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Beneath Sci-fi Sound: *Primer*, Science Fiction Sound Design, and American Independent Cinema

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Abstract: *Primer* is a very low budget science-fiction film that deals with the subject of time travel; however, it looks and sounds quite distinctively different from other films associated with the genre. While Hollywood blockbuster sci-fi relies on “sound spectacle” as a key attraction, in contrast *Primer* sounds “lo-fi” and screen-centred, mixed to two channel stereo rather than the now industry-standard 5.1 surround sound. Although this is partly a consequence of the economics of its production, the aesthetic approach to the soundtrack is what makes *Primer* formally distinctive. Including a brief exploration of the role of sound design in science-fiction cinema more broadly, I analyse aspects of *Primer*’s soundtrack and sound-image relations to demonstrate how the sound plays around with time rather than space, substituting the spatial playfulness of big-budget Hollywood sci-fi blockbuster sound with temporal playfulness, in keeping with its time-travel theme. I argue that *Primer*’s aesthetic approach to the soundtrack is “anti-spectacle”, working with its mise-en-scène to emphasise the mundane and everyday instead of the fantastical, in an attempt to lend credibility and “realism” to its time-travel conceit. Finally, with reference to scholarship on American independent cinema, I will demonstrate how *Primer*’s stylistic approach to the soundtrack is configured as a marketable identifier of its “indie”-ness.

Introduction

A mechanical hum; a man’s irregular gasps for breath. The shot accompanying these sounds is indistinct, out of focus and grainy, but dimly reveals the hands and stomach of the man as he attempts to breathe from an oxygen tank in a dark, confined space. Simultaneously, his voice is heard on the soundtrack, explaining to someone the discomfort he experienced while confined to the tank. This is not omniscient voiceover narration, because the background noise suggests that the conversation is taking place at an airport—we can hear the sounds of aircraft taking off and landing. Visually, then, the sequence depicts one location (the confined space), while on the soundtrack two locations (the dark, confined space and the airport) are represented simultaneously. The ambiguity could be significant to the plot, given that the confined space in the shot depicts the interior of a time machine. What is striking about this sequence, however, is that there is nothing otherworldly, spectacular or futuristic in the visual or sonic depiction of this fantastical machine: its exterior—a metal and plastic box assembled from commonplace materials located in an anonymous warehouse storage unit—is as banal and inexpressive as its loud mechanical hum.

The scene is from *Primer* (2004), an American science fiction film that, despite its fantastical themes, eschews the fantastical in its soundscape and mise-en-scène. It tells the story of two workaholic twenty-something scientists in Texas—Aaron (Shane Carruth) and Abe (David Sullivan)—who, in their spare time, build a device in their garage that unexpectedly turns out to be a time machine. Initially they use it for financial gain, playing

the stock market, but complications ensue as the full consequences of their use of the machine become ever more difficult to control. This includes the two scientists' repeated (and failed) attempts to thwart a violent incident at a party, their inability to keep track of the alterations they have made to reality (despite their meticulous preparation), and the emergence of multiple iterations of Aaron and Abe, all of whom proceed to pursue their own individual agendas.

The film was shot with a budget of \$7,000 by self-taught filmmaker Shane Carruth. Given that the economics of production tend to be a strong determinant of film style, it follows that *Primer's* low-budget look and sound distinguish it aesthetically from big-budget Hollywood science fiction, positioning *Primer* almost as a provocation to Hollywood blockbuster sci-fi, and as an "anti-genre" genre film. Indeed, the story behind the film's production exemplifies that of the ultra-low-budget, underdog auteur: Carruth shot the film during evenings and weekends, using cheap 16-mm-film stock; relied on help from friends and family; filmed at nearby, accessible locations; and took full creative control of multiple roles, including those of director, writer, actor, editor and composer/sound designer ("Story/Production").

The alternative soundscape of *Primer* is as important a part of its form as its nonstandard mise-en-scène. Mixed to two-channel stereo rather than the now industry-standard 5.1 surround sound, *Primer* sounds lo-fi and screen-centred, and, while this is partly a consequence of its extremely low production budget, it is my contention that its sonic aesthetics is what makes *Primer* formally distinctive within the genre. I will begin my argument by considering the role of sound design within science fiction cinema more broadly, with particular reference to William Whittington's work on the subject. I will then examine aspects of *Primer's* soundtrack and sound-image relations to demonstrate how the dynamics of sound design in *Primer* play with time rather than space, substituting the spatial playfulness of big-budget sci-fi blockbuster sound with temporal playfulness, an aesthetic attribute that is in keeping with its time-travel theme. I will also argue that *Primer's* aesthetic approach to the soundtrack is anti-spectacle, working with its mise-en-scène to emphasise the mundane and everyday instead of the fantastical, in an attempt to lend credibility and realism to its time-travel conceit. Finally, with reference to scholarship on American independent cinema, I will demonstrate how *Primer's* stylistic approach to the soundtrack is configured as a marketable identifier of the film's "indie-ness".

