**Single, Stereo and Multi-Channel Sound Reproducing Systems:**

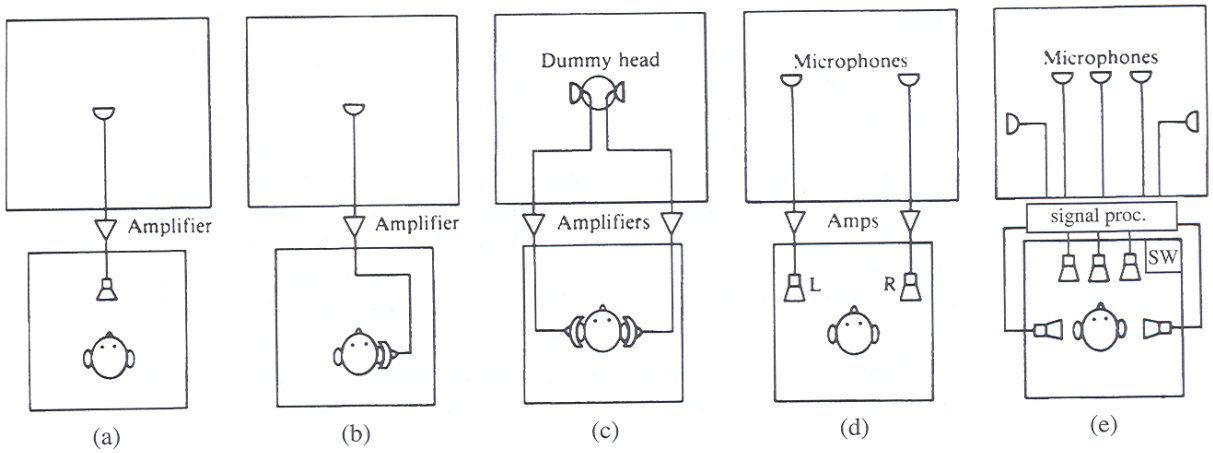
A ***monophonic*** sound system consists of recording sound/music with a single microphone, playing it back with a single amplifier and a single loudspeaker in a listening room, as shown in diagram (a) of the figure below. Ambience is provided by the acoustic characteristics of the listening room. The performance of a high-quality monophonic sound system in a listening room with excellent room acoustics should not be underestimated, however, these days not many good monophonic sound systems exist any longer, much less monophonic recordings….

A ***monaural*** sound system differs from a monophonic sound system in that sound is fed to only one ear (via an earphone) of a listener, as shown in diagram (b) of the figure below. This type of sound system is used primarily *e.g.* in telecommunications and *e.g.* psycho-acoustics experiments. It is most definitely not a hi-fi sound system.

A ***binaural*** sound system simulates human hearing and uses two identical microphones installed at the ear-locations of a dummy human head, the signals from which are independently amplified and heard by the listener via stereo headphones, as shown in diagram (c) of the figure below. One disadvantage of earlier binaural sound systems is that the dummy head cannot be rotated, whereas a human head can do so, thus binaural recordings tend to sound as if the sound source is inside the listener's head, rather than coming from outside. Modern/state-of-the-art virtual-reality type binaural sound systems can compensate for head movement using head-tracking devices. Listening to stereophonic-recorded music with stereo headphones tends to produce a greatly-exaggerated stereo effect that is interesting, but not realistic – the sound source "image" usually appears to be inside, or above the head, which is not true binaural sound reproduction, because most likely the microphones used in the stereophonic recording were not positioned at/in the ears of a dummy head.

A ***stereophonic*** sound system uses independently-amplified signals recorded from two identical microphones fed to two *L*/*R* loudspeakers in the listening room, as shown in diagram (d) in the figure below. We will discuss stereophonic sound systems more below.

A ***surround-sound*** system uses independently amplified signals recorded from multiple microphones fed to multiple speakers in the listening room, as shown in diagram (e) in the figure below. We will discuss surround-sound systems more below.





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