5.3 Gain of Negative Voltage Feedback Amplifier

Consider the negative voltage feedback amplifier shown in Fig. 5.3.1 The gain of the amplifier without feedback is Av. Negative feedback is then applied by feeding a fraction mv of the output voltage e0 back to amplifier input. Therefore, the actual input to the amplifier is the signal voltage eg minus feedback voltage mv e0 i.e.

Actual input to amplifier = eg − mv e0

The output e0 must be equal to the input voltage eg − mv e0 multiplied by gain Av of

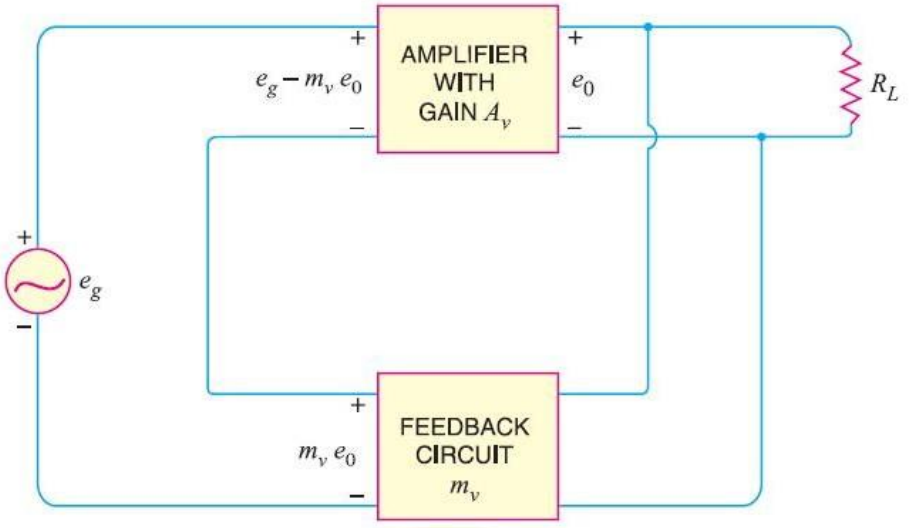

Figure: 5.3.1 Voltage Feedback in Amplifiers

[Source: "Electronic devices and circuits" by "Balbir Kumar, Shail.B.Jain, and Page: 161]

It may be seen that the gain of the amplifier without feedback is Av. However, when negative voltage feedback is applied, the gain is reduced by a factor 1 + Av mv. It may be noted that negative voltage feedback does not affect the current gain of the circuit.