody>
<tr>
<td>1m2</td>
<td>0:02:59-0:03:20</td>
<td>m.78-91</td>
<td>Trinity impossibly disables a room full of police officers</td>
</tr>
<tr>
<td>1m2</td>
<td>0:05:43-0:05:49</td>
<td>m.177-182</td>
<td>Trinity outruns a speeding truck to a phone booth, escaping the Matrix</td>
</tr>
<tr>
<td>2m2</td>
<td>0:20:32-0:21:31</td>
<td>m.3-10</td>
<td>Neo’s mouth disappears, and a tracer Bug is implanted into his stomach via his belly button</td>
</tr>
<tr>
<td>2m5</td>
<td>0:34:10-0:34:29</td>
<td>m. 54-62</td>
<td>Neo is disconnected from the Matrix, and purged from his pod down a long tube into a sewer</td>
</tr>
<tr>
<td>7m2</td>
<td>2:00:07-2:00:47</td>
<td>m.71-94</td>
<td>Neo outruns Agents through an apartment building, not knowing where to go until following directions from Tank</td>
</tr>
</tbody>
</table>

Table 8c. Use of twelve-tone technique in The Matrix.

\(^{55}\) There are so many mistakes in the copying among these measures that a score reduction of this section would seem incomplete. Davis was likely either in a hurry or otherwise not concerned with following the rows with perfect notational accuracy.
9. Fantasy Exoticism

One of the most essential roles that a score can play in a film is to musically indicate to an audience as to a particular place or time in which the film is set. Exoticism in music may be characterized as attempts to evoke the musical identity of a distant location, people, or social environment. This is not a new concept - Mozart, Camille Saint-Saëns, Giacomo Puccini, and Gustav Mahler all composed exotic music with the intention to evoke other cultures, just to name a few. But since the dawn of cinema, a new type of exoticism has emerged. Traditional exoticism may now be called “real” exoticism and would be for example a scene in a film set in France accompanied by the sound of a musette, or in Italy by a mandolin. But what if a scene is set on another planet, or perhaps a fictional earth filled with mythological creatures? What if it were set two hundred years in the future or two thousand years in the past? Would the filmmakers of such a story find it necessary to evoke a sense of cultural identity to an alien race using music? Many films have done just this, particularly in the science-fiction and (to a greater extent) fantasy genres. Therefore, it may make sense to label this style as “fantasy” exoticism. Fantasy exoticism, though perhaps never having been so precisely named, has been a part of film music for as long as there have been original scores, found as early as Max Steiner’s music for the tribes of Skull Island in the original King Kong. Many of the epic fantasy franchises have and continue to make a conscious effort to establish a fictional cultural identity using music, including Howard Shore’s The Lord of the Rings (2001-2003) scores, Harry Gregson-Williams’ The Chronicles of Narnia (2005, 2008) scores, James Horner’s score for Avatar (2009), as well as both Jerry Goldsmith and Michael Giacchino’s scores for the Planet of the Apes (1968-2017) and Star Trek (1979-2016) movie franchises. In each

56 Locke.
of these cases the composers assembled an eclectic mix of world instruments and styles to form a new sound for their relative fictional cultures.

One particular scene in The Matrix utilizes this concept in great detail - the sparring match between Neo and Morpheus. On The Matrix DVD Composer Commentary, Davis notes “…The training sequence - there’s actually three parts to it. The first part was a setting of Asian percussion instruments. We had five percussionists and I wrote out semi-improvisational [parts] for them… to [underscore] Neo and Morpheus sparring.” The most featured use of these instruments falls within the cue 3m6 “Domo Showdown,” however they are again utilized in 3m8 “Switch or Break Show,” this time blended with orchestra. To fully understand how Davis creates fantasy exoticism in these cues, it is important to list and explain each of the various instruments used.

9-1. Taiko and Daiko

Taiko and daiko are both Japanese words simply meaning “drum,” but more specifically drums with double braced or nailed heads, either barrel or cylindrical, that are struck with short sticks having leather covered handles. One historical use of taiko drums was as a morale booster for troops during times of war, as well as to intimidate enemy forces. They have been used in the practices of both of Japan’s two major religions, Shinto and Buddhism. Though The Matrix was not the first film to use taiko drums, scoring for taiko drums has nevertheless been a huge sensation in Hollywood film music since 1999, mostly because of their huge thundering sound, particularly when scored for action films and epics. This was likely made popular by Hans Zimmer and the

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57 The Matrix, Composer Commentary, 0:46:56-0:47:18.
58 Blades, pg.123-124.
59 “History of Taiko.”
composers he has collaborated with, possibly beginning with Zimmer’s score for *The Last Samurai* (2003).

Davis composes for both taiko and daiko drums on one percussion line, with the only assumed difference between the taiko and daiko being that the daiko should be a larger size, thus producing a deeper tone than the taiko. The two drums are used as the primary driving force of action in the sparring match between Neo and Morpheus.

Example 9-1. Taiko & Daiko in 3m8 “Switch or Break Show,” m.4-5, 0:52:21-0:52:24.

9-2. Hiridaiko

The prefix “Hiri” is probably meant to be “Hira,” and Hiradaiko (Hira daiko) in Japanese would translate to “Gong drum,” because both the shape and sound are similar to that of a gong. Davis does indeed mostly use the instrument like a gong, often as quick single hits to double the various gongs and tam tam in both 3m6 “Domo Showdown” and 3m8 “Switch or Break Show.” One exception is a brief rhythmic variation using the sticks on the rim during Neo’s opening moves.


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60 “Types of Taiko.”
9-3. Da-daiko

The da-daiko is Japan’s largest and most picturesque drum. It is often placed on a special platform, draped and tasselled, with a gold railing and steps. The cylindrical body is four feet in diameter and five feet in depth. Davis uses the da-daiko sparingly in 3m8 “Switch or Break Show,” adding a very deep low-end to the most important hits in the cue.

Example 9-3. Da-daiko in 3m8 “Switch or Break Show,” m.2-3, 0:52:17-0:52:21.

9-4. Odaiko

The odaiko (o-daiko) is the smallest of the taiko drums used by Davis, and therefore has the highest pitch. Since the instrument is small, it is often carried, and has historically (most likely) been used in processions. Davis only uses it for one measure in 3m8 “Switch or Break Show,” though it can be heard very clearly in the final mix as the Nebuchadnezzar crew anxiously observe Neo and Morpheus’ sparring match.

Example 9-4. Odaiko in 3m8 “Switch or Break Show,” m.3, 0:52:19-0:52:21.