Sound and Science Fiction: A Spectacle of Movement

Sound, previously a neglected aspect of film and television studies, is now enjoying a surge of academic and critical interest. In *Sound Design and Science Fiction*, William Whittington makes the case that science fiction cinema and the practice of sound design create a "symbiotic relationship" through their "interplay between style and content" (7). He argues that "the science fiction genre has historically been the site that has inspired developments in sound technology as well as innovations in sound signification (narratively, thematically, and aesthetically)" (4). Using formal analysis of the soundtrack (i.e. dialogue, music and sound effects) and image-sound relations of key science fiction films, he demonstrates how genre and sound work together to shape audience expectations of sci-fi. According to Whittington, seminal Hollywood blockbusters from the late 1970s onwards, such as *Star Wars* (George Lucas, 1977) and *Close Encounters of the Third Kind* (Steven

Spielberg, 1977), not only “drove the sound design movement” but also “recalibrated audience expectations for spectacle, in terms of not only special effects but also sound design” (31).

Specific sound effects from popular science fiction films have become what K. J. Donnelly terms sound “stars”, such as the light sabre sound in *Star Wars* or the TARDIS sound in the long-running BBC television series *Doctor Who* (qtd. in Hills 29). Drawing on these fantastical sound effects in the introduction to his book, Whittington argues that the “innovative sound effects from dinosaur roars to the clash of light sabers” (1) make up the aesthetic experience of science fiction sound. In addition to the signature sound of particular sci-fi sound effects (their texture and quality, their fantastical strangeness), the spatial aspects of science fiction sound are also an important part of sci-fi’s aesthetic. Developments in surround sound technology have fed (and have themselves been fed by) aesthetic approaches to sound design:

In this new era of multichannel sound formats, the film soundtrack can be channeled into different speakers within the theater environment ... This multidimensional aspect of sound deployment allows for the localized use of effects and music, avoids sound masking or sounds cancelling each other out, and fosters a new sense of immersion for filmgoers. Sound design within the theater venue creates a new kind of space, which fosters new kinds of sound spectacle. More than any other development, multichannel sound shifted reading protocols and altered the expectations of filmgoers for contemporary Hollywood cinema, particularly in relation to the blockbuster. (Whittington 2–3)

Science fiction sound design uses the space of the cinema in a manner that creates “sound spectacle”. Surround sound has become the industry standard for Hollywood blockbusters of all genres to such an extent that “cinematic experience shifts from *watching* a movie to *being immersed in the diegesis* of one” (Kerins 141 author’s emphasis). This spatially playful immersion, working hand-in-hand with the fantastical sounds of sci-fi, is a key attraction of science fiction. As Whittington puts it, “sound became part of the cinematic event, a selling point and a part of the spectacle, immersing filmgoers in spacecraft travelling at light speed or jolting them with the explosions as planets disintegrated” (31). This suggests that spatially playful “sound spectacle” has become a convention of science fiction cinema.

While Whittington’s detailed study demonstrates a nuanced understanding of science fiction’s role in the history of cinema, both inside and outside of Hollywood, the dominant characteristics of the soundtrack as detailed above are most closely associated with contemporary Hollywood sci-fi blockbusters. As with any attempt to define the characteristics of a genre, certain aspects of the defining terms can be found not to fit some examples when the boundaries of the genre are redrawn. However, if a film employs aesthetic strategies as an anti-Hollywood provocation, it relies on the strength of Hollywood’s conventions for its effectiveness. It is in this context that *Primer* can be considered both industrially and stylistically as an anti-spectacle indie response to Hollywood sci-fi, and this anti-spectacle quality is manifested in its sound design.

