

# Numerical experiments high-dimension

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Numerical experiments are important for testing the effectiveness of psc-sne algorithm since it can be identified whether the function is providing good results or not. Then, this document contains information about the simulation of high-dimensional data and defines different cases in each point.

First, we start with  $p = 100$  and  $r = 1$  where  $(\mathbb{S}^p)^r$ .

$\mathbb{S}^{100}$

Let us introduce some different scenarios where each of them has some particular distributions.

## A mixture of a small circle distribution and uniform distribution

```
sc_unif_mix <- function(n, p, w_sc, w_unif, kappa = 50) {
  if (w_sc + w_unif != 1) {
    stop("w_sc and w_unif must sum 1")
  }
  n1 <- rbinom(1, n, w_sc)
  n2 <- n - n1
  r_1 <- sphunif::r_alt(n = n1, p = p, alt = "SC", kappa = kappa)
  r_2 <- sphunif::r_unif_sph(n = n2, p = p)
  data <- abind(r_1, r_2, along = 1)
  # Change the order of the data
  indexes <- sample(1:n)
  data <- data[indexes, , , drop = FALSE]
  cols <- c(rep(1, times = n1), rep(2, times = n2))
  cols <- cols[indexes]
  return(list("data" = data, "colors" = cols))
}
n <- 1200
p <- 101
w_sc <- 0.5
w_unif <- 0.5
kappa <- 1000
sc_unif_mix_res <- sc_unif_mix(n = n, p = p, w_sc = w_sc, w_unif = w_unif,
                                 kappa = kappa)
sc_unif_mix_data <- sc_unif_mix_res$data
sc_unif_mix_colors <- sc_unif_mix_res$colors
```

Let's now run the psc-sne and see if it identifies each component of the mixture. The previous step is to calculate the rho values based on a perplexity of 30.

```
rho_30_1 <- rho_optim_bst(x = sc_unif_mix_data, perp_fixed = 30,
                           num_cores = num_cores_param)
```

```
#> Time difference of 3.546976 mins
```

