Basic Arguments

`x, n, Hr, a, b, factor_levels`

`mult_bf_informed()`
`binom_bf_informed()`

`$bf_list` `$cred_level` `$restrictions`
`$bridge_output` `$samples`

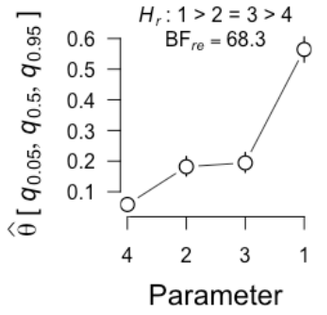
`summary()`

Results and posterior parameter estimates

`$hyp` `$bf` `$re2` `$bf_type`
`$prior` `$data` `$nr_equal`
`$nr_inequal` `$cred_level`
`$estimates`

`plot()`

Posterior median and credible interval of marginal densities under encompassing model



`bayes_factor()`

Information about computed Bayes factors

`$bf_table` `$error_measures`
`$bf_ineq_table`

`samples()`

Samples from constrained densities used for bridge sampling

`$prior_samples`
`$post_samples`

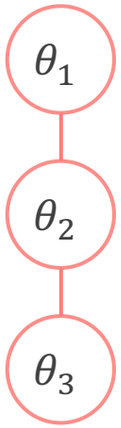
`bridge_ouput()`

Bridge sampling output and error measures

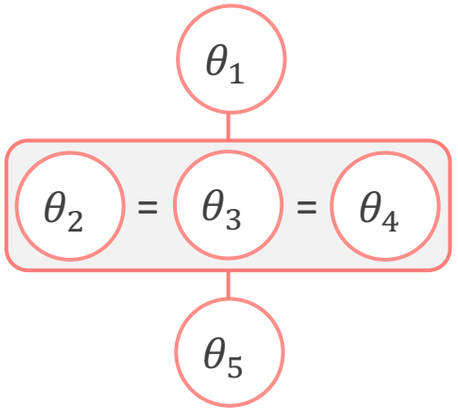
`$eval` `$niter` `$logml`
`$hyp` `$error_measures`

Examples of six stick hypotheses

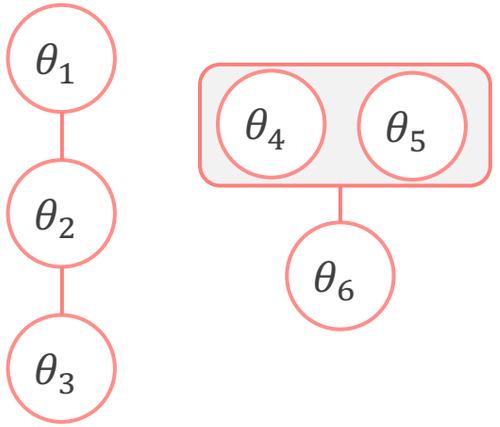
H_r: $\theta_1 > \theta_2 > \theta_3$



H_r: $\theta_1 > \theta_2 = \theta_3 = \theta_4 > \theta_5$



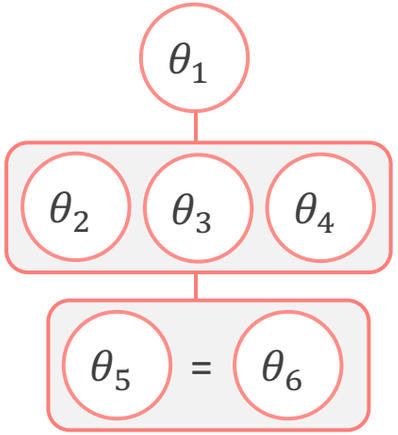
H_r: $\theta_1 > \theta_2 > \theta_3$ & $\theta_4, \theta_5 > \theta_6$



