Simulation results

Emmanuelle Comets

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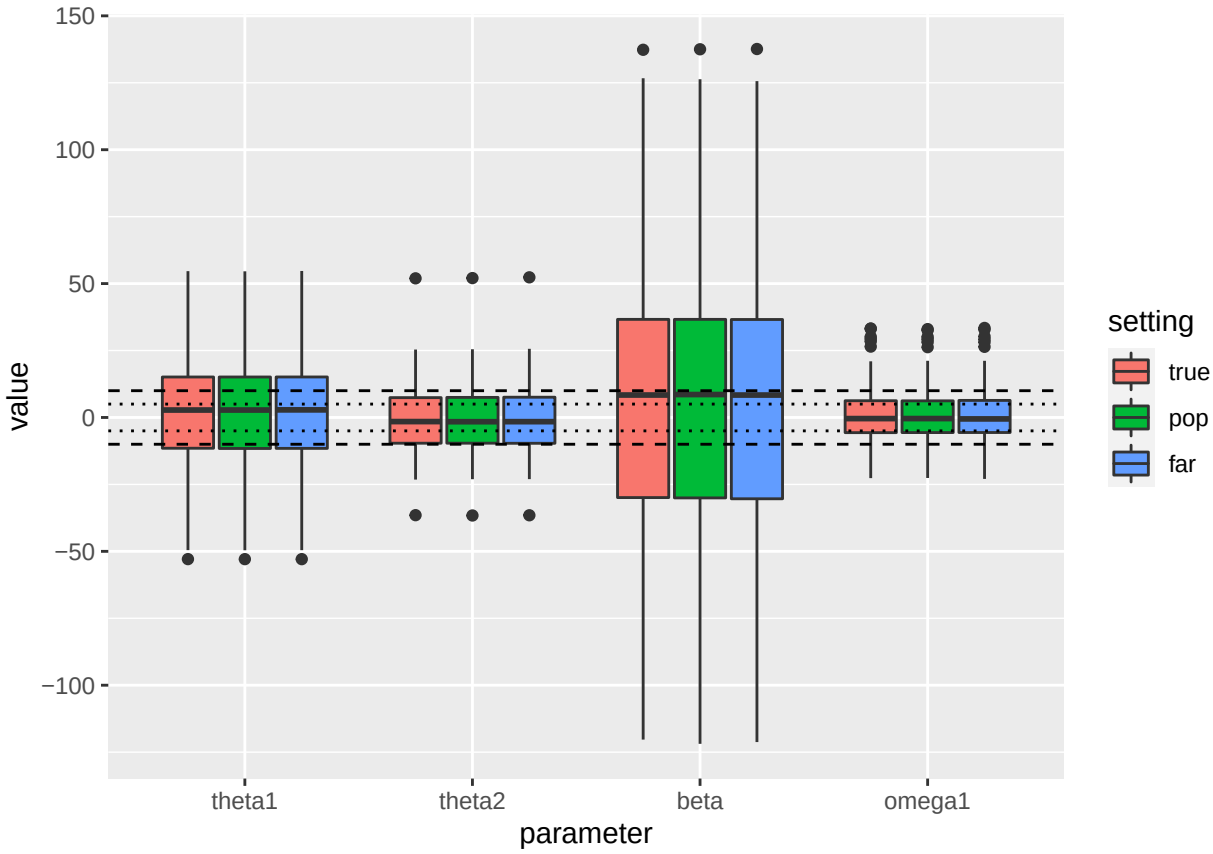
Content

Binary model

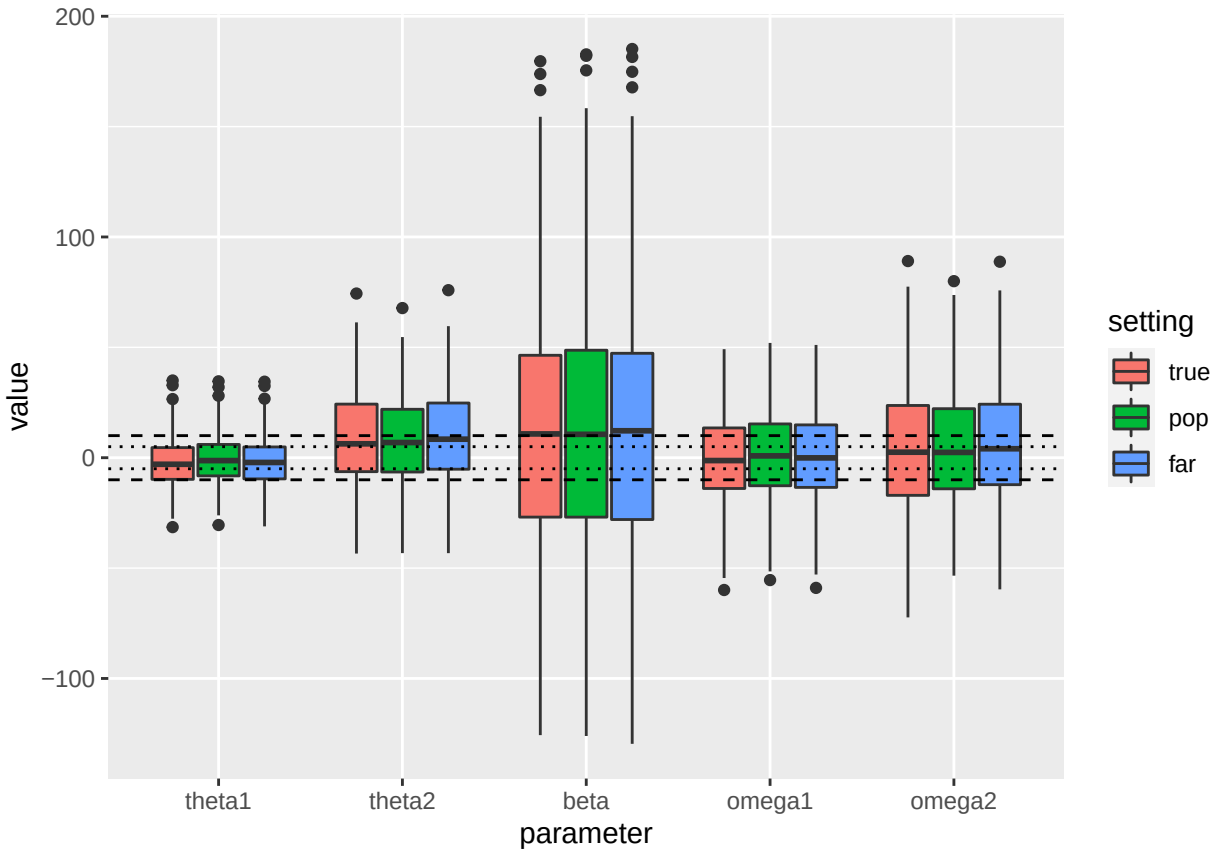
Simulations run using scripts (run before, only the results are used here)