The next thing is to run the psc-sne with the parameter  $d = 1$ :

```
res_pscsne_11 <- psc_sne(X = sc_unif_mix_data, d = 1, rho_psc_list = rho_30_1,
                           num_iteration = 500, show_prog = TRUE,
                           colors = sc_unif_mix_colors,
                           parallel_cores = num_cores_param)
#> It: 1; obj: 2.026e+01; abs: 0.000e+00; rel: 0.000e+00; norm: 9.395e-02; mom: 0.000e+00;
#> best it: 1; best obj: 2.026e+01
#> It: 2; obj: 1.987e+01; abs: 3.885e-01; rel: 1.918e-02; norm: 1.316e-01; mom: 3.205e+00;
#> best it: 2; best obj: 1.987e+01
#> It: 3; obj: 1.960e+01; abs: 2.676e-01; rel: 1.347e-02; norm: 1.606e-01; mom: 3.444e+00;
#> best it: 3; best obj: 1.960e+01
#> It: 4; obj: 1.940e+01; abs: 2.024e-01; rel: 1.033e-02; norm: 1.837e-01; mom: 2.769e+00;
#> best it: 4; best obj: 1.940e+01
#> It: 5; obj: 1.924e+01; abs: 1.574e-01; rel: 8.112e-03; norm: 2.011e-01; mom: 2.373e+00;
#> best it: 5; best obj: 1.924e+01
#> It: 6; obj: 1.912e+01; abs: 1.196e-01; rel: 6.216e-03; norm: 2.147e-01; mom: 2.059e+00;
#> best it: 6; best obj: 1.912e+01
#> It: 7; obj: 1.903e+01; abs: 9.290e-02; rel: 4.859e-03; norm: 2.233e-01; mom: 1.747e+00;
#> best it: 7; best obj: 1.903e+01
#> It: 8; obj: 1.895e+01; abs: 7.288e-02; rel: 3.830e-03; norm: 2.296e-01; mom: 1.389e+00;
#> best it: 8; best obj: 1.895e+01
#> It: 9; obj: 1.889e+01; abs: 6.030e-02; rel: 3.181e-03; norm: 2.350e-01; mom: 1.165e+00;
#> best it: 9; best obj: 1.889e+01
#> It: 10; obj: 1.884e+01; abs: 4.883e-02; rel: 2.585e-03; norm: 2.422e-01; mom: 1.067e+00;
#> best it: 10; best obj: 1.884e+01
#> It: 11; obj: 1.880e+01; abs: 4.254e-02; rel: 2.258e-03; norm: 2.504e-01; mom: 9.369e-01;
#> best it: 11; best obj: 1.880e+01
#> It: 12; obj: 1.876e+01; abs: 4.227e-02; rel: 2.248e-03; norm: 2.588e-01; mom: 9.125e-01;
#> best it: 12; best obj: 1.876e+01
#> It: 13; obj: 1.872e+01; abs: 4.337e-02; rel: 2.312e-03; norm: 2.682e-01; mom: 9.086e-01;
#> best it: 13; best obj: 1.872e+01
#> It: 14; obj: 1.868e+01; abs: 4.037e-02; rel: 2.157e-03; norm: 2.789e-01; mom: 9.325e-01;
#> best it: 14; best obj: 1.868e+01
#> It: 15; obj: 1.864e+01; abs: 3.581e-02; rel: 1.917e-03; norm: 2.908e-01; mom: 9.409e-01;
#> best it: 15; best obj: 1.864e+01
#> It: 16; obj: 1.861e+01; abs: 3.017e-02; rel: 1.619e-03; norm: 3.039e-01; mom: 9.450e-01;
#> best it: 16; best obj: 1.861e+01
#> It: 17; obj: 1.859e+01; abs: 2.359e-02; rel: 1.267e-03; norm: 3.176e-01; mom: 9.309e-01;
#> best it: 17; best obj: 1.859e+01
#> It: 18; obj: 1.857e+01; abs: 1.800e-02; rel: 9.684e-04; norm: 3.315e-01; mom: 9.082e-01;
#> best it: 18; best obj: 1.857e+01
#> It: 19; obj: 1.856e+01; abs: 1.322e-02; rel: 7.119e-04; norm: 3.459e-01; mom: 9.051e-01;
#> best it: 19; best obj: 1.856e+01
#> It: 20; obj: 1.855e+01; abs: 9.404e-03; rel: 5.068e-04; norm: 3.609e-01; mom: 9.170e-01;
#> best it: 20; best obj: 1.855e+01
#> It: 21; obj: 1.854e+01; abs: 6.294e-03; rel: 3.394e-04; norm: 3.766e-01; mom: 9.354e-01;
#> best it: 21; best obj: 1.854e+01
#> It: 22; obj: 1.854e+01; abs: 2.474e-03; rel: 1.334e-04; norm: 3.931e-01; mom: 9.594e-01;
#> best it: 22; best obj: 1.854e+01
#> It: 23; obj: 1.854e+01; abs: 2.177e-03; rel: 1.174e-04; norm: 4.103e-01; mom: 9.635e-01;
#> best it: 22; best obj: 1.854e+01
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#> It: 24; obj: 1.855e+01; abs: 5.885e-03; rel: 3.174e-04; norm: 4.276e-01; mom: 9.508e-01;
#> best it: 22; best obj: 1.854e+01
#> It: 25; obj: 1.855e+01; abs: 9.192e-03; rel: 4.957e-04; norm: 4.446e-01; mom: 9.579e-01;
#> best it: 22; best obj: 1.854e+01
#> It: 26; obj: 1.857e+01; abs: 1.170e-02; rel: 6.306e-04; norm: 4.609e-01; mom: 9.706e-01;
#> best it: 22; best obj: 1.854e+01
#> It: 27; obj: 1.858e+01; abs: 1.348e-02; rel: 7.261e-04; norm: 4.764e-01; mom: 9.838e-01;
#> best it: 22; best obj: 1.854e+01
#> It: 28; obj: 1.859e+01; abs: 1.484e-02; rel: 7.987e-04; norm: 4.916e-01; mom: 9.964e-01;
#> best it: 22; best obj: 1.854e+01
#> It: 29; obj: 1.861e+01; abs: 1.721e-02; rel: 9.255e-04; norm: 5.066e-01; mom: 9.902e-01;
#> best it: 22; best obj: 1.854e+01
#> It: 30; obj: 1.863e+01; abs: 2.105e-02; rel: 1.131e-03; norm: 5.213e-01; mom: 9.483e-01;
#> best it: 22; best obj: 1.854e+01
#> It: 31; obj: 1.866e+01; abs: 2.414e-02; rel: 1.295e-03; norm: 5.349e-01; mom: 8.731e-01;
#> best it: 22; best obj: 1.854e+01
#> It: 32; obj: 1.868e+01; abs: 2.506e-02; rel: 1.343e-03; norm: 5.465e-01; mom: 7.710e-01;
#> best it: 22; best obj: 1.854e+01
#> It: 33; obj: 1.870e+01; abs: 2.263e-02; rel: 1.211e-03; norm: 5.556e-01; mom: 6.524e-01;
#> best it: 22; best obj: 1.854e+01
#> It: 34; obj: 1.872e+01; abs: 1.925e-02; rel: 1.029e-03; norm: 5.626e-01; mom: 6.152e-01;
#> best it: 22; best obj: 1.854e+01
#> It: 35; obj: 1.874e+01; abs: 1.692e-02; rel: 9.035e-04; norm: 5.683e-01; mom: 5.734e-01;
#> best it: 22; best obj: 1.854e+01
#> It: 36; obj: 1.876e+01; abs: 1.720e-02; rel: 9.178e-04; norm: 5.737e-01; mom: 5.673e-01;
#> best it: 22; best obj: 1.854e+01
#> It: 37; obj: 1.878e+01; abs: 1.948e-02; rel: 1.039e-03; norm: 5.792e-01; mom: 5.490e-01;
#> best it: 22; best obj: 1.854e+01
#> It: 38; obj: 1.880e+01; abs: 2.069e-02; rel: 1.102e-03; norm: 5.843e-01; mom: 5.009e-01;
#> best it: 22; best obj: 1.854e+01
#> It: 39; obj: 1.882e+01; abs: 2.038e-02; rel: 1.084e-03; norm: 5.885e-01; mom: 4.296e-01;
#> best it: 22; best obj: 1.854e+01
#> It: 40; obj: 1.884e+01; abs: 1.947e-02; rel: 1.034e-03; norm: 5.918e-01; mom: 3.665e-01;
#> best it: 22; best obj: 1.854e+01
#> It: 41; obj: 1.886e+01; abs: 1.890e-02; rel: 1.003e-03; norm: 5.947e-01; mom: 3.280e-01;
#> best it: 22; best obj: 1.854e+01
#> It: 42; obj: 1.888e+01; abs: 1.843e-02; rel: 9.776e-04; norm: 5.972e-01; mom: 3.145e-01;
#> best it: 22; best obj: 1.854e+01
#> It: 43; obj: 1.889e+01; abs: 1.685e-02; rel: 8.927e-04; norm: 5.993e-01; mom: 2.975e-01;
#> best it: 22; best obj: 1.854e+01
#> It: 44; obj: 1.891e+01; abs: 1.500e-02; rel: 7.942e-04; norm: 6.010e-01; mom: 2.582e-01;
#> best it: 22; best obj: 1.854e+01
#> It: 45; obj: 1.892e+01; abs: 1.348e-02; rel: 7.128e-04; norm: 6.025e-01; mom: 2.294e-01;
#> best it: 22; best obj: 1.854e+01
#> It: 46; obj: 1.893e+01; abs: 1.213e-02; rel: 6.410e-04; norm: 6.038e-01; mom: 2.118e-01;
#> best it: 22; best obj: 1.854e+01
#> It: 47; obj: 1.894e+01; abs: 1.091e-02; rel: 5.764e-04; norm: 6.051e-01; mom: 2.002e-01;
#> best it: 22; best obj: 1.854e+01
#> It: 48; obj: 1.895e+01; abs: 9.876e-03; rel: 5.213e-04; norm: 6.062e-01; mom: 1.933e-01;
#> best it: 22; best obj: 1.854e+01
#> It: 49; obj: 1.896e+01; abs: 9.076e-03; rel: 4.788e-04; norm: 6.073e-01; mom: 1.898e-01;
#> best it: 22; best obj: 1.854e+01
#> It: 50; obj: 1.897e+01; abs: 8.525e-03; rel: 4.496e-04; norm: 6.083e-01; mom: 1.876e-01;

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#> best it: 22; best obj: 1.854e+01
#> It: 51; obj: 1.898e+01; abs: 8.182e-03; rel: 4.313e-04; norm: 6.093e-01; mom: 1.858e-01;
#> best it: 22; best obj: 1.854e+01
#> It: 52; obj: 1.899e+01; abs: 7.999e-03; rel: 4.215e-04; norm: 6.103e-01; mom: 1.841e-01;
#> best it: 22; best obj: 1.854e+01
#> It: 53; obj: 1.900e+01; abs: 7.953e-03; rel: 4.189e-04; norm: 6.113e-01; mom: 1.848e-01;
#> best it: 22; best obj: 1.854e+01
#> It: 54; obj: 1.900e+01; abs: 7.987e-03; rel: 4.205e-04; norm: 6.122e-01; mom: 1.910e-01;
#> best it: 22; best obj: 1.854e+01
#> It: 55; obj: 1.901e+01; abs: 7.939e-03; rel: 4.178e-04; norm: 6.131e-01; mom: 1.952e-01;
#> best it: 22; best obj: 1.854e+01
#> It: 56; obj: 1.902e+01; abs: 7.637e-03; rel: 4.017e-04; norm: 6.139e-01; mom: 1.924e-01;
#> best it: 22; best obj: 1.854e+01
#> It: 57; obj: 1.903e+01; abs: 7.092e-03; rel: 3.729e-04; norm: 6.145e-01; mom: 1.844e-01;
#> best it: 22; best obj: 1.854e+01
#> It: 58; obj: 1.903e+01; abs: 6.441e-03; rel: 3.386e-04; norm: 6.151e-01; mom: 1.766e-01;
#> best it: 22; best obj: 1.854e+01
#> It: 59; obj: 1.904e+01; abs: 5.775e-03; rel: 3.034e-04; norm: 6.156e-01; mom: 1.729e-01;
#> best it: 22; best obj: 1.854e+01
#> It: 60; obj: 1.904e+01; abs: 5.115e-03; rel: 2.687e-04; norm: 6.159e-01; mom: 1.732e-01;
#> best it: 22; best obj: 1.854e+01
#> It: 61; obj: 1.905e+01; abs: 4.465e-03; rel: 2.344e-04; norm: 6.162e-01; mom: 1.763e-01;
#> best it: 22; best obj: 1.854e+01
#> It: 62; obj: 1.905e+01; abs: 3.824e-03; rel: 2.007e-04; norm: 6.164e-01; mom: 1.815e-01;
#> best it: 22; best obj: 1.854e+01
#> It: 63; obj: 1.905e+01; abs: 3.193e-03; rel: 1.676e-04; norm: 6.166e-01; mom: 1.885e-01;
#> best it: 22; best obj: 1.854e+01
#> It: 64; obj: 1.906e+01; abs: 2.568e-03; rel: 1.348e-04; norm: 6.166e-01; mom: 1.974e-01;
#> best it: 22; best obj: 1.854e+01
#> It: 65; obj: 1.906e+01; abs: 1.907e-03; rel: 1.001e-04; norm: 6.166e-01; mom: 2.082e-01;
#> best it: 22; best obj: 1.854e+01
#> It: 66; obj: 1.906e+01; abs: 1.081e-03; rel: 5.673e-05; norm: 6.165e-01; mom: 2.202e-01;
#> best it: 22; best obj: 1.854e+01
#> It: 67; obj: 1.906e+01; abs: 3.444e-05; rel: 1.807e-06; norm: 6.163e-01; mom: 2.311e-01;
#> best it: 22; best obj: 1.854e+01
#> It: 68; obj: 1.906e+01; abs: 1.417e-03; rel: 7.435e-05; norm: 6.159e-01; mom: 2.414e-01;
#> best it: 22; best obj: 1.854e+01
#> It: 69; obj: 1.906e+01; abs: 2.983e-03; rel: 1.565e-04; norm: 6.154e-01; mom: 2.537e-01;
#> best it: 22; best obj: 1.854e+01
#> It: 70; obj: 1.905e+01; abs: 4.700e-03; rel: 2.466e-04; norm: 6.147e-01; mom: 2.687e-01;
#> best it: 22; best obj: 1.854e+01
#> It: 71; obj: 1.904e+01; abs: 6.562e-03; rel: 3.444e-04; norm: 6.139e-01; mom: 2.857e-01;
#> best it: 22; best obj: 1.854e+01
#> It: 72; obj: 1.904e+01; abs: 8.544e-03; rel: 4.486e-04; norm: 6.129e-01; mom: 3.041e-01;
#> best it: 22; best obj: 1.854e+01
#> It: 73; obj: 1.903e+01; abs: 1.058e-02; rel: 5.556e-04; norm: 6.117e-01; mom: 3.235e-01;
#> best it: 22; best obj: 1.854e+01
#> It: 74; obj: 1.901e+01; abs: 1.260e-02; rel: 6.624e-04; norm: 6.103e-01; mom: 3.439e-01;
#> best it: 22; best obj: 1.854e+01
#> It: 75; obj: 1.900e+01; abs: 1.464e-02; rel: 7.703e-04; norm: 6.086e-01; mom: 3.653e-01;
#> best it: 22; best obj: 1.854e+01
#> It: 76; obj: 1.898e+01; abs: 1.686e-02; rel: 8.877e-04; norm: 6.067e-01; mom: 3.885e-01;
#> best it: 22; best obj: 1.854e+01

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#> It: 77; obj: 1.896e+01; abs: 1.953e-02; rel: 1.029e-03; norm: 6.046e-01; mom: 4.140e-01;
#> best it: 22; best obj: 1.854e+01
#> It: 78; obj: 1.894e+01; abs: 2.289e-02; rel: 1.207e-03; norm: 6.022e-01; mom: 4.420e-01;
#> best it: 22; best obj: 1.854e+01
#> It: 79; obj: 1.891e+01; abs: 2.688e-02; rel: 1.419e-03; norm: 5.997e-01; mom: 4.716e-01;
#> best it: 22; best obj: 1.854e+01
#> It: 80; obj: 1.888e+01; abs: 3.085e-02; rel: 1.631e-03; norm: 5.969e-01; mom: 5.014e-01;
#> best it: 22; best obj: 1.854e+01
#> It: 81; obj: 1.885e+01; abs: 3.402e-02; rel: 1.802e-03; norm: 5.940e-01; mom: 5.306e-01;
#> best it: 22; best obj: 1.854e+01
#> It: 82; obj: 1.881e+01; abs: 3.605e-02; rel: 1.913e-03; norm: 5.910e-01; mom: 5.612e-01;
#> best it: 22; best obj: 1.854e+01
#> It: 83; obj: 1.877e+01; abs: 3.729e-02; rel: 1.982e-03; norm: 5.880e-01; mom: 5.963e-01;
#> best it: 22; best obj: 1.854e+01
#> It: 84; obj: 1.874e+01; abs: 3.777e-02; rel: 2.012e-03; norm: 5.854e-01; mom: 6.364e-01;
#> best it: 22; best obj: 1.854e+01
#> It: 85; obj: 1.870e+01; abs: 3.628e-02; rel: 1.936e-03; norm: 5.834e-01; mom: 6.794e-01;
#> best it: 22; best obj: 1.854e+01
#> It: 86; obj: 1.867e+01; abs: 3.148e-02; rel: 1.683e-03; norm: 5.827e-01; mom: 7.205e-01;
#> best it: 22; best obj: 1.854e+01
#> It: 87; obj: 1.865e+01; abs: 2.314e-02; rel: 1.239e-03; norm: 5.836e-01; mom: 7.558e-01;
#> best it: 22; best obj: 1.854e+01
#> It: 88; obj: 1.863e+01; abs: 1.164e-02; rel: 6.241e-04; norm: 5.865e-01; mom: 7.838e-01;
#> best it: 22; best obj: 1.854e+01
#> It: 89; obj: 1.864e+01; abs: 1.939e-03; rel: 1.041e-04; norm: 5.919e-01; mom: 7.976e-01;
#> best it: 22; best obj: 1.854e+01
#> It: 90; obj: 1.865e+01; abs: 1.602e-02; rel: 8.599e-04; norm: 5.997e-01; mom: 7.925e-01;
#> best it: 22; best obj: 1.854e+01
#> It: 91; obj: 1.868e+01; abs: 2.901e-02; rel: 1.556e-03; norm: 6.095e-01; mom: 7.682e-01;
#> best it: 22; best obj: 1.854e+01
#> It: 92; obj: 1.872e+01; abs: 3.978e-02; rel: 2.129e-03; norm: 6.206e-01; mom: 7.280e-01;
#> best it: 22; best obj: 1.854e+01
#> It: 93; obj: 1.877e+01; abs: 4.790e-02; rel: 2.558e-03; norm: 6.323e-01; mom: 6.784e-01;
#> best it: 22; best obj: 1.854e+01
#> It: 94; obj: 1.882e+01; abs: 5.343e-02; rel: 2.847e-03; norm: 6.440e-01; mom: 6.257e-01;
#> best it: 22; best obj: 1.854e+01
#> It: 95; obj: 1.888e+01; abs: 5.660e-02; rel: 3.007e-03; norm: 6.551e-01; mom: 5.739e-01;
#> best it: 22; best obj: 1.854e+01
#> It: 96; obj: 1.894e+01; abs: 5.766e-02; rel: 3.054e-03; norm: 6.654e-01; mom: 5.244e-01;
#> best it: 22; best obj: 1.854e+01
#> It: 97; obj: 1.899e+01; abs: 5.689e-02; rel: 3.004e-03; norm: 6.747e-01; mom: 4.774e-01;
#> best it: 22; best obj: 1.854e+01
#> It: 98; obj: 1.905e+01; abs: 5.465e-02; rel: 2.877e-03; norm: 6.828e-01; mom: 4.325e-01;
#> best it: 22; best obj: 1.854e+01
#> It: 99; obj: 1.910e+01; abs: 5.134e-02; rel: 2.696e-03; norm: 6.898e-01; mom: 3.898e-01;
#> best it: 22; best obj: 1.854e+01
#> It: 100; obj: 1.915e+01; abs: 4.737e-02; rel: 2.480e-03; norm: 6.957e-01; mom: 3.497e-01;
#> best it: 22; best obj: 1.854e+01
#> It: 101; obj: 3.344e+00; abs: 1.580e+01; rel: 8.253e-01; norm: 6.039e-02; mom: 3.125e-01;
#> best it: 101; best obj: 3.344e+00
#> It: 102; obj: 3.288e+00; abs: 5.624e-02; rel: 1.682e-02; norm: 5.753e-02; mom: 1.556e+00;
#> best it: 102; best obj: 3.288e+00
#> It: 103; obj: 3.252e+00; abs: 3.604e-02; rel: 1.096e-02; norm: 5.208e-02; mom: 1.983e+00;

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#> best it: 103; best obj: 3.252e+00
#> It: 104; obj: 3.227e+00; abs: 2.463e-02; rel: 7.573e-03; norm: 4.709e-02; mom: 1.658e+00;
#> best it: 104; best obj: 3.227e+00
#> It: 105; obj: 3.208e+00; abs: 1.916e-02; rel: 5.937e-03; norm: 4.352e-02; mom: 1.260e+00;
#> best it: 105; best obj: 3.208e+00
#> It: 106; obj: 3.193e+00; abs: 1.509e-02; rel: 4.703e-03; norm: 4.136e-02; mom: 1.071e+00;
#> best it: 106; best obj: 3.193e+00
#> It: 107; obj: 3.181e+00; abs: 1.194e-02; rel: 3.738e-03; norm: 4.039e-02; mom: 9.861e-01;
#> best it: 107; best obj: 3.181e+00
#> It: 108; obj: 3.171e+00; abs: 9.868e-03; rel: 3.102e-03; norm: 4.017e-02; mom: 8.947e-01;
#> best it: 108; best obj: 3.171e+00
#> It: 109; obj: 3.163e+00; abs: 8.414e-03; rel: 2.653e-03; norm: 4.026e-02; mom: 8.186e-01;
#> best it: 109; best obj: 3.163e+00
#> It: 110; obj: 3.155e+00; abs: 7.256e-03; rel: 2.294e-03; norm: 4.046e-02; mom: 7.510e-01;
#> best it: 110; best obj: 3.155e+00
#> It: 111; obj: 3.149e+00; abs: 6.351e-03; rel: 2.013e-03; norm: 4.071e-02; mom: 6.957e-01;
#> best it: 111; best obj: 3.149e+00
#> It: 112; obj: 3.143e+00; abs: 5.663e-03; rel: 1.798e-03; norm: 4.097e-02; mom: 6.561e-01;
#> best it: 112; best obj: 3.143e+00
#> It: 113; obj: 3.138e+00; abs: 5.145e-03; rel: 1.637e-03; norm: 4.120e-02; mom: 6.269e-01;
#> best it: 113; best obj: 3.138e+00
#> It: 114; obj: 3.133e+00; abs: 4.746e-03; rel: 1.512e-03; norm: 4.138e-02; mom: 6.069e-01;
#> best it: 114; best obj: 3.133e+00
#> It: 115; obj: 3.129e+00; abs: 4.395e-03; rel: 1.403e-03; norm: 4.147e-02; mom: 5.996e-01;
#> best it: 115; best obj: 3.129e+00
#> It: 116; obj: 3.125e+00; abs: 4.082e-03; rel: 1.305e-03; norm: 4.148e-02; mom: 5.893e-01;
#> best it: 116; best obj: 3.125e+00
#> It: 117; obj: 3.121e+00; abs: 3.762e-03; rel: 1.204e-03; norm: 4.143e-02; mom: 5.721e-01;
#> best it: 117; best obj: 3.121e+00
#> It: 118; obj: 3.118e+00; abs: 3.427e-03; rel: 1.098e-03; norm: 4.136e-02; mom: 5.395e-01;
#> best it: 118; best obj: 3.118e+00
#> It: 119; obj: 3.115e+00; abs: 3.140e-03; rel: 1.007e-03; norm: 4.128e-02; mom: 5.002e-01;
#> best it: 119; best obj: 3.115e+00
#> It: 120; obj: 3.112e+00; abs: 2.905e-03; rel: 9.326e-04; norm: 4.118e-02; mom: 4.699e-01;
#> best it: 120; best obj: 3.112e+00
#> It: 121; obj: 3.109e+00; abs: 2.699e-03; rel: 8.672e-04; norm: 4.106e-02; mom: 4.478e-01;
#> best it: 121; best obj: 3.109e+00
#> It: 122; obj: 3.107e+00; abs: 2.509e-03; rel: 8.070e-04; norm: 4.094e-02; mom: 4.298e-01;
#> best it: 122; best obj: 3.107e+00
#> It: 123; obj: 3.104e+00; abs: 2.331e-03; rel: 7.505e-04; norm: 4.080e-02; mom: 4.139e-01;
#> best it: 123; best obj: 3.104e+00
#> It: 124; obj: 3.102e+00; abs: 2.163e-03; rel: 6.967e-04; norm: 4.066e-02; mom: 3.992e-01;
#> best it: 124; best obj: 3.102e+00
#> It: 125; obj: 3.100e+00; abs: 2.002e-03; rel: 6.453e-04; norm: 4.051e-02; mom: 3.849e-01;
#> best it: 125; best obj: 3.100e+00
#> It: 126; obj: 3.098e+00; abs: 1.849e-03; rel: 5.966e-04; norm: 4.036e-02; mom: 3.701e-01;
#> best it: 126; best obj: 3.098e+00
#> It: 127; obj: 3.097e+00; abs: 1.702e-03; rel: 5.495e-04; norm: 4.022e-02; mom: 3.548e-01;
#> best it: 127; best obj: 3.097e+00
#> It: 128; obj: 3.095e+00; abs: 1.556e-03; rel: 5.026e-04; norm: 4.008e-02; mom: 3.395e-01;
#> best it: 128; best obj: 3.095e+00
#> It: 129; obj: 3.094e+00; abs: 1.419e-03; rel: 4.585e-04; norm: 3.995e-02; mom: 3.247e-01;
#> best it: 129; best obj: 3.094e+00

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#> It: 130; obj: 3.092e+00; abs: 1.301e-03; rel: 4.206e-04; norm: 3.984e-02; mom: 3.116e-01;
#> best it: 130; best obj: 3.092e+00
#> It: 131; obj: 3.091e+00; abs: 1.201e-03; rel: 3.884e-04; norm: 3.974e-02; mom: 3.005e-01;
#> best it: 131; best obj: 3.091e+00
#> It: 132; obj: 3.090e+00; abs: 1.112e-03; rel: 3.597e-04; norm: 3.965e-02; mom: 2.929e-01;
#> best it: 132; best obj: 3.090e+00
#> It: 133; obj: 3.089e+00; abs: 1.014e-03; rel: 3.283e-04; norm: 3.956e-02; mom: 2.913e-01;
#> best it: 133; best obj: 3.089e+00
#> It: 134; obj: 3.088e+00; abs: 9.272e-04; rel: 3.002e-04; norm: 3.947e-02; mom: 2.892e-01;
#> best it: 134; best obj: 3.088e+00
#> It: 135; obj: 3.087e+00; abs: 8.524e-04; rel: 2.760e-04; norm: 3.938e-02; mom: 2.791e-01;
#> best it: 135; best obj: 3.087e+00
#> It: 136; obj: 3.086e+00; abs: 7.660e-04; rel: 2.481e-04; norm: 3.930e-02; mom: 2.669e-01;
#> best it: 136; best obj: 3.086e+00
#> It: 137; obj: 3.086e+00; abs: 6.808e-04; rel: 2.206e-04; norm: 3.922e-02; mom: 2.494e-01;
#> best it: 137; best obj: 3.086e+00
#> It: 138; obj: 3.085e+00; abs: 6.050e-04; rel: 1.961e-04; norm: 3.915e-02; mom: 2.274e-01;
#> best it: 138; best obj: 3.085e+00
#> It: 139; obj: 3.085e+00; abs: 5.364e-04; rel: 1.739e-04; norm: 3.909e-02; mom: 2.070e-01;
#> best it: 139; best obj: 3.085e+00
#> It: 140; obj: 3.084e+00; abs: 4.742e-04; rel: 1.537e-04; norm: 3.905e-02; mom: 1.909e-01;
#> best it: 140; best obj: 3.084e+00
#> It: 141; obj: 3.084e+00; abs: 4.193e-04; rel: 1.360e-04; norm: 3.902e-02; mom: 1.783e-01;
#> best it: 141; best obj: 3.084e+00
#> It: 142; obj: 3.083e+00; abs: 3.721e-04; rel: 1.207e-04; norm: 3.899e-02; mom: 1.677e-01;
#> best it: 142; best obj: 3.083e+00
#> It: 143; obj: 3.083e+00; abs: 3.333e-04; rel: 1.081e-04; norm: 3.897e-02; mom: 1.583e-01;
#> best it: 143; best obj: 3.083e+00
#> It: 144; obj: 3.083e+00; abs: 3.035e-04; rel: 9.846e-05; norm: 3.895e-02; mom: 1.500e-01;
#> best it: 144; best obj: 3.083e+00
#> It: 145; obj: 3.082e+00; abs: 2.833e-04; rel: 9.190e-05; norm: 3.893e-02; mom: 1.435e-01;
#> best it: 145; best obj: 3.082e+00
#> It: 146; obj: 3.082e+00; abs: 2.695e-04; rel: 8.742e-05; norm: 3.892e-02; mom: 1.403e-01;
#> best it: 146; best obj: 3.082e+00
#> It: 147; obj: 3.082e+00; abs: 2.469e-04; rel: 8.012e-05; norm: 3.891e-02; mom: 1.429e-01;
#> best it: 147; best obj: 3.082e+00
#> It: 148; obj: 3.082e+00; abs: 2.101e-04; rel: 6.818e-05; norm: 3.891e-02; mom: 1.485e-01;
#> best it: 148; best obj: 3.082e+00
#> It: 149; obj: 3.081e+00; abs: 1.898e-04; rel: 6.159e-05; norm: 3.890e-02; mom: 1.442e-01;
#> best it: 149; best obj: 3.081e+00
#> It: 150; obj: 3.081e+00; abs: 1.875e-04; rel: 6.086e-05; norm: 3.889e-02; mom: 1.305e-01;
#> best it: 150; best obj: 3.081e+00
#> It: 151; obj: 3.081e+00; abs: 1.852e-04; rel: 6.012e-05; norm: 3.888e-02; mom: 1.211e-01;
#> best it: 151; best obj: 3.081e+00
#> It: 152; obj: 3.081e+00; abs: 1.767e-04; rel: 5.734e-05; norm: 3.887e-02; mom: 1.205e-01;
#> best it: 152; best obj: 3.081e+00
#> It: 153; obj: 3.081e+00; abs: 1.659e-04; rel: 5.386e-05; norm: 3.886e-02; mom: 1.219e-01;
#> best it: 153; best obj: 3.081e+00
#> It: 154; obj: 3.081e+00; abs: 1.577e-04; rel: 5.118e-05; norm: 3.885e-02; mom: 1.202e-01;
#> best it: 154; best obj: 3.081e+00
#> It: 155; obj: 3.080e+00; abs: 1.519e-04; rel: 4.930e-05; norm: 3.885e-02; mom: 1.165e-01;
#> best it: 155; best obj: 3.080e+00
#> It: 156; obj: 3.080e+00; abs: 1.460e-04; rel: 4.739e-05; norm: 3.884e-02; mom: 1.129e-01;

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#> best it: 156; best obj: 3.080e+00
#> It: 157; obj: 3.080e+00; abs: 1.383e-04; rel: 4.490e-05; norm: 3.884e-02; mom: 1.097e-01;
#> best it: 157; best obj: 3.080e+00
#> It: 158; obj: 3.080e+00; abs: 1.290e-04; rel: 4.187e-05; norm: 3.883e-02; mom: 1.060e-01;
#> best it: 158; best obj: 3.080e+00
#> It: 159; obj: 3.080e+00; abs: 1.191e-04; rel: 3.867e-05; norm: 3.883e-02; mom: 1.012e-01;
#> best it: 159; best obj: 3.080e+00
#> It: 160; obj: 3.080e+00; abs: 1.105e-04; rel: 3.588e-05; norm: 3.883e-02; mom: 9.519e-02;
#> best it: 160; best obj: 3.080e+00
#> It: 161; obj: 3.080e+00; abs: 1.079e-04; rel: 3.505e-05; norm: 3.884e-02; mom: 8.850e-02;
#> best it: 161; best obj: 3.080e+00
#> It: 162; obj: 3.080e+00; abs: 1.258e-04; rel: 4.084e-05; norm: 3.885e-02; mom: 8.343e-02;
#> best it: 162; best obj: 3.080e+00
#> It: 163; obj: 3.079e+00; abs: 1.775e-04; rel: 5.764e-05; norm: 3.887e-02; mom: 1.031e-01;
#> best it: 163; best obj: 3.079e+00
#> It: 164; obj: 3.079e+00; abs: 1.526e-04; rel: 4.954e-05; norm: 3.890e-02; mom: 1.552e-01;
#> best it: 164; best obj: 3.079e+00
#> It: 165; obj: 3.079e+00; abs: 6.676e-05; rel: 2.168e-05; norm: 3.890e-02; mom: 1.914e-01;
#> best it: 165; best obj: 3.079e+00
#> It: 166; obj: 3.079e+00; abs: 5.607e-05; rel: 1.821e-05; norm: 3.888e-02; mom: 1.613e-01;
#> best it: 166; best obj: 3.079e+00
#> It: 167; obj: 3.079e+00; abs: 6.376e-05; rel: 2.071e-05; norm: 3.885e-02; mom: 1.189e-01;
#> best it: 167; best obj: 3.079e+00
#> It: 168; obj: 3.079e+00; abs: 7.253e-05; rel: 2.356e-05; norm: 3.884e-02; mom: 8.827e-02;
#> best it: 168; best obj: 3.079e+00
#> It: 169; obj: 3.079e+00; abs: 7.691e-05; rel: 2.498e-05; norm: 3.885e-02; mom: 7.604e-02;
#> best it: 169; best obj: 3.079e+00
#> It: 170; obj: 3.079e+00; abs: 7.532e-05; rel: 2.446e-05; norm: 3.885e-02; mom: 7.590e-02;
#> best it: 170; best obj: 3.079e+00
#> It: 171; obj: 3.079e+00; abs: 6.710e-05; rel: 2.179e-05; norm: 3.886e-02; mom: 7.963e-02;
#> best it: 171; best obj: 3.079e+00
#> It: 172; obj: 3.079e+00; abs: 5.536e-05; rel: 1.798e-05; norm: 3.888e-02; mom: 8.069e-02;
#> best it: 172; best obj: 3.079e+00
#> It: 173; obj: 3.079e+00; abs: 4.750e-05; rel: 1.543e-05; norm: 3.889e-02; mom: 7.525e-02;
#> best it: 173; best obj: 3.079e+00
#> It: 174; obj: 3.079e+00; abs: 4.590e-05; rel: 1.491e-05; norm: 3.890e-02; mom: 6.504e-02;
#> best it: 174; best obj: 3.079e+00
#> It: 175; obj: 3.079e+00; abs: 4.593e-05; rel: 1.492e-05; norm: 3.890e-02; mom: 5.717e-02;
#> best it: 175; best obj: 3.079e+00
#> It: 176; obj: 3.078e+00; abs: 4.402e-05; rel: 1.430e-05; norm: 3.891e-02; mom: 5.574e-02;
#> best it: 176; best obj: 3.078e+00
#> It: 177; obj: 3.078e+00; abs: 4.086e-05; rel: 1.327e-05; norm: 3.891e-02; mom: 5.684e-02;
#> best it: 177; best obj: 3.078e+00
#> It: 178; obj: 3.078e+00; abs: 3.831e-05; rel: 1.244e-05; norm: 3.890e-02; mom: 5.608e-02;
#> best it: 178; best obj: 3.078e+00
#> It: 179; obj: 3.078e+00; abs: 3.689e-05; rel: 1.198e-05; norm: 3.890e-02; mom: 5.339e-02;
#> best it: 179; best obj: 3.078e+00
#> It: 180; obj: 3.078e+00; abs: 3.602e-05; rel: 1.170e-05; norm: 3.890e-02; mom: 5.068e-02;
#> best it: 180; best obj: 3.078e+00
#> It: 181; obj: 3.078e+00; abs: 3.506e-05; rel: 1.139e-05; norm: 3.891e-02; mom: 4.903e-02;
#> best it: 181; best obj: 3.078e+00
#> It: 182; obj: 3.078e+00; abs: 3.382e-05; rel: 1.099e-05; norm: 3.891e-02; mom: 4.823e-02;
#> best it: 182; best obj: 3.078e+00

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#> It: 183; obj: 3.078e+00; abs: 3.246e-05; rel: 1.055e-05; norm: 3.891e-02; mom: 4.765e-02;
#> best it: 183; best obj: 3.078e+00
#> It: 184; obj: 3.078e+00; abs: 3.121e-05; rel: 1.014e-05; norm: 3.892e-02; mom: 4.697e-02;
#> best it: 184; best obj: 3.078e+00
#> It: 185; obj: 3.078e+00; abs: 3.016e-05; rel: 9.798e-06; norm: 3.892e-02; mom: 4.621e-02;
#> best it: 185; best obj: 3.078e+00
#> It: 186; obj: 3.078e+00; abs: 2.929e-05; rel: 9.516e-06; norm: 3.893e-02; mom: 4.552e-02;
#> best it: 186; best obj: 3.078e+00
#> It: 187; obj: 3.078e+00; abs: 2.857e-05; rel: 9.282e-06; norm: 3.893e-02; mom: 4.500e-02;
#> best it: 187; best obj: 3.078e+00
#> It: 188; obj: 3.078e+00; abs: 2.801e-05; rel: 9.100e-06; norm: 3.893e-02; mom: 4.463e-02;
#> best it: 188; best obj: 3.078e+00
#> It: 189; obj: 3.078e+00; abs: 2.766e-05; rel: 8.987e-06; norm: 3.893e-02; mom: 4.436e-02;
#> best it: 189; best obj: 3.078e+00
#> It: 190; obj: 3.078e+00; abs: 2.756e-05; rel: 8.955e-06; norm: 3.893e-02; mom: 4.421e-02;
#> best it: 190; best obj: 3.078e+00
#> It: 191; obj: 3.078e+00; abs: 2.772e-05; rel: 9.005e-06; norm: 3.894e-02; mom: 4.424e-02;
#> best it: 191; best obj: 3.078e+00
#> It: 192; obj: 3.078e+00; abs: 2.809e-05; rel: 9.125e-06; norm: 3.894e-02; mom: 4.446e-02;
#> best it: 192; best obj: 3.078e+00
#> It: 193; obj: 3.078e+00; abs: 2.859e-05; rel: 9.288e-06; norm: 3.894e-02; mom: 4.486e-02;
#> best it: 193; best obj: 3.078e+00
#> It: 194; obj: 3.078e+00; abs: 2.911e-05; rel: 9.458e-06; norm: 3.894e-02; mom: 4.537e-02;
#> best it: 194; best obj: 3.078e+00
#> It: 195; obj: 3.078e+00; abs: 2.952e-05; rel: 9.591e-06; norm: 3.895e-02; mom: 4.586e-02;
#> best it: 195; best obj: 3.078e+00
#> It: 196; obj: 3.078e+00; abs: 2.969e-05; rel: 9.648e-06; norm: 3.895e-02; mom: 4.620e-02;
#> best it: 196; best obj: 3.078e+00
#> It: 197; obj: 3.078e+00; abs: 2.956e-05; rel: 9.604e-06; norm: 3.895e-02; mom: 4.626e-02;
#> best it: 197; best obj: 3.078e+00
#> It: 198; obj: 3.078e+00; abs: 2.910e-05; rel: 9.454e-06; norm: 3.895e-02; mom: 4.599e-02;
#> best it: 198; best obj: 3.078e+00
#> It: 199; obj: 3.078e+00; abs: 2.834e-05; rel: 9.209e-06; norm: 3.896e-02; mom: 4.540e-02;
#> best it: 199; best obj: 3.078e+00
#> It: 200; obj: 3.078e+00; abs: 2.737e-05; rel: 8.892e-06; norm: 3.896e-02; mom: 4.452e-02;
#> best it: 200; best obj: 3.078e+00
#> It: 201; obj: 3.078e+00; abs: 2.626e-05; rel: 8.531e-06; norm: 3.896e-02; mom: 4.346e-02;
#> best it: 201; best obj: 3.078e+00
#> It: 202; obj: 3.078e+00; abs: 2.508e-05; rel: 8.149e-06; norm: 3.896e-02; mom: 4.227e-02;
#> best it: 202; best obj: 3.078e+00
#> It: 203; obj: 3.078e+00; abs: 2.390e-05; rel: 7.766e-06; norm: 3.896e-02; mom: 4.104e-02;
#> best it: 203; best obj: 3.078e+00
#> It: 204; obj: 3.078e+00; abs: 2.275e-05; rel: 7.393e-06; norm: 3.896e-02; mom: 3.981e-02;
#> best it: 204; best obj: 3.078e+00
#> It: 205; obj: 3.078e+00; abs: 2.166e-05; rel: 7.039e-06; norm: 3.897e-02; mom: 3.860e-02;
#> best it: 205; best obj: 3.078e+00
#> It: 206; obj: 3.078e+00; abs: 2.064e-05; rel: 6.707e-06; norm: 3.897e-02; mom: 3.742e-02;
#> best it: 206; best obj: 3.078e+00
#> It: 207; obj: 3.078e+00; abs: 1.970e-05; rel: 6.400e-06; norm: 3.897e-02; mom: 3.627e-02;
#> best it: 207; best obj: 3.078e+00
#> It: 208; obj: 3.078e+00; abs: 1.885e-05; rel: 6.125e-06; norm: 3.897e-02; mom: 3.515e-02;
#> best it: 208; best obj: 3.078e+00
#> It: 209; obj: 3.078e+00; abs: 1.814e-05; rel: 5.895e-06; norm: 3.897e-02; mom: 3.406e-02;

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#> best it: 209; best obj: 3.078e+00
#> It: 210; obj: 3.078e+00; abs: 1.768e-05; rel: 5.746e-06; norm: 3.897e-02; mom: 3.301e-02;
#> best it: 210; best obj: 3.078e+00
#> It: 211; obj: 3.078e+00; abs: 1.772e-05; rel: 5.757e-06; norm: 3.897e-02; mom: 3.213e-02;
#> best it: 211; best obj: 3.078e+00
#> It: 212; obj: 3.077e+00; abs: 1.878e-05; rel: 6.104e-06; norm: 3.898e-02; mom: 3.216e-02;
#> best it: 212; best obj: 3.077e+00
#> It: 213; obj: 3.077e+00; abs: 2.199e-05; rel: 7.146e-06; norm: 3.898e-02; mom: 3.677e-02;
#> best it: 213; best obj: 3.077e+00
#> It: 214; obj: 3.077e+00; abs: 2.882e-05; rel: 9.366e-06; norm: 3.899e-02; mom: 4.788e-02;
#> best it: 214; best obj: 3.077e+00
#> It: 215; obj: 3.077e+00; abs: 3.719e-05; rel: 1.208e-05; norm: 3.899e-02; mom: 6.595e-02;
#> best it: 215; best obj: 3.077e+00
#> It: 216; obj: 3.077e+00; abs: 3.514e-05; rel: 1.142e-05; norm: 3.900e-02; mom: 8.968e-02;
#> best it: 216; best obj: 3.077e+00
#> It: 217; obj: 3.077e+00; abs: 2.499e-05; rel: 8.122e-06; norm: 3.900e-02; mom: 1.083e-01;
#> best it: 217; best obj: 3.077e+00
#> It: 218; obj: 3.077e+00; abs: 2.227e-05; rel: 7.237e-06; norm: 3.899e-02; mom: 1.086e-01;
#> best it: 218; best obj: 3.077e+00
#> It: 219; obj: 3.077e+00; abs: 1.983e-05; rel: 6.445e-06; norm: 3.898e-02; mom: 9.606e-02;
#> best it: 219; best obj: 3.077e+00
#> It: 220; obj: 3.077e+00; abs: 1.521e-05; rel: 4.943e-06; norm: 3.897e-02; mom: 7.924e-02;
#> best it: 220; best obj: 3.077e+00
#> It: 221; obj: 3.077e+00; abs: 1.187e-05; rel: 3.856e-06; norm: 3.897e-02; mom: 6.135e-02;
#> best it: 221; best obj: 3.077e+00
#> It: 222; obj: 3.077e+00; abs: 1.053e-05; rel: 3.421e-06; norm: 3.896e-02; mom: 4.498e-02;
#> best it: 222; best obj: 3.077e+00
#> It: 223; obj: 3.077e+00; abs: 1.003e-05; rel: 3.260e-06; norm: 3.896e-02; mom: 3.304e-02;
#> best it: 223; best obj: 3.077e+00
#> It: 224; obj: 3.077e+00; abs: 9.425e-06; rel: 3.063e-06; norm: 3.895e-02; mom: 2.706e-02;
#> best it: 224; best obj: 3.077e+00
#> It: 225; obj: 3.077e+00; abs: 8.464e-06; rel: 2.750e-06; norm: 3.895e-02; mom: 2.538e-02;
#> best it: 225; best obj: 3.077e+00
#> It: 226; obj: 3.077e+00; abs: 7.327e-06; rel: 2.381e-06; norm: 3.895e-02; mom: 2.517e-02;
#> best it: 226; best obj: 3.077e+00
#> It: 227; obj: 3.077e+00; abs: 6.292e-06; rel: 2.045e-06; norm: 3.895e-02; mom: 2.459e-02;
#> best it: 227; best obj: 3.077e+00
#> It: 228; obj: 3.077e+00; abs: 5.530e-06; rel: 1.797e-06; norm: 3.895e-02; mom: 2.311e-02;
#> best it: 228; best obj: 3.077e+00
#> It: 229; obj: 3.077e+00; abs: 5.045e-06; rel: 1.639e-06; norm: 3.895e-02; mom: 2.110e-02;
#> best it: 229; best obj: 3.077e+00
#> It: 230; obj: 3.077e+00; abs: 4.741e-06; rel: 1.541e-06; norm: 3.894e-02; mom: 1.919e-02;
#> best it: 230; best obj: 3.077e+00
#> It: 231; obj: 3.077e+00; abs: 4.524e-06; rel: 1.470e-06; norm: 3.894e-02; mom: 1.787e-02;
#> best it: 231; best obj: 3.077e+00
#> It: 232; obj: 3.077e+00; abs: 4.338e-06; rel: 1.410e-06; norm: 3.894e-02; mom: 1.721e-02;
#> best it: 232; best obj: 3.077e+00
#> It: 233; obj: 3.077e+00; abs: 4.159e-06; rel: 1.352e-06; norm: 3.894e-02; mom: 1.697e-02;
#> best it: 233; best obj: 3.077e+00
#> It: 234; obj: 3.077e+00; abs: 3.985e-06; rel: 1.295e-06; norm: 3.894e-02; mom: 1.687e-02;
#> best it: 234; best obj: 3.077e+00
#> It: 235; obj: 3.077e+00; abs: 3.820e-06; rel: 1.241e-06; norm: 3.894e-02; mom: 1.672e-02;
#> best it: 235; best obj: 3.077e+00

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#> It: 236; obj: 3.077e+00; abs: 3.669e-06; rel: 1.192e-06; norm: 3.893e-02; mom: 1.646e-02;
#> best it: 236; best obj: 3.077e+00
#> It: 237; obj: 3.077e+00; abs: 3.536e-06; rel: 1.149e-06; norm: 3.893e-02; mom: 1.613e-02;
#> best it: 237; best obj: 3.077e+00
#> It: 238; obj: 3.077e+00; abs: 3.420e-06; rel: 1.111e-06; norm: 3.893e-02; mom: 1.577e-02;
#> best it: 238; best obj: 3.077e+00
#> It: 239; obj: 3.077e+00; abs: 3.316e-06; rel: 1.078e-06; norm: 3.893e-02; mom: 1.544e-02;
#> best it: 239; best obj: 3.077e+00
#> It: 240; obj: 3.077e+00; abs: 3.223e-06; rel: 1.047e-06; norm: 3.893e-02; mom: 1.516e-02;
#> best it: 240; best obj: 3.077e+00
#> It: 241; obj: 3.077e+00; abs: 3.138e-06; rel: 1.020e-06; norm: 3.893e-02; mom: 1.493e-02;
#> best it: 241; best obj: 3.077e+00
#> It: 242; obj: 3.077e+00; abs: 3.061e-06; rel: 9.947e-07; norm: 3.893e-02; mom: 1.473e-02;
#> best it: 242; best obj: 3.077e+00
#> It: 243; obj: 3.077e+00; abs: 2.991e-06; rel: 9.718e-07; norm: 3.892e-02; mom: 1.456e-02;
#> best it: 243; best obj: 3.077e+00
#> It: 244; obj: 3.077e+00; abs: 2.927e-06; rel: 9.513e-07; norm: 3.892e-02; mom: 1.440e-02;
#> best it: 244; best obj: 3.077e+00
#> It: 245; obj: 3.077e+00; abs: 2.871e-06; rel: 9.330e-07; norm: 3.892e-02; mom: 1.427e-02;
#> best it: 245; best obj: 3.077e+00
#> It: 246; obj: 3.077e+00; abs: 2.821e-06; rel: 9.168e-07; norm: 3.892e-02; mom: 1.414e-02;
#> best it: 246; best obj: 3.077e+00
#> It: 247; obj: 3.077e+00; abs: 2.777e-06; rel: 9.025e-07; norm: 3.892e-02; mom: 1.403e-02;
#> best it: 247; best obj: 3.077e+00
#> It: 248; obj: 3.077e+00; abs: 3.441e-06; rel: 1.118e-06; norm: 3.892e-02; mom: 2.230e-02;
#> best it: 248; best obj: 3.077e+00
#> It: 249; obj: 3.077e+00; abs: 3.878e-06; rel: 1.260e-06; norm: 3.892e-02; mom: 2.836e-02;
#> best it: 249; best obj: 3.077e+00
#> It: 250; obj: 3.077e+00; abs: 4.168e-06; rel: 1.355e-06; norm: 3.892e-02; mom: 3.299e-02;
#> best it: 250; best obj: 3.077e+00
#> It: 251; obj: 3.077e+00; abs: 4.366e-06; rel: 1.419e-06; norm: 3.891e-02; mom: 3.656e-02;
#> best it: 251; best obj: 3.077e+00
#> It: 252; obj: 3.077e+00; abs: 4.509e-06; rel: 1.465e-06; norm: 3.891e-02; mom: 3.923e-02;
#> best it: 252; best obj: 3.077e+00
#> It: 253; obj: 3.077e+00; abs: 4.627e-06; rel: 1.504e-06; norm: 3.891e-02; mom: 4.114e-02;
#> best it: 253; best obj: 3.077e+00
#> It: 254; obj: 3.077e+00; abs: 4.739e-06; rel: 1.540e-06; norm: 3.891e-02; mom: 4.241e-02;
#> best it: 254; best obj: 3.077e+00
#> It: 255; obj: 3.077e+00; abs: 4.859e-06; rel: 1.579e-06; norm: 3.891e-02; mom: 4.319e-02;
#> best it: 255; best obj: 3.077e+00
#> It: 256; obj: 3.077e+00; abs: 4.985e-06; rel: 1.620e-06; norm: 3.890e-02; mom: 4.363e-02;
#> best it: 256; best obj: 3.077e+00
#> It: 257; obj: 3.077e+00; abs: 5.110e-06; rel: 1.661e-06; norm: 3.890e-02; mom: 4.387e-02;
#> best it: 257; best obj: 3.077e+00
#> It: 258; obj: 3.077e+00; abs: 5.227e-06; rel: 1.699e-06; norm: 3.890e-02; mom: 4.406e-02;
#> best it: 258; best obj: 3.077e+00
#> It: 259; obj: 3.077e+00; abs: 5.334e-06; rel: 1.734e-06; norm: 3.890e-02; mom: 4.430e-02;
#> best it: 259; best obj: 3.077e+00
#> It: 260; obj: 3.077e+00; abs: 5.436e-06; rel: 1.767e-06; norm: 3.890e-02; mom: 4.467e-02;
#> best it: 260; best obj: 3.077e+00
#> It: 261; obj: 3.077e+00; abs: 5.542e-06; rel: 1.801e-06; norm: 3.890e-02; mom: 4.521e-02;
#> best it: 261; best obj: 3.077e+00
#> It: 262; obj: 3.077e+00; abs: 5.664e-06; rel: 1.841e-06; norm: 3.889e-02; mom: 4.594e-02;

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#> best it: 262; best obj: 3.077e+00
#> It: 263; obj: 3.077e+00; abs: 5.816e-06; rel: 1.890e-06; norm: 3.889e-02; mom: 4.687e-02;
#> best it: 263; best obj: 3.077e+00
#> It: 264; obj: 3.077e+00; abs: 6.008e-06; rel: 1.953e-06; norm: 3.889e-02; mom: 4.800e-02;
#> best it: 264; best obj: 3.077e+00
#> It: 265; obj: 3.077e+00; abs: 6.250e-06; rel: 2.031e-06; norm: 3.889e-02; mom: 4.936e-02;
#> best it: 265; best obj: 3.077e+00
#> It: 266; obj: 3.077e+00; abs: 6.546e-06; rel: 2.127e-06; norm: 3.889e-02; mom: 5.097e-02;
#> best it: 266; best obj: 3.077e+00
#> It: 267; obj: 3.077e+00; abs: 6.903e-06; rel: 2.243e-06; norm: 3.889e-02; mom: 5.287e-02;
#> best it: 267; best obj: 3.077e+00
#> It: 268; obj: 3.077e+00; abs: 7.334e-06; rel: 2.384e-06; norm: 3.889e-02; mom: 5.508e-02;
#> best it: 268; best obj: 3.077e+00
#> It: 269; obj: 3.077e+00; abs: 7.864e-06; rel: 2.556e-06; norm: 3.889e-02; mom: 5.756e-02;
#> best it: 269; best obj: 3.077e+00
#> It: 270; obj: 3.077e+00; abs: 8.530e-06; rel: 2.772e-06; norm: 3.889e-02; mom: 6.031e-02;
#> best it: 270; best obj: 3.077e+00
#> It: 271; obj: 3.077e+00; abs: 9.376e-06; rel: 3.047e-06; norm: 3.890e-02; mom: 6.333e-02;
#> best it: 271; best obj: 3.077e+00
#> It: 272; obj: 3.077e+00; abs: 1.044e-05; rel: 3.393e-06; norm: 3.890e-02; mom: 6.669e-02;
#> best it: 272; best obj: 3.077e+00
#> It: 273; obj: 3.077e+00; abs: 1.174e-05; rel: 3.814e-06; norm: 3.890e-02; mom: 7.050e-02;
#> best it: 273; best obj: 3.077e+00
#> It: 274; obj: 3.077e+00; abs: 1.322e-05; rel: 4.296e-06; norm: 3.890e-02; mom: 7.492e-02;
#> best it: 274; best obj: 3.077e+00
#> It: 275; obj: 3.077e+00; abs: 1.477e-05; rel: 4.802e-06; norm: 3.890e-02; mom: 7.998e-02;
#> best it: 275; best obj: 3.077e+00
#> It: 276; obj: 3.077e+00; abs: 1.622e-05; rel: 5.271e-06; norm: 3.890e-02; mom: 8.558e-02;
#> best it: 276; best obj: 3.077e+00
#> It: 277; obj: 3.077e+00; abs: 1.735e-05; rel: 5.639e-06; norm: 3.890e-02; mom: 9.131e-02;
#> best it: 277; best obj: 3.077e+00
#> It: 278; obj: 3.077e+00; abs: 1.808e-05; rel: 5.875e-06; norm: 3.890e-02; mom: 9.652e-02;
#> best it: 278; best obj: 3.077e+00
#> It: 279; obj: 3.077e+00; abs: 1.846e-05; rel: 6.000e-06; norm: 3.890e-02; mom: 1.005e-01;
#> best it: 279; best obj: 3.077e+00
#> It: 280; obj: 3.077e+00; abs: 1.865e-05; rel: 6.063e-06; norm: 3.890e-02; mom: 1.030e-01;
#> best it: 280; best obj: 3.077e+00
#> It: 281; obj: 3.077e+00; abs: 1.874e-05; rel: 6.090e-06; norm: 3.890e-02; mom: 1.040e-01;
#> best it: 281; best obj: 3.077e+00
#> It: 282; obj: 3.077e+00; abs: 1.867e-05; rel: 6.068e-06; norm: 3.890e-02; mom: 1.041e-01;
#> best it: 282; best obj: 3.077e+00
#> It: 283; obj: 3.077e+00; abs: 1.823e-05; rel: 5.925e-06; norm: 3.890e-02; mom: 1.036e-01;
#> best it: 283; best obj: 3.077e+00
#> It: 284; obj: 3.077e+00; abs: 1.703e-05; rel: 5.536e-06; norm: 3.890e-02; mom: 1.026e-01;
#> best it: 284; best obj: 3.077e+00
#> It: 285; obj: 3.077e+00; abs: 1.486e-05; rel: 4.831e-06; norm: 3.890e-02; mom: 1.007e-01;
#> best it: 285; best obj: 3.077e+00
#> It: 286; obj: 3.077e+00; abs: 1.231e-05; rel: 4.002e-06; norm: 3.890e-02; mom: 9.670e-02;
#> best it: 286; best obj: 3.077e+00
#> It: 287; obj: 3.077e+00; abs: 1.094e-05; rel: 3.555e-06; norm: 3.890e-02; mom: 9.017e-02;
#> best it: 287; best obj: 3.077e+00
#> It: 288; obj: 3.077e+00; abs: 1.199e-05; rel: 3.895e-06; norm: 3.891e-02; mom: 8.297e-02;
#> best it: 288; best obj: 3.077e+00

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#> It: 289; obj: 3.077e+00; abs: 1.492e-05; rel: 4.848e-06; norm: 3.891e-02; mom: 7.820e-02;
#> best it: 289; best obj: 3.077e+00
#> It: 290; obj: 3.077e+00; abs: 1.764e-05; rel: 5.733e-06; norm: 3.891e-02; mom: 7.644e-02;
#> best it: 290; best obj: 3.077e+00
#> It: 291; obj: 3.077e+00; abs: 1.829e-05; rel: 5.946e-06; norm: 3.892e-02; mom: 7.745e-02;
#> best it: 291; best obj: 3.077e+00
#> It: 292; obj: 3.077e+00; abs: 1.660e-05; rel: 5.394e-06; norm: 3.892e-02; mom: 8.138e-02;
#> best it: 292; best obj: 3.077e+00
#> It: 293; obj: 3.077e+00; abs: 1.360e-05; rel: 4.421e-06; norm: 3.893e-02; mom: 8.625e-02;
#> best it: 293; best obj: 3.077e+00
#> It: 294; obj: 3.077e+00; abs: 1.072e-05; rel: 3.484e-06; norm: 3.893e-02; mom: 8.883e-02;
#> best it: 294; best obj: 3.077e+00
#> It: 295; obj: 3.077e+00; abs: 9.051e-06; rel: 2.942e-06; norm: 3.894e-02; mom: 8.780e-02;
#> best it: 295; best obj: 3.077e+00
#> It: 296; obj: 3.077e+00; abs: 9.042e-06; rel: 2.939e-06; norm: 3.895e-02; mom: 8.381e-02;
#> best it: 296; best obj: 3.077e+00
#> It: 297; obj: 3.077e+00; abs: 1.034e-05; rel: 3.362e-06; norm: 3.895e-02; mom: 7.893e-02;
#> best it: 297; best obj: 3.077e+00
#> It: 298; obj: 3.077e+00; abs: 1.205e-05; rel: 3.917e-06; norm: 3.896e-02; mom: 7.547e-02;
#> best it: 298; best obj: 3.077e+00
#> It: 299; obj: 3.077e+00; abs: 1.327e-05; rel: 4.314e-06; norm: 3.896e-02; mom: 7.427e-02;
#> best it: 299; best obj: 3.077e+00
#> It: 300; obj: 3.077e+00; abs: 1.354e-05; rel: 4.400e-06; norm: 3.896e-02; mom: 7.488e-02;
#> best it: 300; best obj: 3.077e+00
#> It: 301; obj: 3.077e+00; abs: 1.277e-05; rel: 4.150e-06; norm: 3.896e-02; mom: 7.694e-02;
#> best it: 301; best obj: 3.077e+00
#> It: 302; obj: 3.077e+00; abs: 1.114e-05; rel: 3.620e-06; norm: 3.897e-02; mom: 7.969e-02;
#> best it: 302; best obj: 3.077e+00
#> It: 303; obj: 3.077e+00; abs: 9.115e-06; rel: 2.963e-06; norm: 3.897e-02; mom: 8.189e-02;
#> best it: 303; best obj: 3.077e+00
#> It: 304; obj: 3.077e+00; abs: 7.566e-06; rel: 2.459e-06; norm: 3.898e-02; mom: 8.298e-02;
#> best it: 304; best obj: 3.077e+00
#> It: 305; obj: 3.077e+00; abs: 7.596e-06; rel: 2.469e-06; norm: 3.898e-02; mom: 8.276e-02;
#> best it: 305; best obj: 3.077e+00
#> It: 306; obj: 3.077e+00; abs: 9.768e-06; rel: 3.175e-06; norm: 3.899e-02; mom: 8.056e-02;
#> best it: 306; best obj: 3.077e+00
#> It: 307; obj: 3.077e+00; abs: 1.308e-05; rel: 4.252e-06; norm: 3.899e-02; mom: 7.677e-02;
#> best it: 307; best obj: 3.077e+00
#> It: 308; obj: 3.077e+00; abs: 1.501e-05; rel: 4.878e-06; norm: 3.900e-02; mom: 7.467e-02;
#> best it: 308; best obj: 3.077e+00
#> It: 309; obj: 3.076e+00; abs: 1.318e-05; rel: 4.284e-06; norm: 3.900e-02; mom: 7.879e-02;
#> best it: 309; best obj: 3.076e+00
#> It: 310; obj: 3.076e+00; abs: 7.778e-06; rel: 2.528e-06; norm: 3.901e-02; mom: 8.867e-02;
#> best it: 310; best obj: 3.076e+00
#> It: 311; obj: 3.076e+00; abs: 2.235e-06; rel: 7.264e-07; norm: 3.901e-02; mom: 9.828e-02;
#> best it: 311; best obj: 3.076e+00
#> It: 312; obj: 3.076e+00; abs: 5.467e-07; rel: 1.777e-07; norm: 3.902e-02; mom: 1.026e-01;
#> best it: 312; best obj: 3.076e+00
#> It: 313; obj: 3.076e+00; abs: 3.863e-06; rel: 1.256e-06; norm: 3.902e-02; mom: 1.004e-01;
#> best it: 313; best obj: 3.076e+00
#> It: 314; obj: 3.076e+00; abs: 1.006e-05; rel: 3.269e-06; norm: 3.902e-02; mom: 9.479e-02;
#> best it: 314; best obj: 3.076e+00
#> It: 315; obj: 3.076e+00; abs: 1.504e-05; rel: 4.890e-06; norm: 3.903e-02; mom: 9.212e-02;

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#> best it: 315; best obj: 3.076e+00
#> It: 316; obj: 3.076e+00; abs: 1.393e-05; rel: 4.526e-06; norm: 3.903e-02; mom: 9.999e-02;
#> best it: 316; best obj: 3.076e+00
#> It: 317; obj: 3.076e+00; abs: 5.886e-06; rel: 1.913e-06; norm: 3.903e-02; mom: 1.170e-01;
#> best it: 317; best obj: 3.076e+00
#> It: 318; obj: 3.076e+00; abs: 3.669e-07; rel: 1.193e-07; norm: 3.903e-02; mom: 1.318e-01;
#> best it: 317; best obj: 3.076e+00
#> It: 319; obj: 3.076e+00; abs: 2.311e-06; rel: 7.512e-07; norm: 3.903e-02; mom: 1.368e-01;
#> best it: 319; best obj: 3.076e+00
#> It: 320; obj: 3.076e+00; abs: 1.085e-05; rel: 3.528e-06; norm: 3.903e-02; mom: 1.349e-01;
#> best it: 320; best obj: 3.076e+00
#> It: 321; obj: 3.076e+00; abs: 1.891e-05; rel: 6.148e-06; norm: 3.903e-02; mom: 1.335e-01;
#> best it: 321; best obj: 3.076e+00
#> It: 322; obj: 3.076e+00; abs: 1.837e-05; rel: 5.971e-06; norm: 3.904e-02; mom: 1.438e-01;
#> best it: 322; best obj: 3.076e+00
#> It: 323; obj: 3.076e+00; abs: 1.047e-05; rel: 3.404e-06; norm: 3.904e-02; mom: 1.715e-01;
#> best it: 323; best obj: 3.076e+00
#> It: 324; obj: 3.076e+00; abs: 2.000e-05; rel: 6.500e-06; norm: 3.904e-02; mom: 2.004e-01;
#> best it: 324; best obj: 3.076e+00
#> It: 325; obj: 3.076e+00; abs: 7.691e-05; rel: 2.500e-05; norm: 3.905e-02; mom: 2.373e-01;
#> best it: 325; best obj: 3.076e+00
#> It: 326; obj: 3.076e+00; abs: 1.069e-04; rel: 3.476e-05; norm: 3.906e-02; mom: 3.340e-01;
#> best it: 326; best obj: 3.076e+00
#> It: 327; obj: 3.076e+00; abs: 1.589e-04; rel: 5.164e-05; norm: 3.902e-02; mom: 4.723e-01;
#> best it: 327; best obj: 3.076e+00
#> It: 328; obj: 3.076e+00; abs: 6.341e-05; rel: 2.061e-05; norm: 3.898e-02; mom: 5.340e-01;
#> best it: 327; best obj: 3.076e+00
#> It: 329; obj: 3.076e+00; abs: 1.627e-04; rel: 5.288e-05; norm: 3.898e-02; mom: 4.462e-01;
#> best it: 327; best obj: 3.076e+00
#> It: 330; obj: 3.076e+00; abs: 1.049e-04; rel: 3.410e-05; norm: 3.900e-02; mom: 3.213e-01;
#> best it: 327; best obj: 3.076e+00
#> It: 331; obj: 3.076e+00; abs: 3.390e-06; rel: 1.102e-06; norm: 3.902e-02; mom: 2.261e-01;
#> best it: 327; best obj: 3.076e+00
#> It: 332; obj: 3.076e+00; abs: 1.207e-04; rel: 3.925e-05; norm: 3.903e-02; mom: 2.048e-01;
#> best it: 327; best obj: 3.076e+00
#> It: 333; obj: 3.076e+00; abs: 2.218e-04; rel: 7.210e-05; norm: 3.903e-02; mom: 2.150e-01;
#> best it: 333; best obj: 3.076e+00
#> It: 334; obj: 3.076e+00; abs: 2.263e-04; rel: 7.357e-05; norm: 3.903e-02; mom: 3.022e-01;
#> best it: 334; best obj: 3.076e+00
#> It: 335; obj: 3.076e+00; abs: 1.781e-04; rel: 5.792e-05; norm: 3.903e-02; mom: 3.884e-01;
#> best it: 335; best obj: 3.076e+00
#> It: 336; obj: 3.076e+00; abs: 6.618e-06; rel: 2.152e-06; norm: 3.904e-02; mom: 4.156e-01;
#> best it: 336; best obj: 3.076e+00
#> It: 337; obj: 3.076e+00; abs: 2.188e-04; rel: 7.114e-05; norm: 3.906e-02; mom: 4.161e-01;
#> best it: 336; best obj: 3.076e+00
#> It: 338; obj: 3.076e+00; abs: 2.140e-04; rel: 6.959e-05; norm: 3.907e-02; mom: 4.362e-01;
#> best it: 336; best obj: 3.076e+00
#> It: 339; obj: 3.076e+00; abs: 1.564e-04; rel: 5.085e-05; norm: 3.906e-02; mom: 4.321e-01;
#> best it: 336; best obj: 3.076e+00
#> It: 340; obj: 3.076e+00; abs: 3.293e-05; rel: 1.071e-05; norm: 3.908e-02; mom: 4.310e-01;
#> best it: 336; best obj: 3.076e+00
#> It: 341; obj: 3.076e+00; abs: 2.168e-04; rel: 7.048e-05; norm: 3.909e-02; mom: 4.172e-01;
#> best it: 336; best obj: 3.076e+00

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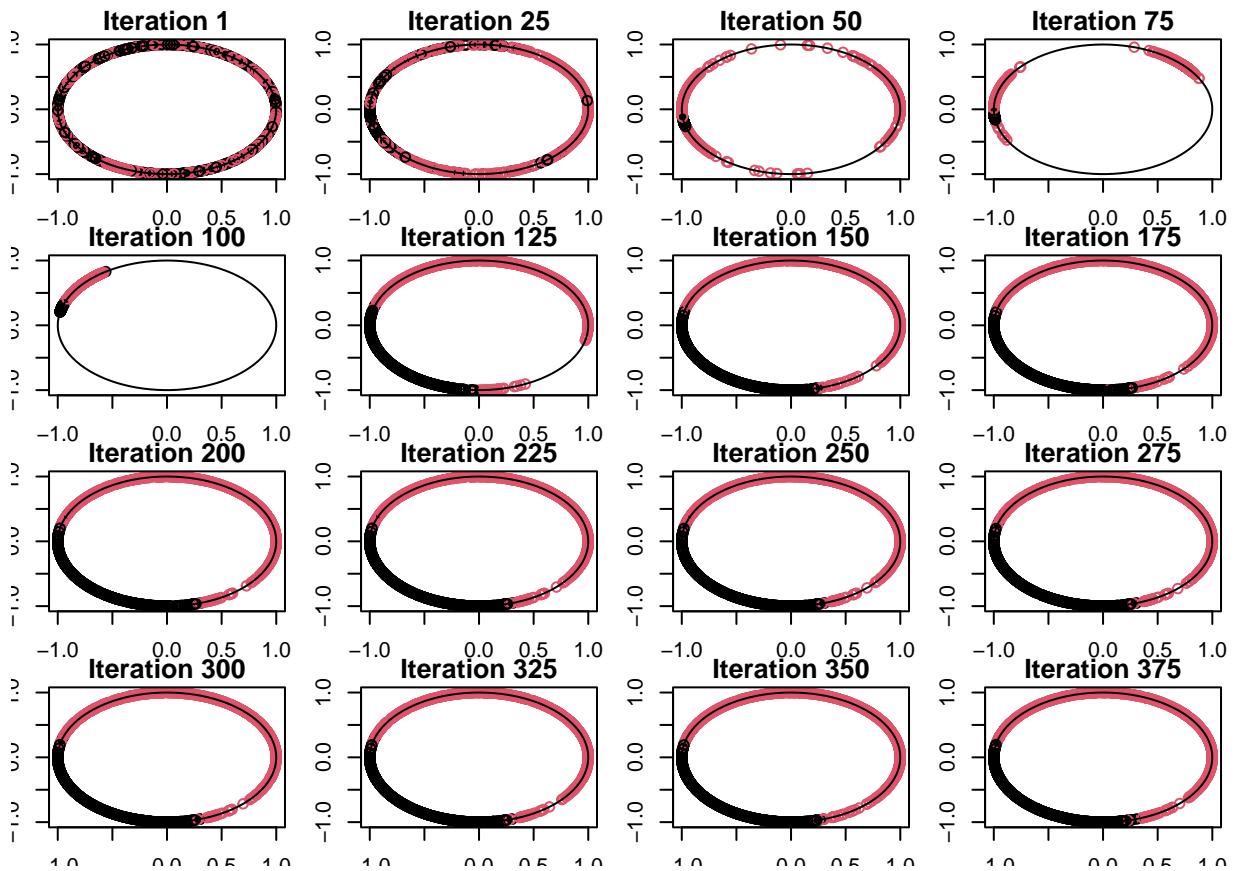
#> It: 342; obj: 3.076e+00; abs: 1.908e-04; rel: 6.203e-05; norm: 3.903e-02; mom: 5.653e-01;
#> best it: 336; best obj: 3.076e+00
#> It: 343; obj: 3.076e+00; abs: 2.858e-05; rel: 9.293e-06; norm: 3.897e-02; mom: 6.417e-01;
#> best it: 336; best obj: 3.076e+00
#> It: 344; obj: 3.076e+00; abs: 1.228e-04; rel: 3.994e-05; norm: 3.896e-02; mom: 5.714e-01;
#> best it: 336; best obj: 3.076e+00
#> It: 345; obj: 3.076e+00; abs: 5.156e-05; rel: 1.676e-05; norm: 3.897e-02; mom: 4.252e-01;
#> best it: 336; best obj: 3.076e+00
#> It: 346; obj: 3.076e+00; abs: 2.431e-04; rel: 7.904e-05; norm: 3.898e-02; mom: 5.214e-01;
#> best it: 336; best obj: 3.076e+00
#> It: 347; obj: 3.075e+00; abs: 3.482e-04; rel: 1.132e-04; norm: 3.901e-02; mom: 5.355e-01;
#> best it: 347; best obj: 3.075e+00
#> It: 348; obj: 3.075e+00; abs: 2.401e-04; rel: 7.807e-05; norm: 3.904e-02; mom: 5.758e-01;
#> best it: 348; best obj: 3.075e+00
#> It: 349; obj: 3.075e+00; abs: 1.156e-04; rel: 3.758e-05; norm: 3.902e-02; mom: 5.971e-01;
#> best it: 349; best obj: 3.075e+00
#> It: 350; obj: 3.075e+00; abs: 1.271e-04; rel: 4.133e-05; norm: 3.902e-02; mom: 6.199e-01;
#> best it: 349; best obj: 3.075e+00
#> It: 351; obj: 3.075e+00; abs: 1.689e-04; rel: 5.493e-05; norm: 3.898e-02; mom: 6.227e-01;
#> best it: 349; best obj: 3.075e+00
#> It: 352; obj: 3.076e+00; abs: 2.574e-04; rel: 8.370e-05; norm: 3.892e-02; mom: 6.397e-01;
#> best it: 349; best obj: 3.075e+00
#> It: 353; obj: 3.076e+00; abs: 2.733e-04; rel: 8.886e-05; norm: 3.891e-02; mom: 6.131e-01;
#> best it: 349; best obj: 3.075e+00
#> It: 354; obj: 3.076e+00; abs: 5.787e-05; rel: 1.882e-05; norm: 3.890e-02; mom: 4.879e-01;
#> best it: 349; best obj: 3.075e+00
#> It: 355; obj: 3.076e+00; abs: 3.640e-06; rel: 1.183e-06; norm: 3.890e-02; mom: 4.719e-01;
#> best it: 349; best obj: 3.075e+00
#> It: 356; obj: 3.076e+00; abs: 2.566e-05; rel: 8.342e-06; norm: 3.892e-02; mom: 5.309e-01;
#> best it: 349; best obj: 3.075e+00
#> It: 357; obj: 3.076e+00; abs: 2.529e-04; rel: 8.223e-05; norm: 3.890e-02; mom: 5.582e-01;
#> best it: 349; best obj: 3.075e+00
#> It: 358; obj: 3.075e+00; abs: 2.330e-04; rel: 7.577e-05; norm: 3.887e-02; mom: 6.903e-01;
#> best it: 349; best obj: 3.075e+00
#> It: 359; obj: 3.075e+00; abs: 2.033e-04; rel: 6.609e-05; norm: 3.891e-02; mom: 6.928e-01;
#> best it: 349; best obj: 3.075e+00
#> It: 360; obj: 3.075e+00; abs: 5.920e-05; rel: 1.925e-05; norm: 3.892e-02; mom: 7.254e-01;
#> best it: 349; best obj: 3.075e+00
#> It: 361; obj: 3.075e+00; abs: 7.277e-05; rel: 2.366e-05; norm: 3.895e-02; mom: 7.078e-01;
#> best it: 349; best obj: 3.075e+00
#> It: 362; obj: 3.075e+00; abs: 1.273e-05; rel: 4.139e-06; norm: 3.898e-02; mom: 7.127e-01;
#> best it: 349; best obj: 3.075e+00
#> It: 363; obj: 3.075e+00; abs: 2.842e-05; rel: 9.243e-06; norm: 3.898e-02; mom: 7.754e-01;
#> best it: 349; best obj: 3.075e+00
#> It: 364; obj: 3.075e+00; abs: 1.019e-04; rel: 3.315e-05; norm: 3.893e-02; mom: 8.012e-01;
#> best it: 349; best obj: 3.075e+00
#> It: 365; obj: 3.076e+00; abs: 2.507e-04; rel: 8.151e-05; norm: 3.889e-02; mom: 7.178e-01;
#> best it: 349; best obj: 3.075e+00
#> It: 366; obj: 3.076e+00; abs: 2.178e-04; rel: 7.083e-05; norm: 3.890e-02; mom: 6.191e-01;
#> best it: 349; best obj: 3.075e+00
#> It: 367; obj: 3.076e+00; abs: 1.438e-04; rel: 4.674e-05; norm: 3.892e-02; mom: 6.068e-01;
#> best it: 349; best obj: 3.075e+00
#> It: 368; obj: 3.076e+00; abs: 5.162e-06; rel: 1.678e-06; norm: 3.893e-02; mom: 6.353e-01;

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#> best it: 349; best obj: 3.075e+00
#> It: 369; obj: 3.076e+00; abs: 1.049e-04; rel: 3.410e-05; norm: 3.892e-02; mom: 6.833e-01;
#> best it: 349; best obj: 3.075e+00
#> It: 370; obj: 3.076e+00; abs: 2.062e-04; rel: 6.703e-05; norm: 3.888e-02; mom: 7.906e-01;
#> best it: 349; best obj: 3.075e+00
#> It: 371; obj: 3.076e+00; abs: 2.589e-05; rel: 8.416e-06; norm: 3.887e-02; mom: 8.700e-01;
#> best it: 349; best obj: 3.075e+00
#> It: 372; obj: 3.076e+00; abs: 4.512e-05; rel: 1.467e-05; norm: 3.898e-02; mom: 7.200e-01;
#> best it: 349; best obj: 3.075e+00
#> It: 373; obj: 3.075e+00; abs: 1.218e-04; rel: 3.961e-05; norm: 3.902e-02; mom: 7.849e-01;
#> best it: 349; best obj: 3.075e+00
#> It: 374; obj: 3.075e+00; abs: 3.283e-04; rel: 1.068e-04; norm: 3.895e-02; mom: 8.226e-01;
#> best it: 349; best obj: 3.075e+00
#> It: 375; obj: 3.075e+00; abs: 2.442e-04; rel: 7.942e-05; norm: 3.887e-02; mom: 7.584e-01;
#> best it: 375; best obj: 3.075e+00

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#> It: 376; obj: 3.075e+00; abs: 1.207e-04; rel: 3.926e-05; norm: 3.886e-02; mom: 7.730e-01;
#> best it: 376; best obj: 3.075e+00
#> It: 377; obj: 3.075e+00; abs: 1.376e-04; rel: 4.476e-05; norm: 3.893e-02; mom: 7.623e-01;
#> best it: 376; best obj: 3.075e+00
#> It: 378; obj: 3.075e+00; abs: 1.188e-04; rel: 3.865e-05; norm: 3.897e-02; mom: 6.381e-01;
#> best it: 376; best obj: 3.075e+00
#> It: 379; obj: 3.075e+00; abs: 9.645e-05; rel: 3.136e-05; norm: 3.898e-02; mom: 5.968e-01;
#> best it: 376; best obj: 3.075e+00
#> It: 380; obj: 3.075e+00; abs: 1.545e-05; rel: 5.025e-06; norm: 3.897e-02; mom: 6.442e-01;
#> best it: 376; best obj: 3.075e+00

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#> It: 381; obj: 3.075e+00; abs: 1.459e-05; rel: 4.745e-06; norm: 3.893e-02; mom: 6.572e-01;
#> best it: 376; best obj: 3.075e+00
#> It: 382; obj: 3.075e+00; abs: 1.036e-04; rel: 3.370e-05; norm: 3.892e-02; mom: 7.327e-01;
#> best it: 376; best obj: 3.075e+00
#> It: 383; obj: 3.075e+00; abs: 3.447e-06; rel: 1.121e-06; norm: 3.890e-02; mom: 7.668e-01;
#> best it: 376; best obj: 3.075e+00
#> It: 384; obj: 3.075e+00; abs: 3.131e-06; rel: 1.018e-06; norm: 3.897e-02; mom: 8.189e-01;
#> best it: 376; best obj: 3.075e+00
#> It: 385; obj: 3.076e+00; abs: 3.102e-04; rel: 1.009e-04; norm: 3.908e-02; mom: 8.213e-01;
#> best it: 376; best obj: 3.075e+00
#> It: 386; obj: 3.076e+00; abs: 2.287e-04; rel: 7.435e-05; norm: 3.904e-02; mom: 8.421e-01;
#> best it: 376; best obj: 3.075e+00
#> It: 387; obj: 3.076e+00; abs: 1.567e-04; rel: 5.093e-05; norm: 3.899e-02; mom: 8.701e-01;
#> best it: 376; best obj: 3.075e+00
#> It: 388; obj: 3.075e+00; abs: 5.618e-04; rel: 1.827e-04; norm: 3.893e-02; mom: 9.407e-01;
#> best it: 376; best obj: 3.075e+00
#> It: 389; obj: 3.075e+00; abs: 2.945e-04; rel: 9.576e-05; norm: 3.889e-02; mom: 9.254e-01;
#> best it: 389; best obj: 3.075e+00
#> It: 390; obj: 3.075e+00; abs: 2.336e-04; rel: 7.597e-05; norm: 3.890e-02; mom: 8.047e-01;
#> best it: 390; best obj: 3.075e+00
#> It: 391; obj: 3.075e+00; abs: 3.766e-05; rel: 1.225e-05; norm: 3.899e-02; mom: 7.525e-01;
#> best it: 390; best obj: 3.075e+00
#> It: 392; obj: 3.075e+00; abs: 4.404e-05; rel: 1.432e-05; norm: 3.911e-02; mom: 7.333e-01;
#> best it: 390; best obj: 3.075e+00
#> It: 393; obj: 3.074e+00; abs: 1.327e-04; rel: 4.316e-05; norm: 3.914e-02; mom: 7.599e-01;
#> best it: 393; best obj: 3.074e+00
#> It: 394; obj: 3.075e+00; abs: 1.563e-04; rel: 5.083e-05; norm: 3.910e-02; mom: 8.713e-01;
#> best it: 393; best obj: 3.074e+00
#> It: 395; obj: 3.075e+00; abs: 6.679e-05; rel: 2.172e-05; norm: 3.910e-02; mom: 8.661e-01;
#> best it: 393; best obj: 3.074e+00
#> It: 396; obj: 3.075e+00; abs: 1.808e-04; rel: 5.880e-05; norm: 3.904e-02; mom: 8.937e-01;
#> best it: 393; best obj: 3.074e+00
#> It: 397; obj: 3.075e+00; abs: 4.240e-04; rel: 1.379e-04; norm: 3.899e-02; mom: 8.182e-01;
#> best it: 393; best obj: 3.074e+00
#> It: 398; obj: 3.076e+00; abs: 3.313e-04; rel: 1.077e-04; norm: 3.902e-02; mom: 7.483e-01;
#> best it: 393; best obj: 3.074e+00
#> It: 399; obj: 3.076e+00; abs: 5.253e-05; rel: 1.708e-05; norm: 3.903e-02; mom: 7.619e-01;
#> best it: 393; best obj: 3.074e+00
#> It: 400; obj: 3.075e+00; abs: 2.829e-04; rel: 9.200e-05; norm: 3.895e-02; mom: 7.913e-01;
#> best it: 393; best obj: 3.074e+00
#> It: 401; obj: 3.075e+00; abs: 4.075e-04; rel: 1.325e-04; norm: 3.888e-02; mom: 7.771e-01;
#> best it: 393; best obj: 3.074e+00
#> It: 402; obj: 3.075e+00; abs: 4.296e-04; rel: 1.397e-04; norm: 3.881e-02; mom: 8.855e-01;
#> best it: 393; best obj: 3.074e+00
#> It: 403; obj: 3.074e+00; abs: 1.929e-04; rel: 6.273e-05; norm: 3.880e-02; mom: 8.617e-01;
#> best it: 403; best obj: 3.074e+00
#> It: 404; obj: 3.074e+00; abs: 1.152e-04; rel: 3.748e-05; norm: 3.889e-02; mom: 7.812e-01;
#> best it: 403; best obj: 3.074e+00
#> It: 405; obj: 3.075e+00; abs: 2.610e-04; rel: 8.489e-05; norm: 3.900e-02; mom: 7.641e-01;
#> best it: 403; best obj: 3.074e+00
#> It: 406; obj: 3.075e+00; abs: 2.650e-04; rel: 8.619e-05; norm: 3.900e-02; mom: 8.028e-01;
#> best it: 403; best obj: 3.074e+00
#> It: 407; obj: 3.075e+00; abs: 3.502e-04; rel: 1.139e-04; norm: 3.905e-02; mom: 7.500e-01;
#> best it: 403; best obj: 3.074e+00

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#> It: 408; obj: 3.075e+00; abs: 5.097e-05; rel: 1.657e-05; norm: 3.911e-02; mom: 7.985e-01;
#> best it: 403; best obj: 3.074e+00
#> It: 409; obj: 3.075e+00; abs: 1.858e-05; rel: 6.043e-06; norm: 3.906e-02; mom: 9.088e-01;
#> best it: 403; best obj: 3.074e+00
#> It: 410; obj: 3.075e+00; abs: 1.880e-06; rel: 6.113e-07; norm: 3.898e-02; mom: 8.347e-01;
#> best it: 403; best obj: 3.074e+00
#> It: 411; obj: 3.076e+00; abs: 8.696e-05; rel: 2.827e-05; norm: 3.894e-02; mom: 7.981e-01;
#> best it: 403; best obj: 3.074e+00
#> It: 412; obj: 3.076e+00; abs: 4.483e-05; rel: 1.458e-05; norm: 3.892e-02; mom: 8.004e-01;
#> best it: 403; best obj: 3.074e+00
#> It: 413; obj: 3.075e+00; abs: 1.503e-04; rel: 4.886e-05; norm: 3.896e-02; mom: 7.256e-01;
#> best it: 403; best obj: 3.074e+00
#> It: 414; obj: 3.075e+00; abs: 2.872e-04; rel: 9.339e-05; norm: 3.904e-02; mom: 7.417e-01;
#> best it: 403; best obj: 3.074e+00
#> It: 415; obj: 3.075e+00; abs: 5.023e-04; rel: 1.633e-04; norm: 3.904e-02; mom: 8.361e-01;
#> best it: 403; best obj: 3.074e+00
#> It: 416; obj: 3.074e+00; abs: 2.195e-04; rel: 7.140e-05; norm: 3.907e-02; mom: 9.561e-01;
#> best it: 403; best obj: 3.074e+00
#> It: 417; obj: 3.075e+00; abs: 1.833e-04; rel: 5.963e-05; norm: 3.918e-02; mom: 9.613e-01;
#> best it: 403; best obj: 3.074e+00
#> It: 418; obj: 3.075e+00; abs: 8.427e-05; rel: 2.741e-05; norm: 3.931e-02; mom: 8.008e-01;
#> best it: 403; best obj: 3.074e+00
#> It: 419; obj: 3.075e+00; abs: 4.345e-04; rel: 1.413e-04; norm: 3.931e-02; mom: 9.279e-01;
#> best it: 403; best obj: 3.074e+00
#> It: 420; obj: 3.075e+00; abs: 1.969e-04; rel: 6.403e-05; norm: 3.916e-02; mom: 9.215e-01;
#> best it: 403; best obj: 3.074e+00
#> It: 421; obj: 3.075e+00; abs: 2.264e-05; rel: 7.363e-06; norm: 3.899e-02; mom: 9.123e-01;
#> best it: 403; best obj: 3.074e+00
#> It: 422; obj: 3.075e+00; abs: 1.050e-04; rel: 3.413e-05; norm: 3.891e-02; mom: 9.957e-01;
#> best it: 403; best obj: 3.074e+00
#> It: 423; obj: 3.075e+00; abs: 1.221e-05; rel: 3.969e-06; norm: 3.893e-02; mom: 9.261e-01;
#> best it: 403; best obj: 3.074e+00
#> It: 424; obj: 3.075e+00; abs: 1.676e-04; rel: 5.451e-05; norm: 3.898e-02; mom: 8.006e-01;
#> best it: 403; best obj: 3.074e+00
#> It: 425; obj: 3.075e+00; abs: 3.714e-04; rel: 1.208e-04; norm: 3.904e-02; mom: 8.284e-01;
#> best it: 403; best obj: 3.074e+00
#> It: 426; obj: 3.075e+00; abs: 3.260e-04; rel: 1.060e-04; norm: 3.912e-02; mom: 8.475e-01;
#> best it: 403; best obj: 3.074e+00
#> It: 427; obj: 3.074e+00; abs: 1.886e-04; rel: 6.134e-05; norm: 3.921e-02; mom: 7.910e-01;
#> best it: 427; best obj: 3.074e+00
#> It: 428; obj: 3.075e+00; abs: 2.152e-04; rel: 6.999e-05; norm: 3.922e-02; mom: 8.300e-01;
#> best it: 427; best obj: 3.074e+00
#> It: 429; obj: 3.075e+00; abs: 2.304e-04; rel: 7.493e-05; norm: 3.916e-02; mom: 8.584e-01;
#> best it: 427; best obj: 3.074e+00
#> It: 430; obj: 3.075e+00; abs: 3.377e-04; rel: 1.098e-04; norm: 3.920e-02; mom: 8.829e-01;
#> best it: 427; best obj: 3.074e+00
#> It: 431; obj: 3.076e+00; abs: 6.013e-04; rel: 1.955e-04; norm: 3.923e-02; mom: 8.991e-01;
#> best it: 427; best obj: 3.074e+00
#> It: 432; obj: 3.076e+00; abs: 3.762e-04; rel: 1.223e-04; norm: 3.916e-02; mom: 9.534e-01;
#> best it: 427; best obj: 3.074e+00
#> It: 433; obj: 3.076e+00; abs: 7.423e-05; rel: 2.413e-05; norm: 3.907e-02; mom: 9.220e-01;
#> best it: 427; best obj: 3.074e+00
#> It: 434; obj: 3.076e+00; abs: 2.219e-04; rel: 7.213e-05; norm: 3.902e-02; mom: 1.026e+00;
#> best it: 427; best obj: 3.074e+00

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#> It: 435; obj: 3.076e+00; abs: 3.375e-05; rel: 1.097e-05; norm: 3.907e-02; mom: 8.907e-01;
#> best it: 427; best obj: 3.074e+00
#> It: 436; obj: 3.076e+00; abs: 1.736e-04; rel: 5.644e-05; norm: 3.912e-02; mom: 8.825e-01;
#> best it: 427; best obj: 3.074e+00
#> It: 437; obj: 3.076e+00; abs: 6.744e-04; rel: 2.192e-04; norm: 3.909e-02; mom: 9.245e-01;
#> best it: 427; best obj: 3.074e+00
#> It: 438; obj: 3.075e+00; abs: 7.227e-04; rel: 2.350e-04; norm: 3.906e-02; mom: 8.597e-01;
#> best it: 427; best obj: 3.074e+00
#> It: 439; obj: 3.075e+00; abs: 2.057e-04; rel: 6.689e-05; norm: 3.913e-02; mom: 1.006e+00;
#> best it: 427; best obj: 3.074e+00
#> It: 440; obj: 3.075e+00; abs: 3.973e-05; rel: 1.292e-05; norm: 3.933e-02; mom: 9.587e-01;
#> best it: 427; best obj: 3.074e+00
#> It: 441; obj: 3.075e+00; abs: 2.399e-04; rel: 7.802e-05; norm: 3.952e-02; mom: 9.437e-01;
#> best it: 427; best obj: 3.074e+00
#> It: 442; obj: 3.075e+00; abs: 2.485e-05; rel: 8.082e-06; norm: 3.959e-02; mom: 1.009e+00;
#> best it: 427; best obj: 3.074e+00
#> It: 443; obj: 3.075e+00; abs: 1.353e-04; rel: 4.400e-05; norm: 3.942e-02; mom: 1.128e+00;
#> best it: 427; best obj: 3.074e+00
#> It: 444; obj: 3.075e+00; abs: 7.009e-04; rel: 2.279e-04; norm: 3.926e-02; mom: 1.331e+00;
#> best it: 427; best obj: 3.074e+00
#> It: 445; obj: 3.076e+00; abs: 6.707e-04; rel: 2.181e-04; norm: 3.929e-02; mom: 1.174e+00;
#> best it: 427; best obj: 3.074e+00
#> It: 446; obj: 3.076e+00; abs: 2.092e-04; rel: 6.799e-05; norm: 3.940e-02; mom: 1.035e+00;
#> best it: 427; best obj: 3.074e+00
#> It: 447; obj: 3.076e+00; abs: 1.392e-05; rel: 4.525e-06; norm: 3.945e-02; mom: 1.137e+00;
#> best it: 427; best obj: 3.074e+00
#> It: 448; obj: 3.076e+00; abs: 9.364e-06; rel: 3.044e-06; norm: 3.942e-02; mom: 1.205e+00;
#> best it: 427; best obj: 3.074e+00
#> It: 449; obj: 3.076e+00; abs: 2.437e-05; rel: 7.921e-06; norm: 3.939e-02; mom: 1.162e+00;
#> best it: 427; best obj: 3.074e+00
#> It: 450; obj: 3.076e+00; abs: 4.913e-04; rel: 1.597e-04; norm: 3.926e-02; mom: 1.163e+00;
#> best it: 427; best obj: 3.074e+00
#> It: 451; obj: 3.075e+00; abs: 4.534e-04; rel: 1.474e-04; norm: 3.915e-02; mom: 1.165e+00;
#> best it: 427; best obj: 3.074e+00
#> It: 452; obj: 3.075e+00; abs: 1.431e-05; rel: 4.655e-06; norm: 3.914e-02; mom: 1.262e+00;
#> best it: 427; best obj: 3.074e+00
#> It: 453; obj: 3.076e+00; abs: 2.275e-04; rel: 7.398e-05; norm: 3.930e-02; mom: 1.099e+00;
#> best it: 427; best obj: 3.074e+00
#> It: 454; obj: 3.076e+00; abs: 2.796e-04; rel: 9.092e-05; norm: 3.942e-02; mom: 9.752e-01;
#> best it: 427; best obj: 3.074e+00
#> It: 455; obj: 3.076e+00; abs: 2.451e-04; rel: 7.968e-05; norm: 3.947e-02; mom: 1.105e+00;
#> best it: 427; best obj: 3.074e+00
#> It: 456; obj: 3.075e+00; abs: 3.526e-04; rel: 1.147e-04; norm: 3.940e-02; mom: 1.109e+00;
#> best it: 427; best obj: 3.074e+00
#> It: 457; obj: 3.075e+00; abs: 1.741e-05; rel: 5.660e-06; norm: 3.931e-02; mom: 1.104e+00;
#> best it: 427; best obj: 3.074e+00
#> It: 458; obj: 3.075e+00; abs: 9.633e-05; rel: 3.132e-05; norm: 3.929e-02; mom: 1.211e+00;
#> best it: 427; best obj: 3.074e+00
#> It: 459; obj: 3.076e+00; abs: 2.292e-04; rel: 7.454e-05; norm: 3.926e-02; mom: 1.268e+00;
#> best it: 427; best obj: 3.074e+00
#> It: 460; obj: 3.076e+00; abs: 1.448e-05; rel: 4.708e-06; norm: 3.921e-02; mom: 1.153e+00;
#> best it: 427; best obj: 3.074e+00
#> It: 461; obj: 3.076e+00; abs: 1.450e-04; rel: 4.713e-05; norm: 3.926e-02; mom: 1.130e+00;
#> best it: 427; best obj: 3.074e+00

