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DAVID W. PATTERSON

Music, Structure and Metaphor in Stanley Kubrick's *2001: A Space Odyssey*

When asked to explain the inner meaning of his predominantly non-verbal film, *2001: A Space Odyssey*, Stanley Kubrick once deflected:

How much would we appreciate *La Gioconda* today if Leonardo had written at the bottom of the canvas: "This lady is smiling slightly because she has rotten teeth"—or "because she's hiding a secret from her lover"? It would shut off the viewer's appreciation and shackle him to a "reality" other than his own. I don't want that to happen to *2001*.¹

On other occasions, the director described just as abstrusely the film's ultimate effect as that of a "mythological documentary"² or a "controlled dream."³ Indeed, in the history of mainstream cinema, *2001: A Space Odyssey* stands in many minds as the quintessence of the filmic Rorschach. As Kubrick commentator Alexander Walker has noted:

By suppressing the directness of the spoken word, by breaking with narrative logic, Kubrick has insured that watching his film requires an act of continuous inference on the part of viewers to fill in the field of attention by making their own imaginative connections. Though as rigorously conceived as any of Kubrick's ma-

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for films, the whole work leaves the densest impression of images which are free to imply much more than eye and mind take in.⁴

Consequently, researchers are faced with two exceptionally daunting tasks in the case of this film: first, to identify the nature of this “rigorous conception”; and second, to circumscribe the limits of tenable interpretation, taking into account almost innumerable critiques, ranging from the many that weigh *2001* against the philosophy of Nietzsche, for instance, to more idiosyncratic readings, such as the 1973 analysis that equates the film’s apemen with the hapless Humbert Humbert character of Kubrick’s earlier *Lolita*.⁵ Readings of the film’s musical components run the full gamut as well, from one reviewer’s provocative claim that “the prologue and certain visual motivic ‘lines’ can be seen as filmic equivalents of sonata-allegro form and motivic development in symphonic music,”⁶ to another writer’s translation of the role of the *Blue Danube Waltz* as conveying “how men have turned the awesomeness of space travel to a banal commuting chore.”⁷

Kubrick began the *2001: A Space Odyssey* project in earnest in April 1964, completing the script with Arthur C. Clarke in January 1966.⁸ As filming progressed over the next two years, a working “temp track” comprised of western classical pieces began to emerge. In these formative phases, a Chopin waltz accompanied actor Gary Lockwood as he circum-jogged the spaceship *Discovery*’s centrifuge,⁹ excerpts from Mendelssohn’s incidental music to *A Midsummer Night’s Dream* underscored scenes of weightlessness in space, and Vaughan Williams’s *Sinfonia Antartica* accentuated the otherworldly nature of the climactic “Star Gate” sequence.¹⁰ Extracts from *Carmina Burana* also made their way into this makeshift soundtrack, and at one point, Kubrick even solicited Carl Orff for newly written works to create an entirely different soundtrack for the film, but the composer begged off, citing his advanced years.¹¹

It wasn’t until December of 1967 that Kubrick approached two additional composers—English composer Frank Cordell and well-established Hollywood composer Alex North (*A Streetcar Named Desire* [1951], *The Bad Seed* [1956], *Spartacus* [1960], *Cleopatra* [1963], *The Agony and the Ecstasy* [1965], *Who’s Afraid of Virginia Woolf* [1966])—for new material for this film. Cordell’s participation in the project was negligible, going no further than offering up part of Mahler’s Third Symphony to the evolving temp track. North, on the other hand, dove headlong into the project, writing and recording some forty to fifty minutes of material for the first half of the film in less than a month. His accomplishment was even more striking given the considerable challenges that Kubrick’s own work schedule posed to the creation of complementary music, as many of the film’s 205 special-effects

shots would not be executed until the postproduction phase, which meant that North would have to compose much of his soundtrack without the benefit of seeing the completed scenes that he was ostensibly scoring. Kubrick also insisted that some of the pre-existent works from the temp track be included with North's original music, a directorial decision that left the composer understandably chagrined. As North himself later recalled:

I was very, very frustrated by it all. I really knocked myself out. It was the greatest opportunity to write a score for a film—where there are no sound effects, or hardly any sound effects. . . . I wrote fifty minutes of music in three weeks. I was taken to the recording in an ambulance, because my whole body was tied up in knots from having to work day and night, but I'm glad I did it, because I have the score, and I did some very fresh things as far as I myself am concerned.¹²

Following this prolific burst of activity, however, Kubrick contacted North, indicating that the remainder of the soundtrack would employ simple breathing sounds for effect and that no more music need be composed.¹³ In actuality, Kubrick continued to revise the soundtrack well into the film's final stages, sampling over four hundred recordings,¹⁴ ranging from LPs of the most recent electronic and contemporary music to the records of children's music owned by his own young daughters. It was only at a screening of the finished film that North discovered that his entire score had been scrapped in favor of pre-existent works by other composers. "It was really one of the biggest disappointments in my career," he confessed. "Kubrick never apologized."¹⁵

As news of Kubrick's tactless snub of North spread, it touched off considerable debate and at times even acrimony among other composers of film music. Such callous treatment of one as esteemed as North was taken by some as a sign of disrespect toward the American film composer in general, while others feared that if the selection of pre-existent music became a Hollywood trend, it could constitute a threat to the very livelihood of film scoring itself.¹⁶ Not surprisingly, these issues prejudiced the soundtrack's critical reception, and while it became one of the most popular soundtracks of all time, it was also roundly denounced on multiple occasions. The director was charged with cheaply exploiting "the framework of a classical music to give his films the veneer of art," a technique "reminiscent of the early days of film when the musical gems of the past were incorporated as background adornments."¹⁷ Others censured the soundtrack itself as "a somewhat arbitrary incorporation of music not intended for such a purpose"¹⁸ or contended that the use of pre-existent works

compromised the film's structural integrity, as Kubrick "had to cut the film to the contours of the music instead of the other way around."¹⁹ No small number of film critics, too, found the score puzzling, and while it certainly enjoyed its emphatic supporters, other writers dismissed it as "pretentious."²⁰ Conversely, the defense of North's score—hyperbolized by some as "the greatest unused score in the history of film music"²¹—became of a minor *cause célèbre*, and without as much as the benefit of seeing it applied to the film itself, more than one prominent Hollywood composer concluded that North's soundtrack would have been more appropriate for the film and of considerably higher quality. Still, it was not until 1993 that film composer Jerry Goldsmith, North's most vocal champion, provided any tangible fodder for this position, resurrecting, recording and commercially releasing North's original *2001* soundtrack, its liner notes contending that "some will no doubt feel that *2001* would have been better if Kubrick had used North's music," which compared favorably against the final soundtrack's "disturbing mélange of sounds and styles overall."²²

While a fair amount has been written on the soundtrack of this film, the issues surrounding its controversial evolution and reception have at times distracted from its study as a musical score. Even more typically, though, writers have assumed a methodology that sets out to define its tonal works (*Also Sprach Zarathustra*, *Blue Danube Waltz*, and "Gayane's Adagio") as any of a number of cultural signifiers or expressions of irony, while the characteristic discussion of the atonal excerpts drawn from the works of Györgi Ligeti (*Atmosphères*, *Requiem*, *Lux Aeterna*, *Aventures*) glosses their suitably extraterrestrial sound, crediting them with playing some meaningful yet still opaque role in shaping Kubrick's "cinematic symphony in space."²³ Recently, however, fresher approaches into this soundtrack have been put forth. Scholar Michel Chion, for instance, has brought a greater depth to this ongoing dialogue in his own formidable monograph on the film, which includes frequent assessments of its musical components,²⁴ while at least one other author has taken on the onerous task of comparing Kubrick's soundtrack with North's intended score in the hope of rationalizing one as being more "successful" than the other.²⁵

The reading that follows offers yet another path into this film, interpreting Kubrick's soundtrack as a series of sophisticated relationships from the more abstract aspects of large-scale structure and that unfolding structure's reflection of the narrative's thematic symbolism. Since this reading charts the soundtrack as an actual "progression," it considers its components chronologically, according to the first appearance of each excerpt as it occurs in the film. From the outset, however, the harmonic languages within this soundtrack create their own

natural boundaries; consequently, as many others have done, this analysis begins by bifurcating the works employed along either atonal or tonal lines (that is, “Ligeti versus everything else”). Unlike its predecessors, however, it ultimately demonstrates how each of these harmonic languages creates a unique continuity through the course of the film, moreover documenting how each of these continuities evolves into a discrete expression of the film’s central philosophic idea of an underlying unity. In addition, there are strategic moments at which more general “sound effects” enhance the film’s overall sense of “musicality,” and remarks on these effects appear sporadically as well. (Note: in order to facilitate the ready extraction of these distinct yet interwoven musical threads from within the larger chronological framework, the atonal portions of the analysis are distinguished by flush-right headers, the tonal portions by flush-left headers. Likewise, those sections dealing with sound effects are demarcated by italics.)