9-5. Temple Bells

Temple bells, or camel bells, are a set of twenty-three hanging bells of various pitches from India. The bells can be struck individually, glissed, or shaken. The largest bell includes a metal

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61 Blades, pg.124.

62 Richards, pg.44.
knocker which can be shaken. In Hinduism, the playing of bells when entering a temple announces one’s presence to the Hindu deities. The temple bells in 3m6 “Domo Showdown” are one of the first instruments to be heard when we first see Neo in the training program’s virtual Dojo environment, ready to show off his newly learned fighting skills to Morpheus. Perhaps the temple bells are Davis’ way of announcing the presence of Neo as he begins to discover that he is The One.

Example 9-5. Temple Bells in 3m6 “Domo Showdown,” m.2-3, 0:49:12-0:49:15.

9-6. Nipple Gong

A nipple gong, also called a button gong, or domed gong, is a pitched bronze plate with a raised boss in the center, where it is struck with a felt or cloth mallet. Different sizes of nipple gongs will produce different pitches. Though found in various countries throughout Asia, nipple gongs are also used for worship, particularly in Chinese and Thai Buddhist temples. Davis utilizes a number of sizes of nipple gongs to create melodic colors in 3m6 “Domo Showdown.” Only one is used in 3m8 “Switch or Break Show,” doubling other types of gongs at film cuts or actions.

Example 9-6. Nipple Gongs in 3m6 “Domo Showdown,” m.29-31, 0:50:00-0:52:04.

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63 Richards, pg.24.
64 Adato, pg.26.
9-7. Opera Gong

The opera gong, or bending gong, is a Chinese gong that, when struck, bends pitch quickly either up or down, like a glissando. In Chinese opera, a gong will often accompany the entrance of an important character, and that is essentially how Davis uses the instrument in its first appearance. Neo presents his opening move, showing that he does indeed now understand the art of kung fu to Morpheus. Just as he lands into an impressive stance at the ready, the opera gong sounds in the score.


9-8. Large and Small Tam Tam

The tam tam is the name in Europe and the Americas for a flat surface gong with indefinite pitch. They are often made in China but primarily used in the West. The layman would probably identify the sound as that of a “gong.” Davis uses a large tam tam in 3m6 “Domo Showdown,” in a somewhat cliché way, as the opening identifying sound accompanying establishing shots of the Dojo in which Neo and Morpheus are about to fight. A small tam tam is also called upon one time very briefly. Davis uses the tam tam once more in 3m8 “Switch or Break Show” to accent the moment that Morpheus momentarily bests Neo. The use of tam tam in these two cues is very

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65 Rodier, pg.iv.

66 Though in Chinese opera, the gong is struck repeatedly to accompany the entrance of an important character, Davis only strikes it once.

67 Richards, pg.10.
different from that of the tam tam elsewhere in the score, where Davis uses percussive scrapes on numerous occasions to accent cuts, hits, or actions.

Example 9-8. Large Tam Tam in 3m6 “Domo Showdown,” m.1, 0:49:10-0:49:12.

9-9. Monkey Drum

The monkey drum, rattle drum, darmu, or dameru, is an hour-glass shaped Indian drum with two heads. When the drum is moved quickly back and forth using the wrist, two ends of a connected rope will hit the center of each head, producing a quick rattling sound. Though it is a sacred instrument associated with Hindu tradition (dameru), it is secularly referred to as a monkey drum, because Indian entertainers often perform alongside a dancing bear or monkey, with the animal fascinated and amused by the sound of the instrument. Davis uses the monkey drum at the beginning of 3m6 “Domo Showdown” primarily to create atmosphere, rattling softly to loudly and then back. Later in the cue, and again in 3m8 “Switch or Break Show,” the monkey drum is used to add accents and rolls into various hits and actions.


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68 As named in Blades, pg.142.

69 Beck, pg.59.

70 Blades, pg.142-143.
9-10. Chinese Tom Toms

Chinese tom toms (tom-toms), or yingku,\(^71\) are small wooden shell drums of various sizes with thick animal skin heads tacked to the shell. Small iron rings are attached to the side of the drums, which produce a rattling sound when struck. They are painted with dragons and other traditional Chinese designs and are a direct predecessor to the modern-day drum set tom toms.\(^72\) Davis uses the Chinese tom toms as one of the driving rhythmic instruments in both cues underscoring Neo and Morpheus’ sparring match. In 3m6 “Domo Showdown,” the Chinese tom toms share interlocking sixteenth-note rhythms with both the conga / tumba and Korean squeeze drum. In 3m8 “Switch or Break Show,” as the fight grows in intensity, the Chinese tom toms accent and support the driving rhythms of the taiko & daiko.

\[\text{Example 9-10. Chinese Tom Toms in 3m6 “Domo Showdown,” m.12-14, 0:49:31-0:49:36.}\]

9-11. Conga and Tumba

The conga and the tumba are both long, single-headed Afro-Cuban barrel drums. Typically, congas are built in three sizes from smallest to largest - quinto, conga, and tumba. The tumba has a bit more diameter than the conga, giving it a deeper tone.\(^73\) Played by a single percussionist, the conga and tumba are two of the primary instruments Davis uses at the beginning of Neo and Morpheus’ sparring match in 3m6 “Domo Showdown.”

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\(^{71}\) An alternate name in Richards, pg.40.

\(^{72}\) Beck, pg.18.

\(^{73}\) Beck, pg.20.
9-11. Conga and Tumba in 3m6 “Domo Showdown,” m.11-14, 0:49:29-0:49:36.

9-12. Cheng Cheng

Cheng cheng, or cengceng (also cheng-cheng or ceng-ceng), are a small set of Balinese cymbals used in most gamelan. The instrument’s name is somewhat humorously an onomatopoeia for its sound. Davis only uses them a few times in 3m6 “Domo Showdown” as accents to cuts or actions.


The Korean squeeze drum, also known as the chang go, janggu, or hour-glass drum, is a double-headed hourglass-shaped drum. Laces connect both heads of the drum, so that when they are squeezed, the pitch of the instrument will change. It is obvious from the name that this instrument originated in Korea. In general, Davis uses the Korean squeeze drum as one of the driving rhythmic instruments to heighten action in the sparring match between Neo and Morpheus

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74 Tenzer, pg.172.
75 An alternate name in Rodier, pg.iv.
76 An alternate name in Richards, pg.39.
77 Beck, pg.46.
in 3m6 “Domo Showdown.” He once calls on the performer to tighten the drum’s laces to produce a glissando up and then down at the beginning of 3m8 “Switch or Break Show.”

\[ \text{\( \frac{3}{4} \) tempo} \]

\[ \text{Neo's Head Backward} \]

\[ \text{tighten drum to gliss.} \]

Korean Squeeze Drum

\[ \text{mp} \rightarrow \text{mf} \rightarrow \text{mp} \]


As with the Chinese tom toms, Davis changes the role of the Korean squeeze drum in 3m8 “Switch or Break Show” to support the rhythmic taiko & daiko parts with flourishes and accents.

