$$\operatorname{sum} = v_1'(1+\eta_N) + v_2'(1+\eta_{N-1}) + \ldots + v_n'(1+\eta_1) = v_1(1+\eta_{N+1}) + v_2(1+\eta_N) + \ldots + v_N(1+\eta_2) = (a_1+\alpha_1) + \ldots + a_1'(1+\eta_N) + \ldots + a_2'(1+\eta_N) +$$