Simulation Results for Linear Models (uncorrelated errors)

2022-08-08

Summary

Results for error sd = 3 and corr = 0

mod	iprior	lasso	spikeslab	gprior
1000000	0.69	0.21	0.60	0.46
1100000	0.54	0.33	0.49	0.29
1101000	0.52	0.11	0.15	0.04
1110000	0.33	0.36	0.43	0.13
1110100	0.33	0.15	0.17	0.01
1111100	0.27	0.10	0.08	0.00
1111110	0.15	0.09	0.06	0.00
1111111	0.18	0.06	0.09	0.98

Model 1000000

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

```
## $iprior
## # 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  6881 0.688
## 2      1     0     1     0     0     0      0 1010000     7   726 0.0726
## 3      1     1     0     0     0     0      0 1100000     5   697 0.0697
## 4      1     0     1     0     1     0      0 1010100     6   589 0.0589
## 5      1     1     0     1     0     0      0 1101000     4   558 0.0558
## 6      1     1     1     0     0     1      0 1110010    17    90 0.009
## 7      1     1     1     1     0     1      0 1111010    13    54 0.0054
## 8      1     1     1     0     1     1      0 1110110    14    53 0.0053
## 9      0     1     0     0     0     0      0 0100000     2    51 0.0051
## 10     0     0     1     0     0     0      0 0010000     3    48 0.0048
## 11     1     1     1     0     0     0      0 1110000    18    44 0.0044
## 12     1     1     1     1     0     0      0 1111000    15    41 0.0041
## 13     1     1     1     0     1     0      0 1110100    16    40 0.004
## 14     1     1     1     1     1     1      1 1111111    10    40 0.004
## 15     1     1     1     1     1     0      0 1111100    12    35 0.0035
## 16     1     1     1     1     1     1      0 1111110    11    26 0.0026
## 17     0     1     1     0     0     0      0 0110000     9    14 0.0014
## 18     0     1     1     0     0     1      0 0110010     8    13 0.0013
##
## $lasso
## # A tibble: 47 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  7555 0.756
## 2      1     0     0     0     0     0      0 1000000     1  2139 0.214
## 3      1     0     0     1     0     0      0 1001000    NA    43 0.0043
## 4      1     0     0     0     1     0      0 1000100    NA    39 0.0039
## 5      1     1     0     0     0     0      0 1100000     5    36 0.0036
## 6      1     0     0     0     0     0      1 1000001    NA    34 0.0034
## 7      1     0     1     0     0     0      0 1010000     7    34 0.0034
## 8      1     0     0     0     0     1      0 1000010    NA    27 0.0027
## 9      1     0     0     0     1     0      1 1000101    NA     8 0.0008
## 10     1     1     0     0     0     1      0 1100010    NA     6 0.0006
## # ... with 37 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  5993 0.599
## 2      0     0     0     0     0     0      0 0000000    NA  3775 0.378
## 3      1     1     0     0     0     0      0 1100000     5    61 0.0061
## 4      1     0     1     0     0     0      0 1010000     7    55 0.0055
## 5      1     0     0     0     0     0      1 1000001    NA    48 0.0048
## 6      0     1     0     0     0     0      0 0100000     2    13 0.0013
```

```
##  7      1      1      0      1      0      0        0 1101000       4    13 0.0013
##  8      0      0      1      0      0      0        0 0010000       3    11 0.0011
##  9      1      0      1      0      1      0        0 1010100       6     9 0.0009
## 10      0      0      0      0      0      0        1 0000001      NA     7 0.0007
## 11      1      0      1      0      0      0        1 1010001      NA     2 0.0002
## 12      1      0      1      0      1      0        1 1010101      NA     2 0.0002
## 13      1      1      1      0      0      1        0 1110010      17     2 0.0002
## 14      1      1      1      0      0      1        1 1110011      NA     2 0.0002
## 15      1      1      1      0      1      0        0 1110100      16     2 0.0002
## 16      0      1      1      0      0      0        0 0110000       9     1 0.0001
## 17      1      1      0      0      0      0        1 1100001      NA     1 0.0001
## 18      1      1      1      0      1      1        0 1110110      14     1 0.0001
## 19      1      1      1      0      1      1        1 1110111      NA     1 0.0001
## 20      1      1      1      1      0      0        0 1111000      15     1 0.0001
##
## $gprior
## # A tibble: 13 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  4785   0.478
##  2      1      0      0      0      0      0        0 1000000      1  4557   0.456
##  3      0      0      0      0      0      0        0 0000000     NA   517  0.0517
##  4      1      0      0      0      0      0        1 1000001     NA    44  0.0044
##  5      1      1      0      0      0      0        0 1100000      5    43  0.0043
##  6      1      0      1      0      0      0        0 1010000      7    39  0.0039
##  7      0      0      0      0      0      0        1 0000001     NA     5  0.0005
##  8      0      0      1      0      0      0        0 0010000      3     3  0.0003
##  9      0      1      0      0      0      0        0 0100000      2     2  0.0002
## 10      1      0      1      0      0      0        1 1010001     NA     2  0.0002
## 11      1      0      1      0      1      0        0 1010100      6     1  0.0001
## 12      1      1      0      0      0      0        1 1100001     NA     1  0.0001
## 13      1      1      0      1      0      0        0 1101000      4     1  0.0001
```