Temporal Playfulness: Narrative, Sound and Diegesis

Primer reflects its time-travel theme on a formal level by adopting a playful approach to cinematic time. Though it is a wordy, dialogue-heavy film, with much of the dialogue providing explication (including the scientific workings of Abe and Aaron's invention and its capabilities, and the strategies they will employ to utilise their invention for personal gain), paradoxically, *Primer* is also a difficult film to follow. In his analysis of *Primer*'s narrative and formal approach, Jason Gendler observes how the film plays with the inherent temporal ambiguity of film editing, so that it is often unclear whether a cut indicates a flashback, a flash-forward, or an ellipsis (152). For example, after an early scene in which Abe and Aaron run the machine, the film cuts to a shot of Abe lying on the floor (though it soon becomes apparent that it is the floor of a different room). The initial impression is that Abe somehow lost consciousness as a result of running the machine, though gradually this is disproved. At any given moment of the film, it tends to be unclear to what extent we are viewing a flash-forward or an ellipsis, or possibly even a flashback. The disorientation created by these editing strategies mirrors the disorientation that the characters themselves experience through time travel.

The constant temporal play achieved through editing contributes to *Primer*'s narrative puzzle. In the *Primer* universe, the time machine enables a person to travel back in time only as far back as when the time machine came into existence, and the machine does not allow a person to travel at an accelerated pace into the future. Also, if a person travelling back in time alters reality, this brings a double of that person into existence. Throughout the film, it is difficult to ascertain whether we are watching the originals of Abe and Aaron or successive iterations of them. I will not go into any detailed plot synopsis or narrative analysis but will instead include this observation by Gendler:

While it is possible to parse out a coherent timeline for the film upon repeated viewings and much deliberation, in some ways the film remains quite enigmatic; in certain instances, the narration accommodates multiple readings of the syuzhet that are not mutually exclusive (143).

Multiple readings of *Primer*'s plot are possible, because its "labyrinthine fabula-syuzhet dynamic" is rendered yet more confusing through its use of playful editing practices (151).

Gendler's analysis of sound's role in the film's temporal ambiguity falls short, however, because it considers image foremost, with sound providing a supporting role. He describes sound as producing a "temporal mending" of the narrative (as opposed to the "temporal fracturing" of the narrative caused by the editing practices), through "dialogue hook-laden montage sequences" that consist of "coherent discussions" (157). For Gendler, sound is a unifying, explanatory factor, in contrast with the temporal fracturing that occurs in the image editing. However, on closer inspection, elements of the soundtrack reveal a similar temporal and narrative disconnection from the image and from other elements of the soundtrack. This is apparent from the very beginning of the film, which starts with establishing shots of the garage where the inventors are at work, over which is played the sound of a speaking voice, eventually revealed to be Aaron's. Although the speaking voice on the soundtrack functions as a voiceover narration, discussing the characters and their motivations, it is preceded by the sound of a phone ringing, and the voice itself sounds as if it

is speaking on a telephone, though we are not yet enlightened as to the narrative significance of this phone call. Crucially, the voice is not outside the film's diegesis as a conventional voiceover would be; it sounds like it is part of a phone call, but it seems to exist outside the diegesis of the scenes depicted. The voice, then, is temporally separated from the images on which it appears to comment, yet it is unclear what its temporal position is meant to be. Is the image in the past and the voice in the present, or vice versa? Or is one in the present and the other in the future? The "temporal mending" role that Gendler ascribes to dialogue in *Primer* is thrown into doubt when one attempts to categorise the sound as diegetic or non-diegetic. To switch the sound-image hierarchy around: if the sound is considered to be in the present, then the image could be categorised as non-diegetic and the sound as diegetic. This temporal separation of sound and image tracks conveys multiple diegeses simultaneously.

Arguably this is a common technique of narrative foreshadowing; however, similar temporal disjunctions recur at key moments across the film. In an extended sequence initially showing the lead characters at (or near) an airport, Abe recounts to Aaron how he planned and used the six hours of his first time-travel experience as a way of explaining to Aaron how to plan their journey back in time together. Their conversation on the soundtrack is accompanied by shots of both Abe and Aaron checking stocks and share figures, travelling to the storage unit, using the time machine and isolating themselves in a hotel room. Rather than visually depicting Abe's first journey, as his voice on the soundtrack describes it, the sequence depicts Abe and Aaron's journey back in time together. In this sequence, then, we could interpret the dialogue and the background sounds of the airport to be in the present with the images in the future, or the dialogue could be in the past with the images in the present.

