ecoli_post.csv_run_5_20250529_141318

May 29, 2025

/Users/navehr/Dropbox/naveh/weizmann/uri alon/aging/code_3

Loading file from: /Users/navehr/Dropbox/naveh/weizmann/uri
alon/aging/code_3/baysian02/posterior_csvs_baysian01/ecoli_post.csv

Reading Ecoli

1   # 1. Density coner plot

A sample is 1 parameter set scanned. For the corner plot below, the quantiles (represented by the solid lines) are 0.16,0.5,0.84 of the samples. Dots represent individual samples (outside the line surrounding 0.84 of the samples) The parameter search is performed in the transformed space of x_c/η, β/η, x_c^2/ϵ, x_c but we also show the regular parameters

(16,)
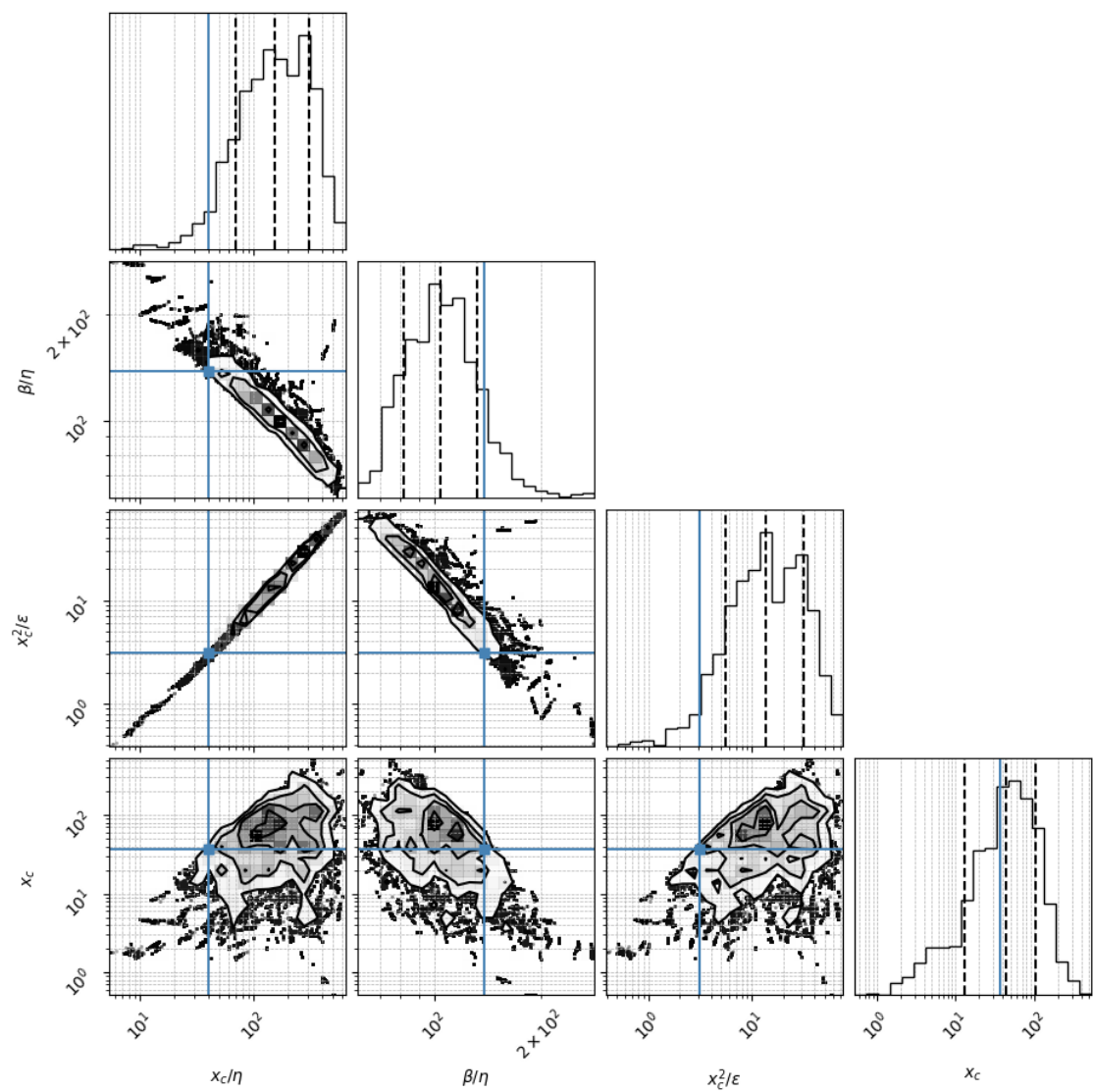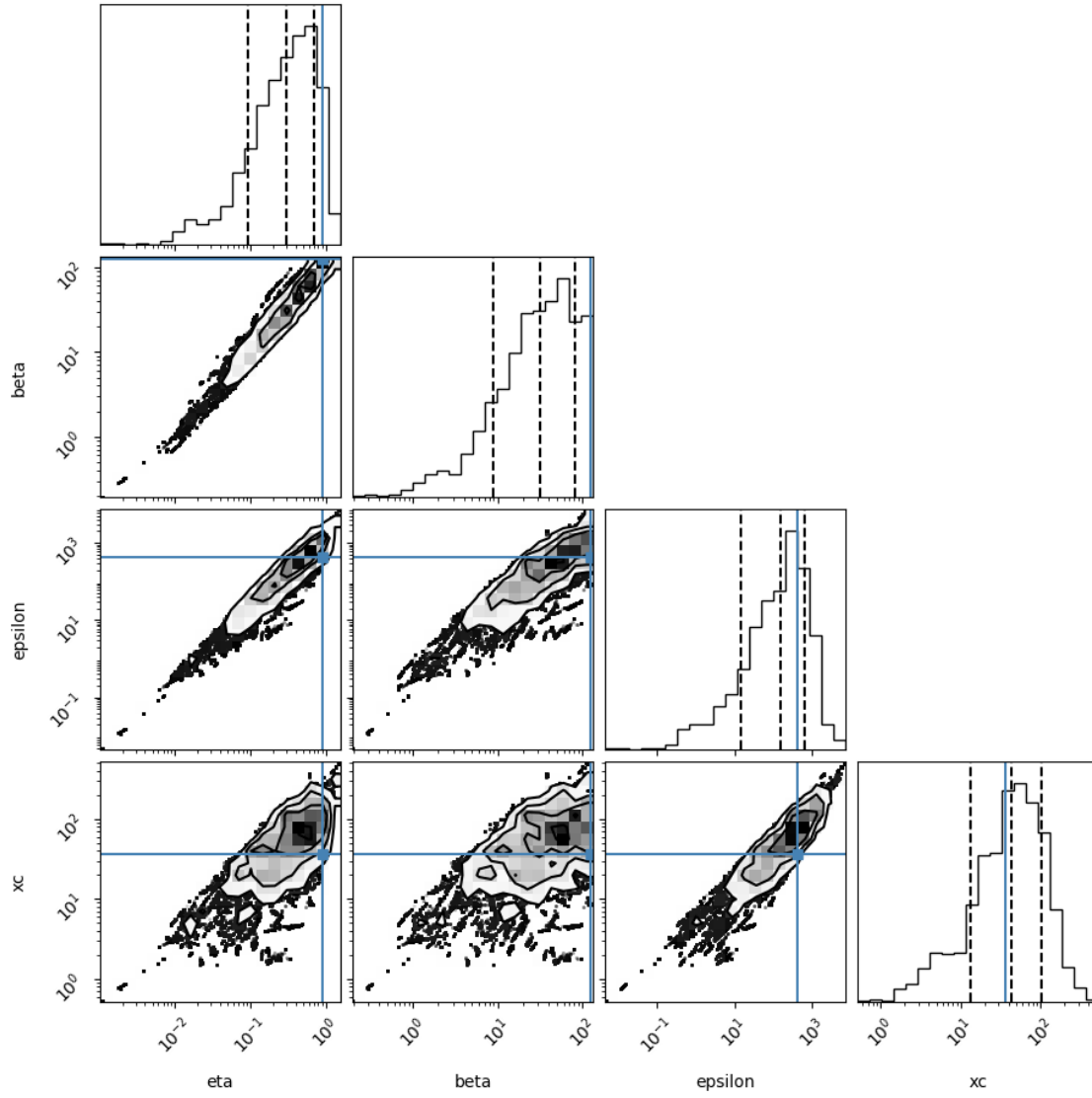
2 2. Heat map corner plot of raw samples

