

Simulation Results for Linear Models (correlated errors)

2022-08-08

Summary

Results for error sd = 3 and corr = 0.5

mod	iprior	lasso	spikeslab	gprior
1000000	0.63	0.20	0.59	0.45
1100000	0.55	0.43	0.24	0.27
1101000	0.48	0.08	0.14	0.09
1110000	0.44	0.51	0.13	0.16
1110100	0.31	0.10	0.11	0.07
1111100	0.28	0.11	0.02	0.00
1111110	0.17	0.12	0.01	0.00
1111111	0.43	0.15	0.06	0.77

Model 1000000

- True value: 1, 0, 0, 0, 0, 0, 0
- nsim = 10000, n = 100, corr = 0.5, err.sd = 3

```
## $prior
## # A tibble: 18 x 11
##       x1      x2      x3    x1x2    x1x3    x2x3    x1x2x3 mod      no      n    prop
##   <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <chr> <int> <int> <dbl>
## 1     1     0     0     0     0     0     0 1000000     1  6337 0.634
## 2     1     1     0     0     0     0     0 1100000     5   902 0.0902
## 3     1     0     1     0     0     0     0 1010000     7   857 0.0857
## 4     1     0     1     0     1     0     0 1010100     6   525 0.0525
## 5     1     1     0     1     0     0     0 1101000     4   494 0.0494
## 6     1     1     1     0     0     0     0 1110000    18   149 0.0149
## 7     0     0     1     0     0     0     0 0010000     3    96 0.0096
## 8     1     1     1     0     0     1     0 1110010    17    95 0.0095
## 9     0     1     0     0     0     0     0 0100000     2    94 0.0094
## 10    1     1     1     1     1     1     1 1111111    10    77 0.0077
## 11    1     1     1     0     1     0     0 1110100    16    67 0.0067
## 12    1     1     1     1     0     1     0 1111010    13    57 0.0057
## 13    1     1     1     1     0     0     0 1111000    15    52 0.0052
## 14    1     1     1     0     1     1     0 1110110    14    49 0.0049
## 15    1     1     1     1     1     0     0 1111100    12    45 0.0045
## 16     0     1     1     0     0     0     0 0110000     9    42 0.0042
## 17    1     1     1     1     1     1     0 1111110    11    40 0.004
## 18     0     1     1     0     0     1     0 0110010     8    22 0.0022
##
## $lasso
## # A tibble: 53 x 11
##       x1      x2      x3    x1x2    x1x3    x2x3    x1x2x3 mod      no      n    prop
##   <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <chr> <int> <int> <dbl>
## 1     0     0     0     0     0     0     0 0000000    NA  7533 0.753
## 2     1     0     0     0     0     0     0 1000000     1  1961 0.196
## 3     1     0     0     0     0     0     0 1000001    NA    87 0.0087
## 4     1     1     0     0     0     0     0 1100000     5    80 0.008
## 5     1     0     1     0     0     0     0 1010000     7    75 0.0075
## 6     1     0     0     1     0     0     0 1001000    NA    33 0.0033
## 7     0     0     1     0     0     0     0 0010000     3    23 0.0023
## 8     1     0     0     0     0     1     0 1000010    NA    23 0.0023
## 9     1     0     0     0     1     0     0 1000100    NA    22 0.0022
## 10    0     0     0     0     0     0     0 1000001    NA    16 0.0016
## # ... with 43 more rows
## # i Use 'print(n = ...)' to see more rows
##
## $spikeslab
## # A tibble: 20 x 11
##       x1      x2      x3    x1x2    x1x3    x2x3    x1x2x3 mod      no      n    prop
##   <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <chr> <int> <int> <dbl>
## 1     1     0     0     0     0     0     0 1000000     1  5865 0.586
## 2     0     0     0     0     0     0     0 0000000    NA  3465 0.346
## 3     0     0     0     0     0     0     0 1000001    NA   212 0.0212
## 4     0     0     1     0     0     0     0 0010000     3   168 0.0168
## 5     0     1     0     0     0     0     0 0100000     2   158 0.0158
## 6     1     1     0     0     0     0     0 1100000     5    41 0.0041
```

```

## 7      1      0      1      0      0      0      0 1010000    7    40 0.004
## 8      1      0      0      0      0      0      1 1000001   NA    23 0.0023
## 9      1      1      0      1      0      0      0 1101000    4      7 0.0007
## 10     1      0      1      0      1      0      0 1010100    6      6 0.0006
## 11     1      1      0      0      0      0      1 1100001   NA      6 0.0006
## 12     0      1      1      0      0      1      0 0110010    8      1 0.0001
## 13     1      0      1      0      0      0      1 1010001   NA      1 0.0001
## 14     1      1      0      1      0      0      1 1101001   NA      1 0.0001
## 15     1      1      1      0      0      1      1 1110011   NA      1 0.0001
## 16     1      1      1      0      1      0      1 1110101   NA      1 0.0001
## 17     1      1      1      0      1      1      0 1110110   14      1 0.0001
## 18     1      1      1      0      1      1      1 1110111   NA      1 0.0001
## 19     1      1      1      1      0      0      0 1111000   15      1 0.0001
## 20     1      1      1      1      1      0      0 1111100   12      1 0.0001
##
## $gprior
## # A tibble: 16 x 11
##       x1      x2      x3    x1x2    x1x3    x2x3    x1x2x3 mod      no      n    prop
##   <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <chr> <int> <int> <dbl>
## 1      1      1      1      1      1      1      1 1111111    10  4606 0.461
## 2      1      0      0      0      0      0      0 1000000     1  4478 0.448
## 3      0      0      0      0      0      0      0 0000000   NA   492 0.0492
## 4      0      0      0      0      0      0      1 0000001   NA   129 0.0129
## 5      0      0      1      0      0      0      0 0010000     3    99 0.0099
## 6      0      1      0      0      0      0      0 0100000     2    85 0.0085
## 7      1      0      1      0      0      0      0 1010000     7    40 0.004
## 8      1      1      0      0      0      0      0 1100000     5    37 0.0037
## 9      1      0      0      0      0      0      1 1000001   NA    24 0.0024
## 10     1      1      0      0      0      0      1 1100001   NA     3 0.0003
## 11     1      1      0      1      0      0      0 1101000     4     2 0.0002
## 12     0      0      1      0      0      0      1 0010001   NA     1 0.0001
## 13     0      1      0      0      0      0      1 0100001   NA     1 0.0001
## 14     1      0      1      0      0      0      1 1010001   NA     1 0.0001
## 15     1      0      1      0      1      0      0 1010100     6     1 0.0001
## 16     1      1      1      0      0      0      0 1110000    18     1 0.0001

