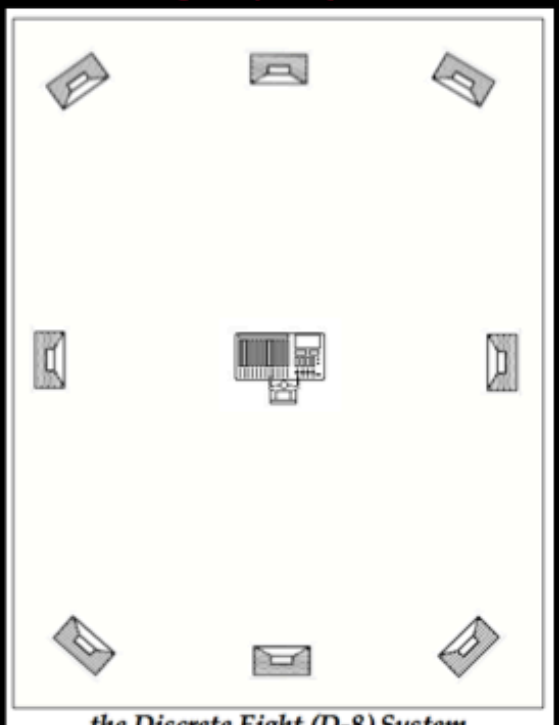
Spatialization Strategies for 8-channel

offered by Scott A. Wyatt
director, University of Illinois Experimental Music Studios

composing more effectively
for D-8 / double diamond configurations
- from one composer's perspective

I elect to work with 8-channel fixed media presentations – utilizing the Discrete Eight (D-8) speaker configuration.



the Discrete Eight (D-8) System

I elect to work with 8-channel fixed media presentations – utilizing the Discrete Eight (D-8) speaker configuration.

My reasons for working with fixed media presentation rather than live diffusion include:

- *the lack of sufficient rehearsal time at conferences and festivals*

- *my preference to work with many more planned juxtapositions and a variety of translations other than primarily longitudinal rolls, different stereo pair balances, and combinations of the above*

My reasons for working with the D-8 speaker configuration include:

- *the D-8 system permits stereo longitudinal rolls and a variety of stereo pair balances, as well as permitting the challenging use of the center channels (I consider this a positive compositional and performance element)*

- *the D-8 system allows for compatibility with commercial industry's multi-channel configurations of 5.1, 7.1, 8.1, etc.*

Since there is so little time for this presentation, these are my suggestions concerning ***what to avoid:***

1. working with too many mono point source materials located at individual speakers
2. working with too many mono sounds
3. incessant panning
4. incessant reverb
5. working with multi-channel panners (they are easy but produce poor results)
6. using all channels too much of the time
7. translations of sonic events that do no imply movement
8. translations of sustained sonic events or low frequency material
9. moving a sound with reverb already part of the sound

These are my suggestions concerning
what to consider for inclusion:

1. composed incorporation and movement of some true stereo images and/or pseudo stereo events
2. composed incorporation of juxtapositioning of different spatial contexts
3. composed incorporation of locations within the interior space created by the loudspeaker perimeter, as well as beyond and outside of the perimeter
4. composed positioning of various reflective environments – with the reflections located in channels/speakers other than where the direct sound originates
5. translations are created by manually creating and controlling crossfades rather than using panners or multi-channel panners
6. composed creative use of the center channel(s)

From the very beginning of the stereo recording experiments, the value of a center channel was rapidly recognized.

Harvey Fletcher, Ph.D in physics from University of Chicago, who became Director of Research at Bell Labs – overseeing research in sound, hearing, transmission, and sound reproduction, has been called *the father of stereo recording*.

He worked closely with Leopold Stokowski in developing stereo recordings of the Philadelphia Orchestra in 1931-32, yet while both were thrilled with the newly created stereophonic image of the orchestral sound, Stokowski and Fletcher immediately complained of a center hole within the stereophonic image.

