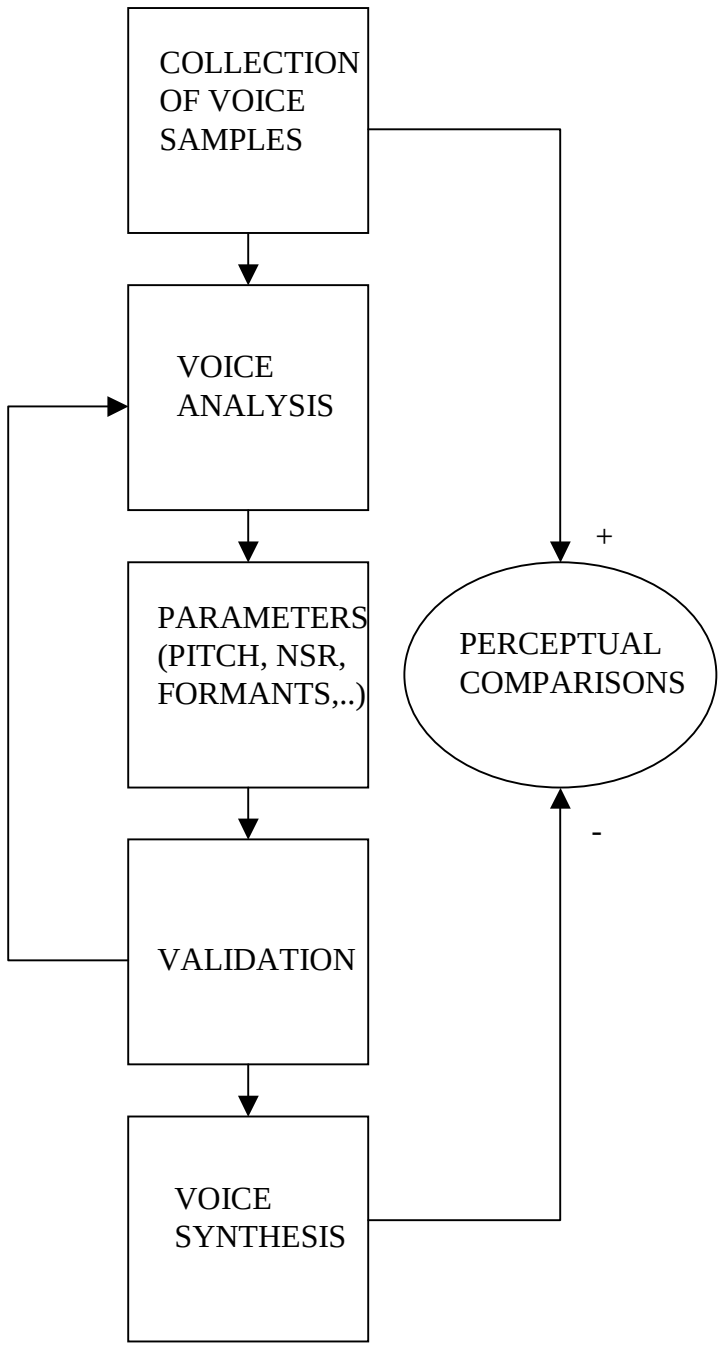

Figure 1.1. Overview of pathological voice analysis. Processing begins with digital sampling of pathological vowels, which are then analyzed into model parameters. The parameters are validated and recalculated if necessary. Using the parameters, a synthetic version of the voice is created and compared to the original recording.

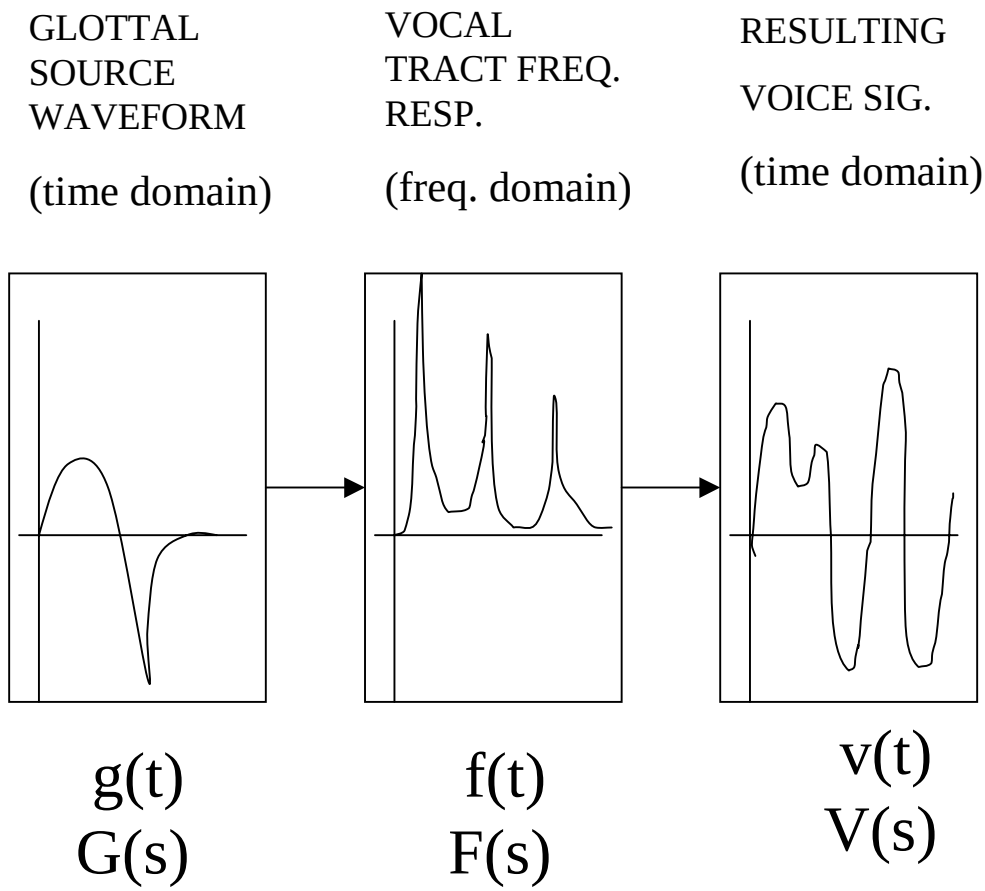

Figure 1.2. Source-filter model for speech synthesis. The glottal waveform is filtered by the vocal tract frequency response to produce the voice signal. In the time domain, the glottal waveform g(t) is convolved with the vocal tract impulse response f(t) to obtain the voice signal v(t). Equivalently, in the frequency domain the transforms of these signals are multiplied to obtain the response. Mathematically, the source and vocal tract are indistinguishable, and changes in one can compensate for changes in the other and still produce an identical voice.