```

Model 1100000

- True value: 1, 1, 0, 0, 0, 0, 0
- nsim = 10000, n = 100, corr = 0.5, err.sd = 3

```
## $prior
## # A tibble: 18 x 11
##       x1     x2     x3  x1x2  x1x3  x2x3  x1x2x3 mod      no      n  prop
##   <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <chr> <int> <int> <dbl>
## 1     1     1     0     0     0     0     0 1100000     5  5548 0.555
## 2     1     1     0     1     0     0     0 1101000     4  1394 0.139
## 3     1     1     1     0     0     0     0 1110000    18   686 0.0686
## 4     0     1     0     0     0     0     0 0100000     2   489 0.0489
## 5     1     0     0     0     0     0     0 1000000     1   484 0.0484
## 6     1     1     1     0     0     1     0 1110010    17   283 0.0283
## 7     1     1     1     0     1     0     0 1110100    16   265 0.0265
## 8     1     1     1     1     0     0     0 1111000    15   155 0.0155
## 9     1     1     1     0     1     1     0 1110110    14   111 0.0111
## 10    1     0     1     0     0     0     0 1010000     7   105 0.0105
## 11    1     1     1     1     1     1     1 1111111    10   101 0.0101
## 12     0     1     1     0     0     0     0 0110000     9    100 0.01
## 13     1     1     1     1     1     0     0 1111100    12    86 0.0086
## 14     1     1     1     1     0     1     0 1111010    13    81 0.0081
## 15     0     1     1     0     0     1     0 0110010     8    47 0.0047
## 16     1     0     1     0     1     0     0 1010100     6    39 0.0039
## 17     1     1     1     1     1     1     0 1111110    11    24 0.0024
## 18     0     0     1     0     0     0     0 0010000     3     2 0.0002
##
## $lasso
## # A tibble: 59 x 11
##       x1     x2     x3  x1x2  x1x3  x2x3  x1x2x3 mod      no      n  prop
##   <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <chr> <int> <int> <dbl>
## 1     1     1     0     0     0     0     0 1100000     5  4340 0.434
## 2     0     0     0     0     0     0     0 0000000    NA  1338 0.134
## 3     1     0     0     0     0     0     0 1000000     1  1221 0.122
## 4     0     1     0     0     0     0     0 0100000     2  1152 0.115
## 5     1     1     0     0     0     0     1 1100001    NA   587 0.0587
## 6     1     1     1     0     0     0     0 1110000    18   436 0.0436
## 7     0     1     0     0     0     0     1 0100001    NA   130 0.013
## 8     1     0     0     0     0     0     1 1000001    NA   110 0.011
## 9     1     1     1     0     0     0     1 1110001    NA    89 0.0089
## 10    0     1     1     0     0     0     0 0110000     9    87 0.0087
## # ... with 49 more rows
## # i Use 'print(n = ...)' to see more rows
##
## $spikeslab
## # A tibble: 31 x 11
##       x1     x2     x3  x1x2  x1x3  x2x3  x1x2x3 mod      no      n  prop
##   <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <chr> <int> <int> <dbl>
## 1     1     0     0     0     0     0     0 1000000     1  3425 0.342
## 2     0     1     0     0     0     0     0 0100000     2  3285 0.328
## 3     1     1     0     0     0     0     0 1100000     5  2448 0.245
## 4     0     0     0     0     0     0     1 0000001    NA   180 0.018
## 5     0     0     1     0     0     0     0 0010000     3    96 0.0096
## 6     0     0     0     0     0     0     0 0000000    NA    93 0.0093
```

```

## 7      1      1      0      1      0      0      0 1101000    4    73 0.0073
## 8      0      1      1      0      0      0      0 0110000    9    72 0.0072
## 9      1      0      1      0      0      0      0 0101000    7    66 0.0066
## 10     0      1      0      0      0      0      0 1010001    NA   65 0.0065
## # ... with 21 more rows
## # i Use 'print(n = ...)' to see more rows
##
## $gprior
## # A tibble: 20 x 11
##       x1      x2      x3    x1x2    x1x3    x2x3    x1x2x3 mod      no      n    prop
##   <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <chr> <int> <int> <dbl>
## 1      1      1      0      0      0      0      0 1100000     5  2703 0.270
## 2      1      1      1      1      1      1      1 1111111    10  2498 0.250
## 3      1      0      0      0      0      0      0 1000000     1  2173 0.217
## 4      0      1      0      0      0      0      0 0100000     2  2050 0.205
## 5      0      1      0      0      0      0      0 1010001    NA    79 0.0079
## 6      0      0      0      0      0      0      0 1000001    NA    76 0.0076
## 7      1      1      0      1      0      0      0 1101000     4    73 0.0073
## 8      0      1      1      0      0      0      0 0110000     9    72 0.0072
## 9      1      0      1      0      0      0      0 0101000     7    68 0.0068
## 10     1      0      0      0      0      0      0 1000001    NA    63 0.0063
## 11     0      0      1      0      0      0      0 0010000     3    49 0.0049
## 12     1      1      1      0      0      0      0 1110000    18    39 0.0039
## 13     1      1      0      0      0      0      0 1100001    NA    38 0.0038
## 14     0      0      1      0      0      0      0 1001001    NA     7 0.0007
## 15     0      1      1      0      0      1      0 0110010     8     3 0.0003
## 16     1      1      1      0      0      1      0 1110010    17     3 0.0003
## 17     0      1      1      0      0      0      1 0110001    NA     2 0.0002
## 18     1      1      1      0      1      0      0 1110100    16     2 0.0002
## 19     0      0      0      0      0      0      0 0000000    NA     1 0.0001
## 20     1      1      0      1      0      0      1 1101001    NA     1 0.0001