Indeed, temporal disjunction is built into the plot of the film itself, as the significance of the earpiece, which Aaron is shown to be wearing in a number of scenes, is revealed near the end of the film. The Aaron we see much of the time is revealed to be a third iteration (or a second double) of the Aaron who has travelled back in time more than once, recording his day, then using the recording as the "primer" so that he knows what he is supposed to say in conversation to Abe. The temporal shift of the dialogue from image and vice versa, embedded throughout the form of the film, could be considered an extrapolation of Aaron's use of the "primer" into cinematic technique. Thus the sound contributes to the mind-bending temporal playfulness of the fabula-syuzhet dynamic in a similar manner to Aaron's experience of a doubling of his own recorded dialogue with his re-enacted experience—the "three-second lead on the world" enabled by the recordings he listens to.

Dialogue: Naturalism and Beyond

While Gendler sums up the sound in *Primer* as having a "unifying" function, his lack of analysis of the performance and function of the dialogue is typical of how dialogue tends to be overlooked critically. Sarah Kozloff identifies a pervasive notion that films are best at "showing" and not "telling", with dialogue described by critics in vague terms such as "witty" or "clumsy", rather than analytically (6). However, the relentlessness of speech in *Primer* has an important role to play in shaping its overall soundscape—it is so ubiquitous as to be what Gianluca Sergi terms a "defining" sound of *Primer*'s sound design (153–6).¹ To address this more closely, I will now consider the dialogue from the perspective of style and performativity.

In *Screening Space*, Vivian Sobchack identifies a contrast between sci-fi's flat, banal, unemotional dialogue spoken by underdeveloped characters and the fantastical images depicted. She attributes this contrast to a perception that the characters must behave in a detached, "scientific" manner to lend the fantastical elements of sci-fi credibility (150–60). By comparison, the goal of the performance style of *Primer*'s dialogue strives towards a type of realism defined in vague terms by Carruth (in interview):

In the movie, conversations among the characters are extremely realistic: they talk to each other using the kind of techno-speak that would come naturally to work-obsessed scientists. In fact, Carruth faced quite a challenge in finding actors who could manage his low-key, conversational dialogue. "That was a terrible process—trying to break actors of the habit of filling each line with so much drama", he recalls. ("Story/Production")

While Carruth aims for detached, unemotional dialogue *à la* Sobchack, he also strives towards conversational dialogue. A low-key, naturalistic tone prevails, with characters leaving sentences half-finished, interrupting one another, and speaking simultaneously. Interactions between characters are peppered with pauses and utterances such as "yeah", "I guess", "huh?" and "y'know". Kozloff describes these types of hesitation as communicators of "verbal awkwardness ... used as special signifiers—either of the pressure of emotions or of character traits" (78). While we might speculate that Sobchack would bemoan the very cerebral tone the characters in *Primer* maintain in the face of the mind-bending effects of time travel, the tone of the dialogue frequently betrays a stressed-out, nervous and irritable emotional quality, with the characters' scientific detachment embellished with low-key conversational flourishes. Though Sobchack observes the gap between the fantastical of sci-fi images and the flat banality of sci-fi dialogue, *Primer* echoes this banal dialogue visually with its anonymous suburban settings of impersonal new build houses and garages, industrial storage units, airports and sterile glass and steel buildings, combining its economically dictated use of accessible nearby locations into a distinctive visual style that appears blandly familiar, strangely antiseptic, and (while visually striking) determinately anti-spectacle. Sound and image work together to convey prosaicism and banality as well as naturalism, or anti-Hollywood indie realism.

If we consider this performative style of dialogue in conjunction with the temporal ambiguity discussed earlier, we understand better the effects of the use of voice in *Primer* overall. Much influential film sound theory has observed that there is no natural unity between sound and image, hence the importance of lip-synch in creating an apparent link between voice and body.² As Michel Chion observes, "[i]t is an inherent consequence of the material organization of cinema that the voice and body are at odds" (*Voice* 127), and it follows that a separation between voice and body can create uncertainty as to where the source of the voice lies. Chion emphasises that these conventions vary depending on context, and that voice and lip-synch need not be constantly shown in order for the spectator to trust in the unity of body and voice (*Voice* 129). Yet the "dialogue hook-laden montage sequences" described by Gendler temporally detach dialogue from the speaking bodies shown on screen, splitting the film into multiple simultaneous diegeses. This image-sound split creates voices that lack the authority of a unified voice and body or a conventional voiceover narration. The plenitude of explicatory dialogue is paradoxically unreliable, conveying uncertainty and the sense that no one character ever has a clear idea of what is going on.