H_r: $\theta_1 = \theta_2 = \theta_3$

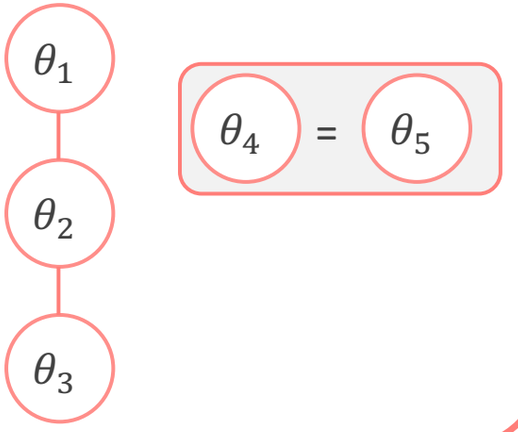
Inequality hypotheses and equality constraints

H_r: $\theta_1 > \theta_2, \theta_3, \theta_4 > \theta_5 = \theta_6$



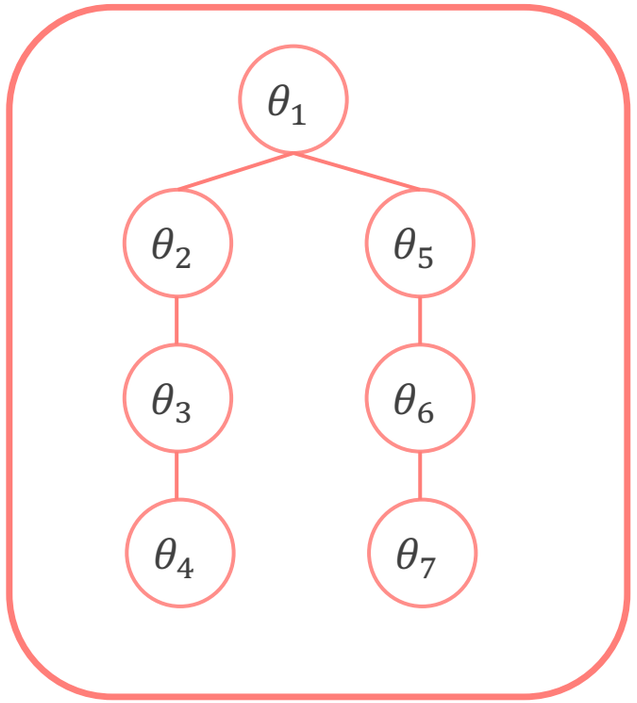
Combinations of inequality constraints, equality constraints, and free parameters