Model 1100000

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

```
## $iprior
## # 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     0     0     0     0      0 1100000        5  5368 0.537
## 2      1     1     0     1     0     0      0 1101000        4  2107 0.211
## 3      1     1     1     0     0     0      0 1110000       18   386 0.0386
## 4      0     1     0     0     0     0      0 0100000        2   327 0.0327
## 5      1     0     0     0     0     0      0 1000000        1   311 0.0311
## 6      1     1     1     0     0     1      0 1110010       17   292 0.0292
## 7      1     1     1     0     1     0      0 1110100       16   286 0.0286
## 8      1     1     1     0     1     1      0 1110110       14   191 0.0191
## 9      1     1     1     1     0     0      0 1111000       15   178 0.0178
## 10     1     1     1     1     1     0      0 1111100       12   134 0.0134
## 11     1     1     1     1     0     1      0 1111010       13   132 0.0132
## 12     1     1     1     1     1     1      1 1111111       10   104 0.0104
## 13     1     1     1     1     1     1      0 1111110       11    88 0.0088
## 14     0     1     1     0     0     1      0 0110010        8    25 0.0025
## 15     0     1     1     0     0     0      0 0110000        9    24 0.0024
## 16     1     0     1     0     0     0      0 1010000        7    24 0.0024
## 17     1     0     1     0     1     0      0 1010100        6    23 0.0023
##
## $lasso
## # A tibble: 58 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  4023 0.402
## 2      1     1     0     0     0     0      0 1100000        5  3258 0.326
## 3      0     1     0     0     0     0      0 0100000        2   902 0.0902
## 4      1     0     0     0     0     0      0 1000000        1   803 0.0803
## 5      1     1     0     1     0     0      0 1101000        4   158 0.0158
## 6      1     1     0     0     0     1      0 1100010       NA   133 0.0133
## 7      1     1     1     0     0     0      0 1110000       18   123 0.0123
## 8      1     1     0     0     1     0      0 1100100       NA   122 0.0122
## 9      1     1     0     0     0     0      1 1100001       NA   116 0.0116
## 10     1     1     0     1     1     0      0 1101100       NA    28 0.0028
## # ... with 48 more rows
## # i Use 'print(n = ...)' to see more rows
##
## $spikeslab
## # A tibble: 32 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  4948 0.495
## 2      0     0     0     0     0     0      0 0000000       NA  1574 0.157
## 3      0     1     0     0     0     0      0 0100000        2  1528 0.153
## 4      1     0     0     0     0     0      0 1000000        1  1427 0.143
## 5      1     1     0     1     0     0      0 1101000        4   133 0.0133
## 6      1     1     1     0     0     0      0 1110000       18   105 0.0105
## 7      1     1     0     0     0     0      1 1100001       NA    85 0.0085
```