Curtain

Overture: Györgi Ligeti, *Atmosphères*

One could postulate somewhat wryly that before the film’s first portrayals of Pleistocene conflict—in fact, even before any visuals appear at all—the use of Ligeti’s *Atmosphères* as the opening “overture” constitutes the film’s first perversely ironic expression of man’s inhumanity to man through the example of one director’s mistreatment of composers. For while Alex North was feeling the sting of having been excluded from *2001*’s soundtrack altogether, in another part of the world, Györgi Ligeti was just as offended to discover that some of his works had been incorporated into the film—without the director or Metro-Goldwyn-Mayer Studios having bothered to obtain permissions beforehand. In fact, Ligeti had been officially solicited only for the use of a single section from his *Requiem*, and with his knowledge and permission, the Bavarian Radio Chorus had recorded this excerpt specifically for the film.²⁶ As he wrote to one colleague just weeks before the film’s release:

By the way, do you know the name Kubrick, a film director in England? I never heard of him. He is making a utopian [type of] film at the MGM studio in London, and wants to use part of my *Requiem* (Kyrie) in the film as music of the next century. [C. F.] Peters is negotiating with him. MGM does not especially want to pay, but Peters will receive some money (and according to my contract with Peters regarding film rights, half of it is for me.)²⁷

These negotiations with MGM, however, did not involve any of the other Ligeti works that ultimately made their way into the soundtrack. Consequently, litigation over the alleged distortion of Ligeti's music ensued between C. F. Peters and Universal Edition (Ligeti's publishers/distributors) and Metro-Goldwyn-Mayer Studios in 1969, leading to an out-of-court settlement.²⁸ As Ligeti himself later recounted:

Nobody involved me. They took the music from my recordings. I knew nothing about it. When I heard about the film I wrote MGM and producer Stanley Kubrick. They wrote back: "You should be happy. With this movie you have become famous in America." I wrote back: "I am not happy. You took my music and you did not pay me." But I didn't want to sue. I am not so commercial. Lawyers met. In the end I got \$3,500.²⁹

As has been commonly noted, Kubrick consistently deploys Ligeti's works as cosmic commentary throughout this film, each instance uniformly accompanying some direct confrontation with an incomprehensible yet ordered cosmos, whether that be apes groping a monolith or an astronaut hurtling through a star-chamber. Beyond these generalizations, though, each individual Ligeti excerpt appears to serve a special subfunction itself, highlighting a particular aspect or element of this greater unknown or eternal, distinctions expressed through the varying textures and orchestrations that are fitted to particular scenes. If, for example, the soon-to-follow planetary visuals of the film's opening credits can be interpreted metaphorically as a "big bang" (as they often are), the overture-excerpt from *Atmosphères* that precedes it temporally situates the auditor within an even earlier age. Certainly its opening eight-measure sonority, comprising strings *divisi a 56* filled in by winds and brass in a chromatic cluster that splays over more than five octaves,³⁰ is easily read as a musical translation of the notion of an elemental state of undifferentiation, while the subsequent sound masses that decay, expand or congeal disclose the fluctuant potential and power that infuses this primordial void. It is, as it were, the audible expression of *musica mundana*, or "music of the spheres"³¹—and perhaps of a time well before such spheres even existed. Recurring at two of the most dramatically uncertain moments in the film—as the music for the Entr'acte and in the second half of the star-chamber scene, this work comes to serve as the narrative's musical question mark. And while it is not immediately apparent, the significance of this excerpt's purely instrumental orchestration becomes clear by the film's end as well, as the vocal element of the remaining Ligeti works employed—*Requiem*, *Lux Aeterna*, and *Aventures*—becomes inextricably associated with the idea of some self-aware "entity." In retrospect,

therefore, the absence of voices in *Atmosphères* negates the notion of “self,” reinforcing the film’s opening frame of reference as one that predates both consciousness and being.

Opening Credits: Richard Strauss, *Also Sprach Zarathustra*

The striking lack of dialogue in *2001: A Space Odyssey*, as well as the specific materials that serve as substitutes for this traditional dialogue, have implications that go far beyond the arena of narrative interpretation. In place of language, for example, the film’s emphasis on technology foregrounds the calculations of arithmetic and geometry, expressions of number. Instead of the semantic logic of words, the film confronts viewers with the ineffable order of the cosmos. In place of the phrase structures of spoken rhetoric, Kubrick offers diverse strains of music. Arithmetic, geometry, astronomy and music—how serendipitously Boethian! Or is it? For this reading contends that it is not purely fortuitous that these fields of study corresponding to the medieval *quadrivium* are also conjoined in this film. But rather, like the *quadrivium*, many of the film’s visual *and* aural components emphasize a structure derived from a similar appreciation of number and proportion, and further, that in the case of this soundtrack, Kubrick employs a definition of “music” in a far broader context, closely resembling that in which Boethius and his Greek precursors had cast the term originally.

Structure and proportion are hardly new themes in Kubrick research. The analytic debate over the film’s macro-structure, for example, is almost as old as the film itself. Film scholar Annette Michelson refers to the “three panels of the movie’s narrative triptych,”³³ while critic Judith Shatnoff encapsulates the film as a testament to Kubrick’s “love affair with technology through three stages, birth, death, and transformation.”³³ In another camp, however, writers such as Carolyn Geduld are quick to point out how the film “took four years to complete, is divided into four episodes, covers four million years, has four heroes (ape, scientist, machine, astronaut), concerns four evolutions (man, machine, alien, the universe), uses the music of four composers (the two Strausses, Ligeti, and Khachaturian), and is dominated by a four-sided rectangle that appears on screen four times.”³⁴ Similarly, in surveying the soundtrack from a numerological perspective, some writers have distinguished between those works that appear three times in the course of the film (*Also Sprach Zarathustra*, the *Blue Danube Waltz*, *Atmosphères*, and *Requiem*) and those that only appear twice (*Lux Aeterna* and Khachaturian’s “Gayane’s Adagio”), although the profundity of this particular counting game seems dubious. Moreover, these are all issues of surface only, and in actual-

ity, of course, any numeric or proportional scheme accounts for only parts of the film. (This particular reading adopts the interpretation of the film as being in three “acts,” yet only for the purpose of using these demarcations as a convenient skeletal framework.)

At a deeper level, however, a study of the tonal components of this soundtrack based on aspects of number and proportion uncovers a structural pattern among its components that itself is rich in metaphoric potential. The film’s opening credits, for example, feature the incipit of Richard Strauss’s *Also Sprach Zarathustra*, a theme that Kubrick ultimately employs in three instances, all of which underscore dramatic turning points of “becoming,” including the moment of the apeman’s attainment of human consciousness and the arrival of the Star-Child at the conclusion of the film. (If *Atmosphères* serves as the film’s musical question mark, *Zarathustra* is its exclamation point.) Over the years, the director’s choice of this excerpt has resulted in vastly conflicted interpretations. To one writer, *Zarathustra* attests to Kubrick’s “seriousness of purpose”;³⁵ to another, it is nothing more than “one of his inspired jokes.”³⁶ To some, the intent is literal to its core, indicating “a fairly large indebtedness to Nietzsche on Kubrick’s part,”³⁷ connoting a noble heralding of the *Übermensch*, as represented by the Star-Child.³⁸ To others, though, part of Kubrick’s musical prowess is demonstrated by his very ability to liberate the soundtrack’s works from their original contexts, thereby transforming their meanings entirely. As Michel Ciment contends, “Richard Strauss’s symphonic poem is no more an illustration of Nietzsche’s vision than is Kubrick’s film, itself a symphonic poem. Each of them develops and reworks that vision into a completely independent work of art.”³⁹

Not surprisingly—and justifiably—Nietzschean-based readings of the role of this work in the film abound. However, as the visuals climax with the triple horizons of moon, earth, and sun in harmonious alignment, *Zarathustra* might also harken to even older ideas, triggering associations with medieval notions of the parallel orders between music and heavenly bodies.⁴⁰ As Boethius recounts:

In the beginning, Nichomachus reports, music was truly simple, since it was composed of four strings. It continued in this state until the time of Orpheus. In this period the disposition of strings was such that the first and fourth strings sounded the consonance of the diapason, while the middle strings each in turn sounded the diapente and the diatesseron with the strings nearest them and those most distant. Indeed, there was nothing discordant in these, in imitation of cosmic music, which consists of the four elements.⁴¹

The specific intervallic content of *Zarathustra*’s incipit, therefore, re-enacts those legends in which music itself “began in a state of grace,

as it were, with four strings sounding intervals of the octave divided by a fourth and a fifth,"⁴² as Kubrick's film opens not only with *visual* references to the beginnings of time—as one sphere emerges from behind another, which yields yet another—but with an artfully complementary *aural* reference to the mythological origins of music itself, certifying Strauss's opening gesture from bass fundamental through octave, fifth and fourth as not only a musical but a metaphoric emergence of a primal harmonic order.

Act I, Part 1

At the very inception of Act I, sound asserts itself as a subtle yet potent force in this film, for despite the superficial stasis of any given shot, the overall visual sequence and understated soundtrack methodically push the film through time at a breakneck pace. As this act begins, the film still lacks any temporal reference. What does the act's title, "The Dawn of Man," imply? How far has the film advanced from the "big bang" of the opening credits? The wasteland of the first shot clarifies little in this regard. But a sound effect—that of insects—provides the first real clue, indicating that the scene is set no earlier than the Devonian Period (roughly 417 - 354 Million Years Ago, or MYA), a suspicion also warranted by the appearance of shrub-like plant life onscreen. Shortly thereafter, the isolated birdcalls that soon follow effectively catapult over another 100 to 200 million years into the Jurassic Period (206 to 144 MYA). The appearance of mammal bones then lurches the setting into the Tertiary Period (65 to 1.8 MYA), while the subsequent revelations that these mammals include upright hominids on the cusp of tool-making and the hunting of big game at last fine-tune the setting's temporal orientation to some two to four million years ago. Several minutes later, this technique of temporal leap-frogging culminates in the famous bone/space-ship intercut that divides the halves of the first act, skipping directly from the era of the apemen to the modern-day space age, therein "by-passing history and culture and civilization."⁴³ Yet while this more explicit displacement has often been hailed as "the greatest ellipsis in film," in actuality, the coordination of the austere soundtrack and predominantly motionless visuals of the film's opening shots constructs a series of temporal chasms that comparatively dwarf this far more celebrated moment.