According to Whittington, with voiceover narration, “close microphone positioning offers a quality of ‘authority’ by accentuating bass response and codes of intimacy” (174), but *Primer* eschews this by using voices that are diegetic, sounding audibly like part of the world of the film. We can hear that the voices are recorded in an acoustically lively space rather than an acoustically dead studio because the voices are marked with what Chion terms “materialising sound indices”, that is, details in the sound which “cause us to ‘feel’ the material conditions of the sound source, and refer to the concrete process of the sound’s production” (*Audio-Vision* 114). Whether the voices are heard over a phone, in an airport, or at other locations, these extended sequences of dialogue might seem to narrate the image, but they never sound like omniscient voiceover narrators. Indeed, the fact that *Primer* is hard to follow and to understand, in spite of all this apparently expository dialogue, moves the dialogue beyond signification, conveying instead the collective confusion of the characters and contributing through its performative quality to an even greater sense of bewilderment in the auditor/spectator.

A “Desktop” Sound: *Primer*’s Music

Two of the many roles that Shane Carruth took in the post-production of *Primer* were those of composer and performer of the film’s musical score (“Story/Production”), despite his lack of a professional background in music and audio. New, cheap, computer-based digital audio software has made the tools of film sound editing and mixing ever more accessible to the consumer (or no-budget filmmaking prosumer in Carruth’s case). As Whittington observes, “on a single desktop, a consumer can edit a film, mix sound effects, and create a music score—then burn the entire production to CD or DVD for exhibition. We are in the era of rip, mix and burn” (34). Stylistically, *Primer*’s use of an electronic score could be considered quite conventional, given the long history of electronic sound as a generic marker of sci-fi. As Philip Hayward notes, “in the late 1940s, a series of film scores used the fluid vibratos [pulsing tones] and glissandi [sliding tones] of the theremin synthesiser to signify otherworldliness and/or threat” (9). Key sci-fi film scores of the 1950s, he adds, used the theremin “in combination with other unusual electrified instruments and percussion sounds to evoke alienness” (10), while more recent sci-fi film scores have continued in this tradition, evoking “futurist/alien themes through use of dissonance and/or electronic sounds” (24). Notably, a low-budget American independent precedent of *Primer*, *Liquid Sky* (Slava Tsukerman, 1982), made extensive use of dissonant, cacophonous synthetic beats and melodies, musicalising its alien invasion theme and celebrating the underground New York punk subcultures it depicts.

What is most noticeable about *Primer*’s score, however, is not that it is electronic, but that its stripped-down feel contrasts with the Hollywood norm of an orchestral soundtrack, which has in turn become associated with sci-fi blockbusters. Carruth’s minimalistic approach to *Primer*’s music relies on simple electronic chord progressions and uncluttered arrangements. By contrast, as Hayward points out, the sci-fi blockbusters *Star Wars* and *Close Encounters of the Third Kind*, which acted as showcases for hi-tech film sound technology upon release, paradoxically featured “highly conservative and nostalgicist” (21) musical scores based on “classic Hollywood approaches to cinematic scoring” (2). Even the distinct recent cases of non-orchestral, electronically scored Hollywood films share the bombast of the more traditional orchestral scores.³ In contrast with the plenitude of instruments of an orchestral soundtrack, *Primer*’s score tends to use just one or two

instruments per piece, giving it an unobtrusive, scaled-back quality. The score's overall sound contributes to the feel of *Primer*, with the arrangements using simple, familiar keyboard sounds (dominated by the decidedly unstrange sound of synthetic piano, with some use of pads). The steady, even tone and rhythm of the score imbue the film with a plaintive and contemplative mode, appropriate to its generally cerebral tone. In contrast to the "sensations of spectacle" that Whittington celebrates in Hollywood blockbuster scores, *Primer*'s score is determinately anti-spectacle, complimenting the dialogue (40). This approach extends to *Primer*'s use of sound effects, as I will demonstrate.