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```
## 8     1     1     1     0     1     0        0 1110100   16    28 0.0028
## 9     1     1     1     0     0     1        0 1110010   17    25 0.0025
## 10    1     0     0     0     0     0        1 1000001   NA    22 0.0022
## # ... with 22 more rows
## # i Use `print(n = ...)` to see more rows
##
## $gprior
## # A tibble: 15 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  6052 0.605
## 2     1     1     0     0     0     0      0 1100000     5  2866 0.287
## 3     0     1     0     0     0     0      0 0100000     2   467 0.0467
## 4     1     0     0     0     0     0      0 1000000     1   448 0.0448
## 5     1     1     1     0     0     0      0 1110000    18    40 0.004
## 6     1     1     0     1     0     0      0 1101000     4    38 0.0038
## 7     0     0     0     0     0     0      0 0000000    NA    35 0.0035
## 8     1     1     0     0     0     0      1 1100001    NA    30 0.003
## 9     0     1     1     0     0     0      0 0110000     9     9 0.0009
## 10    0     1     0     0     0     0      1 0100001    NA     4 0.0004
## 11    1     0     0     0     0     0      1 1000001    NA     4 0.0004
## 12    1     0     1     0     0     0      0 1010000     7     4 0.0004
## 13    0     0     0     0     0     0      1 0000001    NA     1 0.0001
## 14    1     0     1     0     1     0      0 1010100     6     1 0.0001
## 15    1     1     1     1     0     0      0 1111000    15     1 0.0001
```

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Model 1101000

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

```
## $iprior
## # 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  5223 0.522
## 2      1     1     0     0     0     0      0 1100000       5  2506 0.251
## 3      1     1     1     1     0     0      0 1111000      15   350 0.035
## 4      1     1     1     1     1     0      0 1111100      12   266 0.0266
## 5      1     1     1     1     0     1      0 1111010      13   263 0.0263
## 6      1     0     0     0     0     0      0 1000000       1   253 0.0253
## 7      0     1     0     0     0     0      0 0100000       2   227 0.0227
## 8      1     1     1     0     0     0      0 1110000      18   157 0.0157
## 9      1     1     1     1     1     1      1 1111111      10   154 0.0154
## 10     1     1     1     0     1     0      0 1110100      16   152 0.0152
## 11     1     1     1     1     1     1      0 1111110      11   126 0.0126
## 12     1     1     1     0     0     1      0 1110010      17   112 0.0112
## 13     1     1     1     0     1     1      0 1110110      14    98 0.0098
## 14     0     1     1     0     0     0      0 0110000       9    33 0.0033
## 15     1     0     1     0     1     0      0 1010100       6    27 0.0027
## 16     1     0     1     0     0     0      0 1010000       7    26 0.0026
## 17     0     1     1     0     0     1      0 0110010       8    23 0.0023
## 18     0     0     1     0     0     0      0 0010000       3     4 0.0004
##
## $lasso
## # A tibble: 72 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  3638 0.364
## 2      1     1     0     0     0     0      0 1100000       5  2336 0.234
## 3      1     1     0     1     0     0      0 1101000       4  1099 0.110
## 4      0     1     0     0     0     0      0 0100000       2   766 0.0766
## 5      1     0     0     0     0     0      0 1000000       1   751 0.0751
## 6      1     0     0     1     0     0      0 1001000      NA   131 0.0131
## 7      1     1     0     1     0     0      1 1101001      NA   120 0.012
## 8      0     1     0     1     0     0      0 0101000      NA   118 0.0118
## 9      1     1     0     1     1     0      0 1101100      NA   108 0.0108
## 10     1     1     0     0     1     0      0 1100100      NA   100 0.01
## # ... with 62 more rows
## # i Use `print(n = ...)` to see more rows
##
## $spikeslab
## # A tibble: 32 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  3599 0.360
## 2      0     0     0     0     0     0      0 0000000      NA  1687 0.169
## 3      1     1     0     1     0     0      0 1101000       4  1457 0.146
## 4      0     1     0     0     0     0      0 0100000       2  1387 0.139
## 5      1     0     0     0     0     0      0 1000000       1  1361 0.136
## 6      1     1     0     0     0     0      1 1100001      NA    85 0.0085
```

```
##  7     1     1     1     0     0     0        0 1110000    18     70 0.007
##  8     1     1     0     1     0     0        1 1101001    NA     56 0.0056
##  9     1     1     1     1     0     0        0 1111000    15     55 0.0055
## 10     0     1     0     0     0     0        1 0100001    NA     31 0.0031
## # ... with 22 more rows
## # i Use `print(n = ...)` to see more rows
##
## $gprior
## # A tibble: 14 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  7374 0.737
##  2     1     1     0     0     0     0      0 1100000     5  1520 0.152
##  3     1     1     0     1     0     0      0 1101000     4   384 0.0384
##  4     0     1     0     0     0     0      0 0100000     2   322 0.0322
##  5     1     0     0     0     0     0      0 1000000     1   310 0.031
##  6     0     0     0     0     0     0      0 0000000    NA    31 0.0031
##  7     1     1     0     0     0     0      1 1100001    NA    26 0.0026
##  8     1     1     1     0     0     0      0 1110000    18    20 0.002
##  9     0     1     1     0     0     0      0 0110000     9     5 0.0005
## 10     0     1     0     0     0     0      1 0100001    NA     3 0.0003
## 11     1     1     1     1     0     0      0 1111000    15     2 0.0002
## 12     1     1     0     1     0     0      1 1101001    NA     1 0.0001
## 13     1     1     1     0     0     1      0 1110010    17     1 0.0001
## 14     1     1     1     0     1     0      0 1110100    16     1 0.0001
```

Model 1110000

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

