Comparison of alternative kriging models

	Matern 5/2	Matern 3/2	Gaussian	exponent.	power exp.
Q2 constant trend	0.8612	0.8597	0.8562	0.7092	0.5931
Q2 1st order poly. trend	0.8686	0.8540	0.8616	0.8335	0.8724
RMSE constant trend	0.0033	0.0033	0.0033	0.0033	0.0033
RMSE 1st order poly. trend	0.0015	0.0015	0.0015	0.0015	0.0015
MAE constant trend	0.0028	0.0028	0.0028	0.0028	0.0028
MAE 1st order poly. trend	0.0011	0.0011	0.0011	0.0011	0.0011
RMA constant trend	1.8676	1.8676	1.8676	1.8676	1.8676
RMA 1st order poly. trend	1.2241	1.2241	1.2241	1.2241	1.2241

Q2: cross validation Q2 (higher is better)
RMSE/MAE/RMA: external validation RMSE/MAE/RMA (lower is better)

Kriging meta−model estimation (standardized)

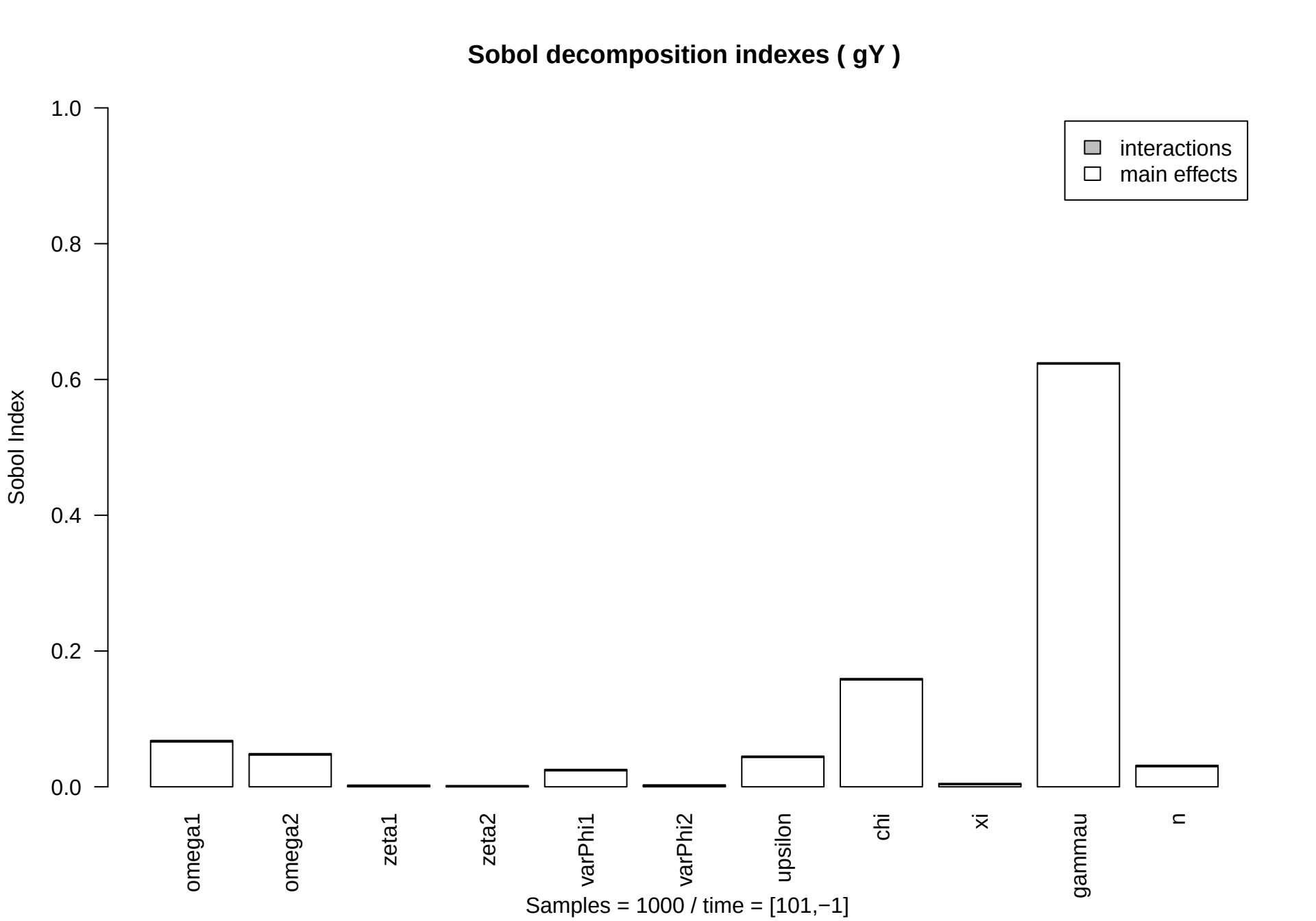
trend(intercept)	0.012	Trend specification	1st order poly.
trend(inclination)	0.003	Correlation function	power exp.
theta(omega1)	1.044	Cross−sample Q2	0.872
theta(omega2)	0.042	External RMSE	0.002
theta(zeta1)	1.897	External MAE	0.001
theta(zeta2)	0.746	External RMA	1.224
theta(varPhi1)	1.078	DoE samples	65
theta(varPhi2)	0.727	External samples	20
theta(upsilon)	1.879		
theta(chi)	1.629		
theta(xi)	1.273		
theta(gammau)	0.359		
theta(n)	0.047		

