Abstract (Summary)

Sound perspective is not only a physical event. [James Lastra] describes fidelity and telephony as two ways of hearing sounds. Fidelity is when "all aspects of the sound event are inherently significant--reverb, echo, performance space." Telephony is when "sound possesses an intrinsic hierarchy that renders some aspects essential and others not" (139). In fidelity, every sound is not only important but also present during each sound event. However, Lastra tells us that we cannot fully perceive sound if we focus on only one aspect of it (151). To understand events, dialogue, or anything at all, we have to focus on some sounds, not all. Our brain cannot take in and process every single thing that is happening at once. Walter Murch, sound designer of American Graffiti and The Godfather, calls this phenomenon "hypersensitivity," when "your brain can tune sounds in and out" (qtd. in Spotnitz, "Stick" 44). The same thing happens with our eyes, when we visually focus on an image. If we hold our finger right in front of our face, we can see our finger, but all other images are blurred. If we look at images far away, then our finger becomes blurred. In film, this technique is often used in changing focus, as it mimics our eyes. In sound, there are many variables, such as traffic, crowd noise, and other kinds of ambiance.

Murch calls the art of designing sound effects "little lies that add up to the truth" (qtd. in Spotnitz, "Stick" 42). Our perception of aural reality has been shaped by a sound editor who tricks us into thinking we are hearing the real thing. This can be done using metal to sound like thunder, or meat slapped against a block to imitate a punch. Violence in cinema sounds nothing like violence in real life; we just think it does. Star Wars sound designer Ben Burtt says that when hearing the punch, the listener would actually hear the grunt of the victim much louder than the impact of the fist (Spotnitz, "Stick" 43).

Most sound editors record as much fresh sounds as possible. Burtt found that "synthesizers can be very sterile. So I try to add organic, acoustic sounds to give more life, make them more real" (qtd. in Spotnitz, "Stick" 44). Sound effects that are found in stock libraries end up being distorted or combined with other sounds to be unrecognizable. Murch's analogy of using new sounds was "to quote Julia Child, `the best cooking comes when you use the freshest ingredients'" (qtd. in Spotnitz, "Stick" 43). [Jon Holloman] explains why reused sound effects can limit realism:

Full Text (3724 words)
spectators believe what is happening while they experience it. If the audience can see, hear, and feel what is happening to the extent that they allow themselves to believe what is happening in the film for that moment, then that is the height of cinematic realism. The question is whether sound is more realistic if taken from production or postproduction. Production sound is sound recorded on location of the shoot. Postproduction is sound that is manufactured and edited after shooting the film. Acoustics, the physics of sound, helps us understand the properties of sound and its relationship to sound theories, innovations, and technology. These properties help to illustrate why manufactured sounds create the realistic perspective in cinema.

It seems apparent that sounds taken directly from production are what constitute "real." Some sound theorists would say that using nondirect sounds means loss of truth. Everything becomes an illusion, and all emotions and ideas become false, taking us even farther from reality (Weis and Belton 153). This idea supports the notion that recordings of direct sounds are in fact the same as the direct sound. However, sound and film theorist Rick Altman gives several reasons why sound recordings do not reproduce the original event. One reason is that it is impossible to collect all sounds (Sound Theory 40). No hearing device is as acute as the human ear. In fact, the ear is astonishing in detecting tiny amounts of distortion, dynamic range, and sensitivity (Watkinson 75). The microphone has limitations in several of the aspects of sound pickup, sensitivity, and distortion.

The microphone has several pickup patterns, areas in which sound is collected. There are several choices of how the microphone picks up sound, whether it is omnidirectional (picking up sounds all around the microphone) or cardioid (picking up sounds in a heart-shape configuration). There are several different patterns, and each pickup pattern will allow only sound in its path to be collected. The human ear does not have several different pickup patterns. Humans have two ears and pick up sound all around from both ears.

Microphones also vary in sensitivity to different sound frequencies. A frequency is closely related to the physical equivalent of pitch. Higher frequencies are usually associated with higher pitch, lower frequencies with lower pitch. The frequency response is the measure of how much frequency is detected (Strong 439). The frequency response of a microphone should ideally be flat; however, with a narrowing pickup pattern, higher frequencies are often lost more easily to low frequencies. This is because low frequencies have longer wavelengths and can travel farther distances. High frequencies have short wavelengths and tend to go around objects. That is why we hear the low rumbling bass of a teenager's music blaring from the stereo in the house next door but we do not hear the lyrics. Certain frequencies physically differentiate; thus microphone pickup will also differ. The ear's frequency response is much more acute than the microphone's.