```

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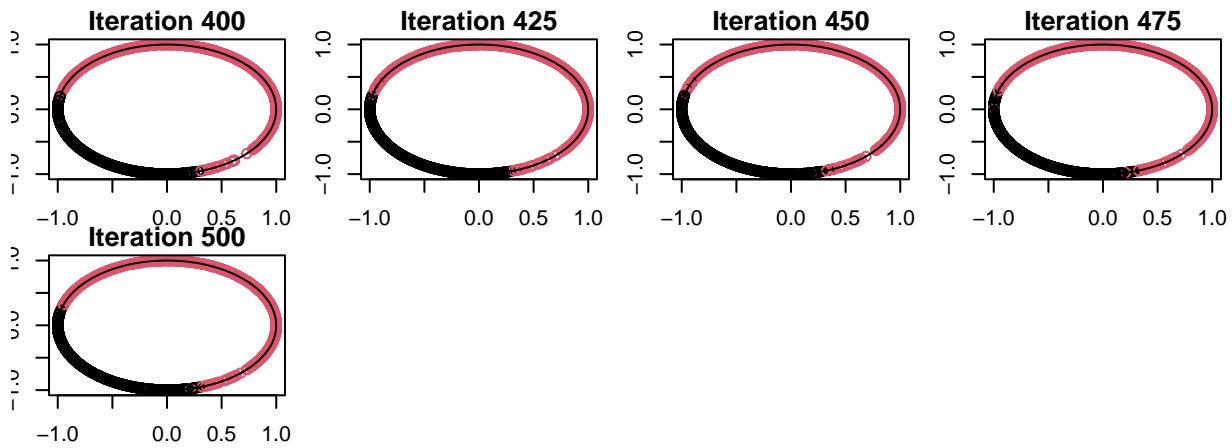
#> It: 462; obj: 3.076e+00; abs: 2.608e-05; rel: 8.479e-06; norm: 3.946e-02; mom: 1.141e+00;
#> best it: 427; best obj: 3.074e+00
#> It: 463; obj: 3.076e+00; abs: 1.686e-04; rel: 5.483e-05; norm: 3.960e-02; mom: 1.100e+00;
#> best it: 427; best obj: 3.074e+00
#> It: 464; obj: 3.075e+00; abs: 2.813e-04; rel: 9.145e-05; norm: 3.967e-02; mom: 1.188e+00;
#> best it: 427; best obj: 3.074e+00
#> It: 465; obj: 3.075e+00; abs: 3.428e-04; rel: 1.115e-04; norm: 3.967e-02; mom: 1.133e+00;
#> best it: 427; best obj: 3.074e+00
#> It: 466; obj: 3.075e+00; abs: 1.636e-04; rel: 5.319e-05; norm: 3.958e-02; mom: 1.109e+00;
#> best it: 427; best obj: 3.074e+00
#> It: 467; obj: 3.075e+00; abs: 4.617e-04; rel: 1.502e-04; norm: 3.947e-02; mom: 1.216e+00;
#> best it: 427; best obj: 3.074e+00
#> It: 468; obj: 3.076e+00; abs: 3.843e-04; rel: 1.250e-04; norm: 3.944e-02; mom: 1.090e+00;
#> best it: 427; best obj: 3.074e+00
#> It: 469; obj: 3.076e+00; abs: 3.957e-04; rel: 1.286e-04; norm: 3.934e-02; mom: 1.179e+00;
#> best it: 427; best obj: 3.074e+00
#> It: 470; obj: 3.076e+00; abs: 4.168e-04; rel: 1.355e-04; norm: 3.932e-02; mom: 1.148e+00;
#> best it: 427; best obj: 3.074e+00
#> It: 471; obj: 3.077e+00; abs: 1.460e-04; rel: 4.745e-05; norm: 3.922e-02; mom: 1.093e+00;
#> best it: 427; best obj: 3.074e+00
#> It: 472; obj: 3.077e+00; abs: 3.081e-05; rel: 1.001e-05; norm: 3.926e-02; mom: 1.155e+00;
#> best it: 427; best obj: 3.074e+00
#> It: 473; obj: 3.076e+00; abs: 4.687e-04; rel: 1.524e-04; norm: 3.928e-02; mom: 1.220e+00;
#> best it: 427; best obj: 3.074e+00
#> It: 474; obj: 3.076e+00; abs: 3.514e-04; rel: 1.142e-04; norm: 3.922e-02; mom: 1.218e+00;
#> best it: 427; best obj: 3.074e+00
#> It: 475; obj: 3.076e+00; abs: 2.206e-04; rel: 7.171e-05; norm: 3.923e-02; mom: 1.162e+00;
#> best it: 427; best obj: 3.074e+00
#> It: 476; obj: 3.076e+00; abs: 8.612e-05; rel: 2.800e-05; norm: 3.931e-02; mom: 1.094e+00;
#> best it: 427; best obj: 3.074e+00
#> It: 477; obj: 3.076e+00; abs: 2.451e-04; rel: 7.969e-05; norm: 3.938e-02; mom: 1.104e+00;
#> best it: 427; best obj: 3.074e+00
#> It: 478; obj: 3.075e+00; abs: 5.693e-04; rel: 1.851e-04; norm: 3.940e-02; mom: 1.134e+00;
#> best it: 427; best obj: 3.074e+00
#> It: 479; obj: 3.075e+00; abs: 2.822e-04; rel: 9.178e-05; norm: 3.936e-02; mom: 1.178e+00;
#> best it: 427; best obj: 3.074e+00
#> It: 480; obj: 3.075e+00; abs: 3.648e-04; rel: 1.186e-04; norm: 3.936e-02; mom: 1.157e+00;
#> best it: 427; best obj: 3.074e+00
#> It: 481; obj: 3.076e+00; abs: 2.110e-04; rel: 6.861e-05; norm: 3.944e-02; mom: 1.068e+00;
#> best it: 427; best obj: 3.074e+00
#> It: 482; obj: 3.076e+00; abs: 3.296e-04; rel: 1.072e-04; norm: 3.952e-02; mom: 1.226e+00;
#> best it: 427; best obj: 3.074e+00
#> It: 483; obj: 3.076e+00; abs: 2.238e-04; rel: 7.277e-05; norm: 3.958e-02; mom: 1.154e+00;
#> best it: 427; best obj: 3.074e+00
#> It: 484; obj: 3.076e+00; abs: 1.996e-05; rel: 6.488e-06; norm: 3.953e-02; mom: 1.199e+00;
#> best it: 427; best obj: 3.074e+00
#> It: 485; obj: 3.076e+00; abs: 2.047e-04; rel: 6.654e-05; norm: 3.949e-02; mom: 1.264e+00;
#> best it: 427; best obj: 3.074e+00
#> It: 486; obj: 3.076e+00; abs: 1.111e-04; rel: 3.612e-05; norm: 3.941e-02; mom: 1.198e+00;
#> best it: 427; best obj: 3.074e+00
#> It: 487; obj: 3.076e+00; abs: 2.928e-04; rel: 9.516e-05; norm: 3.940e-02; mom: 1.179e+00;
#> best it: 427; best obj: 3.074e+00
#> It: 488; obj: 3.076e+00; abs: 4.334e-04; rel: 1.409e-04; norm: 3.940e-02; mom: 1.196e+00;
#> best it: 427; best obj: 3.074e+00

```

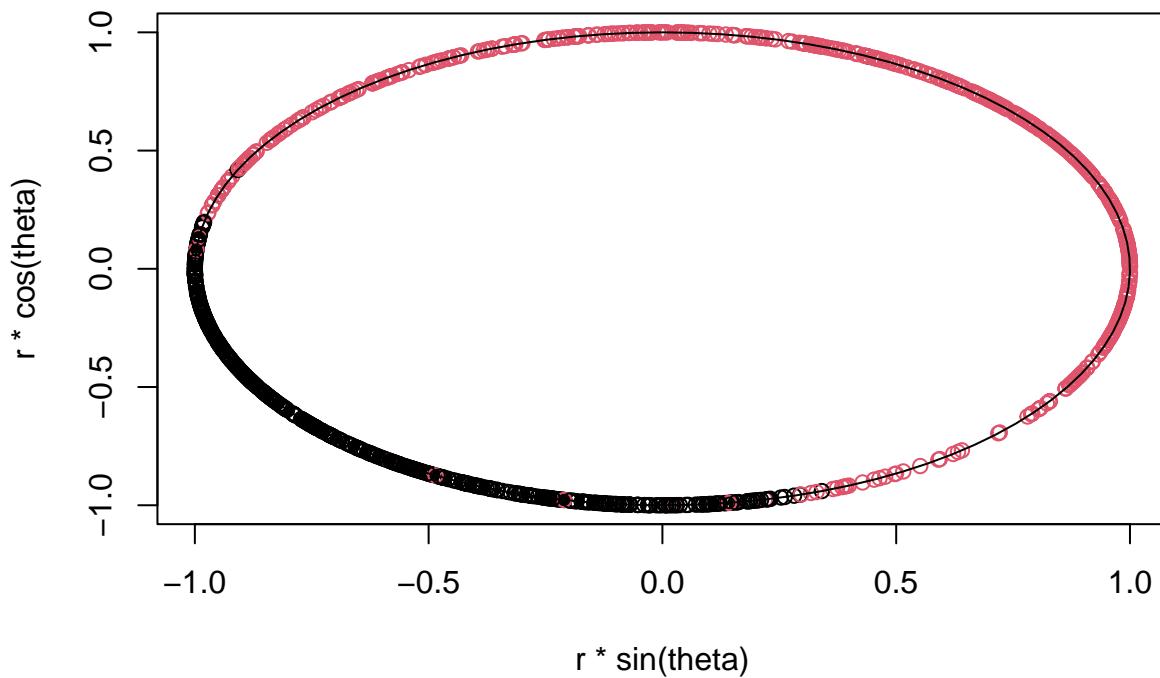
```

#> It: 489; obj: 3.076e+00; abs: 1.176e-04; rel: 3.822e-05; norm: 3.937e-02; mom: 1.227e+00;
#> best it: 427; best obj: 3.074e+00
#> It: 490; obj: 3.076e+00; abs: 2.074e-04; rel: 6.742e-05; norm: 3.936e-02; mom: 1.205e+00;
#> best it: 427; best obj: 3.074e+00
#> It: 491; obj: 3.076e+00; abs: 1.172e-04; rel: 3.811e-05; norm: 3.941e-02; mom: 1.157e+00;
#> best it: 427; best obj: 3.074e+00
#> It: 492; obj: 3.076e+00; abs: 3.689e-04; rel: 1.199e-04; norm: 3.943e-02; mom: 1.064e+00;
#> best it: 427; best obj: 3.074e+00
#> It: 493; obj: 3.075e+00; abs: 2.143e-04; rel: 6.967e-05; norm: 3.932e-02; mom: 1.122e+00;
#> best it: 427; best obj: 3.074e+00
#> It: 494; obj: 3.075e+00; abs: 1.755e-04; rel: 5.706e-05; norm: 3.917e-02; mom: 1.148e+00;
#> best it: 427; best obj: 3.074e+00
#> It: 495; obj: 3.076e+00; abs: 7.283e-04; rel: 2.368e-04; norm: 3.918e-02; mom: 1.190e+00;
#> best it: 427; best obj: 3.074e+00
#> It: 496; obj: 3.077e+00; abs: 3.823e-04; rel: 1.243e-04; norm: 3.933e-02; mom: 1.062e+00;
#> best it: 427; best obj: 3.074e+00
#> It: 497; obj: 3.076e+00; abs: 3.280e-04; rel: 1.066e-04; norm: 3.938e-02; mom: 1.230e+00;
#> best it: 427; best obj: 3.074e+00
#> It: 498; obj: 3.076e+00; abs: 6.518e-04; rel: 2.119e-04; norm: 3.934e-02; mom: 1.209e+00;
#> best it: 427; best obj: 3.074e+00
#> It: 499; obj: 3.075e+00; abs: 3.608e-04; rel: 1.173e-04; norm: 3.927e-02; mom: 1.304e+00;
#> best it: 427; best obj: 3.074e+00
#> It: 500; obj: 3.075e+00; abs: 9.108e-05; rel: 2.962e-05; norm: 3.924e-02; mom: 1.360e+00;
#> best it: 427; best obj: 3.074e+00

```



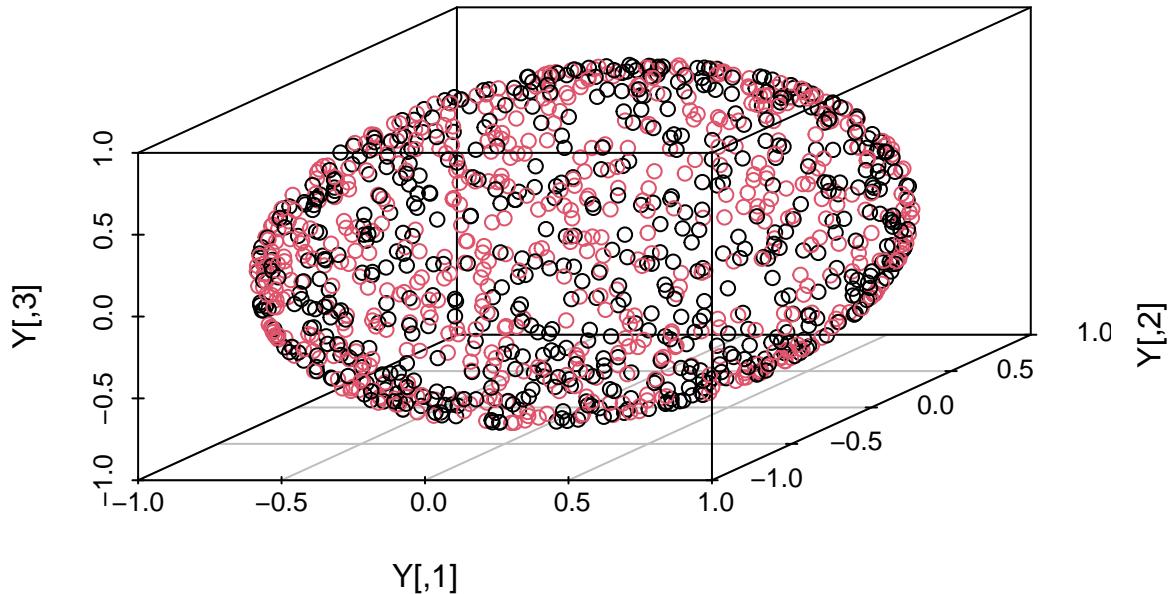
## Iteration 427



The next thing is to run the psc-sne with the parameter  $d = 2$ :

```
res_pscsne_12 <- psc_sne(X = sc_unif_mix_data, d = 2, rho_psc_list = rho_30_1,
                           num_iteration = 500, show_prog = TRUE,
                           colors = sc_unif_mix_colors,
                           parallel_cores = num_cores_param)
#> It: 1; obj: 2.051e+01; abs: 0.000e+00; rel: 0.000e+00; norm: 1.101e-01; mom: 0.000e+00;
#> best it: 1; best obj: 2.051e+01
```

## Iteration 1



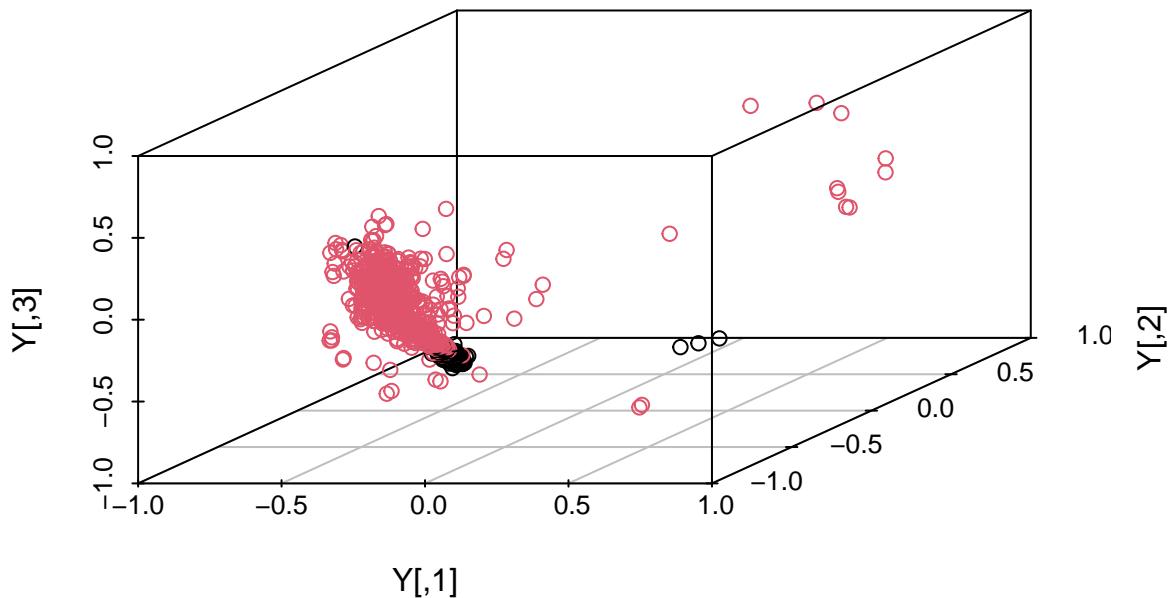
```
#> It: 2; obj: 1.946e+01; abs: 1.045e+00; rel: 5.096e-02; norm: 1.896e-01; mom: 9.365e+00;
#> best it: 2; best obj: 1.946e+01
#> It: 3; obj: 1.897e+01; abs: 4.971e-01; rel: 2.554e-02; norm: 2.707e-01; mom: 4.145e+00;
#> best it: 3; best obj: 1.897e+01
#> It: 4; obj: 1.870e+01; abs: 2.717e-01; rel: 1.432e-02; norm: 3.107e-01; mom: 3.074e+00;
#> best it: 4; best obj: 1.870e+01
#> It: 5; obj: 1.853e+01; abs: 1.618e-01; rel: 8.657e-03; norm: 3.394e-01; mom: 1.942e+00;
#> best it: 5; best obj: 1.853e+01
#> It: 6; obj: 1.843e+01; abs: 1.058e-01; rel: 5.711e-03; norm: 3.632e-01; mom: 1.488e+00;
#> best it: 6; best obj: 1.843e+01
#> It: 7; obj: 1.835e+01; abs: 8.150e-02; rel: 4.423e-03; norm: 3.863e-01; mom: 1.223e+00;
#> best it: 7; best obj: 1.835e+01
#> It: 8; obj: 1.828e+01; abs: 6.451e-02; rel: 3.517e-03; norm: 4.109e-01; mom: 1.209e+00;
#> best it: 8; best obj: 1.828e+01
#> It: 9; obj: 1.823e+01; abs: 5.217e-02; rel: 2.854e-03; norm: 4.404e-01; mom: 1.288e+00;
#> best it: 9; best obj: 1.823e+01
#> It: 10; obj: 1.819e+01; abs: 3.621e-02; rel: 1.987e-03; norm: 4.774e-01; mom: 1.418e+00;
#> best it: 10; best obj: 1.819e+01
#> It: 11; obj: 1.818e+01; abs: 1.345e-02; rel: 7.395e-04; norm: 5.251e-01; mom: 1.510e+00;
#> best it: 11; best obj: 1.818e+01
#> It: 12; obj: 1.819e+01; abs: 1.463e-02; rel: 8.047e-04; norm: 5.847e-01; mom: 1.574e+00;
#> best it: 11; best obj: 1.818e+01
#> It: 13; obj: 1.824e+01; abs: 4.707e-02; rel: 2.587e-03; norm: 6.562e-01; mom: 1.596e+00;
#> best it: 11; best obj: 1.818e+01
#> It: 14; obj: 1.832e+01; abs: 8.354e-02; rel: 4.580e-03; norm: 7.377e-01; mom: 1.556e+00;
#> best it: 11; best obj: 1.818e+01
#> It: 15; obj: 1.844e+01; abs: 1.188e-01; rel: 6.482e-03; norm: 8.246e-01; mom: 1.472e+00;
#> best it: 11; best obj: 1.818e+01
#> It: 16; obj: 1.858e+01; abs: 1.321e-01; rel: 7.162e-03; norm: 9.088e-01; mom: 1.386e+00;
#> best it: 11; best obj: 1.818e+01
#> It: 17; obj: 1.868e+01; abs: 1.065e-01; rel: 5.732e-03; norm: 9.818e-01; mom: 1.314e+00;
```

```

#> best it: 11; best obj: 1.818e+01
#> It: 18; obj: 1.874e+01; abs: 5.966e-02; rel: 3.193e-03; norm: 1.041e+00; mom: 1.245e+00;
#> best it: 11; best obj: 1.818e+01
#> It: 19; obj: 1.876e+01; abs: 2.151e-02; rel: 1.148e-03; norm: 1.089e+00; mom: 1.196e+00;
#> best it: 11; best obj: 1.818e+01
#> It: 20; obj: 1.877e+01; abs: 4.087e-03; rel: 2.178e-04; norm: 1.134e+00; mom: 1.130e+00;
#> best it: 11; best obj: 1.818e+01
#> It: 21; obj: 1.876e+01; abs: 3.407e-03; rel: 1.815e-04; norm: 1.178e+00; mom: 1.050e+00;
#> best it: 11; best obj: 1.818e+01
#> It: 22; obj: 1.877e+01; abs: 5.421e-03; rel: 2.889e-04; norm: 1.220e+00; mom: 1.020e+00;
#> best it: 11; best obj: 1.818e+01
#> It: 23; obj: 1.879e+01; abs: 2.428e-02; rel: 1.294e-03; norm: 1.262e+00; mom: 9.990e-01;
#> best it: 11; best obj: 1.818e+01
#> It: 24; obj: 1.884e+01; abs: 4.435e-02; rel: 2.360e-03; norm: 1.301e+00; mom: 9.557e-01;
#> best it: 11; best obj: 1.818e+01
#> It: 25; obj: 1.890e+01; abs: 6.474e-02; rel: 3.437e-03; norm: 1.336e+00; mom: 8.412e-01;
#> best it: 11; best obj: 1.818e+01

```

## Iteration 25



```

#> It: 26; obj: 1.898e+01; abs: 7.527e-02; rel: 3.982e-03; norm: 1.365e+00; mom: 6.749e-01;
#> best it: 11; best obj: 1.818e+01
#> It: 27; obj: 1.905e+01; abs: 7.164e-02; rel: 3.775e-03; norm: 1.388e+00; mom: 5.464e-01;
#> best it: 11; best obj: 1.818e+01
#> It: 28; obj: 1.911e+01; abs: 6.059e-02; rel: 3.181e-03; norm: 1.405e+00; mom: 4.665e-01;
#> best it: 11; best obj: 1.818e+01
#> It: 29; obj: 1.916e+01; abs: 5.096e-02; rel: 2.667e-03; norm: 1.417e+00; mom: 4.144e-01;
#> best it: 11; best obj: 1.818e+01
#> It: 30; obj: 1.921e+01; abs: 4.402e-02; rel: 2.298e-03; norm: 1.426e+00; mom: 3.841e-01;
#> best it: 11; best obj: 1.818e+01
#> It: 31; obj: 1.925e+01; abs: 4.021e-02; rel: 2.094e-03; norm: 1.433e+00; mom: 3.390e-01;
#> best it: 11; best obj: 1.818e+01
#> It: 32; obj: 1.928e+01; abs: 3.747e-02; rel: 1.947e-03; norm: 1.439e+00; mom: 2.785e-01;
#> best it: 11; best obj: 1.818e+01

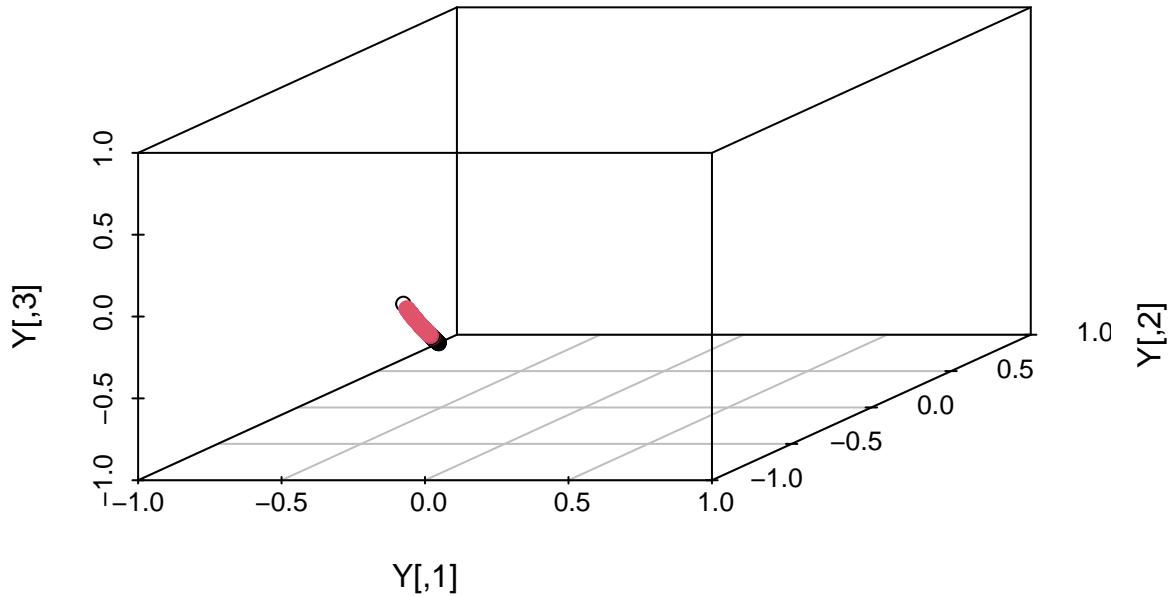
```

```

#> It: 33; obj: 1.932e+01; abs: 3.276e-02; rel: 1.699e-03; norm: 1.443e+00; mom: 1.985e-01;
#> best it: 11; best obj: 1.818e+01
#> It: 34; obj: 1.934e+01; abs: 2.753e-02; rel: 1.425e-03; norm: 1.445e+00; mom: 1.285e-01;
#> best it: 11; best obj: 1.818e+01
#> It: 35; obj: 1.937e+01; abs: 2.319e-02; rel: 1.199e-03; norm: 1.447e+00; mom: 1.093e-01;
#> best it: 11; best obj: 1.818e+01
#> It: 36; obj: 1.939e+01; abs: 1.979e-02; rel: 1.022e-03; norm: 1.449e+00; mom: 9.513e-02;
#> best it: 11; best obj: 1.818e+01
#> It: 37; obj: 1.940e+01; abs: 1.709e-02; rel: 8.815e-04; norm: 1.450e+00; mom: 8.378e-02;
#> best it: 11; best obj: 1.818e+01
#> It: 38; obj: 1.942e+01; abs: 1.491e-02; rel: 7.686e-04; norm: 1.451e+00; mom: 7.450e-02;
#> best it: 11; best obj: 1.818e+01
#> It: 39; obj: 1.943e+01; abs: 1.313e-02; rel: 6.761e-04; norm: 1.451e+00; mom: 6.677e-02;
#> best it: 11; best obj: 1.818e+01
#> It: 40; obj: 1.944e+01; abs: 1.164e-02; rel: 5.992e-04; norm: 1.452e+00; mom: 6.025e-02;
#> best it: 11; best obj: 1.818e+01
#> It: 41; obj: 1.945e+01; abs: 1.039e-02; rel: 5.344e-04; norm: 1.453e+00; mom: 5.467e-02;
#> best it: 11; best obj: 1.818e+01
#> It: 42; obj: 1.946e+01; abs: 9.326e-03; rel: 4.794e-04; norm: 1.453e+00; mom: 4.986e-02;
#> best it: 11; best obj: 1.818e+01
#> It: 43; obj: 1.947e+01; abs: 8.412e-03; rel: 4.322e-04; norm: 1.453e+00; mom: 4.568e-02;
#> best it: 11; best obj: 1.818e+01
#> It: 44; obj: 1.948e+01; abs: 7.622e-03; rel: 3.914e-04; norm: 1.454e+00; mom: 4.202e-02;
#> best it: 11; best obj: 1.818e+01
#> It: 45; obj: 1.949e+01; abs: 6.934e-03; rel: 3.560e-04; norm: 1.454e+00; mom: 3.880e-02;
#> best it: 11; best obj: 1.818e+01
#> It: 46; obj: 1.949e+01; abs: 6.333e-03; rel: 3.250e-04; norm: 1.454e+00; mom: 3.594e-02;
#> best it: 11; best obj: 1.818e+01
#> It: 47; obj: 1.950e+01; abs: 5.803e-03; rel: 2.977e-04; norm: 1.455e+00; mom: 3.339e-02;
#> best it: 11; best obj: 1.818e+01
#> It: 48; obj: 1.950e+01; abs: 5.335e-03; rel: 2.736e-04; norm: 1.455e+00; mom: 3.112e-02;
#> best it: 11; best obj: 1.818e+01
#> It: 49; obj: 1.951e+01; abs: 4.919e-03; rel: 2.522e-04; norm: 1.455e+00; mom: 2.907e-02;
#> best it: 11; best obj: 1.818e+01
#> It: 50; obj: 1.951e+01; abs: 4.548e-03; rel: 2.331e-04; norm: 1.455e+00; mom: 2.723e-02;
#> best it: 11; best obj: 1.818e+01

```

## Iteration 50



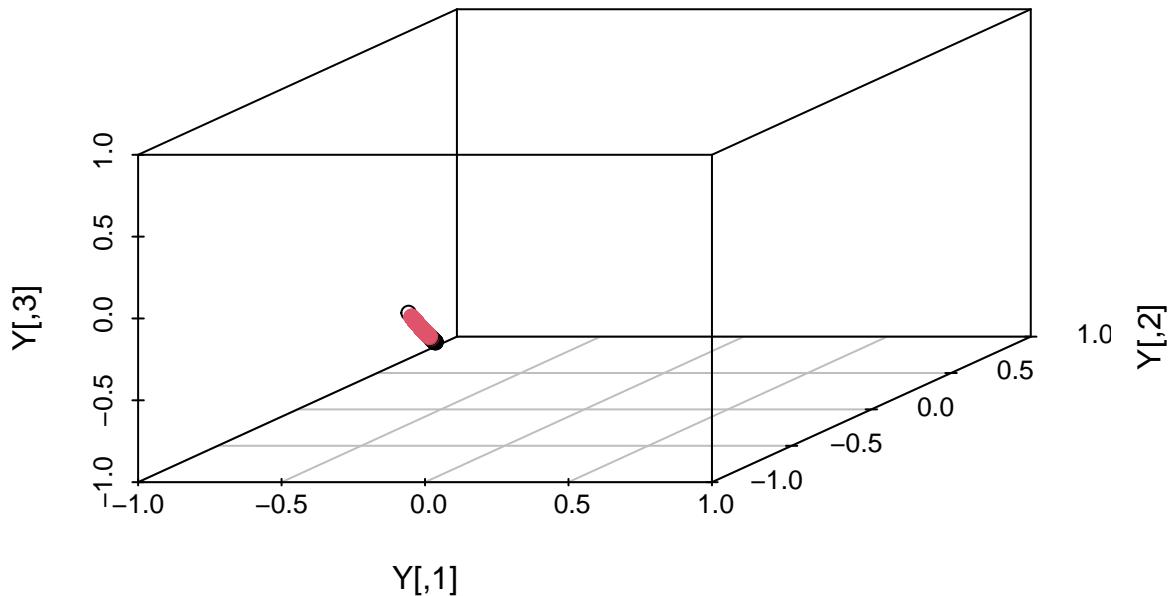
```
#> It: 51; obj: 1.952e+01; abs: 4.216e-03; rel: 2.161e-04; norm: 1.455e+00; mom: 2.556e-02;
#> best it: 11; best obj: 1.818e+01
#> It: 52; obj: 1.952e+01; abs: 3.918e-03; rel: 2.008e-04; norm: 1.456e+00; mom: 2.404e-02;
#> best it: 11; best obj: 1.818e+01
#> It: 53; obj: 1.952e+01; abs: 3.650e-03; rel: 1.870e-04; norm: 1.456e+00; mom: 2.266e-02;
#> best it: 11; best obj: 1.818e+01
#> It: 54; obj: 1.953e+01; abs: 3.407e-03; rel: 1.745e-04; norm: 1.456e+00; mom: 2.140e-02;
#> best it: 11; best obj: 1.818e+01
#> It: 55; obj: 1.953e+01; abs: 3.186e-03; rel: 1.632e-04; norm: 1.456e+00; mom: 2.025e-02;
#> best it: 11; best obj: 1.818e+01
#> It: 56; obj: 1.953e+01; abs: 2.986e-03; rel: 1.529e-04; norm: 1.456e+00; mom: 1.918e-02;
#> best it: 11; best obj: 1.818e+01
#> It: 57; obj: 1.954e+01; abs: 2.804e-03; rel: 1.435e-04; norm: 1.456e+00; mom: 1.821e-02;
#> best it: 11; best obj: 1.818e+01
#> It: 58; obj: 1.954e+01; abs: 2.637e-03; rel: 1.350e-04; norm: 1.456e+00; mom: 1.730e-02;
#> best it: 11; best obj: 1.818e+01
#> It: 59; obj: 1.954e+01; abs: 2.484e-03; rel: 1.271e-04; norm: 1.456e+00; mom: 1.647e-02;
#> best it: 11; best obj: 1.818e+01
#> It: 60; obj: 1.954e+01; abs: 2.344e-03; rel: 1.199e-04; norm: 1.456e+00; mom: 1.570e-02;
#> best it: 11; best obj: 1.818e+01
#> It: 61; obj: 1.955e+01; abs: 2.214e-03; rel: 1.133e-04; norm: 1.457e+00; mom: 1.498e-02;
#> best it: 11; best obj: 1.818e+01
#> It: 62; obj: 1.955e+01; abs: 2.095e-03; rel: 1.072e-04; norm: 1.457e+00; mom: 1.431e-02;
#> best it: 11; best obj: 1.818e+01
#> It: 63; obj: 1.955e+01; abs: 1.985e-03; rel: 1.016e-04; norm: 1.457e+00; mom: 1.368e-02;
#> best it: 11; best obj: 1.818e+01
#> It: 64; obj: 1.955e+01; abs: 1.883e-03; rel: 9.634e-05; norm: 1.457e+00; mom: 1.310e-02;
#> best it: 11; best obj: 1.818e+01
#> It: 65; obj: 1.955e+01; abs: 1.789e-03; rel: 9.150e-05; norm: 1.457e+00; mom: 1.255e-02;
#> best it: 11; best obj: 1.818e+01
#> It: 66; obj: 1.956e+01; abs: 1.701e-03; rel: 8.700e-05; norm: 1.457e+00; mom: 1.204e-02;
```