This led to the April 27, 1933 experiment with capturing the orchestra with three microphones spaced across the front of the orchestra in Philadelphia - and transmitted by three higher speed telephone lines to Constitution Hall in Washington, DC where three amplified loudspeakers reproduced the orchestra sound, controlled by Stokowski and Fletcher in Constitution Hall.

Auditory Perspective Music Test Succeeds

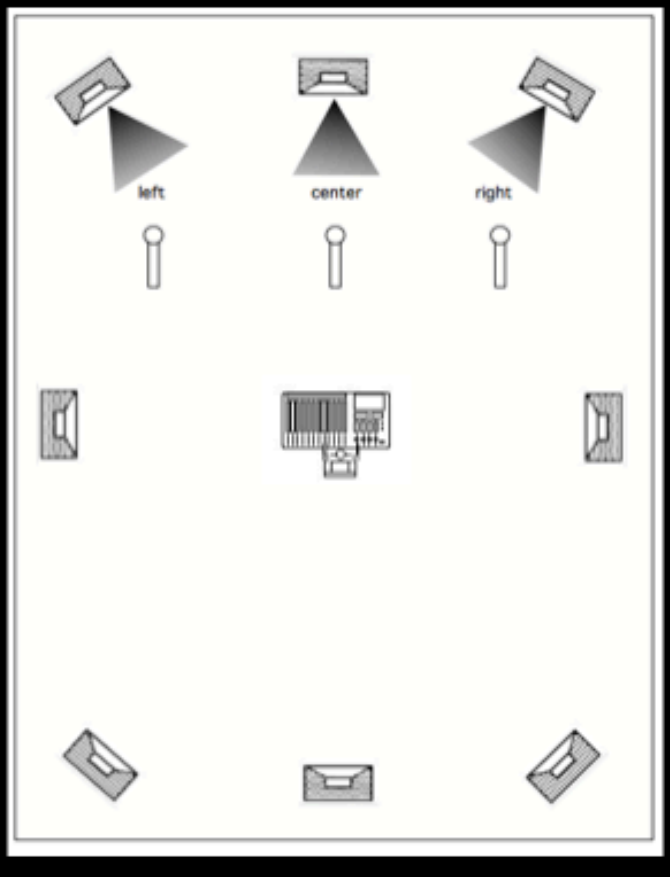
tokowski, Here, Leads His Orchestra in Philadelphia.

The success of this experiment, and the more realistic image created by the center channel, led to Stokowski's insistence of the center channel being included during the 1939 creation of Disney's ***Fantasound*** in support of the music tracks for ***Fantasia*** - also performed by the Philadelphia Orchestra conducted by Stokowski.

This begins the realized importance of a center channel in support of stereophonic reproduction for film, and the industry's insistence of the center channel for multi-channel formats.

Here are some of my suggestions with regard to the incorporation of the center channel(s):