This plot shows all the raw sample points and their lnprobability
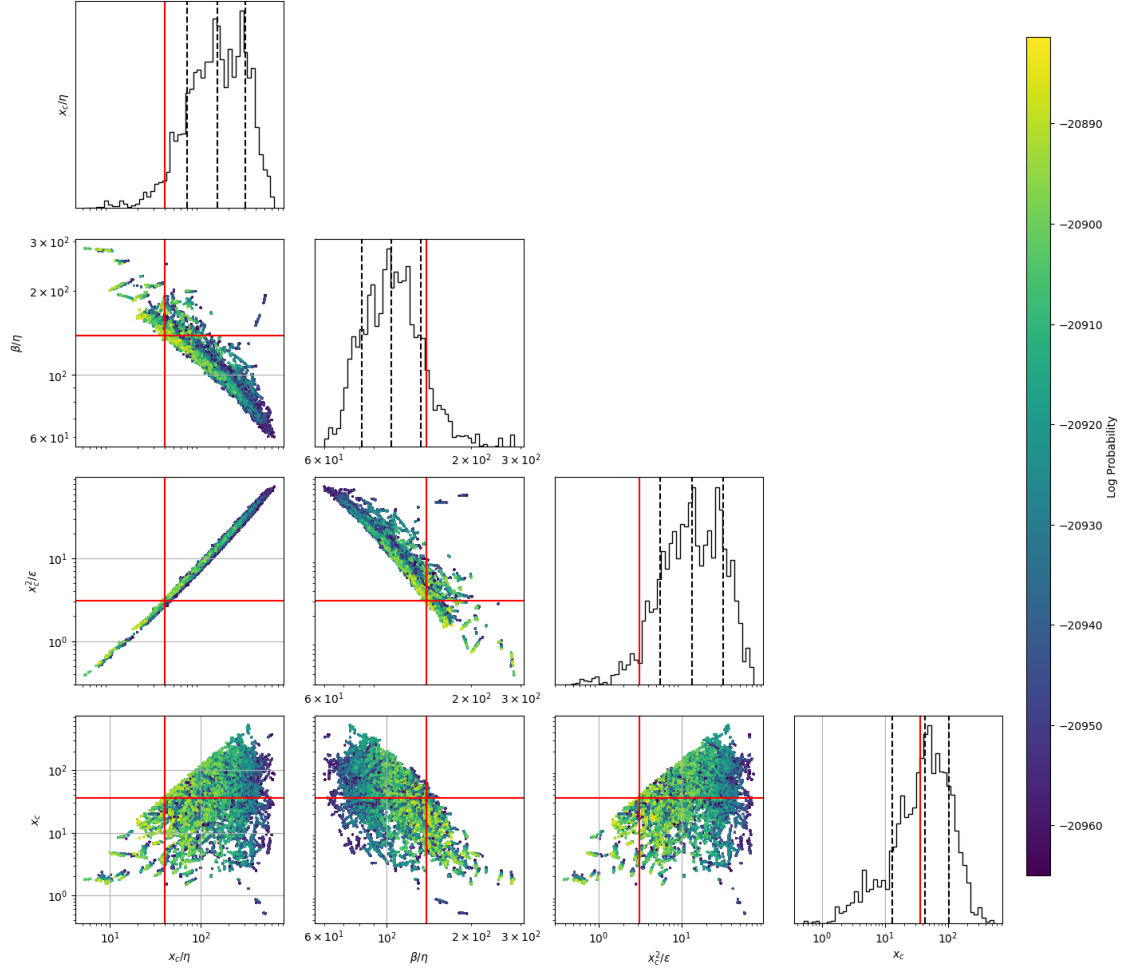
3 3. Posterior distributions of parameters