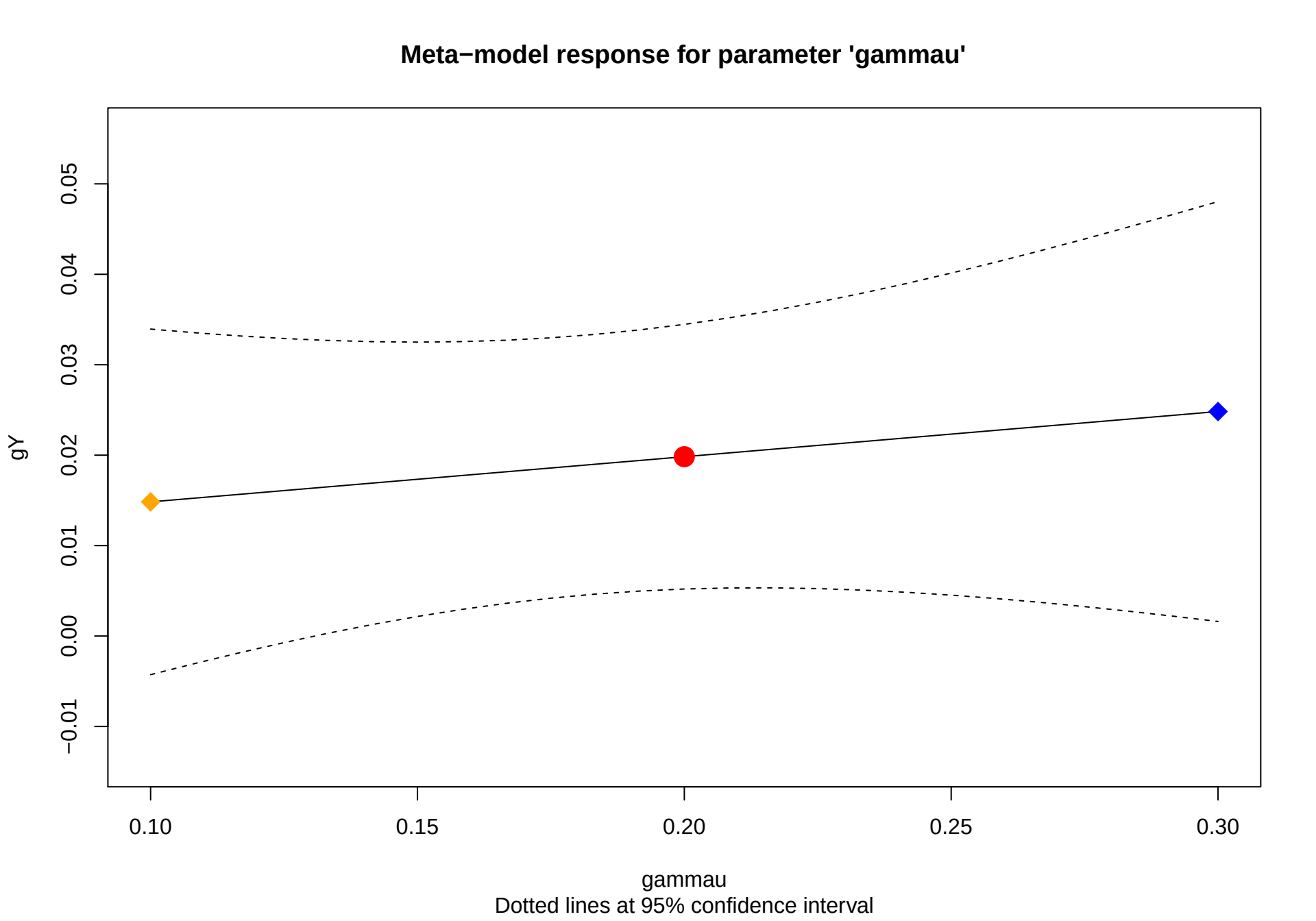
Variables rescaled to [0,1] / Average 95% CI = +/− 0.02
Predicted output at defaults: gY = 0.02, 95% CI = [0.01,0.03], time = [101,−1]