The ideally flat response allows us to hear fundamental frequencies, as well as their overtones, or harmonics. These harmonics are often lost to audio equipment. Sound theorist Christian Metz says, "nothing distinguishes a gunshot heard in a film from a gunshot heard in the street" (qtd. in Lastra 124). However, many aspects of the sound envelope cannot be captured on set. According to William Strong, physics professor at Brigham Young University, the sound envelope consists of an attack, sustain, and decay: The attack is the onset of a sound, the sustain is the steady state, and the decay is the ending or shutting down of that tone (270). If the microphone fails to pick up part of the sound envelope, the recording sounds nothing like the original. Jon Holloman, sound designer and recordist, gives the following example: "Gunshots on location are really quite unique because the recording devices can't pick up both the low and high transients of the gunshot. It sounds like a pop."

The manufacturing of a sound to resemble a gunshot would be more realistic than recording one on location because of the many deficits in microphones. From these examples, we understand sound designer James Lastra's point that reproduced sound from a recording is never a perfect original sound again. Instead, it becomes just a sample or perspective of the original sound (124). This demonstrates that location sound is not truly direct sound and is no less an illusion than manufactured sounds.

Microphones have other limitations in addition to problems of pickup patterns and sensitivity. Microphones can suffer from distortion with very loud signals or from noise with very quiet signals. They can pick up unwanted signals and hum fields from video monitors, lighting dimmers, and radio transmissions (Watkinson 148). The microphone's worst enemy is wind and plosives (the popping letters, such as "p") from close speaking. Wind causes turbulence as it flows around the microphone, and the amplitude can become extremely high. This causes blasting, which is an overload on the amps, leading to low-frequency noise (Watkinson 157). These microphone deficiencies demonstrate that location sound is no closer to reality than what a sound designer can manufacture.

Sound perspective is an important concept in original sound. Another issue involved with microphones is where to
place them, which is important in terms of spatial perspective. If we record the dialogue of a woman walking away from the camera, do we keep the microphone on her so we can still hear the dialogue? Or do we keep the microphone in one place (Altman, Sound Theory 28)? Not only do microphones all "hear" differently, so do people. Based on the spectator's location and direction, no sound will sound quite the same. This is due to the acoustic space. Direct sound is the first sound to reach the listener or the microphone. Reflections are sounds that bounce off a surface and come back to the listener. These reflections hit the listener at different times (Strong). If there is more than one listener in a room, the reflections will reach the people at different times. Any space will have some amount of sound reflection. Although one source may produce sound, two people standing in a room will never hear it the same. This supports the theory that original sound cannot be duplicated, because we are now questioning exactly what the original sound is. If original sound cannot be defined, then location recording is no closer to the truth than postproduction sound.

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Filmmaker Jean-Luc Godard uses location sound in his films. The audience must strain to hear dialogue, and characters seem to adapt more easily to urban noise than the audience is made to feel. This is because Godard does not have ambient sounds disappear when more important sounds appear. He refuses to edit or remix an already recorded track, calling himself a "sonic realist" (Weis and Belton 336-37). The process of selective auditory attention is quite difficult with so many sounds, making Godard's films confusing: The listener hears the ambiance and crowd noise just as loud as the dialogue.

In postproduction sound, these variables are blended together into a single, undifferentiated source (Altman, Sound Theory 29). Manufactured sound does for our ears what we would have done ourselves. Murch describes what he did in American Graffiti: He kept music in focus and loud in the foreground, but, during a scene transition, he sent the music into the background and threw it "out of focus" so that people could talk in the foreground and not drive the audience mad trying to distinguish the dialogue from the music (5). We normally do this in everyday situations. In a bustling restaurant, you strain to hear the conversation. This is not too difficult because you are not listening to the waiters or the couple at the other table. In fact, you most likely don't even hear them, because you have tuned them out. In postproduction, the motion picture will also tune out the restaurant noises for us the way we are used to hearing, as this is what is most real to us.