```

Model 1101000

- True value: 1, 1, 0, 0.5, 0, 0, 0
- nsim = 10000, n = 100, corr = 0.5, err.sd = 3

```
## $prior
## # A tibble: 18 x 11
##       x1      x2      x3    x1x2    x1x3    x2x3    x1x2x3 mod      no      n    prop
##   <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <chr> <int> <int> <dbl>
## 1     1     1     0     1     0     0     0 1101000     4  4761 0.476
## 2     1     1     0     0     0     0     0 1100000     5  2230 0.223
## 3     1     1     1     1     0     0     0 1111000    15   442 0.0442
## 4     1     0     0     0     0     0     0 1000000     1   331 0.0331
## 5     0     1     0     0     0     0     0 0100000     2   314 0.0314
## 6     1     1     1     1     1     0     0 1111100    12   273 0.0273
## 7     1     1     1     1     1     1     1 1111111    10   262 0.0262
## 8     1     1     1     1     0     1     0 1111010    13   254 0.0254
## 9     1     1     1     0     0     0     0 1110000    18   225 0.0225
## 10    1     1     1     0     0     1     0 1110010    17   211 0.0211
## 11    1     1     1     0     1     0     0 1110100    16   181 0.0181
## 12    1     1     1     1     1     1     0 1111110    11   145 0.0145
## 13    1     1     1     0     1     1     0 1110110    14   118 0.0118
## 14     0     1     1     0     0     0     0 0110000     9    70 0.007
## 15     1     0     1     0     1     0     0 1010100     6    61 0.0061
## 16     0     1     1     0     0     1     0 0110010     8    60 0.006
## 17     1     0     1     0     0     0     0 1010000     7    60 0.006
## 18     0     0     1     0     0     0     0 0010000     3     2 0.0002
##
## $lasso
## # A tibble: 92 x 11
##       x1      x2      x3    x1x2    x1x3    x2x3    x1x2x3 mod      no      n    prop
##   <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <chr> <int> <int> <dbl>
## 1     1     1     0     0     0     0     0 1100000     5  3143 0.314
## 2     0     0     0     0     0     0     0 0000000    NA  1247 0.125
## 3     1     0     0     0     0     0     0 1000000     1   982 0.0982
## 4     0     1     0     0     0     0     0 0100000     2   950 0.095
## 5     1     1     0     1     0     0     0 1101000     4   831 0.0831
## 6     1     1     0     0     0     0     0 1100001    NA   459 0.0459
## 7     1     1     1     0     0     0     0 1110000    18   311 0.0311
## 8     1     1     0     1     0     0     0 1101001    NA   231 0.0231
## 9     1     1     1     1     0     0     0 1111000    15   176 0.0176
## 10    1     1     0     0     0     1     0 1100010    NA   123 0.0123
## # ... with 82 more rows
## # i Use 'print(n = ...)' to see more rows
##
## $spikeslab
## # A tibble: 36 x 11
##       x1      x2      x3    x1x2    x1x3    x2x3    x1x2x3 mod      no      n    prop
##   <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <chr> <int> <int> <dbl>
## 1     1     0     0     0     0     0     0 1000000     1  2922 0.292
## 2     0     1     0     0     0     0     0 0100000     2  2910 0.291
## 3     1     1     0     0     0     0     0 1100000     5  1665 0.166
## 4     1     1     0     1     0     0     0 1101000     4  1417 0.142
## 5     0     0     0     0     0     0     0 1000001    NA   237 0.0237
## 6     0     0     0     0     0     0     0 0000000    NA   135 0.0135
```

```

## 7      0      0      1      0      0      0      0 0010000      3      89 0.0089
## 8      1      0      0      0      0      0      0      1 1000001      NA      86 0.0086
## 9      0      1      0      0      0      0      0      1 0100001      NA      74 0.0074
## 10     1      1      1      1      0      0      0      0 1111000      15      55 0.0055
## # ... with 26 more rows
## # i Use 'print(n = ...)' to see more rows
##
## $gprior
## # A tibble: 20 x 11
##       x1      x2      x3    x1x2    x1x3    x2x3    x1x2x3 mod      no      n    prop
##   <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <chr> <int> <int> <dbl>
## 1     1     1     1     1     1     1     1 1111111     10  4628 0.463
## 2     1     1     0     0     0     0     0      0 1100000      5  1435 0.144
## 3     1     0     0     0     0     0     0      0 1000000      1  1357 0.136
## 4     0     1     0     0     0     0     0      0 0100000      2  1335 0.134
## 5     1     1     0     1     0     0     0      0 1101000      4   871 0.0871
## 6     0     0     0     0     0     0     0      1 0000001      NA    72 0.0072
## 7     1     0     0     0     0     0     0      1 1000001      NA    69 0.0069
## 8     0     1     0     0     0     0     0      1 0100001      NA    59 0.0059
## 9     1     1     0     0     0     0     0      1 1100001      NA    35 0.0035
## 10    1     0     1     0     0     0     0      0 1010000      7    31 0.0031
## 11    0     1     1     0     0     0     0      0 0110000      9    28 0.0028
## 12    0     0     1     0     0     0     0      0 0010000      3    25 0.0025
## 13    1     1     1     0     0     0     0      0 1110000     18    13 0.0013
## 14    1     1     1     1     0     0     0      0 1111000     15    10 0.001
## 15    1     1     1     0     0     1     0      0 1110010     17     9 0.0009
## 16    0     1     1     0     0     1     0      0 0110010      8     7 0.0007
## 17    1     0     1     0     1     0     0      0 1010100      6     5 0.0005
## 18    1     1     1     0     1     0     0      0 1110100     16     5 0.0005
## 19    1     1     0     1     0     0     1      1 1101001      NA     4 0.0004
## 20    0     0     1     0     0     0     1      1 0010001      NA     2 0.0002