1d marginalizations of posterior distributions. we use a grid of size nbins=100-150
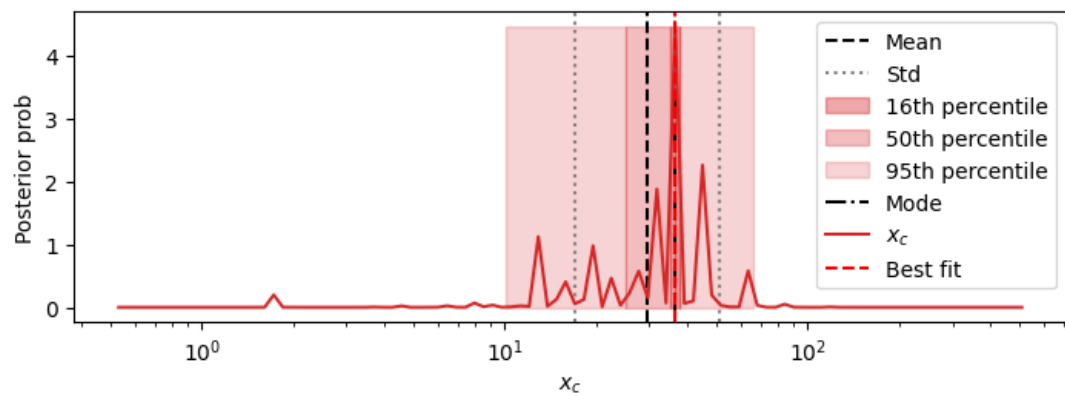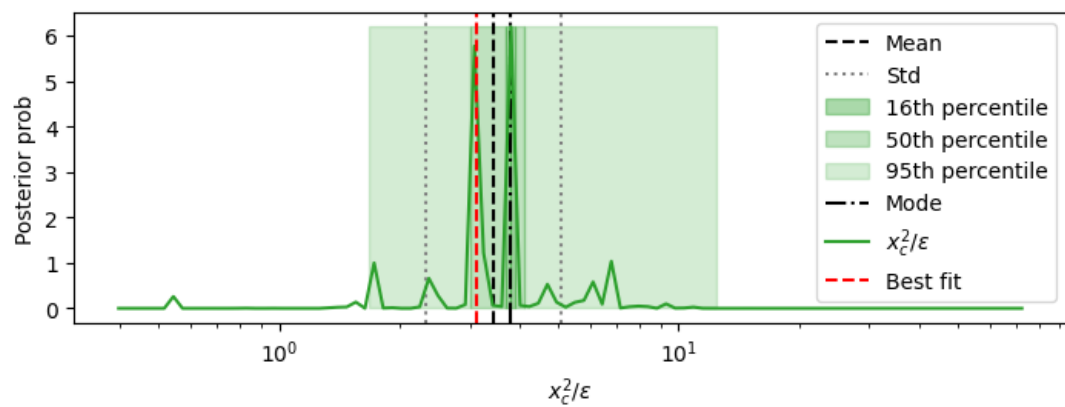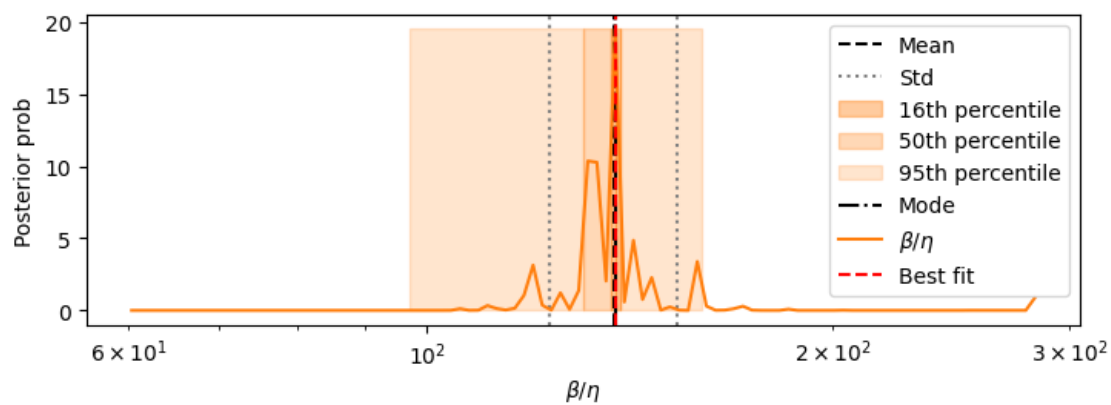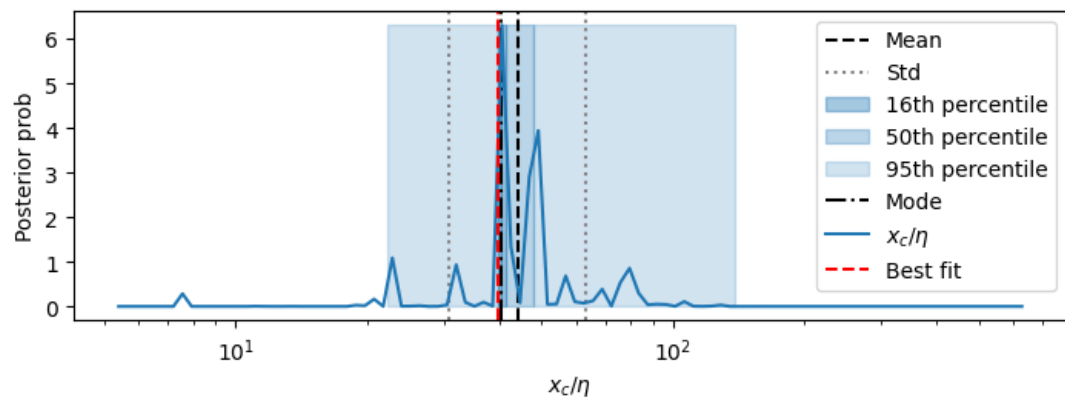
2D marginalizations of posterior distributions