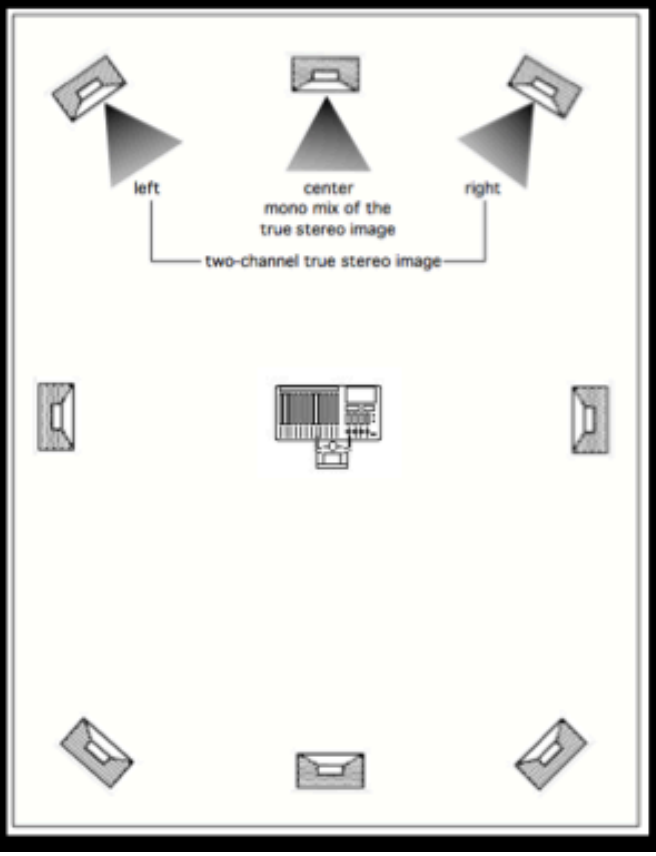
3-channel stereo image



Here are some of my suggestions with regard to the incorporation of the center channel(s):

improved stereo image with a mono mix of the stereo image placed in the center

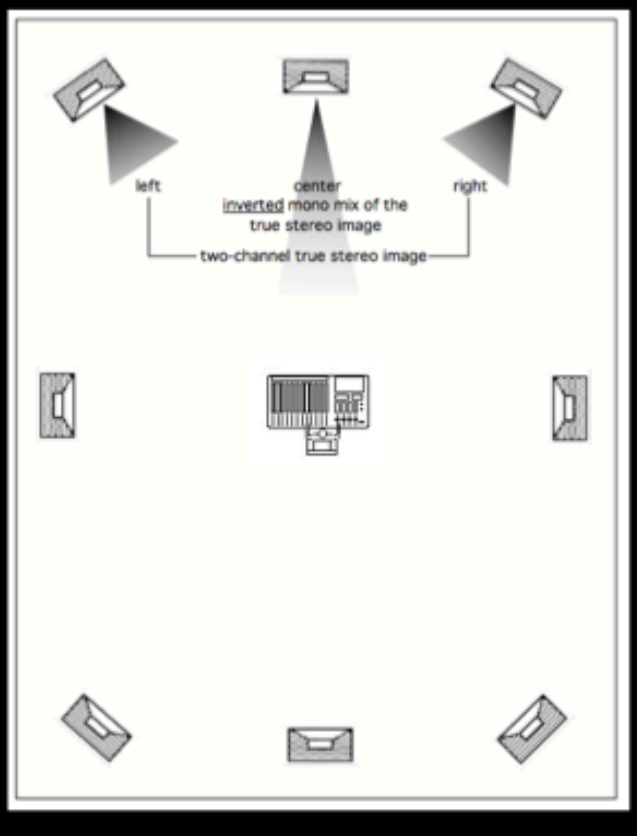
the center channel strengthens the stereo image



Here are some of my suggestions with regard to the incorporation of the center channel(s):

improved stereo image with the center mono file inverted

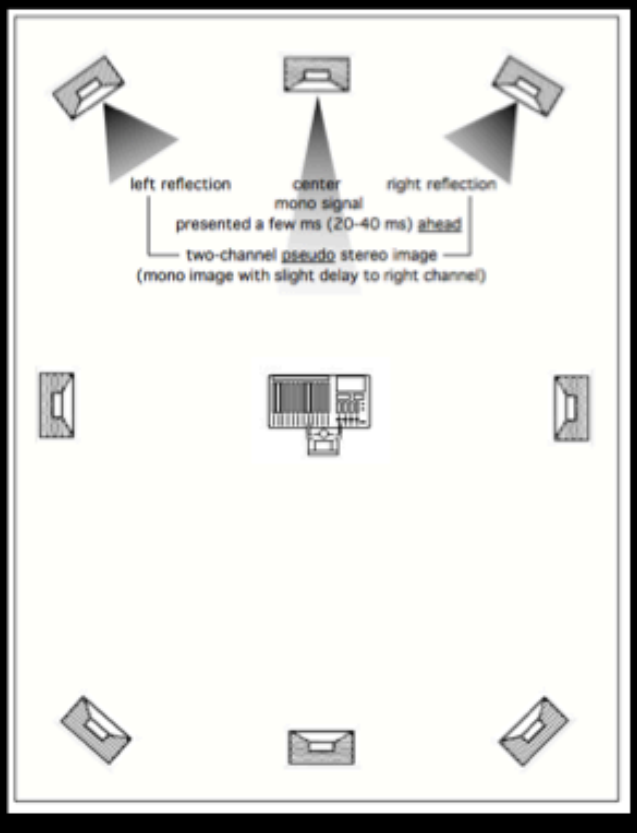
center pops forward



Here are some of my suggestions with regard to the incorporation of the center channel(s):