```

#> best it: 11; best obj: 1.818e+01
#> It: 67; obj: 1.956e+01; abs: 1.620e-03; rel: 8.282e-05; norm: 1.457e+00; mom: 1.156e-02;
#> best it: 11; best obj: 1.818e+01
#> It: 68; obj: 1.956e+01; abs: 1.544e-03; rel: 7.893e-05; norm: 1.457e+00; mom: 1.111e-02;
#> best it: 11; best obj: 1.818e+01
#> It: 69; obj: 1.956e+01; abs: 1.473e-03; rel: 7.529e-05; norm: 1.457e+00; mom: 1.069e-02;
#> best it: 11; best obj: 1.818e+01
#> It: 70; obj: 1.956e+01; abs: 1.406e-03; rel: 7.189e-05; norm: 1.457e+00; mom: 1.029e-02;
#> best it: 11; best obj: 1.818e+01
#> It: 71; obj: 1.956e+01; abs: 1.344e-03; rel: 6.872e-05; norm: 1.457e+00; mom: 9.910e-03;
#> best it: 11; best obj: 1.818e+01
#> It: 72; obj: 1.956e+01; abs: 1.286e-03; rel: 6.574e-05; norm: 1.457e+00; mom: 9.554e-03;
#> best it: 11; best obj: 1.818e+01
#> It: 73; obj: 1.957e+01; abs: 1.231e-03; rel: 6.294e-05; norm: 1.457e+00; mom: 9.217e-03;
#> best it: 11; best obj: 1.818e+01
#> It: 74; obj: 1.957e+01; abs: 1.180e-03; rel: 6.032e-05; norm: 1.457e+00; mom: 8.898e-03;
#> best it: 11; best obj: 1.818e+01
#> It: 75; obj: 1.957e+01; abs: 1.132e-03; rel: 5.785e-05; norm: 1.457e+00; mom: 8.595e-03;
#> best it: 11; best obj: 1.818e+01

```

## Iteration 75



```

#> It: 76; obj: 1.957e+01; abs: 1.086e-03; rel: 5.552e-05; norm: 1.457e+00; mom: 8.308e-03;
#> best it: 11; best obj: 1.818e+01
#> It: 77; obj: 1.957e+01; abs: 1.044e-03; rel: 5.333e-05; norm: 1.457e+00; mom: 8.036e-03;
#> best it: 11; best obj: 1.818e+01
#> It: 78; obj: 1.957e+01; abs: 1.003e-03; rel: 5.126e-05; norm: 1.457e+00; mom: 7.776e-03;
#> best it: 11; best obj: 1.818e+01
#> It: 79; obj: 1.957e+01; abs: 9.649e-04; rel: 4.930e-05; norm: 1.457e+00; mom: 7.530e-03;
#> best it: 11; best obj: 1.818e+01
#> It: 80; obj: 1.957e+01; abs: 9.288e-04; rel: 4.746e-05; norm: 1.457e+00; mom: 7.295e-03;
#> best it: 11; best obj: 1.818e+01
#> It: 81; obj: 1.957e+01; abs: 8.946e-04; rel: 4.571e-05; norm: 1.457e+00; mom: 7.071e-03;
#> best it: 11; best obj: 1.818e+01

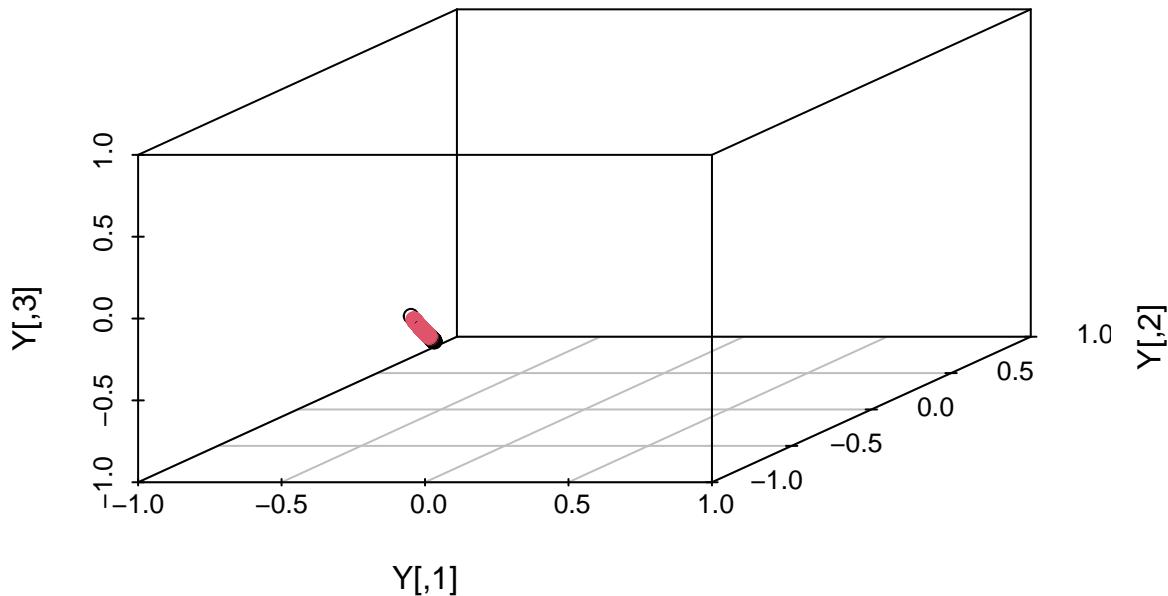
```

```

#> It: 82; obj: 1.957e+01; abs: 8.622e-04; rel: 4.405e-05; norm: 1.457e+00; mom: 6.857e-03;
#> best it: 11; best obj: 1.818e+01
#> It: 83; obj: 1.958e+01; abs: 8.315e-04; rel: 4.248e-05; norm: 1.458e+00; mom: 6.654e-03;
#> best it: 11; best obj: 1.818e+01
#> It: 84; obj: 1.958e+01; abs: 8.023e-04; rel: 4.099e-05; norm: 1.458e+00; mom: 6.459e-03;
#> best it: 11; best obj: 1.818e+01
#> It: 85; obj: 1.958e+01; abs: 7.746e-04; rel: 3.957e-05; norm: 1.458e+00; mom: 6.272e-03;
#> best it: 11; best obj: 1.818e+01
#> It: 86; obj: 1.958e+01; abs: 7.483e-04; rel: 3.822e-05; norm: 1.458e+00; mom: 6.094e-03;
#> best it: 11; best obj: 1.818e+01
#> It: 87; obj: 1.958e+01; abs: 7.232e-04; rel: 3.694e-05; norm: 1.458e+00; mom: 5.923e-03;
#> best it: 11; best obj: 1.818e+01
#> It: 88; obj: 1.958e+01; abs: 6.993e-04; rel: 3.572e-05; norm: 1.458e+00; mom: 5.760e-03;
#> best it: 11; best obj: 1.818e+01
#> It: 89; obj: 1.958e+01; abs: 6.766e-04; rel: 3.456e-05; norm: 1.458e+00; mom: 5.603e-03;
#> best it: 11; best obj: 1.818e+01
#> It: 90; obj: 1.958e+01; abs: 6.549e-04; rel: 3.345e-05; norm: 1.458e+00; mom: 5.452e-03;
#> best it: 11; best obj: 1.818e+01
#> It: 91; obj: 1.958e+01; abs: 6.342e-04; rel: 3.239e-05; norm: 1.458e+00; mom: 5.308e-03;
#> best it: 11; best obj: 1.818e+01
#> It: 92; obj: 1.958e+01; abs: 6.144e-04; rel: 3.138e-05; norm: 1.458e+00; mom: 5.169e-03;
#> best it: 11; best obj: 1.818e+01
#> It: 93; obj: 1.958e+01; abs: 5.955e-04; rel: 3.041e-05; norm: 1.458e+00; mom: 5.036e-03;
#> best it: 11; best obj: 1.818e+01
#> It: 94; obj: 1.958e+01; abs: 5.775e-04; rel: 2.949e-05; norm: 1.458e+00; mom: 4.907e-03;
#> best it: 11; best obj: 1.818e+01
#> It: 95; obj: 1.958e+01; abs: 5.602e-04; rel: 2.861e-05; norm: 1.458e+00; mom: 4.784e-03;
#> best it: 11; best obj: 1.818e+01
#> It: 96; obj: 1.958e+01; abs: 5.436e-04; rel: 2.776e-05; norm: 1.458e+00; mom: 4.665e-03;
#> best it: 11; best obj: 1.818e+01
#> It: 97; obj: 1.958e+01; abs: 5.278e-04; rel: 2.695e-05; norm: 1.458e+00; mom: 4.550e-03;
#> best it: 11; best obj: 1.818e+01
#> It: 98; obj: 1.959e+01; abs: 5.126e-04; rel: 2.617e-05; norm: 1.458e+00; mom: 4.440e-03;
#> best it: 11; best obj: 1.818e+01
#> It: 99; obj: 1.959e+01; abs: 4.980e-04; rel: 2.543e-05; norm: 1.458e+00; mom: 4.334e-03;
#> best it: 11; best obj: 1.818e+01
#> It: 100; obj: 1.959e+01; abs: 4.840e-04; rel: 2.471e-05; norm: 1.458e+00; mom: 4.231e-03;
#> best it: 11; best obj: 1.818e+01

```

## Iteration 100



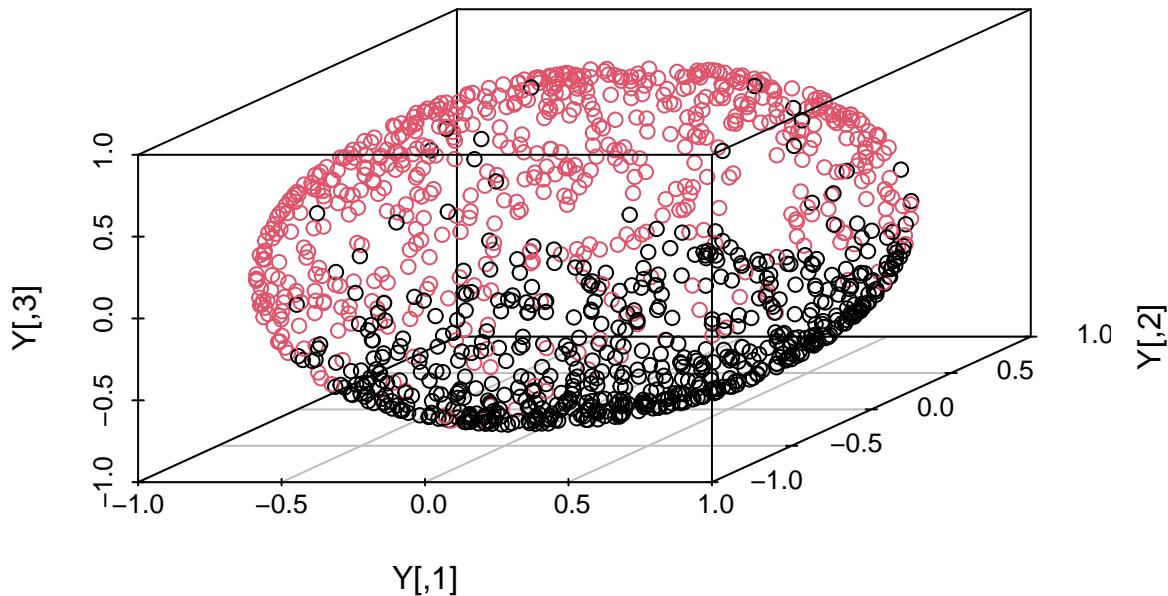
```
#> It: 101; obj: 3.464e+00; abs: 1.612e+01; rel: 8.231e-01; norm: 1.143e-01; mom: 4.132e-03;
#> best it: 101; best obj: 3.464e+00
#> It: 102; obj: 3.360e+00; abs: 1.039e-01; rel: 2.999e-02; norm: 9.498e-02; mom: 3.844e+00;
#> best it: 102; best obj: 3.360e+00
#> It: 103; obj: 3.349e+00; abs: 1.151e-02; rel: 3.424e-03; norm: 7.152e-02; mom: 6.027e+00;
#> best it: 103; best obj: 3.349e+00
#> It: 104; obj: 3.397e+00; abs: 4.789e-02; rel: 1.430e-02; norm: 6.601e-02; mom: 5.058e+00;
#> best it: 103; best obj: 3.349e+00
#> It: 105; obj: 3.436e+00; abs: 3.889e-02; rel: 1.145e-02; norm: 8.095e-02; mom: 5.268e+00;
#> best it: 103; best obj: 3.349e+00
#> It: 106; obj: 3.488e+00; abs: 5.190e-02; rel: 1.511e-02; norm: 8.533e-02; mom: 5.930e+00;
#> best it: 103; best obj: 3.349e+00
#> It: 107; obj: 3.582e+00; abs: 9.389e-02; rel: 2.692e-02; norm: 1.011e-01; mom: 6.415e+00;
#> best it: 103; best obj: 3.349e+00
#> It: 108; obj: 3.683e+00; abs: 1.016e-01; rel: 2.837e-02; norm: 1.113e-01; mom: 8.471e+00;
#> best it: 103; best obj: 3.349e+00
#> It: 109; obj: 3.803e+00; abs: 1.202e-01; rel: 3.262e-02; norm: 1.216e-01; mom: 1.022e+01;
#> best it: 103; best obj: 3.349e+00
#> It: 110; obj: 3.799e+00; abs: 4.689e-03; rel: 1.233e-03; norm: 1.293e-01; mom: 1.127e+01;
#> best it: 103; best obj: 3.349e+00
#> It: 111; obj: 3.798e+00; abs: 3.020e-04; rel: 7.951e-05; norm: 1.297e-01; mom: 1.102e+01;
#> best it: 103; best obj: 3.349e+00
#> It: 112; obj: 3.701e+00; abs: 9.778e-02; rel: 2.574e-02; norm: 1.244e-01; mom: 1.196e+01;
#> best it: 103; best obj: 3.349e+00
#> It: 113; obj: 3.523e+00; abs: 1.774e-01; rel: 4.794e-02; norm: 1.117e-01; mom: 1.100e+01;
#> best it: 103; best obj: 3.349e+00
#> It: 114; obj: 3.408e+00; abs: 1.149e-01; rel: 3.262e-02; norm: 7.817e-02; mom: 9.566e+00;
#> best it: 103; best obj: 3.349e+00
#> It: 115; obj: 3.321e+00; abs: 8.690e-02; rel: 2.550e-02; norm: 7.210e-02; mom: 7.692e+00;
#> best it: 115; best obj: 3.321e+00
#> It: 116; obj: 3.249e+00; abs: 7.206e-02; rel: 2.170e-02; norm: 7.139e-02; mom: 6.945e+00;
```

```

#> best it: 116; best obj: 3.249e+00
#> It: 117; obj: 3.198e+00; abs: 5.152e-02; rel: 1.586e-02; norm: 7.763e-02; mom: 6.075e+00;
#> best it: 117; best obj: 3.198e+00
#> It: 118; obj: 3.172e+00; abs: 2.591e-02; rel: 8.101e-03; norm: 7.086e-02; mom: 6.427e+00;
#> best it: 118; best obj: 3.172e+00
#> It: 119; obj: 3.141e+00; abs: 3.066e-02; rel: 9.666e-03; norm: 6.949e-02; mom: 5.463e+00;
#> best it: 119; best obj: 3.141e+00
#> It: 120; obj: 3.103e+00; abs: 3.785e-02; rel: 1.205e-02; norm: 6.337e-02; mom: 5.607e+00;
#> best it: 120; best obj: 3.103e+00
#> It: 121; obj: 3.062e+00; abs: 4.163e-02; rel: 1.341e-02; norm: 6.469e-02; mom: 4.604e+00;
#> best it: 121; best obj: 3.062e+00
#> It: 122; obj: 3.041e+00; abs: 2.117e-02; rel: 6.915e-03; norm: 6.601e-02; mom: 4.863e+00;
#> best it: 122; best obj: 3.041e+00
#> It: 123; obj: 3.033e+00; abs: 7.554e-03; rel: 2.485e-03; norm: 6.195e-02; mom: 4.397e+00;
#> best it: 123; best obj: 3.033e+00
#> It: 124; obj: 3.017e+00; abs: 1.631e-02; rel: 5.378e-03; norm: 6.256e-02; mom: 4.220e+00;
#> best it: 124; best obj: 3.017e+00
#> It: 125; obj: 2.995e+00; abs: 2.207e-02; rel: 7.317e-03; norm: 5.596e-02; mom: 3.984e+00;
#> best it: 125; best obj: 2.995e+00

```

## Iteration 125



```

#> It: 126; obj: 2.981e+00; abs: 1.353e-02; rel: 4.519e-03; norm: 5.784e-02; mom: 3.849e+00;
#> best it: 126; best obj: 2.981e+00
#> It: 127; obj: 2.979e+00; abs: 2.370e-03; rel: 7.951e-04; norm: 6.115e-02; mom: 3.405e+00;
#> best it: 127; best obj: 2.979e+00
#> It: 128; obj: 2.986e+00; abs: 7.345e-03; rel: 2.466e-03; norm: 6.043e-02; mom: 3.575e+00;
#> best it: 127; best obj: 2.979e+00
#> It: 129; obj: 2.980e+00; abs: 6.510e-03; rel: 2.180e-03; norm: 5.639e-02; mom: 3.495e+00;
#> best it: 127; best obj: 2.979e+00
#> It: 130; obj: 2.962e+00; abs: 1.764e-02; rel: 5.921e-03; norm: 5.603e-02; mom: 3.607e+00;
#> best it: 130; best obj: 2.962e+00
#> It: 131; obj: 2.947e+00; abs: 1.480e-02; rel: 4.998e-03; norm: 5.726e-02; mom: 3.190e+00;
#> best it: 131; best obj: 2.947e+00

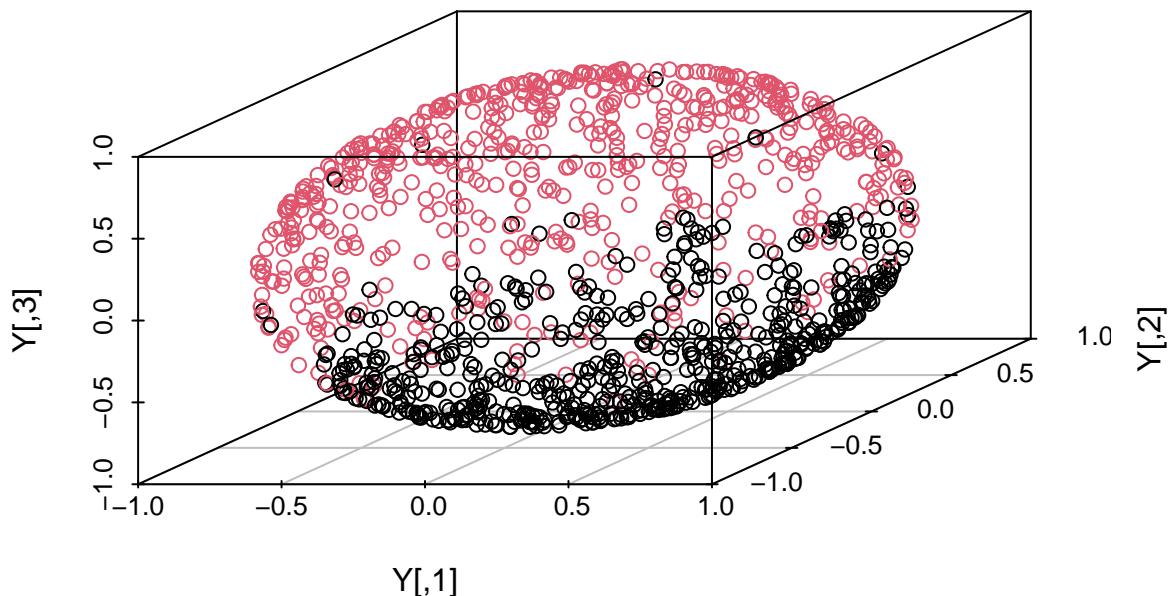
```

```

#> It: 132; obj: 2.951e+00; abs: 3.986e-03; rel: 1.352e-03; norm: 5.836e-02; mom: 3.539e+00;
#> best it: 131; best obj: 2.947e+00
#> It: 133; obj: 2.947e+00; abs: 4.203e-03; rel: 1.424e-03; norm: 5.607e-02; mom: 2.969e+00;
#> best it: 133; best obj: 2.947e+00
#> It: 134; obj: 2.937e+00; abs: 1.004e-02; rel: 3.407e-03; norm: 5.716e-02; mom: 3.173e+00;
#> best it: 134; best obj: 2.937e+00
#> It: 135; obj: 2.928e+00; abs: 8.571e-03; rel: 2.918e-03; norm: 5.408e-02; mom: 3.189e+00;
#> best it: 135; best obj: 2.928e+00
#> It: 136; obj: 2.928e+00; abs: 3.519e-04; rel: 1.202e-04; norm: 5.723e-02; mom: 2.829e+00;
#> best it: 136; best obj: 2.928e+00
#> It: 137; obj: 2.927e+00; abs: 5.961e-04; rel: 2.036e-04; norm: 5.471e-02; mom: 2.953e+00;
#> best it: 137; best obj: 2.927e+00
#> It: 138; obj: 2.924e+00; abs: 3.704e-03; rel: 1.265e-03; norm: 5.364e-02; mom: 3.005e+00;
#> best it: 138; best obj: 2.924e+00
#> It: 139; obj: 2.920e+00; abs: 3.312e-03; rel: 1.133e-03; norm: 5.532e-02; mom: 2.937e+00;
#> best it: 139; best obj: 2.920e+00
#> It: 140; obj: 2.917e+00; abs: 3.282e-03; rel: 1.124e-03; norm: 5.366e-02; mom: 2.794e+00;
#> best it: 140; best obj: 2.917e+00
#> It: 141; obj: 2.915e+00; abs: 2.321e-03; rel: 7.957e-04; norm: 5.473e-02; mom: 2.648e+00;
#> best it: 141; best obj: 2.915e+00
#> It: 142; obj: 2.919e+00; abs: 4.568e-03; rel: 1.567e-03; norm: 5.583e-02; mom: 2.887e+00;
#> best it: 141; best obj: 2.915e+00
#> It: 143; obj: 2.918e+00; abs: 7.605e-04; rel: 2.605e-04; norm: 5.584e-02; mom: 2.914e+00;
#> best it: 141; best obj: 2.915e+00
#> It: 144; obj: 2.907e+00; abs: 1.099e-02; rel: 3.765e-03; norm: 5.193e-02; mom: 3.103e+00;
#> best it: 144; best obj: 2.907e+00
#> It: 145; obj: 2.901e+00; abs: 6.396e-03; rel: 2.200e-03; norm: 5.325e-02; mom: 2.622e+00;
#> best it: 145; best obj: 2.901e+00
#> It: 146; obj: 2.908e+00; abs: 6.543e-03; rel: 2.255e-03; norm: 5.649e-02; mom: 2.565e+00;
#> best it: 145; best obj: 2.901e+00
#> It: 147; obj: 2.909e+00; abs: 1.134e-03; rel: 3.899e-04; norm: 5.517e-02; mom: 2.602e+00;
#> best it: 145; best obj: 2.901e+00
#> It: 148; obj: 2.902e+00; abs: 7.113e-03; rel: 2.445e-03; norm: 5.277e-02; mom: 2.834e+00;
#> best it: 145; best obj: 2.901e+00
#> It: 149; obj: 2.901e+00; abs: 6.703e-04; rel: 2.310e-04; norm: 5.382e-02; mom: 2.647e+00;
#> best it: 149; best obj: 2.901e+00
#> It: 150; obj: 2.904e+00; abs: 2.645e-03; rel: 9.117e-04; norm: 5.743e-02; mom: 2.823e+00;
#> best it: 149; best obj: 2.901e+00

```

## Iteration 150



```

#> It: 151; obj: 2.906e+00; abs: 2.803e-03; rel: 9.655e-04; norm: 5.448e-02; mom: 2.812e+00;
#> best it: 149; best obj: 2.901e+00
#> It: 152; obj: 2.907e+00; abs: 7.098e-04; rel: 2.442e-04; norm: 5.524e-02; mom: 2.573e+00;
#> best it: 149; best obj: 2.901e+00
#> It: 153; obj: 2.905e+00; abs: 1.944e-03; rel: 6.685e-04; norm: 5.168e-02; mom: 2.897e+00;
#> best it: 149; best obj: 2.901e+00
#> It: 154; obj: 2.897e+00; abs: 8.109e-03; rel: 2.791e-03; norm: 5.331e-02; mom: 2.686e+00;
#> best it: 154; best obj: 2.897e+00
#> It: 155; obj: 2.899e+00; abs: 1.955e-03; rel: 6.747e-04; norm: 5.508e-02; mom: 2.650e+00;
#> best it: 154; best obj: 2.897e+00
#> It: 156; obj: 2.901e+00; abs: 1.652e-03; rel: 5.698e-04; norm: 5.415e-02; mom: 2.751e+00;
#> best it: 154; best obj: 2.897e+00
#> It: 157; obj: 2.893e+00; abs: 8.132e-03; rel: 2.804e-03; norm: 5.398e-02; mom: 2.706e+00;
#> best it: 157; best obj: 2.893e+00
#> It: 158; obj: 2.892e+00; abs: 4.848e-04; rel: 1.676e-04; norm: 5.257e-02; mom: 2.651e+00;
#> best it: 158; best obj: 2.892e+00
#> It: 159; obj: 2.887e+00; abs: 4.783e-03; rel: 1.654e-03; norm: 5.179e-02; mom: 2.492e+00;
#> best it: 159; best obj: 2.887e+00
#> It: 160; obj: 2.895e+00; abs: 7.493e-03; rel: 2.595e-03; norm: 5.424e-02; mom: 2.664e+00;
#> best it: 159; best obj: 2.887e+00
#> It: 161; obj: 2.896e+00; abs: 1.473e-03; rel: 5.088e-04; norm: 5.269e-02; mom: 2.511e+00;
#> best it: 159; best obj: 2.887e+00
#> It: 162; obj: 2.893e+00; abs: 3.402e-03; rel: 1.175e-03; norm: 5.336e-02; mom: 2.466e+00;
#> best it: 159; best obj: 2.887e+00
#> It: 163; obj: 2.897e+00; abs: 4.049e-03; rel: 1.400e-03; norm: 5.667e-02; mom: 2.702e+00;
#> best it: 159; best obj: 2.887e+00
#> It: 164; obj: 2.903e+00; abs: 6.319e-03; rel: 2.181e-03; norm: 5.424e-02; mom: 2.768e+00;
#> best it: 159; best obj: 2.887e+00
#> It: 165; obj: 2.894e+00; abs: 9.424e-03; rel: 3.246e-03; norm: 5.420e-02; mom: 2.659e+00;
#> best it: 159; best obj: 2.887e+00
#> It: 166; obj: 2.892e+00; abs: 1.964e-03; rel: 6.785e-04; norm: 5.318e-02; mom: 2.775e+00;

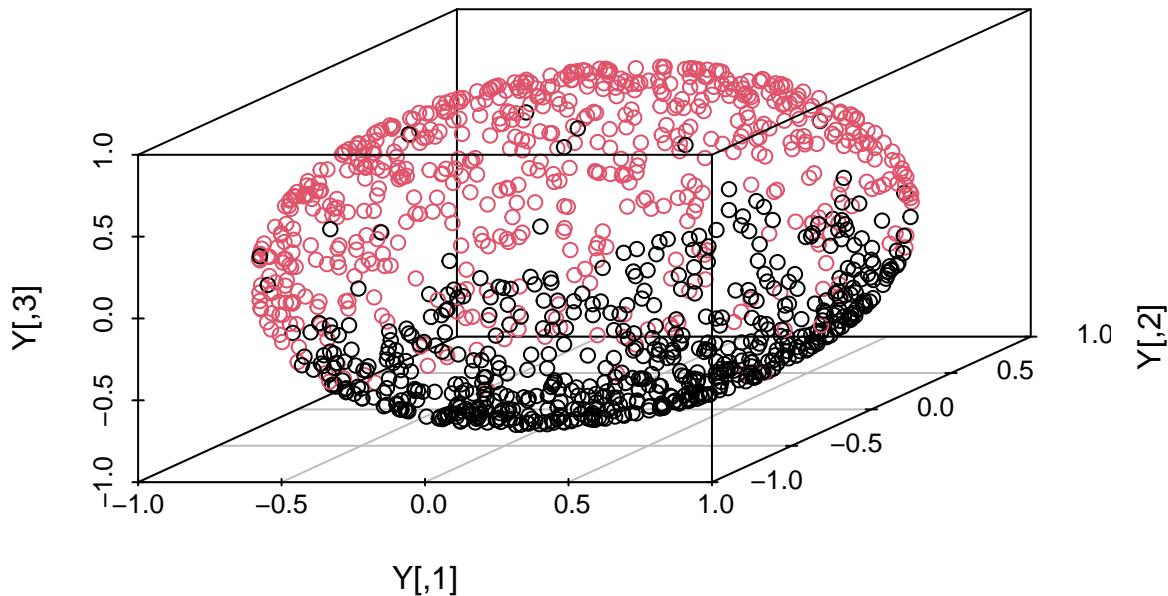
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#> best it: 159; best obj: 2.887e+00
#> It: 167; obj: 2.893e+00; abs: 1.080e-03; rel: 3.736e-04; norm: 5.621e-02; mom: 2.755e+00;
#> best it: 159; best obj: 2.887e+00
#> It: 168; obj: 2.892e+00; abs: 7.238e-04; rel: 2.502e-04; norm: 5.290e-02; mom: 2.646e+00;
#> best it: 159; best obj: 2.887e+00
#> It: 169; obj: 2.891e+00; abs: 1.705e-03; rel: 5.896e-04; norm: 5.422e-02; mom: 2.630e+00;
#> best it: 159; best obj: 2.887e+00
#> It: 170; obj: 2.893e+00; abs: 2.389e-03; rel: 8.266e-04; norm: 5.348e-02; mom: 2.611e+00;
#> best it: 159; best obj: 2.887e+00
#> It: 171; obj: 2.890e+00; abs: 2.437e-03; rel: 8.425e-04; norm: 5.345e-02; mom: 2.559e+00;
#> best it: 159; best obj: 2.887e+00
#> It: 172; obj: 2.888e+00; abs: 2.295e-03; rel: 7.939e-04; norm: 5.568e-02; mom: 2.312e+00;
#> best it: 159; best obj: 2.887e+00
#> It: 173; obj: 2.895e+00; abs: 6.900e-03; rel: 2.389e-03; norm: 5.387e-02; mom: 2.610e+00;
#> best it: 159; best obj: 2.887e+00
#> It: 174; obj: 2.898e+00; abs: 2.941e-03; rel: 1.016e-03; norm: 5.430e-02; mom: 2.588e+00;
#> best it: 159; best obj: 2.887e+00
#> It: 175; obj: 2.894e+00; abs: 4.447e-03; rel: 1.534e-03; norm: 5.295e-02; mom: 2.919e+00;
#> best it: 159; best obj: 2.887e+00

```

## Iteration 175



```

#> It: 176; obj: 2.889e+00; abs: 4.152e-03; rel: 1.435e-03; norm: 5.589e-02; mom: 2.455e+00;
#> best it: 159; best obj: 2.887e+00
#> It: 177; obj: 2.893e+00; abs: 3.835e-03; rel: 1.327e-03; norm: 5.333e-02; mom: 2.857e+00;
#> best it: 159; best obj: 2.887e+00
#> It: 178; obj: 2.891e+00; abs: 2.359e-03; rel: 8.155e-04; norm: 5.387e-02; mom: 2.485e+00;
#> best it: 159; best obj: 2.887e+00
#> It: 179; obj: 2.888e+00; abs: 2.740e-03; rel: 9.480e-04; norm: 5.190e-02; mom: 2.651e+00;
#> best it: 159; best obj: 2.887e+00
#> It: 180; obj: 2.880e+00; abs: 8.556e-03; rel: 2.962e-03; norm: 5.474e-02; mom: 2.315e+00;
#> best it: 180; best obj: 2.880e+00
#> It: 181; obj: 2.883e+00; abs: 3.627e-03; rel: 1.260e-03; norm: 5.244e-02; mom: 2.699e+00;
#> best it: 180; best obj: 2.880e+00

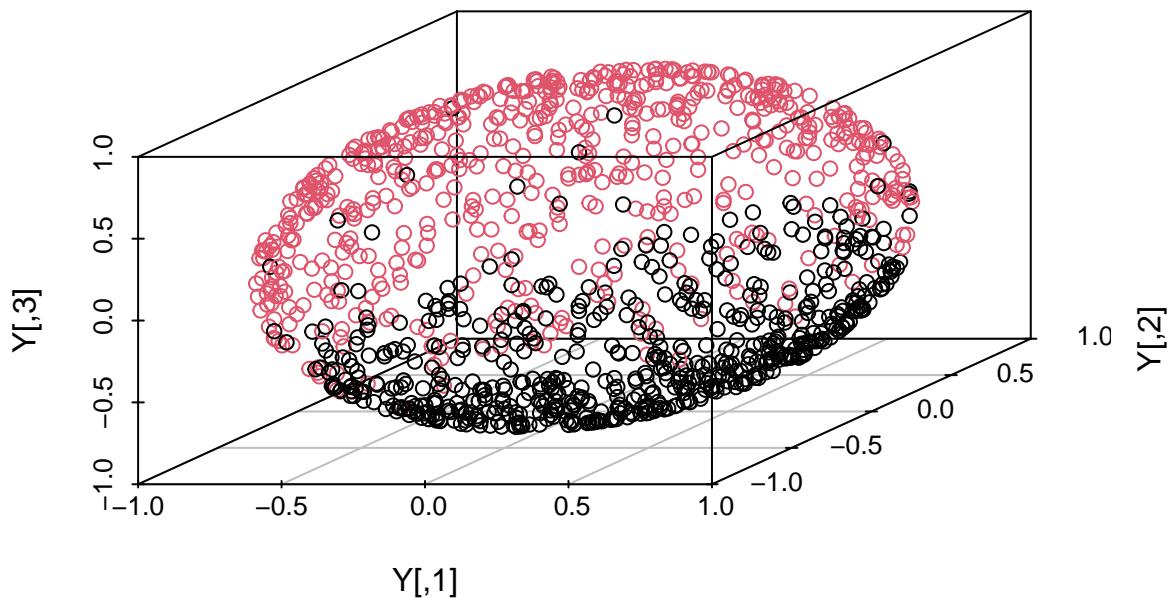
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#> It: 182; obj: 2.885e+00; abs: 1.782e-03; rel: 6.180e-04; norm: 5.463e-02; mom: 2.322e+00;
#> best it: 180; best obj: 2.880e+00
#> It: 183; obj: 2.884e+00; abs: 1.092e-03; rel: 3.784e-04; norm: 5.324e-02; mom: 2.395e+00;
#> best it: 180; best obj: 2.880e+00
#> It: 184; obj: 2.879e+00; abs: 4.500e-03; rel: 1.560e-03; norm: 5.201e-02; mom: 2.386e+00;
#> best it: 184; best obj: 2.879e+00
#> It: 185; obj: 2.878e+00; abs: 1.020e-03; rel: 3.544e-04; norm: 5.536e-02; mom: 2.307e+00;
#> best it: 185; best obj: 2.878e+00
#> It: 186; obj: 2.885e+00; abs: 6.576e-03; rel: 2.285e-03; norm: 5.449e-02; mom: 2.565e+00;
#> best it: 185; best obj: 2.878e+00
#> It: 187; obj: 2.886e+00; abs: 9.060e-04; rel: 3.140e-04; norm: 5.219e-02; mom: 2.620e+00;
#> best it: 185; best obj: 2.878e+00
#> It: 188; obj: 2.879e+00; abs: 6.375e-03; rel: 2.209e-03; norm: 5.323e-02; mom: 2.243e+00;
#> best it: 185; best obj: 2.878e+00
#> It: 189; obj: 2.873e+00; abs: 6.922e-03; rel: 2.404e-03; norm: 5.377e-02; mom: 2.493e+00;
#> best it: 189; best obj: 2.873e+00
#> It: 190; obj: 2.873e+00; abs: 2.102e-04; rel: 7.317e-05; norm: 5.328e-02; mom: 2.611e+00;
#> best it: 189; best obj: 2.873e+00
#> It: 191; obj: 2.879e+00; abs: 6.248e-03; rel: 2.175e-03; norm: 5.484e-02; mom: 2.675e+00;
#> best it: 189; best obj: 2.873e+00
#> It: 192; obj: 2.880e+00; abs: 1.422e-03; rel: 4.941e-04; norm: 5.293e-02; mom: 2.504e+00;
#> best it: 189; best obj: 2.873e+00
#> It: 193; obj: 2.884e+00; abs: 3.336e-03; rel: 1.158e-03; norm: 5.262e-02; mom: 2.446e+00;
#> best it: 189; best obj: 2.873e+00
#> It: 194; obj: 2.880e+00; abs: 4.068e-03; rel: 1.411e-03; norm: 5.388e-02; mom: 2.207e+00;
#> best it: 189; best obj: 2.873e+00
#> It: 195; obj: 2.877e+00; abs: 2.385e-03; rel: 8.281e-04; norm: 5.281e-02; mom: 2.641e+00;
#> best it: 189; best obj: 2.873e+00
#> It: 196; obj: 2.874e+00; abs: 3.348e-03; rel: 1.163e-03; norm: 5.464e-02; mom: 2.484e+00;
#> best it: 189; best obj: 2.873e+00
#> It: 197; obj: 2.875e+00; abs: 5.629e-04; rel: 1.959e-04; norm: 5.462e-02; mom: 2.456e+00;
#> best it: 189; best obj: 2.873e+00
#> It: 198; obj: 2.879e+00; abs: 4.273e-03; rel: 1.487e-03; norm: 5.338e-02; mom: 2.600e+00;
#> best it: 189; best obj: 2.873e+00
#> It: 199; obj: 2.884e+00; abs: 5.541e-03; rel: 1.925e-03; norm: 5.431e-02; mom: 2.283e+00;
#> best it: 189; best obj: 2.873e+00
#> It: 200; obj: 2.881e+00; abs: 3.053e-03; rel: 1.058e-03; norm: 5.181e-02; mom: 2.628e+00;
#> best it: 189; best obj: 2.873e+00

```

## Iteration 200



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#> It: 201; obj: 2.877e+00; abs: 4.503e-03; rel: 1.563e-03; norm: 5.335e-02; mom: 2.273e+00;
#> best it: 189; best obj: 2.873e+00
#> It: 202; obj: 2.875e+00; abs: 2.146e-03; rel: 7.461e-04; norm: 5.342e-02; mom: 2.383e+00;
#> best it: 189; best obj: 2.873e+00
#> It: 203; obj: 2.872e+00; abs: 2.216e-03; rel: 7.709e-04; norm: 5.431e-02; mom: 2.570e+00;
#> best it: 203; best obj: 2.872e+00
#> It: 204; obj: 2.882e+00; abs: 9.340e-03; rel: 3.252e-03; norm: 5.496e-02; mom: 2.391e+00;
#> best it: 203; best obj: 2.872e+00
#> It: 205; obj: 2.882e+00; abs: 2.427e-04; rel: 8.422e-05; norm: 5.257e-02; mom: 2.718e+00;
#> best it: 203; best obj: 2.872e+00
#> It: 206; obj: 2.877e+00; abs: 4.488e-03; rel: 1.558e-03; norm: 5.310e-02; mom: 2.418e+00;
#> best it: 203; best obj: 2.872e+00
#> It: 207; obj: 2.881e+00; abs: 3.475e-03; rel: 1.208e-03; norm: 5.447e-02; mom: 2.677e+00;
#> best it: 203; best obj: 2.872e+00
#> It: 208; obj: 2.879e+00; abs: 1.393e-03; rel: 4.837e-04; norm: 5.491e-02; mom: 2.482e+00;
#> best it: 203; best obj: 2.872e+00
#> It: 209; obj: 2.879e+00; abs: 3.384e-06; rel: 1.175e-06; norm: 5.353e-02; mom: 2.509e+00;
#> best it: 203; best obj: 2.872e+00
#> It: 210; obj: 2.876e+00; abs: 3.503e-03; rel: 1.217e-03; norm: 5.370e-02; mom: 2.545e+00;
#> best it: 203; best obj: 2.872e+00
#> It: 211; obj: 2.873e+00; abs: 3.043e-03; rel: 1.058e-03; norm: 5.355e-02; mom: 2.224e+00;
#> best it: 203; best obj: 2.872e+00
#> It: 212; obj: 2.872e+00; abs: 5.461e-04; rel: 1.901e-04; norm: 5.340e-02; mom: 2.372e+00;
#> best it: 212; best obj: 2.872e+00
#> It: 213; obj: 2.874e+00; abs: 1.473e-03; rel: 5.129e-04; norm: 5.353e-02; mom: 2.485e+00;
#> best it: 212; best obj: 2.872e+00
#> It: 214; obj: 2.884e+00; abs: 1.046e-02; rel: 3.639e-03; norm: 5.476e-02; mom: 2.336e+00;
#> best it: 212; best obj: 2.872e+00
#> It: 215; obj: 2.881e+00; abs: 2.533e-03; rel: 8.784e-04; norm: 5.299e-02; mom: 2.715e+00;
#> best it: 212; best obj: 2.872e+00
#> It: 216; obj: 2.874e+00; abs: 7.710e-03; rel: 2.676e-03; norm: 5.400e-02; mom: 2.368e+00;

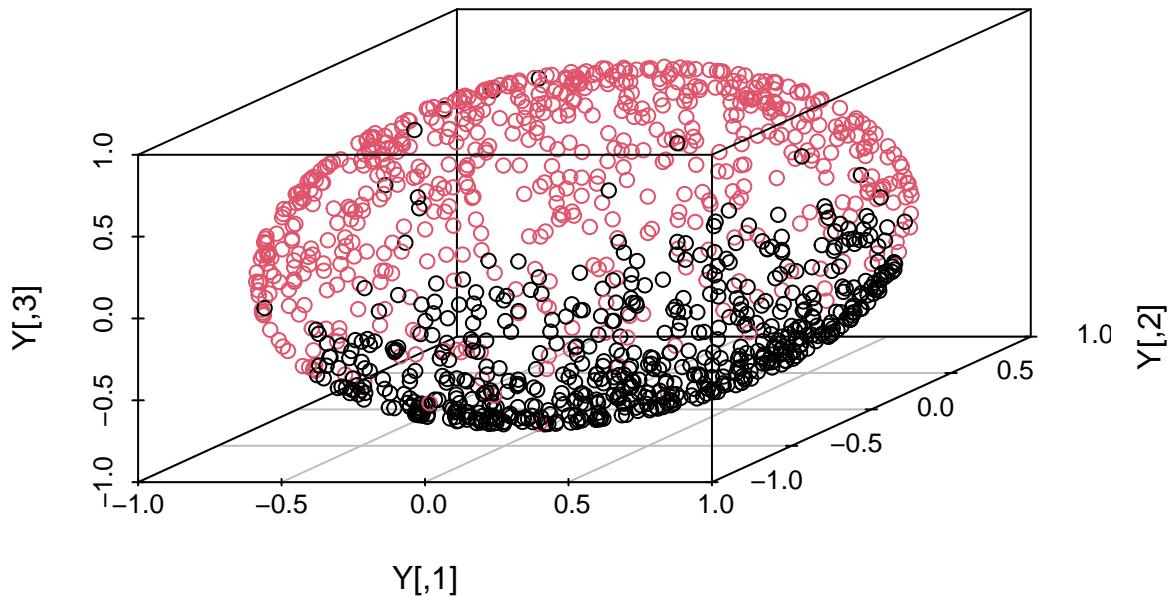
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#> best it: 212; best obj: 2.872e+00
#> It: 217; obj: 2.873e+00; abs: 7.610e-04; rel: 2.648e-04; norm: 5.401e-02; mom: 2.814e+00;
#> best it: 212; best obj: 2.872e+00
#> It: 218; obj: 2.876e+00; abs: 2.749e-03; rel: 9.567e-04; norm: 5.479e-02; mom: 2.471e+00;
#> best it: 212; best obj: 2.872e+00
#> It: 219; obj: 2.879e+00; abs: 3.152e-03; rel: 1.096e-03; norm: 5.450e-02; mom: 2.596e+00;
#> best it: 212; best obj: 2.872e+00
#> It: 220; obj: 2.881e+00; abs: 1.938e-03; rel: 6.732e-04; norm: 5.494e-02; mom: 2.746e+00;
#> best it: 212; best obj: 2.872e+00
#> It: 221; obj: 2.877e+00; abs: 3.792e-03; rel: 1.316e-03; norm: 5.291e-02; mom: 2.539e+00;
#> best it: 212; best obj: 2.872e+00
#> It: 222; obj: 2.874e+00; abs: 3.033e-03; rel: 1.054e-03; norm: 5.254e-02; mom: 2.552e+00;
#> best it: 212; best obj: 2.872e+00
#> It: 223; obj: 2.881e+00; abs: 6.835e-03; rel: 2.378e-03; norm: 5.394e-02; mom: 2.334e+00;
#> best it: 212; best obj: 2.872e+00
#> It: 224; obj: 2.885e+00; abs: 4.069e-03; rel: 1.413e-03; norm: 5.514e-02; mom: 2.586e+00;
#> best it: 212; best obj: 2.872e+00
#> It: 225; obj: 2.884e+00; abs: 9.848e-04; rel: 3.414e-04; norm: 5.421e-02; mom: 2.726e+00;
#> best it: 212; best obj: 2.872e+00

