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In hyperbolic systems that portray acoustic phenomena – the prototype is compressible fluid flow – the difference between ‘subsonic’ and ‘supersonic’ states can be described via some subtle properties of the wave cone. But when one restricts to self-similar solutions (steady or uniformly expanding in time) the difference manifests itself as change of type in the equations, from hyperbolic (supersonic) to elliptic or mixed type (subsonic). Recently, in joint work with Allen Tesdall, we have made some progress in identifying different ways in which singularities (that is, shock waves) can be formed at the sonic line in self-similar equations. (Received June 29, 2011)