Györgi Ligeti, *Requiem*, Kyrie Movement

Appearing three times in the course of 2001, the Kyrie from Ligeti's *Requiem* aptly mediates between the purely instrumental *Atmosphères* and the choral *Lux Aeterna*, its dense texture recalling the opening overture, while its inclusion of voices is the first metaphoric indication of the presence of a self-aware alien "other." Michel Ciment has

eloquently noted that this Kyrie functions “as a musical leitmotiv for the presence of the monolith [that] reflects Clarke’s idea that any technology far in advance of our own will be indistinguishable from magic, and, oddly enough, will have a certain irrational quality.”⁴⁴ Yet it is hard to imagine that the deeper implications of a requiem completely escaped the director and that the relationship between the aural and the visual is not somehow more complex. These hunches seem validated by the positioning of the three statements of the Kyrie in the film, for all accompany scenes of monumental discovery, each of which anticipates an evolution of consciousness: the apes’ first encounter with the monolith; the unearthing of a lunar monolith; and the entrance into the star-chamber. But while the narrative of these scenes emphasizes the relationship of the present to the future, this *Requiem*—like any requiem—inherently references the past, and beneath these forward-looking scenes, Ligeti’s *Requiem* creates a countercommentary, lamenting respectively: the end of the apes’ animal consciousness (and consequently, their unavoidable ostracism from nature); the death of humankind’s cosmic naïveté (and the resultant toppling of pre-existent systems of both science and faith); and the passing of present-day human consciousness (and in effect, the end of existence as we perceive it). Hence, this particular work seems to stand in calculated opposition to the film’s narrative surface, serving as the only direct musical acknowledgment of death in a film otherwise rife with visual images of becoming and existence.

Act I, Part 2

Johann Strauss, *Blue Danube Waltz*

Fifteen minutes into the film, in what is probably the most famous associative cut in film history, a four-million-year-old airborne bone is instantaneously “transformed” through a match on action into a twenty-first-century space station, and the brute force of Richard Strauss’s tone poem is blithely supplanted by Johann Strauss’s lighter and more lyrical *Blue Danube Waltz*. Over time, this waltz has become the single-most discussed work from *2001*. In an uncharacteristic moment of candor, even Kubrick himself elaborated on the role of this work in the film:

Most people under 35 can think of it in an objective way, as a beautiful composition. Older people somehow associate it with a Palm Court orchestra, or have another unfortunate association, and generally, therefore, criticize its use in the film. It’s hard to find anything much better than “The Blue Danube” for depict-

ing grace and beauty in turning. It also gets about as far away as you can get from the cliché of space music.⁴⁵

Kubrick's comments, however, were only the starting point for interpretation, as the myriad approaches to subsequent readings of *Blue Danube* attest. In one school of thought, this waltz imposes its meaning from its weight as a cultural artifact. Ciment, for example, construes it as a deliberate "touch of the nostalgia so dear to [Kubrick], in this case for the age when Johann Strauss's music lulled the patrons of the Big Wheel in the Prater."⁴⁶ Likeminded writers contend that the excerpt serves: to "point up the sterility of the twenty-first century in the film by contrasting it with a civilization whose culture was infinitely richer";⁴⁷ to convey how out-of-synch humankind's culture is with its technology;⁴⁸ or merely "to confer a little of the courtliness of bygone years on space."⁴⁹ To others, though, this waltz is effective because it dispels these pre-existent cultural associations altogether (as is sometimes argued for the use of *Also Sprach Zarathustra*). As film composer John Williams contends:

Kubrick says to us, "Watch the film for more than five seconds and forget those associations, and it will stop being nineteenth-century Vienna," and in the hands of Von Karajan the music becomes a work of art that says "look," that says "air," that says "float" in beautiful orchestral terms, and if you go with this film, the film helps dispel all of these associations, and we're into a new audio-visual world.⁵⁰

Still yet, to many other commentators, the *Blue Danube* serves as neither a cultural nor anticultural object at all, but instead expresses a philosophic position. It speaks to "the order and harmony of the universe,"⁵¹ or renders in music the film's premise that "man's vaulting ambition is matched by nothing approaching the necessary qualifications and man's outreaching himself is, at once, noble, funny, stupid, and sad."⁵² Technologically oriented viewers might appreciate the waltz as "a commentary on the nature of space travel in the twenty-first century: measured, polished, choreographed, routine," while film buffs may appreciate it as a much more down-to-earth, explicit tribute to the ballroom scene aboard the Titanic in *A Night to Remember* (1958).⁵³ A host of epigrammatic evaluations cover the full spectrum of reactions, whether crediting the waltz as a brilliant application of "rollicking schmaltz"⁵⁴ or disparaging it as an "endless flow of pre-recorded, sentimental musical pap."⁵⁵ And finally, to those in the film music profession sympathetic to the fact that Alex North had originally written a waltz for the film himself, Kubrick's use of the *Blue Danube* was simply "idiotic."⁵⁶

From the standpoint of the score itself, however, relationships between the soundtrack's tonal works begin to emerge at this point, as the incipit of the *Blue Danube* is a very direct transformation of the *Zarathustra* theme that preceded it. As Example 1 illustrates, the opening bass pedal of *Zarathustra* is transferred to the waltz's upper strings. *Zarathustra*'s three-pitch trumpet theme is softened in the French horns, constricting to the span of a fifth, while the paired chords in the *Blue Danube*'s wind section are but a tamed and much quieted version of their more assertive analogs in the symphonic poem.

Example 1. Richard Strauss, *Also Sprach Zarathustra*, mm. 4–8; Johann Strauss, *Blue Danube* Waltz, mm. 1–4.

The image displays two musical staves side-by-side, comparing the opening of Richard Strauss's *Also Sprach Zarathustra* (left) and Johann Strauss's *Blue Danube* Waltz (right). The left staff is for *Zarathustra* and includes parts for W.W. Strings, Tpt. in C, Timp., and Org., Cb., Cfg. The right staff is for the *Blue Danube* and includes parts for Fl., Ob., Clar. in C, Horn in F, Vlns. 1, and Vlns. 2. The *Zarathustra* score shows a low, sustained bass pedal in the strings and a three-note trumpet theme. The *Blue Danube* score shows a similar low bass line in the strings and a three-note horn theme, illustrating the transfer of the *Zarathustra* theme to the waltz's instrumentation.

Only a few measures later, the introduction of the *Blue Danube* reaches its most dramatic gesture, simultaneously strengthening its ties to *Zarathustra*, as Example 2 demonstrates. Here, the waltz theme expands to encompass a full octave (the original gamut of *Zarathustra*'s World-Riddle theme), while the two-chord woodwind accompaniment, now even more closely connected to *Zarathustra* in its major/minor sonorities, is set in *forte*, girded by a brief reference to *Zarathustra*'s prominent timpani. The visuals concurrently bolster these relationships through a parallel allusion, as the shots of the sun over the horizon that accompany the waltz quote the very visuals that *Zarathustra* initially accompanied in the opening credits. The sudden force of this brief passage in the waltz recedes immediately thereafter, and in the totality of its effect, one may well hear in the *Blue Danube*'s opening measures the spirit of the symphonic poem in an unsuccessful attempt to emerge from under the more placid and domesticated facade of the waltz.

Example 2. Richard Strauss, *Also Sprach Zarathustra*, mm. 4–8; Johann Strauss, *Blue Danube Waltz*, mm. 10–14.

The image displays two musical staves side-by-side. The left staff is for Richard Strauss's *Also Sprach Zarathustra*, mm. 4–8. It features four staves: W.W. Strings (top), Tpt. in C (second), Timp. (third), and Org., Cb., Cfg. (bottom). The key signature is C major, and the time signature is 3/4. A bracket above the strings part indicates a shift from Major to minor. An 'octave range' bracket is shown under the Tpt. in C part. The right staff is for Johann Strauss's *Blue Danube Waltz*, mm. 10–14. It features four staves: Fl., Ob., Clar. in C (top), Horns in F (second), Strings (third), and Tpt., Tbn., Horns 3 & 4, Timp. (bottom). The key signature is C major, and the time signature is 3/4. Brackets above the Fl., Ob., Clar. in C and Horns in F parts indicate Major and minor sections. 'octave range' brackets are shown under the Horns in F and Strings parts.