```
## $iprior
## # 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  3262 0.326
## 2       1     1     1     0     1     0      0 1110100        16  1208 0.121
## 3       1     1     1     0     0     1      0 1110010        17  1186 0.119
## 4       1     1     1     1     0     0      0 1111000        15  1169 0.117
## 5       1     1     1     1     0     1      0 1111010        13   513 0.0513
## 6       1     1     1     1     1     0      0 1111100        12   507 0.0507
## 7       1     1     1     0     1     1      0 1110110        14   498 0.0498
## 8       0     1     1     0     0     0      0 0110000         9   286 0.0286
## 9       1     1     0     0     0     0      0 1100000         5   275 0.0275
## 10      1     0     1     0     0     0      0 1010000         7   255 0.0255
## 11      1     1     1     1     1     1      1 1111111        10   234 0.0234
## 12      1     1     1     1     1     1      0 1111110        11   208 0.0208
## 13      1     0     1     0     1     0      0 1010100         6   129 0.0129
## 14      0     1     1     0     0     1      0 0110010         8   118 0.0118
## 15      1     1     0     1     0     0      0 1101000         4    96 0.0096
## 16      0     0     1     0     0     0      0 0010000         3    23 0.0023
## 17      0     1     0     0     0     0      0 0100000         2    18 0.0018
## 18      1     0     0     0     0     0      0 1000000         1    15 0.0015
##
## $lasso
## # A tibble: 71 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  3585 0.358
## 2       0     0     0     0     0     0      0 0000000        NA  1816 0.182
## 3       1     1     0     0     0     0      0 1100000         5   664 0.0664
## 4       1     0     1     0     0     0      0 1010000         7   651 0.0651
## 5       0     1     1     0     0     0      0 0110000         9   634 0.0634
## 6       1     1     1     0     0     0      1 1110001        NA   298 0.0298
## 7       0     0     1     0     0     0      0 0010000         3   291 0.0291
## 8       0     1     0     0     0     0      0 0100000         2   282 0.0282
## 9       1     1     1     0     1     0      0 1110100        16   276 0.0276
## 10      1     0     0     0     0     0      0 1000000         1   273 0.0273
## # ... with 61 more rows
## # i Use 'print(n = ...)' to see more rows
##
## $spikeslab
## # A tibble: 34 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  4344 0.434
## 2       0     1     1     0     0     0      0 0110000         9   875 0.0875
## 3       1     0     1     0     0     0      0 1010000         7   861 0.0861
## 4       1     1     0     0     0     0      0 1100000         5   861 0.0861
## 5       0     0     0     0     0     0      0 0000000        NA   787 0.0787
## 6       0     0     1     0     0     0      0 0010000         3   463 0.0463
```

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```
## 7      1      0      0      0      0      0       0 1000000      1    420 0.042
## 8      0      1      0      0      0      0       0 0100000      2    412 0.0412
## 9      1      1      1      0      0      1       0 1110010     17    172 0.0172
## 10     1      1      1      0      1      0       0 1110100     16    158 0.0158
## # ... with 24 more rows
## # i Use 'print(n = ...)' to see more rows
##
## $gprior
## # A tibble: 21 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   7950 0.795
## 2      1      1      1      0      0      0       0 1110000     18   1329 0.133
## 3      0      1      1      0      0      0       0 0110000      9    199 0.0199
## 4      1      1      0      0      0      0       0 1100000      5    176 0.0176
## 5      1      0      1      0      0      0       0 1010000      7    172 0.0172
## 6      0      1      0      0      0      0       0 0100000      2     42 0.0042
## 7      1      0      0      0      0      0       0 1000000      1     39 0.0039
## 8      0      0      1      0      0      0       0 0010000      3     38 0.0038
## 9      1      1      1      1      0      0       0 1111000     15     14 0.0014
## 10     1      1      1      0      0      1       0 1110010     17     10 0.001
## # ... with 11 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, err.sd = 3