2D Marginalized Posterior

Rescaling the samples TIME by 0.041666666666666664

4 4. Table of results

mode is the marginalized mode, max_likwlihood is the sample with highest likelihood mode_overall is the 4D posterior mode

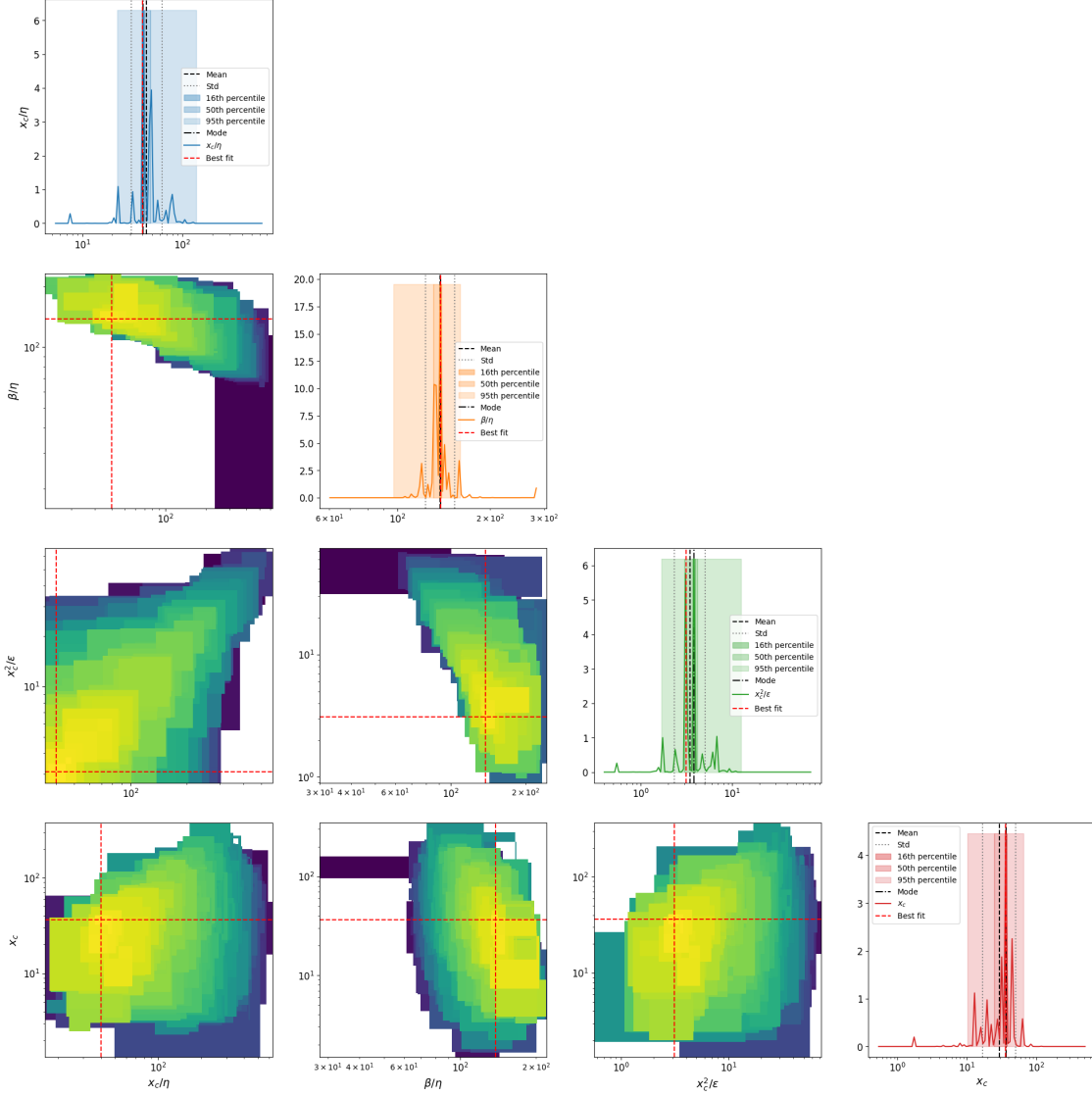|	mean	std	mode	\
xc/eta	44.087	[19.026, 13.291]	44.723	
beta/eta	137.501	[15.795, 14.167]	135.814	
xc^2/epsilon	3.44	[1.639, 1.11]	3.427	
xc	29.377	[21.555, 12.432]	34.059	
eta	0.465	[0.237, 0.157]	0.47	
beta	63.393	[30.847, 20.75]	129.657	
epsilon	132.125	[155.975, 71.532]	300.42	
sqrt(xc/eta)	6.463	[1.162, 0.985]	6.85	
s= eta^0.5*xc^1.5/epsilon	0.504	[0.103, 0.0857]	0.536	
beta*xc/epsilon	10.88	[0.611, 0.579]	10.676	
eta*xc/epsilon	0.0785	[0.00296, 0.00285]	0.0782	
Fx=beta^2/eta*xc	437.728	[370.128, 200.55]	388.159	
Dx =beta*epsilon/eta*xc^2	39.977	[28.157, 16.521]	33.253	
Pk=beta*k/epsilon	0.216	[0.167, 0.0942]	0.165	
Fk=beta^2/eta*k	26533.636	[14011.023, 9169.232]	31255.984	
Dk =beta*epsilon/eta*k^2	124674.296	[155178.412, 69131.935]	74300.998	
Fk^2/Dk=beta^3/eta*epsilon	5319.592	[5143.357, 2614.995]	4049.82	
epsilon/beta^2	0.0305	[0.0163, 0.0106]	0.033	
k/beta	0.0082	[0.00451, 0.00291]	0.0117	
k^2/epsilon	0.00232	[0.00279, 0.00127]	0.00402	
best fit_MedianLifetime	67.9	0.51	67.9	
best fit_MaxLifetime	121.34	0	121.34	
data_MedianLifetime	68.09	0.51	68.09	
data_MaxLifetime	137.66	0	137.66	