```

Model 1110000

- True value: 1, 1, 1, 0, 0, 0, 0
- nsim = 10000, n = 100, corr = 0.5, err.sd = 3

```
## $prior
## # A tibble: 18 x 11
##       x1      x2      x3    x1x2    x1x3    x2x3    x1x2x3 mod      no      n    prop
##   <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <chr> <int> <int> <dbl>
## 1     1     1     1     0     0     0     0 1110000    18  4351 0.435
## 2     1     1     1     1     0     0     0 1111000    15   986 0.0986
## 3     1     1     1     0     1     0     0 1110100    16   948 0.0948
## 4     1     1     1     0     0     1     0 1110010    17   945 0.0945
## 5     1     1     0     0     0     0     0 1100000     5   563 0.0563
## 6     1     0     1     0     0     0     0 1010000     7   506 0.0506
## 7     0     1     1     0     0     0     0 0110000     9   489 0.0489
## 8     1     1     1     1     1     1     1 1111111    10   269 0.0269
## 9     1     1     1     0     1     1     0 1110110    14   214 0.0214
## 10    1     1     1     1     0     1     0 1111010    13   208 0.0208
## 11    1     1     1     1     1     0     0 1111100    12   194 0.0194
## 12    0     1     1     0     0     1     0 0110010     8    90 0.009
## 13    1     1     0     1     0     0     0 1101000     4    89 0.0089
## 14    1     0     1     0     1     0     0 1010100     6    79 0.0079
## 15    1     1     1     1     1     1     0 1111110    11    40 0.004
## 16    1     0     0     0     0     0     0 1000000     1    11 0.0011
## 17    0     1     0     0     0     0     0 0100000     2    10 0.001
## 18    0     0     1     0     0     0     0 0010000     3     8 0.0008
##
## $lasso
## # A tibble: 56 x 11
##       x1      x2      x3    x1x2    x1x3    x2x3    x1x2x3 mod      no      n    prop
##   <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <chr> <int> <int> <dbl>
## 1     1     1     1     0     0     0     0 1110000    18  5141 0.514
## 2     1     1     1     0     0     0     1 1110001    NA  1449 0.145
## 3     1     1     0     0     0     0     0 1100000     5   689 0.0689
## 4     1     0     1     0     0     0     0 1010000     7   639 0.0639
## 5     0     1     1     0     0     0     0 0110000     9   632 0.0632
## 6     1     1     0     0     0     0     1 1100001    NA   190 0.019
## 7     0     1     1     0     0     0     1 0110001    NA   181 0.0181
## 8     1     0     1     0     0     0     1 1010001    NA   171 0.0171
## 9     1     1     1     0     0     1     0 1110010    17    98 0.0098
## 10    1     1     1     0     1     0     0 1110100    16    97 0.0097
## # ... with 46 more rows
## # i Use 'print(n = ...)' to see more rows
##
## $spikeslab
## # A tibble: 35 x 11
##       x1      x2      x3    x1x2    x1x3    x2x3    x1x2x3 mod      no      n    prop
##   <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <chr> <int> <int> <dbl>
## 1     1     1     0     0     0     0     0 1100000     5  2235 0.224
## 2     1     0     1     0     0     0     0 1010000     7  2216 0.222
## 3     0     1     1     0     0     0     0 0110000     9  2134 0.213
## 4     1     1     1     0     0     0     0 1110000    18  1279 0.128
## 5     0     0     1     0     0     0     0 0010000     3   447 0.0447
## 6     1     0     0     0     0     0     0 1000000     1   427 0.0427
```



```
## 7      0      1      0      0      0      0      0 0100000    2    387 0.0387
## 8      0      0      1      0      0      0      0 1 0010001    NA    99 0.0099
## 9      1      0      0      0      0      0      0 1 1000001    NA    91 0.0091
## 10     1      1      1      0      0      0      1 0 1110010    17    83 0.0083
## # ... with 25 more rows
## # i Use 'print(n = ...)' to see more rows
##
## $gprior
## # A tibble: 27 x 11
##       x1      x2      x3    x1x2    x1x3    x2x3    x1x2x3 mod      no      n    prop
##   <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <chr> <int> <int> <dbl>
## 1     1     1     1     1     1     1     1 1111111    10   2352 0.235
## 2     1     1     0     0     0     0     0 0 1100000     5   1634 0.163
## 3     1     1     1     0     0     0     0 0 1110000    18   1609 0.161
## 4     1     0     1     0     0     0     0 0 1010000     7   1565 0.156
## 5     0     1     1     0     0     0     0 0 0110000     9   1530 0.153
## 6     1     0     0     0     0     0     0 0 1000000     1    226 0.0226
## 7     0     0     1     0     0     0     0 0 0010000     3    223 0.0223
## 8     0     1     0     0     0     0     0 0 0100000     2    215 0.0215
## 9     1     1     1     1     0     0     0 0 1111000    15     76 0.0076
## 10    1     1     1     0     0     1     0 0 1110010    17     75 0.0075
## # ... with 17 more rows
## # i Use 'print(n = ...)' to see more rows
```