```
## $iprior
## # 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  3266 0.327
## 2      1     1     1     0     0     0      0 1110000       18  1400 0.14
## 3      1     1     1     0     1     1      0 1110110       14  1102 0.110
## 4      1     1     1     1     1     0      0 1111100       12  1095 0.110
## 5      1     1     1     0     0     1      0 1110010       17   583 0.0583
## 6      1     1     1     1     0     0      0 1111000       15   536 0.0536
## 7      1     1     1     1     1     1      1 1111111       10   386 0.0386
## 8      1     1     1     1     1     1      0 1111110       11   363 0.0363
## 9      1     0     1     0     1     0      0 1010100        6   332 0.0332
## 10     1     1     1     1     0     1      0 1111010       13   219 0.0219
## 11     0     1     1     0     0     0      0 0110000        9   199 0.0199
## 12     1     1     0     0     0     0      0 1100000        5   194 0.0194
## 13     1     0     1     0     0     0      0 1010000        7   122 0.0122
## 14     0     1     1     0     0     1      0 0110010        8    74 0.0074
## 15     1     1     0     1     0     0      0 1101000        4    66 0.0066
## 16     0     1     0     0     0     0      0 0100000        2    30 0.003
## 17     1     0     0     0     0     0      0 1000000        1    21 0.0021
## 18     0     0     1     0     0     0      0 0010000        3    12 0.0012
##
## $lasso
## # A tibble: 82 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  2404 0.240
## 2      0     0     0     0     0     0      0 0000000       NA  1560 0.156
## 3      1     1     1     0     1     0      0 1110100       16  1508 0.151
## 4      1     1     0     0     0     0      0 1100000        5   521 0.0521
## 5      0     1     1     0     0     0      0 0110000        9   519 0.0519
## 6      1     0     1     0     0     0      0 1010000        7   436 0.0436
## 7      0     1     0     0     0     0      0 0100000        2   241 0.0241
## 8      1     0     0     0     0     0      0 1000000        1   237 0.0237
## 9      0     0     1     0     0     0      0 0010000        3   235 0.0235
## 10     1     1     1     1     1     0      0 1111100       12   224 0.0224
## # ... with 72 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     0     0     0      0 1110000       18  2973 0.297
## 2      1     1     1     0     1     0      0 1110100       16  1654 0.165
## 3      0     0     0     0     0     0      0 0000000       NA   783 0.0783
## 4      0     1     1     0     0     0      0 0110000        9   761 0.0761
## 5      1     1     0     0     0     0      0 1100000        5   730 0.073
## 6      1     0     1     0     0     0      0 1010000        7   617 0.0617
```

```
## 7      0      1      0      0      0      0      0 0100000      2   418 0.0418
## 8      1      0      0      0      0      0      0 1000000      1   408 0.0408
## 9      0      0      1      0      0      0      0 0010000      3   401 0.0401
## 10     1      0      1      0      1      0      0 1010100      6   225 0.0225
## # ... with 25 more rows
## # i Use 'print(n = ...)' to see more rows
##
## $gprior
## # A tibble: 19 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  8936 0.894
## 2      1      1      1      0      0      0      0 1110000      18   596 0.0596
## 3      1      1      0      0      0      0      0 1100000       5    96 0.0096
## 4      0      1      1      0      0      0      0 0110000       9    91 0.0091
## 5      1      0      1      0      0      0      0 1010000       7    91 0.0091
## 6      1      1      1      0      1      0      0 1110100      16    58 0.0058
## 7      1      0      0      0      0      0      0 1000000       1    37 0.0037
## 8      0      1      0      0      0      0      0 0100000       2    34 0.0034
## 9      0      0      1      0      0      0      0 0010000       3    24 0.0024
## 10     1      0      1      0      1      0      0 1010100       6    13 0.0013
## 11     1      1      1      0      0      1      0 1110010      17     7 0.0007
## 12     1      1      1      0      0      0      1 1110001      NA     4 0.0004
## 13     1      1      1      1      0      0      0 1111000      15     3 0.0003
## 14     0      1      1      0      0      0      1 0110001      NA     2 0.0002
## 15     1      0      0      0      0      0      1 1000001      NA     2 0.0002
## 16     1      0      1      0      0      0      1 1010001      NA     2 0.0002
## 17     1      1      0      0      0      0      1 1100001      NA     2 0.0002
## 18     0      1      1      0      0      1      0 0110010       8     1 0.0001
## 19     1      0      1      0      1      0      1 1010101      NA     1 0.0001
```

Model 1111100

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

