

PSYC 1340 / VLST 2110 Perception

Recitation 11 - Sound and Design, Auditory Disparity

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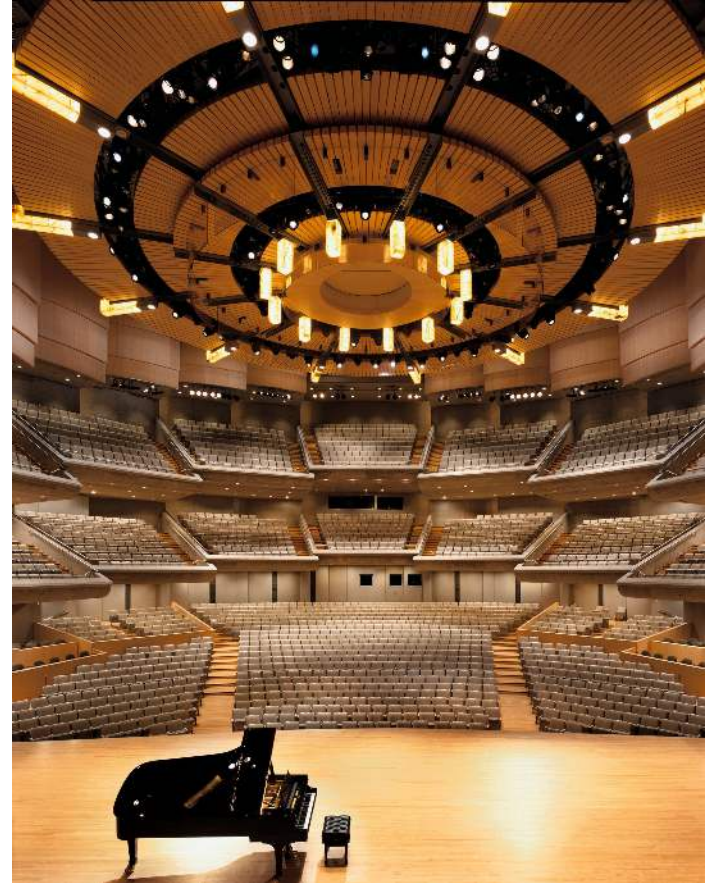
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Designing Performance Halls

Performance halls must be built keeping a lot of separate things in mind: audience capacity, stage visibility, and sound quality. The shapes and materials within performance halls are carefully considered during the design and construction process. But why does it matter?

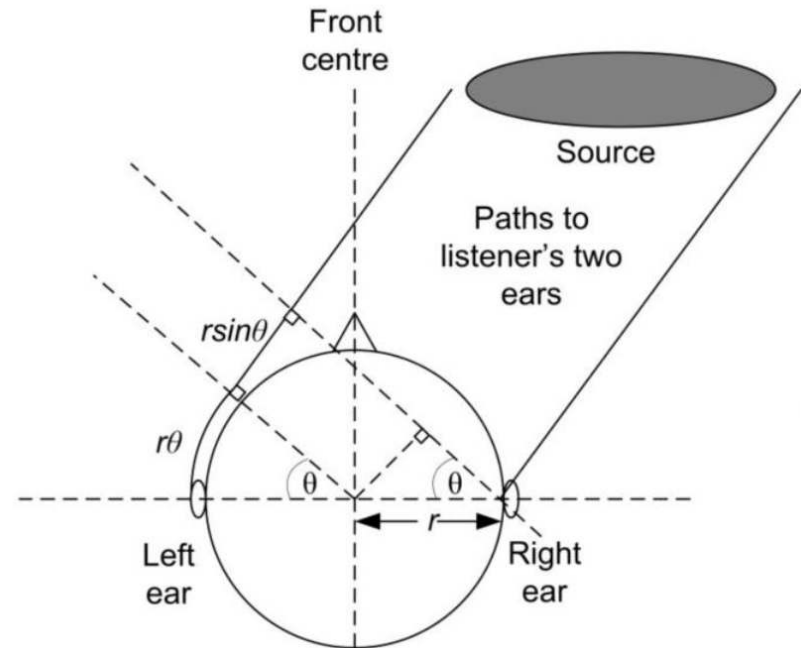
1. What is important to consider when building a performance hall?
2. How would you design a hall meant for orchestral performance?
3. How about for opera?



Auditory Disparity

In lecture, we defined the azimuth of a source to be 0 when a sound source is straight ahead, with positive azimuth corresponding to a clockwise rotation from the top view (as shown in this figure). So although here θ is drawn relative to the horizontal, it is still the same convention as we used in class - the angle relative to straight ahead is the same as the angle θ shown.

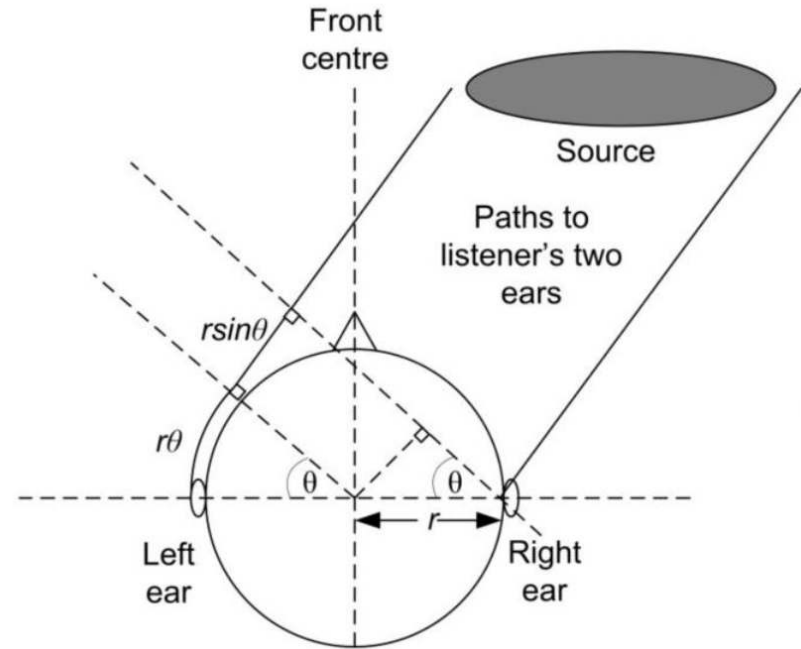
1. r : Radius of head.
2. $d = r \sin(\theta) + r\theta$



Auditory Disparity

$$d = r \sin(\theta) + r\theta$$

1. What is 45° in radians?
2. Suppose the radius of the head is 4/12 feet (4 inches). If the azimuth is 45° , what is d in feet?
3. Given speed of sound is 1100 feet/sec, how much later will the sound arrive to the left ear?



See you next week!