Model 1110100

- True value: 1, 1, 1, 0, 0.5, 0, 0
- nsim = 10000, n = 100, corr = 0.5, err.sd = 3

```
## $prior
## # A tibble: 18 x 11
##       x1      x2      x3    x1x2    x1x3    x2x3    x1x2x3 mod      no      n    prop
##   <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <chr> <int> <int> <dbl>
## 1     1     1     1     0     1     0     0 1110100    16  3083 0.308
## 2     1     1     1     0     0     0     0 1110000    18  1587 0.159
## 3     1     1     1     1     1     0     0 1111100    12   832 0.0832
## 4     1     1     1     0     1     1     0 1110110    14   795 0.0795
## 5     1     1     1     1     1     1     1 1111111    10   664 0.0664
## 6     1     1     1     1     0     0     0 1111000    15   573 0.0573
## 7     1     1     1     0     0     1     0 1110010    17   564 0.0564
## 8     1     0     1     0     1     0     0 1010100     6   363 0.0363
## 9     1     1     0     0     0     0     0 1100000     5   309 0.0309
## 10    0     1     1     0     0     0     0 0110000     9   307 0.0307
## 11    1     0     1     0     0     0     0 1010000     7   249 0.0249
## 12    1     1     1     1     0     1     0 1111010    13   212 0.0212
## 13    1     1     1     1     1     1     0 1111110    11   187 0.0187
## 14    1     1     0     1     0     0     0 1101000     4   124 0.0124
## 15    0     1     1     0     0     1     0 0110010     8   119 0.0119
## 16    0     1     0     0     0     0     0 0100000     2    13 0.0013
## 17    0     0     1     0     0     0     0 0010000     3    10 0.001
## 18    1     0     0     0     0     0     0 1000000     1     9 0.0009
##
## $lasso
## # A tibble: 76 x 11
##       x1      x2      x3    x1x2    x1x3    x2x3    x1x2x3 mod      no      n    prop
##   <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <chr> <int> <int> <dbl>
## 1     1     1     1     0     0     0     0 1110000    18  3626 0.363
## 2     1     1     1     0     0     0     1 1110001    NA  1130 0.113
## 3     1     1     1     0     1     0     0 1110100    16  1046 0.105
## 4     0     1     1     0     0     0     0 0110000     9   544 0.0544
## 5     1     1     0     0     0     0     0 1100000     5   523 0.0523
## 6     1     0     1     0     0     0     0 1010000     7   473 0.0473
## 7     1     1     1     0     1     0     1 1110101    NA  461 0.0461
## 8     1     1     0     0     0     0     1 1100001    NA  175 0.0175
## 9     0     1     1     0     0     0     1 0110001    NA  157 0.0157
## 10    1     1     1     1     0     0     0 1111000    15   155 0.0155
## # ... with 66 more rows
## # i Use 'print(n = ...)' to see more rows
##
## $spikeslab
## # A tibble: 36 x 11
##       x1      x2      x3    x1x2    x1x3    x2x3    x1x2x3 mod      no      n    prop
##   <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <chr> <int> <int> <dbl>
## 1     0     1     1     0     0     0     0 0110000     9  1705 0.170
## 2     1     1     0     0     0     0     0 1100000     5  1614 0.161
## 3     1     0     1     0     0     0     0 1010000     7  1548 0.155
## 4     1     1     1     0     1     0     0 1110100    16  1095 0.110
## 5     1     1     1     0     0     0     0 1110000    18   701 0.0701
## 6     1     0     1     0     1     0     0 1010100     6   585 0.0585
```

```

## 7      0      1      0      0      0      0      0 0100000    2  434 0.0434
## 8      0      0      1      0      0      0      0 0010000    3  385 0.0385
## 9      1      0      0      0      0      0      0 1000000    1  381 0.0381
## 10     1      1      1      1      0      0      0 1111000   15  202 0.0202
## # ... with 26 more rows
## # i Use 'print(n = ...)' to see more rows
##
## $gprior
## # A tibble: 28 x 11
##       x1      x2      x3  x1x2  x1x3  x2x3  x1x2x3 mod      no      n  prop
##   <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <chr> <int> <int> <dbl>
## 1     1     1     1     1     1     1     1 1111111    10  4424 0.442
## 2     0     1     1     0     0     0     0 0110000     9   958 0.0958
## 3     1     1     0     0     0     0     0 1100000     5   901 0.0901
## 4     1     0     1     0     0     0     0 1010000     7   889 0.0889
## 5     1     1     1     0     0     0     0 1110000    18   696 0.0696
## 6     1     1     1     0     1     0     0 1110100    16   664 0.0664
## 7     1     0     1     0     1     0     0 1010100     6   267 0.0267
## 8     0     1     0     0     0     0     0 0100000     2   178 0.0178
## 9     0     0     1     0     0     0     0 0010000     3   160 0.016
## 10    1     0     0     0     0     0     0 1000000     1   144 0.0144
## # ... with 18 more rows
## # i Use 'print(n = ...)' to see more rows