\textbf{9-14. Fantasy Exoticism in The Matrix}

After learning of the origins of each of the various exotic percussion instruments Davis uses in \textit{The Matrix}, including their various religious and cultural backgrounds and histories, it is clear that Davis is using instruments from all over the Far East, and not specifically trying to emulate one particular area. Just in one composition, he combines sounds from the countries of Japan, China, Africa, Cuba, Bali, and Korea.

By mixing instruments of not just one, but multiple countries, Davis is reflecting the fakeness of the environment itself. The Dojo program appears to be Japanese, but it is most certainly not actually in Japan. It is merely an approximation of a programmer’s idea of what a Japanese Dojo should look like. \textit{The Matrix} takes place approximately one hundred years in the future, and an important part of the story, as explained by Morpheus, is that a detailed knowledge of history, especially concerning the humans’ creation of artificial intelligence, is incomplete. It is therefore logical to assume that programs containing objects and locations, even including the Matrix itself, is not necessarily authentic to human history. In the same way, Davis’ cue is merely an approximation of Japanese cultural music, again with many creative liberties taken. This new
hybrid performance including instruments from all over the world suggest that the environment in which they are fighting is not real, which also is the principal lesson that Neo is to learn in the scene (Morpheus to Neo - “You think that’s air you’re breathing now?”). Davis is creating music that, to re-word a quote from Morpheus in The Matrix, is everywhere, and is nowhere. That is why it cannot fall clearly under the style of exoticism, as it does not specifically represent a real place or a real culture. Therefore, the style is fitting to describe as fantasy exoticism, in that it evokes a place or culture that only exists in a fictional story, reinforced musically by using creative combinations of the familiar to create the unfamiliar.

10. Unusual Percussion

One of the most impressive facts about Davis’ score for The Matrix is that he orchestrated the entire film completely on his own.\(^7_8\) This is practically unheard of, especially moving into film scores of the twenty-first century, if for no other reason than simply because of the fact that on the average project, a composer will not have enough time to convert their own scores from MIDI to notation. High-budget films today will often use multiple orchestrators who can divide up the workload in order to complete full scores very quickly. But because of his background and experience as an orchestrator prior to The Matrix, Davis was certainly comfortable with the process, and likely had very specific ideas about how his score should be notated, to the point that he may have not trusted anyone to do it but himself.

One of the most interesting things about Davis’ orchestration in The Matrix is that he uses many rare and unusual percussion instruments. Clearly, he must have spent a great deal of time in research to discover and select the instruments that he ultimately used, many of which have rarely

\(^{78}\) The Matrix, Composer Commentary, 1:01:40-1:01:42.
if ever been used in film scores or concert music. The use of these instruments contributes to the incredibly unique tonal palette of The Matrix, creating a distinctive sound for an astonishingly original film.

**10-1. Pile Drivers**

One of the most identifiable sounds of Davis’ score for The Matrix is a short, accented combination of various instruments that Davis simply describes as “pile drivers.”\(^{79}\) He likely describes them as such in comparison to machinery of the same name used in construction, which forcefully drives beams into soil to provide support for buildings. These machines are like immensely large metallic hammers. Davis varies the instrumentation used for this effect throughout the score, using combinations of the following percussive instruments and techniques - piano (often utilizing high and low elbow clusters), anvil, bass drum, timpani, Bartok pizzicati in violoncelli and contrabasses (producing a snapping effect, and often pitched in [012] machine clusters), suspended cymbal, chimes, field drum, slapstick, tam tam (hits and scrapes), piatti, and snare drum. The end result is an aggressive metallic hit, most often with the anvil being the dominant sounding instrument because of its high frequencies. Davis uses orchestrational variations of pile drivers on numerous occasions in The Matrix score, often to hit film cuts and changes of scene, but in greatest concentration when underscoring scenes with the most intense action. When using the pile driver effect to score fight scenes, Davis is careful to create rhythmic irregularity, so as to keep each hit unexpected, making the fight scenes feel unpredictable and continually exciting.

\(^{79}\) The Matrix, Composer Commentary, 1:41:22-1:41:43.
10-2. Waterphone

The waterphone (water-phone) was created by Richard Waters in Fairfax, CA. The instrument’s base consists of two welded cooking or roasting pots. Welded along the circumference of the outer rim are numerous brass braising rods of various lengths and thicknesses. In the center of the pot is a welded cylindrical handle with an opening through which water can be poured down into the space between the two pots. The instrument can be played with or without water, however the movement of water can produce wild microtonal fluctuations in the harmonics of the instrument. The braising rods along the outer rim can be struck with mallets, but most commonly they are bowed using a bass bow.\(^{80}\) This, along with movement of the water inside the pots, produces a glassy atonal undulation of pitches that is incredibly eerie and distinctive.

\(^{80}\) Richards, pg.68.
Legendary Hollywood studio percussionist Emil Richards was one of the first to bring the waterphone to film music in Jerry Goldsmith’s score for *Chinatown* (1974).\(^{81}\) Goldsmith made use of the waterphone in other scores including *Star Trek: The Motion Picture* (1979), as part of the ominous sound of the V’Ger cloud. Davis’ notation for the waterphone is entirely improvisational, allowing for the performer to produce aleatoric textures entirely ad lib. Though it is possible to play a waterphone tonally, it is nearly always used for its capability of wild, unpredictable aleatoric effects.

\[ \begin{align*} \text{Example 10-2. Waterphone in 1m1 “Logos / Main Titles,” m.8-9, 0:00:16-0:00:22.} \\ \end{align*} \]

The waterphone appears regularly throughout *The Matrix* score and is one of several unique instruments used primarily to emphasize moments of mystery and terror. The instrument is not particularly loud, so most of the places that it is utilized is as background texture under dialogue and otherwise quiet moments. At the beginning of the film, the waterphone is used in moments that are unusual or unexplained, especially from the perspective of Neo, such as when he observes a cracked mirror with a distorted image repair itself into a clear image before his eyes. Once Neo is unplugged from the Matrix and learns of the real world, the waterphone is used exclusively for villains, such as Cypher, various machines, and the Agents, particularly during the scenes in which they torture Morpheus in their captivity.