```

## Iteration 225



```

#> It: 226; obj: 2.879e+00; abs: 5.137e-03; rel: 1.781e-03; norm: 5.531e-02; mom: 2.425e+00;
#> best it: 212; best obj: 2.872e+00
#> It: 227; obj: 2.876e+00; abs: 3.232e-03; rel: 1.123e-03; norm: 5.327e-02; mom: 2.883e+00;
#> best it: 212; best obj: 2.872e+00
#> It: 228; obj: 2.877e+00; abs: 1.487e-03; rel: 5.172e-04; norm: 5.470e-02; mom: 2.514e+00;
#> best it: 212; best obj: 2.872e+00
#> It: 229; obj: 2.878e+00; abs: 1.347e-03; rel: 4.683e-04; norm: 5.312e-02; mom: 2.592e+00;
#> best it: 212; best obj: 2.872e+00
#> It: 230; obj: 2.876e+00; abs: 2.195e-03; rel: 7.625e-04; norm: 5.333e-02; mom: 2.311e+00;
#> best it: 212; best obj: 2.872e+00
#> It: 231; obj: 2.882e+00; abs: 5.730e-03; rel: 1.992e-03; norm: 5.570e-02; mom: 2.632e+00;
#> best it: 212; best obj: 2.872e+00

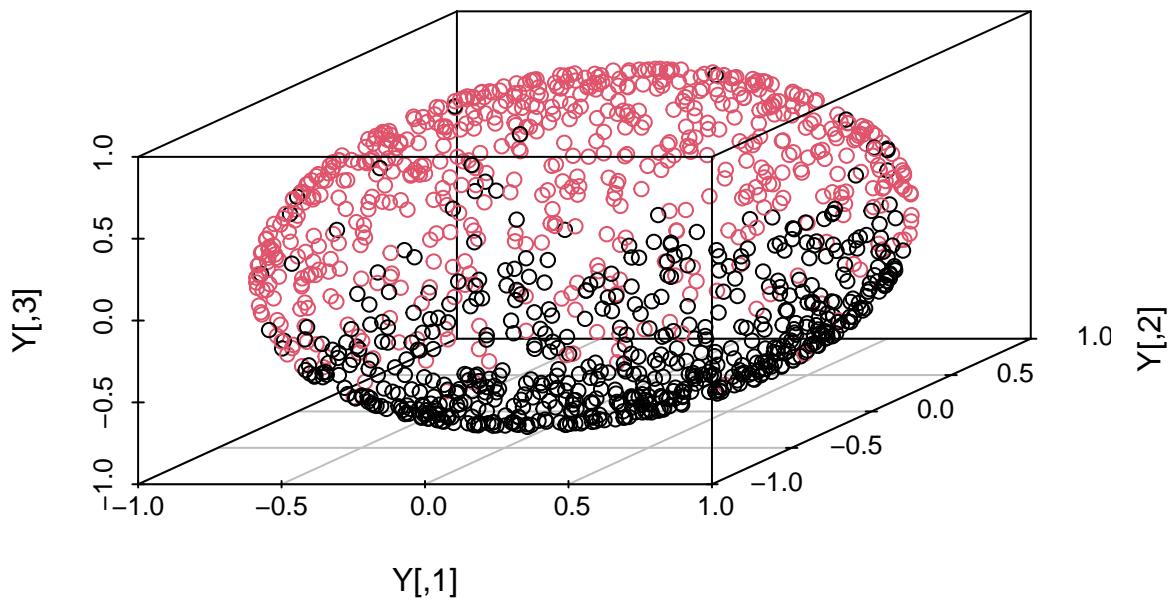
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#> It: 232; obj: 2.880e+00; abs: 1.828e-03; rel: 6.344e-04; norm: 5.422e-02; mom: 2.685e+00;
#> best it: 212; best obj: 2.872e+00
#> It: 233; obj: 2.874e+00; abs: 5.961e-03; rel: 2.070e-03; norm: 5.398e-02; mom: 2.860e+00;
#> best it: 212; best obj: 2.872e+00
#> It: 234; obj: 2.872e+00; abs: 2.386e-03; rel: 8.300e-04; norm: 5.484e-02; mom: 2.312e+00;
#> best it: 234; best obj: 2.872e+00
#> It: 235; obj: 2.871e+00; abs: 7.613e-04; rel: 2.651e-04; norm: 5.229e-02; mom: 2.424e+00;
#> best it: 235; best obj: 2.871e+00
#> It: 236; obj: 2.873e+00; abs: 1.601e-03; rel: 5.575e-04; norm: 5.431e-02; mom: 2.307e+00;
#> best it: 235; best obj: 2.871e+00
#> It: 237; obj: 2.879e+00; abs: 6.369e-03; rel: 2.217e-03; norm: 5.450e-02; mom: 2.234e+00;
#> best it: 235; best obj: 2.871e+00
#> It: 238; obj: 2.883e+00; abs: 3.670e-03; rel: 1.275e-03; norm: 5.297e-02; mom: 2.650e+00;
#> best it: 235; best obj: 2.871e+00
#> It: 239; obj: 2.874e+00; abs: 8.536e-03; rel: 2.961e-03; norm: 5.267e-02; mom: 2.329e+00;
#> best it: 235; best obj: 2.871e+00
#> It: 240; obj: 2.865e+00; abs: 8.744e-03; rel: 3.042e-03; norm: 5.176e-02; mom: 2.532e+00;
#> best it: 240; best obj: 2.865e+00
#> It: 241; obj: 2.873e+00; abs: 7.251e-03; rel: 2.531e-03; norm: 5.521e-02; mom: 2.368e+00;
#> best it: 240; best obj: 2.865e+00
#> It: 242; obj: 2.879e+00; abs: 6.684e-03; rel: 2.327e-03; norm: 5.482e-02; mom: 2.666e+00;
#> best it: 240; best obj: 2.865e+00
#> It: 243; obj: 2.877e+00; abs: 2.455e-03; rel: 8.528e-04; norm: 5.266e-02; mom: 2.566e+00;
#> best it: 240; best obj: 2.865e+00
#> It: 244; obj: 2.874e+00; abs: 2.648e-03; rel: 9.206e-04; norm: 5.403e-02; mom: 2.531e+00;
#> best it: 240; best obj: 2.865e+00
#> It: 245; obj: 2.871e+00; abs: 3.394e-03; rel: 1.181e-03; norm: 5.320e-02; mom: 2.487e+00;
#> best it: 240; best obj: 2.865e+00
#> It: 246; obj: 2.872e+00; abs: 1.238e-03; rel: 4.313e-04; norm: 5.337e-02; mom: 2.431e+00;
#> best it: 240; best obj: 2.865e+00
#> It: 247; obj: 2.870e+00; abs: 1.780e-03; rel: 6.197e-04; norm: 5.334e-02; mom: 2.461e+00;
#> best it: 240; best obj: 2.865e+00
#> It: 248; obj: 2.887e+00; abs: 1.687e-02; rel: 5.877e-03; norm: 5.427e-02; mom: 4.036e+00;
#> best it: 240; best obj: 2.865e+00
#> It: 249; obj: 2.913e+00; abs: 2.565e-02; rel: 8.884e-03; norm: 5.714e-02; mom: 4.108e+00;
#> best it: 240; best obj: 2.865e+00
#> It: 250; obj: 2.931e+00; abs: 1.831e-02; rel: 6.287e-03; norm: 5.220e-02; mom: 4.657e+00;
#> best it: 240; best obj: 2.865e+00

```

## Iteration 250



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#> It: 251; obj: 2.947e+00; abs: 1.601e-02; rel: 5.463e-03; norm: 5.411e-02; mom: 4.295e+00;
#> best it: 240; best obj: 2.865e+00
#> It: 252; obj: 2.948e+00; abs: 8.344e-04; rel: 2.831e-04; norm: 5.525e-02; mom: 4.665e+00;
#> best it: 240; best obj: 2.865e+00
#> It: 253; obj: 2.950e+00; abs: 1.765e-03; rel: 5.986e-04; norm: 5.626e-02; mom: 5.247e+00;
#> best it: 240; best obj: 2.865e+00
#> It: 254; obj: 2.975e+00; abs: 2.507e-02; rel: 8.501e-03; norm: 5.640e-02; mom: 5.369e+00;
#> best it: 240; best obj: 2.865e+00
#> It: 255; obj: 2.998e+00; abs: 2.366e-02; rel: 7.955e-03; norm: 5.724e-02; mom: 5.646e+00;
#> best it: 240; best obj: 2.865e+00
#> It: 256; obj: 3.013e+00; abs: 1.463e-02; rel: 4.880e-03; norm: 5.303e-02; mom: 5.928e+00;
#> best it: 240; best obj: 2.865e+00
#> It: 257; obj: 3.031e+00; abs: 1.753e-02; rel: 5.817e-03; norm: 5.481e-02; mom: 5.661e+00;
#> best it: 240; best obj: 2.865e+00
#> It: 258; obj: 3.035e+00; abs: 4.333e-03; rel: 1.430e-03; norm: 5.750e-02; mom: 6.228e+00;
#> best it: 240; best obj: 2.865e+00
#> It: 259; obj: 3.051e+00; abs: 1.577e-02; rel: 5.197e-03; norm: 5.648e-02; mom: 6.766e+00;
#> best it: 240; best obj: 2.865e+00
#> It: 260; obj: 3.077e+00; abs: 2.604e-02; rel: 8.536e-03; norm: 5.928e-02; mom: 6.416e+00;
#> best it: 240; best obj: 2.865e+00
#> It: 261; obj: 3.106e+00; abs: 2.901e-02; rel: 9.427e-03; norm: 5.935e-02; mom: 7.197e+00;
#> best it: 240; best obj: 2.865e+00
#> It: 262; obj: 3.119e+00; abs: 1.378e-02; rel: 4.437e-03; norm: 5.750e-02; mom: 7.514e+00;
#> best it: 240; best obj: 2.865e+00
#> It: 263; obj: 3.132e+00; abs: 1.272e-02; rel: 4.078e-03; norm: 6.102e-02; mom: 7.359e+00;
#> best it: 240; best obj: 2.865e+00
#> It: 264; obj: 3.141e+00; abs: 8.418e-03; rel: 2.688e-03; norm: 5.947e-02; mom: 7.789e+00;
#> best it: 240; best obj: 2.865e+00
#> It: 265; obj: 3.161e+00; abs: 2.056e-02; rel: 6.547e-03; norm: 5.827e-02; mom: 7.938e+00;
#> best it: 240; best obj: 2.865e+00
#> It: 266; obj: 3.177e+00; abs: 1.570e-02; rel: 4.967e-03; norm: 6.316e-02; mom: 7.726e+00;

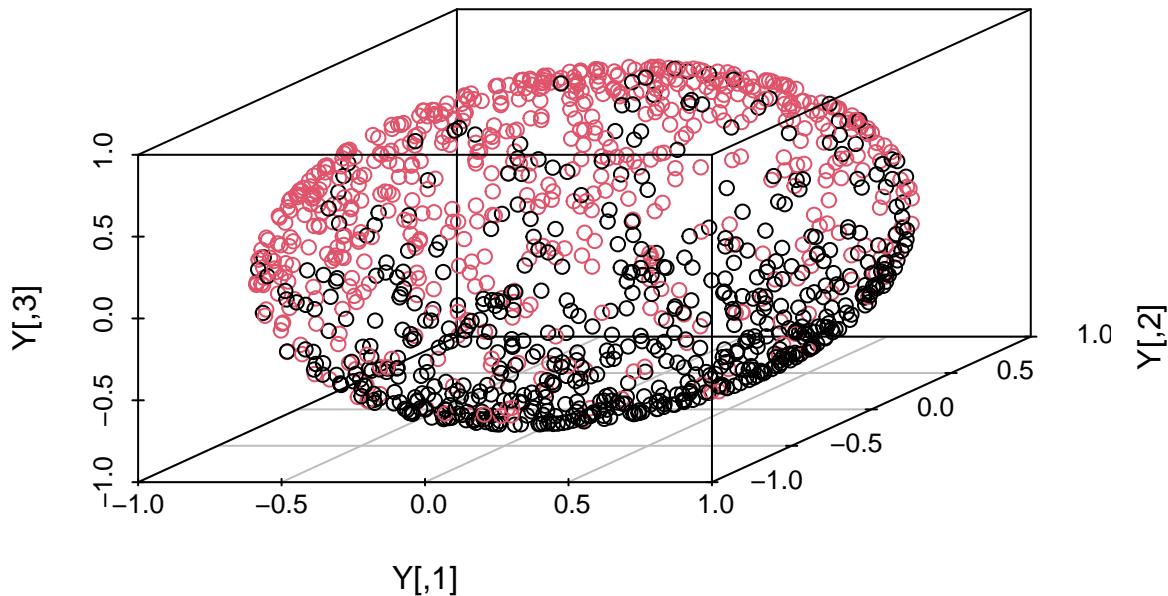
```

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#> best it: 240; best obj: 2.865e+00
#> It: 267; obj: 3.201e+00; abs: 2.460e-02; rel: 7.744e-03; norm: 5.939e-02; mom: 8.669e+00;
#> best it: 240; best obj: 2.865e+00
#> It: 268; obj: 3.218e+00; abs: 1.634e-02; rel: 5.105e-03; norm: 6.149e-02; mom: 7.757e+00;
#> best it: 240; best obj: 2.865e+00
#> It: 269; obj: 3.227e+00; abs: 9.485e-03; rel: 2.948e-03; norm: 6.611e-02; mom: 8.532e+00;
#> best it: 240; best obj: 2.865e+00
#> It: 270; obj: 3.249e+00; abs: 2.172e-02; rel: 6.730e-03; norm: 6.305e-02; mom: 8.741e+00;
#> best it: 240; best obj: 2.865e+00
#> It: 271; obj: 3.267e+00; abs: 1.774e-02; rel: 5.460e-03; norm: 6.501e-02; mom: 8.689e+00;
#> best it: 240; best obj: 2.865e+00
#> It: 272; obj: 3.270e+00; abs: 3.365e-03; rel: 1.030e-03; norm: 6.618e-02; mom: 8.945e+00;
#> best it: 240; best obj: 2.865e+00
#> It: 273; obj: 3.292e+00; abs: 2.173e-02; rel: 6.644e-03; norm: 6.495e-02; mom: 9.234e+00;
#> best it: 240; best obj: 2.865e+00
#> It: 274; obj: 3.308e+00; abs: 1.650e-02; rel: 5.012e-03; norm: 6.675e-02; mom: 9.159e+00;
#> best it: 240; best obj: 2.865e+00
#> It: 275; obj: 3.322e+00; abs: 1.407e-02; rel: 4.254e-03; norm: 6.461e-02; mom: 9.417e+00;
#> best it: 240; best obj: 2.865e+00

```

## Iteration 275



```

#> It: 276; obj: 3.336e+00; abs: 1.371e-02; rel: 4.128e-03; norm: 6.710e-02; mom: 9.300e+00;
#> best it: 240; best obj: 2.865e+00
#> It: 277; obj: 3.336e+00; abs: 3.160e-04; rel: 9.471e-05; norm: 7.205e-02; mom: 9.868e+00;
#> best it: 240; best obj: 2.865e+00
#> It: 278; obj: 3.347e+00; abs: 1.090e-02; rel: 3.266e-03; norm: 6.511e-02; mom: 9.878e+00;
#> best it: 240; best obj: 2.865e+00
#> It: 279; obj: 3.362e+00; abs: 1.498e-02; rel: 4.476e-03; norm: 6.891e-02; mom: 9.495e+00;
#> best it: 240; best obj: 2.865e+00
#> It: 280; obj: 3.368e+00; abs: 5.693e-03; rel: 1.693e-03; norm: 6.857e-02; mom: 9.881e+00;
#> best it: 240; best obj: 2.865e+00
#> It: 281; obj: 3.397e+00; abs: 2.876e-02; rel: 8.538e-03; norm: 6.908e-02; mom: 9.747e+00;
#> best it: 240; best obj: 2.865e+00

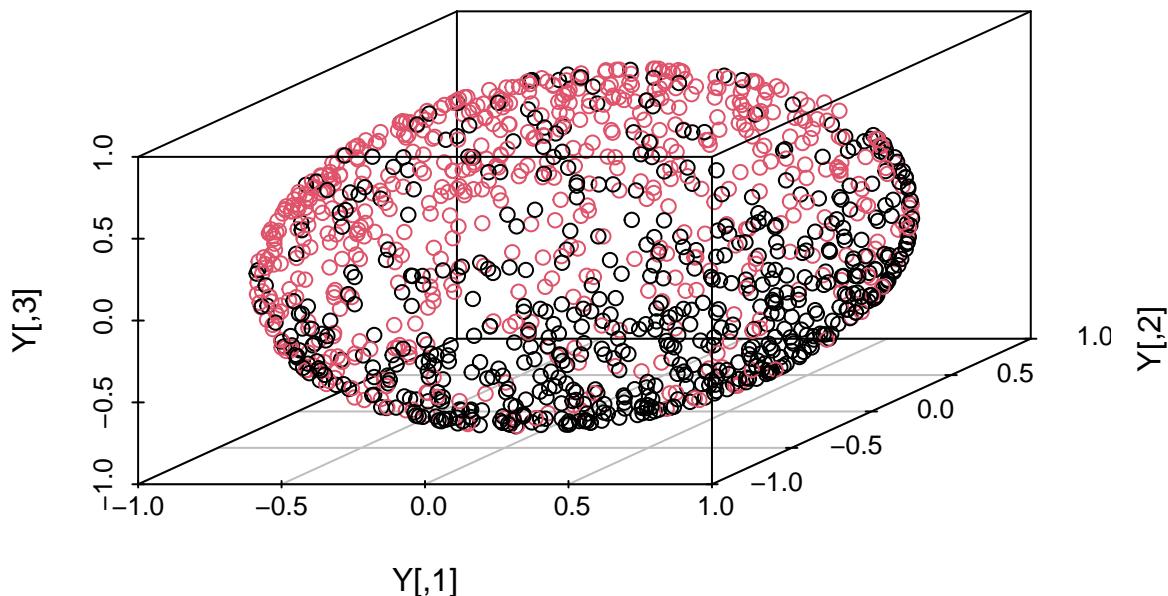
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#> It: 282; obj: 3.407e+00; abs: 1.033e-02; rel: 3.043e-03; norm: 7.380e-02; mom: 1.045e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 283; obj: 3.415e+00; abs: 8.322e-03; rel: 2.443e-03; norm: 7.062e-02; mom: 1.017e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 284; obj: 3.427e+00; abs: 1.148e-02; rel: 3.362e-03; norm: 7.254e-02; mom: 1.033e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 285; obj: 3.443e+00; abs: 1.613e-02; rel: 4.706e-03; norm: 7.166e-02; mom: 1.069e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 286; obj: 3.462e+00; abs: 1.918e-02; rel: 5.572e-03; norm: 7.304e-02; mom: 1.032e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 287; obj: 3.467e+00; abs: 4.437e-03; rel: 1.281e-03; norm: 7.363e-02; mom: 1.055e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 288; obj: 3.485e+00; abs: 1.856e-02; rel: 5.353e-03; norm: 7.232e-02; mom: 1.097e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 289; obj: 3.499e+00; abs: 1.402e-02; rel: 4.024e-03; norm: 7.486e-02; mom: 1.057e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 290; obj: 3.499e+00; abs: 4.555e-04; rel: 1.302e-04; norm: 7.399e-02; mom: 1.143e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 291; obj: 3.503e+00; abs: 4.255e-03; rel: 1.216e-03; norm: 7.306e-02; mom: 1.121e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 292; obj: 3.514e+00; abs: 1.106e-02; rel: 3.157e-03; norm: 7.580e-02; mom: 1.103e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 293; obj: 3.539e+00; abs: 2.529e-02; rel: 7.195e-03; norm: 7.594e-02; mom: 1.166e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 294; obj: 3.567e+00; abs: 2.802e-02; rel: 7.917e-03; norm: 8.114e-02; mom: 1.105e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 295; obj: 3.588e+00; abs: 2.009e-02; rel: 5.633e-03; norm: 7.978e-02; mom: 1.160e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 296; obj: 3.597e+00; abs: 9.581e-03; rel: 2.671e-03; norm: 7.749e-02; mom: 1.149e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 297; obj: 3.604e+00; abs: 6.963e-03; rel: 1.936e-03; norm: 8.292e-02; mom: 1.157e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 298; obj: 3.596e+00; abs: 8.019e-03; rel: 2.225e-03; norm: 7.660e-02; mom: 1.174e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 299; obj: 3.601e+00; abs: 4.699e-03; rel: 1.307e-03; norm: 7.844e-02; mom: 1.179e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 300; obj: 3.604e+00; abs: 3.159e-03; rel: 8.774e-04; norm: 7.449e-02; mom: 1.159e+01;
#> best it: 240; best obj: 2.865e+00

```

## Iteration 300



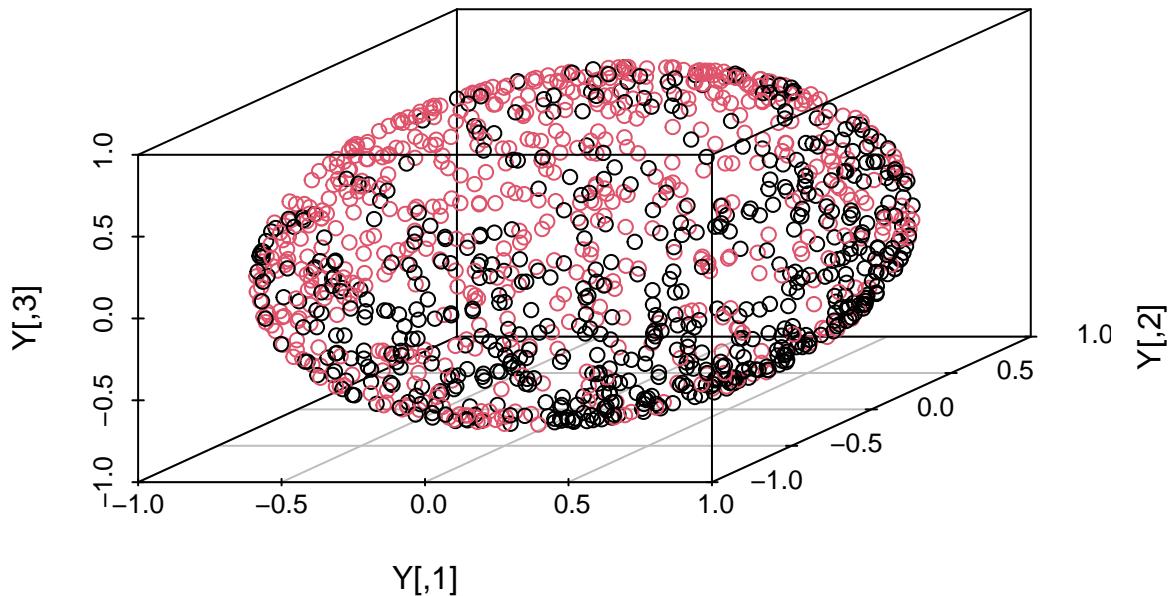
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#> It: 301; obj: 3.601e+00; abs: 3.167e-03; rel: 8.786e-04; norm: 7.553e-02; mom: 1.160e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 302; obj: 3.624e+00; abs: 2.367e-02; rel: 6.573e-03; norm: 7.591e-02; mom: 1.179e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 303; obj: 3.635e+00; abs: 1.054e-02; rel: 2.909e-03; norm: 7.732e-02; mom: 1.174e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 304; obj: 3.633e+00; abs: 2.042e-03; rel: 5.617e-04; norm: 7.831e-02; mom: 1.196e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 305; obj: 3.648e+00; abs: 1.508e-02; rel: 4.151e-03; norm: 7.786e-02; mom: 1.204e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 306; obj: 3.645e+00; abs: 2.694e-03; rel: 7.386e-04; norm: 7.757e-02; mom: 1.182e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 307; obj: 3.651e+00; abs: 6.201e-03; rel: 1.701e-03; norm: 7.593e-02; mom: 1.238e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 308; obj: 3.651e+00; abs: 3.100e-04; rel: 8.490e-05; norm: 7.720e-02; mom: 1.208e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 309; obj: 3.673e+00; abs: 2.194e-02; rel: 6.009e-03; norm: 7.859e-02; mom: 1.241e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 310; obj: 3.680e+00; abs: 6.606e-03; rel: 1.798e-03; norm: 7.821e-02; mom: 1.243e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 311; obj: 3.679e+00; abs: 6.719e-04; rel: 1.826e-04; norm: 7.901e-02; mom: 1.258e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 312; obj: 3.692e+00; abs: 1.285e-02; rel: 3.492e-03; norm: 7.887e-02; mom: 1.274e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 313; obj: 3.700e+00; abs: 7.820e-03; rel: 2.118e-03; norm: 7.969e-02; mom: 1.263e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 314; obj: 3.695e+00; abs: 5.129e-03; rel: 1.386e-03; norm: 8.034e-02; mom: 1.250e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 315; obj: 3.708e+00; abs: 1.361e-02; rel: 3.684e-03; norm: 7.783e-02; mom: 1.303e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 316; obj: 3.696e+00; abs: 1.267e-02; rel: 3.417e-03; norm: 8.021e-02; mom: 1.245e+01;
```

```

#> best it: 240; best obj: 2.865e+00
#> It: 317; obj: 3.675e+00; abs: 2.037e-02; rel: 5.511e-03; norm: 8.486e-02; mom: 1.251e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 318; obj: 3.691e+00; abs: 1.539e-02; rel: 4.189e-03; norm: 7.948e-02; mom: 1.284e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 319; obj: 3.695e+00; abs: 4.057e-03; rel: 1.099e-03; norm: 8.073e-02; mom: 1.276e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 320; obj: 3.710e+00; abs: 1.570e-02; rel: 4.248e-03; norm: 8.048e-02; mom: 1.258e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 321; obj: 3.726e+00; abs: 1.526e-02; rel: 4.112e-03; norm: 8.016e-02; mom: 1.277e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 322; obj: 3.730e+00; abs: 4.655e-03; rel: 1.250e-03; norm: 8.008e-02; mom: 1.276e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 323; obj: 3.736e+00; abs: 5.327e-03; rel: 1.428e-03; norm: 8.407e-02; mom: 1.289e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 324; obj: 3.729e+00; abs: 6.465e-03; rel: 1.731e-03; norm: 8.115e-02; mom: 1.303e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 325; obj: 3.719e+00; abs: 1.027e-02; rel: 2.754e-03; norm: 8.264e-02; mom: 1.272e+01;
#> best it: 240; best obj: 2.865e+00

```

### Iteration 325



```

#> It: 326; obj: 3.715e+00; abs: 3.521e-03; rel: 9.467e-04; norm: 7.900e-02; mom: 1.282e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 327; obj: 3.722e+00; abs: 6.961e-03; rel: 1.874e-03; norm: 8.392e-02; mom: 1.295e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 328; obj: 3.716e+00; abs: 6.140e-03; rel: 1.650e-03; norm: 7.948e-02; mom: 1.272e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 329; obj: 3.722e+00; abs: 6.079e-03; rel: 1.636e-03; norm: 7.953e-02; mom: 1.323e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 330; obj: 3.725e+00; abs: 2.393e-03; rel: 6.429e-04; norm: 8.416e-02; mom: 1.266e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 331; obj: 3.712e+00; abs: 1.290e-02; rel: 3.465e-03; norm: 8.222e-02; mom: 1.300e+01;
#> best it: 240; best obj: 2.865e+00

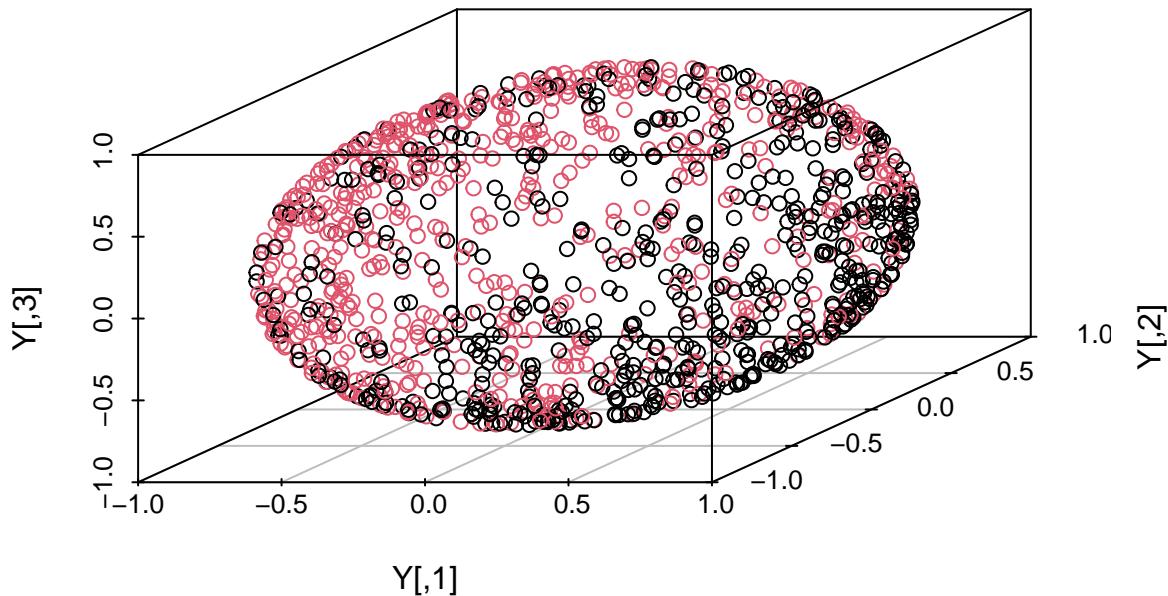
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#> It: 332; obj: 3.722e+00; abs: 1.008e-02; rel: 2.717e-03; norm: 8.539e-02; mom: 1.274e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 333; obj: 3.723e+00; abs: 1.538e-03; rel: 4.131e-04; norm: 8.249e-02; mom: 1.273e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 334; obj: 3.723e+00; abs: 7.372e-04; rel: 1.980e-04; norm: 8.549e-02; mom: 1.293e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 335; obj: 3.749e+00; abs: 2.658e-02; rel: 7.140e-03; norm: 7.926e-02; mom: 1.301e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 336; obj: 3.751e+00; abs: 1.870e-03; rel: 4.988e-04; norm: 7.985e-02; mom: 1.305e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 337; obj: 3.774e+00; abs: 2.260e-02; rel: 6.026e-03; norm: 8.739e-02; mom: 1.287e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 338; obj: 3.799e+00; abs: 2.540e-02; rel: 6.732e-03; norm: 8.150e-02; mom: 1.338e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 339; obj: 3.768e+00; abs: 3.126e-02; rel: 8.229e-03; norm: 8.883e-02; mom: 1.307e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 340; obj: 3.755e+00; abs: 1.232e-02; rel: 3.271e-03; norm: 7.882e-02; mom: 1.338e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 341; obj: 3.736e+00; abs: 1.932e-02; rel: 5.145e-03; norm: 8.113e-02; mom: 1.313e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 342; obj: 3.714e+00; abs: 2.223e-02; rel: 5.949e-03; norm: 8.122e-02; mom: 1.274e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 343; obj: 3.717e+00; abs: 2.904e-03; rel: 7.818e-04; norm: 8.202e-02; mom: 1.263e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 344; obj: 3.742e+00; abs: 2.561e-02; rel: 6.889e-03; norm: 7.960e-02; mom: 1.275e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 345; obj: 3.741e+00; abs: 1.063e-03; rel: 2.842e-04; norm: 7.870e-02; mom: 1.268e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 346; obj: 3.720e+00; abs: 2.153e-02; rel: 5.756e-03; norm: 7.953e-02; mom: 1.277e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 347; obj: 3.721e+00; abs: 9.646e-04; rel: 2.593e-04; norm: 8.231e-02; mom: 1.264e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 348; obj: 3.720e+00; abs: 1.260e-03; rel: 3.387e-04; norm: 8.109e-02; mom: 1.238e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 349; obj: 3.704e+00; abs: 1.527e-02; rel: 4.107e-03; norm: 8.189e-02; mom: 1.238e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 350; obj: 3.719e+00; abs: 1.501e-02; rel: 4.051e-03; norm: 7.970e-02; mom: 1.240e+01;
#> best it: 240; best obj: 2.865e+00

```

## Iteration 350



```

#> It: 351; obj: 3.725e+00; abs: 5.624e-03; rel: 1.512e-03; norm: 8.207e-02; mom: 1.257e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 352; obj: 3.729e+00; abs: 3.840e-03; rel: 1.031e-03; norm: 8.028e-02; mom: 1.262e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 353; obj: 3.733e+00; abs: 4.519e-03; rel: 1.212e-03; norm: 7.932e-02; mom: 1.275e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 354; obj: 3.725e+00; abs: 8.231e-03; rel: 2.205e-03; norm: 8.481e-02; mom: 1.262e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 355; obj: 3.733e+00; abs: 7.962e-03; rel: 2.138e-03; norm: 7.882e-02; mom: 1.268e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 356; obj: 3.734e+00; abs: 7.272e-04; rel: 1.948e-04; norm: 8.069e-02; mom: 1.250e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 357; obj: 3.721e+00; abs: 1.221e-02; rel: 3.270e-03; norm: 8.272e-02; mom: 1.268e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 358; obj: 3.717e+00; abs: 4.430e-03; rel: 1.190e-03; norm: 8.058e-02; mom: 1.251e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 359; obj: 3.719e+00; abs: 1.739e-03; rel: 4.678e-04; norm: 7.933e-02; mom: 1.274e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 360; obj: 3.720e+00; abs: 1.337e-03; rel: 3.595e-04; norm: 7.834e-02; mom: 1.273e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 361; obj: 3.730e+00; abs: 1.016e-02; rel: 2.731e-03; norm: 7.961e-02; mom: 1.255e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 362; obj: 3.743e+00; abs: 1.245e-02; rel: 3.339e-03; norm: 8.142e-02; mom: 1.268e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 363; obj: 3.734e+00; abs: 9.081e-03; rel: 2.426e-03; norm: 7.867e-02; mom: 1.265e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 364; obj: 3.720e+00; abs: 1.339e-02; rel: 3.586e-03; norm: 8.156e-02; mom: 1.284e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 365; obj: 3.729e+00; abs: 8.452e-03; rel: 2.272e-03; norm: 7.709e-02; mom: 1.280e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 366; obj: 3.750e+00; abs: 2.173e-02; rel: 5.828e-03; norm: 7.822e-02; mom: 1.259e+01;

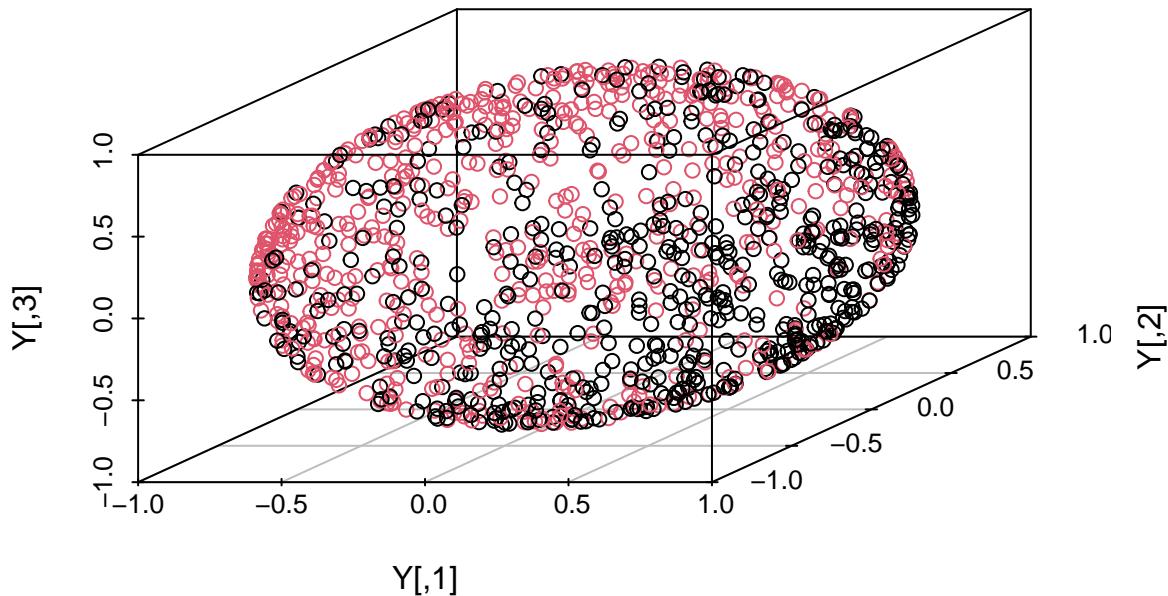
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#> best it: 240; best obj: 2.865e+00
#> It: 367; obj: 3.740e+00; abs: 1.004e-02; rel: 2.678e-03; norm: 8.355e-02; mom: 1.246e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 368; obj: 3.740e+00; abs: 9.276e-05; rel: 2.480e-05; norm: 8.180e-02; mom: 1.288e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 369; obj: 3.754e+00; abs: 1.383e-02; rel: 3.697e-03; norm: 7.993e-02; mom: 1.272e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 370; obj: 3.750e+00; abs: 4.679e-03; rel: 1.246e-03; norm: 8.215e-02; mom: 1.264e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 371; obj: 3.763e+00; abs: 1.310e-02; rel: 3.494e-03; norm: 8.092e-02; mom: 1.278e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 372; obj: 3.753e+00; abs: 9.289e-03; rel: 2.469e-03; norm: 8.644e-02; mom: 1.253e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 373; obj: 3.741e+00; abs: 1.224e-02; rel: 3.261e-03; norm: 8.364e-02; mom: 1.272e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 374; obj: 3.736e+00; abs: 5.205e-03; rel: 1.391e-03; norm: 8.130e-02; mom: 1.283e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 375; obj: 3.752e+00; abs: 1.612e-02; rel: 4.314e-03; norm: 8.122e-02; mom: 1.261e+01;
#> best it: 240; best obj: 2.865e+00

```

## Iteration 375



```

#> It: 376; obj: 3.747e+00; abs: 4.723e-03; rel: 1.259e-03; norm: 8.528e-02; mom: 1.248e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 377; obj: 3.760e+00; abs: 1.223e-02; rel: 3.263e-03; norm: 8.363e-02; mom: 1.311e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 378; obj: 3.759e+00; abs: 3.823e-04; rel: 1.017e-04; norm: 8.210e-02; mom: 1.280e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 379; obj: 3.761e+00; abs: 2.070e-03; rel: 5.506e-04; norm: 8.215e-02; mom: 1.277e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 380; obj: 3.781e+00; abs: 1.956e-02; rel: 5.201e-03; norm: 8.165e-02; mom: 1.269e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 381; obj: 3.788e+00; abs: 7.429e-03; rel: 1.965e-03; norm: 8.644e-02; mom: 1.261e+01;
#> best it: 240; best obj: 2.865e+00