Results

- two scenarios, with design of the toenail study (per protocol)
  - IIV on θ_1 only: bias less than 5% for all parameters (? when plotted, around 10% ?)
  - IIV on both parameters with 50% IIV: some bias on θ_2 and β (~10%) and a little on ω_{theta_2} (6.5%)
    - the bias on ω_{theta_2} disappears when we start from the true parameters but the bias on θ_2 and β remains around 10%
- comparing settings for initial values
  - no difference w/r starting values of the parameters ⇒ runs seem to be stable with 10 chains
- Expected RSE from PFIM
  - binaryOrig: -24.86142 -11.63633 -38.29206 20.39756
    - all parameters should be well estimated
  - binaryIIV: -10.70774 -20.99451 -112.04915 36.80376 65.15504
    - β expected to be poorly estimated (but θ_2 should be well estimated)




```
##     Min.  1st Qu.   Median     Mean  3rd Qu.     Max.
## -0.93347 -0.25844 -0.04748 -0.03532  0.19819  0.90479
##     Min.  1st Qu.   Median     Mean  3rd Qu.     Max.
## -0.52912 -0.11590  0.02777  0.02066  0.15113  0.54589
## [1] 0.3316673
##      Min.   1st Qu.    Median      Mean   3rd Qu.      Max.
## -0.203014 -0.029215  0.006188  0.003564  0.037472  0.142786
##      Min.   1st Qu.    Median      Mean   3rd Qu.      Max.
## -0.366118 -0.096081 -0.015867 -0.009138  0.074911  0.520548
## [1] 0.04730916
##      Min.   1st Qu.    Median      Mean   3rd Qu.      Max.
## -0.206276 -0.054955 -0.012840 -0.005868  0.045065  0.182836
##     Min.  1st Qu.   Median     Mean  3rd Qu.     Max.
## -1.21891 -0.30043  0.08560  0.03912  0.36637  1.37517
## [1] 0.07105211
##     Min.  1st Qu.   Median     Mean  3rd Qu.     Max.
## -0.90880 -0.22688 -0.01638  0.03389  0.24983  1.32663
##      Min.   1st Qu.    Median      Mean   3rd Qu.      Max.
## -0.226069 -0.056439 -0.004074  0.008431  0.062148  0.330007
## [1] 0.385373
```




```
##     Min.  1st Qu.   Median     Mean  3rd Qu.     Max.
## -0.59174 -0.10267  0.02224  0.01032  0.14077  0.52136
##      Min.   1st Qu.    Median      Mean   3rd Qu.      Max.
## -0.304887 -0.082320 -0.013003 -0.006037  0.060041  0.346050
## [1] 0.193296
##     Min.  1st Qu.   Median     Mean  3rd Qu.     Max.
## -0.26439 -0.08557 -0.02681 -0.02921  0.02523  0.16859
##     Min.  1st Qu.   Median     Mean  3rd Qu.     Max.
## -0.43228 -0.06470  0.06873  0.07489  0.21940  0.67794
## [1] 0.07726252
##     Min.  1st Qu.   Median     Mean  3rd Qu.     Max.
## -0.27406 -0.07302 -0.01589 -0.01856  0.04037  0.18910
##    Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
## -1.2607 -0.2691  0.1059  0.1238  0.4868  1.8271
## [1] 0.0844076
##      Min.   1st Qu.    Median      Mean   3rd Qu.      Max.
## -0.554304 -0.126985  0.008386  0.003908  0.153022  0.520036
##      Min.   1st Qu.    Median      Mean   3rd Qu.      Max.
## -0.554304 -0.126985  0.008386  0.003908  0.153022  0.520036
## [1] 0.1970091
##      Min.   1st Qu.    Median      Mean   3rd Qu.      Max.
## -0.106868 -0.028162  0.004818  0.010372  0.044401  0.159956
##     Min.  1st Qu.   Median     Mean  3rd Qu.     Max.
## -0.53434 -0.14081  0.02409  0.05186  0.22201  0.79978
## [1] 0.04948455
```