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Subject: Re: And an even more indepth article

Posted by [Wayne Parham](#) on Thu, 03 Jun 2004 17:18:39 GMT

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Great articles, thanks. I had previously read Norman Koren's articles, but forgot about this one. He has done a lot of tube amp modeling with Spice, and I came across his articles while modeling Steve Bench's 6DJ8-based active crossover to include response shaping components for compression horns. Norman is very studious and I appreciate your bringing attention to his articles here. I believe these articles address the main issues of bandwidth, gain, distortion and stability. The advantages of NFB include potentially improved frequency response, reduced harmonic distortion, better gain control, increased input impedance, and decreased output impedance. Those are some of the things that can be gained from a good circuit that incorporates negative feedback. The disadvantages of NFB are that it can cause peaking and other response anomalies bandwidth extremes, sometimes even enough to enter oscillation. It can also increase susceptibility to RF interference and make clipping more abrupt. These disadvantages are usually limited to global feedback implementations, and aren't as likely to occur when feedback is introduced locally, in a gain-stage. But even here, if a device is pushed to its limits, instability can result. So I guess the thing is that each circuit should be taken on a case-by-case basis. There are likely some components that are more susceptible than others to having problems in certain configurations. Each device has its own set of strengths and weaknesses, and the challenge is to find those configurations that work best. It really isn't appropriate to view negative feedback, in and of itself, as a problem. What is best is to examine each circuit to find and address potential liabilities, and to get the most performance afforded by the components used.

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