If we return to the gunshot analogy, we realize why creating sound effects is a perfectly legitimate practice in maintaining realism. Altman asserts that gunshots heard in film and in real life "resemble each other in one respect only--in name" (qtd. in Lastra 126). In other words, no two sounds are ever the same. The "gunshot" is not always one sound. There may be one name for what we hear coming out of a gun, but each gun will sound different because of the size of the gun, where we are standing in relationship to it, or the acoustic space in which the gun was fired.

Murch calls the art of designing sound effects "little lies that add up to the truth" (qtd. in Spotnitz, "Stick" 42). Our perception of aural reality has been shaped by a sound editor who tricks us into thinking we are hearing the real thing. This can be done using metal to sound like thunder, or meat slapped against a block to imitate a punch. Violence in cinema sounds nothing like violence in real life; we just think it does. Star Wars sound designer Ben Burtt says that when hearing the punch, the listener would actually hear the grunt of the victim much louder than the impact of the fist (Spotnitz, "Stick" 43).

In cinema, the substitute for a sound can be more acceptable than the real thing because of historical bias. How do people really know what sounds right? Who decides? It's not always a question of fidelity to the original sound. Depending on our hearing experience, we have very different ideas of how everything should sound (Altman, "Sound" 68). Sound designer Troy Sales explains this historical bias with the following event:

http://proquest.umi.com.proxy.lib.csus.edu/pqdweb?index=4&sid=2...ype=PQD&rqt=309&T5=1278449813&clientid=17934&cc=1&T5=1278449813 Page 3 of 6
When I saw the jet airliners crash into the World Trade Center on the news, it almost looked fake to me or certainly sounded fake because I am used to when movies show that effect. There would be these huge explosion sound, the sound of debris. There would be this larger than life sound that would accompany what happened on the video. And when I saw that on the news, it just didn't seem real.

David Black tells us that "sound recording bypassed its own fulfillment of absolute re-creation, but satisfied the realist longing as it operated historically" (47). Rather than creating sounds to sound exactly as one would hear them, sound recording is found to be realistic when it satisfies the listeners' ears because they are used to that sound.

Murch used low windy sounds in a desert scene for a film: "In reality, the desert itself was absolutely quiet, but if you simply played it the way it was, it would sound artificial" (10). The artificiality of this phenomenon is based on the history of listening to cinema and our dependence on hearing any kind of sound during our cinematic experience. We are used to always hearing something, and hearing nothing would throw us out of the reality of the experience. If a moviegoer tried watching a video with the sound off, the silence would be deafening. Even if he could follow the story, the emotional impact of the film would be blunted. This solidifies Lastra's point that "sound effects beyond realistic use of voice" actually enhance the realism and the perception of the narrative (108). After all, the objective of the cinematic experience is that we are forced to accept as real the existence of everything that is represented—whether it's the film's images or reproduced sounds.

Even sounds that seem insignificant or would not be heard by characters in the film provide realism and texture. Sound designer Mark Mangini calls this practice "a creative process that allows you to evoke and create a mood" (qtd. in Spotnitz, "Stick" 45). Sounds are not simply an amplifier to the image. Emotion, story, and rhythm apply to sound just as much as they apply to the picture. Film critic Gianluca Sergi calls film sound an "integral part of the production and reception of pleasure" (22). The Indiana Jones punch has been manufactured to help us with these emotions. Burtt explains:

The early Hollywood filmmakers discovered that a punch requires an exaggerated thwack to emphasize that it might really hurt. Literal reality couldn't be as exciting. (qtd. in Spotnitz, "Stick" 42)

This is especially important in the creation of sounds that are not immediately associated with any "real" sound. These sounds must be created from a sound editor's memory or recollections. Burtt's strategy for creating a credible world in Star Wars from the imaginary was to use real-life sounds and distort them to the point where they were unrecognizable yet somehow familiar. For a light saber, he used a television picture tube and an old 35mm projector. Laser bolts were created with a man striking wire on a radio tower. Luke's landspeeder was cars on the Los Angeles Harbor freeway heard through a vacuum cleaner pipe.