The appearance of the *Blue Danube Waltz*, therefore, is far more musically and dramatically profound than has yet been credited, for in its basic musical makeup, its opening proves to be nothing more or less than a genteel version of the materials found in *Zarathustra*. Of even greater consequence, this musical transformation itself skillfully replicates the narrative's own development, for just as the *Zarathustra* theme is "tamed" into that of the *Blue Danube*, the self-same skirmishes of prehistoric apemen are likewise recast within the "civilized" context of modern-day space as veiled, territorial interrogations between American and Russian scientists⁵⁷ and courteous yet clearly confrontational exchanges inside the lunar boardroom. Ultimately, then, the shared dramatic and musical crux of Act I proves to be the acknowledgment of how much remains constant, despite the superficial metamorphoses that occur when ape is replaced by human or one Strauss is supplanted by another.

Györgi Ligeti, *Lux Aeterna*

In the initial appearances of *Atmosphères* and the *Requiem*, texture itself becomes a symbol for the perception of the universe as chaos; just as the film's prehistoric protagonists may at best infer but cannot comprehend the existence of principles that govern the cosmos, the fundamental methods by which Ligeti has assembled these works remains hidden in their dense and seemingly amorphous sound masses. This metaphor is poignantly honed in succeeding scenes of the moon shuttle as it heads for the crater at Clavius, accompanied by Ligeti's *Lux Aeterna*. Dramatically, the central goal of these scenes is the realization that this "chaos" is, in fact, ordered—that the appearance of a monolith on the moon (and by extension, on Earth previously) is

not the result of chance magic but is rather the “deliberately buried” product of intent. Musically, any setting of the *Lux Aeterna* text would produce the same basic affinities with this narrative, including the theatrical resonance of the text itself (“eternal light”) as well as the irony that this sacred text is typically used for Holy—and in this case, extraterrestrial—Communion. The specifics of Ligeti’s *Lux Aeterna*, however, create another layer of essential relationships between narrative and soundtrack. Having progressed from the purely orchestral and densely textured opening of *Atmosphères* (and its attendant associations), this purely choral work highlights the drama’s formal confirmation of a conscious “other.” More significantly, though, opening with a single pitch, it purposefully unfolds the order that had been imperceptibly and “deliberately buried” in the previous Ligeti excerpts—namely, the highly sophisticated use of one idea that evolves into a micro-canon. The revelation of this device (in which a single, serpentine melodic thread appears in stretto in multiple voices within an extremely limited gamut, resulting in “cluster” effects) not only stands in sharp contrast to the expression of undifferentiation represented in the opening of *Atmosphères* or the *Requiem* but also demands a reinterpretation of these earlier works, the theme of any micro-canon serving in essence as its own musical Mendelbrot set.⁵⁸ Consequently, in strategically unmasking the micro-canonic method at this point in the film, *Lux Aeterna* provides a parallel depiction of the profound shift of perception concurrently enacted onscreen, as the confirmation of “order” is conveyed to both eye and ear.

Act I closes with an abrupt, high-pitched and piercing frequency (ostensibly a transmission from the moon’s monolith to Jupiter) that rudely interrupts both Ligeti’s Requiem and a rare lunar photo op. Like the sound effects that open the act, however, this sforzando serves a deeper purpose, signaling a new relationship between sound and image. While the earliest sound effects manipulated the film’s temporal bearings, this single frequency disorients the physical sense between the seen and the heard, positioning the viewer’s gaze in the silent vacuum of the moon’s nonatmosphere, yet aurally thrusting the same viewer inside the claustrophobic confines of an astronaut’s helmet. (As Jerome Agel has noted, “there was no sound on Moon; astronauts heard it in their radio receivers.”)⁵⁹ This particular disjuncture between visual and aural frames of reference is merely a foreshadowing, though, as this technique becomes elemental to Act II, most notably when a visual point of view from deep space is accompanied by the sounds of breathing from within a distant space suit, or in a more ominous variation, when the audience’s visual perspective is the same as that of an erratic computer as it eavesdrops, aurally resituating itself within a soundproofed space pod.

Act II, Part 1

Aram Khachaturian, "Gayane's Adagio," from *Gayane Ballet*

From the moon crater of Clavius at the end of Act I, the narrative cuts to a voyage toward Jupiter, paired with "Gayane's Adagio" from Khachaturian's *Gayane Ballet*. This is the least-discussed excerpt from this film's soundtrack, and its perfunctory critiques have translated its dramatic purpose as expressions of "calm progress,"⁶⁰ desolation and loneliness,⁶¹ or simply "the extreme boredom of deep space travel."⁶² Chion suggests that it "illustrates how contingent film music really is, since it does not allow us to forget . . . that all sorts of other pieces of music would be possible."⁶³ Yet Khachaturian's composition achieves far more than many other pieces of music might, as it actually develops the structural relationships set in motion by its tonal predecessors (see Example 3). Rhyming with the incipit of the *Blue Danube*, for instance, its opening four-note motive spans a rising perfect fifth and outlines a triad, while the modal contrast between the incipits of these two works is a long-range manifestation of the major-minor dichotomy that characterizes the opening of *Also Sprach Zarathustra*.

Example 3. Aram Khachaturian, "Gayane's Adagio," from *Gayane Ballet*, mm. 1–4.



The editing of "Gayane's Adagio" also comments directly on the film's narrative, which revolves around the ambiguity of HAL, the ship's computer system. As he converses, plays games, offers advice, and extends moral support to the astronauts onboard, he is seemingly cast as a bona fide coworker and compatriot. Nonetheless, he is inherently technological, rather than biological, and the extent to which these modes of being can legitimately overlap becomes the lynchpin of the plot throughout Act II. Is HAL, in fact, the third genuine member of the conscious crew, or is he/it to be perceived as a mere mechanism? While the drama develops this question over the span of nearly an hour, the music seems to provide an answer to this question almost immediately. The majority of Khachaturian's score is two-voiced, expanding to three voices only in its final measures. This scene uses only mm. 1–28 of this piece before cutting to its three-voiced final cadence (beginning at m. 50), dovetailing the two by way of a mutual *f* minor sonority (see Example 4).

Example 4. Aram Khachaturian, "Gayane's Adagio," from *Gayane Ballet*, mm. 27–28 (two voiced) and mm. 50–55 (three-voiced).

Throughout the two-voiced passage, one of the two conscious astronauts is introduced visually. The musical cut to the three-voiced texture is carefully synchronized with the film's editing, as the third voice enters at the very moment at which we are first introduced to the second astronaut, as well as HAL (who ironically returns our gaze through his electronic "eye"). Therefore, while this initial anthropomorphic visual may imply HAL as legitimate colleague to the two astronauts rather than as a machine "other," this strategic manipulation of the score asserts his inclusive status even more directly through its subtle shift of texture.

So far, the motivic relationships between the soundtrack's tonal incipits have yielded a very basic set of cross-references. But does the relevance of these musical connections go no further, or is there a depth yet to be plumbed? Is it possible, perhaps, that these tonal incipits outline a broader structure or more integral set of relationships, or is this soundtrack, in the final analysis—as Hollywood composer Leonard Rosenman contended—merely something that was assembled from "a bunch of records,"⁶⁴ yielding nothing more than what Randall Larson recounts as "a pastiche of ill-contrasting classical music?"⁶⁵ Not only does the interrelated nature of the quadrivium provide a valuable clue, but Boethius's words sound almost like a fortuitous summation of the musical and philosophic premises of Kubrick's film itself: "There can be no doubt that the order of our soul and body seems to be related somehow through those same ratios by which . . . sets of pitches, suitable for melody, are joined together and united."⁶⁶

But what are those ratios, and where is this unity? In the case of the tonal works, the basic intervallic qualities of their opening motives make the answer clear. The very nature of these melodies commands our attention to these signature incipits that mark the narrative's progress from one stage to the next. *Zarathustra's* motive proceeds from bass pedal through octave, fifth, and fourth; the *Blue Danube* rises through major third and minor third; and the opening figure of "Gayane's Adagio" ascends by a minor third and two whole

steps. Taken individually, these properties are meaningless. But when assembled in the order in which they first occur in the film, these groups of intervals fall into place with startling grace as the interlocking components of the most fundamental of all musical systems—the harmonic series itself (see Example 5).

Example 5. The Intervallic Properties of Tonal Incipits and their Placement within the Harmonic Series.

The image shows three musical incipits labeled 'Zarathustra', 'Danube', and 'Gayane' at the top. Below them is a harmonic series diagram with two staves. The top staff shows notes 1 through 9, and the bottom staff shows notes 10 through 15. Arrows point from the incipits to their corresponding notes in the series: 'Zarathustra' points to note 3, 'Danube' points to note 4, and 'Gayane' points to note 7. A circled '15ma' is written below the first note of the series.

Clearly, this statement of the harmonic series is not literal (as the various key signatures abstract the progression from one incipit to the next); nonetheless, the intervallic construction of each incipit remains inherently locked into its unique position in the harmonic series. This sequence becomes even more striking, though, in achieving a synthesis between music and narrative, as the intervallic content of each succeeding tonal incipit moves in tandem with a drama that simultaneously charts an evolution of its own. Moreover, the tonal works yet to be presented not only continue to adhere to this musical system, as the remainder of this reading will show, but in so doing, ultimately erect a collective musical metaphor that consistently elaborates on a narrative that itself moves between realms of the fundamental and the complex and in fact, pivots on such distinctions.