\(^{81}\) Opstad.
10-3. Anvil

The anvil as a musical instrument possibly refers to an actual anvil used by blacksmiths, but in modern use usually refers to metal blocks or plates struck with a metal mallet or hammer. A well-known example of its use is in Richard Wagner’s opera Das Rheingold (1869) to represent the laboring of dwarf slaves.\(^8\) This possibly connects to one of the themes of The Matrix, which frequently depicts humans as slaves to machines, especially within the Matrix itself. However, Davis most frequently uses the anvil in a heroic function, especially in relation to Neo. The best example can be heard throughout Neo’s programming sequence in 3m5 “Bow Whisk Orchestra,” during which he spends ten hours learning every conceivable martial arts style, one after another. The continuous anvil strikes not only serve to indicate the passage of time through the montage, but also to represent Neo’s growth as though he is forged like a sword with each metallic strike.

Example 10-3. Anvil in 3m5 “Bow Whisk Orchestra,” m.26-29, 0:48:35-0:48:42.

Davis’ use of the anvil is one of the most identifiable sounds of The Matrix score, particularly when used as one of the instruments in his pile driver effect.

10-4. Tam Tam Scrapes

Davis makes frequent use of scrapes on the tam tam, always indicating to use a metal mallet, and sometimes notating specifically for the scrapes to be on the edge of the tam tam. Scrapes are usually spotted to mark specific character movements, especially the turning of the head. It almost acts as somewhat of a sound effect, adding a swoosh sound to a character’s

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\(^8\) Beck, pg.5.
movement. This not only draws attention to these actions, but adds purpose and weight, especially when scored to movements of the Agents, making them feel even more formidable.

Example 10-4. Tam Tam scrape in 2m1 “Through the Surveillance Monitor,” m.4, 0:16:56-0:16:59.

Davis also uses scrapes to hit film cuts, changes of scene, or mark beginnings of cues. He occasionally uses scrapes on the suspended cymbal to similar effect, but they are far less pronounced.

10-5. Aluminophone

The aluminophone, or aluminophone de Emilio, is a three-octave micro-tonal instrument constructed by percussionist Emil Richards. The bars are cut from metal conduit pipes. The bottom, middle, and upper octaves have thirty-nine, thirty-five, and twenty-nine tones, respectively. The aluminophone was used by film composer Bill Conti in his score for The Karate Kid (1984), and by James Horner in his score for Brainstorm (1983). The sound of the aluminophone is perhaps similar to that of a bell tree, just with a deeper tone and microtonal tuning. Davis uses aluminophone most notably in The Matrix score as the alluring sound in 1m5 “Follow the White Rabbit” of the white rabbit tattoo which catches Neo’s attention in his pursuit of the truth early in the film.

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83 Beck, pg.4.

84 “Aluminophone, Microtonal Aluminum Tubes Rental in Los Angeles - By Emil Richards.”
Example 10-5. Aluminophone in 1m5 “Follow the White Rabbit,” m.1-2, 0:09:31-0:09:34.

10-6. Transceleste

The transceleste (trans celeste) is another mallet percussion instrument manufactured by Emil Richards and was used in John Williams’ score for Close Encounters of the Third Kind (1977), and also in James Horner’s score (together with the aluminophone) for Brainstorm (1983). The transceleste is composed of hollow brass tubes, somewhat similar in appearance to a glockenspiel. The bars are tuned to a twenty-two-note Indian śruti scale. In Indian music theory, śruti are what in Western music theory would be called microtones, and the division of a twenty-two-note scale has existed in ancient Hindu tradition for nearly two thousand years. Davis uses the transceleste generally in ominous, mysterious moments, similar to and occasionally doubling the aluminophone. However, one implementation of the instrument is particularly noteworthy. When Neo first visits The Oracle, he is told to wait with other “potentials” in a waiting room. There he encounters a young boy with a shaved head, dressed in robes similar to that of a Buddhist monk. The boy is occupying his time by bending spoons, seemingly at will with his mind. As the spoons bend, Davis accompanies with the sound of the transceleste. At surface level, Davis uses an unusual metallic instrument to accompany an unusual metallic visual effect. But digging a little deeper, Davis is creating an element of fantasy exoticism within the scene. He is implying that the young boy, like the śruti scale to which the instrument is tuned, personifies ancient knowledge and

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85 “Trans Celeste Rental in Los Angeles - By Emil Richards.”

86 Widdess.
tradition, simultaneously reflecting a sense of religion. Though Davis is not authentic in mixing Hindu and Buddhist religions, he is nevertheless creating his own sound within *The Matrix* universe, implying fantasy exoticism as opposed to authentic exoticism, much as he did in scoring the Dojo sparring match between Neo and Morpheus.

As can be seen by this example, and as with the other unusual instruments Davis uses for *The Matrix*, he is not particularly interested in precise notation for the instrument, but rather would prefer to allow the percussionist to improvise. With such unusual instruments, gestural notation is far more effective, allowing a player who is familiar with the instrument the freedom to maximize its effectiveness. The unique sound of the instrument is really all that Davis is after here.

**10-7. Ratchet**

A ratchet is an instrument made of two wooden slats within a frame that is meshed with a widely toothed gear. It produces a rapid violent snapping sound when the gear is rotated. It has been used in notable orchestral works including Carl Orff’s *Carmina Burana* (1937), Ottorino Respighi’s *Pines of Rome* (1924), and the Mussorgsky-Ravel *Pictures at an Exhibition* (1922). Davis’ use of the ratchet is perhaps the musical element that is most like sound design in his score for *The Matrix*, quite literally depicting the sound of digging, specifically machines digging through human flesh. It can be heard in three places early in the film - where the machines’ “Bug” is digging into Neo’s belly button, when the Bug is later extracted from Neo by Trinity, and when

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87 Beck, pg. 75.
Neo is unplugged from the Matrix, as a machine violently unscrews the probe from Neo’s headjack that was connecting him to the Matrix. This is yet another example of “Mickey-Mousing,” due to the fact that it directly mimics an action, producing a musical sound effect, much like the scores of old Mickey Mouse cartoons.

Example 10-7. Ratchet in 2m2 “Unable to Speak” m.10, 0:21:25-0:21:32.