	percentile_16 \
xc/eta	[43.662, 48.065]
beta/eta	[134.758, 136.877]
xc^2/epsilon	[3.168, 3.519]
xc	[30.695, 35.26]
eta	[0.42, 0.524]
beta	[125.487, 133.965]
epsilon	[242.308, 322.737]
sqrt(xc/eta)	[6.608, 6.933]
s= eta^0.5*xc^1.5/epsilon	[0.528, 0.559]
beta*xc/epsilon	[10.613, 10.739]
eta*xc/epsilon	[0.0774, 0.0785]
Fx=beta^2/eta*xc	[373.111, 437.044]
Dx =beta*epsilon/eta*xc^2	[32.14, 36.828]
Pk=beta*k/epsilon	[0.158, 0.185]
Fk=beta^2/eta*k	[28284.049, 34540.193]
Dk =beta*epsilon/eta*k^2	[60792.184, 79440.801]
Fk^2/Dk=beta^3/eta*epsilon	[3871.467, 4635.71]
epsilon/beta^2	[0.0318, 0.0343]
k/beta	[0.0106, 0.0121]
k^2/epsilon	[0.00374, 0.00498]

```
best fit_MedianLifetime          [67.41000000000001, 68.41000000000001]
best fit_MaxLifetime                               [121.34, 121.34]
data_MedianLifetime              [67.60000000000001, 68.60000000000001]
data_MaxLifetime                                   [137.66, 137.66]


                                                 percentile_50  \
xc/eta                                           [39.662, 52.913]
beta/eta                                       [132.672, 141.215]
xc^2/epsilon                                       [3.005, 4.576]
xc                                               [26.721, 43.412]
eta                                                [0.391, 0.758]
beta                                            [69.676, 133.965]
epsilon                                        [102.548, 372.468]
sqrt(xc/eta)                                       [6.451, 7.101]
s= eta^0.5*xc^1.5/epsilon                          [0.513, 0.627]
beta*xc/epsilon                                  [10.488, 10.996]
eta*xc/epsilon                                   [0.0757, 0.0791]
Fx=beta^2/eta*xc                                 [318.53, 473.008]
Dx =beta*epsilon/eta*xc^2                        [28.048, 39.423]
Pk=beta*k/epsilon                                  [0.146, 0.254]
Fk=beta^2/eta*k                            [18965.978, 34540.193]
Dk =beta*epsilon/eta*k^2                   [53180.18, 177268.363]
Fk^2/Dk=beta^3/eta*epsilon                   [3233.217, 5072.671]
epsilon/beta^2                                   [0.0274, 0.0369]
k/beta                                          [0.00817, 0.0138]
k^2/epsilon                                     [0.00211, 0.00498]
best fit_MedianLifetime          [67.41000000000001, 68.41000000000001]
best fit_MaxLifetime                               [121.34, 121.34]
data_MedianLifetime              [67.60000000000001, 68.60000000000001]
data_MaxLifetime                                   [137.66, 137.66]


                                                 percentile_95  \
xc/eta                                           [32.728, 94.173]
beta/eta                                       [117.106, 147.981]
xc^2/epsilon                                       [2.435, 8.159]
xc                                               [12.464, 53.448]
eta                                                 [0.27, 1.018]
beta                                            [36.239, 133.965]
epsilon                                        [37.605, 496.099]
sqrt(xc/eta)                                        [5.86, 9.94]
s= eta^0.5*xc^1.5/epsilon                          [0.458, 0.884]
beta*xc/epsilon                                   [9.654, 11.529]
eta*xc/epsilon                                   [0.0741, 0.0838]
Fx=beta^2/eta*xc                                [133.466, 760.205]
Dx =beta*epsilon/eta*xc^2                        [13.263, 72.756]
Pk=beta*k/epsilon                                   [0.106, 0.48]
Fk=beta^2/eta*k                             [9743.118, 36919.217]
```

```
Dk =beta*epsilon/eta*k^2                    [23832.093, 346035.707]
Fk^2/Dk=beta^3/eta*epsilon                  [1313.504, 10427.964]
epsilon/beta^2                              [0.0112, 0.0778]
k/beta                                      [0.00373, 0.0138]
k^2/epsilon                                 [0.000503, 0.00766]
best fit_MedianLifetime     [67.41000000000001, 68.41000000000001]
best fit_MaxLifetime                        [121.34, 121.34]
data_MedianLifetime         [67.60000000000001, 68.60000000000001]
data_MaxLifetime                            [137.66, 137.66]
```

