

SOUND and SPACE



Space

We perceive space through visual and auditory cues.

Determined by the quality of the sound as it interacts with walls, other features.

Amount of decay can help shape a space.

Decay

Echo: a sound bouncing off a reflective surface with a noticeable repeat of the sound.

Reverb: a very long decay, consisting of thousands of reflections, that indicates the tonal character of the space.

Distance/Perspective

Use echo / reverb sparingly; too much = muddy and distracting.

Often adding a bit of reverb or echo to one small sound is enough to indicate a certain type of space.

Reverb needs to be consistent for all sounds in a scene.

Space

Contrast in volume and EQ is key to separating and situating multiple sounds.

Louder = closer (usually).

High frequencies drop off over distances.

Directionality

Temporal Delay = with a sound coming from one side, lower frequencies take slightly more time to reach the other ear.

Sound Shadow = Higher frequencies will be blocked, resulting in a slightly different timbre.

Directionality

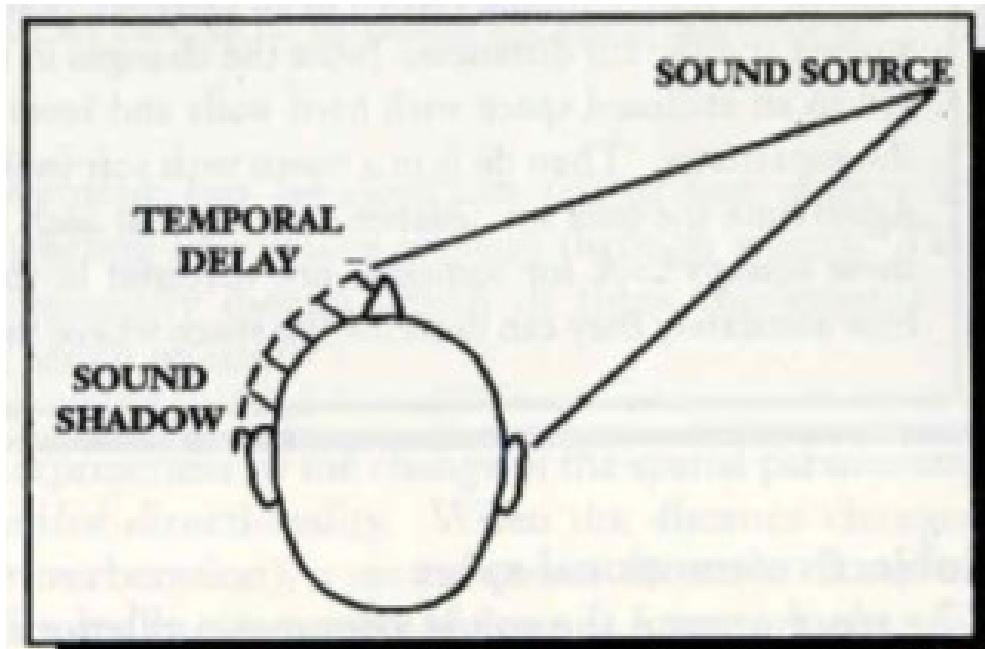
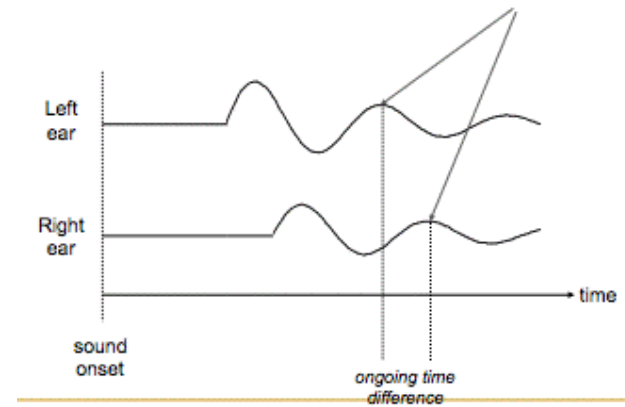
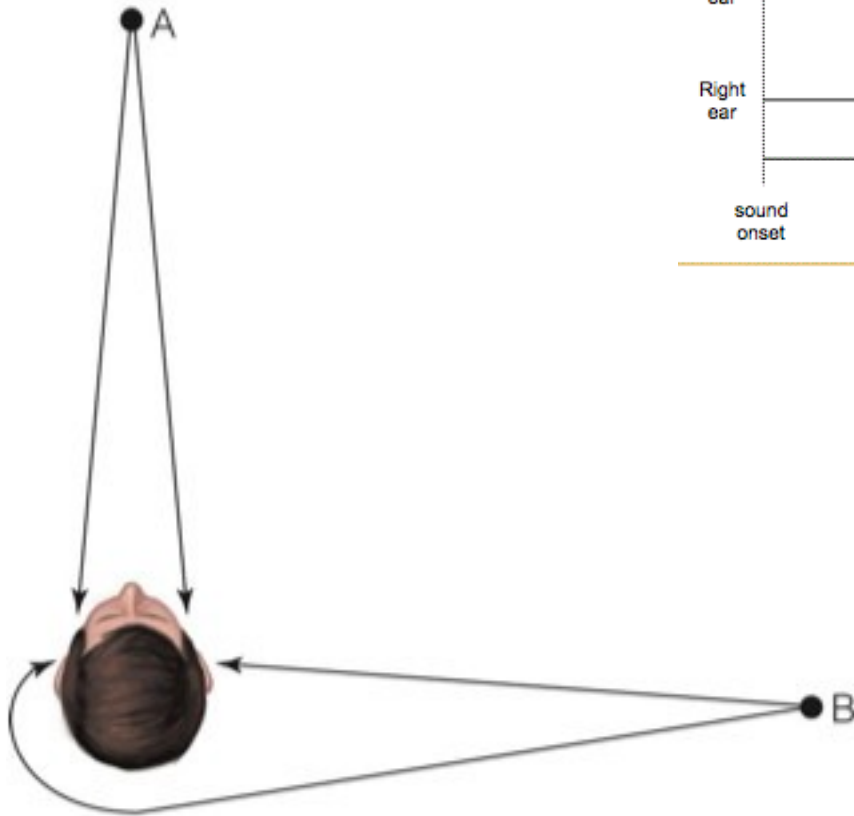
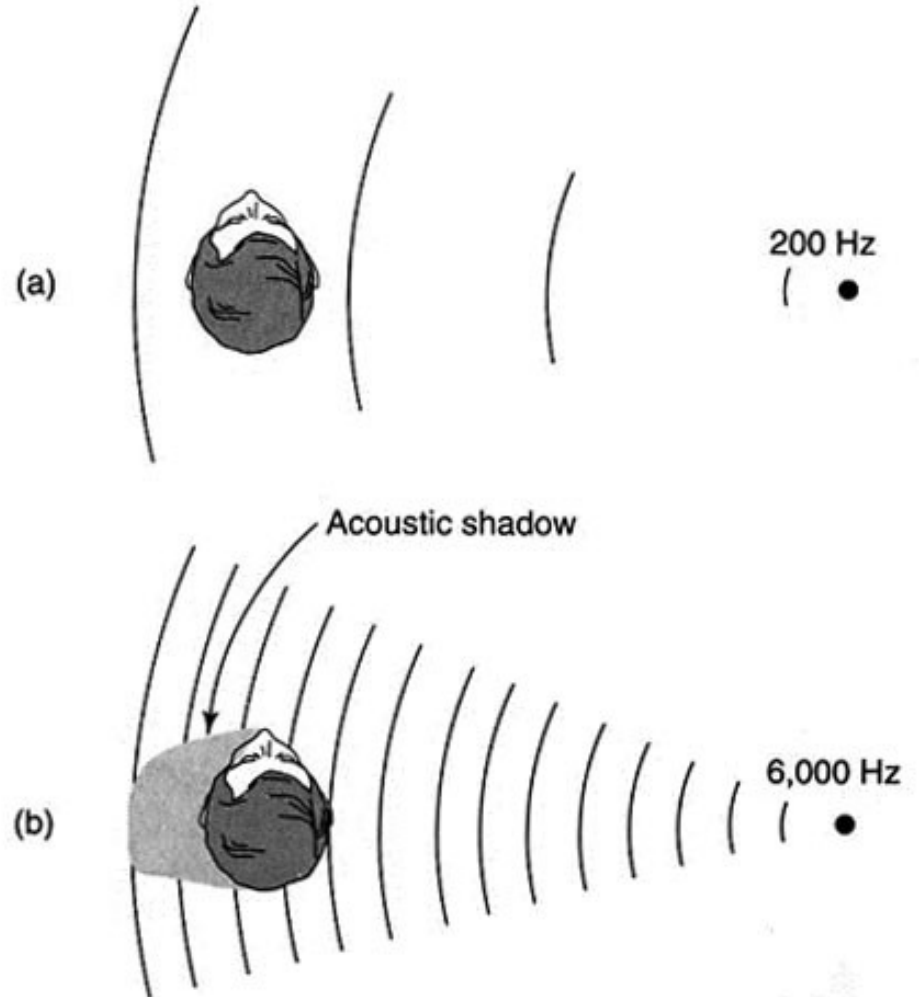
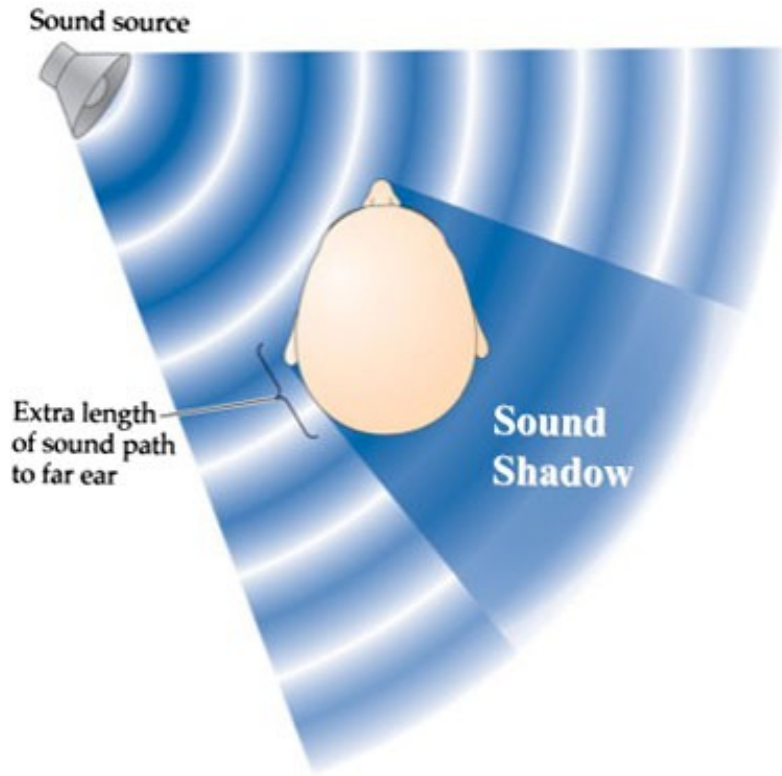