```

Model 1111100

- True value: 1, 1, 1, 0.5, 0.5, 0, 0
- nsim = 10000, n = 100, corr = 0.5, err.sd = 3

```
## $prior
## # A tibble: 18 x 11
##       x1      x2      x3    x1x2    x1x3    x2x3    x1x2x3 mod      no      n    prop
##   <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <chr> <int> <int> <dbl>
## 1     1     1     1     1     1     0     0 1111100    12  2820 0.282
## 2     1     1     1     1     0     0     0 1111000    15  1462 0.146
## 3     1     1     1     0     1     0     0 1110100    16  1407 0.141
## 4     1     1     1     1     1     1     1 1111111    10  1197 0.120
## 5     1     1     1     1     1     1     0 1111110    11   622 0.0622
## 6     1     1     1     0     1     1     0 1110110    14   549 0.0549
## 7     1     1     1     1     0     1     0 1111010    13   535 0.0535
## 8     1     1     0     1     0     0     0 1101000     4   361 0.0361
## 9     1     0     1     0     1     0     0 1010100     6   352 0.0352
## 10    1     1     1     0     0     1     0 1110010    17   207 0.0207
## 11    1     1     1     0     0     0     0 1110000    18   186 0.0186
## 12    0     1     1     0     0     1     0 0110010     8   116 0.0116
## 13    0     1     1     0     0     0     0 0110000     9    87 0.0087
## 14    1     0     1     0     0     0     0 1010000     7    48 0.0048
## 15    1     1     0     0     0     0     0 1100000     5    44 0.0044
## 16    0     0     1     0     0     0     0 0010000     3     3 0.0003
## 17    0     1     0     0     0     0     0 0100000     2     2 0.0002
## 18    1     0     0     0     0     0     0 1000000     1     2 0.0002
##
## $lasso
## # A tibble: 94 x 11
##       x1      x2      x3    x1x2    x1x3    x2x3    x1x2x3 mod      no      n    prop
##   <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <chr> <int> <int> <dbl>
## 1     1     1     1     0     0     0     0 1110000    18  1311 0.131
## 2     1     1     1     1     1     0     0 1111100    12  1102 0.110
## 3     1     1     1     1     0     0     0 1111000    15  1009 0.101
## 4     1     1     1     0     1     0     0 1110100    16   968 0.0968
## 5     1     1     1     1     1     0     1 1111101    NA   598 0.0598
## 6     1     1     1     1     0     0     1 1111001    NA   470 0.047
## 7     1     1     1     0     0     0     1 1110001    NA   438 0.0438
## 8     1     1     1     0     1     0     1 1110101    NA   431 0.0431
## 9     0     1     1     0     0     0     0 0110000     9   311 0.0311
## 10    1     0     1     0     0     0     0 1010000     7   260 0.026
## # ... with 84 more rows
## # i Use 'print(n = ...)' to see more rows
##
## $spikeslab
## # A tibble: 35 x 11
##       x1      x2      x3    x1x2    x1x3    x2x3    x1x2x3 mod      no      n    prop
##   <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <chr> <int> <int> <dbl>
## 1     1     1     1     1     0     0     0 1111000    15  1634 0.163
## 2     1     1     1     0     1     0     0 1110100    16  1581 0.158
## 3     1     0     1     0     1     0     0 1010100     6  1115 0.112
## 4     1     1     0     1     0     0     0 1101000     4  1101 0.110
## 5     0     1     1     0     0     0     0 0110000     9   640 0.064
## 6     1     1     0     0     0     0     0 1100000     5   571 0.0571
```

```

## 7      1      0      1      0      0      0      0 1010000    7  517 0.0517
## 8      0      1      1      0      0      1      0 0110010    8  344 0.0344
## 9      0      0      1      0      0      0      0 0010000    3  286 0.0286
## 10     0      1      0      0      0      0      0 0100000    2  284 0.0284
## # ... with 25 more rows
## # i Use 'print(n = ...)' to see more rows
##
## $gprior
## # A tibble: 31 x 11
##       x1      x2      x3    x1x2    x1x3    x2x3    x1x2x3 mod      no      n    prop
##   <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <chr> <int> <int> <dbl>
## 1     1     1     1     1     1     1     1 1111111    10  6431 0.643
## 2     1     1     1     1     0     0     0 1111000    15   704 0.0704
## 3     1     1     1     0     1     0     0 1110100    16   682 0.0682
## 4     1     1     0     1     0     0     0 1101000     4   392 0.0392
## 5     1     0     1     0     1     0     0 1010100     6   366 0.0366
## 6     0     1     1     0     0     0     0 0110000     9   247 0.0247
## 7     1     0     1     0     0     0     0 1010000     7   226 0.0226
## 8     1     1     0     0     0     0     0 1100000     5   211 0.0211
## 9     1     1     1     0     0     0     0 1110000    18   141 0.0141
## 10    0     1     1     0     0     1     0 0110010     8   120 0.012
## # ... with 21 more rows
## # i Use 'print(n = ...)' to see more rows