	max_likelihood	mode_overall
xc/eta	39.957	39.957
beta/eta	138.129	138.129
xc^2/epsilon	3.113	3.113
xc	36.435	36.435
eta	0.912	0.311
beta	125.952	41.882
epsilon	426.497	66.568
sqrt(xc/eta)	6.321	6.321
s= eta^0.5*xc^1.5/epsilon	0.492	0.492
beta*xc/epsilon	10.76	10.76
eta*xc/epsilon	0.0779	0.0779
Fx=beta^2/eta*xc	477.504	477.504
Dx =beta*epsilon/eta*xc^2	44.378	44.378
Pk=beta*k/epsilon	0.148	0.148
Fk=beta^2/eta*k	34795.45	34795.45
Dk =beta*epsilon/eta*k^2	235647.041	235647.041
Fk^2/Dk=beta^3/eta*epsilon	5137.868	5137.868
epsilon/beta^2	0.0269	0.0379
k/beta	0.00397	0.0119
k^2/epsilon	0.000586	0.00376
best fit_MedianLifetime	67.9	NaN
best fit_MaxLifetime	121.34	NaN
data_MedianLifetime	68.09	NaN
data_MaxLifetime	137.66	NaN

5   5. Fits of simulations to data

best params is the sample with highest likelihood. mode trans is the 4D posterior mode in the transformed space of x_c/η, β/η, x_c^2/ϵ, x_c

Survival

Hazard

Death Times Distribution