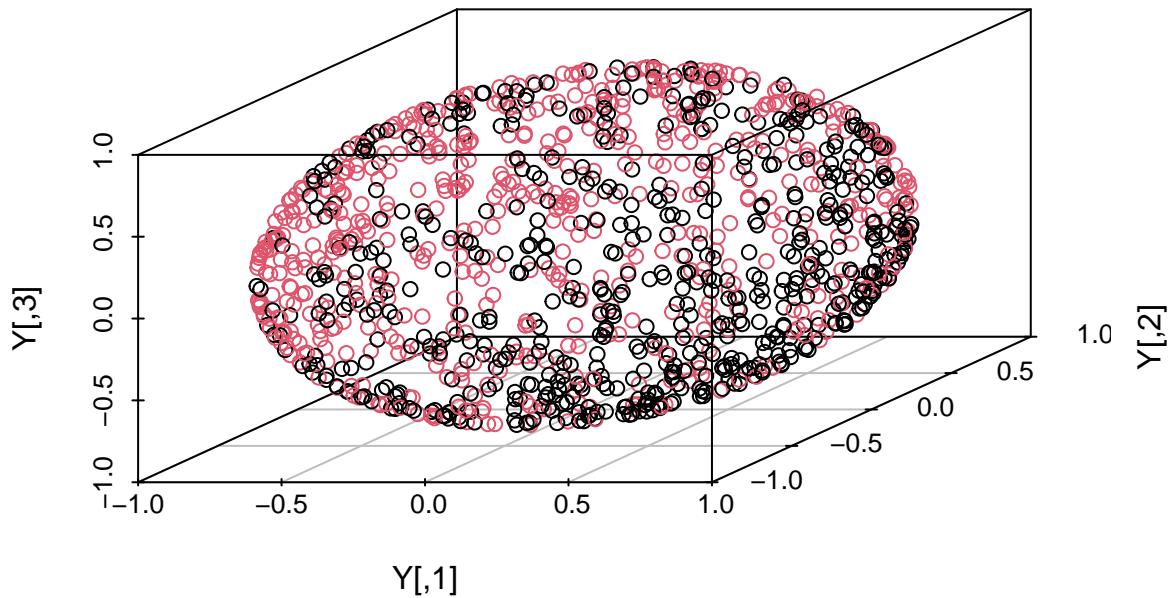
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#> It: 382; obj: 3.796e+00; abs: 7.978e-03; rel: 2.106e-03; norm: 8.590e-02; mom: 1.297e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 383; obj: 3.785e+00; abs: 1.149e-02; rel: 3.027e-03; norm: 8.289e-02; mom: 1.304e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 384; obj: 3.759e+00; abs: 2.627e-02; rel: 6.940e-03; norm: 7.989e-02; mom: 1.300e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 385; obj: 3.774e+00; abs: 1.551e-02; rel: 4.126e-03; norm: 8.442e-02; mom: 1.299e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 386; obj: 3.786e+00; abs: 1.178e-02; rel: 3.123e-03; norm: 8.747e-02; mom: 1.272e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 387; obj: 3.774e+00; abs: 1.194e-02; rel: 3.154e-03; norm: 8.236e-02; mom: 1.328e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 388; obj: 3.759e+00; abs: 1.458e-02; rel: 3.862e-03; norm: 8.414e-02; mom: 1.278e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 389; obj: 3.760e+00; abs: 6.120e-04; rel: 1.628e-04; norm: 8.080e-02; mom: 1.320e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 390; obj: 3.757e+00; abs: 2.739e-03; rel: 7.285e-04; norm: 7.904e-02; mom: 1.273e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 391; obj: 3.766e+00; abs: 9.012e-03; rel: 2.399e-03; norm: 8.254e-02; mom: 1.259e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 392; obj: 3.789e+00; abs: 2.237e-02; rel: 5.940e-03; norm: 7.851e-02; mom: 1.292e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 393; obj: 3.793e+00; abs: 4.772e-03; rel: 1.260e-03; norm: 8.328e-02; mom: 1.274e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 394; obj: 3.791e+00; abs: 2.800e-03; rel: 7.382e-04; norm: 8.113e-02; mom: 1.315e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 395; obj: 3.803e+00; abs: 1.208e-02; rel: 3.186e-03; norm: 9.128e-02; mom: 1.301e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 396; obj: 3.811e+00; abs: 8.157e-03; rel: 2.145e-03; norm: 9.033e-02; mom: 1.330e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 397; obj: 3.807e+00; abs: 3.844e-03; rel: 1.009e-03; norm: 8.791e-02; mom: 1.332e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 398; obj: 3.799e+00; abs: 8.006e-03; rel: 2.103e-03; norm: 8.219e-02; mom: 1.320e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 399; obj: 3.794e+00; abs: 5.203e-03; rel: 1.370e-03; norm: 8.318e-02; mom: 1.331e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 400; obj: 3.794e+00; abs: 2.135e-04; rel: 5.628e-05; norm: 8.476e-02; mom: 1.305e+01;
#> best it: 240; best obj: 2.865e+00

```

## Iteration 400



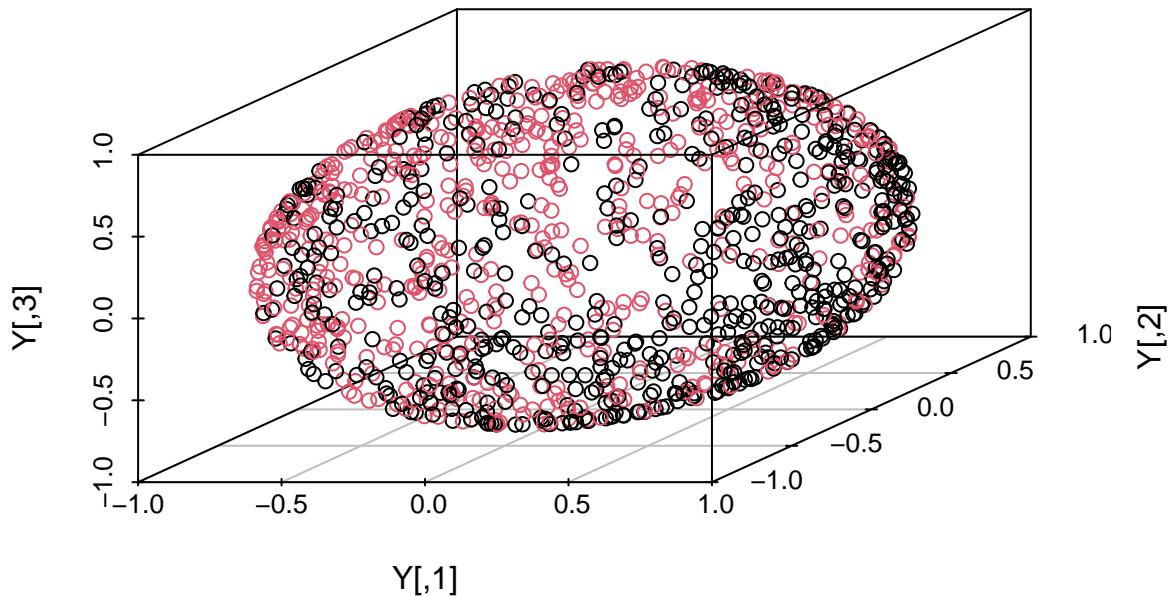
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#> It: 401; obj: 3.762e+00; abs: 3.123e-02; rel: 8.232e-03; norm: 8.547e-02; mom: 1.297e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 402; obj: 3.740e+00; abs: 2.232e-02; rel: 5.933e-03; norm: 8.124e-02; mom: 1.279e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 403; obj: 3.762e+00; abs: 2.188e-02; rel: 5.852e-03; norm: 7.872e-02; mom: 1.281e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 404; obj: 3.761e+00; abs: 1.174e-03; rel: 3.120e-04; norm: 7.934e-02; mom: 1.254e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 405; obj: 3.747e+00; abs: 1.320e-02; rel: 3.510e-03; norm: 8.292e-02; mom: 1.286e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 406; obj: 3.765e+00; abs: 1.742e-02; rel: 4.647e-03; norm: 7.890e-02; mom: 1.271e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 407; obj: 3.780e+00; abs: 1.466e-02; rel: 3.894e-03; norm: 7.949e-02; mom: 1.248e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 408; obj: 3.768e+00; abs: 1.168e-02; rel: 3.091e-03; norm: 8.215e-02; mom: 1.264e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 409; obj: 3.775e+00; abs: 7.337e-03; rel: 1.947e-03; norm: 7.926e-02; mom: 1.282e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 410; obj: 3.767e+00; abs: 7.983e-03; rel: 2.115e-03; norm: 8.316e-02; mom: 1.258e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 411; obj: 3.756e+00; abs: 1.079e-02; rel: 2.865e-03; norm: 8.390e-02; mom: 1.295e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 412; obj: 3.761e+00; abs: 4.880e-03; rel: 1.299e-03; norm: 8.126e-02; mom: 1.293e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 413; obj: 3.765e+00; abs: 3.554e-03; rel: 9.450e-04; norm: 7.987e-02; mom: 1.268e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 414; obj: 3.768e+00; abs: 3.596e-03; rel: 9.552e-04; norm: 8.191e-02; mom: 1.270e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 415; obj: 3.786e+00; abs: 1.706e-02; rel: 4.527e-03; norm: 8.295e-02; mom: 1.293e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 416; obj: 3.791e+00; abs: 5.389e-03; rel: 1.424e-03; norm: 8.477e-02; mom: 1.248e+01;
```

```

#> best it: 240; best obj: 2.865e+00
#> It: 417; obj: 3.792e+00; abs: 1.035e-03; rel: 2.729e-04; norm: 8.384e-02; mom: 1.315e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 418; obj: 3.807e+00; abs: 1.477e-02; rel: 3.895e-03; norm: 8.338e-02; mom: 1.299e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 419; obj: 3.805e+00; abs: 1.273e-03; rel: 3.343e-04; norm: 8.717e-02; mom: 1.263e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 420; obj: 3.809e+00; abs: 3.950e-03; rel: 1.038e-03; norm: 8.374e-02; mom: 1.321e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 421; obj: 3.823e+00; abs: 1.343e-02; rel: 3.526e-03; norm: 8.194e-02; mom: 1.288e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 422; obj: 3.822e+00; abs: 9.364e-04; rel: 2.450e-04; norm: 8.260e-02; mom: 1.295e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 423; obj: 3.828e+00; abs: 6.274e-03; rel: 1.641e-03; norm: 8.613e-02; mom: 1.322e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 424; obj: 3.825e+00; abs: 3.213e-03; rel: 8.393e-04; norm: 8.548e-02; mom: 1.295e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 425; obj: 3.822e+00; abs: 3.044e-03; rel: 7.960e-04; norm: 8.194e-02; mom: 1.319e+01;
#> best it: 240; best obj: 2.865e+00

```

## Iteration 425



```

#> It: 426; obj: 3.822e+00; abs: 1.427e-05; rel: 3.734e-06; norm: 8.184e-02; mom: 1.301e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 427; obj: 3.828e+00; abs: 6.217e-03; rel: 1.627e-03; norm: 8.244e-02; mom: 1.320e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 428; obj: 3.815e+00; abs: 1.334e-02; rel: 3.485e-03; norm: 8.230e-02; mom: 1.301e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 429; obj: 3.823e+00; abs: 8.581e-03; rel: 2.250e-03; norm: 8.139e-02; mom: 1.334e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 430; obj: 3.831e+00; abs: 7.751e-03; rel: 2.027e-03; norm: 8.285e-02; mom: 1.299e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 431; obj: 3.824e+00; abs: 7.331e-03; rel: 1.913e-03; norm: 8.761e-02; mom: 1.327e+01;
#> best it: 240; best obj: 2.865e+00

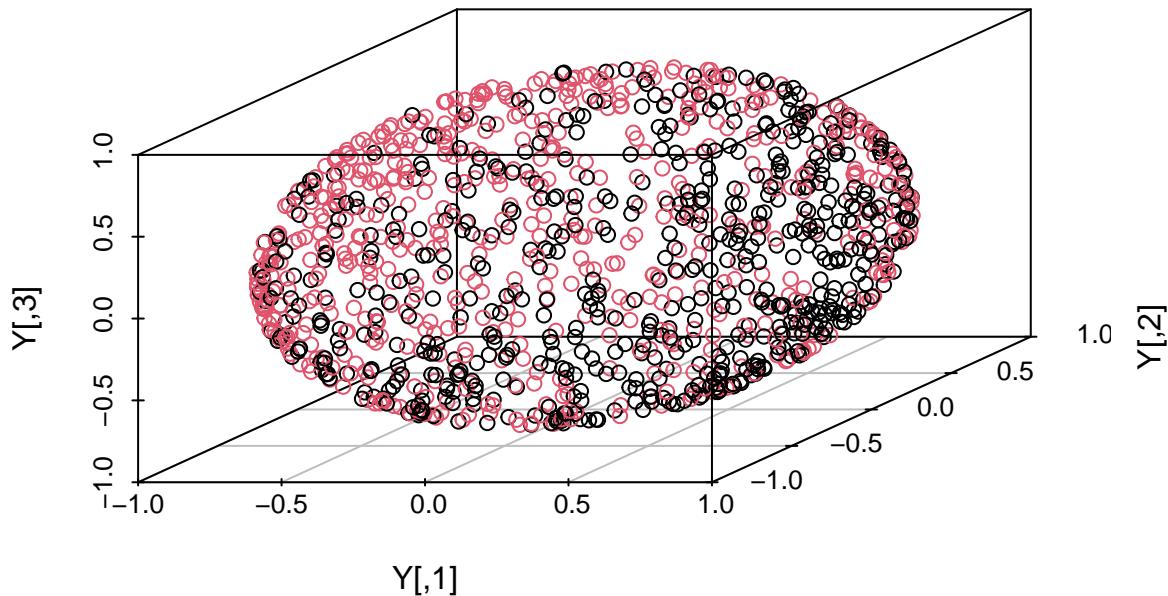
```

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#> It: 432; obj: 3.803e+00; abs: 2.057e-02; rel: 5.378e-03; norm: 8.601e-02; mom: 1.325e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 433; obj: 3.793e+00; abs: 1.010e-02; rel: 2.655e-03; norm: 8.288e-02; mom: 1.322e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 434; obj: 3.795e+00; abs: 2.038e-03; rel: 5.372e-04; norm: 8.170e-02; mom: 1.291e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 435; obj: 3.794e+00; abs: 1.243e-03; rel: 3.276e-04; norm: 8.506e-02; mom: 1.314e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 436; obj: 3.802e+00; abs: 8.182e-03; rel: 2.156e-03; norm: 8.357e-02; mom: 1.307e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 437; obj: 3.807e+00; abs: 5.391e-03; rel: 1.418e-03; norm: 8.231e-02; mom: 1.323e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 438; obj: 3.808e+00; abs: 7.834e-04; rel: 2.058e-04; norm: 8.062e-02; mom: 1.288e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 439; obj: 3.800e+00; abs: 7.929e-03; rel: 2.082e-03; norm: 8.303e-02; mom: 1.320e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 440; obj: 3.782e+00; abs: 1.869e-02; rel: 4.917e-03; norm: 8.513e-02; mom: 1.284e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 441; obj: 3.778e+00; abs: 4.064e-03; rel: 1.075e-03; norm: 8.432e-02; mom: 1.308e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 442; obj: 3.781e+00; abs: 3.382e-03; rel: 8.952e-04; norm: 8.152e-02; mom: 1.284e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 443; obj: 3.798e+00; abs: 1.737e-02; rel: 4.594e-03; norm: 8.185e-02; mom: 1.275e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 444; obj: 3.823e+00; abs: 2.498e-02; rel: 6.577e-03; norm: 8.336e-02; mom: 1.291e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 445; obj: 3.818e+00; abs: 5.151e-03; rel: 1.347e-03; norm: 8.589e-02; mom: 1.303e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 446; obj: 3.791e+00; abs: 2.746e-02; rel: 7.191e-03; norm: 8.236e-02; mom: 1.316e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 447; obj: 3.774e+00; abs: 1.711e-02; rel: 4.514e-03; norm: 8.408e-02; mom: 1.309e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 448; obj: 3.763e+00; abs: 1.016e-02; rel: 2.693e-03; norm: 8.218e-02; mom: 1.282e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 449; obj: 3.777e+00; abs: 1.362e-02; rel: 3.619e-03; norm: 8.076e-02; mom: 1.290e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 450; obj: 3.796e+00; abs: 1.850e-02; rel: 4.898e-03; norm: 8.832e-02; mom: 1.288e+01;
#> best it: 240; best obj: 2.865e+00

```

## Iteration 450



```

#> It: 451; obj: 3.802e+00; abs: 6.409e-03; rel: 1.688e-03; norm: 8.338e-02; mom: 1.287e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 452; obj: 3.798e+00; abs: 4.451e-03; rel: 1.171e-03; norm: 8.595e-02; mom: 1.308e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 453; obj: 3.783e+00; abs: 1.431e-02; rel: 3.769e-03; norm: 8.726e-02; mom: 1.322e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 454; obj: 3.771e+00; abs: 1.190e-02; rel: 3.144e-03; norm: 8.538e-02; mom: 1.323e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 455; obj: 3.756e+00; abs: 1.525e-02; rel: 4.044e-03; norm: 8.575e-02; mom: 1.279e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 456; obj: 3.760e+00; abs: 3.455e-03; rel: 9.199e-04; norm: 7.973e-02; mom: 1.299e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 457; obj: 3.747e+00; abs: 1.220e-02; rel: 3.244e-03; norm: 8.142e-02; mom: 1.263e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 458; obj: 3.766e+00; abs: 1.898e-02; rel: 5.065e-03; norm: 7.860e-02; mom: 1.261e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 459; obj: 3.770e+00; abs: 3.728e-03; rel: 9.900e-04; norm: 8.191e-02; mom: 1.257e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 460; obj: 3.783e+00; abs: 1.278e-02; rel: 3.389e-03; norm: 8.365e-02; mom: 1.295e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 461; obj: 3.789e+00; abs: 6.335e-03; rel: 1.675e-03; norm: 8.083e-02; mom: 1.297e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 462; obj: 3.790e+00; abs: 5.095e-04; rel: 1.345e-04; norm: 8.291e-02; mom: 1.285e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 463; obj: 3.802e+00; abs: 1.259e-02; rel: 3.322e-03; norm: 8.134e-02; mom: 1.288e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 464; obj: 3.834e+00; abs: 3.204e-02; rel: 8.426e-03; norm: 8.271e-02; mom: 1.298e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 465; obj: 3.837e+00; abs: 2.262e-03; rel: 5.898e-04; norm: 8.561e-02; mom: 1.328e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 466; obj: 3.835e+00; abs: 1.474e-03; rel: 3.842e-04; norm: 8.597e-02; mom: 1.334e+01;

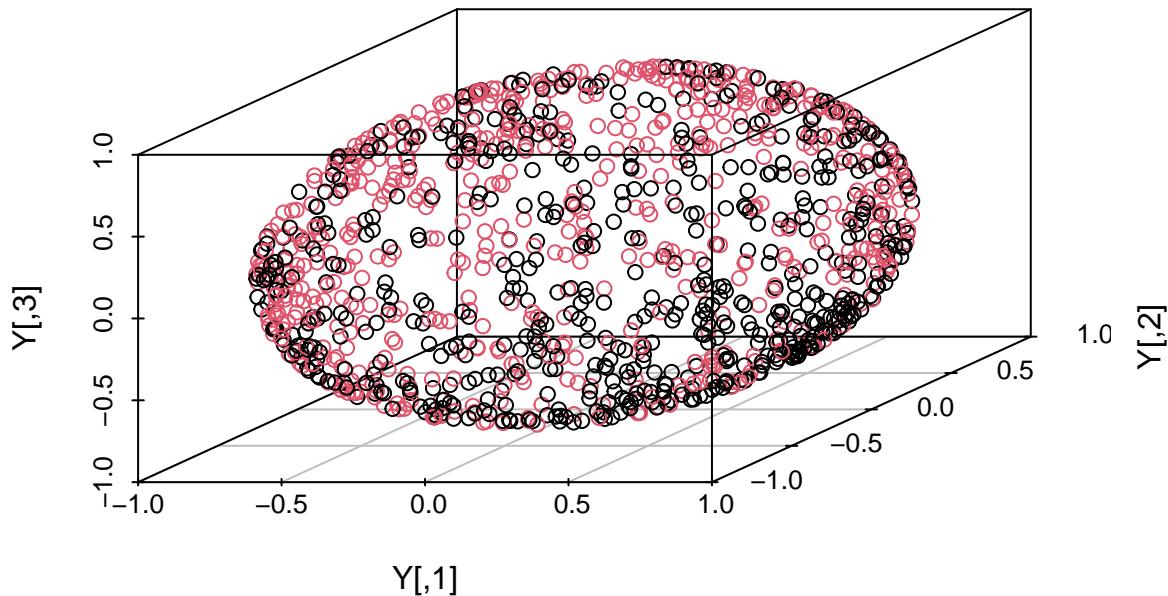
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#> best it: 240; best obj: 2.865e+00
#> It: 467; obj: 3.836e+00; abs: 6.510e-04; rel: 1.697e-04; norm: 8.486e-02; mom: 1.328e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 468; obj: 3.840e+00; abs: 4.473e-03; rel: 1.166e-03; norm: 8.420e-02; mom: 1.342e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 469; obj: 3.827e+00; abs: 1.356e-02; rel: 3.532e-03; norm: 8.280e-02; mom: 1.308e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 470; obj: 3.830e+00; abs: 3.677e-03; rel: 9.609e-04; norm: 8.422e-02; mom: 1.345e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 471; obj: 3.824e+00; abs: 6.185e-03; rel: 1.615e-03; norm: 8.784e-02; mom: 1.348e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 472; obj: 3.816e+00; abs: 8.019e-03; rel: 2.097e-03; norm: 8.588e-02; mom: 1.326e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 473; obj: 3.814e+00; abs: 2.441e-03; rel: 6.396e-04; norm: 8.435e-02; mom: 1.330e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 474; obj: 3.820e+00; abs: 6.024e-03; rel: 1.580e-03; norm: 8.522e-02; mom: 1.350e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 475; obj: 3.834e+00; abs: 1.446e-02; rel: 3.787e-03; norm: 8.446e-02; mom: 1.348e+01;
#> best it: 240; best obj: 2.865e+00

```

### Iteration 475



```

#> It: 476; obj: 3.839e+00; abs: 5.016e-03; rel: 1.308e-03; norm: 8.552e-02; mom: 1.290e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 477; obj: 3.828e+00; abs: 1.090e-02; rel: 2.840e-03; norm: 8.274e-02; mom: 1.350e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 478; obj: 3.827e+00; abs: 1.478e-03; rel: 3.862e-04; norm: 8.458e-02; mom: 1.320e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 479; obj: 3.821e+00; abs: 5.653e-03; rel: 1.477e-03; norm: 8.658e-02; mom: 1.303e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 480; obj: 3.814e+00; abs: 7.079e-03; rel: 1.853e-03; norm: 8.521e-02; mom: 1.365e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 481; obj: 3.817e+00; abs: 2.463e-03; rel: 6.458e-04; norm: 8.735e-02; mom: 1.309e+01;
#> best it: 240; best obj: 2.865e+00

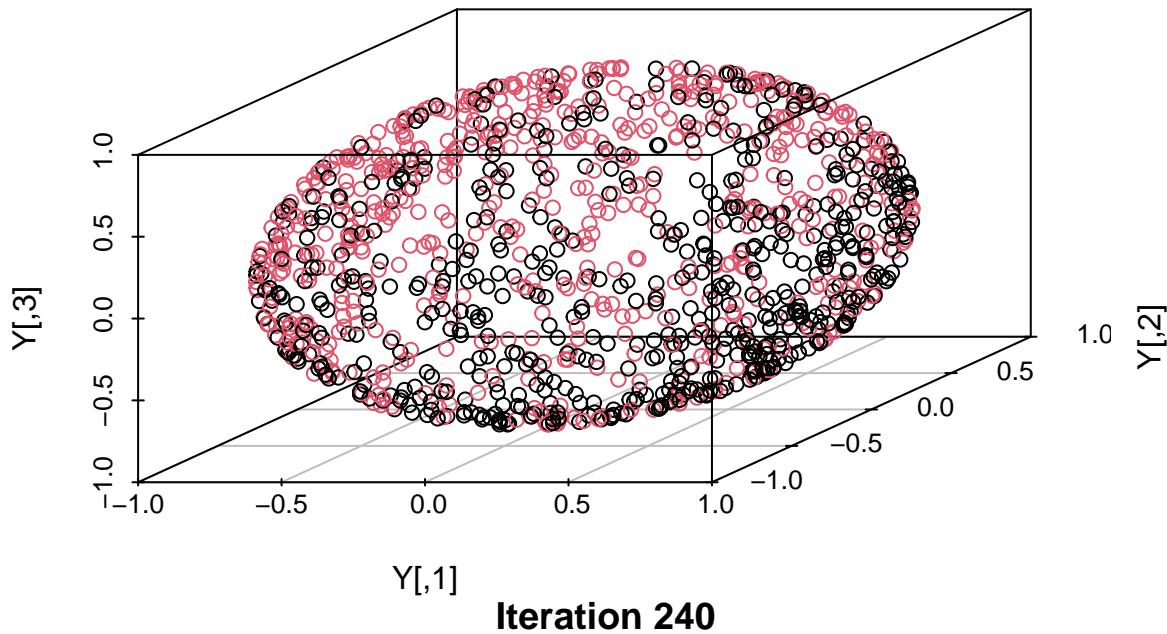
```

```

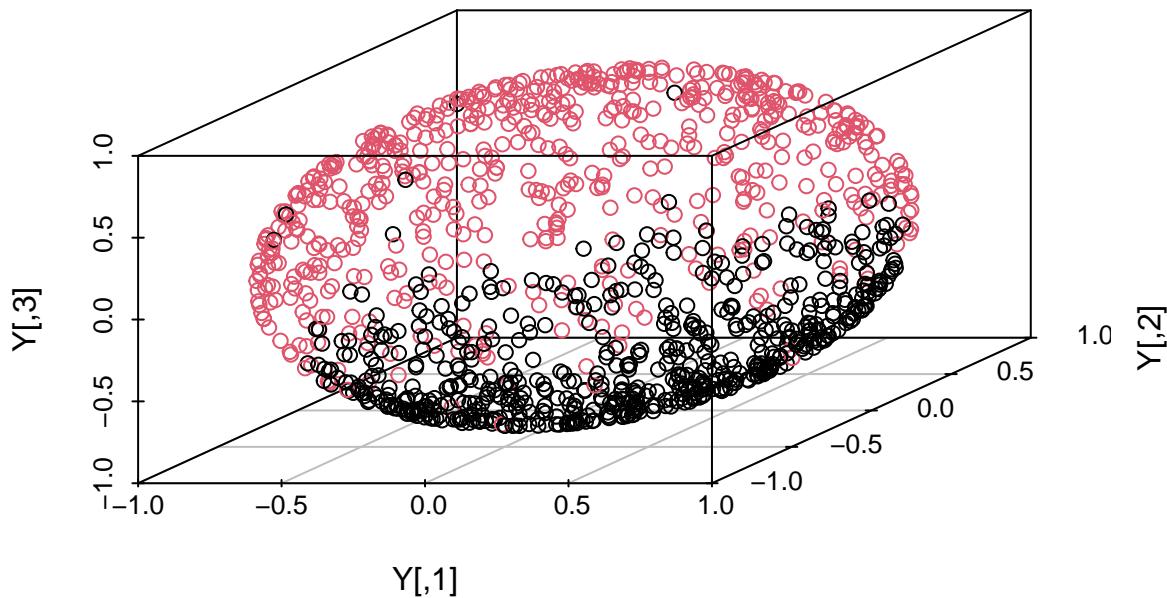
#> It: 482; obj: 3.840e+00; abs: 2.341e-02; rel: 6.134e-03; norm: 8.385e-02; mom: 1.312e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 483; obj: 3.835e+00; abs: 4.461e-03; rel: 1.162e-03; norm: 8.779e-02; mom: 1.307e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 484; obj: 3.823e+00; abs: 1.204e-02; rel: 3.140e-03; norm: 9.049e-02; mom: 1.345e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 485; obj: 3.798e+00; abs: 2.542e-02; rel: 6.648e-03; norm: 8.623e-02; mom: 1.329e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 486; obj: 3.799e+00; abs: 8.427e-04; rel: 2.219e-04; norm: 8.453e-02; mom: 1.306e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 487; obj: 3.803e+00; abs: 4.471e-03; rel: 1.177e-03; norm: 7.947e-02; mom: 1.294e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 488; obj: 3.804e+00; abs: 1.011e-03; rel: 2.657e-04; norm: 8.513e-02; mom: 1.284e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 489; obj: 3.793e+00; abs: 1.092e-02; rel: 2.870e-03; norm: 8.100e-02; mom: 1.324e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 490; obj: 3.788e+00; abs: 5.870e-03; rel: 1.547e-03; norm: 8.587e-02; mom: 1.278e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 491; obj: 3.787e+00; abs: 1.018e-03; rel: 2.687e-04; norm: 8.244e-02; mom: 1.264e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 492; obj: 3.794e+00; abs: 7.392e-03; rel: 1.952e-03; norm: 8.173e-02; mom: 1.311e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 493; obj: 3.785e+00; abs: 8.953e-03; rel: 2.360e-03; norm: 8.741e-02; mom: 1.260e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 494; obj: 3.796e+00; abs: 1.062e-02; rel: 2.806e-03; norm: 8.248e-02; mom: 1.320e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 495; obj: 3.789e+00; abs: 6.205e-03; rel: 1.635e-03; norm: 8.205e-02; mom: 1.281e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 496; obj: 3.781e+00; abs: 8.267e-03; rel: 2.182e-03; norm: 8.214e-02; mom: 1.253e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 497; obj: 3.800e+00; abs: 1.934e-02; rel: 5.116e-03; norm: 8.203e-02; mom: 1.307e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 498; obj: 3.807e+00; abs: 6.833e-03; rel: 1.798e-03; norm: 8.846e-02; mom: 1.272e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 499; obj: 3.795e+00; abs: 1.241e-02; rel: 3.260e-03; norm: 8.500e-02; mom: 1.323e+01;
#> best it: 240; best obj: 2.865e+00
#> It: 500; obj: 3.783e+00; abs: 1.175e-02; rel: 3.097e-03; norm: 8.685e-02; mom: 1.298e+01;
#> best it: 240; best obj: 2.865e+00

```

### Iteration 500



### Iteration 240



```

Y <- res_pscsne_12$best_Y
rgl::plot3d(0, 0, 0, xlim = c(-1, 1), ylim = c(-1, 1), zlim = c(-1, 1),
            radius = 1, type = "s", col = "lightblue", alpha = 0.8, lit = FALSE)
rgl::points3d(Y, col = sc_unif_mix_colors)

```

### An example in variable selection

Defining 5 groups of 20 variables that are strongly positive correlated each of them. For example, consider

$$(\mathbf{X}_1, \dots, \mathbf{X}_5)' \sim \mathcal{N}_{100}(\boldsymbol{\mu}, \boldsymbol{\Sigma}),$$

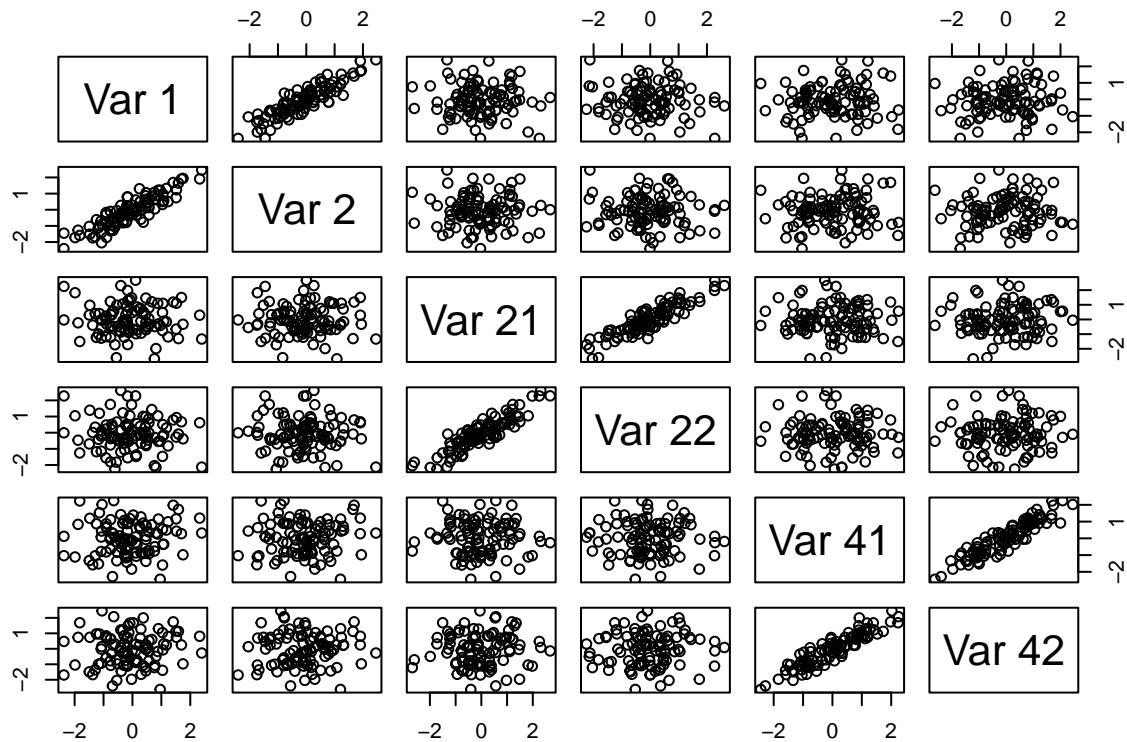
where

$$\Sigma = \text{diag}(\Sigma_1, \dots, \Sigma_5)$$

is blockwise diagonal. Take now  $n = 200$  observations and center and standardize the features. Then the features now live in  $\mathbb{S}^{n-1}$ .

Run pscsne on the standardized features on  $\mathbb{S}^{199}$  for 100 observations. Then, we consider 10 groups of 20 variables each of them with positive correlation.

```
# Visualize some features
n <- 100
g <- 5
p <- 20
x <- r_block(n = n, g = g, p = p)
pairs(x[, c(1:2, p + 1:2, (2 * p) + 1:2)],
      labels = c("Var 1", "Var 2", paste("Var", p + 1), paste("Var", p + 2),
                paste("Var", (2 * p) + 1), paste("Var", (2 * p) + 2)))
```



```
# Standardize variables -- now the vectors of observations for each variable
# (the columns) live on \sqrt{n - 1} * S^{n - 1}!
x_sca <- scale(x)
# Make the features live on S^{n - 1}
x_sca <- x_sca / sqrt(n - 1)
# Transpose matrix (features become observations)
feat_data <- t(x_sca)
# Colors of the groups
cols <- rep(1:g, each = p)
# Set an array of dimension c(g * p, n, 1)
dim(feat_data) <- c(dim(feat_data), 1)
# Change the order of the data
indexes <- sample(1:(g * p))
feat_data <- feat_data[indexes, , , drop = FALSE]
```

```
cols <- cols[indexes]
```

Let's calculate the rho based on a perplexity of 30

```
rho_list <- rho_optim_bst(x = feat_data, perp_fixed = 30,
                           num_cores = num_cores_param)
#> Time difference of 1.809703 secs
```

Run psc\_sne() with colors being the groups of variables for  $d = 1$ :

```
res_pscsne_21 <- psc_sne(X = feat_data, d = 1, rho_psc_list = rho_list,
                           colors = cols, show_prog = TRUE, num_iteration = 775,
                           eta = 35, parallel_cores = num_cores_param)
#> It: 1; obj: 1.101e+01; abs: 0.000e+00; rel: 0.000e+00; norm: 2.024e-01; mom: 0.000e+00;
#> best it: 1; best obj: 1.101e+01
#> It: 2; obj: 1.036e+01; abs: 6.479e-01; rel: 5.887e-02; norm: 4.802e-01; mom: 1.669e+00;
#> best it: 2; best obj: 1.036e+01
#> It: 3; obj: 9.748e+00; abs: 6.101e-01; rel: 5.890e-02; norm: 7.719e-01; mom: 1.502e+00;
#> best it: 3; best obj: 9.748e+00
#> It: 4; obj: 9.214e+00; abs: 5.346e-01; rel: 5.485e-02; norm: 9.761e-01; mom: 1.321e+00;
#> best it: 4; best obj: 9.214e+00
#> It: 5; obj: 8.740e+00; abs: 4.736e-01; rel: 5.140e-02; norm: 1.172e+00; mom: 1.301e+00;
#> best it: 5; best obj: 8.740e+00
#> It: 6; obj: 8.448e+00; abs: 2.917e-01; rel: 3.338e-02; norm: 1.383e+00; mom: 1.204e+00;
#> best it: 6; best obj: 8.448e+00
#> It: 7; obj: 8.363e+00; abs: 8.521e-02; rel: 1.009e-02; norm: 1.564e+00; mom: 7.591e-01;
#> best it: 7; best obj: 8.363e+00
#> It: 8; obj: 8.332e+00; abs: 3.107e-02; rel: 3.715e-03; norm: 1.669e+00; mom: 4.670e-01;
#> best it: 8; best obj: 8.332e+00
#> It: 9; obj: 8.327e+00; abs: 4.720e-03; rel: 5.665e-04; norm: 1.751e+00; mom: 3.855e-01;
#> best it: 9; best obj: 8.327e+00
#> It: 10; obj: 8.336e+00; abs: 9.148e-03; rel: 1.099e-03; norm: 1.814e+00; mom: 3.066e-01;
#> best it: 9; best obj: 8.327e+00
#> It: 11; obj: 8.353e+00; abs: 1.645e-02; rel: 1.973e-03; norm: 1.859e+00; mom: 2.537e-01;
#> best it: 9; best obj: 8.327e+00
#> It: 12; obj: 8.370e+00; abs: 1.716e-02; rel: 2.055e-03; norm: 1.890e+00; mom: 2.145e-01;
#> best it: 9; best obj: 8.327e+00
#> It: 13; obj: 8.383e+00; abs: 1.303e-02; rel: 1.556e-03; norm: 1.913e+00; mom: 1.931e-01;
#> best it: 9; best obj: 8.327e+00
#> It: 14; obj: 8.389e+00; abs: 5.527e-03; rel: 6.593e-04; norm: 1.933e+00; mom: 1.842e-01;
#> best it: 9; best obj: 8.327e+00
#> It: 15; obj: 8.386e+00; abs: 2.665e-03; rel: 3.177e-04; norm: 1.950e+00; mom: 1.795e-01;
#> best it: 9; best obj: 8.327e+00
#> It: 16; obj: 8.377e+00; abs: 9.196e-03; rel: 1.097e-03; norm: 1.964e+00; mom: 1.715e-01;
#> best it: 9; best obj: 8.327e+00
#> It: 17; obj: 8.361e+00; abs: 1.520e-02; rel: 1.814e-03; norm: 1.973e+00; mom: 1.546e-01;
#> best it: 9; best obj: 8.327e+00
#> It: 18; obj: 8.340e+00; abs: 2.194e-02; rel: 2.624e-03; norm: 1.978e+00; mom: 1.335e-01;
#> best it: 9; best obj: 8.327e+00
#> It: 19; obj: 8.311e+00; abs: 2.885e-02; rel: 3.459e-03; norm: 1.979e+00; mom: 1.163e-01;
#> best it: 19; best obj: 8.311e+00
#> It: 20; obj: 8.276e+00; abs: 3.460e-02; rel: 4.163e-03; norm: 1.979e+00; mom: 1.057e-01;
#> best it: 20; best obj: 8.276e+00
#> It: 21; obj: 8.238e+00; abs: 3.814e-02; rel: 4.609e-03; norm: 1.978e+00; mom: 9.983e-02;
#> best it: 21; best obj: 8.238e+00
```

```

#> It: 22; obj: 8.199e+00; abs: 3.921e-02; rel: 4.760e-03; norm: 1.975e+00; mom: 9.544e-02;
#> best it: 22; best obj: 8.199e+00
#> It: 23; obj: 8.160e+00; abs: 3.827e-02; rel: 4.668e-03; norm: 1.971e+00; mom: 9.079e-02;
#> best it: 23; best obj: 8.160e+00
#> It: 24; obj: 8.124e+00; abs: 3.608e-02; rel: 4.421e-03; norm: 1.966e+00; mom: 8.539e-02;
#> best it: 24; best obj: 8.124e+00
#> It: 25; obj: 8.091e+00; abs: 3.331e-02; rel: 4.101e-03; norm: 1.959e+00; mom: 7.943e-02;
#> best it: 25; best obj: 8.091e+00
#> It: 26; obj: 8.061e+00; abs: 3.045e-02; rel: 3.764e-03; norm: 1.952e+00; mom: 7.328e-02;
#> best it: 26; best obj: 8.061e+00
#> It: 27; obj: 8.033e+00; abs: 2.775e-02; rel: 3.443e-03; norm: 1.943e+00; mom: 6.730e-02;
#> best it: 27; best obj: 8.033e+00
#> It: 28; obj: 8.008e+00; abs: 2.534e-02; rel: 3.154e-03; norm: 1.935e+00; mom: 6.172e-02;
#> best it: 28; best obj: 8.008e+00
#> It: 29; obj: 7.984e+00; abs: 2.322e-02; rel: 2.900e-03; norm: 1.926e+00; mom: 5.670e-02;
#> best it: 29; best obj: 7.984e+00
#> It: 30; obj: 7.963e+00; abs: 2.139e-02; rel: 2.679e-03; norm: 1.918e+00; mom: 5.226e-02;
#> best it: 30; best obj: 7.963e+00
#> It: 31; obj: 7.943e+00; abs: 1.981e-02; rel: 2.488e-03; norm: 1.909e+00; mom: 4.839e-02;
#> best it: 31; best obj: 7.943e+00
#> It: 32; obj: 7.925e+00; abs: 1.843e-02; rel: 2.320e-03; norm: 1.901e+00; mom: 4.502e-02;
#> best it: 32; best obj: 7.925e+00
#> It: 33; obj: 7.907e+00; abs: 1.722e-02; rel: 2.173e-03; norm: 1.893e+00; mom: 4.211e-02;
#> best it: 33; best obj: 7.907e+00
#> It: 34; obj: 7.891e+00; abs: 1.615e-02; rel: 2.042e-03; norm: 1.885e+00; mom: 3.958e-02;
#> best it: 34; best obj: 7.891e+00
#> It: 35; obj: 7.876e+00; abs: 1.519e-02; rel: 1.925e-03; norm: 1.877e+00; mom: 3.739e-02;
#> best it: 35; best obj: 7.876e+00
#> It: 36; obj: 7.862e+00; abs: 1.433e-02; rel: 1.819e-03; norm: 1.869e+00; mom: 3.548e-02;
#> best it: 36; best obj: 7.862e+00
#> It: 37; obj: 7.848e+00; abs: 1.354e-02; rel: 1.722e-03; norm: 1.861e+00; mom: 3.381e-02;
#> best it: 37; best obj: 7.848e+00
#> It: 38; obj: 7.835e+00; abs: 1.282e-02; rel: 1.633e-03; norm: 1.854e+00; mom: 3.235e-02;
#> best it: 38; best obj: 7.835e+00
#> It: 39; obj: 7.823e+00; abs: 1.215e-02; rel: 1.551e-03; norm: 1.847e+00; mom: 3.107e-02;
#> best it: 39; best obj: 7.823e+00
#> It: 40; obj: 7.812e+00; abs: 1.153e-02; rel: 1.474e-03; norm: 1.840e+00; mom: 2.994e-02;
#> best it: 40; best obj: 7.812e+00
#> It: 41; obj: 7.801e+00; abs: 1.095e-02; rel: 1.402e-03; norm: 1.833e+00; mom: 2.894e-02;
#> best it: 41; best obj: 7.801e+00
#> It: 42; obj: 7.790e+00; abs: 1.041e-02; rel: 1.334e-03; norm: 1.827e+00; mom: 2.807e-02;
#> best it: 42; best obj: 7.790e+00
#> It: 43; obj: 7.780e+00; abs: 9.897e-03; rel: 1.270e-03; norm: 1.820e+00; mom: 2.730e-02;
#> best it: 43; best obj: 7.780e+00
#> It: 44; obj: 7.771e+00; abs: 9.415e-03; rel: 1.210e-03; norm: 1.814e+00; mom: 2.663e-02;
#> best it: 44; best obj: 7.771e+00
#> It: 45; obj: 7.762e+00; abs: 8.958e-03; rel: 1.153e-03; norm: 1.807e+00; mom: 2.604e-02;
#> best it: 45; best obj: 7.762e+00
#> It: 46; obj: 7.754e+00; abs: 8.526e-03; rel: 1.098e-03; norm: 1.801e+00; mom: 2.553e-02;
#> best it: 46; best obj: 7.754e+00
#> It: 47; obj: 7.745e+00; abs: 8.114e-03; rel: 1.047e-03; norm: 1.795e+00; mom: 2.508e-02;
#> best it: 47; best obj: 7.745e+00
#> It: 48; obj: 7.738e+00; abs: 7.723e-03; rel: 9.971e-04; norm: 1.790e+00; mom: 2.470e-02;

```