10-8. Chinese Cymbal

A Chinese cymbal is a suspended cymbal with upturned edges, with a much lower and darker tone than a normal suspended cymbal. Two notable uses of the instrument in concert pieces include Edgard Varèse’s Ionisation (1931) and John Cage’s First Construction in Metal (1939). Of the numerous times the Chinese cymbal is used throughout The Matrix score, Davis nearly always specifies to scrape the cymbal with a stick. Because of its dark, metallic, non-tonal timbre, this is one of the instruments of choice for scenes heavily featuring Agents and machines. Davis often doubles the Chinese cymbal with waterphone and various piano effects. Despite being utilized so often in the score, it is rarely audible due to its use strictly as a secondary orchestrational color. One of the clearest Chinese cymbal uses can be heard, however, the first time Neo receives combat programming from Tank in 3m5 “Bow Whisk Orchestra.”

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88 Beck, pg.18.
10-9. Styrofoam Cup

Possibly the most unusual technique Davis calls for in The Matrix is to bow a Styrofoam cup with a bass bow. This may seem at first a bizarre inside-joke of sorts for the percussionists, but it is actually intended as a terrifying sound. A similar technique was called upon in James Horner’s score for Aliens (1986). Since Davis had been an orchestrator for Horner, it is likely that he had studied the Aliens score and borrowed the technique from Horner for The Matrix. The technique creates a high-pitched shuddering shriek, similar perhaps to a tea kettle coming to a boil. Davis quite literally uses this technique at four separate moments where characters are screaming, such as in 7m3 “He’s The One Alright,” when Trinity screams at Neo, who is still jacked in to the Matrix after destroying Agent Smith, to get his attention just before the Nebuchadnezzar is completely overrun with Sentinels. In effect, the bowed Styrofoam cup can be considered a very subtle orchestral leitmotif for moments of extreme discomfort in The Matrix.

10-10. Nipple Gong

Davis twice more makes use of the nipple gong beyond its last use in 3m8 “Switch or Break Show.” In 4m7 “See Who?,” a solo strike of the nipple gong is placed just before Tank mentions The Oracle for the first time. As stated before, the nipple gong is used in worship in Buddhist
temples, and though the exact origin of the gong is uncertain, it is possible that it has been part of Chinese culture for thousands of years. Davis’ use of the nipple gong here would appear to foreshadow several things about The Oracle - that she is ancient, wise, noble, and enlightened, and that the human characters will hold her wisdom to be absolute truth, and even appear to worship her from Neo’s unenlightened perspective.

Example 10-10. Nipple Gong in 4m7 “See Who?,” m.4, 1:07:00-1:07:02.

10-11. Drum Set and Auxiliary Percussion

Davis twice in the score calls for drum set along with a few auxiliary percussion instruments. The first example is in 4m8a “Switch Out.” During this cue, Neo returns to the Matrix after awakening in the real world and is travelling by car to visit The Oracle. 4m8 is one of the most stagnant cues in the film, with Davis largely scoring repeated minimalist textures to represent the Matrix program in motion. Davis juxtaposes these textures with drum set and bongos, both playing improvisatory gestures noted to be played out of time. This juxtaposition would seem to mimic Neo’s state of mind as he recalls his life within the Matrix, once having been part of a system and now free from that system.

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Blades, pg.93-94.
Davis again uses drum set in 5m4 “Threat Mix.” Here he includes three auxiliary instruments to augment the drum set - congas tuned in G and C, tambourine, and roto toms. The drums are locked into tempo however, establishing a groove to start this cue that somewhat bridges the gap stylistically between the orchestral score and the popular songs that appear elsewhere in the film. Interestingly, this time it is the Matrix that is out of sync with the humans. This is revealed to be because the machines have changed the Matrix parameters to trap the humans inside. Here Davis reprises his minimal cell in seven to run against the percussion in eight just as the alteration to the Matrix occurs. The minimal cell in seven does not return to sync before being abruptly cut off just before Neo experiences a sense of déjà vu, a sign that according to Trinity, is a glitch in the Matrix when the Agents change something.
10-12. Temple Bell on Timpani Head

On three occasions, Davis notates for the timpani player to place a temple bell on the timpani head, then to roll using mallets on the temple bell while using the pedal to tune the timpani downward. The resulting sound is a soft metallic resonance with a bit of an otherworldly rumble that descends in pitch. The best example of this is found in 4m10 “Boon Spoy,” when Neo bends a spoon at will, just as he had observed a young boy do previously. As stated before, when the boy was bending spoons, Davis used the transceleste to accompany the visual effect. This time, Davis adds the temple bell effect. Again, since the temple bell is of Indian origin with significance to Hinduism, similar to the tuning system utilized by the transceleste, it is appropriate for Davis to use these two effects interchangeably.
11. Extended Techniques for Piano

Davis makes use of a number of contemporary extended techniques in each of the two piano parts in *The Matrix*. Many of these techniques are likely inspired by twentieth-century concert composers who have composed using similar techniques, such as Henry Cowell or George Crumb. Several of these techniques can be considered to be aleatoric because the notations are gestural in nature, and as such the pianist is unlikely to play using the same range and dynamic precisely the same way twice.

11-1. Tremolo on Lowest Strings with Soft Felt Vibraphone Mallets

Davis calls for mallets inside the piano to create a low rumbling effect, largely associated with the villains of the story. It is particularly useful when he is trying to create a suspenseful, dark, and airy atmosphere, yet also staying completely out of the way of dialogue and sound effects. He often accompanies this effect with timpani rolls and low string pedal note sustains. To perform, the pianist would need to have soft mallets at the ready, and he/she would use the mallets to roll lightly over the strings at the bottom range of the piano. Davis uses this technique both with and without sustain pedal. Adding the sustain pedal generates a great deal more rumble and is significantly higher in volume. The best example can be heard in 1m2 “Trinity Infinity,” at the very beginning of the film, just as police officers move down a dark hallway to approach Trinity’s hotel room.
11-2. Elbow Clusters

To perform these clusters, the pianist must take the entire length of their forearm, from hand to elbow, and strike as many keys as possible. This technique was championed by Henry Cowell for his piece *The Tides of Manaunaun* (1912). Davis usually specifies an approximate range by using a solid block notation of about an octave in a relative staff position, or on occasion he will also simply include the words “high” or “low.” This effect is used to highlight impactful moments of action, often doubling anvil and bass drum as part of the pile driver sound. In 2m3 “Bait and Switch,” quick and wild improvisatory elbow clusters are used in both piano one and two (with the second piano prepared) to emulate the chaotic motion of the Bug as it is ripped violently from Neo’s stomach.

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90 “Cluster.”
11-3. Scrape Along Low Strings with Key

The pianist is frequently asked to use a key to scrape the strings inside the piano from higher to lower strings in a random range. This is often doubled with a scrape on a tam tam to call attention to a quick movement or action in the film. Because this technique can be potentially harmful to a piano, a more broken-in piano may be preferable to use. To perform, the pianist would have to have a key at the ready, and it would take a short amount of time to stand up and reach inside the piano. For this reason, time is needed to be given between this effect and other playing techniques. Davis regularly uses the key scrape in relation to appearances of the villains of the story, notably Cypher and Agent Smith.