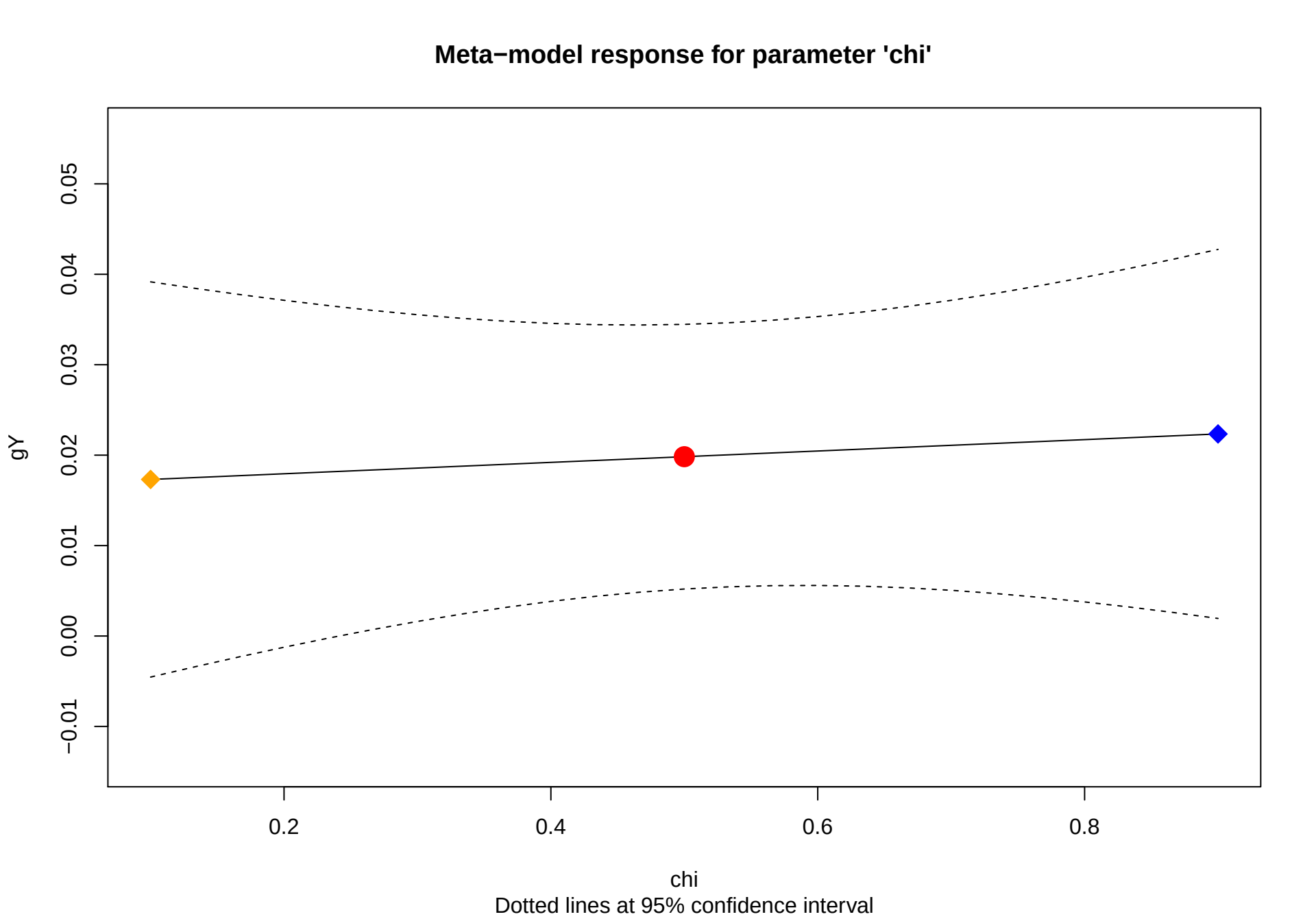
Sobol decomposition indexes (gY)

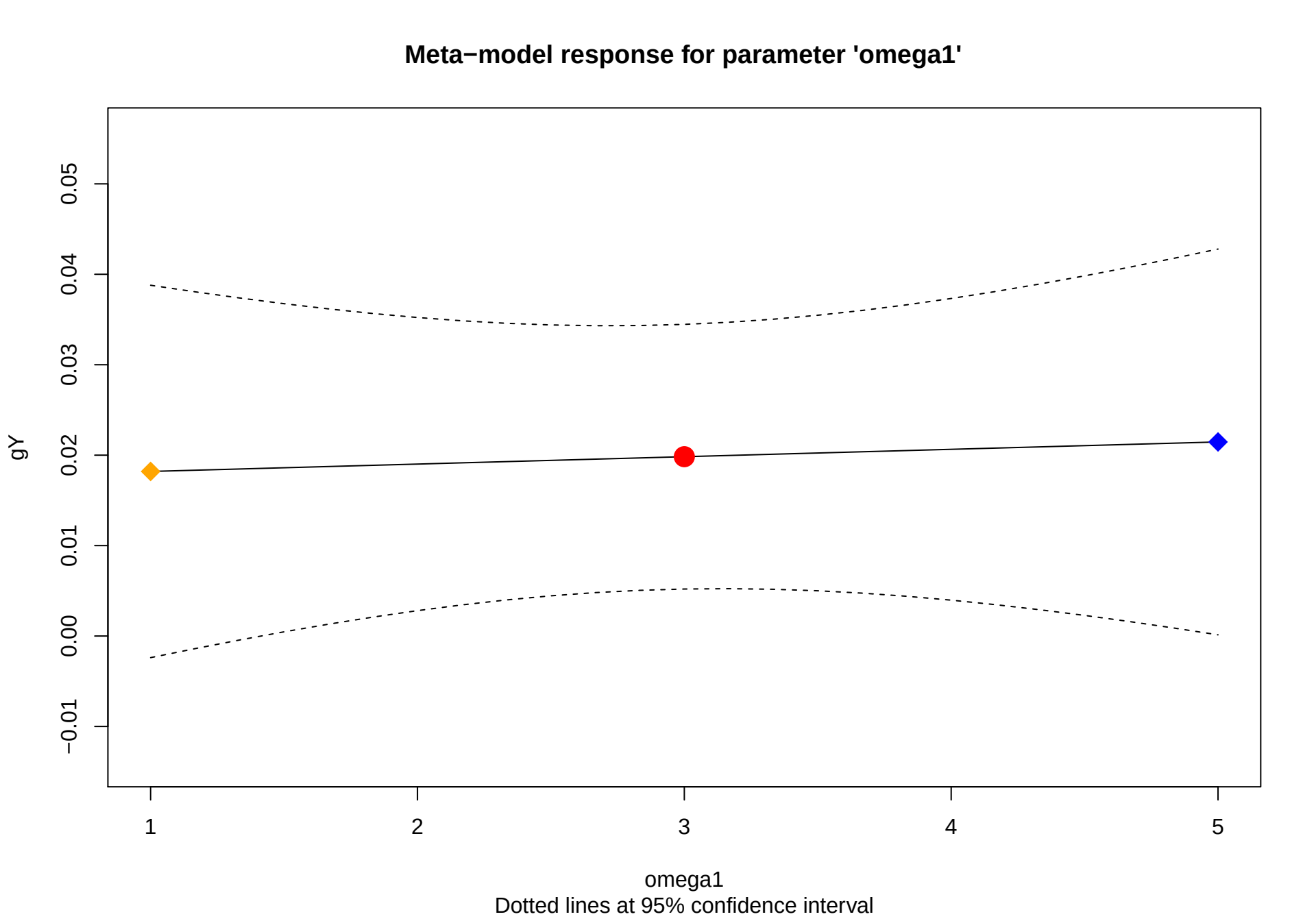
	Direct effects	Interactions
omega1	0.066	0.002
omega2	0.047	0.002
zeta1	0.001	0.002
zeta2	0.000	0.002
varPhi1	0.024	0.002
varPhi2	0.001	0.002
upsilon	0.043	0.002
chi	0.157	0.002
xi	0.003	0.002
gammau	0.623	0.002
n	0.030	0.002