```

#> best it: 48; best obj: 7.738e+00
#> It: 49; obj: 7.730e+00; abs: 7.349e-03; rel: 9.498e-04; norm: 1.784e+00; mom: 2.437e-02;
#> best it: 49; best obj: 7.730e+00
#> It: 50; obj: 7.723e+00; abs: 6.993e-03; rel: 9.046e-04; norm: 1.778e+00; mom: 2.409e-02;
#> best it: 50; best obj: 7.723e+00
#> It: 51; obj: 7.717e+00; abs: 6.651e-03; rel: 8.612e-04; norm: 1.773e+00; mom: 2.385e-02;
#> best it: 51; best obj: 7.717e+00
#> It: 52; obj: 7.710e+00; abs: 6.324e-03; rel: 8.195e-04; norm: 1.768e+00; mom: 2.366e-02;
#> best it: 52; best obj: 7.710e+00
#> It: 53; obj: 7.704e+00; abs: 6.009e-03; rel: 7.794e-04; norm: 1.762e+00; mom: 2.351e-02;
#> best it: 53; best obj: 7.704e+00
#> It: 54; obj: 7.699e+00; abs: 5.707e-03; rel: 7.408e-04; norm: 1.757e+00; mom: 2.339e-02;
#> best it: 54; best obj: 7.699e+00
#> It: 55; obj: 7.693e+00; abs: 5.416e-03; rel: 7.035e-04; norm: 1.752e+00; mom: 2.330e-02;
#> best it: 55; best obj: 7.693e+00
#> It: 56; obj: 7.688e+00; abs: 5.134e-03; rel: 6.674e-04; norm: 1.747e+00; mom: 2.325e-02;
#> best it: 56; best obj: 7.688e+00
#> It: 57; obj: 7.683e+00; abs: 4.862e-03; rel: 6.324e-04; norm: 1.742e+00; mom: 2.322e-02;
#> best it: 57; best obj: 7.683e+00
#> It: 58; obj: 7.679e+00; abs: 4.599e-03; rel: 5.985e-04; norm: 1.737e+00; mom: 2.322e-02;
#> best it: 58; best obj: 7.679e+00
#> It: 59; obj: 7.674e+00; abs: 4.342e-03; rel: 5.655e-04; norm: 1.733e+00; mom: 2.325e-02;
#> best it: 59; best obj: 7.674e+00
#> It: 60; obj: 7.670e+00; abs: 4.093e-03; rel: 5.333e-04; norm: 1.728e+00; mom: 2.330e-02;
#> best it: 60; best obj: 7.670e+00
#> It: 61; obj: 7.666e+00; abs: 3.850e-03; rel: 5.019e-04; norm: 1.724e+00; mom: 2.337e-02;
#> best it: 61; best obj: 7.666e+00
#> It: 62; obj: 7.663e+00; abs: 3.612e-03; rel: 4.712e-04; norm: 1.719e+00; mom: 2.346e-02;
#> best it: 62; best obj: 7.663e+00
#> It: 63; obj: 7.659e+00; abs: 3.379e-03; rel: 4.410e-04; norm: 1.715e+00; mom: 2.357e-02;
#> best it: 63; best obj: 7.659e+00
#> It: 64; obj: 7.656e+00; abs: 3.151e-03; rel: 4.114e-04; norm: 1.710e+00; mom: 2.369e-02;
#> best it: 64; best obj: 7.656e+00
#> It: 65; obj: 7.653e+00; abs: 2.926e-03; rel: 3.822e-04; norm: 1.706e+00; mom: 2.384e-02;
#> best it: 65; best obj: 7.653e+00
#> It: 66; obj: 7.651e+00; abs: 2.704e-03; rel: 3.533e-04; norm: 1.702e+00; mom: 2.400e-02;
#> best it: 66; best obj: 7.651e+00
#> It: 67; obj: 7.648e+00; abs: 2.485e-03; rel: 3.248e-04; norm: 1.698e+00; mom: 2.417e-02;
#> best it: 67; best obj: 7.648e+00
#> It: 68; obj: 7.646e+00; abs: 2.268e-03; rel: 2.965e-04; norm: 1.694e+00; mom: 2.436e-02;
#> best it: 68; best obj: 7.646e+00
#> It: 69; obj: 7.644e+00; abs: 2.052e-03; rel: 2.684e-04; norm: 1.690e+00; mom: 2.456e-02;
#> best it: 69; best obj: 7.644e+00
#> It: 70; obj: 7.642e+00; abs: 1.838e-03; rel: 2.405e-04; norm: 1.686e+00; mom: 2.478e-02;
#> best it: 70; best obj: 7.642e+00
#> It: 71; obj: 7.640e+00; abs: 1.625e-03; rel: 2.126e-04; norm: 1.682e+00; mom: 2.500e-02;
#> best it: 71; best obj: 7.640e+00
#> It: 72; obj: 7.639e+00; abs: 1.412e-03; rel: 1.848e-04; norm: 1.678e+00; mom: 2.524e-02;
#> best it: 72; best obj: 7.639e+00
#> It: 73; obj: 7.638e+00; abs: 1.198e-03; rel: 1.569e-04; norm: 1.674e+00; mom: 2.548e-02;
#> best it: 73; best obj: 7.638e+00
#> It: 74; obj: 7.637e+00; abs: 9.850e-04; rel: 1.290e-04; norm: 1.671e+00; mom: 2.574e-02;
#> best it: 74; best obj: 7.637e+00

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#> It: 75; obj: 7.636e+00; abs: 7.707e-04; rel: 1.009e-04; norm: 1.667e+00; mom: 2.600e-02;
#> best it: 75; best obj: 7.636e+00
#> It: 76; obj: 7.635e+00; abs: 5.555e-04; rel: 7.274e-05; norm: 1.664e+00; mom: 2.627e-02;
#> best it: 76; best obj: 7.635e+00
#> It: 77; obj: 7.635e+00; abs: 3.389e-04; rel: 4.438e-05; norm: 1.660e+00; mom: 2.655e-02;
#> best it: 77; best obj: 7.635e+00
#> It: 78; obj: 7.635e+00; abs: 1.206e-04; rel: 1.580e-05; norm: 1.657e+00; mom: 2.683e-02;
#> best it: 78; best obj: 7.635e+00
#> It: 79; obj: 7.635e+00; abs: 9.945e-05; rel: 1.303e-05; norm: 1.653e+00; mom: 2.712e-02;
#> best it: 78; best obj: 7.635e+00
#> It: 80; obj: 7.635e+00; abs: 3.216e-04; rel: 4.213e-05; norm: 1.650e+00; mom: 2.742e-02;
#> best it: 78; best obj: 7.635e+00
#> It: 81; obj: 7.636e+00; abs: 5.462e-04; rel: 7.153e-05; norm: 1.647e+00; mom: 2.772e-02;
#> best it: 78; best obj: 7.635e+00
#> It: 82; obj: 7.637e+00; abs: 7.732e-04; rel: 1.013e-04; norm: 1.644e+00; mom: 2.803e-02;
#> best it: 78; best obj: 7.635e+00
#> It: 83; obj: 7.638e+00; abs: 1.003e-03; rel: 1.313e-04; norm: 1.641e+00; mom: 2.834e-02;
#> best it: 78; best obj: 7.635e+00
#> It: 84; obj: 7.639e+00; abs: 1.236e-03; rel: 1.618e-04; norm: 1.639e+00; mom: 2.865e-02;
#> best it: 78; best obj: 7.635e+00
#> It: 85; obj: 7.640e+00; abs: 1.471e-03; rel: 1.926e-04; norm: 1.636e+00; mom: 2.897e-02;
#> best it: 78; best obj: 7.635e+00
#> It: 86; obj: 7.642e+00; abs: 1.710e-03; rel: 2.238e-04; norm: 1.633e+00; mom: 2.929e-02;
#> best it: 78; best obj: 7.635e+00
#> It: 87; obj: 7.644e+00; abs: 1.952e-03; rel: 2.554e-04; norm: 1.631e+00; mom: 2.962e-02;
#> best it: 78; best obj: 7.635e+00
#> It: 88; obj: 7.646e+00; abs: 2.197e-03; rel: 2.875e-04; norm: 1.629e+00; mom: 2.995e-02;
#> best it: 78; best obj: 7.635e+00
#> It: 89; obj: 7.649e+00; abs: 2.446e-03; rel: 3.199e-04; norm: 1.627e+00; mom: 3.027e-02;
#> best it: 78; best obj: 7.635e+00
#> It: 90; obj: 7.651e+00; abs: 2.698e-03; rel: 3.528e-04; norm: 1.625e+00; mom: 3.060e-02;
#> best it: 78; best obj: 7.635e+00
#> It: 91; obj: 7.654e+00; abs: 2.954e-03; rel: 3.861e-04; norm: 1.623e+00; mom: 3.094e-02;
#> best it: 78; best obj: 7.635e+00
#> It: 92; obj: 7.658e+00; abs: 3.213e-03; rel: 4.198e-04; norm: 1.622e+00; mom: 3.127e-02;
#> best it: 78; best obj: 7.635e+00
#> It: 93; obj: 7.661e+00; abs: 3.476e-03; rel: 4.539e-04; norm: 1.621e+00; mom: 3.160e-02;
#> best it: 78; best obj: 7.635e+00
#> It: 94; obj: 7.665e+00; abs: 3.742e-03; rel: 4.885e-04; norm: 1.620e+00; mom: 3.194e-02;
#> best it: 78; best obj: 7.635e+00
#> It: 95; obj: 7.669e+00; abs: 4.012e-03; rel: 5.234e-04; norm: 1.619e+00; mom: 3.227e-02;
#> best it: 78; best obj: 7.635e+00
#> It: 96; obj: 7.673e+00; abs: 4.285e-03; rel: 5.588e-04; norm: 1.618e+00; mom: 3.261e-02;
#> best it: 78; best obj: 7.635e+00
#> It: 97; obj: 7.678e+00; abs: 4.562e-03; rel: 5.946e-04; norm: 1.618e+00; mom: 3.294e-02;
#> best it: 78; best obj: 7.635e+00
#> It: 98; obj: 7.683e+00; abs: 4.842e-03; rel: 6.307e-04; norm: 1.618e+00; mom: 3.327e-02;
#> best it: 78; best obj: 7.635e+00
#> It: 99; obj: 7.688e+00; abs: 5.126e-03; rel: 6.672e-04; norm: 1.619e+00; mom: 3.361e-02;
#> best it: 78; best obj: 7.635e+00
#> It: 100; obj: 7.693e+00; abs: 5.413e-03; rel: 7.041e-04; norm: 1.619e+00; mom: 3.394e-02;
#> best it: 78; best obj: 7.635e+00
#> It: 101; obj: 5.186e-01; abs: 7.174e+00; rel: 9.326e-01; norm: 1.698e-01; mom: 3.427e-02;

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#> best it: 101; best obj: 5.186e-01
#> It: 102; obj: 5.059e-01; abs: 1.278e-02; rel: 2.464e-02; norm: 1.628e-01; mom: 3.144e-01;
#> best it: 102; best obj: 5.059e-01
#> It: 103; obj: 4.954e-01; abs: 1.048e-02; rel: 2.071e-02; norm: 1.585e-01; mom: 2.919e-01;
#> best it: 103; best obj: 4.954e-01
#> It: 104; obj: 4.866e-01; abs: 8.800e-03; rel: 1.776e-02; norm: 1.568e-01; mom: 2.454e-01;
#> best it: 104; best obj: 4.866e-01
#> It: 105; obj: 4.795e-01; abs: 7.087e-03; rel: 1.457e-02; norm: 1.563e-01; mom: 2.132e-01;
#> best it: 105; best obj: 4.795e-01
#> It: 106; obj: 4.739e-01; abs: 5.597e-03; rel: 1.167e-02; norm: 1.568e-01; mom: 1.829e-01;
#> best it: 106; best obj: 4.739e-01
#> It: 107; obj: 4.698e-01; abs: 4.087e-03; rel: 8.623e-03; norm: 1.580e-01; mom: 1.542e-01;
#> best it: 107; best obj: 4.698e-01
#> It: 108; obj: 4.673e-01; abs: 2.545e-03; rel: 5.418e-03; norm: 1.597e-01; mom: 1.313e-01;
#> best it: 108; best obj: 4.673e-01
#> It: 109; obj: 4.659e-01; abs: 1.329e-03; rel: 2.845e-03; norm: 1.613e-01; mom: 1.075e-01;
#> best it: 109; best obj: 4.659e-01
#> It: 110; obj: 4.653e-01; abs: 6.293e-04; rel: 1.351e-03; norm: 1.633e-01; mom: 7.872e-02;
#> best it: 110; best obj: 4.653e-01
#> It: 111; obj: 4.650e-01; abs: 3.077e-04; rel: 6.612e-04; norm: 1.645e-01; mom: 5.708e-02;
#> best it: 111; best obj: 4.650e-01
#> It: 112; obj: 4.648e-01; abs: 1.658e-04; rel: 3.565e-04; norm: 1.650e-01; mom: 4.206e-02;
#> best it: 112; best obj: 4.648e-01
#> It: 113; obj: 4.647e-01; abs: 9.479e-05; rel: 2.039e-04; norm: 1.652e-01; mom: 3.161e-02;
#> best it: 113; best obj: 4.647e-01
#> It: 114; obj: 4.647e-01; abs: 5.486e-05; rel: 1.181e-04; norm: 1.652e-01; mom: 2.409e-02;
#> best it: 114; best obj: 4.647e-01
#> It: 115; obj: 4.647e-01; abs: 3.167e-05; rel: 6.815e-05; norm: 1.651e-01; mom: 1.840e-02;
#> best it: 115; best obj: 4.647e-01
#> It: 116; obj: 4.646e-01; abs: 1.825e-05; rel: 3.928e-05; norm: 1.651e-01; mom: 1.403e-02;
#> best it: 116; best obj: 4.646e-01
#> It: 117; obj: 4.646e-01; abs: 1.052e-05; rel: 2.264e-05; norm: 1.650e-01; mom: 1.068e-02;
#> best it: 117; best obj: 4.646e-01
#> It: 118; obj: 4.646e-01; abs: 6.068e-06; rel: 1.306e-05; norm: 1.650e-01; mom: 8.127e-03;
#> best it: 118; best obj: 4.646e-01
#> It: 119; obj: 4.646e-01; abs: 3.500e-06; rel: 7.532e-06; norm: 1.650e-01; mom: 6.183e-03;
#> best it: 119; best obj: 4.646e-01
#> It: 120; obj: 4.646e-01; abs: 2.018e-06; rel: 4.344e-06; norm: 1.650e-01; mom: 4.702e-03;
#> best it: 120; best obj: 4.646e-01
#> It: 121; obj: 4.646e-01; abs: 1.164e-06; rel: 2.505e-06; norm: 1.650e-01; mom: 3.575e-03;
#> best it: 121; best obj: 4.646e-01
#> It: 122; obj: 4.646e-01; abs: 6.714e-07; rel: 1.445e-06; norm: 1.650e-01; mom: 2.717e-03;
#> best it: 122; best obj: 4.646e-01
#> It: 123; obj: 4.646e-01; abs: 3.874e-07; rel: 8.338e-07; norm: 1.649e-01; mom: 2.065e-03;
#> best it: 123; best obj: 4.646e-01
#> It: 124; obj: 4.646e-01; abs: 2.236e-07; rel: 4.812e-07; norm: 1.649e-01; mom: 1.569e-03;
#> best it: 124; best obj: 4.646e-01
#> It: 125; obj: 4.646e-01; abs: 1.291e-07; rel: 2.778e-07; norm: 1.649e-01; mom: 1.193e-03;
#> best it: 125; best obj: 4.646e-01
#> It: 126; obj: 4.646e-01; abs: 7.453e-08; rel: 1.604e-07; norm: 1.649e-01; mom: 9.066e-04;
#> best it: 126; best obj: 4.646e-01
#> It: 127; obj: 4.646e-01; abs: 4.305e-08; rel: 9.265e-08; norm: 1.649e-01; mom: 6.892e-04;
#> best it: 127; best obj: 4.646e-01

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#> It: 128; obj: 4.646e-01; abs: 2.487e-08; rel: 5.353e-08; norm: 1.649e-01; mom: 5.240e-04;
#> best it: 128; best obj: 4.646e-01
#> It: 129; obj: 4.646e-01; abs: 1.437e-08; rel: 3.094e-08; norm: 1.649e-01; mom: 3.985e-04;
#> best it: 129; best obj: 4.646e-01
#> It: 130; obj: 4.646e-01; abs: 8.309e-09; rel: 1.788e-08; norm: 1.649e-01; mom: 3.031e-04;
#> best it: 130; best obj: 4.646e-01
#> It: 131; obj: 4.646e-01; abs: 4.805e-09; rel: 1.034e-08; norm: 1.649e-01; mom: 2.306e-04;
#> best it: 131; best obj: 4.646e-01
#> It: 132; obj: 4.646e-01; abs: 2.779e-09; rel: 5.982e-09; norm: 1.649e-01; mom: 1.754e-04;
#> best it: 132; best obj: 4.646e-01
#> It: 133; obj: 4.646e-01; abs: 1.608e-09; rel: 3.461e-09; norm: 1.649e-01; mom: 1.335e-04;
#> best it: 133; best obj: 4.646e-01
#> It: 134; obj: 4.646e-01; abs: 9.307e-10; rel: 2.003e-09; norm: 1.649e-01; mom: 1.016e-04;
#> best it: 134; best obj: 4.646e-01
#> It: 135; obj: 4.646e-01; abs: 5.388e-10; rel: 1.160e-09; norm: 1.649e-01; mom: 7.731e-05;
#> best it: 135; best obj: 4.646e-01
#> It: 136; obj: 4.646e-01; abs: 3.121e-10; rel: 6.717e-10; norm: 1.649e-01; mom: 5.885e-05;
#> best it: 136; best obj: 4.646e-01
#> It: 137; obj: 4.646e-01; abs: 1.808e-10; rel: 3.891e-10; norm: 1.649e-01; mom: 4.481e-05;
#> best it: 137; best obj: 4.646e-01
#> It: 138; obj: 4.646e-01; abs: 1.048e-10; rel: 2.255e-10; norm: 1.649e-01; mom: 3.412e-05;
#> best it: 138; best obj: 4.646e-01
#> It: 139; obj: 4.646e-01; abs: 6.073e-11; rel: 1.307e-10; norm: 1.649e-01; mom: 2.599e-05;
#> best it: 139; best obj: 4.646e-01
#> It: 140; obj: 4.646e-01; abs: 3.522e-11; rel: 7.580e-11; norm: 1.649e-01; mom: 1.979e-05;
#> best it: 140; best obj: 4.646e-01
#> It: 141; obj: 4.646e-01; abs: 2.042e-11; rel: 4.396e-11; norm: 1.649e-01; mom: 1.508e-05;
#> best it: 141; best obj: 4.646e-01
#> It: 142; obj: 4.646e-01; abs: 1.186e-11; rel: 2.552e-11; norm: 1.649e-01; mom: 1.149e-05;
#> best it: 142; best obj: 4.646e-01
#> It: 143; obj: 4.646e-01; abs: 6.874e-12; rel: 1.480e-11; norm: 1.649e-01; mom: 8.756e-06;
#> best it: 143; best obj: 4.646e-01
#> It: 144; obj: 4.646e-01; abs: 3.989e-12; rel: 8.586e-12; norm: 1.649e-01; mom: 6.674e-06;
#> best it: 144; best obj: 4.646e-01
#> It: 145; obj: 4.646e-01; abs: 2.326e-12; rel: 5.006e-12; norm: 1.649e-01; mom: 5.087e-06;
#> best it: 145; best obj: 4.646e-01
#> It: 146; obj: 4.646e-01; abs: 1.343e-12; rel: 2.890e-12; norm: 1.649e-01; mom: 3.879e-06;
#> best it: 146; best obj: 4.646e-01
#> It: 147; obj: 4.646e-01; abs: 7.863e-13; rel: 1.692e-12; norm: 1.649e-01; mom: 2.957e-06;
#> best it: 147; best obj: 4.646e-01
#> It: 148; obj: 4.646e-01; abs: 4.536e-13; rel: 9.764e-13; norm: 1.649e-01; mom: 2.255e-06;
#> best it: 148; best obj: 4.646e-01
#> It: 149; obj: 4.646e-01; abs: 2.625e-13; rel: 5.650e-13; norm: 1.649e-01; mom: 1.720e-06;
#> best it: 149; best obj: 4.646e-01
#> It: 150; obj: 4.646e-01; abs: 1.564e-13; rel: 3.367e-13; norm: 1.649e-01; mom: 1.312e-06;
#> best it: 150; best obj: 4.646e-01
#> It: 151; obj: 4.646e-01; abs: 8.760e-14; rel: 1.885e-13; norm: 1.649e-01; mom: 1.001e-06;
#> best it: 151; best obj: 4.646e-01
#> It: 152; obj: 4.646e-01; abs: 5.340e-14; rel: 1.149e-13; norm: 1.649e-01; mom: 7.640e-07;
#> best it: 152; best obj: 4.646e-01
#> It: 153; obj: 4.646e-01; abs: 3.292e-14; rel: 7.085e-14; norm: 1.649e-01; mom: 5.830e-07;
#> best it: 153; best obj: 4.646e-01
#> It: 154; obj: 4.646e-01; abs: 1.382e-14; rel: 2.975e-14; norm: 1.649e-01; mom: 4.450e-07;

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#> best it: 154; best obj: 4.646e-01
#> It: 155; obj: 4.646e-01; abs: 1.138e-14; rel: 2.449e-14; norm: 1.649e-01; mom: 3.397e-07;
#> best it: 155; best obj: 4.646e-01
#> It: 156; obj: 4.646e-01; abs: 8.216e-15; rel: 1.768e-14; norm: 1.649e-01; mom: 2.593e-07;
#> best it: 156; best obj: 4.646e-01
#> It: 157; obj: 4.646e-01; abs: 2.609e-15; rel: 5.616e-15; norm: 1.649e-01; mom: 1.980e-07;
#> best it: 157; best obj: 4.646e-01
#> It: 158; obj: 4.646e-01; abs: 2.165e-15; rel: 4.660e-15; norm: 1.649e-01; mom: 1.512e-07;
#> best it: 158; best obj: 4.646e-01
#> It: 159; obj: 4.646e-01; abs: 4.108e-15; rel: 8.841e-15; norm: 1.649e-01; mom: 1.155e-07;
#> best it: 158; best obj: 4.646e-01
#> It: 160; obj: 4.646e-01; abs: 8.216e-15; rel: 1.768e-14; norm: 1.649e-01; mom: 8.822e-08;
#> best it: 160; best obj: 4.646e-01
#> It: 161; obj: 4.646e-01; abs: 2.387e-15; rel: 5.138e-15; norm: 1.649e-01; mom: 6.739e-08;
#> best it: 160; best obj: 4.646e-01
#> It: 162; obj: 4.646e-01; abs: 3.497e-15; rel: 7.527e-15; norm: 1.649e-01; mom: 5.149e-08;
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#> It: 163; obj: 4.646e-01; abs: 1.110e-15; rel: 2.390e-15; norm: 1.649e-01; mom: 3.934e-08;
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#> It: 164; obj: 4.646e-01; abs: 3.553e-15; rel: 7.647e-15; norm: 1.649e-01; mom: 3.007e-08;
#> best it: 162; best obj: 4.646e-01
#> It: 165; obj: 4.646e-01; abs: 6.106e-16; rel: 1.314e-15; norm: 1.649e-01; mom: 2.298e-08;
#> best it: 162; best obj: 4.646e-01
#> It: 166; obj: 4.646e-01; abs: 5.884e-15; rel: 1.266e-14; norm: 1.649e-01; mom: 1.756e-08;
#> best it: 166; best obj: 4.646e-01
#> It: 167; obj: 4.646e-01; abs: 4.607e-15; rel: 9.917e-15; norm: 1.649e-01; mom: 1.343e-08;
#> best it: 166; best obj: 4.646e-01
#> It: 168; obj: 4.646e-01; abs: 9.992e-16; rel: 2.151e-15; norm: 1.649e-01; mom: 1.027e-08;
#> best it: 166; best obj: 4.646e-01
#> It: 169; obj: 4.646e-01; abs: 2.887e-15; rel: 6.213e-15; norm: 1.649e-01; mom: 7.849e-09;
#> best it: 166; best obj: 4.646e-01
#> It: 170; obj: 4.646e-01; abs: 3.109e-15; rel: 6.691e-15; norm: 1.649e-01; mom: 6.002e-09;
#> best it: 166; best obj: 4.646e-01
#> It: 171; obj: 4.646e-01; abs: 6.106e-16; rel: 1.314e-15; norm: 1.649e-01; mom: 4.590e-09;
#> best it: 166; best obj: 4.646e-01
#> It: 172; obj: 4.646e-01; abs: 3.886e-16; rel: 8.364e-16; norm: 1.649e-01; mom: 3.511e-09;
#> best it: 166; best obj: 4.646e-01
#> It: 173; obj: 4.646e-01; abs: 9.992e-16; rel: 2.151e-15; norm: 1.649e-01; mom: 2.686e-09;
#> best it: 166; best obj: 4.646e-01
#> It: 174; obj: 4.646e-01; abs: 1.110e-16; rel: 2.390e-16; norm: 1.649e-01; mom: 2.055e-09;
#> best it: 166; best obj: 4.646e-01
#> It: 175; obj: 4.646e-01; abs: 7.772e-16; rel: 1.673e-15; norm: 1.649e-01; mom: 1.572e-09;
#> best it: 166; best obj: 4.646e-01
#> It: 176; obj: 4.646e-01; abs: 3.886e-16; rel: 8.364e-16; norm: 1.649e-01; mom: 1.203e-09;
#> best it: 166; best obj: 4.646e-01
#> It: 177; obj: 4.646e-01; abs: 3.886e-15; rel: 8.364e-15; norm: 1.649e-01; mom: 9.203e-10;
#> best it: 166; best obj: 4.646e-01
#> It: 178; obj: 4.646e-01; abs: 4.996e-16; rel: 1.075e-15; norm: 1.649e-01; mom: 7.043e-10;
#> best it: 166; best obj: 4.646e-01
#> It: 179; obj: 4.646e-01; abs: 6.994e-15; rel: 1.505e-14; norm: 1.649e-01; mom: 5.390e-10;
#> best it: 166; best obj: 4.646e-01
#> It: 180; obj: 4.646e-01; abs: 6.384e-15; rel: 1.374e-14; norm: 1.649e-01; mom: 4.126e-10;
#> best it: 166; best obj: 4.646e-01

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#> It: 181; obj: 4.646e-01; abs: 1.055e-15; rel: 2.270e-15; norm: 1.649e-01; mom: 3.158e-10;
#> best it: 166; best obj: 4.646e-01
#> It: 182; obj: 4.646e-01; abs: 1.221e-15; rel: 2.629e-15; norm: 1.649e-01; mom: 2.418e-10;
#> best it: 166; best obj: 4.646e-01
#> It: 183; obj: 4.646e-01; abs: 4.774e-15; rel: 1.028e-14; norm: 1.649e-01; mom: 1.851e-10;
#> best it: 166; best obj: 4.646e-01
#> It: 184; obj: 4.646e-01; abs: 5.052e-15; rel: 1.087e-14; norm: 1.649e-01; mom: 1.417e-10;
#> best it: 166; best obj: 4.646e-01
#> It: 185; obj: 4.646e-01; abs: 1.110e-16; rel: 2.390e-16; norm: 1.649e-01; mom: 1.085e-10;
#> best it: 166; best obj: 4.646e-01
#> It: 186; obj: 4.646e-01; abs: 1.887e-15; rel: 4.062e-15; norm: 1.649e-01; mom: 8.310e-11;
#> best it: 166; best obj: 4.646e-01
#> It: 187; obj: 4.646e-01; abs: 1.499e-15; rel: 3.226e-15; norm: 1.649e-01; mom: 6.364e-11;
#> best it: 166; best obj: 4.646e-01
#> It: 188; obj: 4.646e-01; abs: 2.554e-15; rel: 5.496e-15; norm: 1.649e-01; mom: 4.874e-11;
#> best it: 166; best obj: 4.646e-01
#> It: 189; obj: 4.646e-01; abs: 1.443e-15; rel: 3.106e-15; norm: 1.649e-01; mom: 3.733e-11;
#> best it: 166; best obj: 4.646e-01
#> It: 190; obj: 4.646e-01; abs: 1.943e-15; rel: 4.182e-15; norm: 1.649e-01; mom: 2.860e-11;
#> best it: 166; best obj: 4.646e-01
#> It: 191; obj: 4.646e-01; abs: 1.943e-15; rel: 4.182e-15; norm: 1.649e-01; mom: 2.190e-11;
#> best it: 166; best obj: 4.646e-01
#> It: 192; obj: 4.646e-01; abs: 2.609e-15; rel: 5.616e-15; norm: 1.649e-01; mom: 1.678e-11;
#> best it: 166; best obj: 4.646e-01
#> It: 193; obj: 4.646e-01; abs: 4.607e-15; rel: 9.917e-15; norm: 1.649e-01; mom: 1.286e-11;
#> best it: 166; best obj: 4.646e-01
#> It: 194; obj: 4.646e-01; abs: 9.992e-16; rel: 2.151e-15; norm: 1.649e-01; mom: 9.850e-12;
#> best it: 166; best obj: 4.646e-01
#> It: 195; obj: 4.646e-01; abs: 1.943e-15; rel: 4.182e-15; norm: 1.649e-01; mom: 7.547e-12;
#> best it: 166; best obj: 4.646e-01
#> It: 196; obj: 4.646e-01; abs: 1.665e-15; rel: 3.584e-15; norm: 1.649e-01; mom: 5.783e-12;
#> best it: 166; best obj: 4.646e-01
#> It: 197; obj: 4.646e-01; abs: 4.774e-15; rel: 1.028e-14; norm: 1.649e-01; mom: 4.432e-12;
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#> best it: 166; best obj: 4.646e-01
#> It: 200; obj: 4.646e-01; abs: 0.000e+00; rel: 0.000e+00; norm: 1.649e-01; mom: 1.995e-12;
#> best it: 166; best obj: 4.646e-01
#> It: 201; obj: 4.646e-01; abs: 2.220e-15; rel: 4.779e-15; norm: 1.649e-01; mom: 1.529e-12;
#> best it: 166; best obj: 4.646e-01
#> It: 202; obj: 4.646e-01; abs: 1.221e-15; rel: 2.629e-15; norm: 1.649e-01; mom: 1.172e-12;
#> best it: 166; best obj: 4.646e-01
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#> best it: 166; best obj: 4.646e-01
#> It: 204; obj: 4.646e-01; abs: 5.551e-16; rel: 1.195e-15; norm: 1.649e-01; mom: 6.888e-13;
#> best it: 204; best obj: 4.646e-01
#> It: 205; obj: 4.646e-01; abs: 2.387e-15; rel: 5.138e-15; norm: 1.649e-01; mom: 5.280e-13;
#> best it: 204; best obj: 4.646e-01
#> It: 206; obj: 4.646e-01; abs: 1.499e-15; rel: 3.226e-15; norm: 1.649e-01; mom: 4.049e-13;
#> best it: 204; best obj: 4.646e-01
#> It: 207; obj: 4.646e-01; abs: 7.772e-16; rel: 1.673e-15; norm: 1.649e-01; mom: 3.104e-13;

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#> best it: 204; best obj: 4.646e-01
#> It: 208; obj: 4.646e-01; abs: 1.887e-15; rel: 4.062e-15; norm: 1.649e-01; mom: 2.379e-13;
#> best it: 204; best obj: 4.646e-01
#> It: 209; obj: 4.646e-01; abs: 1.221e-15; rel: 2.629e-15; norm: 1.649e-01; mom: 1.823e-13;
#> best it: 204; best obj: 4.646e-01
#> It: 210; obj: 4.646e-01; abs: 1.332e-15; rel: 2.868e-15; norm: 1.649e-01; mom: 1.398e-13;
#> best it: 204; best obj: 4.646e-01
#> It: 211; obj: 4.646e-01; abs: 2.498e-15; rel: 5.377e-15; norm: 1.649e-01; mom: 1.073e-13;
#> best it: 204; best obj: 4.646e-01
#> It: 212; obj: 4.646e-01; abs: 5.551e-16; rel: 1.195e-15; norm: 1.649e-01; mom: 8.226e-14;
#> best it: 204; best obj: 4.646e-01
#> It: 213; obj: 4.646e-01; abs: 4.441e-16; rel: 9.558e-16; norm: 1.649e-01; mom: 6.316e-14;
#> best it: 204; best obj: 4.646e-01
#> It: 214; obj: 4.646e-01; abs: 3.331e-16; rel: 7.169e-16; norm: 1.649e-01; mom: 4.845e-14;
#> best it: 204; best obj: 4.646e-01
#> It: 215; obj: 4.646e-01; abs: 1.665e-16; rel: 3.584e-16; norm: 1.649e-01; mom: 3.717e-14;
#> best it: 204; best obj: 4.646e-01
#> It: 216; obj: 4.646e-01; abs: 5.551e-17; rel: 1.195e-16; norm: 1.649e-01; mom: 2.845e-14;
#> best it: 204; best obj: 4.646e-01
#> It: 217; obj: 4.646e-01; abs: 6.661e-16; rel: 1.434e-15; norm: 1.649e-01; mom: 2.189e-14;
#> best it: 204; best obj: 4.646e-01
#> It: 218; obj: 4.646e-01; abs: 2.220e-16; rel: 4.779e-16; norm: 1.649e-01; mom: 1.676e-14;
#> best it: 204; best obj: 4.646e-01
#> It: 219; obj: 4.646e-01; abs: 1.665e-16; rel: 3.584e-16; norm: 1.649e-01; mom: 1.292e-14;
#> best it: 204; best obj: 4.646e-01
#> It: 220; obj: 4.646e-01; abs: 2.776e-16; rel: 5.974e-16; norm: 1.649e-01; mom: 9.927e-15;
#> best it: 204; best obj: 4.646e-01
#> It: 221; obj: 4.646e-01; abs: 0.000e+00; rel: 0.000e+00; norm: 1.649e-01; mom: 7.621e-15;
#> best it: 204; best obj: 4.646e-01
#> It: 222; obj: 4.646e-01; abs: 1.665e-16; rel: 3.584e-16; norm: 1.649e-01; mom: 5.754e-15;
#> best it: 204; best obj: 4.646e-01
#> It: 223; obj: 4.646e-01; abs: 3.331e-16; rel: 7.169e-16; norm: 1.649e-01; mom: 4.449e-15;
#> best it: 204; best obj: 4.646e-01
#> It: 224; obj: 4.646e-01; abs: 1.110e-16; rel: 2.390e-16; norm: 1.649e-01; mom: 3.480e-15;
#> best it: 204; best obj: 4.646e-01
#> It: 225; obj: 4.646e-01; abs: 2.220e-16; rel: 4.779e-16; norm: 1.649e-01; mom: 2.692e-15;
#> best it: 204; best obj: 4.646e-01
#> It: 226; obj: 4.646e-01; abs: 3.886e-16; rel: 8.364e-16; norm: 1.649e-01; mom: 2.067e-15;
#> best it: 204; best obj: 4.646e-01
#> It: 227; obj: 4.646e-01; abs: 4.996e-16; rel: 1.075e-15; norm: 1.649e-01; mom: 1.638e-15;
#> best it: 204; best obj: 4.646e-01
#> It: 228; obj: 4.646e-01; abs: 5.551e-17; rel: 1.195e-16; norm: 1.649e-01; mom: 1.214e-15;
#> best it: 204; best obj: 4.646e-01
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#> best it: 204; best obj: 4.646e-01
#> It: 233; obj: 4.646e-01; abs: 1.665e-16; rel: 3.584e-16; norm: 1.649e-01; mom: 4.687e-16;
#> best it: 204; best obj: 4.646e-01

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#> It: 234; obj: 4.646e-01; abs: 5.551e-17; rel: 1.195e-16; norm: 1.649e-01; mom: 4.692e-16;
#> best it: 204; best obj: 4.646e-01
#> It: 235; obj: 4.646e-01; abs: 0.000e+00; rel: 0.000e+00; norm: 1.649e-01; mom: 4.639e-16;
#> best it: 204; best obj: 4.646e-01
#> It: 236; obj: 4.646e-01; abs: 5.551e-17; rel: 1.195e-16; norm: 1.649e-01; mom: 4.052e-16;
#> best it: 204; best obj: 4.646e-01
#> It: 237; obj: 4.646e-01; abs: 1.665e-16; rel: 3.584e-16; norm: 1.649e-01; mom: 4.478e-16;
#> best it: 204; best obj: 4.646e-01
#> It: 238; obj: 4.646e-01; abs: 1.665e-16; rel: 3.584e-16; norm: 1.649e-01; mom: 4.577e-16;
#> best it: 204; best obj: 4.646e-01
#> It: 239; obj: 4.646e-01; abs: 2.776e-16; rel: 5.974e-16; norm: 1.649e-01; mom: 3.878e-16;
#> best it: 204; best obj: 4.646e-01
#> It: 240; obj: 4.646e-01; abs: 3.886e-16; rel: 8.364e-16; norm: 1.649e-01; mom: 3.753e-16;
#> best it: 204; best obj: 4.646e-01
#> It: 241; obj: 4.646e-01; abs: 1.110e-16; rel: 2.390e-16; norm: 1.649e-01; mom: 3.110e-16;
#> best it: 204; best obj: 4.646e-01
#> It: 242; obj: 4.646e-01; abs: 1.110e-16; rel: 2.390e-16; norm: 1.649e-01; mom: 4.532e-16;
#> best it: 204; best obj: 4.646e-01
#> It: 243; obj: 4.646e-01; abs: 0.000e+00; rel: 0.000e+00; norm: 1.649e-01; mom: 3.513e-16;
#> best it: 204; best obj: 4.646e-01
#> It: 244; obj: 4.646e-01; abs: 5.551e-17; rel: 1.195e-16; norm: 1.649e-01; mom: 3.639e-16;
#> best it: 204; best obj: 4.646e-01
#> It: 245; obj: 4.646e-01; abs: 0.000e+00; rel: 0.000e+00; norm: 1.649e-01; mom: 3.550e-16;
#> best it: 204; best obj: 4.646e-01
#> It: 246; obj: 4.646e-01; abs: 0.000e+00; rel: 0.000e+00; norm: 1.649e-01; mom: 4.145e-16;
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#> It: 247; obj: 4.646e-01; abs: 2.220e-16; rel: 4.779e-16; norm: 1.649e-01; mom: 3.697e-16;
#> best it: 204; best obj: 4.646e-01
#> It: 248; obj: 4.646e-01; abs: 3.331e-16; rel: 7.169e-16; norm: 1.649e-01; mom: 5.610e-16;
#> best it: 204; best obj: 4.646e-01
#> It: 249; obj: 4.646e-01; abs: 1.110e-16; rel: 2.390e-16; norm: 1.649e-01; mom: 5.009e-16;
#> best it: 204; best obj: 4.646e-01
#> It: 250; obj: 4.646e-01; abs: 5.551e-17; rel: 1.195e-16; norm: 1.649e-01; mom: 5.587e-16;
#> best it: 204; best obj: 4.646e-01
#> It: 251; obj: 4.646e-01; abs: 2.220e-16; rel: 4.779e-16; norm: 1.649e-01; mom: 5.806e-16;
#> best it: 204; best obj: 4.646e-01
#> It: 252; obj: 4.646e-01; abs: 5.551e-17; rel: 1.195e-16; norm: 1.649e-01; mom: 5.367e-16;
#> best it: 204; best obj: 4.646e-01
#> It: 253; obj: 4.646e-01; abs: 2.220e-16; rel: 4.779e-16; norm: 1.649e-01; mom: 6.093e-16;
#> best it: 204; best obj: 4.646e-01
#> It: 254; obj: 4.646e-01; abs: 1.110e-16; rel: 2.390e-16; norm: 1.649e-01; mom: 5.572e-16;
#> best it: 204; best obj: 4.646e-01
#> It: 255; obj: 4.646e-01; abs: 1.110e-16; rel: 2.390e-16; norm: 1.649e-01; mom: 5.712e-16;
#> best it: 204; best obj: 4.646e-01
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#> best it: 204; best obj: 4.646e-01
#> It: 257; obj: 4.646e-01; abs: 2.220e-16; rel: 4.779e-16; norm: 1.649e-01; mom: 5.938e-16;
#> best it: 204; best obj: 4.646e-01
#> It: 258; obj: 4.646e-01; abs: 5.551e-17; rel: 1.195e-16; norm: 1.649e-01; mom: 6.356e-16;
#> best it: 204; best obj: 4.646e-01
#> It: 259; obj: 4.646e-01; abs: 5.551e-17; rel: 1.195e-16; norm: 1.649e-01; mom: 5.808e-16;
#> best it: 204; best obj: 4.646e-01
#> It: 260; obj: 4.646e-01; abs: 1.110e-16; rel: 2.390e-16; norm: 1.649e-01; mom: 6.026e-16;

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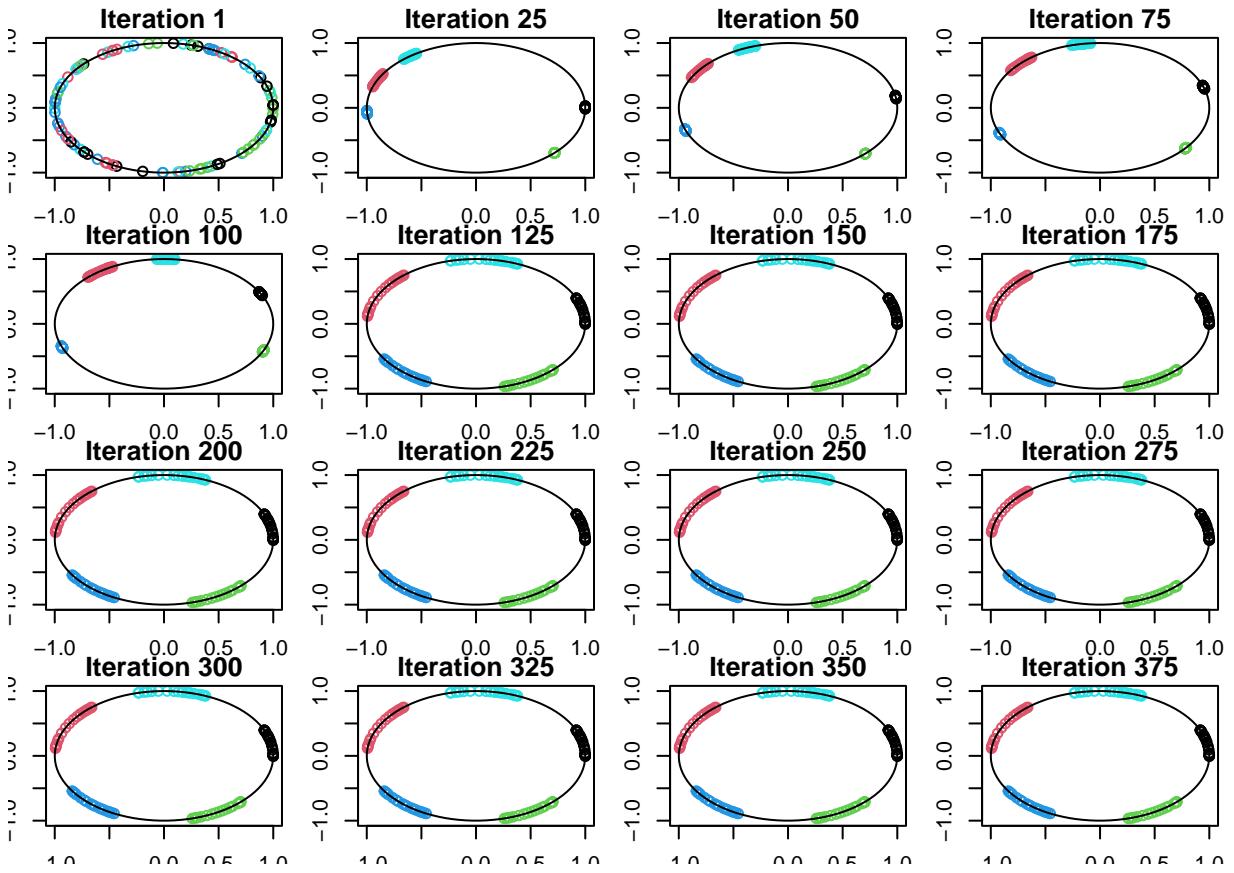




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#> best it: 204; best obj: 4.646e-01
#> It: 367; obj: 4.646e-01; abs: 1.110e-16; rel: 2.390e-16; norm: 1.649e-01; mom: 4.842e-16;
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#> It: 368; obj: 4.646e-01; abs: 5.551e-17; rel: 1.195e-16; norm: 1.649e-01; mom: 5.231e-16;
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#> It: 370; obj: 4.646e-01; abs: 2.776e-16; rel: 5.974e-16; norm: 1.649e-01; mom: 5.773e-16;
#> best it: 204; best obj: 4.646e-01
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#> best it: 204; best obj: 4.646e-01
#> It: 373; obj: 4.646e-01; abs: 5.551e-17; rel: 1.195e-16; norm: 1.649e-01; mom: 6.008e-16;
#> best it: 204; best obj: 4.646e-01
#> It: 374; obj: 4.646e-01; abs: 1.110e-16; rel: 2.390e-16; norm: 1.649e-01; mom: 6.152e-16;
#> best it: 204; best obj: 4.646e-01
#> It: 375; obj: 4.646e-01; abs: 5.551e-17; rel: 1.195e-16; norm: 1.649e-01; mom: 5.751e-16;
#> best it: 204; best obj: 4.646e-01

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#> It: 376; obj: 4.646e-01; abs: 1.110e-16; rel: 2.390e-16; norm: 1.649e-01; mom: 6.074e-16;
#> best it: 204; best obj: 4.646e-01
#> It: 377; obj: 4.646e-01; abs: 5.551e-17; rel: 1.195e-16; norm: 1.649e-01; mom: 5.774e-16;
#> best it: 204; best obj: 4.646e-01
#> It: 378; obj: 4.646e-01; abs: 0.000e+00; rel: 0.000e+00; norm: 1.649e-01; mom: 6.274e-16;
#> best it: 204; best obj: 4.646e-01