Example 11-3. Scrape along low strings with key in 1m2 “Trinity Infinity,” m.53, 0:02:15-0:02:17.

11-4. Prepared Piano

To “prepare” a piano means that objects are placed in between or on top of the strings inside a piano to alter the timbre of a certain or complete range of notes. Rodier describes this change in tonal color as “…drastic; the timbre ranges from harsh, bright, and metallic, to dull, mellow, and muted.”91 These objects can include screws, bolts, rubber, plastic, pieces of wood, forks, erasers, and more. This concept was championed by John Cage, who wrote Sonatas and Interludes (1948), a collection of twenty pieces for prepared piano, the most significant work of its kind.92 Usually detailed instructions are necessary for how to prepare the piano. In Davis’ case,

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91 Rodier, pg.v.
92 Ripin.
the only indication he gives is to place either metal or wooden objects between strings, and on one occasion, to use both. A range is not given, so it is assumed that it would be necessary to place metal/wood between all of the strings that are to be played throughout the score.

The prepared piano in *The Matrix* is given to the second piano performer, and mostly doubles the first piano. Thus, it is buried in the mix and generally cannot be individually heard or identified. Instead, it is often intended to augment the sound of the first piano, adding a darker, grittier sound. A third entirely separate piano would be necessary for performance, prepared in advance, as it would take a significant amount of time to carefully place metal and/or wooden objects between the piano strings. The second piano part also jumps quickly from prepared to normal, further necessitating a third dedicated instrument. The best example of the prepared piano sound is heard in 2m4 “Switched for Life,” as Morpheus gives Neo the fateful choice between the blue pill and the red pill.

![Example 11-4. Prepared Piano in 2m4 “Switched for Life,” m.6-7, 0:29:04-0:29:10.](https://example.com/example11_4.png)

### 11-5. Bow on String with a Nylon Fishing Line

On two occasions, Davis calls for the first pianist to bow a string with nylon fishing line. To do this, the line would have to be weaved over and under the string so that it could be bowed within such a confined space. American composer Lucia Dlugoszewski was the first to experiment with bowing strings inside the piano. In 1951, she created the “timbre piano”, which

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93 This is especially likely to be true for touring performances of *The Matrix Live: Film in Concert* series, in which the entire film is shown with live accompaniment by a full symphony orchestra.

94 Rodier, pg.v.
bowed strings using small “bows” to produce sustained sounds. This technique was further developed by the American composer C. Curtis-Smith by using flexible bows made of nylon line to bow piano strings, especially for his piece, *Rhapsodies* (1973).

In both cues that Davis uses this technique, the piano doubles an artificial harmonic in the first violins at the unison. It is played at such a low dynamic that it is virtually indistinguishable from the sustained violins, yet it was no doubt intended to add a bright metallic shimmer to the violins’ artificial harmonic pedal note.

Example 11-5. Bow on string with nylon fishing line in 3m1 “Switches Brew,” m.30-31, 0:36:39-0:36:46.

### 11-6. Rub Low Strings with Ben-wa Balls

Easily one of the most bizarre orchestrations indicated by Davis in his score for *The Matrix* is to rub the strings of the piano in a random low range with ben-wa balls. Ben-wa balls are Chinese in origin and used in various ways, including for sexual stimulation. Some of *The Matrix* film does feature S&M costumes and imagery, especially during a scene early in the film where Neo meets Trinity for the first time, which was shot at a real fetish club in Sydney, Australia. It is at least conceivable that Davis is making a connection to this theme through the use of ben-wa balls, or it may simply be an inside joke or a matter of happenstance as to the discovery of this technique. Since the balls are normally metallic, the sound inside the piano would be similar to that of the key

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95 Davies.

96 Cope.
scrapes, just perhaps a little less jagged and pronounced. This technique is (perhaps without accident), often scored during moments of pain and torture in *The Matrix* score.

![Diagram](image)

Example 11-6. Rub low strings with ben-wa balls in 6m1 “Mix the Art,” m.23, 1:32:29-1:32:33.

**11-7. Rub Strings with Superball**

A superball is a rubber ball attached to a wooden mallet, which when rubbed on a metallic surface or string creates friction that generates a howling sound. This technique is associated with machines and Agents, often doubling high string clusters, waterphone, and Chinese cymbal.

![Diagram](image)


**11-8. Mute String with Palm of Hand**

For this technique, the pianist is instructed play a repeated rhythm with one hand while using the palm of the other hand to mute the string inside the piano. The result is a percussive sound without any clear definition of pitch. This technique is used effectively to create a sense of urgency as policemen are searching for the heroes through a condemned building in 5m4 “Threat Mix.”

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97 Rodier, pg.v.
11-9. Scrape Strings with a Coke Bottle

Davis’ penchant for curious instrumental techniques is further exemplified with his indication to scrape strings inside the piano with a Coke bottle. Though only used twice at the end of the film, both times are called for when Sentinels are wreaking havoc to the Nebuchadnezzar ship. Davis does not specify whether the coke bottle is to be glass or plastic, but either would produce quite an unpleasant, frenzied sound from the piano, which is clearly what he intends. As curious a sound this may be, both uses are during times featuring dense orchestration, and so the sound of the Coke bottle is lost deep within the mix.

Example 11-9. Scrape strings with Coke bottle in 7m2 “Surprise!,” m.158-159, 2:02:05-2:02:07.

12. Electronic Instruments

In addition to the wide variety of acoustic instruments Davis uses in The Matrix, he also occasionally makes use of various electronic sounds. Davis added these synth parts in his home studio, which were recorded and mixed by Larry Mah, who has worked on hundreds of films since the early 1990s. Since the synthesizer parts were recorded as overlays, separately from the
orchestra, they were not notated in Davis’ original score. This is typical of most synthesizer and sample tracks used in modern film scores. However, notation was created for basic reference by Tim Rodier for the Omni Music Publishing commercial version of the score. On The Matrix Revisited DVD, Davis says the following about his blend of synthesizers with orchestra,

> We all pretty much agreed that an organic orchestral and choral approach was the best for the music, and then we could enhance that with some additional synthesizer and sampler elements. And then whatever sequences had the protagonists, we could shift the emphasis onto the orchestra; when the machines were taking over, we could shift the emphasis toward the synthesizers, and it really worked pretty well.99

While it is true that Davis often uses synthesizers under scenes that feature machines, technology, and Agents, synths appear fairly generally throughout the score including sequences featuring heroes. So, the way that Davis describes here, that the emphasis shifts to synthesizers away from the orchestra, is not exclusively true. Throughout the score, the orchestra is consistently the dominant sound, and synthesizers are merely added to augment the orchestra, never to dominate.