Sidney Torch, *Off Beats Mood*

Technically, following the first presentation of "Gayane's Adagio," the next work in the soundtrack is the theme music that opens a BBC broadcast. At one level, this piece provides a fleeting glimpse into the legendarily detail-obsessed mind of the director, who appropriately selected Off Beats Mood by Sidney Torch, one of England's most prominent composers of light music as well as radio and television themes beginning in the 1940s. And it maintains a consistency with the chain of tonal incipits already presented, as its opening flute motive—comprised of a stepwise ascent from tonic to dominant in the minor mode—conveniently references the incipit of the Khachaturian excerpt that preceded it. However, this is really beside the

point, for this excerpt is decidedly not in a category with any of the other works discussed so far; rather than being positioned as an epic commentary on its given scene (as have all of its predecessors), it is tossed off as aural ephemera, more a curt sound effect than a legitimate component of the soundtrack proper, as its exclusion from 2001's commercial soundtrack recordings would seem to verify.

It is telling that this is the film's first instance of diegetic music, and when considered with the only two other scenes that employ diegetic music (the respective appearances of "Happy Birthday" and "Daisy Bell," or "Bicycle Built for Two"), it completes a subset of works that are narratively distinctive in their blatant self-ridicule. Torch's theme music constitutes barely audible and entirely forgettable fluff; "Happy Birthday" suffers a grotesquely tone-deaf performance; and HAL himself reverts to song only when his higher functions have been disengaged and he is too incapacitated to reference anything else. Against the many moments in the film that foreground the harmonies that regulate the universe (whether by visual or metaphoric, aural means), these diegetic moments are consigned to the far humbler status of "music" as commonly defined, reflecting the same gulf that separated *musica mundana* from *musica instrumentalis*⁶⁷ in the medieval mind. In the larger scheme, then, the role of diegetic music in the film seems to be the reassertion of a long-standing hierarchy that recognizes different manifestations of "music," according each its own weight in relation to its impact on and role in nature.

Mildred Hill, *Happy Birthday*

The scene involving the singing of "Happy Birthday" recalls the very first prehistoric sequence of Act I, in that its dramatic dynamism is cloaked beneath a series of static visuals.⁶⁸ In this case, the narrative articulates several interpersonal, human ruptures that foreshadow HAL's own mechanical malfunctions immediately thereafter. Much is disturbingly skewed in this scene. Parents send a message across half a solar system yet have nothing to offer but trivialities, their efforts prompting not the slightest reaction from their impassive astronaut-son. Meanwhile, the astronaut's reclining figure clashes against the hibernating bodies around him, while he himself is positioned like a cadaver—who is nonetheless engaged in accepting birthday greetings. This disjunction between the narrative and the visual becomes even more pronounced through the soundtrack, as musical patterns also begin to buckle and revert. A second statement of "Gayane's Adagio" accompanies the scene, yet the primacy of the musical space is uncharacteristically undermined, first by spoken dialogue (cf. earlier scenes in which the actual dialogue of chatty space flight attendants is silenced in deference to the *Blue Danube*), and then by the

superimposition of “Happy Birthday” (itself abstracted by off-key inaccuracies), muddying the otherwise inviolate musical soundtrack. The very musical make-up of “Happy Birthday” also reinforces the scene’s emphasis on systems in crisis. Consistent with the incipits of the previous tonal works, the six-note opening phrase of this melody consists of four pitches that comprise the next interlocking cell of the overtone series in their totality. Like the scene it accompanies, however, this new motive is out of joint; its opening stutters, and the pitches do not appear in the order of the harmonic series, fracturing the steady progression established in the preceding tonal works (see Example 6).

Example 6. The Harmonic Series, including the incipit of “Happy Birthday.”

The image displays musical notation for Example 6. At the top, four short melodic phrases are labeled: Zarathustra, Danube, Gayane, and Happy Birthday. Below these is a large staff representing the harmonic series, numbered 1 through 12. The notes are: 1 (C), 2 (C2), 3 (G2), 4 (F2), 5 (E2), 6 (D2), 7 (B1), 8 (Bb1), 9 (A1), 10 (G1), 11 (F#1), and 12 (E1). Arrows point from the 'Happy Birthday' phrase to notes 3, 4, 5, and 6 of the harmonic series. A '15ma' (15th harmonic) is indicated at the beginning of the series. The bottom staff shows the bass line for the harmonic series.

A lengthy meditation on the sound of human breathing precedes the end of the first half of Act II. As prominent as any of the purely musical portions of the soundtrack, this expression of musica humana⁶⁹ becomes a signature “theme” at those moments when humankind’s identity is asserted in sharpest contradistinction to other elements in the environment, comprising specifically confrontations with nature (as a lone astronaut floats in the endlessness of space), technology (as the conflict between human and machine culminates in HAL’s termination) and the alien or “other” (as an astronaut who has ostensibly traversed space and time lands inexplicably in a suite of rooms, or as in the film’s final sound effect while a dying man stares at an obelisk).

Entr’acte

Act II, Part 2

The second half of Act II begins with another extended exposé on the sound of breathing. However, its real narrative momentum is achieved in part through the mechanistic abstraction and subversion of previous components from the soundtrack, a musical distortion twice expressed through the use

of paired alarms. In the first instance, as HAL begins to terminate the three hibernating astronauts, an initial alarm pulsates on the upbeat and downbeat of a moderate triple meter, reducing the lushness of the earlier Strauss waltz into a sinister Totentanz. The alarm that follows, while surely nothing more than a moment of unintended kitsch, nonetheless may raise a grin; is it not appropriate that these two alarms that narrate HAL in the act of mass murder are tuned to a tritone? A second pair of alarms extends this parody of the soundtrack in a subsequent scene in which an astronaut forces his way back into his spaceship through an emergency airlock, a moment rightly described as "the climax of all preceding erotic and fetal imagery."⁷⁰ As outlined earlier, the film's crucial moments of birth and becoming have been closely bound to Also Sprach Zarathustra. This "birth" through the airlock, however, is wholly unnatural, and as the astronaut prepares to be shot into the airlock, the soundtrack reaffirms the perversity of the moment by abstracting Strauss's original theme, its first siren emitting a mechanical fundamental, while the second, situated in an upper register, reiterates an ascending glissando in an unsuccessful attempt to jump-start the World-Riddle theme.

HAL's "Death Aria" (Daisy Bell)

Act II culminates in the most emotive scene in the entire film, in which astronaut David Bowman disconnects HAL's higher functions. Throughout the process, HAL speaks, first attempting to negotiate, then reflecting on his demise, and finally returning to a primitive, purely "mechanistic" state of being. This entire six-minute passage may well be designated as "HAL's death aria." (By extension, the preceding dialogue between Bowman and HAL functions as recitative.) It seems fitting that an aria, and one that contemplates something as profound as murder and death, should emanate from this machine. Many have already commented on the powerful irony expressed through HAL, who is the most "human" personality in the entire film. Alexander Walker, for example, notes how "HAL is deliberately made into the repository of the old stock of human emotions so carefully drained out of his scientific minders. He keeps omniscient control, gives counsel, shows curiosity, awards praise."⁷¹ Similarly, Don Daniels succinctly evaluates HAL's human qualities in opposition to the cardboard demeanors of the astronauts as "one of 2001's blackest subversions."⁷²

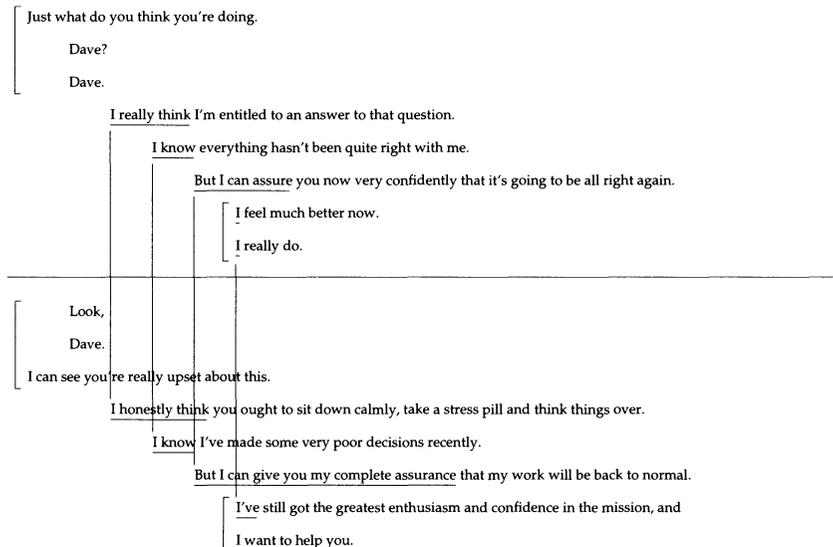
Thirty years ago, Walker idly speculated, "It is well known that 2001 contains very few spoken words. . . . It would be interesting to set a computer to calculate the range and variety of the vocabulary, grammar, and locutions used in the film. One guesses they would not be too wide."⁷³ In the case of HAL's death aria, these locutions are not

as limited as they are outright poetic, comprising three basic relationships often found between music and text. As all arias are metered by definition, Bowman's breath provides the rubato duple meter against which HAL intones.