```
## $iprior
## # 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  2676 0.268
## 2      1     1     1     0     1     0      0 1110100      16  1498 0.150
## 3      1     1     1     1     0     0      0 1111000      15  1464 0.146
## 4      1     1     1     1     1     1      1 1111111      10   746 0.0746
## 5      1     1     1     0     0     0      0 1110000      18   704 0.0704
## 6      1     1     1     1     1     1      0 1111110      11   703 0.0703
## 7      1     1     1     0     1     1      0 1110110      14   513 0.0513
## 8      1     1     1     1     0     1      0 1111010      13   452 0.0452
## 9      1     1     1     0     0     1      0 1110010      17   265 0.0265
## 10     1     1     0     1     0     0      0 1101000       4   246 0.0246
## 11     1     0     1     0     1     0      0 1010100       6   221 0.0221
## 12     0     1     1     0     0     0      0 0110000       9   161 0.0161
## 13     1     1     0     0     0     0      0 1100000       5   121 0.0121
## 14     1     0     1     0     0     0      0 1010000       7   101 0.0101
## 15     0     1     1     0     0     1      0 0110010       8    71 0.0071
## 16     1     0     0     0     0     0      0 1000000       1    21 0.0021
## 17     0     0     1     0     0     0      0 0010000       3    20 0.002
## 18     0     1     0     0     0     0      0 0100000       2    17 0.0017
##
## $lasso
## # A tibble: 91 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  1569 0.157
## 2      0     0     0     0     0     0      0 0000000      NA  1485 0.148
## 3      1     1     1     1     1     0      0 1111100      12   966 0.0966
## 4      1     1     1     0     1     0      0 1110100      16   891 0.0891
## 5      1     1     1     1     0     0      0 1111000      15   826 0.0826
## 6      0     1     1     0     0     0      0 0110000       9   376 0.0376
## 7      1     0     1     0     0     0      0 1010000       7   376 0.0376
## 8      1     1     0     0     0     0      0 1100000       5   372 0.0372
## 9      1     1     1     1     1     0      1 1111101      NA   256 0.0256
## 10     1     1     1     1     1     1      0 1111110      11   242 0.0242
## # ... with 81 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     0      0 1110000      18  2021 0.202
## 2      1     1     1     0     1     0      0 1110100      16  1000 0.1
## 3      1     1     1     1     0     0      0 1111000      15   965 0.0965
## 4      1     1     1     1     1     0      0 1111100      12   807 0.0807
## 5      0     0     0     0     0     0      0 0000000      NA   781 0.0781
## 6      0     1     1     0     0     0      0 0110000       9   700 0.07
```

```
## 7       1       0       1       0       0       0       0 1010000      7   560 0.056
## 8       1       1       0       0       0       0       0 1100000      5   558 0.0558
## 9       1       0       0       0       0       0       0 1000000      1   403 0.0403
## 10      0       0       1       0       0       0       0 0010000      3   374 0.0374
## # ... with 26 more rows
## # i Use 'print(n = ...)' to see more rows
##
## $gprior
## # 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  9457 0.946
## 2       1     1     1     0     0     0      0 1110000      18   263 0.0263
## 3       0     1     1     0     0     0      0 0110000       9    61 0.0061
## 4       1     1     0     0     0     0      0 1100000       5    50 0.005
## 5       1     0     1     0     0     0      0 1010000       7    35 0.0035
## 6       1     1     1     0     1     0      0 1110100      16    29 0.0029
## 7       1     0     0     0     0     0      0 1000000       1    25 0.0025
## 8       1     1     1     1     0     0      0 1111000      15    24 0.0024
## 9       0     0     1     0     0     0      0 0010000       3    20 0.002
## 10      0     1     0     0     0     0      0 0100000       2    18 0.0018
## 11      1     0     1     0     1     0      0 1010100       6     5 0.0005
## 12      1     1     1     0     0     0      1 1110001      NA     5 0.0005
## 13      1     1     0     1     0     0      0 1101000       4     3 0.0003
## 14      0     1     1     0     0     0      1 0110001      NA     2 0.0002
## 15      0     0     0     0     0     0      0 0000000      NA     1 0.0001
## 16      0     0     0     0     0     0      1 0000001      NA     1 0.0001
## 17      0     0     1     0     0     0      1 0010001      NA     1 0.0001
```

Model 1111110

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

