N_{eff} priors

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Abstract

Try to understand the effect of prior on the N_{eff} parameter with a Fisher matrix approach. Where should you invest time and money if you really care about the value of N_{eff}?

INTRODUCTION

THEORY

$$s\ [\ \mu\mathrm{K.arcmin}\ ] \equiv \frac{\mathrm{NET}\ [\ \mu\mathrm{K}.\sqrt{s}\ ] \times \sqrt{f_{sky}\ [\ \mathrm{arcmin}^2\ ]}}{\sqrt{N_{\mathrm{det}} \times Y \times \Delta T\ [\ \mathrm{s}\ ]}}. \tag{1}$$

$$F_{ij} \equiv -\left\langle \left. \frac{\partial^2 \log \mathcal{L}}{\partial\theta_i \partial\theta_j} \right|_{\boldsymbol{\theta}=\boldsymbol{\theta_0}} \right\rangle \tag{2}$$

$$\mathbf{C}_\ell \equiv \begin{pmatrix} C_\ell^{TT} + N_\ell^{TT} & C_\ell^{TE} & C_\ell^{Td} \\ C_\ell^{TE} & C_\ell^{EE} + N_\ell^{EE} & 0 \\ C_\ell^{Td} & 0 & C_\ell^{dd} + N_\ell^{dd} \end{pmatrix}. \tag{3}$$

$$\sigma_i \equiv \sigma(\theta_i) = \sqrt{(\mathbf{F^{-1}})_{ii}} \tag{4}$$

$$F_{H_0 H_0} \to F_{H_0 H_0} + \frac{1}{(1\% \times H_{0,fid})^2}, \tag{5}$$

$$T_\nu = \left(\frac{4}{11}\right)^{1/3} T_\gamma \tag{6}$$

DATA

RESULTS

CONCLUSIONS