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The well-known theorems of Stieltjes, Hamburger and Hausdorff establish conditions on infinite sequences of real numbers to be moment sequences. Further, works by Carathéodory, Schur and Nevanlinna connect moment problems to problems in function theory and functions belonging to various spaces. In many problems associated with realization of a signal or an image, data may be corrupted or missing. Reconstruction of a function from moment sequences with missing terms is an interesting problem leading to advances in image and/or signal reconstruction. It is easy to show that a subsequence of a moment sequence may not be a moment sequence. Conditions are obtained to show how rigid the space of sub-moment sequences is and necessary and sufficient conditions for a sequence to be a sub-moment sequence is established. A deep connection between the sub-moment measures and the moment measures is derived and the determinacy of the moment and sub-moment problems are related. This problem is further related to completion of positive Hankel matrices. (Received August 16, 2012)