$$\sum_{k=1}^{N} \alpha_k b_k p_n^{\alpha_k - 1} (\lambda_n)^{\beta_k} = \sum_{k=1}^{\tilde{N}} \tilde{\alpha}_k \tilde{b}_k p_n^{\tilde{\alpha}_k - 1} (\tilde{\lambda}_n)^{\tilde{\beta}_k}.$$