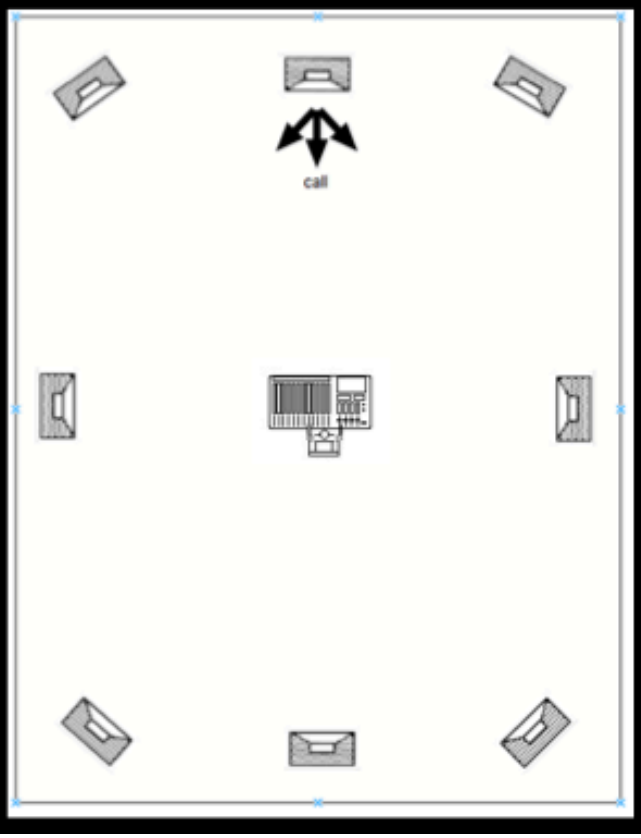
pseudo stereo image with the center mono file presented ahead of L/R reflections

center draws attention



Here are some of my suggestions with regard to the incorporation of the center channel(s):

call and response



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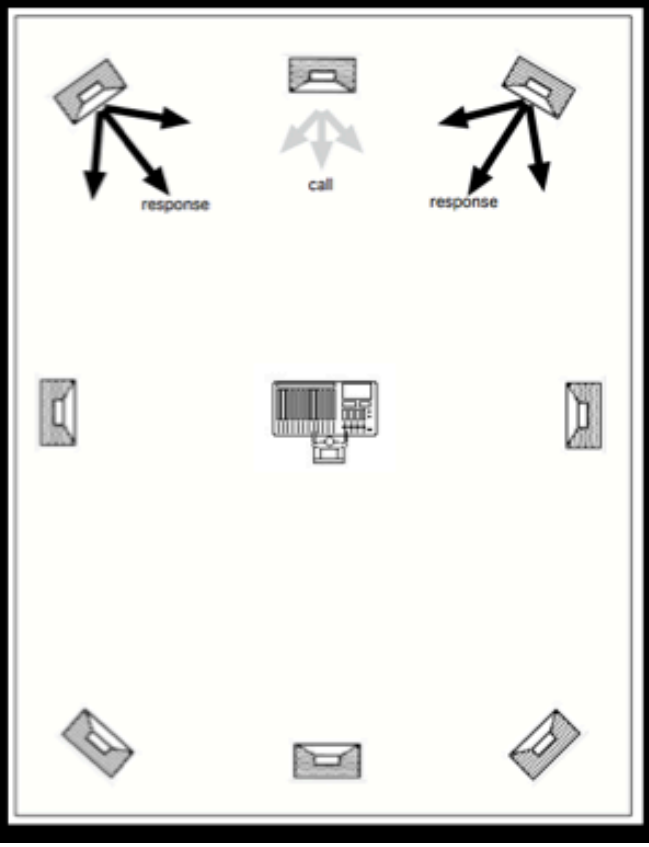