HAL's aria is tripartite, and Part I subtly confirms that this is not the patterning of standard speech, for as HAL makes two discrete attempts to reason with Bowman, his pleas create clear parallelisms that create what might be considered a "strophic" form (see Example 7). In contrast, Part II employs a different musical technique, dramatically splitting the text into arched halves that lie on either side of HAL's consciousness. In its cumulative design, the first half generates a relatively abstract arch form, as single-syllable statements, using the name "Dave" as a cadential figure, gradually build to a lengthier climax ("There is no question about it") before receding to simpler and shorter phrases. The second half of Part II, however, makes this arch structure more overt, as HAL—now mere machine—is reduced to his most basic functions (see Example 8).

Part III of the aria makes obvious that which has been implicitly established already, namely, that HAL is—and has been—singing. The tune, of course, is "Daisy Bell," and historically, of all of the works in the soundtrack, this piece has been the most awkward to contextualize within the narrative. As one author has suggested, for instance:

Example 7. HAL's Death Aria, Part I (Strophic).



Example 8. HAL's Death Aria, Parts IIA and B (Arch form).

IIA

Stop.

Will you?

Stop, Dave.

Will you stop, Dave?

Stop, Dave.

I'm afraid.

I'm afraid, Dave.

Dave.

My mind is going.

I can feel it.

I can feel it.

My mind is going.

There is no question about it.

I can feel it.

I can feel it.

I can feel it.

I'm afraid.

IIB

Good afternoon, gentlemen.

I am a HAL nine thousand computer.

I became operational at the H.A.L. Plant in Urbana, Illinois
on the twelfth of January, 1992.

My instructor was Mr. Langley, and he taught me to sing a song.

If you would like to hear it, I can sing it for you.

It's called "Daisy."

This is the perfect epiphany for the relationship between HAL (and by extension all machine technology) and humankind. We have ridden into the future with our levers and wheels and gears, and electronic extensions of nerve and mind, but the marriage has not been a stylish one with its potential for dehumanization so clearly developed in the film. We have ridden into the future, humankind and machine, as precariously as Daisy on her bicycle, looking always slightly ridiculous (perhaps crazy) as we all do on that marvelous technological method of locomotion.⁷⁴

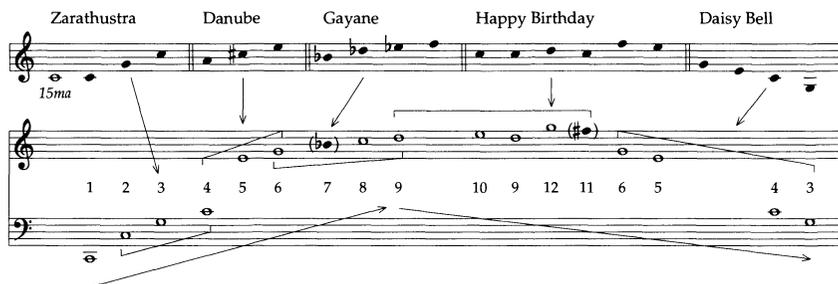
In contrast, this reading regards the metaphoric relation of the specific lyrics to the narrative unimportant, if not nonexistent, and instead, like Torch's earlier BBC tag, appreciates this excerpt most immedi-

ately as further testament to Kubrick's well-deserved reputation as "an almost fanatical perfectionist."⁷⁵ In this case, the nature of this "perfection" can be deceiving, for while like the *Blue Danube* in that it is readily grasped as a culture-specific artifact, "Daisy Bell" is not necessarily an emblem of the culture that one might imagine at first.

As the Ligeti excerpts explicitly demonstrate, in researching and constructing this soundtrack, Kubrick's musical research led him to the most experimental works of the day. As he himself later acknowledged, "I think that I've heard most of the electronic and *musique concrète* LPs there are for sale in Britain, Germany, France, Italy and the United States; not because I particularly like this kind of music, but out of my researches for *2001* and *Clockwork Orange*."⁷⁶ Given this characteristically exhaustive approach to his subject matter, it is entirely likely that one of the LPs that Kubrick heard while shaping the soundtrack for *2001* was *Music from Mathematics* (Decca DL 9103), a collection of the most technologically advanced computer music of its time, created on and played by the IBM 7090 computer and digital to sound transducer. One especially striking track was a 1961 realization by Max Mathews, then a computer specialist at Bell Telephone Laboratories and a freelance designer of music software. In three sections, Mathews' work began as a monophonic instrumental rendition of an old popular tune, restated in the second section with a simple accompaniment. The third section, however, was the real tour-de-force, constituting one of the first examples of voice synthesis in which the computer no longer produced mere tones but articulated speech and "sang" the actual lyrics of the piece. The tune that Mathews chose for his study was, in fact, "Daisy Bell."⁷⁷ Consequently, HAL's rendition of this piece is, above all, an arcane yet remarkably accurate historical reference—a musical wink to the very few who might be technologically in-the-know. Given this context, the piece ricochets with irony, as a futuristic computer performs a sentimental tune that references not only the early twentieth century but the most advanced electronic works of the viewer's own very real present. It is noteworthy, too, that this machine-generated song is not deployed in the narrative to extol what was in the early 1960s an extraordinary modern accomplishment. It does not celebrate or elevate the present, but humbles it almost brutally, as HAL takes the final plunge into dim-wittedness by reverting to the film's own technological present—a present which for him constitutes nothing more than "baby's first words," as it were.

"Daisy Bell" is the last tonally grounded material to be introduced in *2001*, and the intervallic content of its incipit rounds out the pattern set forth consistently by its precursors (see Example 9). Com-

Example 9. The Relation of Tonal Incipits to the Harmonic Series.



prised of a minor third, major third and perfect fourth, this descending motive adheres to the harmonic series, though it is the only interval collection not to overlap with the incipit of the work it follows. In so doing, this incipit completes an essential musical metaphor, backsliding toward its own fundamental as HAL and the hubris of human “achievement” to date concurrently crumble into nothingness within the narrative.

Act II, Part 2

Györgi Ligeti, *Aventures*

As the visual spectacle of the star-chamber scene hurtles us “beyond the infinite” (“It’s God! It’s God!” shouted one mind-altered viewer of the ‘60s as he ran headlong through the projection screen),⁷⁸ other facets of the film introduce the narrative’s cyclic ending by referencing the materials and techniques found in its opening. Musically, for example, Ligeti’s *Requiem* and *Atmosphères* recur at this point (the latter cued to the first freeze frame of the astronaut’s face), their appearance in reverse order effectively bookending their initial presentations in Act I. Visually, the monolith’s reappearance, the alignment of planets, and the image of the sun breaking over a horizon revive the potent images found in the first few minutes of the film. More subtly, the editing also serves a cyclic function, obliterating any assurance of a definitive temporality—a technique not used since the film’s opening scenes. As Kubrick scholar Mario Falsetto has elaborated:

In *2001*, there is a contrast between the editing style of the scenes of space manoeuvres, seen in various sections of the film, and the temporal ambiguity and quicker editing patterns of the later “Star-Gate” sequence. Where the time frame of the earlier scenes is relatively clear and linear, taking all the time necessary to un-

fold, the latter sequence is unclear, nonlinear and abstract, plunging the film deeply into temporal and spatial ambiguity.⁷⁹

The meaning of the subsequent bedchamber scene is one of the most hotly debated aspects of this film. To the Nietzschean interpreter, it is the warmup that leads to either the arrival of the Star-Child/Übermensch or a more generic though no less reverent celebration of the Eternal Recurrence. Others see behind it a strain of thought that is decidedly Eastern in flavor. Meanwhile, all such conjecture is fairly irrelevant to literalists, who adhere to the explanation in Arthur Clarke's novel. As Jerome Agel summarizes:

Bedroom is a cage, in a human zoo tricked out with artifacts from Bowman's mind to make him feel comfortable while he is investigated and reconstructed by superpowers who are surrealistically presented in strange laughing sounds, an alteration of Györgi Ligeti's music. Bowman's life passes in this room, though to him it seems like moments.⁸⁰

The elusive nature of this scene's meaning attests to the director's success in attaining climactic ambiguity, a goal achieved by several means. The scene's editorial technique, for instance, consists of a series of disorienting jump cuts that are a more explicit version of the great temporal leaps that characterized the film's very opening shots. But whereas the initial use of this technique systematically slows and hones temporality to a definitive (albeit prehistoric) period, its cyclic application at the film's end reverses this procedure, liberating the narrative from mundane experiential time and reaccelerating temporality to the point at which the phases of an entire human life can pass—as the visuals that begin the scene indicate—in the blink of a multicolored eye. Simultaneously, the brief excerpt from Ligeti's *Aventures* amplifies the theme of ambiguity in part by playing off of the atonal excerpts that have been presented throughout the course of the film. Occupying an ill-defined space between music and sound effect, it is instrumental and atonal yet bears little resemblance to *Atmosphères*; it is vocal, yet has no cogent text and sounds nothing like the *Requiem* or *Lux Aeterna*. Even its pointillistic texture is a complete anomaly, and its compositional methods are a far cry from the rigors of the classic micro-canon that are fundamental to all the previous Ligeti excerpts. Depicting an "other" like no "other" then, this terse passage from *Aventures* effectively disintegrates all of the film's established musical metaphors for the unknown, its sparse instrumentation and nonverbal text exhuming nothing more than the occasional and incomplete sonic fossil taken from any one of these earlier works.

