

Considerations for Five-Channel Engineering

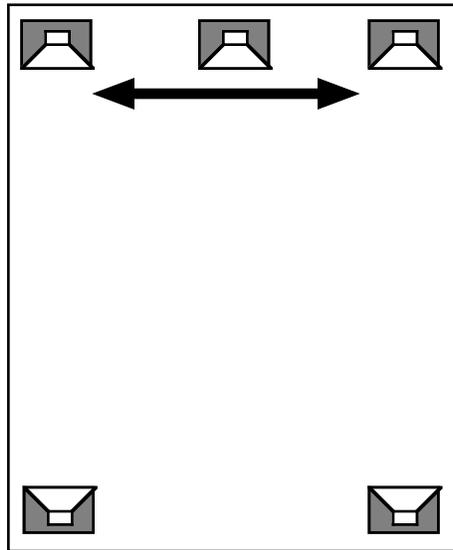
by Scott A. Wyatt

In 1996 Dolby introduced **Dolby AC-3 Digital Surround** with six discrete channels of audio (left front, right front, center, left rear, right rear and subwoofer). This format of 5 full frequency range channels plus one channel (LFE = low frequency effects) devoted to low frequencies (20 to 120 Hertz) to drive the subwoofer is commonly referred to as the 5.1 format.

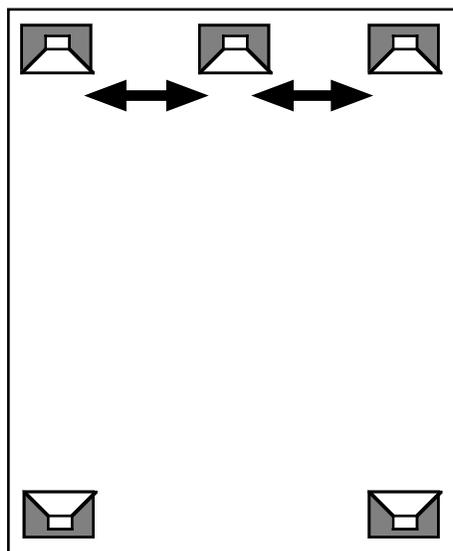
For now, we will ignore the LFE channel in order to concentrate more on the main five-channel array.

You should review S. Wyatt's handout *Considerations for Four-Channel Engineering* since five-channel engineering concerns are a logical extension of what was presented in this handout. The addition of a front center channel is designed to give a clear center focal point (more than what is achievable with a mono audio signal simultaneously sent to both left and right channels), and is often used for narration or focused dialogue needs. Generally, narrative use does not play a significant role for electroacoustic music, although it certainly could.

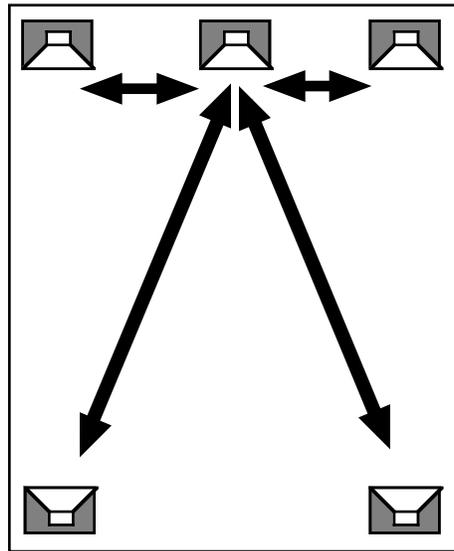
If the center channel is used to fill in the center hole when panning a mono source left to right or vice versa, this is a reasonable approach.



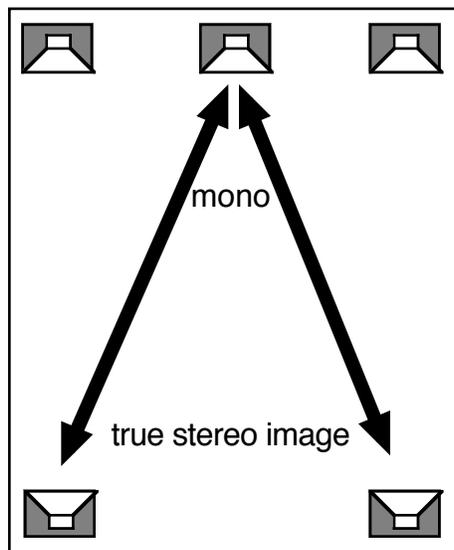
The center channel could also be considered a focal point from which mono sources pan to the left or to the right.



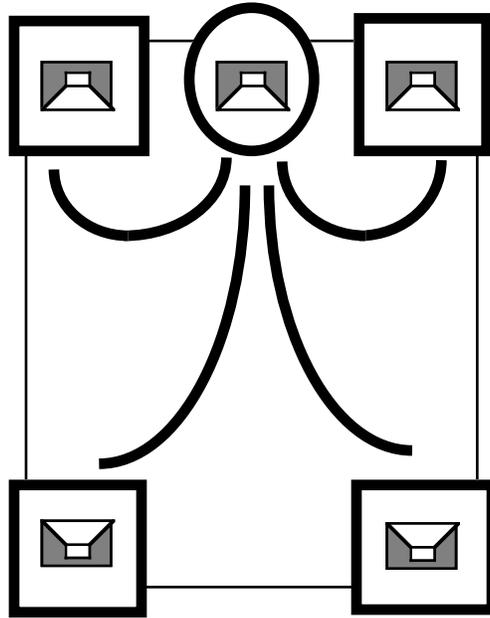
Mono sources could originate from the center and cross and/or pan out to the other channels.



Additionally, the composer could choose to cross/roll a mono source into a true stereo image by the time it reaches the rear channels, and/or vice versa.



The center channel could serve as a leading character for a call and response emulation where the remaining four channels serve as the responders.



Obviously there are other alternatives that we hope you will discover during the compositional process.