```

Model 1111110

- True value: 1, 1, 1, 0.5, 0.5, 0.5, 0
- nsim = 10000, n = 100, corr = 0.5, err.sd = 3

```
## $prior
## # A tibble: 17 x 11
##       x1      x2      x3    x1x2    x1x3    x2x3    x1x2x3 mod      no      n    prop
##   <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <chr> <int> <int> <dbl>
## 1     1     1     1     1     1     1     1 1111111 10 1907 0.191
## 2     1     1     1     1     1     1     0 1111110 11 1729 0.173
## 3     1     1     1     1     0     1     0 1111010 13 1442 0.144
## 4     1     1     1     0     1     1     0 1110110 14 1419 0.142
## 5     1     1     1     1     1     0     0 1111100 12 1371 0.137
## 6     1     1     1     1     0     0     0 1111000 15  478 0.0478
## 7     1     1     1     0     1     0     0 1110100 16  463 0.0463
## 8     1     1     1     0     0     1     0 1110010 17  457 0.0457
## 9     0     1     1     0     0     1     0 0110010   8  245 0.0245
## 10    1     1     0     1     0     0     0 1101000   4  227 0.0227
## 11    1     0     1     0     1     0     0 1010100   6  222 0.0222
## 12    1     1     1     0     0     0     0 1110000 18   14 0.0014
## 13    0     1     1     0     0     0     0 0110000   9   10 0.001
## 14    1     1     0     0     0     0     0 1100000   5    9 0.0009
## 15    1     0     1     0     0     0     0 1010000   7    4 0.0004
## 16    0     1     0     0     0     0     0 0100000   2    2 0.0002
## 17    0     0     1     0     0     0     0 0010000   3    1 0.0001
##
## $lasso
## # A tibble: 108 x 11
##       x1      x2      x3    x1x2    x1x3    x2x3    x1x2x3 mod      no      n    prop
##   <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <chr> <int> <int> <dbl>
## 1     1     1     1     1     1     1     0 1111110 11 1191 0.119
## 2     1     1     1     0     1     1     0 1110110 14  810 0.081
## 3     1     1     1     1     0     1     0 1111010 13  799 0.0799
## 4     1     1     1     1     1     0     0 1111100 12  767 0.0767
## 5     1     1     1     1     1     1     1 1111111 10  747 0.0747
## 6     1     1     1     0     1     0     0 1110100 16  446 0.0446
## 7     1     1     1     1     0     0     0 1111000 15  443 0.0443
## 8     1     1     1     0     0     1     0 1110010 17  440 0.044
## 9     1     1     1     1     0     1     1 1111011  NA  438 0.0438
## 10    1     1     1     0     1     1     1 1110111  NA  387 0.0387
## # ... with 98 more rows
## # i Use 'print(n = ...)' to see more rows
##
## $spikeslab
## # A tibble: 36 x 11
##       x1      x2      x3    x1x2    x1x3    x2x3    x1x2x3 mod      no      n    prop
##   <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <chr> <int> <int> <dbl>
## 1     1     1     1     0     0     1     0 1110010 17 1139 0.114
## 2     1     1     1     1     0     0     0 1111000 15 1114 0.111
## 3     1     1     1     0     1     0     0 1110100 16 1110 0.111
## 4     0     1     1     0     0     1     0 0110010   8 1048 0.105
## 5     1     1     0     1     0     0     0 1101000   4 1028 0.103
## 6     1     0     1     0     1     0     0 1010100   6 1005 0.100
## 7     1     1     1     0     1     1     0 1110110 14  569 0.0569
```

```

## 8      1      1      1      1      1      0      0 1111100 12 559 0.0559
## 9      1      1      1      1      0      1      0 1111010 13 546 0.0546
## 10     1      1      1      1      1      1      1 1111111 10 263 0.0263
## # ... with 26 more rows
## # i Use 'print(n = ...)' to see more rows
##
## $gprior
## # A tibble: 31 x 11
##       x1      x2      x3  x1x2  x1x3  x2x3  x1x2x3 mod      no      n  prop
##   <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <chr> <int> <int> <dbl>
## 1      1      1      1      1      1      1      1 1111111 10 7967 0.797
## 2      1      1      1      0      0      1      0 1110010 17 304 0.0304
## 3      1      1      1      0      1      0      0 1110100 16 303 0.0303
## 4      1      1      1      1      0      0      0 1111000 15 295 0.0295
## 5      0      1      1      0      0      1      0 0110010 8 272 0.0272
## 6      1      1      0      1      0      0      0 1101000 4 237 0.0237
## 7      1      0      1      0      1      0      0 1010100 6 229 0.0229
## 8      1      1      1      0      1      1      0 1110110 14 55 0.0055
## 9      1      1      1      1      0      1      0 1111010 13 50 0.005
## 10     1      1      1      1      1      0      0 1111100 12 49 0.0049
## # ... with 21 more rows
## # i Use 'print(n = ...)' to see more rows

