where

$$G_n(q_0^2;\alpha_\beta) = \int_1^\infty \frac{d\omega}{\omega^{n+2}}\,\omega^{-\alpha_\beta+1}\frac{d}{d\omega}\,\omega^{\alpha_\beta}F(\omega,q_0^2) \tag{A.4}$$

is known from the input data (which satisfies the requirement that $F(1,q_o^2)=0$). In this way we are led to consider the moment problem

$$F_n(q^2) = G_n(q_0^2;\alpha_\beta)\,\lambda^{-b_n}$$

where

$$b_n = a_n + (\log\lambda)^{-1}.$$

The new problem has exactly the same structure as the original one, with $F_n(q_o^2) \rightarrow G_n(q_o^2;\alpha_\beta)$ and $a_n \rightarrow b_n$. By repeated use of this trick we can arrange (over some range of λ which is big enough for our needs) that the modified C_β are all positive. Indeed, with sufficient repetition we can arrange that the index ν encountered in (b) is always greater than unity. This last allows us to avoid modified Bessel functions of negative index. The latter are singular at the origin and would be a nuisance for numerical work.