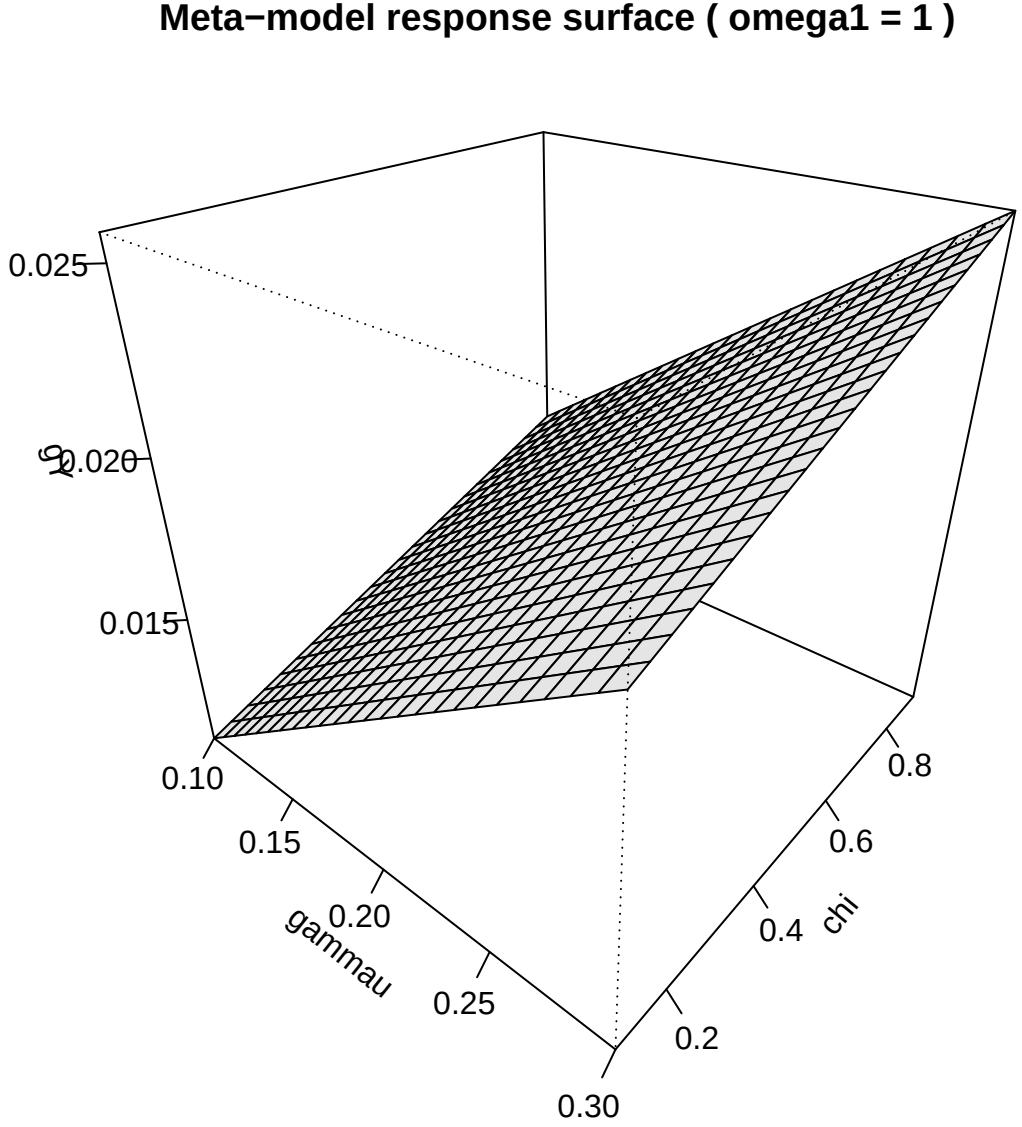
Samples = 1000 / time = [101,−1]