The Everyday and the Uncanny: Sound Effects in *Primer*

Sean Redmond's colourful description of time-travel sequences in sci-fi films usefully contextualises the approach taken in *Primer*:

The time travel sequence, often the centre-piece of the coming together of state-of-the-art special effects and the musical score, attempts to capture what it feels like to break the sound barrier, to cross known physical, geographical and temporal thresholds ... One cannot predict when the soundtrack's attack and sustain will decay; and one cannot pull the images together into a whole, out of the cosmic hole they disappear into. In the slipstream of time travel, faces contort, eye-sockets bulge, skin surface ripples, space matter and debris rain down, celestial lights envelope, supernovas streak, blazing comets hurtle, musical notes tremble, harmonies rise and fall, and atonal instruments flood. (55)

Redmond's description of the audiovisual depiction of time travel in cinema particularly evokes the "star gate" sequence from *2001: A Space Odyssey* (Stanley Kubrick, 1968), a film which Whittington positions as a catalyst for a new approach to Hollywood sci-fi sound, its monumentalising soundtrack "charged with speculative possibilities" (11). Whittington describes how, in the "star gate" sequence, "image and sound spectacle converge" (50). Far removed from the qualities invoked by Redmond and Whittington, *Primer*'s audiovisual depiction of time travel strikes a more banal, interiorised tone. Abe describes feeling something akin to a "static shock" when coming out of the machine, and, when he is shown inside the machine, his panic, signalled by the sound of his ragged breathing, quickly gives way to calm. In *Primer*, time travel is depicted as claustrophobic and nauseating, as well as dull and sedating; rather than being dramatically sucked into a "cosmic hole", the traveller experiences something akin to the mundane discomfort of an economy-class flight.

This muted interiority is commented upon by the characters at one point. We observe Abe and Aaron walking down the corridor of the storage warehouse away from the container and the machine, in long shot, with their backs to the camera. Accompanied by plaintive synthetic piano music and the sound of their footsteps, they discuss how it feels when they are inside the machine:

AARON: Everything is so different in there. You can feel how cut off you are, y'know? It's an entirely separate world and you encompass most of it.
ABE: And the sound—isn't the sound different on the inside? It's like it's singing. I guess you can't hear...

AARON: I had this dream in there.

ABE: About what?

AARON: I was on, or near the ocean, and I just kept hearing the surf. It was so uneventful.

The low-key, distracted, cerebral tone eschews the overwhelming spectacle associated with conventional cinematic time-travel sequences. Indeed, Aaron's declaration that his dream was "so uneventful" could serve as a riposte to the intensity that characterises Redmond's description. Moreover, thanks to the frequent disjunction and discontinuity of sound and image (as discussed above), there is never one point in the film (a "centre-piece" sequence) at which a scene in the time machine takes place entirely in the present, at a temporally unambiguous audio-visual point. As the example I described in my introduction illustrates, the opening image of the film shows one of the characters in the dimly lit, confined space of the machine, while the soundtrack features his voice recounting/foretelling the experience at another point in time. The effect of this temporal disjunction is to defuse the potential charge or excitement of a single, distinct incident of time travel.

The sound design of *Primer* is notable for its use of everyday, familiar sounds, as opposed to strange or synthetic sounds connoting otherness that are typically associated with sci-fi sound design, as outlined by Hayward. In his recent work, Andy Birtwistle argues that "strange" sounds, such as the electronic tones of theremins, are no longer experienced as strange; though they may have sounded "other" or futuristic in the 1950s, they now sound vintage and quaint (126–83). In fact, Hollywood sci-fi sound design has, since the late 1970s and the advent of the Dolby era, adopted a strategy of "credibility" in its sound design, by manipulating sounds associated with the real world (animal, machine) to render "credible" the sounds of fantastic, fictitious technology (Whittington 104). Yet clichéd strange sounds persist, most notably the incessant digital beeps of computers, quite unlike everyday reality in which computers run almost silently.⁴ Thus, Carruth's decision to make the time machine—a device that does not exist in the real world—sound realistic, might seem like a curious bid for sonic authenticity:

Carruth was determined to make PRIMER sound as realistic as it looked. When creating the hum of the time travel machine ... he used a mechanical grinder and a car, among other machines. "I knew whatever it was, it couldn't be a digital sound made in a computer", he says. "It had to be something that sounded very analog and realistic and felt like it might explode". ("Story/Production")

It is worth noting here that Carruth's professional background is in engineering ("Story/Production"), so his decision to avoid a "digital sound made in a computer" can be read as an anti-generic response of someone with a real-world technical background to the beeping-computer cliché still practiced in sci-fi cinema, and throughout Hollywood cinema generally. At the same time, Carruth's eschewing of digital-sounding effects concurs with Birtwistle's contention that "strange" sounds are no longer strange. Instead of material strangeness, Carruth's sonic strategy is to use contextual strangeness. The disorientation caused by the temporal disjunction of sounds and image means that mundane and everyday sounds, including mechanical sounds, are rendered uncanny: the temporal confusion renders the sounds eerily unsettling.

