

## Introduction

### Sound for film and television defined

Sound for film and television is an aural experience constructed to support the story of a narrative, documentary, or commercial film or television program. Sound may tell the story directly, or it may be used indirectly to enhance the story. Although there are separate perceptual mechanisms for sound and picture, the sound may be integrated by the audience along with the picture into a complete whole, without differentiation. In such a state, the sound and picture together can become greater than the sum of the parts.

In most instances, film and television sound for entertainment and documentary programming is constructed in post production by professionals utilizing many pieces of sound mixed seamlessly together to create a complete whole. The sources for the sound used include recordings made during *principal photography* on sets or on location, sound effects libraries and customized recordings, and music, both that composed for the film and from pre-existing sources. Sound for film and television is thus a thor-

oughly constructed experience, usually meant to seamlessly integrate many elements together and not draw specific attention to itself.

The relative roles of picture and sound can change with regard to storytelling from scene to scene and moment to moment. A straight narrative picture will likely have dialog accompanying it, whereas a picture montage will often be accompanied by music, or at least manipulated sound effects, as the filmmaker varies the method of storytelling from time to time to add interest to the film, and provide a moment for audiences to soak up the action, make scene transitions, and so forth.

Nearly everyone involved in production of a film or television program affects, and is affected by, sound. Writers use sound elements in their storytelling, with suggestions in the script for what may be heard. Location scouts should note bad noise conditions at potential shooting sites because while the camera can “pan off” an offending sign,

there is no such effective way to eliminate airplanes flying over from the sound track—the “edges” of a sound frame are not hard like those of a picture frame. Directors need to be keenly aware of the potential for sound, for what they are getting on location and what can be substituted in post production, as sound is “50% of the experience” according to a leading filmmaker. Cinematographers can plan lighting so that a sound boom is usable, with the result being potentially far better sound. Costumers can supply pouches built into clothing that can conceal microphones, and can supply booties so that actors can wear them for low noise when their feet don’t show. Grips, gaffers, and set dressers can make the set quiet and make operable items work silently.

### Roles of sound

Many kinds of sound have a direct storytelling role in filmmaking.<sup>1</sup> Dialog and narration tell the story, and narrative sound effects can be used in such a capacity too, for example, to draw the attention of the characters to an off-screen event. Such direct narrative sound effects are often written into the script, since their use can influence when and where actors have to take some corresponding action.

Sound also has a subliminal role, working on its audience unconsciously. While all viewers can tell apart the various objects in a picture—an actor, a table, the walls of a room—listeners barely ever perceive sound so analytically. They tend to take sound in as a whole, despite its actually being deliberately constructed from many pieces. Herein lies the key to an important storytelling power of sound: the inability of listeners to separate sound into ingredient parts can easily produce “a willing suspension of disbelief” in the audience, since they cannot separately discern the function of the various sound elements. This fact can be manipulated by film-

1. This term is used instead of the clumsier, but more universal, “program making.” What is meant here and henceforth when terms such as this are used is the general range of activities required to make a film, video, or television program.

makers to produce a route to emotional involvement in the material by the audience. The most direct example of this effect is often the film score. Heard in isolation, film scores<sup>2</sup> often don’t make much musical sense; the music is deliberately written to enhance the mood of a scene and to underscore the action, not as a foreground activity, but a background one. The function of the music is to “tell” the audience how to feel, from moment to moment: soaring strings mean one thing, a single snare drum, another.

Another example of this kind of thing is the emotional sound equation that says that low frequencies represent a threat. Possibly this association has deep primordial roots, but if not, exposure to film sound certainly teaches listeners this lesson quickly. A distant thunderstorm played underneath an otherwise sunny scene indicates a sense of foreboding, or doom, as told by this equation. An interesting parallel is that the shark in *Jaws* is introduced by four low notes on an otherwise calm ocean, and there are many other such examples.

Sound plays a grammatical role in the process of filmmaking too. For instance, if sound remains constant before and after a picture cut, the indication being made to the audience is that while the point of view may have changed, the scene has not shifted—we are in the same space as before. So sound provides a form of continuity or connective tissue for films. In particular, one type of sound represented several ways plays this part. *Presence* and *ambience* help to “sell” the continuity of a scene to the audience.

### Sound is often “hyper-real”

Sound recordings for film and television are often an exaggeration of reality. One reason for this is that there is typically so much competing sound at any given moment that each sound that is recorded and must be heard has to be rather overemphatically stated, just to “read” through the clutter. Heard

2. The actual score played with the film, not the corresponding music-only CD release.

in isolation, the recordings seem silly, over-hyped, but heard in context, they assume a more natural balance. The elements that often best illustrate this effect are called *Foley* sound effects. These are effects recorded while watching a picture such as footsteps, and are often exaggerated from how they would be in reality, both in loudness and in intimacy. While some of this exaggeration is due to the experience of practitioners finding that average sound playback systems obscure details, a good deal of the exaggeration still is desirable under the best playback conditions, simply because of the competition from other kinds of sound.

### Sound and picture

Sound often has an influence on picture, and vice versa. For instance, making picture edits along with downbeats in a musical score often makes the picture cuts seem very right. In *The Wonderful Horrible Life of Leni Riefenstahl* we see Hitler's favorite filmmaker tell us this lesson, for she cut the waving flags in the Nuremberg Nazi rally in *Triumph of the Will* into sync with the music, increasing the power of the scene to move people.