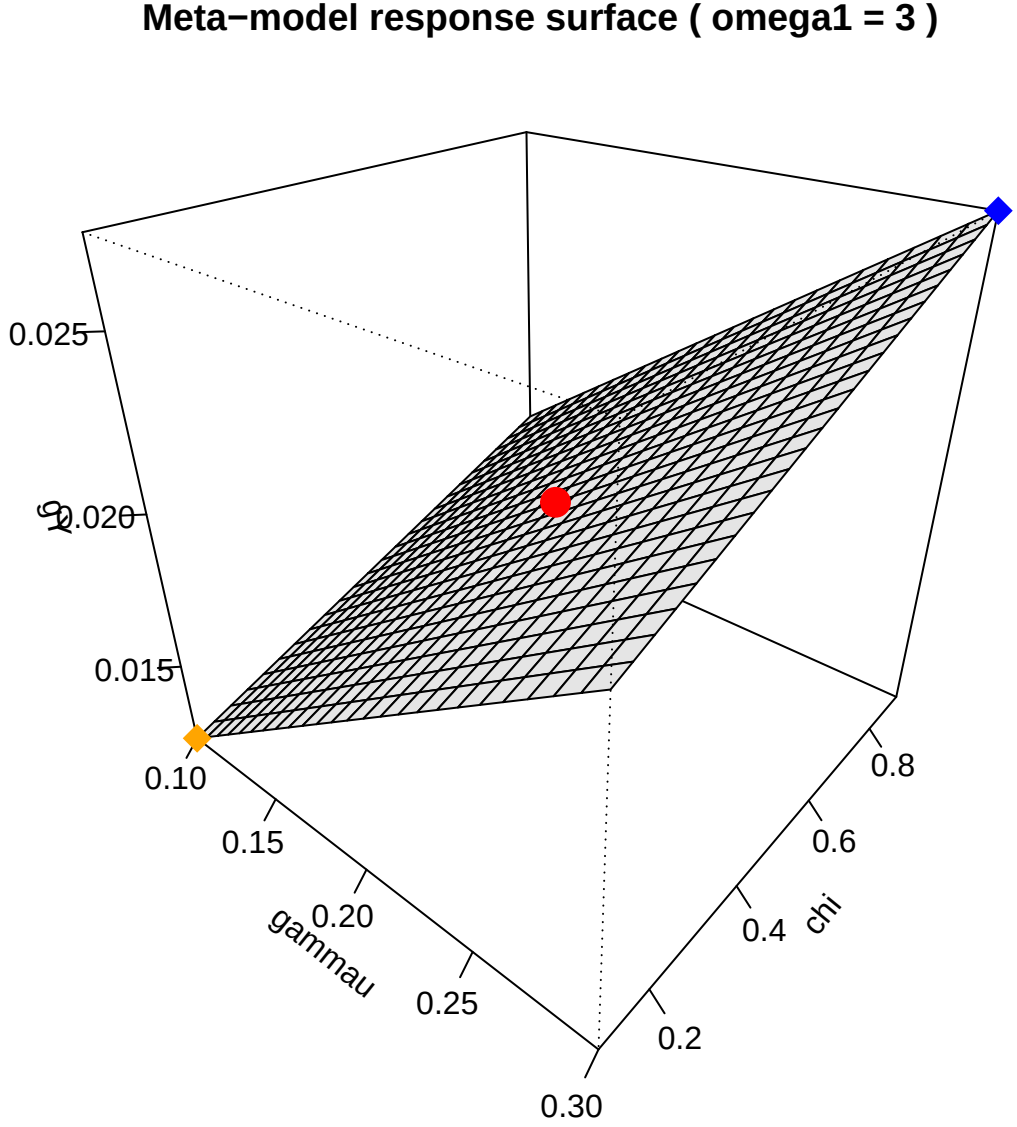

Sobol decomposition indexes (gY)
interactions
main effects
Sobol Index
1.0
0.8
0.6
0.4
0.2
0.0
omega1
omega2
zeta1
zeta2
varPhi1
varPhi2
upsilon
chi
xi
gammau
n
Samples = 1000 / time = [101,−1]