```
## $iprior
## # 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      0 1111110      11  1547 0.155
## 2      1     1     1     1     1     0      0 1111100      12  1302 0.130
## 3      1     1     1     1     1     1      1 1111111      10  1273 0.127
## 4      1     1     1     1     0     1      0 1111010      13  1216 0.122
## 5      1     1     1     0     1     1      0 1110110      14  1183 0.118
## 6      1     1     1     0     0     1      0 1110010      17   774 0.0774
## 7      1     1     1     1     0     0      0 1111000      15   772 0.0772
## 8      1     1     1     0     1     0      0 1110100      16   748 0.0748
## 9      1     1     1     0     0     0      0 1110000      18   347 0.0347
## 10     0     1     1     0     0     1      0 0110010       8   182 0.0182
## 11     1     0     1     0     1     0      0 1010100       6   175 0.0175
## 12     1     1     0     1     0     0      0 1101000       4   173 0.0173
## 13     1     0     1     0     0     0      0 1010000       7    90 0.009
## 14     0     1     1     0     0     0      0 0110000       9    85 0.0085
## 15     1     1     0     0     0     0      0 1100000       5    80 0.008
## 16     1     0     0     0     0     0      0 1000000       1    21 0.0021
## 17     0     1     0     0     0     0      0 0100000       2    17 0.0017
## 18     0     0     1     0     0     0      0 0010000       3    15 0.0015
##
## $lasso
## # A tibble: 99 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  1324 0.132
## 2      1     1     1     0     0     0      0 1110000      18  1026 0.103
## 3      1     1     1     1     1     1      0 1111110      11   857 0.0857
## 4      1     1     1     1     0     0      0 1111000      15   545 0.0545
## 5      1     1     1     1     1     0      0 1111100      12   532 0.0532
## 6      1     1     1     0     0     1      0 1110010      17   531 0.0531
## 7      1     1     1     0     1     1      0 1110110      14   519 0.0519
## 8      1     1     1     0     1     0      0 1110100      16   517 0.0517
## 9      1     1     1     1     0     1      0 1111010      13   493 0.0493
## 10     1     1     1     1     1     1      1 1111111      10   364 0.0364
## # ... with 89 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     0      0 1110000      18  1458 0.146
## 2      0     0     0     0     0     0      0 0000000      NA   787 0.0787
## 3      1     1     1     1     1     1      1 1111111      10   650 0.065
## 4      1     1     1     0     0     1      0 1110010      17   631 0.0631
## 5      1     1     1     0     1     0      0 1110100      16   628 0.0628
## 6      1     1     1     1     0     0      0 1111000      15   616 0.0616
```

```
## 7     1     1     1     1     1     1        0 1111110   11   593 0.0593
## 8     1     1     0     0     0     0        0 1100000    5   481 0.0481
## 9     1     1     1     1     1     0        0 1111100   12   462 0.0462
## 10    0     1     1     0     0     0        0 0110000    9   441 0.0441
## # ... with 26 more rows
## # i Use 'print(n = ...)' to see more rows
##
## $gprior
## # 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  9726 0.973
## 2      1     1     1     0     0     0      0 1110000       18   121 0.0121
## 3      1     1     0     0     0     0      0 1100000        5    33 0.0033
## 4      1     0     1     0     0     0      0 1010000        7    22 0.0022
## 5      0     1     1     0     0     0      0 0110000        9    17 0.0017
## 6      1     1     1     0     1     0      0 1110100       16    15 0.0015
## 7      1     0     0     0     0     0      0 1000000        1    12 0.0012
## 8      0     0     1     0     0     0      0 0010000        3    11 0.0011
## 9      1     1     1     1     0     0      0 1111000       15    11 0.0011
## 10     0     1     0     0     0     0      0 0100000        2    10 0.001
## 11     1     1     1     0     0     1      0 1110010       17    10 0.001
## 12     1     1     0     1     0     0      0 1101000        4     4 0.0004
## 13     1     1     1     0     0     0      1 1110001       NA     3 0.0003
## 14     1     0     1     0     1     0      0 1010100        6     2 0.0002
## 15     0     0     0     0     0     0      0 0000000       NA     1 0.0001
## 16     0     1     0     0     0     0      1 0100001       NA     1 0.0001
## 17     1     0     1     0     0     0      1 1010001       NA     1 0.0001
```

Model 1111111

- True value: 1, 1, 1, 0.5, 0.5, 0.5, 0.25
- nsim = 10000, n = 100, corr = 0, err.sd = 3