The notion that familiar, everyday sounds can unsettle in a sci-fi context is not unique to *Primer*. Writing about the sound in the BBC's *Doctor Who*, Matt Hills notes that "[a]n ordinary, intimate, earthly sound is given unearthly importance and fantastical status by its narrative framing". The example Hills gives is the "four knocks", which are prophesised as preceding the death of the Doctor, so that any four knocks heard, no matter how banal or whatever their motivation, seem eerie and dramatic through their narrative significance (40). In *Primer*, however, it is not narrative framing but the temporal ambiguity of sound (the initially inexplicable phone call that doubles as a voiceover, the "primer" of the title) that unsettles, permeating the mundane and everyday with unearthly, unnatural foreboding. The sounds of the impersonal non-places featured throughout the film—the electrical flickering of lights, the metallic buzz of the garage door, the eerie hum of air conditioning, the reverberant crash of the storage unit shutters—are rendered strange by the temporal disjunction and diegetic uncertainty of sound throughout key sequences of the film.

***Primer's* Sound as an Indie Response**

I have argued that *Primer* can be considered an American indie response to Hollywood sci-fi, but this assertion requires contextualisation—what exactly is an American independent film? Both Geoff King and Yannis Tzioumakis argue that even a straightforward industrial definition is not strictly possible given the complexity of the cinema business.⁵ King argues that "'independence' is a relative rather than an absolute quality and can be defined as such at the industrial and other levels" (9), including the formal qualities of the films themselves. Yet, as Tzioumakis argues, in spite of their perceived "edginess" or "quirkiness", American independent films still exist within a commercial context, so they rarely eschew mainstream conventions completely: "independent cinema could be seen as a hybrid form of filmmaking that mixes a number of elements associated with Hollywood filmmaking (especially its grounding in narrative) with a vast number of elements from alternative formal systems" (267). Michael Z. Newman argues, moreover, that the notion of autonomy, so central to indie culture, is contradictory and unattainable: on the one hand, indie distances itself from unpalatable aspects of the film industry it regards as "corporate" and "money-making", while on the other, indie is a commercial enterprise in cultural production (33–4).

The importance of this notion of autonomy can be seen by the emphasis placed in *Primer's* official website upon the film's very small budget and Carruth's very high level of creative control. In spite of this notion of creative freedom, American independent cinema is not defined in total stylistic opposition to Hollywood; instead, as King asserts, films designated as independent tend to be located in "a space that exists between the more familiar-conventional mainstream and the more radical departures of the avant-garde or underground" (10). King goes on to delineate two broad tendencies by which independent cinema can formally depart from the Hollywood mainstream, "either in making greater claims to verisimilitude/realism, or in the use of more complex, stylized, expressive, showy or self-conscious forms" (10). He later refers to these, respectively, as "beneath the Hollywood style" and "beyond the Hollywood style" (107).

Primer's soundtrack might be understood, in these terms, as operating for the most part "beneath the Hollywood style". As discussed earlier, the palette of sound effects used by Carruth, as well as the performance of the film's dialogue, lay claim to realism and credibility

relative to Hollywood sci-fi sound. Spatially, *Primer*'s use of screen-centred two-channel stereo also contributes to this sense of realism in conjunction with its lo-fi sound aesthetic. While digital surround sound has always been marketed by major companies such as Dolby as affording greater sonic fidelity or realism, its association over the past three decades with spectacular blockbusters means that it has paradoxically come to signify artifice (Buhler et al. 398). By contrast, *Primer*'s lo-fi, anti-spectacle approach to sound contributes to its perceived realism, "beneath the Hollywood style". At the same time, characteristics of *Primer*'s soundtrack—its temporal playfulness, its use of multiple diegeses and its provocative banality—might be related to King's other category, operating "beyond the Hollywood style".