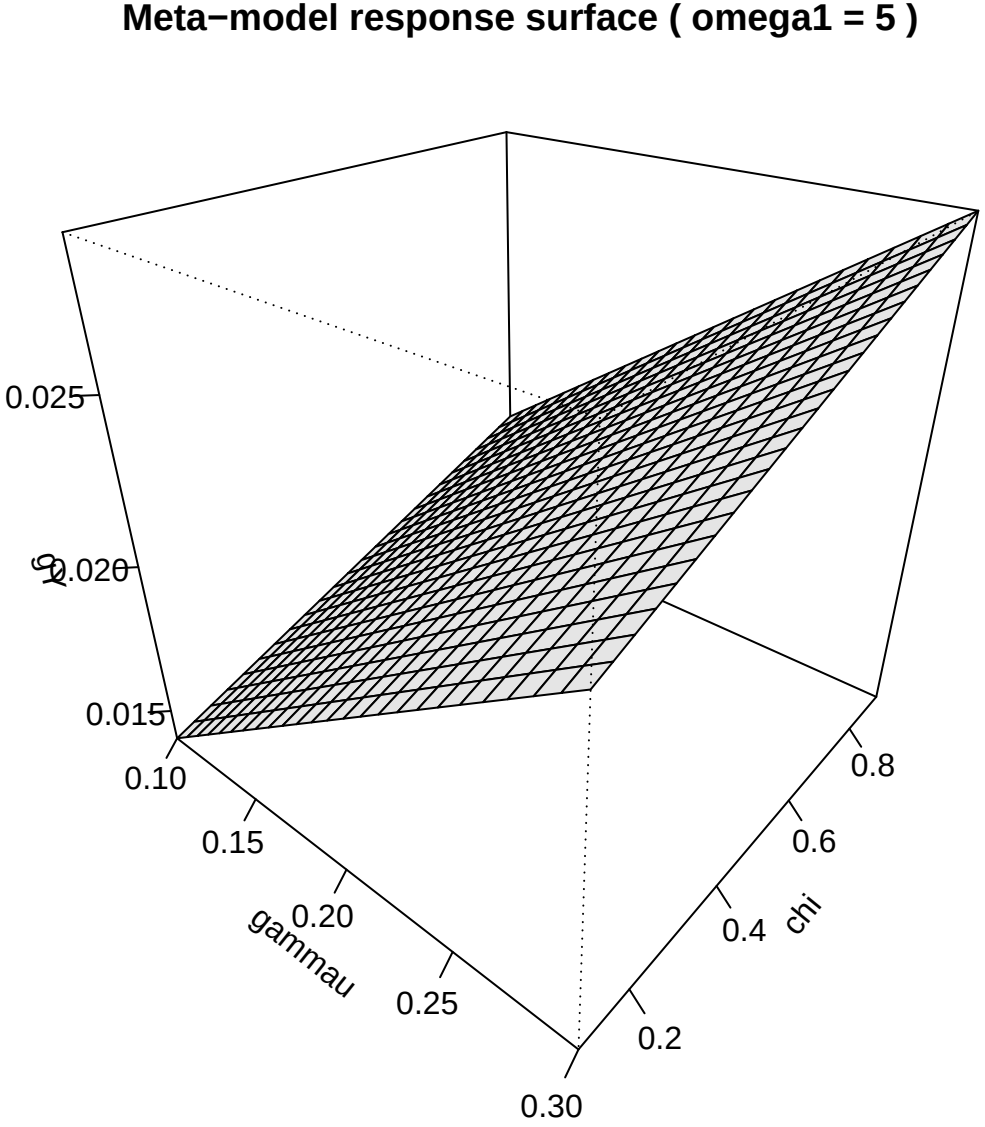

Meta−model response for parameter 'gammau'
gY
0.05
0.04
0.03
0.02
0.01
0.00
−0.01
0.10
0.15
0.20
0.25
0.30
gammau
Dotted lines at 95% confidence interval