```

Model 1111111

- True value: 1, 1, 1, 0.5, 0.5, 0.5, 0.25
- nsim = 10000, n = 100, corr = 0.5, err.sd = 3

```
## $prior
## # A tibble: 18 x 11
##       x1      x2      x3    x1x2    x1x3    x2x3    x1x2x3 mod      no      n    prop
##   <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <chr> <int> <int> <dbl>
## 1     1     1     1     1     1     1     1 1111111 10  4286 0.429
## 2     1     1     1     1     0     1     0 1111010 13  1002 0.100
## 3     1     1     1     0     1     1     0 1110110 14   996 0.0996
## 4     1     1     1     1     1     0     0 1111100 12   974 0.0974
## 5     1     1     1     1     1     1     0 1111110 11   884 0.0884
## 6     1     1     1     1     0     0     0 1111000 15   453 0.0453
## 7     1     1     1     0     0     1     0 1110010 17   442 0.0442
## 8     1     1     1     0     1     0     0 1110100 16   426 0.0426
## 9     1     0     1     0     1     0     0 1010100  6   182 0.0182
## 10    0     1     1     0     0     1     0 0110010  8   171 0.0171
## 11    1     1     0     1     0     0     0 1101000  4   143 0.0143
## 12    1     1     1     0     0     0     0 1110000 18    16 0.0016
## 13    1     1     0     0     0     0     0 1100000  5     9 0.0009
## 14    1     0     1     0     0     0     0 1010000  7     5 0.0005
## 15    0     1     1     0     0     0     0 0110000  9     4 0.0004
## 16    0     0     1     0     0     0     0 0010000  3     3 0.0003
## 17    0     1     0     0     0     0     0 0100000  2     2 0.0002
## 18    1     0     0     0     0     0     0 1000000  1     2 0.0002
##
## $lasso
## # A tibble: 94 x 11
##       x1      x2      x3    x1x2    x1x3    x2x3    x1x2x3 mod      no      n    prop
##   <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <chr> <int> <int> <dbl>
## 1     1     1     1     1     1     1     1 1111111 10  1524 0.152
## 2     1     1     1     0     1     1     1 1110111 NA   784 0.0784
## 3     1     1     1     1     0     1     1 1111011 NA   773 0.0773
## 4     1     1     1     1     1     0     1 1111101 NA   773 0.0773
## 5     1     1     1     1     1     1     0 1111110 11   616 0.0616
## 6     1     1     1     1     0     1     0 1111010 13   434 0.0434
## 7     1     1     1     1     1     0     0 1111100 12   422 0.0422
## 8     1     1     1     0     1     1     0 1110110 14   404 0.0404
## 9     1     1     1     0     0     0     0 1110000 18   380 0.038
## 10    1     1     1     0     0     1     1 1110011 NA   356 0.0356
## # ... with 84 more rows
## # i Use 'print(n = ...)' to see more rows
##
## $spikeslab
## # A tibble: 36 x 11
##       x1      x2      x3    x1x2    x1x3    x2x3    x1x2x3 mod      no      n    prop
##   <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <chr> <int> <int> <dbl>
## 1     1     1     1     0     0     1     0 1110010 17  1142 0.114
## 2     1     1     1     1     0     0     0 1111000 15  1094 0.109
## 3     1     1     1     0     1     0     0 1110100 16  1088 0.109
## 4     0     1     1     0     0     1     0 0110010  8   658 0.0658
## 5     1     1     0     1     0     0     0 1101000  4   656 0.0656
## 6     1     0     1     0     1     0     0 1010100  6   654 0.0654
```



```

## 7      1      1      1      1      1      1      1 11111111 10 564 0.0564
## 8      1      1      1      0      1      1      0 11101110 14 505 0.0505
## 9      1      1      1      1      0      1      0 11110110 13 488 0.0488
## 10     1      1      1      1      1      0      0 11111100 12 431 0.0431
## # ... with 26 more rows
## # i Use 'print(n = ...)' to see more rows
##
## $gprior
## # A tibble: 33 x 11
##       x1      x2      x3  x1x2  x1x3  x2x3  x1x2x3 mod      no      n  prop
##   <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <chr> <int> <int> <dbl>
## 1      1      1      1      1      1      1      1 11111111 10 7737 0.774
## 2      1      1      1      1      0      0      0 11110000 15 355 0.0355
## 3      1      1      1      0      0      1      0 1110010 17 337 0.0337
## 4      1      1      1      0      1      0      0 1110100 16 307 0.0307
## 5      0      1      1      0      0      1      0 0110010 8 187 0.0187
## 6      1      0      1      0      1      0      0 1010100 6 183 0.0183
## 7      1      1      0      1      0      0      0 1101000 4 176 0.0176
## 8      1      1      1      0      1      1      0 1110110 14 78 0.0078
## 9      1      1      1      1      0      1      0 1111010 13 73 0.0073
## 10     1      1      1      1      1      0      0 1111100 12 66 0.0066
## # ... with 23 more rows
## # i Use 'print(n = ...)' to see more rows

```