Electronic instruments have long been used in science-fiction movies, specifically to attempt to depict a possible sound of the future. In Bernard Herrmann’s score for The Day the Earth Stood Still (1951), his use of two Theremins forever created a cliché in film music for UFOs to be accompanied by the hovering sound of the Theremin. The first entirely synthesized score, Bebe and Louis Barron’s Forbidden Planet (1956), was several decades ahead of its time, acting not only as score but also sound effects for the mysterious planet, “Altair IV.” Film music in the 1980s was heavily dominated by the synthesizer, and no score was more influential to the concept

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99 The Matrix Revisited, 1:49:35-1:50:03.
of synthesizers as the sound of the future than Vangelis’ score for *Blade Runner* (1982). *The Matrix* is a science-fiction film, perhaps blended with the action and fantasy genres, but still, Davis’ tasteful and light use of synthesizers, blended with orchestra, adds to the futuristic tone that the film is trying to convey.

12-1. Rusty Spoke

The synthesizer patch called “Rusty Spoke” is by far Davis’ most used synth sound in *The Matrix*. The sound of the patch is similar to that of a bowed cymbal or gong; it is a pitched metallic sound with no attack and a very long decay. Davis often uses it in combination with other metallic instruments, such as the waterphone, to enhance moments of suspense and terror. The sound is most clearly heard in 1m7 “Neo on the Edge” in m.99-102, or from 0:16:33-0:16:46 into the film, scoring a shot of Neo’s cell phone as it falls in slow-to-normal motion from high upon a skyscraper onto the road far below. The “Rusty Spoke” is meant to be an unsettling sound that most often underscores scenes concerning technology, machines, or Agents.

In December 1998, when the score was composed, this sample was part of the Spectrasonics library called “Distorted Reality,” ironically a very appropriate name for use in *The Matrix* film (or possibly a reason why Davis used it). A very similar patch, “Bowed Oilcan,” also was utilized from the “Distorted Reality” library, though only for one brief moment in 1m2 “Trinity Infinity,” doubled with “Rusty Spoke.” Today, the content of “Distorted Reality” still exists in the core sample library of Spectrasonics’ “Omnisphere 2,” one of the most popular synth / samplers among film composers today.

12-2. Drones

Davis uses various synth drones to underscore Agents, particularly in quiet moments when they are engaged in dialogue. The patches have several names - “Brooding Pad,” “Deep Flanging
Drone,” “Deep Brooding Drone,” “Deep Drone,” and “Brooding Drone.” But yet, they are all essentially the same sound, which is a dark undulating loop that functions primarily to add a feeling of inhumanity to dialogue scenes with Agents, in which they are often singularly plotting the demise of the human heroes in one way or another. The drones are often low in pitch, allowing them to sit well under dialogue since they do not interfere with any of the vocal frequency ranges of the various actors.

12-3. Pads

Throughout the first half of the score, Davis uses many various types of pads with somewhat vague descriptions. These include “High Pad on C & E,” “Breath Pad,” “FX-Pad,” “Fat Pad,” “Warm Pad Effect on A,” “Warm Pad,” and “Deep Synth Pad.” Essentially, they are very similar in timbre, somewhat airy and string-like, and very consistent in function, which is simply to reinforce pedal notes, mostly doubling strings, adding a synthetic atmosphere to quiet moments just before an action or important event begins.

12-4. Synth Anvil

In addition to real anvil, as utilized frequently in the percussion part, Davis often doubles a synth anvil, normally with identical rhythm. This layering reinforces the anvil sound, adding a greater intensity to each strike. In 1m2 “Trinity Infinity,” a synth anvil is used twice under chase scenes featuring Trinity outrunning Agents, both times in a minimalist ostinato rhythm of constant sixteenth-notes. This part is likely given to the synth because it would be impractical and raucous to have such a quick continuous rhythm sounded on a real anvil.

In other places in the score, Davis calls for “Light Metal Percussion” (also “Metal Percussion,” and once each with “Wood” and with “Toms”), which is utilized in much the same way as 1m2 “Trinity Infinity,” as repeating ostinato sixteenths. The sound is essentially the same
as the synth anvil parts, just at a lower dynamic and a slightly lighter timbre. The “Light Metal Percussion” tends to score action sequences and chase scenes late into The Matrix film.

Many modern action films since The Matrix have continued to be scored using minimal ostinato rhythms. Though it is unclear if The Matrix bears any direct responsibility, it has nevertheless become a popular trend to score action scenes with a constant sixteenth note rhythm, and often using synth percussion.

A film score prior to The Matrix that also made use of a similar synthesized anvil is Brad Fiedel’s score for The Terminator (1984). The Matrix shares many similarities with The Terminator, the most obvious being of course that they are both stories about humans vs. machines, and both set in dystopian futures. Both Davis and Fiedel use the synth anvil in the representation of machines, both use synthesizers to depict a sound of the future, and both use incessant rhythms with the synth anvil during action and chase scenes to symbolize the relentless energy of machines in pursuit of humans.

12-5. Reversed Cymbal / Musique Concrète

The “Reversed Cymbal” (also “Reversed Cymbal FX” and “Layered Reversed FX”) is possibly most recognizable synth sound from The Matrix. The sound is, in its simplest use, a suspended cymbal roll that has been digitally reversed so that it sounds backwards. Davis uses it for several effects throughout the score, to accentuate slow motion shots as out-of-time with the normal world, and to draw attention to film cuts and actions, such as in the scene involving the bending of spoons. The “Reversed Cymbal” patch also applies to Davis’ theme of reflection, as the sound of a cymbal roll played backwards is of course a reflection of its unaltered self, much like looking in a mirror.
With Davis’ use of the synthesizer, particularly FX patches such as the “Reversed Cymbal,” it is arguable that Davis also uses musique concrète in his score for *The Matrix*. Musique concrète is an experimental style of music composition beginning in the 1940s involving the manipulation of recorded sound. In the earliest experimentations of exploring effects possible by manipulating recorded tape, reversed sounds were often pieced together to create unusual textures. Davis’ use of reversed cymbals is such a manipulation. The most significant moment is in 6m8 “Fast Learning,” when Trinity calls Tank to have a B-212 helicopter program uploaded into her consciousness, giving her the skills of an expert pilot in a matter of seconds. Davis accompanies this upload (featuring visuals of Trinity blinking in fast-motion) with “Layered Reversed FX.” This is essentially a short collection of various metallic sounds, all sounding in reverse. This moment is heavily featured in the film’s final mix, and blurs the line between what is music and what is sound effect. Several films have been historically noted for blurring the line between music and sound effects - the aforementioned *Forbidden Planet* (1956), Bernard Herrmann, Remi Gassman, and Oskar Sala’s electronic sound production and composition on *The Birds* (1963), and many of the Japanese film scores of Toru Takemitsu.