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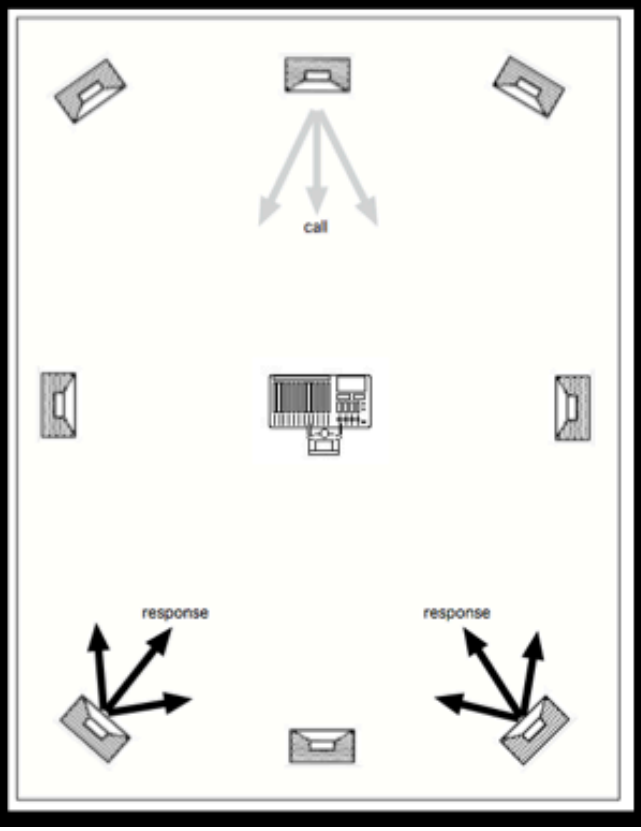
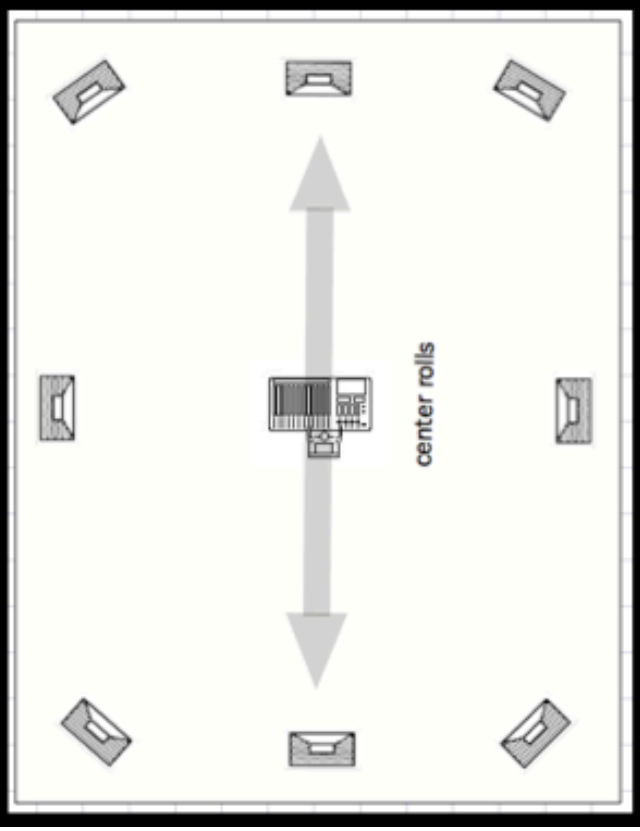