H_r: $\theta_1 > \theta_2 > \theta_3$ & $\theta_4 = \theta_5$

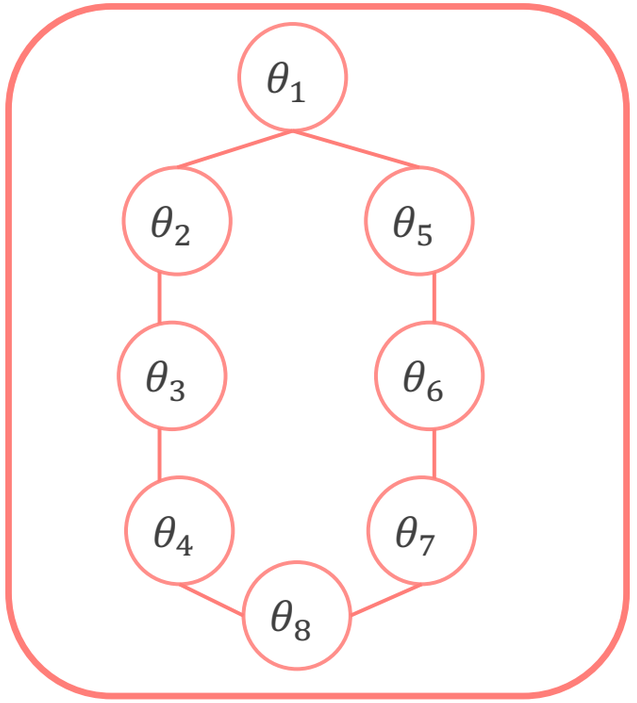


Combinations of independent constraints

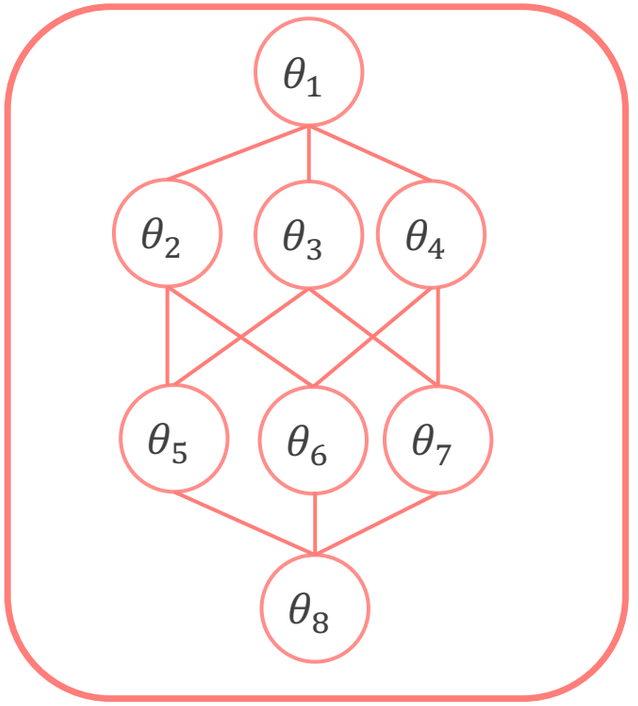
Examples of three branched hypotheses



The branches $(\theta_2, \theta_3, \theta_4)$ and $(\theta_5, \theta_6, \theta_7)$ are not comparable to each other. Across the two branches it is unclear which element precedes the other in the sequence.