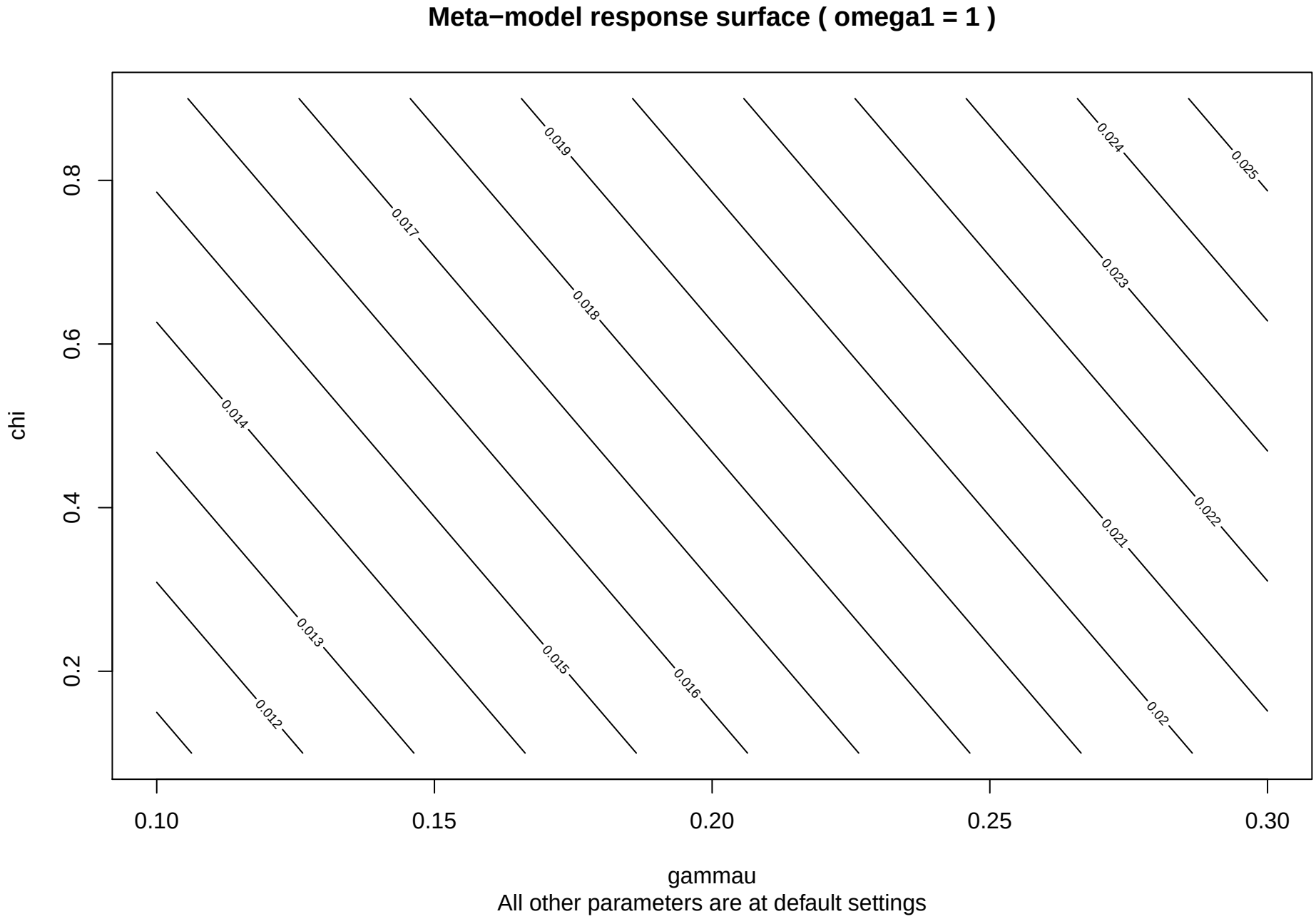

Meta−model response for parameter 'chi'
gY
0.05
0.04
0.03
0.02
0.01
0.00
−0.01
0.2
0.4
0.6
0.8
chi
Dotted lines at 95% confidence interval

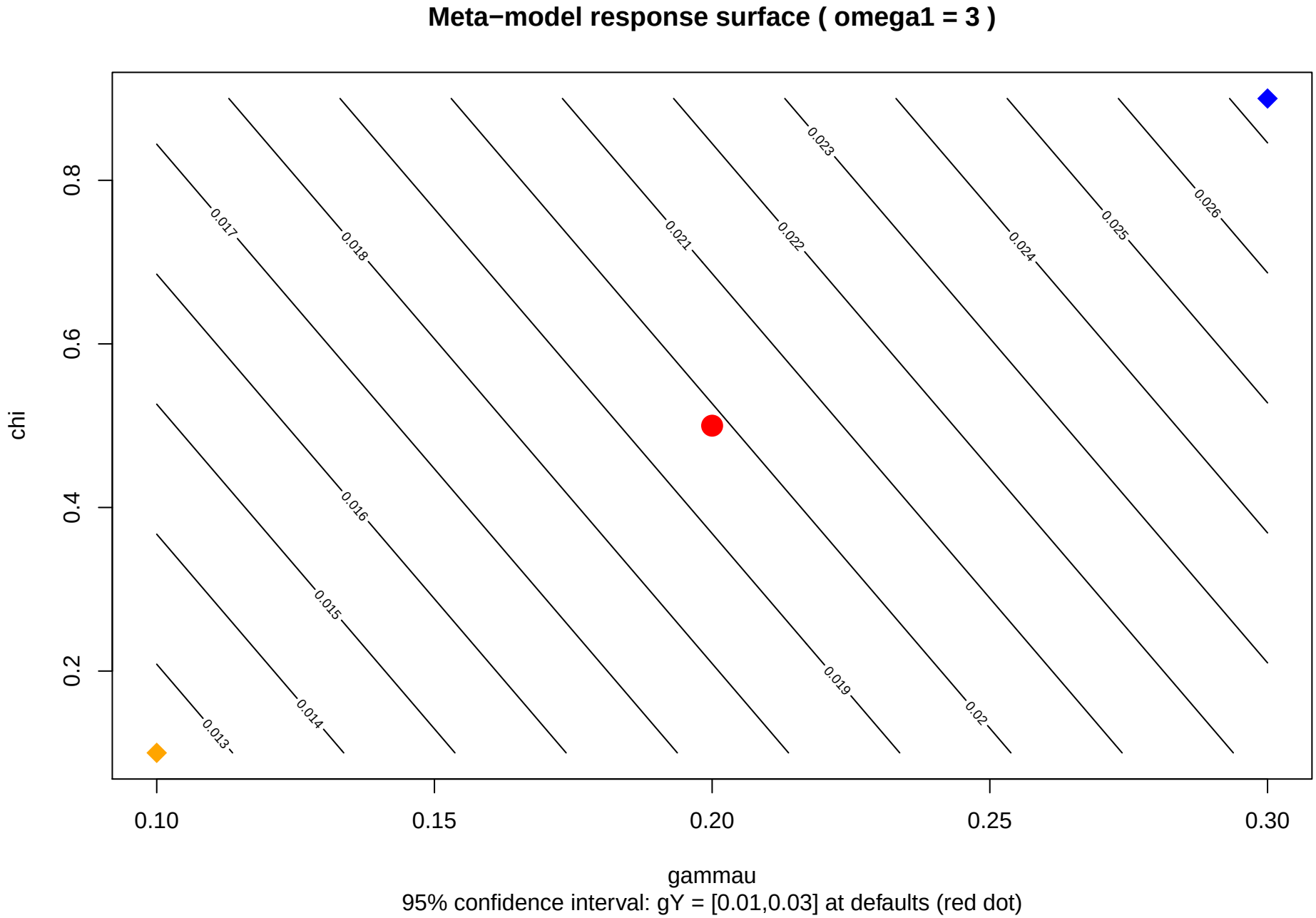

Meta−model response for parameter 'omega1'
gY
0.05
0.04
0.03
0.02
0.01
0.00
−0.01
1
2
3
4
5
omega1
Dotted lines at 95% confidence interval