**12-6. Synth Choir**

Three times in *The Matrix* score, Davis uses choir sounds from the synthesizer. Each patch has a new description - “Choir Pad,” “Female Choir,” and “Flanging Choir.” The last is found in 7m1 “That’s Gotta Hurt” and accompanies Agent Smith’s dialogue as he controls Neo in a chokehold, waiting for an oncoming subway train to crash into the both of them. As stated earlier, Davis scores for choir to represent the crying out of humanity, and also uses the machines’ chromatic harmonic language among the choral parts, which represents humanity’s enslavement to machines. The “Flanging Choir” in 7m1 “That’s Gotta Hurt” however is quite the opposite. This
time the synthesizer (a machine), is playing a cluster in the humans’ diatonic language using a sound attempting to mimic the human voice.

12-7. Deep Hit

Davis uses a low percussive synth described simply as a “Deep Hit” (also “Big Hit”) to add weight and significance to particular parts of the story. This often occurs in moments when characters learn significant truths, such as when Neo (after awakening in the real world) reaches to feel his headjack for the first time, and Apoc’s reaction to learning that Cypher has betrayed the Nebuchadnezzar crew by killing Dozer and (seemingly) Tank. The “Deep Hit” is similar to a bass drum or taiko drum hit, with added low-end bass frequencies. Davis also uses this patch to begin cues and to accent cuts in the film, especially changes of scene. The sound of the “Deep Hit” has continued to be a favorite sound in modern film scoring. It is perhaps most commonly heard in cinematic trailers for its extremely powerful, theater-rumbling sound.

Conclusion

As explained in this dissertation monograph, Don Davis’ score for The Matrix combines an astonishing number of twentieth-century compositional styles, techniques, and instrumentations. He uses harmonic sets to tonally distinguish humans from machines, minimalism to symbolize the Matrix program, canon and polyrhythm to personify reflective imagery, bitonality to signify the struggle between good and evil, modal shifts to suggest moments of clarity and awakening, leitmotifs, tonal centers, and orchestrations denoting love and death, aleatory for horror, twelve-tone technique for chaos and confusion, fantasy exoticism to reinforce an unreal environment, unusual percussion and extended techniques for piano to create tension and suspense, and electronic instrumentation to add a dystopian, futuristic tone.
Davis describes working on *The Matrix* as one of the best musical experiences he’s ever had. Davis’ score is easily one of the most complex scores ever composed for a film. This score, more than any before it, or any since, serves as the ultimate bridge between film music and concert music, maintaining a remarkable simultaneous balance of emotionality with intellectualism, all while serving the needs of the film to realize the unique vision of the story’s creators. Time will tell if other film composers are able to follow in Davis’ footsteps. I hope that any film composers that read this will be inspired to not simply dismiss twentieth-century trends in concert music as inaccessible or uninteresting, but rather will see the merits in continuous historical and stylistic study to improve the quality of original film scores to come.

In Volume II, my original ballet score for *Dracula* features many techniques that are somewhat in the spirit of Don Davis’ score for *The Matrix*. These include - the use of female choir to represent the Brides of Dracula, various aleatoric effects which depict moments of horror, the use of shakuhachi and daiko as fantasy exoticism, various extended techniques for piano, and the use of synthesizers to augment the sound of the orchestra.

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VOLUME II

For the Winston Salem Festival Ballet Company

Chris Heckman

_Dracula:_

A Ballet in Two Acts
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2m10 "Mina's Bedroom" - p.346
2m11 "Lucy's Attack" - p.359
2m12 "Retaliation" - p.373
2m13a "Confrontation Pt.1" - p.395
2m13b "Confrontation Pt.2" - p.411
2m13c "Confrontation Pt.3" - p.440
2m14 "Bows & Exit Music" - p.445
INSTRUMENTATION

Shakuhachi
8 Horns
*4 Tenor Trombones
Bass Trombone
Tuba
Contrabass Trombone
Contrabass Tuba

Timpani
Percussion - Bass Drum (as large as possible), Bell Plate (in A), Crotales, Daiko (as large as possible), Field Drum, Glockenspiel, Mark tree, Roto-toms, Shaker, Snare Drum, Sus. Cymbal, Tam-tam (large), Tom-toms, Tubular Bells, Vibraphone

Celesta
Organ
Piano
**Synthesizer

Soprano Solo
Choir (SA)

Violin Solo
Cello Solo
Violin 1
Violin 2
Viola
Cello
Contrabass

*Trombones 3-4 require F attachments

**The Synthesizer includes "Big Bang Kit" from ProjectSAM True Strike 2, "Metal Bridge" from EastWest Stormdrum 2, and "Ensemble Crashes" from CineSamples CinePerc

Duration: approx. 54 minutes
1ml "Prelude"
1m1 "Prelude"
1m1 "Prelude"

\[ j = 80 \]
1m1 "Prelude"
1m2b "Mina & Jonathan Pt.2"
1m2b "Mina & Jonathan Pt. 2"

DRACULA
DRACULA  1m2c "Mina & Jonathan Pt.3"
Dracula

1m2e "Mina & Jonathan Pt.3"
1m3 "Mina & Dracula"
1m3 "Mina & Dracula"
DRACULA

1m4a "Masquerade Pt.1"
1m4b "Masquerade Pt.2"
1m4b "Masquerade Pt.2"
DRACULA

1m4b "Masquerade Pt.2"
1m4c "Masquerade Pt.3"
Im4c "Masquerade Pt.3"

Dracula
1m5b "Lucy Pt.2"
1m6a "Love Eternal Pt.1"
1m6b "Love Eternal Pt.2"
299
Im7 "Abduction"
DRACULA

2m8 "Requiem"
2m9 "Transformation"
DRACULA
2m9 "Transformation"
2m9 "Transformation"
2m11 "Lucy's Attack"
2m12 "Retaliation"
2m12 "Retaliation"  

\( \nu = 152 \) (beat 2)
2m13b "Confrontation Pt.2"
2m13e "Confrontation Pt.3"