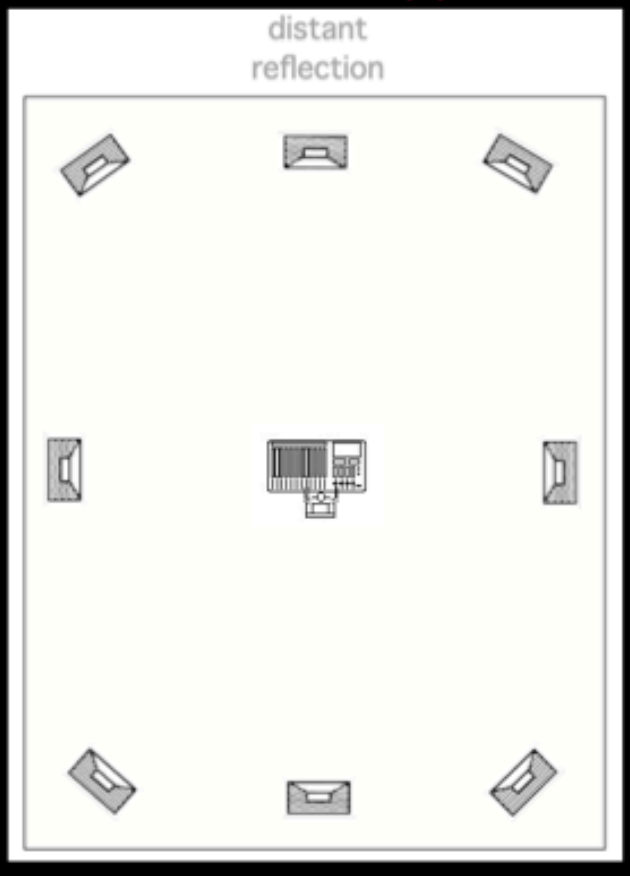
Here are some of my suggestions with regard to the incorporation of the center channel(s):

center rolls



Here are some of my suggestions with regard to the incorporation of the center channel(s):

distant reflection

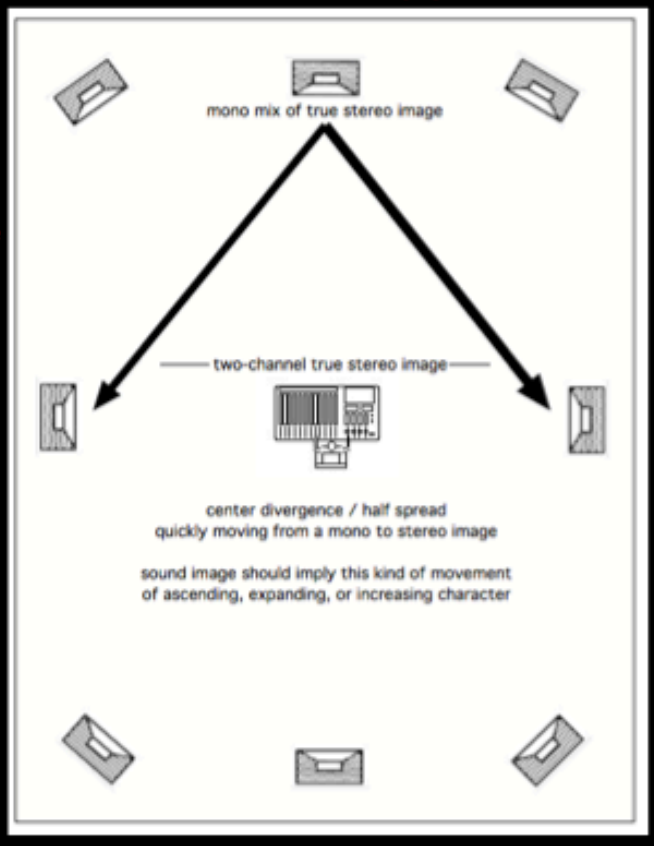


Here are some of my suggestions with regard to the incorporation of the center channel(s):

divergence

center divergence / half spread - quickly moving from a mono to stereo image

sound image should imply this kind of movement of ascending, expanding, or increasing character



Here are some of my suggestions with regard to the incorporation of the center channel(s):

convergence

convergence / collapse - quickly moving from a stereo image to a mono image

sound image should imply this kind of movement of descending, decreasing, or receding character