Most sound editors record as much fresh sounds as possible. Burtt found that "synthesizers can be very sterile. So I try to add organic, acoustic sounds to give more life, make them more real" (qtd. in Spotnitz, "Stick" 44). Sound effects that are found in stock libraries end up being distorted or combined with other sounds to be unrecognizable. Murch's analogy of using new sounds was "to quote Julia Child, 'the best cooking comes when you use the freshest ingredients'" (qtd. in Spotnitz, "Stick" 43). Holloman explains why reused sound effects can limit realism:

There is one sound effect I think you guys are all aware of. If you've ever seen an old Western, I think there's only one recorded coyote howl in the sound effects library for any of those movies. It's the same coyote in all of the movies. I don't know if he gets any royalties, but it's the same recording.

A mockery can be made of stock sound effects, because no two sounds ever sound exactly the same in real life. Recalling the theory of original sound, every sound effect must be fresh because there is no such thing as a reproduced sound being an exact copy of the original. If the same coyote is in every Western and can be detected as the same sound by the listener, it would lack the eerie mood that it was meant to evoke.

Mood and associations can also be evoked through the use of layering frequencies. In Star Wars, the "child sound" is emphasized by higher frequencies, and the "father sound" by low frequencies. We have a tendency to associate sounds of higher pitch and frequencies with something fragile or in a precarious state (Sergi 19). Princess Leia's ship produces high-pitched, shrilling sounds to mirror a child sound. Darth Vader's ship reaches deep, earth-rumbling frequencies as it resembles the voice of Vader (James Earl Jones) (19). Luke Skywalker's landspeeder reflects its owner's youth by producing high-pitched frequencies that match the characteristics of his voice (21).
Each new technological innovation makes the previous state seem unnatural and incomplete. Changes in what constitutes acceptable sound are reflected in the history of cinema with developments such as increased frequency and dynamic range and innovations such as stereo and surround sound. Different sound practices through history determine the changes in how sound should sound (Altman, "Sound" 68). Surround sound helps the audience hear an even more realistic perspective. Listening to one loudspeaker is like listening to a lawnmower from a window. You still can't tell where the lawnmower is. You know the lawnmower is outside, but is it next door, across the street, in the neighbor's front yard or side yard? With surround sound, filmmakers are able to explore not only what lies immediately to the sides of the screen but in the entire off-screen space. The aural space of the audience extends beyond the two-dimensional view (Sergi 14).

Star Wars explored not only loud and soft but also up, below, left, right, behind, and front sounds. Dimensionality and directionality were utilized (Sergi 17). With directionality, we have a rebel spacecraft sound as if it were flying from screen right to screen left to rear left. Sound is used to expand off-screen space not only to the sides of the screen but toward the auditorium and the audience (18). The end of the image is no longer the edge of the screen. We are completely immersed in a sound universe and feel as if we are actually in the space of the action, because we can hear the action surround us. We can also hear not only the sound space the character of the film is in but also what is outside. Sounds with character can get in through a window. Murch adds the sound of a train in American Graffiti to add emotion: We cannot see the train in the room, but it is possible to hear it because we are aware that there is space beyond the room (Murch 7).

Surround sound also assigns to certain channels the function of boosting low-frequency sound. The bass frequencies and unexpected surround effects literally cause spectators to vibrate with the entire narrative space. "It's not just the ears, eyes, and brain that are part of the cinematic experience now--the whole body establishes a relationship" (Altman, "Sound" 70). Another innovation of Star Wars is the "physical sound." There is the deep rumbling of the huge Imperial Craft through the use of subfrequencies--frequencies so low that we cannot hear them, but we can feel them. Audiences are reached by sound, not visually or aurally, but physically in a literal sense (Sergi 17). This physical participation in the cinema truly gives the audience a real experience.

When realizing that original sound can no longer be exactly reproduced, using location sound is no closer to the truth than using manufactured sound. Manufacturing the sounds can bring us even closer to the truth than location sounds because the ability to create sounds allows a closer imitation of what we expect to hear. Our expectations are a legitimate form of realistic sounds because of the difficulty in defining original sound. Exploring what is real to the human sense is more than just trying to imitate. "Real" to the human senses involves emotion and mood; sound arouses those feelings. Creation of sound effects can help evoke this more realistic sense. Surround sound completely captures a person, and with all of these elements, postproduction sound has created a real environment.

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References

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