Tzioumakis argues that American independent cinema can be understood as a discourse shaped by practitioners, the press, festivals, distributors and audiences (11–13). An understanding of *Primer*'s soundtrack as an independent or alternative response to Hollywood sci-fi sound would also need to go beyond questions of aesthetics to consider how the film was articulated as indie by the director and in marketing. Both the production history of *Primer* and the notion of Carruth's alternative approach have been used to market the film. The official *Primer* website stresses Carruth's background in engineering as evidence of the authenticity of his view of science and technology and his cinematic representation of it. Comments made by Carruth himself regarding his aesthetic tend to articulate a desire to represent science and technology more credibly or more realistically than is typical in science fiction cinema: "[P]rototypes almost never include neon lights and chrome. I wanted to see a story that was more in line with the way real innovation takes place ... I don't care much for the aesthetic of lasers and aliens and that kind of thing" ("Story/Production"). The notion of an authentic and alternative vision is used to market *Primer* as a unique and commercially viable product. The film's sound aesthetic, meanwhile, is articulated as part of this discourse of authenticity. It is a discourse typified in the claim on the film's website, cited above, that "Carruth was determined to make *Primer* sound as realistic as it looked".

Conclusion

Primer demonstrates how the economics of production of very low-budget cinema can motivate distinctive aesthetic approaches, and I have argued that this is as much the case with regard to its soundtrack as with other aspects of the film. While *Primer* is designated as science fiction, it does not *sound* like a science fiction film. Instead of using the strange, otherworldly sounds associated with the genre, as discussed by Hayward and Birtwistle, it fashions a sound world that is texturally suburban and familiar, almost to the point of blandness. The sonic realism of *Primer* can partly be understood as an anti-generic response by the real-world technical geek and self-taught filmmaker Carruth and partly a consequence of Carruth's micro-budget autonomy (this notion of autonomy being central to indie culture, as pointed out by Newman).

By engaging with a genre and themes often associated with spectacular Hollywood blockbusters and their bombastic, immersive soundtracks, *Primer* also uses its alternative look and sound as a way to define itself in response to Hollywood. American independent cinema is certainly not the opposite of Hollywood cinema, and this is not my assertion—*Primer* is still a conventional narrative film; however, it uses its stylistic quirks to fashion an approach that operates "beneath the Hollywood style", laying a greater claim to realism. The disorientating effect of the soundtrack's temporal playfulness befits the film's cerebral tone,

and has garnered it praise from critics because of this perceived smartness, repeatedly posing narrative questions and teasing its audience.⁶ This temporal playfulness is arguably a clever substitute for the spatial playfulness of Hollywood blockbuster cinema sound; whether by economics or by design, *Primer* manages to make itself sound non-Hollywood, non-generic, and distinctively indie.

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Notes

¹ Sergi describes “definition” in a soundtrack, or “defining” sounds, as follows: “there are sounds that can define a space, a character, a moment in the narrative, or even the whole film. They become central to the narrative and often recur over time to punctuate, reinforce, or contradict the narrative or elements within it. These sounds can often also stand as a ‘spectacle’ in their own right” (153).

² Mary Ann Doane’s “The Voice in the Cinema: The Articulation of Body and Space” emphasises the inherent material heterogeneity of sound film, and how industrial practices seek to efface this heterogeneity, “marrying” sound to image. This article has been cited widely.

³ Some examples include *Event Horizon* (Paul W.S. Anderson, 1997), *Blade Runner* (Ridley Scot, 1982), *Tron* (Steven Lisberger, 1982) and *A Clockwork Orange* (Stanely Kubrick, 1971).

⁴ This cliché is documented in detail on the website *TV Tropes and Idioms*: <http://tvtropes.org/pmwiki/pmwiki.php/Main/BeepingComputers> (accessed 13th February 2012), as well as “Film Sound Cliches” on the website FilmSound.org: <http://www.filmsound.org/cliche/> (accessed 13th February 2012).

⁵ “A great deal of Hollywood production today can be described as independent ... in that projects are often initiated and pursued by entities that exist formally beyond the bounds of the majors. These include production companies set up by producers, directors and stars, often working closely with one studio or another ... In most such cases the films that result belong solidly to the Hollywood mainstream ... [F]ormal independence of this variety in the industrial domain is, in itself, no guarantee of independent qualities of other kinds” (King 5). Tzioumakis charts how “independent” or “indie” have increasingly become brands for use by studios to market more “difficult” films with no stars or films that differ stylistically from the Hollywood mainstream, regardless of whether or not they have been produced/funded by an independent company (247–8).

⁶ The “Acclaim” section of *Primer*’s official webpage, for instance, quotes the *New York Magazine*’s definition of the film as “smart”; the *Guardian* review called it “a glorious rebuke to a dumbed-down movie world” (Bradshaw).

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