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Consider pages 111 and 112 of the lecture notes and obtain (using functional derivatives):

a

$$G_{\mathcal{J}}^{(0)}(\chi_1, \chi_2, \chi_3)_{\mathcal{J}} \not\approx G_{\mathcal{J}}^{(0)}(\chi_1, \chi_2, \chi_3, \chi_4)_{\mathcal{J}}$$

b

Specialize both expressions for $J = 0$

(write the answers to (a) and (b) both in terms of functions and in diagram form)