Star-Child, Final Credits, and Exit Music

The two Strausses who began the soundtrack's tonal stream also bring it to its conclusion, although the ending they create is as unresolved as that produced in the atonal stream by *Aventures*. Most obviously, their reappearance serves as a musical reassurance that the dramatic unmasking of human conceit, as portrayed through HAL's death aria, need not lead to irrevocable termination. Instead, as the still unborn Star-Child appears and the narrative's theme of eternal cycles becomes apparent, the reinvigorated motivic ascent of *Zarathustra's* World-Riddle theme speaks of potential rather than completion, referencing its narrative thrust during the opening credits. Soon thereafter, the film's closing credits are paired with the *Blue Danube Waltz*, thoughtfully resituating its time-traveling audience within its present-day level of consciousness before tossing it into mundane reality again. It also maintains the pattern of incipits already established, providing the final confirmation that the film's conclusion marks only the beginning of yet another cycle of excursions through both the musical overtone series and metaphorically, through the narrative ebbs and flows of the phases of both human and cosmic existence.

Curtain

As inexplicable as the Mona Lisa's smile, *2001: A Space Odyssey* remains one of film history's most provocative enigmas, a condition to which its unusually wide berth of interpretations and analyses readily attests. As Annette Michelson describes, the film is "endlessly suggestive, project[ing] a syncretic heritage of myths, fantasies, cosmologies and aspirations."⁸¹ Kubrick himself verified his narrative goal of open-endedness, commenting:

I intended the film to be an intensely subjective experience that reaches the viewer at an inner level of consciousness, just as music does; to "explain" a Beethoven symphony would be to emasculate it by erecting an artificial barrier between conception and appreciation. You're free to speculate as you wish about the philosophical and allegorical meaning of the film—and such speculation is one indication that it has succeeded in gripping the audience at a deep level—but I don't want to spell out a verbal road map for *2001* that every viewer will feel obligated to pursue or else fear he's missed the point.⁸²

In the broadest terms, *2001* imbues "music" with a philosophic gravity enjoyed during an earlier age, drawing upon astronomy, bi-

ology and technology to delineate the various planes on which the term once operated. In recounting how, in the writings of Boethius, "myth, fact, and even document are eloquently assembled to persuade the reader that music not only pervades every sphere of human life but governs the universe as well,"⁸³ medievalist Calvin Bower's summation transposes easily to inform on the strategies of this film as well. Of the specific materials that work to this end, this reading contends that *2001's* soundtrack is comprised of two mutually exclusive harmonic streams—the atonal and the tonal—and that in their perceptive and nuanced empathy with the narrative, each ultimately develops its own metaphors to reaffirm the film's central quest toward the confirmation of a fundamental, higher order. In the works by Ligeti, contrasts in orchestration, texture, text and compositional technique establish gradations between the film's various depictions of the cosmic "other," each individual work adding dimension, definition, and difference to an otherwise shapeless "unknown." In contrast, while each discrete tonal work may illuminate the narrative of the moment in any of a number of ways, it is the long-range integration between these works that amounts to one of the subtlest yet most extraordinary features of the film, for while the various styles and genres conscripted spread an eclectic surface across the soundtrack, the abstract relationships between their signature incipits engender an arch that itself embodies music's own underlying system of natural order, moreover progressing in such a fashion as to welcome (if not to all but demand) a detailed reading in relation to the unfolding narrative.

The purpose of this reading has been neither to erect an artifice nor to emasculate the potent, but to navigate one possible path through this monumental work by way of a soundtrack that itself constitutes "the most controversial use of classical music in the fantastic cinema."⁸⁴ Lauded as "brilliant and significant,"⁸⁵ vilified as "the most infamous example of the tyranny of the temp track,"⁸⁶ or simply puzzled over as "weird,"⁸⁷ the musical materials of this soundtrack assure it a disquieting place in the history of film music in perpetuity. As Jerry Goldsmith once contended:

I remember seeing Stanley Kubrick's *2001: A Space Odyssey* and cringing at what I consider to be an abominable use of music. . . . It is a mistake to force music into a film, and for me *2001* was ruined by Kubrick's choice of music. His selections had no relationship, and the pieces could not comment on the film because they were not a part of it. . . . a score is a fabric which must be tailored to the film.⁸⁸

However, in actuality, these very materials provide direct access into some of the film's most integral aspects; in no other Kubrick film is music so assertive, so foregrounded, and so intimate and reciprocal in its intersections with the narrative. Indeed, the very strengths of this soundtrack are the astonishing means by which it establishes an incisive network of relationships. Bestowed with considerable and perhaps even unprecedented power, the soundtrack of *2001* conveys the film's "visionary" qualities as much through the ear as do the visuals through the eye, and while flaunting itself as an odd patchwork of musical hand-me-downs, its artistic effectiveness nonetheless attains a depth and acuity toward which most film scores of the tailor-made ilk might at best aspire. Ultimately, though, the arguments of the previous pages—whatever their degree of novelty may be—merely provide instances of detail as a means to reaffirm what film scholar Vivian Sobchak has already observed so keenly: "music in Kubrick's films is used inventively and narratively and flamboyantly, causing the viewer to *listen* so that he can *see*."⁸⁹

NOTES

1. Stanley Kubrick, quoted in Eric Nordern, "Playboy Interview: Stanley Kubrick," in *Stanley Kubrick Interviews*, ed. Gene D. Phillips (Jackson: University Press of Mississippi, 2001), 48. Originally published in *Playboy Magazine* (September 1968).

2. Alexander Walker, *Stanley Kubrick Directs* (New York: Harcourt Brace Jovanovich, 1971), 241.

3. Stanley Kubrick, quoted in Carolyn Geduld, *Filmguide to 2001: A Space Odyssey* (Bloomington: Indiana University Press, 1973), 64.

4. Walker, *Stanley Kubrick Directs*, 267.

5. Geduld, *Filmguide to 2001*, 36.

6. Don Daniels, "A Skeleton Key to 2001," *Sight and Sound* 40, no. 1 (Winter 1970/71): 29.

7. Joseph Gelmis, "'Space Odyssey' Fails Most Gloriously," *Newsday*, April 4, 1968; reprinted in Jerome Agel, ed., *The Making of Kubrick's 2001* (New York: New American Library, 1970), 264. Less than three weeks later, Gelmis wrote a second review in which he recanted much of this first, largely negative review.

8. Thomas Allen Nelson, *Kubrick: Inside a Film Artist's Maze*, new and expanded ed. (Bloomington: Indiana University Press, 2000), 104. For a detailed history of the film, see Vincent LoBrutto, *Stanley Kubrick: A Biography* (New York: Donald I. Fine Books, 1997), 255–320. A thumbnail chronology also appears in Geduld, *Filmguide to 2001*, 22–28.

9. Jeremy Bernstein, "Profile: Stanley Kubrick," in *Stanley Kubrick Interviews*, ed. Phillips, 44 (originally published in *The New Yorker*, Nov. 12, 1966).

10. LoBrutto, *Stanley Kubrick*, 291.

11. *Ibid.*, 282–83.

12. Alex North, interviewed in Irwin Bazelon, *Knowing the Score: Notes on Film Music* (New York: Van Nostrand Reinhold, 1975), 219–20.

13. LoBrutto, *Stanley Kubrick*, 305–6.

14. Michaela Williams, "2001: Where Did It Go Right?," *Chicago Daily News Panorama* (n.d.); reprinted in Agel, ed., *The Making of Kubrick's 2001*, 279–80.

15. Alex North, quoted in Randall Larson, "2001 the Music: Composer Alex North on his Abandoned Score," *Cinefantastique* 25, no. 3 (June 1994): 42. In a similar vein, Kubrick later rejected more than four hours' worth of music that Wendy Carlos and Rachel Elkind had composed for *The Shining*, retaining only their electronic version of the *Dies irae* while employing pre-existent contemporary classical works for the remainder of the soundtrack. See Randall Larson, *Musique Fantastique: A Survey of Film Music in the Fantastic Cinema* (Metuchen, N.J.: Scarecrow Press, 1985), 274.

16. See, for example, Bazelon, *Knowing the Score*, 158.

17. *Ibid.*, 35–36.

18. Larson, *Musique Fantastique*, 311.

19. Kevin Mulhall, liner notes, *Alex North's 2001*, Varèse Sarabande (VSD-5400), 1993.

20. David Goldman, undated film review, CBS Radio, excerpted in Agel, ed., *The Making of Kubrick's 2001*, 245.

21. Mulhall, liner notes, *Alex North's 2001*.

22. *Ibid.*

23. Nelson, *Kubrick*, 109.

24. Michel Chion, "Kubrick's Cinema Odyssey," trans. Claudia Gorbman (London: British Film Institute, 2001).

25. See, for example, Timothy E. Scheurer, "Kubrick vs. North: The Score for 2001: *A Space Odyssey*," *Journal of Popular Film and Television* 25, no. 4 (Winter 1998): 172–82.

26. Joanna Ching-Yun Lee, "György Ligeti's 'Aventures' and 'Nouvelles Aventures': A Documentary History," Ph.D. diss., Columbia University, New York, 1993, 219.

27. György Ligeti, letter to Ova Nordwall, Feb. 19, 1968, quoted in *ibid.*, 218; translated from the original German by Joanna Lee. Lee's dissertation includes one of the most thorough accounts of the controversy over the illegal inclusion of Ligeti's music in *2001: A Space Odyssey*.

