Notes

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1 Intro

The Fisher info kernel we are interested in is

$$I(\ln k, \ln k') = \frac{\delta^2(-\ln L)}{\delta P(\ln k)\delta P(\ln k')} \tag{1.1}$$

The current version for the fisher info in the likli.py code

$$\delta^2(-\ln L)_{k,k'} = \sum_l \frac{2l+1}{2} f_s \left(\delta^2 C^T_{kk'}\left(-\frac{C^O}{(C^T+N)^2} - \frac{1}{C^T+N}\right) + \delta C^T_k \delta C^T_{k'}\left(\frac{2C^O}{(C^T+N)^3} + \frac{1}{(C^T+N)^2}\right)\right) \tag{1.2}$$

where the subscript of k, k' represent the derivatives wrt to that k. The variation in the Cl_s is taken to be of the form:

$$\begin{aligned} \delta C_k &= C_l(k) - C_l(ML) \\ \delta C_{kk'} &= 2(C_l(ML))^2 - (C_l(k) - C_l(k'))^2 \end{aligned} \tag{1.3}$$

where ML stands for Maximum liklihood which we take to be the fiducial model. These forms of derivatives are very Heuristic and need justification. The form for $\delta C_{kk'}$ in particular since the only real condition in deriving it was that it should be symmetric in C_k and $C_{k'}$. Here C^T with no index is taken to be the Cls from CAMB with the normal/fiducial power spectrum.