```
## $iprior
## # 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  1791 0.179
## 2     1     1     1     1     1     1      0 1111110     11  1324 0.132
## 3     1     1     1     1     0     1      0 1111010     13  1199 0.120
## 4     1     1     1     1     1     0      0 1111100     12  1176 0.118
## 5     1     1     1     0     1     1      0 1110110     14  1111 0.111
## 6     1     1     1     1     0     0      0 1111000     15   783 0.0783
## 7     1     1     1     0     0     1      0 1110010     17   726 0.0726
## 8     1     1     1     0     1     0      0 1110100     16   694 0.0694
## 9     1     1     1     0     0     0      0 1110000     18   320 0.032
## 10    1     1     0     1     0     0      0 1101000      4   198 0.0198
## 11    0     1     1     0     0     1      0 0110010      8   183 0.0183
## 12    1     0     1     0     1     0      0 1010100      6   182 0.0182
## 13    1     0     1     0     0     0      0 1010000      7    97 0.0097
## 14    0     1     1     0     0     0      0 0110000      9    77 0.0077
## 15    1     1     0     0     0     0      0 1100000      5    74 0.0074
## 16    0     0     1     0     0     0      0 0010000      3    22 0.0022
## 17    1     0     0     0     0     0      0 1000000      1    22 0.0022
## 18    0     1     0     0     0     0      0 0100000      2    21 0.0021
##
## $lasso
## # A tibble: 107 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  1391 0.139
## 2     1     1     1     0     0     0      0 1110000     18  1019 0.102
## 3     1     1     1     1     1     1      0 1111110     11   643 0.0643
## 4     1     1     1     1     1     1      1 1111111     10   624 0.0624
## 5     1     1     1     1     0     0      0 1111000     15   494 0.0494
## 6     1     1     1     0     0     1      0 1110010     17   476 0.0476
## 7     1     1     1     1     1     0      0 1111100     12   444 0.0444
## 8     1     1     1     0     1     0      0 1110100     16   440 0.044
## 9     1     1     1     1     0     1      0 1111010     13   435 0.0435
## 10    1     1     1     0     1     1      0 1110110     14   402 0.0402
## # ... with 97 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     0      0 1110000     18  1286 0.129
## 2     1     1     1     1     1     1      1 1111111     10   938 0.0938
## 3     0     0     0     0     0     0      0 0000000     NA   893 0.0893
## 4     1     1     1     1     0     0      0 1111000     15   618 0.0618
## 5     1     1     1     0     0     1      0 1110010     17   577 0.0577
## 6     1     1     1     0     1     0      0 1110100     16   522 0.0522
```

```
##  7      1      0      1      0      0      0        0 1010000     7    447 0.0447
##  8      1      1      0      0      0      0        0 1100000     5    440 0.044
##  9      1      1      1      1      1      1        0 1111110    11    425 0.0425
## 10      0      1      1      0      0      0        0 0110000     9    414 0.0414
## # ... with 26 more rows
## # i Use `print(n = ...)` to see more rows
##
## $gprior
## # 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  9751 0.975
## 2      1      1      1      0      0      0      0 1110000     18   110 0.011
## 3      1      0      1      0      0      0      0 1010000      7    23 0.0023
## 4      0      1      1      0      0      0      0 0110000      9    21 0.0021
## 5      1      1      0      0      0      0      0 1100000      5    21 0.0021
## 6      1      0      0      0      0      0      0 1000000      1    14 0.0014
## 7      1      1      1      1      0      0      0 1111000     15    14 0.0014
## 8      0      1      0      0      0      0      0 0100000      2     9 0.0009
## 9      1      1      1      0      0      1      0 1110010     17     9 0.0009
## 10     0      0      1      0      0      0      0 0010000      3     7 0.0007
## 11     1      1      1      0      1      0      0 1110100     16     6 0.0006
## 12     1      1      0      1      0      0      0 1101000      4     5 0.0005
## 13     1      1      1      0      0      0      1 1110001     NA     4 0.0004
## 14     0      1      1      0      0      1      0 0110010      8     2 0.0002
## 15     1      0      1      0      1      0      0 1010100      6     2 0.0002
## 16     1      1      0      0      0      0      1 1100001     NA     1 0.0001
## 17     1      1      1      1      0      0      1 1111001     NA     1 0.0001
```