28. Lee, "György Ligeti's 'Aventures' and 'Nouvelles Aventures,'" 219.

29. György Ligeti, interview with Dorle J. Soria, "Artist Life," *High Fidelity/Musical America* 23 (December 1973): MA6.

30. Technically, the opening sonority lasts for only four measures, while in mm. 5–8 the flutes are omitted; nonetheless, this changes the overall character of the opening sonority only minutely.

31. "How indeed could the swift mechanism of the sky move silently in its course? And although this sound does not reach our ears (as must for many reasons be the case), the extremely rapid motion of such great bodies could not be altogether silent, especially since the courses of the stars are joined together by such mutual adaptation that nothing more equally compacted or united could be imagined." Boethius, *Fundamentals of Music*, excerpted in *Strunk's Source Readings in Music History*, vol. 2, rev. ed., ed. James McKinnon (New York: W. W. Norton, 1998), 30–31.

32. Annette Michelson, "Bodies in Space: Film as 'Carnal Knowledge,'" *Artforum* 7, no. 6 (February 1969): 56. For others who advance the structural and symbolic significance of the number "three" in this film, see David G. Hoch, "Mythic Patterns in *2001: A Space Odyssey*," *Journal of Popular Culture* 4 (Spring 1971): 963; David MacDowall, "2001: A Critique by David MacDowall," *Photon* 24 (1974): 30, and John Allen, "2001: *A Space Odyssey*: High Voltage on Four Circuits," in *Christian Science Monitor*, Eastern ed., May 10, 1968, 9.

33. Judith Shatnoff, "Review: *Planet of the Apes* and *2001*," *Film Quarterly* 22, no. 1 (Fall 1968): 61.

34. Geduld, *Filmguide to 2001*, 34. For others who divide the film into four episodes, see Nelson, *Kubrick*, 103–35; Mario Falsetto, *Stanley Kubrick: A Narrative and Stylistic Analysis* (Westport, Conn.: Greenwood Press, 1994), 48; and Daniels, "A Skeleton Key

to 2001," 28–33. For a more comprehensive discussion of this debate, see Chion, "Kubrick's Cinema Odyssey," 50–74.

35. Michel Ciment, "The Odyssey of Stanley Kubrick: Part 3: Toward the Infinite—2001," in *Focus on the Science Fiction Film*, ed. William Johnson (Englewood Cliffs, N.J.: Prentice-Hall, 1972), 137 (reprinted and translated from "L'Odysée de Stanley Kubrick: III—Vers L'infini," *Positif* 98 [1968]: 14–20).

36. John Hofsess, "The Mind's Eye," *Take One* 1, no. 11 (May–June 1968): 29.

37. David Boyd, "Mode and Meaning in 2001," *Journal of Popular Film* 6, no. 3 (1978): 202.

38. Frances Thompson McKay, "Movement in Time and Space: The Synthesis of Music and Visual Imagery in Lucino Visconti's *Death in Venice* and Stanley Kubrick's 2001: A Space Odyssey," DMA diss., Peabody Conservatory of Music, Baltimore, 1982, 102–3.

39. Ciment, "Odyssey of Stanley Kubrick," 137.

40. For example, in discussing the various tetrachords, Boethius explains that "the disposition from the hypate meson to the nete synemmenon is, as it were, a kind of exemplar of the celestial order and specification. The hypate meson is assigned to Saturn, whereas the parhypate is like the orbit of Jupiter. The lichanos meson is entrusted to Mars. The sun governs the mese. Venus holds the trite synemmenon. Mercury rules the paranete synemmenon. The nete is analogous to the orbit of the moon." Anicius Manlius Severinus Boethius, *Fundamentals of Music*, trans. Calvin M. Bower, ed. Claude Palisca (New Haven: Yale University Press, 1989), 46.

41. *Ibid.*, 29–30.

42. Calvin M. Bower, "Introduction," in *ibid.*, xxii.

43. Norman Kagan, *The Cinema of Stanley Kubrick*, new expanded ed. (New York: Continuum, 1989), 151.

44. Ciment, "Odyssey of Stanley Kubrick," 137.

45. Stanley Kubrick, quoted in Agel, ed., *The Making of Kubrick's 2001*, 88.

46. Ciment, "Odyssey of Stanley Kubrick," 138.

47. McKay, "Movement in Time and Space," 99.

48. Nelson, *Kubrick*, 119.

49. Penelope Gilliatt, "After Man," *The New Yorker* 44, no. 8 (April 13, 1968): 150.

50. John Williams, interviewed in Bazelon, *Knowing the Score*, 200.

51. Walker, *Stanley Kubrick Directs*, 229.

52. Donald Richie, film review, *The Japan Times* (Tokyo), n.d. (reprinted in Agel, ed., *The Making of Kubrick's 2001*, 252).

53. Geduld, *Filmguide to 2001*, 45.

54. Louise Sweeney, "2001: A Space Odyssey Brings the Future to the Present," *Christian Science Monitor*, Eastern ed., April 12, 1968, 6.

55. Bazelon, *Knowing the Score*, 111.

56. Jerry Goldsmith, interviewed by Tony Thomas, *Film Score: The View from the Podium*, ed. Tony Thomas (La Jolla, Calif.: A. S. Barnes and Co., 1979), 228.

57. Many commentators have come to refer to the scene between Floyd and the Russians as the "second 'waterhole' scene." See for example, Nelson, *Kubrick*, 120.

58. From the mid-1980s, Ligeti himself became aware of the affinities between his music and contemporary chaos theory, commenting on it on several occasions. See, e.g., Györgi Ligeti, "On My *Etudes* for Piano," trans. Sid McLauchlan, *Sonus* 9, no. 1 (1988): 3–7, as well as Györgi Ligeti, "On My *Piano Concerto*," trans. Robert Cogan, *Sonus* 9, no. 1 (1988): 8–13.

59. Agel, ed., *The Making of Kubrick's 2001*, 110.

60. Bazelon, *Knowing the Score*, 132.

61. Nelson, *Kubrick*, 123.

62. Geduld, "Filmguide to 2001," 51.

63. Chion, "Kubrick's Cinema Odyssey," 95.
64. Leonard Rosenman, interviewed in Bazelon, *Knowing the Score*, 181.
65. Larson, "2001 the Music," 41.
66. Boethius, *Fundamentals of Music*, trans. Bower, ed. Palisca, 7.
67. In essence, this category is equivalent to today's generally understood notion of "music." As Boethius explains, "The third kind of music is that which is said to rest in various instruments. This music is governed by tension, as in strings, or by breath, as in the aulos or those instruments activated by water, or by certain percussion, as in those which are cast in concave brass, and various sounds are produced from these." *Ibid.*, 10.
68. Like Ligeti's *Aventures*, the copyrighted "Happy Birthday" is not acknowledged in the film's final credits. It is unknown whether composer Mildred Hill was contacted by Kubrick and/or Metro-Goldwyn-Mayer Studios to obtain permissions, or if this is an addition to the list of the soundtrack's pilfered excerpts.
69. "What human music is, anyone may understand by examining his own nature. For what is that which unites the incorporeal activity of the reason with the body, unless it be a certain mutual adaptation and as it were a tempering of low and high sounds into a single consonance? What else joins together the parts of the soul itself, which in the opinion of Aristotle is a union of the rational and the irrational? What causes the blending of the body's elements or holds its parts together in established adaptation?" Boethius, *Fundamentals of Music*, excerpted in *Strunk's Source Readings in Music History*, ed. McKinnon, 31.
70. Geduld, "Filmguide to 2001," 58.
71. Walker, *Stanley Kubrick Directs*, 254.
72. Don Daniels, "2001: A New Myth," *Film Heritage* 3, no. 4 (Summer 1968), 6.
73. Walker, *Stanley Kubrick Directs*, 244.
74. Jay H. Boylan, "Hal in '2001: A Space Odyssey': The Lover Sings His Song," *Journal of Popular Culture* 18 (Spring 1985): 55–56.
75. John Alcott, "Photographing Stanley Kubrick's *Barry Lyndon*," *American Cinematographer* 57, no. 3 (March 1976): 268, 270.
76. Stanley Kubrick, quoted in Philip Strick and Penelope Houston, "Interview with Stanley Kubrick," *Sight and Sound* 41, no. 2 (Spring 1972): 64.
77. The "vocal" portion of this work is currently available on the compact disc, "Early Modulations: Vintage Volts," Caipirinha Music, CAI 2027.2.
78. Michaela Williams, "2001: Where Did It Go Right?" 279.
79. Falsetto, *Stanley Kubrick*, 37–38.
80. Agel, ed., *The Making of Kubrick's 2001*, 160.
81. Michelson, "Bodies in Space," 57.
82. Stanley Kubrick, quoted in Nordern, "Playboy Interview," 47–48.
83. Bower, "Introduction" to Boethius, *Fundamentals of Music*, trans. Bower, ed. Palisca, xxix.
84. Larson, *Musique Fantastique*, 349.
85. Allen, "2001," 9.
86. Kathryn Kalinak, *Settling the Score: Music and the Classical Hollywood Film* (Madison: University of Wisconsin Press, 1992), 192.
87. Goldman, in Agel, ed., *The Making of Kubrick's 2001*, 245.
88. See Goldsmith, interviewed in Thomas, *Film Score*, 227–28.
89. Vivian Sobchak, *Screening Space: The American Science Fiction Film*, 2d ed. (New York: Ungar, 1987), 212–13.