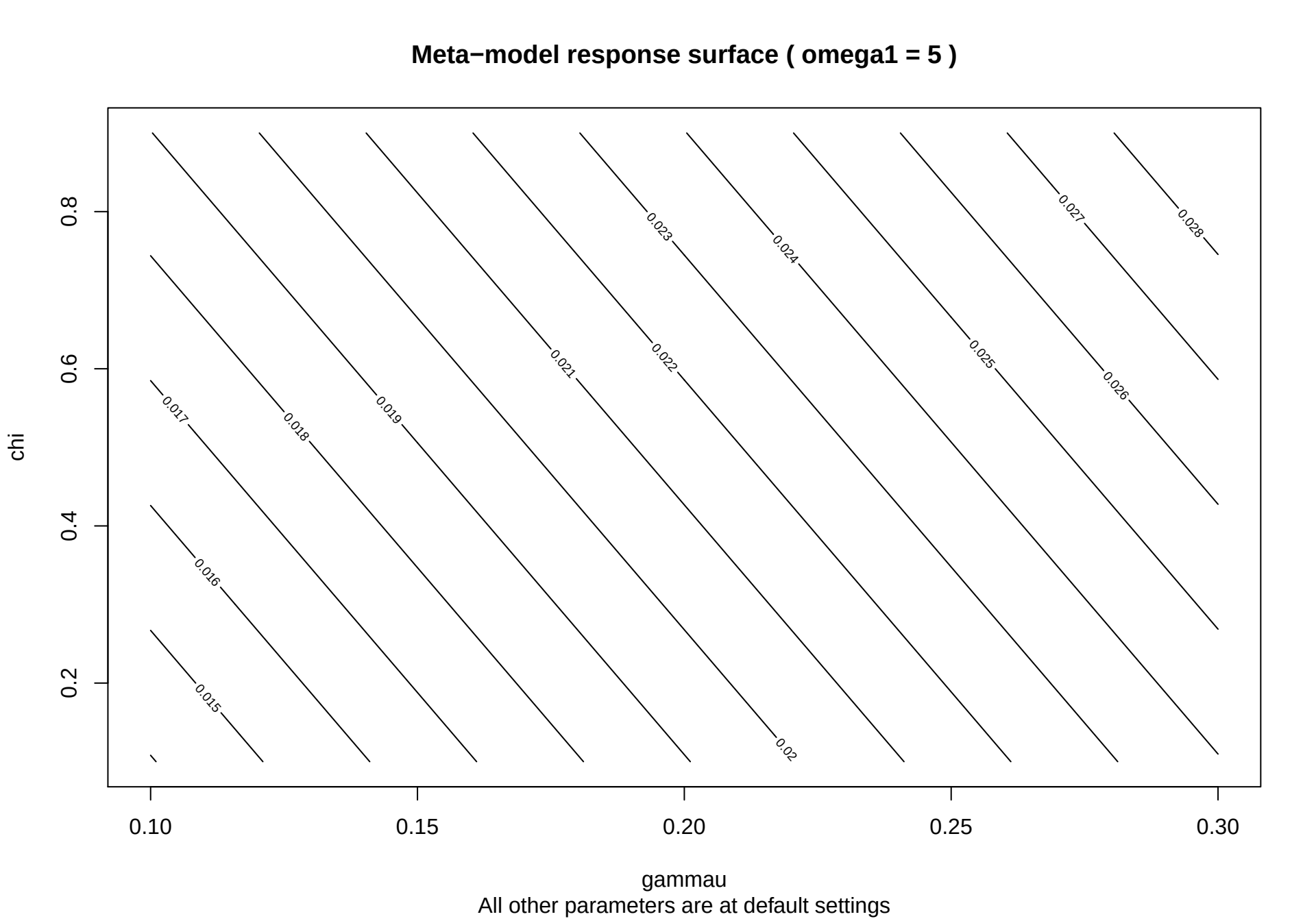

Meta−model response surface (omega1 = 1)
0.025
0.020
0.015
0.10
0.15
0.20
0.25
0.30
gammau
0.2
0.4
0.6
0.8
chi
All other parameters are at default settings


Meta−model response surface (omega1 = 3)
0.025
0.020
0.015
gY
0.10
0.15
0.20
0.25
gammau
0.30
0.2
0.4
0.6
0.8
chi
95% confidence interval: gY = [0.01,0.03] at defaults (red dot)


Meta−model response surface (omega1 = 5)
0.025
0.020
0.015
gy
0.10
0.15
0.20
0.25
0.30
gammau
0.2
0.4
0.6
0.8
chi
All other parameters are at default settings


Meta−model response surface (omega1 = 1)
chi
0.2
0.4
0.6
0.8
0.10
0.15
0.20
0.25
0.30
gammau
All other parameters are at default settings
0.012
0.013
0.014
0.015
0.016
0.017
0.018
0.019
0.02
0.021
0.022
0.023
0.024
0.025


Meta−model response surface (omega1 = 3)
chi
gammau
95% confidence interval: gY = [0.01,0.03] at defaults (red dot)
0.2
0.4
0.6
0.8
0.10
0.15
0.20
0.25
0.30
0.013
0.014
0.015
0.016
0.017
0.018
0.019
0.02
0.021
0.022
0.023
0.024
0.025
0.026


Meta−model response surface (omega1 = 5)
chi
0.2
0.4
0.6
0.8
0.10
0.15
0.20
0.25
0.30
gammau
All other parameters are at default settings
0.015
0.016
0.017
0.018
0.019
0.02
0.021
0.022
0.023
0.024
0.025
0.026
0.027
0.028