Simulation with Null Controls

14/04/23

List packages used, generate simulated data

```
## [1] "R version 4.2.2 (2022-10-31)"
```

```
## [1] "Package versions:"
```

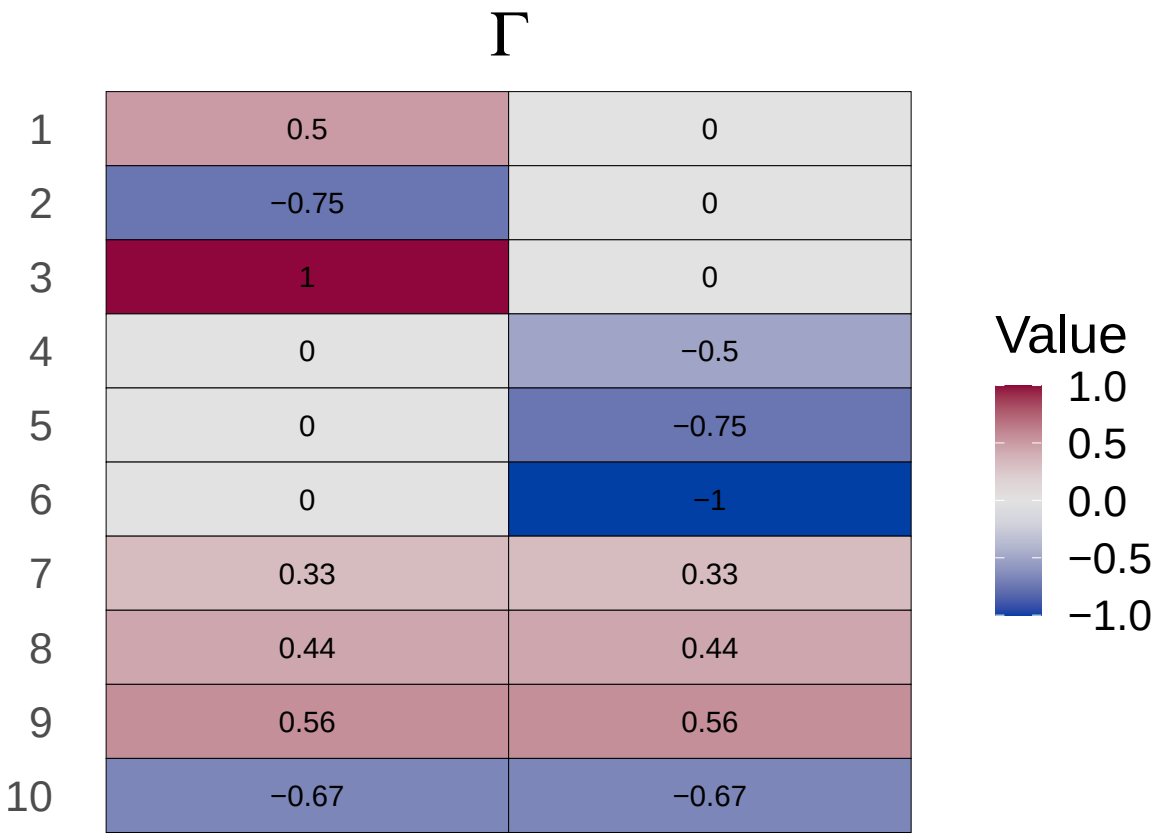
	x
knitr	1.41
mvtnorm	1.1-3
cmdstanr	0.5.3
tidybayes	3.0.2
colorspace	2.0-3
forcats	0.5.2
stringr	1.5.0
dplyr	1.0.10
purrr	1.0.1
readr	2.1.3
tidyr	1.2.1
tibble	3.1.8
ggplot2	3.3.6
tidyverse	1.3.2

Generate data for $q = 10$ outcomes, $m = 2$ latent confounders. Confounding explains 50% of the treatment variance

```
## [1] "Naive effects (midpoint of ignorance region):"
```

	x
y1	-0.45
y2	0.64
y3	0.13
y4	0.84
y5	0.66
y6	0.59
y7	0.79
y8	0.74
y9	0.74
y10	0.32

Make a heat map of gamma (paper Figure 1a)



Run MCMC to Infer Naive Effects and Factor Loadings

By default, don't run sampler, just load last fit. Change chunk option to `eval=TRUE` to rerun sampler.

Print credible intervals for effects under NUC and report significance

```
## Warning: `gather_()` was deprecated in tidyr 1.2.0.
## i Please use `gather()` instead.
## i The deprecated feature was likely used in the tidybayes package.
##   Please report the issue at <https://github.com/mjskay/tidybayes/issues/new>.
```

```
## `summarise()` has grouped output by 'J'. You can override using the `.groups`
## argument.
```

feature	q025	q975	J	K	mean	sig
y1	-0.43	-0.32	1	1	-0.38	TRUE
y2	0.40	0.51	1	2	0.46	TRUE
y3	0.03	0.16	1	3	0.09	TRUE
y4	0.55	0.65	1	4	0.60	TRUE
y5	0.41	0.53	1	5	0.47	TRUE
y6	0.33	0.45	1	6	0.39	TRUE
y7	0.53	0.63	1	7	0.58	TRUE
y8	0.48	0.59	1	8	0.54	TRUE
y9	0.46	0.57	1	9	0.51	TRUE

feature	q025	q975	J	K	mean	sig
y10	0.17	0.29	1	10	0.23	TRUE

Ignorance Regions, Paper Figure 1b