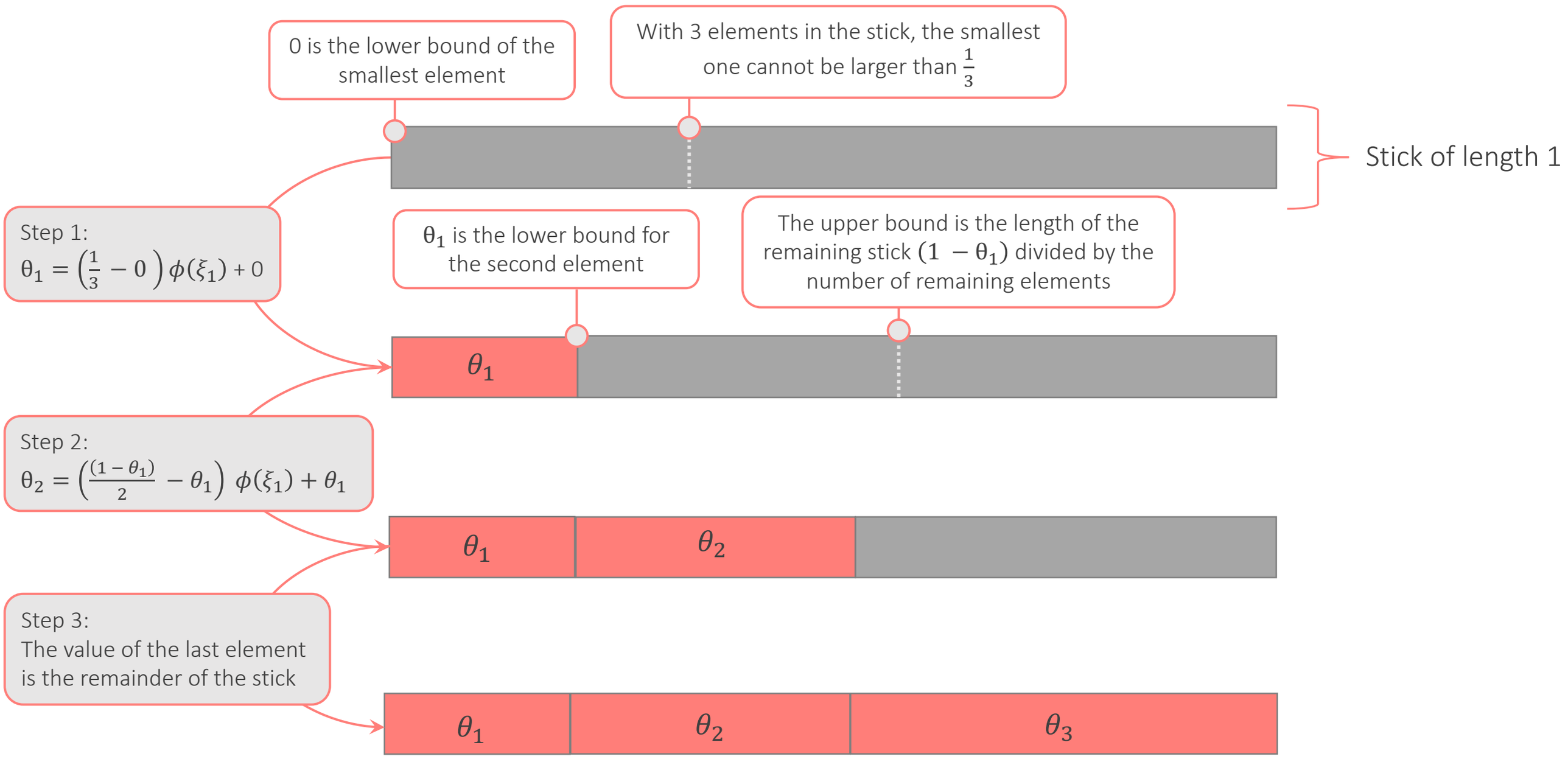


Although the constraint specifies a largest element (θ_1) and a smallest element (θ_8), not every pair of elements in the constraint is comparable to each other (e.g., θ_3 and θ_5 are incomparable).



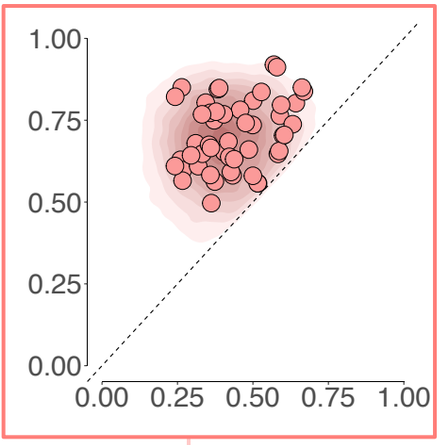
The arrangement of the elements $(\theta_2, \theta_3, \theta_4)$ and $(\theta_5, \theta_6, \theta_7)$ is complex, but does not account for all relations (e.g., θ_3 and θ_6 are incomparable)

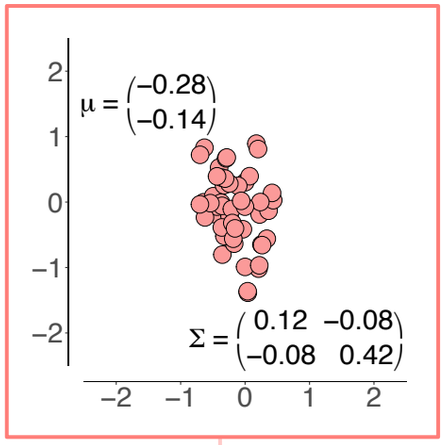
Transform values from the real line (ξ_1, ξ_2, ξ_3) to an ordered probability vector $(\theta_1 < \theta_2 < \theta_3)$ using the stick-breaking transformation