Scenes are different depending on how sound plays out in them. For example, "pre-lapping" a sound edit before a scene changing picture edit<sup>3</sup> simply feels different than cutting both sound and picture simultaneously. The sense is heightened that the outgoing scene is over, and the story is driven ahead. Such a decision is not one taken at the end of the process in post production by a sound editor typically, but more often by the picture editor and director working together, since it has such a profound impact on storytelling. Thus involvement with sound is not only important to those who are labeled with sound-oriented credits, but to the entire filmmaking process represented by directing and editing the film.

### Sound personnel

Sound specific personnel on a given film or television job may range from one person,

that being the camera-person on a low-budget documentary with little post production, to quite large and differentiated crews as seen in the credits of theatrical motion pictures. In typical feature film production, a production sound recordist serves as head of a crew which may add one or more boom operators and cable persons as needed to capture all the sound present. On television programs shot in the multi-camera format "filmed in Hollywood before a live studio audience," an even larger crew may be used to control multiple boom microphones, to plant microphones on the set, and to place radio microphones on actors, then mix these sounds to a multi-track tape recorder. Either of these situations is called production sound recording.

Following in post production, picture editors cut the production sound track along with the picture, so that the story can be told throughout a film. They may add some additional sound in the way of principal sound effects and music, producing, often with the help of sound specific editors, up to "temp mixes" of use in evaluating the current state of a film or video in post production. Without such sound, audiences, including even sophisticated professional ones, cannot adequately judge the program content as they are distracted by such things as cutting to silence. By stimulating two senses, program material is subject to a heightened sensation on the part of the viewer/listener which would not occur if either the picture or sound stood alone. A case in point is one of an observer looking at an action scene silently, then with ever increasing complexity of sound by adding each of the edited sound sources in turn. The universal perception of observers under these conditions is that the picture appears to run faster with more complex sound, despite the fact that precisely the same time elapses for the silent and the sound presentations: the sound has had a profound influence on the perception of the picture.

When the picture has been edited, sound post production begins in earnest. Transfer operators take the production sound record-

3. By cutting to the sound for the incoming scene before the outgoing picture changes.

ings and transfer them to an editable format such as mag film or into a digital audio workstation. Sound editors pick and place sound, drawing on production sound, sound effects libraries, and specially recorded effects, which are also all transferred to an editable format. From the edited sound tracks, various mixes are made by re-recording mixers (called dubbing mixers in England). Mixing may be accomplished in one or more steps, more generations becoming necessary as the number of cut sound tracks increases to such large numbers that all tracks cannot be handled at one time. The last stage of post production mixing prepares masters in a format compatible with the delivery medium, such as optical sound on film, or video tape.

### **The technical vs. the aesthetic**

While it has a technical side, in the final analysis what is most important for film and television sound is what the listener hears, that is, what choices have been made throughout production and post production by the filmmakers. Often, thoughts are heard from producers and others such as, "can't you just improve the sound by making it all digital?" In fact, this is a naive point of view, since for instance what is more important to production sound is what the microphone technique is, rather than the method of tape recording. Unwanted noise on the set is not reduced by digital recording, and often causes problems, despite what method to record the production sound may be in use.

When film sound started in the late 1920s, the processes to produce the sound track were very difficult. Camera movement was restricted by large housings holding both the camera and the cameraman so that noise did not intrude into the set. Optical sound tracks were recorded simultaneously with the picture on a separate sound camera, and could not be played back until the film was processed and printed. Microphones were insensitive so actors had to speak loudly and clearly. Silent movie actor's careers were on the line, as it was discovered by audiences

that many of them had foreign accents or high, squeaky voices.

Today, the technical impediments of early sound recording have been removed. Acting styles are much more natural, with it more likely that an actor will "underplay" a scene due to the intimacy of the camera than "overplay" it. Yet the quality achieved in production sound is still subject to such issues as whether the set has been made quiet, and whether the actor enunciates or mumbles his lines. Many directors pass all problems in speech intelligibility to the sound "technician," who, after all, is supposed to be able to make a high-quality recording even if the director can't hear the actor on the set!

### **The dimensions of a sound track**

The "dimensions" of a sound track may be broken down for discussion into frequency range, dynamic range, the spatial dimension, and the temporal dimension. A major factor in the history of sound accompanying pictures is the growth in the capabilities associated with these dimensions as time has gone by, and the profound influence this growth has had on the aesthetics of, for example, motion-picture sound tracks. Whereas early sound films only had a frequency range capability (bandwidth) about that of a telephone, steady growth in this area has produced modern sound track capabilities well matched to the frequency range of human hearing. Dynamic range capability improvements have meant both louder and softer sounds are capable of being reproduced and heard without audible distortion or masking. Stereophonic sound added literally new dimensions to film sound tracks, first rather tentatively in the 1950s with magnetic sound release prints, and then firmly with optical stereo prints in the 1970s, which have continued improvement ever since. Still, even the monophonic movies of the 1930s benefited from one spatial dimension: adding reverberation to sound tracks helped place the actors in a scene and to differentiate among narration, on-screen dialog, off-screen sound effects, and music.