Figure 4-1 two ears help determine directionality
(top view of head)

Temporal Delay



Sound Shadow



Subjective

The sound in a space is often very personal and can contribute to a narrative.

Sounds are often made differently when in different spaces (practice room vs. Carnegie Hall)

Child hears sounds at 2 or 3 feet off the ground vs. adult at 5-6.

Objective Movement

We observe an object moving through space as it changes in distance or directionality.

Changes in distance can be illustrated through intensity, timbre, and/or reverb.

Sound will appear to be closer or farther away or left/right.

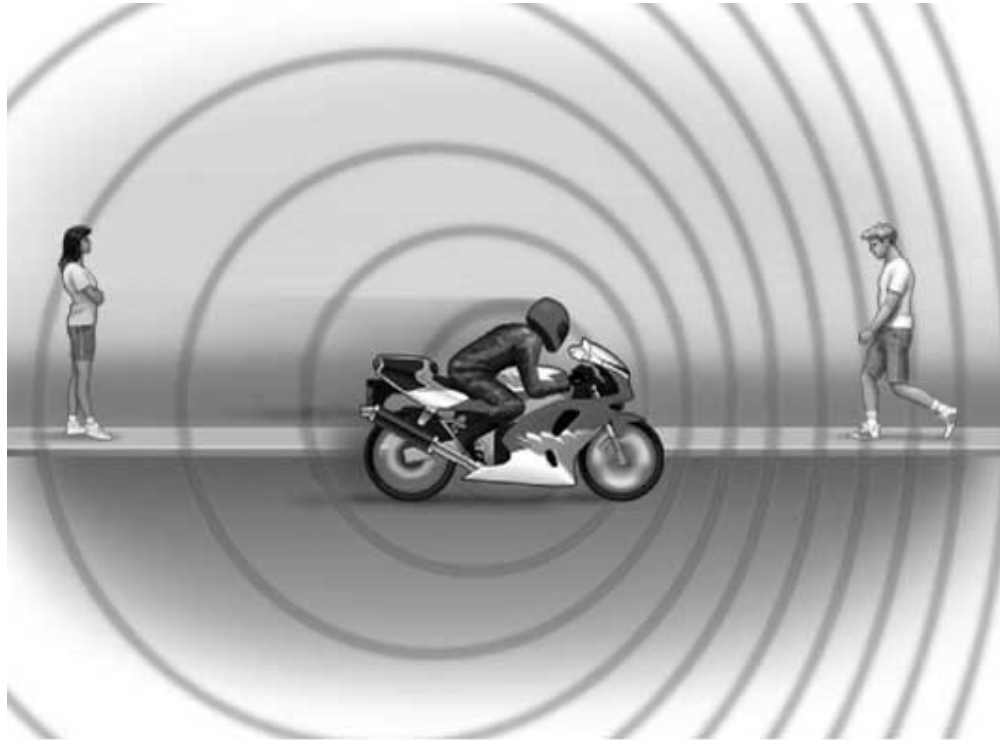
Doppler Effect

Change in pitch when an object approaches and then passes you (i.e. ambulance).

Pressure changes affect the wavelengths of the sound as the object approaches and departs.

Artificial doppler can be added to sound effects (pod racers in Star Wars I).

Doppler



<http://www.dopplereffect.com/>

Subjective Movement

Our own bodies appear to be moving.

We hear immediate effects (wind blowing, acceleration).

We “go along for the ride.”

Space

Sounds with similar reverb will appear to inhabit the same distance or space, and vice versa.

Sound design must support spatial reality of the narrative across cuts or changes in scene.

Space can be implied even if the screen is dark.

Space

With **high fidelity** space it is easier to differentiate individual sounds and their sources.

A **low fidelity** space offers no sense of distance or perspective, like a wall.

Brainstorming the script will result in sound inventory that accurately reflects the narrative reality.

Variety of Space

Degree of expansiveness from null to vast.

Null = single character with internal voice.

Vast = extreme closeup, mid-range, and distant sounds.

Position in Space

Mic placement = position of character's body can help pinpoint a realistic sense of space.

Facing away from the mic (higher frequencies lost).

Lapel mic will capture voice but not a sense of the space itself.

Texture

What does an object sound like?

Weight, speed, resistance, solidity,
texture.

Glass, metal, fire, wood, tar, sand,
compressed air, rubber, stone, flesh.

Point of Audition

Similar to the way a camera can have a point of view.

Spatial = concert in the balcony vs. front row or standing right up against the stage.

Subjective = what the audience hears vs. what is realistically heard in the scene itself (telephone conversation).

Quiz 8

1. TRUE or FALSE: **Subjective Movement** is when we ourselves as audience feel like we are moving.
2. **Temporal Delay** = if a sound comes from one side, _____ frequencies take slightly more time to reach the other ear.

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Credits

ssc.education.ed.ac.uk/courses/deaf/dnov10i.html