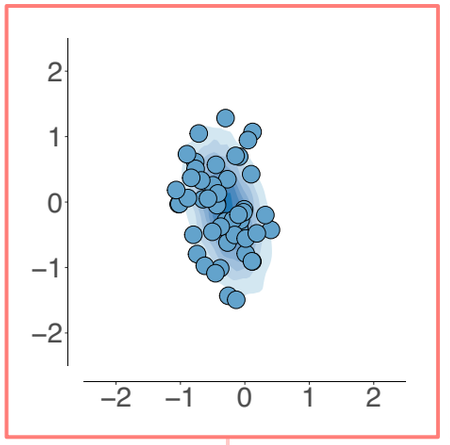


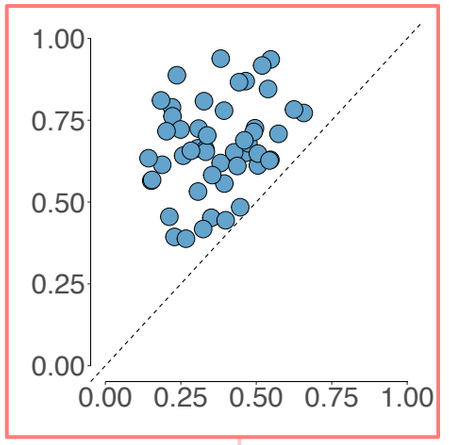
Use half of the samples to fit the proposal distribution

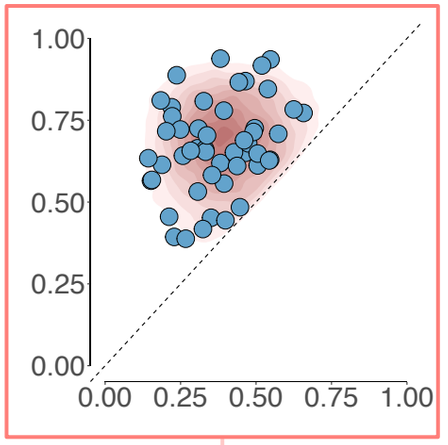
Compute μ and Σ and fit a MV normal











Draw samples from the constrained prior distribution

Transform samples to the real line

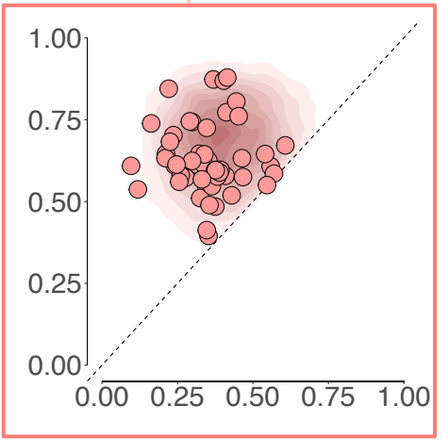
Sample from the MV normal with mean vector μ and covariance matrix Σ

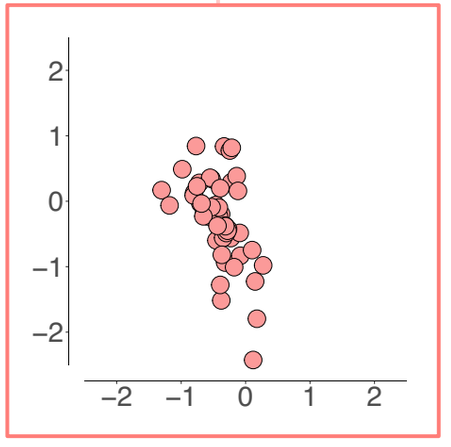
Transform samples from the proposal to the constrained probability space

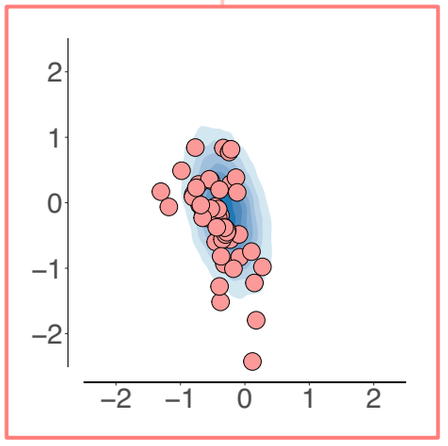
Evaluate samples from the MV normal and the constrained prior at the respective other density

Run bridge sampling algorithm

The biggest challenge in this routine lies in the stick-breaking transformation







Keep half of the samples