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#> It: 460; obj: 4.646e-01; abs: 0.000e+00; rel: 0.000e+00; norm: 1.649e-01; mom: 5.991e-16;
#> best it: 204; best obj: 4.646e-01
#> It: 461; obj: 4.646e-01; abs: 0.000e+00; rel: 0.000e+00; norm: 1.649e-01; mom: 6.038e-16;
#> best it: 204; best obj: 4.646e-01
#> It: 462; obj: 4.646e-01; abs: 5.551e-17; rel: 1.195e-16; norm: 1.649e-01; mom: 5.666e-16;
#> best it: 204; best obj: 4.646e-01
#> It: 463; obj: 4.646e-01; abs: 0.000e+00; rel: 0.000e+00; norm: 1.649e-01; mom: 5.859e-16;
#> best it: 204; best obj: 4.646e-01
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#> best it: 204; best obj: 4.646e-01
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#> best it: 204; best obj: 4.646e-01
#> It: 466; obj: 4.646e-01; abs: 5.551e-17; rel: 1.195e-16; norm: 1.649e-01; mom: 5.362e-16;
#> best it: 204; best obj: 4.646e-01
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#> best it: 204; best obj: 4.646e-01
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#> best it: 204; best obj: 4.646e-01
#> It: 469; obj: 4.646e-01; abs: 5.551e-17; rel: 1.195e-16; norm: 1.649e-01; mom: 7.320e-16;
#> best it: 204; best obj: 4.646e-01
#> It: 470; obj: 4.646e-01; abs: 5.551e-17; rel: 1.195e-16; norm: 1.649e-01; mom: 5.911e-16;
#> best it: 204; best obj: 4.646e-01
#> It: 471; obj: 4.646e-01; abs: 2.220e-16; rel: 4.779e-16; norm: 1.649e-01; mom: 5.694e-16;
#> best it: 204; best obj: 4.646e-01
#> It: 472; obj: 4.646e-01; abs: 2.776e-16; rel: 5.974e-16; norm: 1.649e-01; mom: 5.587e-16;
#> best it: 204; best obj: 4.646e-01
#> It: 473; obj: 4.646e-01; abs: 0.000e+00; rel: 0.000e+00; norm: 1.649e-01; mom: 5.963e-16;
#> best it: 204; best obj: 4.646e-01
#> It: 474; obj: 4.646e-01; abs: 5.551e-17; rel: 1.195e-16; norm: 1.649e-01; mom: 5.672e-16;
#> best it: 204; best obj: 4.646e-01
#> It: 475; obj: 4.646e-01; abs: 0.000e+00; rel: 0.000e+00; norm: 1.649e-01; mom: 6.006e-16;
#> best it: 204; best obj: 4.646e-01
#> It: 476; obj: 4.646e-01; abs: 5.551e-17; rel: 1.195e-16; norm: 1.649e-01; mom: 5.772e-16;
#> best it: 204; best obj: 4.646e-01
#> It: 477; obj: 4.646e-01; abs: 5.551e-17; rel: 1.195e-16; norm: 1.649e-01; mom: 5.212e-16;
#> best it: 204; best obj: 4.646e-01
#> It: 478; obj: 4.646e-01; abs: 5.551e-17; rel: 1.195e-16; norm: 1.649e-01; mom: 5.463e-16;
#> best it: 204; best obj: 4.646e-01
#> It: 479; obj: 4.646e-01; abs: 1.110e-16; rel: 2.390e-16; norm: 1.649e-01; mom: 5.714e-16;
#> best it: 204; best obj: 4.646e-01
#> It: 480; obj: 4.646e-01; abs: 1.665e-16; rel: 3.584e-16; norm: 1.649e-01; mom: 5.730e-16;
#> best it: 204; best obj: 4.646e-01
#> It: 481; obj: 4.646e-01; abs: 0.000e+00; rel: 0.000e+00; norm: 1.649e-01; mom: 6.172e-16;
#> best it: 204; best obj: 4.646e-01
#> It: 482; obj: 4.646e-01; abs: 5.551e-17; rel: 1.195e-16; norm: 1.649e-01; mom: 6.196e-16;
#> best it: 204; best obj: 4.646e-01
#> It: 483; obj: 4.646e-01; abs: 5.551e-17; rel: 1.195e-16; norm: 1.649e-01; mom: 5.083e-16;
#> best it: 204; best obj: 4.646e-01
#> It: 484; obj: 4.646e-01; abs: 0.000e+00; rel: 0.000e+00; norm: 1.649e-01; mom: 5.927e-16;
#> best it: 204; best obj: 4.646e-01
#> It: 485; obj: 4.646e-01; abs: 0.000e+00; rel: 0.000e+00; norm: 1.649e-01; mom: 5.227e-16;
#> best it: 204; best obj: 4.646e-01
#> It: 486; obj: 4.646e-01; abs: 5.551e-17; rel: 1.195e-16; norm: 1.649e-01; mom: 6.355e-16;
#> best it: 204; best obj: 4.646e-01

```











```

#> It: 622; obj: 4.646e-01; abs: 1.110e-16; rel: 2.390e-16; norm: 1.649e-01; mom: 5.793e-16;
#> best it: 204; best obj: 4.646e-01
#> It: 623; obj: 4.646e-01; abs: 0.000e+00; rel: 0.000e+00; norm: 1.649e-01; mom: 5.481e-16;
#> best it: 204; best obj: 4.646e-01
#> It: 624; obj: 4.646e-01; abs: 0.000e+00; rel: 0.000e+00; norm: 1.649e-01; mom: 5.304e-16;
#> best it: 204; best obj: 4.646e-01
#> It: 625; obj: 4.646e-01; abs: 0.000e+00; rel: 0.000e+00; norm: 1.649e-01; mom: 6.289e-16;
#> best it: 204; best obj: 4.646e-01
#> It: 626; obj: 4.646e-01; abs: 5.551e-17; rel: 1.195e-16; norm: 1.649e-01; mom: 5.526e-16;
#> best it: 204; best obj: 4.646e-01
#> It: 627; obj: 4.646e-01; abs: 0.000e+00; rel: 0.000e+00; norm: 1.649e-01; mom: 5.647e-16;
#> best it: 204; best obj: 4.646e-01
#> It: 628; obj: 4.646e-01; abs: 1.110e-16; rel: 2.390e-16; norm: 1.649e-01; mom: 5.221e-16;
#> best it: 204; best obj: 4.646e-01
#> It: 629; obj: 4.646e-01; abs: 5.551e-17; rel: 1.195e-16; norm: 1.649e-01; mom: 4.545e-16;
#> best it: 204; best obj: 4.646e-01
#> It: 630; obj: 4.646e-01; abs: 0.000e+00; rel: 0.000e+00; norm: 1.649e-01; mom: 4.937e-16;
#> best it: 204; best obj: 4.646e-01
#> It: 631; obj: 4.646e-01; abs: 0.000e+00; rel: 0.000e+00; norm: 1.649e-01; mom: 4.782e-16;
#> best it: 204; best obj: 4.646e-01
#> It: 632; obj: 4.646e-01; abs: 5.551e-17; rel: 1.195e-16; norm: 1.649e-01; mom: 4.829e-16;
#> best it: 204; best obj: 4.646e-01
#> It: 633; obj: 4.646e-01; abs: 1.665e-16; rel: 3.584e-16; norm: 1.649e-01; mom: 5.481e-16;
#> best it: 204; best obj: 4.646e-01
#> It: 634; obj: 4.646e-01; abs: 1.110e-16; rel: 2.390e-16; norm: 1.649e-01; mom: 5.641e-16;
#> best it: 204; best obj: 4.646e-01
#> It: 635; obj: 4.646e-01; abs: 0.000e+00; rel: 0.000e+00; norm: 1.649e-01; mom: 5.530e-16;
#> best it: 204; best obj: 4.646e-01
#> It: 636; obj: 4.646e-01; abs: 2.776e-16; rel: 5.974e-16; norm: 1.649e-01; mom: 6.148e-16;
#> best it: 204; best obj: 4.646e-01
#> It: 637; obj: 4.646e-01; abs: 5.551e-17; rel: 1.195e-16; norm: 1.649e-01; mom: 5.229e-16;
#> best it: 204; best obj: 4.646e-01
#> It: 638; obj: 4.646e-01; abs: 1.110e-16; rel: 2.390e-16; norm: 1.649e-01; mom: 5.848e-16;
#> best it: 204; best obj: 4.646e-01
#> It: 639; obj: 4.646e-01; abs: 1.110e-16; rel: 2.390e-16; norm: 1.649e-01; mom: 6.082e-16;
#> best it: 204; best obj: 4.646e-01
#> It: 640; obj: 4.646e-01; abs: 5.551e-17; rel: 1.195e-16; norm: 1.649e-01; mom: 5.288e-16;
#> best it: 204; best obj: 4.646e-01
#> It: 641; obj: 4.646e-01; abs: 1.110e-16; rel: 2.390e-16; norm: 1.649e-01; mom: 6.788e-16;
#> best it: 204; best obj: 4.646e-01
#> It: 642; obj: 4.646e-01; abs: 2.220e-16; rel: 4.779e-16; norm: 1.649e-01; mom: 6.213e-16;
#> best it: 204; best obj: 4.646e-01
#> It: 643; obj: 4.646e-01; abs: 0.000e+00; rel: 0.000e+00; norm: 1.649e-01; mom: 5.427e-16;
#> best it: 204; best obj: 4.646e-01
#> It: 644; obj: 4.646e-01; abs: 1.110e-16; rel: 2.390e-16; norm: 1.649e-01; mom: 6.746e-16;
#> best it: 204; best obj: 4.646e-01
#> It: 645; obj: 4.646e-01; abs: 0.000e+00; rel: 0.000e+00; norm: 1.649e-01; mom: 6.280e-16;
#> best it: 204; best obj: 4.646e-01
#> It: 646; obj: 4.646e-01; abs: 1.110e-16; rel: 2.390e-16; norm: 1.649e-01; mom: 4.948e-16;
#> best it: 204; best obj: 4.646e-01
#> It: 647; obj: 4.646e-01; abs: 0.000e+00; rel: 0.000e+00; norm: 1.649e-01; mom: 5.753e-16;
#> best it: 204; best obj: 4.646e-01
#> It: 648; obj: 4.646e-01; abs: 2.776e-16; rel: 5.974e-16; norm: 1.649e-01; mom: 5.800e-16;
#> best it: 204; best obj: 4.646e-01

```





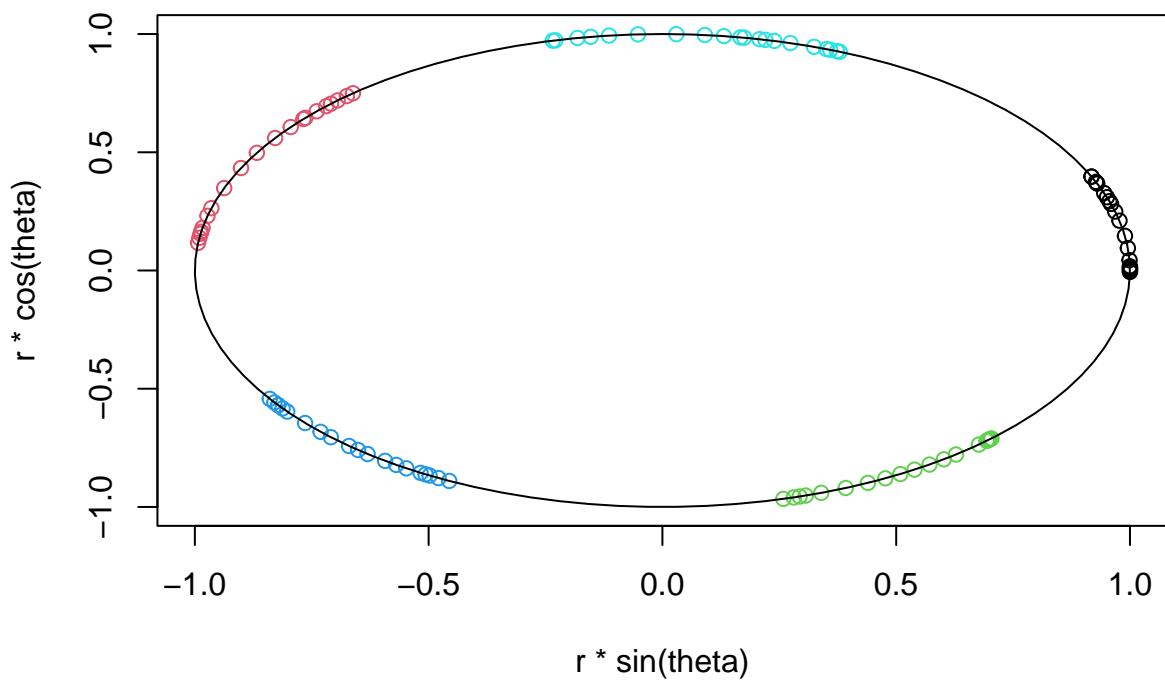
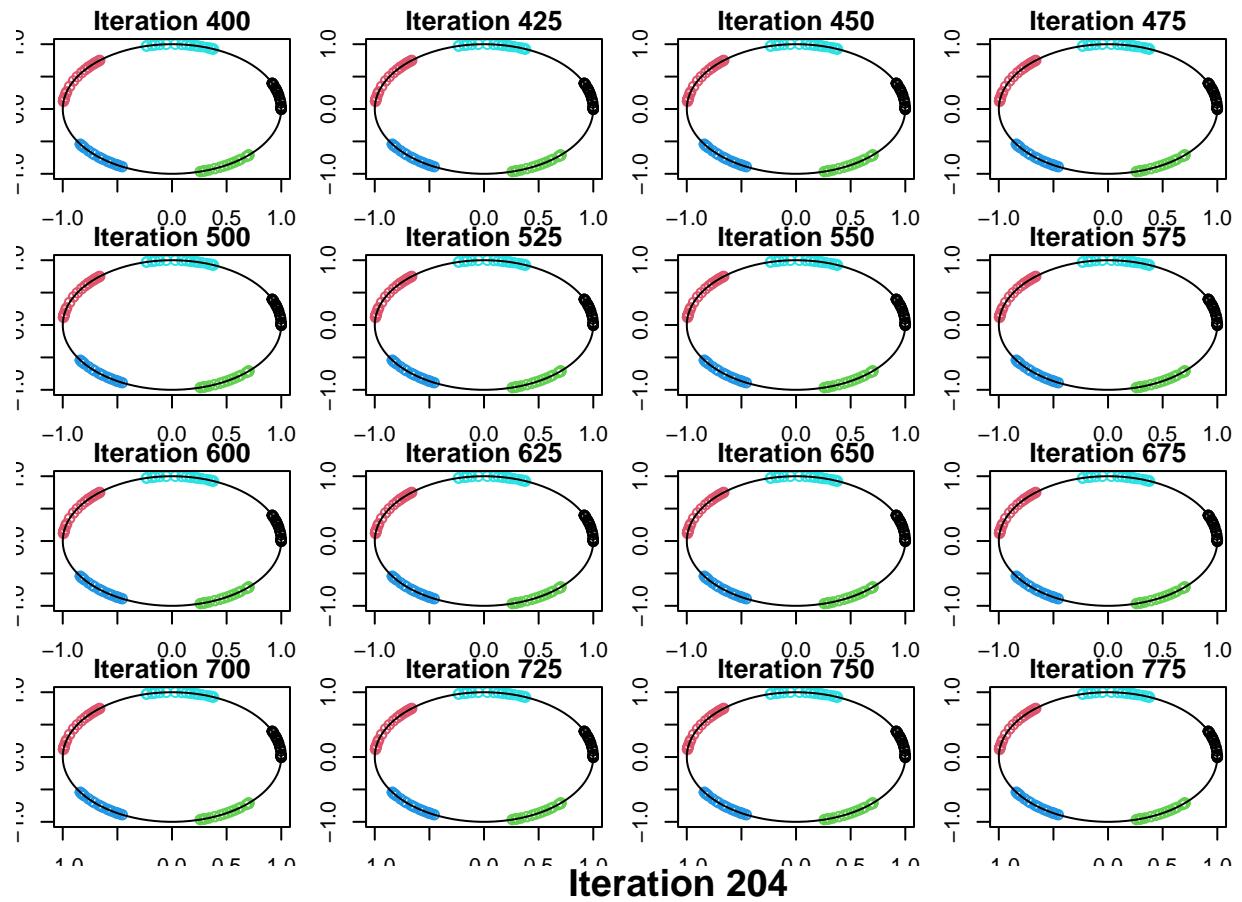




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#> It: 757; obj: 4.646e-01; abs: 1.110e-16; rel: 2.390e-16; norm: 1.649e-01; mom: 5.937e-16;
#> best it: 204; best obj: 4.646e-01
#> It: 758; obj: 4.646e-01; abs: 0.000e+00; rel: 0.000e+00; norm: 1.649e-01; mom: 6.002e-16;
#> best it: 204; best obj: 4.646e-01
#> It: 759; obj: 4.646e-01; abs: 1.110e-16; rel: 2.390e-16; norm: 1.649e-01; mom: 6.054e-16;
#> best it: 204; best obj: 4.646e-01
#> It: 760; obj: 4.646e-01; abs: 1.665e-16; rel: 3.584e-16; norm: 1.649e-01; mom: 6.741e-16;
#> best it: 204; best obj: 4.646e-01
#> It: 761; obj: 4.646e-01; abs: 5.551e-17; rel: 1.195e-16; norm: 1.649e-01; mom: 5.980e-16;
#> best it: 204; best obj: 4.646e-01
#> It: 762; obj: 4.646e-01; abs: 5.551e-17; rel: 1.195e-16; norm: 1.649e-01; mom: 6.109e-16;
#> best it: 204; best obj: 4.646e-01
#> It: 763; obj: 4.646e-01; abs: 0.000e+00; rel: 0.000e+00; norm: 1.649e-01; mom: 5.822e-16;
#> best it: 204; best obj: 4.646e-01
#> It: 764; obj: 4.646e-01; abs: 0.000e+00; rel: 0.000e+00; norm: 1.649e-01; mom: 5.393e-16;
#> best it: 204; best obj: 4.646e-01
#> It: 765; obj: 4.646e-01; abs: 5.551e-17; rel: 1.195e-16; norm: 1.649e-01; mom: 5.712e-16;
#> best it: 204; best obj: 4.646e-01
#> It: 766; obj: 4.646e-01; abs: 5.551e-17; rel: 1.195e-16; norm: 1.649e-01; mom: 5.266e-16;
#> best it: 204; best obj: 4.646e-01
#> It: 767; obj: 4.646e-01; abs: 1.665e-16; rel: 3.584e-16; norm: 1.649e-01; mom: 5.977e-16;
#> best it: 204; best obj: 4.646e-01
#> It: 768; obj: 4.646e-01; abs: 5.551e-17; rel: 1.195e-16; norm: 1.649e-01; mom: 5.514e-16;
#> best it: 204; best obj: 4.646e-01
#> It: 769; obj: 4.646e-01; abs: 0.000e+00; rel: 0.000e+00; norm: 1.649e-01; mom: 5.837e-16;
#> best it: 204; best obj: 4.646e-01
#> It: 770; obj: 4.646e-01; abs: 5.551e-17; rel: 1.195e-16; norm: 1.649e-01; mom: 6.149e-16;
#> best it: 204; best obj: 4.646e-01
#> It: 771; obj: 4.646e-01; abs: 1.110e-16; rel: 2.390e-16; norm: 1.649e-01; mom: 5.564e-16;
#> best it: 204; best obj: 4.646e-01
#> It: 772; obj: 4.646e-01; abs: 5.551e-17; rel: 1.195e-16; norm: 1.649e-01; mom: 4.651e-16;
#> best it: 204; best obj: 4.646e-01
#> It: 773; obj: 4.646e-01; abs: 5.551e-17; rel: 1.195e-16; norm: 1.649e-01; mom: 5.682e-16;
#> best it: 204; best obj: 4.646e-01
#> It: 774; obj: 4.646e-01; abs: 0.000e+00; rel: 0.000e+00; norm: 1.649e-01; mom: 5.667e-16;
#> best it: 204; best obj: 4.646e-01
#> It: 775; obj: 4.646e-01; abs: 0.000e+00; rel: 0.000e+00; norm: 1.649e-01; mom: 5.307e-16;
#> best it: 204; best obj: 4.646e-01

```



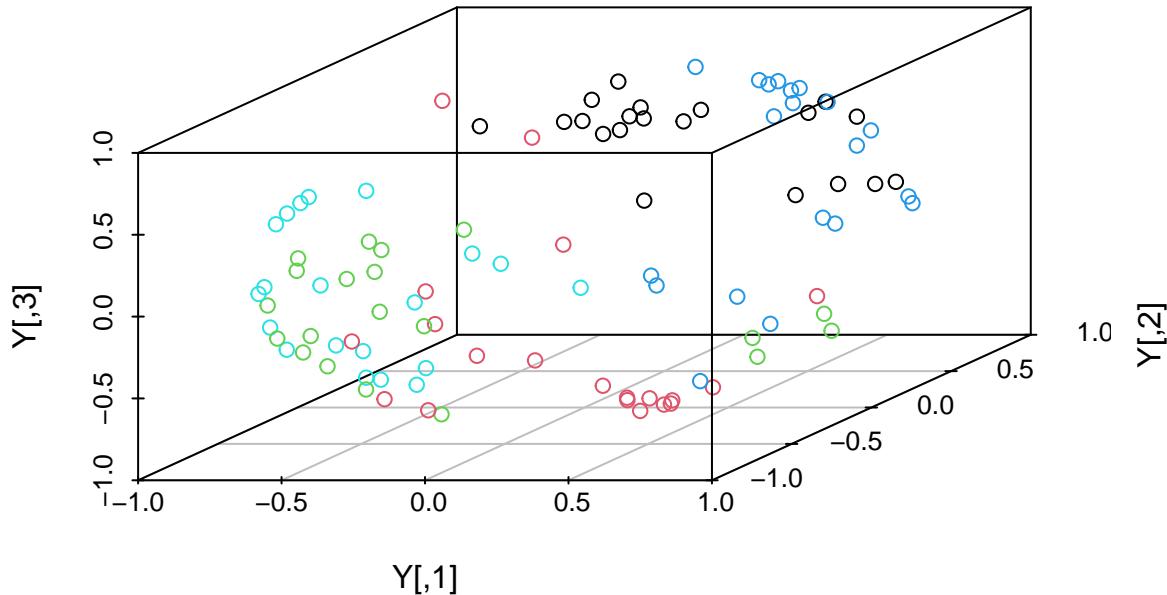
The psc-sne identifies in the reduced dimension on the circumference the five groups that are in this case strongly positive correlated within each group's variables. Let's do the same for  $d = 2$ :

```

psc_sne_res_22 <- psc_sne(feat_data, d = 2, rho_psc_list = rho_list,
                            colors = cols, num_iteration = 775, show_prog = TRUE,
                            eta = 35, parallel_cores = num_cores_param)
#> It: 1; obj: 8.942e+00; abs: 0.000e+00; rel: 0.000e+00; norm: 3.451e-01; mom: 0.000e+00;
#> best it: 1; best obj: 8.942e+00

```

## Iteration 1



```

#> It: 2; obj: 7.716e+00; abs: 1.226e+00; rel: 1.371e-01; norm: 1.351e+00; mom: 3.511e+00;
#> best it: 2; best obj: 7.716e+00
#> It: 3; obj: 7.276e+00; abs: 4.399e-01; rel: 5.702e-02; norm: 2.125e+00; mom: 1.252e+00;
#> best it: 3; best obj: 7.276e+00
#> It: 4; obj: 7.177e+00; abs: 9.895e-02; rel: 1.360e-02; norm: 2.534e+00; mom: 7.948e-01;
#> best it: 4; best obj: 7.177e+00
#> It: 5; obj: 7.071e+00; abs: 1.060e-01; rel: 1.477e-02; norm: 2.756e+00; mom: 3.498e-01;
#> best it: 5; best obj: 7.071e+00
#> It: 6; obj: 6.974e+00; abs: 9.680e-02; rel: 1.369e-02; norm: 2.941e+00; mom: 3.016e-01;
#> best it: 6; best obj: 6.974e+00
#> It: 7; obj: 6.956e+00; abs: 1.787e-02; rel: 2.562e-03; norm: 3.100e+00; mom: 3.046e-01;
#> best it: 7; best obj: 6.956e+00
#> It: 8; obj: 6.991e+00; abs: 3.467e-02; rel: 4.984e-03; norm: 3.215e+00; mom: 2.536e-01;
#> best it: 7; best obj: 6.956e+00
#> It: 9; obj: 7.045e+00; abs: 5.449e-02; rel: 7.794e-03; norm: 3.295e+00; mom: 1.950e-01;
#> best it: 7; best obj: 6.956e+00
#> It: 10; obj: 7.101e+00; abs: 5.564e-02; rel: 7.897e-03; norm: 3.350e+00; mom: 1.471e-01;
#> best it: 7; best obj: 6.956e+00
#> It: 11; obj: 7.151e+00; abs: 5.036e-02; rel: 7.092e-03; norm: 3.391e+00; mom: 1.122e-01;
#> best it: 7; best obj: 6.956e+00
#> It: 12; obj: 7.196e+00; abs: 4.483e-02; rel: 6.268e-03; norm: 3.424e+00; mom: 9.091e-02;
#> best it: 7; best obj: 6.956e+00
#> It: 13; obj: 7.237e+00; abs: 4.035e-02; rel: 5.607e-03; norm: 3.452e+00; mom: 7.773e-02;
#> best it: 7; best obj: 6.956e+00
#> It: 14; obj: 7.273e+00; abs: 3.675e-02; rel: 5.079e-03; norm: 3.477e+00; mom: 6.842e-02;

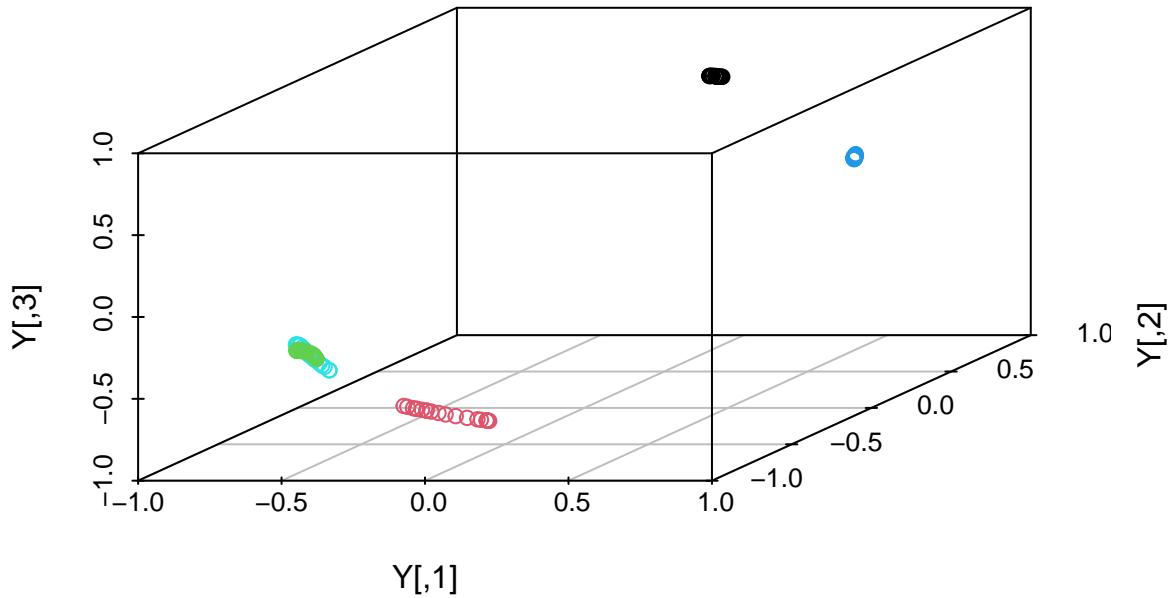
```

```

#> best it: 7; best obj: 6.956e+00
#> It: 15; obj: 7.307e+00; abs: 3.369e-02; rel: 4.633e-03; norm: 3.498e+00; mom: 6.103e-02;
#> best it: 7; best obj: 6.956e+00
#> It: 16; obj: 7.338e+00; abs: 3.093e-02; rel: 4.234e-03; norm: 3.517e+00; mom: 5.474e-02;
#> best it: 7; best obj: 6.956e+00
#> It: 17; obj: 7.366e+00; abs: 2.834e-02; rel: 3.862e-03; norm: 3.534e+00; mom: 4.919e-02;
#> best it: 7; best obj: 6.956e+00
#> It: 18; obj: 7.392e+00; abs: 2.586e-02; rel: 3.510e-03; norm: 3.549e+00; mom: 4.422e-02;
#> best it: 7; best obj: 6.956e+00
#> It: 19; obj: 7.416e+00; abs: 2.348e-02; rel: 3.176e-03; norm: 3.561e+00; mom: 3.975e-02;
#> best it: 7; best obj: 6.956e+00
#> It: 20; obj: 7.437e+00; abs: 2.121e-02; rel: 2.860e-03; norm: 3.572e+00; mom: 3.573e-02;
#> best it: 7; best obj: 6.956e+00
#> It: 21; obj: 7.456e+00; abs: 1.906e-02; rel: 2.563e-03; norm: 3.582e+00; mom: 3.212e-02;
#> best it: 7; best obj: 6.956e+00
#> It: 22; obj: 7.473e+00; abs: 1.706e-02; rel: 2.288e-03; norm: 3.590e+00; mom: 2.891e-02;
#> best it: 7; best obj: 6.956e+00
#> It: 23; obj: 7.488e+00; abs: 1.520e-02; rel: 2.034e-03; norm: 3.597e+00; mom: 2.606e-02;
#> best it: 7; best obj: 6.956e+00
#> It: 24; obj: 7.502e+00; abs: 1.351e-02; rel: 1.804e-03; norm: 3.603e+00; mom: 2.355e-02;
#> best it: 7; best obj: 6.956e+00
#> It: 25; obj: 7.514e+00; abs: 1.196e-02; rel: 1.595e-03; norm: 3.608e+00; mom: 2.136e-02;
#> best it: 7; best obj: 6.956e+00

```

## Iteration 25



```

#> It: 26; obj: 7.524e+00; abs: 1.057e-02; rel: 1.407e-03; norm: 3.613e+00; mom: 1.948e-02;
#> best it: 7; best obj: 6.956e+00
#> It: 27; obj: 7.534e+00; abs: 9.329e-03; rel: 1.240e-03; norm: 3.616e+00; mom: 1.788e-02;
#> best it: 7; best obj: 6.956e+00
#> It: 28; obj: 7.542e+00; abs: 8.219e-03; rel: 1.091e-03; norm: 3.620e+00; mom: 1.655e-02;
#> best it: 7; best obj: 6.956e+00
#> It: 29; obj: 7.549e+00; abs: 7.234e-03; rel: 9.592e-04; norm: 3.623e+00; mom: 1.547e-02;
#> best it: 7; best obj: 6.956e+00

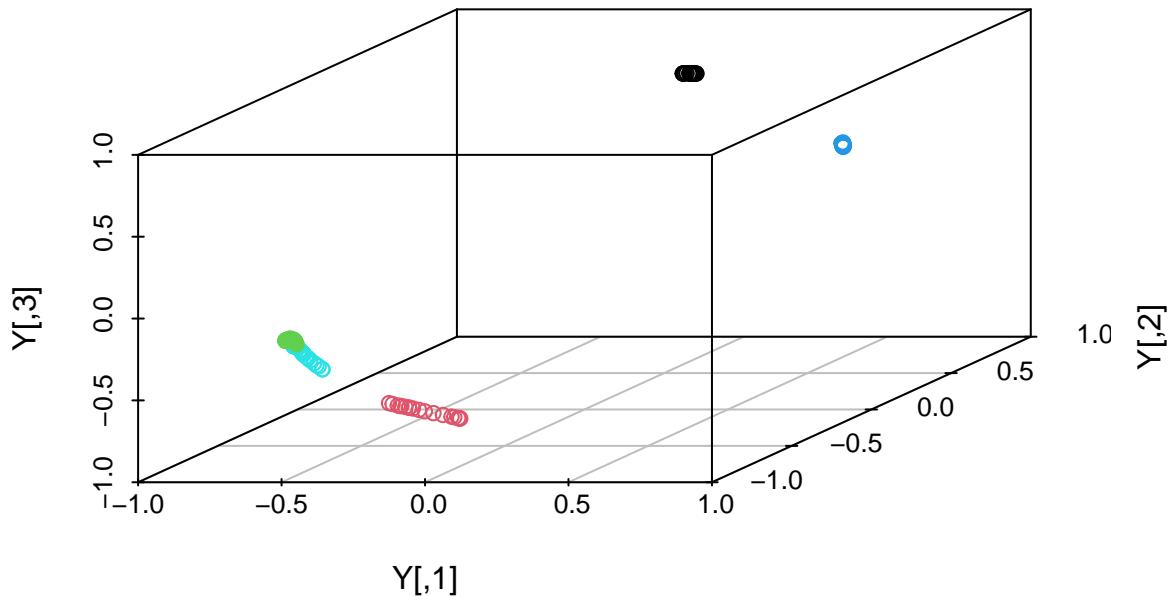
```

```

#> It: 30; obj: 7.555e+00; abs: 6.364e-03; rel: 8.430e-04; norm: 3.625e+00; mom: 1.464e-02;
#> best it: 7; best obj: 6.956e+00
#> It: 31; obj: 7.561e+00; abs: 5.596e-03; rel: 7.407e-04; norm: 3.627e+00; mom: 1.403e-02;
#> best it: 7; best obj: 6.956e+00
#> It: 32; obj: 7.566e+00; abs: 4.922e-03; rel: 6.509e-04; norm: 3.629e+00; mom: 1.361e-02;
#> best it: 7; best obj: 6.956e+00
#> It: 33; obj: 7.570e+00; abs: 4.330e-03; rel: 5.722e-04; norm: 3.631e+00; mom: 1.338e-02;
#> best it: 7; best obj: 6.956e+00
#> It: 34; obj: 7.574e+00; abs: 3.810e-03; rel: 5.033e-04; norm: 3.632e+00; mom: 1.330e-02;
#> best it: 7; best obj: 6.956e+00
#> It: 35; obj: 7.577e+00; abs: 3.356e-03; rel: 4.431e-04; norm: 3.633e+00; mom: 1.335e-02;
#> best it: 7; best obj: 6.956e+00
#> It: 36; obj: 7.580e+00; abs: 2.957e-03; rel: 3.903e-04; norm: 3.634e+00; mom: 1.351e-02;
#> best it: 7; best obj: 6.956e+00
#> It: 37; obj: 7.583e+00; abs: 2.608e-03; rel: 3.441e-04; norm: 3.635e+00; mom: 1.375e-02;
#> best it: 7; best obj: 6.956e+00
#> It: 38; obj: 7.585e+00; abs: 2.302e-03; rel: 3.036e-04; norm: 3.635e+00; mom: 1.406e-02;
#> best it: 7; best obj: 6.956e+00
#> It: 39; obj: 7.587e+00; abs: 2.034e-03; rel: 2.681e-04; norm: 3.636e+00; mom: 1.442e-02;
#> best it: 7; best obj: 6.956e+00
#> It: 40; obj: 7.589e+00; abs: 1.797e-03; rel: 2.369e-04; norm: 3.636e+00; mom: 1.484e-02;
#> best it: 7; best obj: 6.956e+00
#> It: 41; obj: 7.591e+00; abs: 1.588e-03; rel: 2.093e-04; norm: 3.636e+00; mom: 1.530e-02;
#> best it: 7; best obj: 6.956e+00
#> It: 42; obj: 7.592e+00; abs: 1.403e-03; rel: 1.849e-04; norm: 3.636e+00; mom: 1.580e-02;
#> best it: 7; best obj: 6.956e+00
#> It: 43; obj: 7.593e+00; abs: 1.239e-03; rel: 1.631e-04; norm: 3.636e+00; mom: 1.633e-02;
#> best it: 7; best obj: 6.956e+00
#> It: 44; obj: 7.594e+00; abs: 1.091e-03; rel: 1.437e-04; norm: 3.636e+00; mom: 1.690e-02;
#> best it: 7; best obj: 6.956e+00
#> It: 45; obj: 7.595e+00; abs: 9.584e-04; rel: 1.262e-04; norm: 3.635e+00; mom: 1.750e-02;
#> best it: 7; best obj: 6.956e+00
#> It: 46; obj: 7.596e+00; abs: 8.379e-04; rel: 1.103e-04; norm: 3.635e+00; mom: 1.812e-02;
#> best it: 7; best obj: 6.956e+00
#> It: 47; obj: 7.597e+00; abs: 7.275e-04; rel: 9.577e-05; norm: 3.634e+00; mom: 1.878e-02;
#> best it: 7; best obj: 6.956e+00
#> It: 48; obj: 7.598e+00; abs: 6.254e-04; rel: 8.232e-05; norm: 3.634e+00; mom: 1.947e-02;
#> best it: 7; best obj: 6.956e+00
#> It: 49; obj: 7.598e+00; abs: 5.299e-04; rel: 6.975e-05; norm: 3.633e+00; mom: 2.020e-02;
#> best it: 7; best obj: 6.956e+00
#> It: 50; obj: 7.599e+00; abs: 4.397e-04; rel: 5.786e-05; norm: 3.632e+00; mom: 2.095e-02;
#> best it: 7; best obj: 6.956e+00

```

## Iteration 50



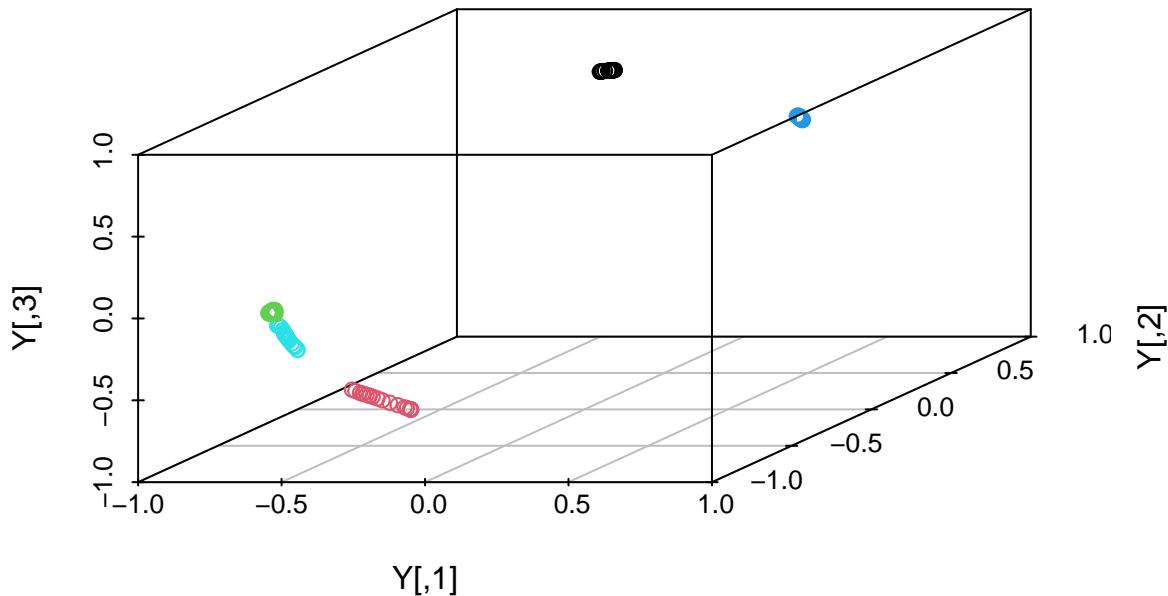
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#> It: 51; obj: 7.599e+00; abs: 3.533e-04; rel: 4.650e-05; norm: 3.631e+00; mom: 2.173e-02;
#> best it: 7; best obj: 6.956e+00
#> It: 52; obj: 7.599e+00; abs: 2.697e-04; rel: 3.549e-05; norm: 3.629e+00; mom: 2.255e-02;
#> best it: 7; best obj: 6.956e+00
#> It: 53; obj: 7.599e+00; abs: 1.877e-04; rel: 2.470e-05; norm: 3.628e+00; mom: 2.340e-02;
#> best it: 7; best obj: 6.956e+00
#> It: 54; obj: 7.599e+00; abs: 1.064e-04; rel: 1.400e-05; norm: 3.626e+00; mom: 2.428e-02;
#> best it: 7; best obj: 6.956e+00
#> It: 55; obj: 7.599e+00; abs: 2.490e-05; rel: 3.276e-06; norm: 3.624e+00; mom: 2.520e-02;
#> best it: 7; best obj: 6.956e+00
#> It: 56; obj: 7.599e+00; abs: 5.763e-05; rel: 7.583e-06; norm: 3.622e+00; mom: 2.616e-02;
#> best it: 7; best obj: 6.956e+00
#> It: 57; obj: 7.599e+00; abs: 1.419e-04; rel: 1.868e-05; norm: 3.620e+00; mom: 2.715e-02;
#> best it: 7; best obj: 6.956e+00
#> It: 58; obj: 7.599e+00; abs: 2.288e-04; rel: 3.011e-05; norm: 3.617e+00; mom: 2.818e-02;
#> best it: 7; best obj: 6.956e+00
#> It: 59; obj: 7.599e+00; abs: 3.188e-04; rel: 4.196e-05; norm: 3.614e+00; mom: 2.924e-02;
#> best it: 7; best obj: 6.956e+00
#> It: 60; obj: 7.598e+00; abs: 4.127e-04; rel: 5.432e-05; norm: 3.611e+00; mom: 3.035e-02;
#> best it: 7; best obj: 6.956e+00
#> It: 61; obj: 7.598e+00; abs: 5.111e-04; rel: 6.727e-05; norm: 3.608e+00; mom: 3.149e-02;
#> best it: 7; best obj: 6.956e+00
#> It: 62; obj: 7.597e+00; abs: 6.146e-04; rel: 8.090e-05; norm: 3.604e+00; mom: 3.268e-02;
#> best it: 7; best obj: 6.956e+00
#> It: 63; obj: 7.596e+00; abs: 7.238e-04; rel: 9.527e-05; norm: 3.600e+00; mom: 3.391e-02;
#> best it: 7; best obj: 6.956e+00
#> It: 64; obj: 7.596e+00; abs: 8.392e-04; rel: 1.105e-04; norm: 3.596e+00; mom: 3.518e-02;
#> best it: 7; best obj: 6.956e+00
#> It: 65; obj: 7.595e+00; abs: 9.614e-04; rel: 1.266e-04; norm: 3.591e+00; mom: 3.650e-02;
#> best it: 7; best obj: 6.956e+00
#> It: 66; obj: 7.594e+00; abs: 1.091e-03; rel: 1.436e-04; norm: 3.586e+00; mom: 3.786e-02;
```

```

#> best it: 7; best obj: 6.956e+00
#> It: 67; obj: 7.592e+00; abs: 1.228e-03; rel: 1.617e-04; norm: 3.580e+00; mom: 3.926e-02;
#> best it: 7; best obj: 6.956e+00
#> It: 68; obj: 7.591e+00; abs: 1.374e-03; rel: 1.809e-04; norm: 3.574e+00; mom: 4.071e-02;
#> best it: 7; best obj: 6.956e+00
#> It: 69; obj: 7.589e+00; abs: 1.528e-03; rel: 2.012e-04; norm: 3.568e+00; mom: 4.221e-02;
#> best it: 7; best obj: 6.956e+00
#> It: 70; obj: 7.588e+00; abs: 1.691e-03; rel: 2.227e-04; norm: 3.561e+00; mom: 4.375e-02;
#> best it: 7; best obj: 6.956e+00
#> It: 71; obj: 7.586e+00; abs: 1.863e-03; rel: 2.455e-04; norm: 3.553e+00; mom: 4.534e-02;
#> best it: 7; best obj: 6.956e+00
#> It: 72; obj: 7.584e+00; abs: 2.044e-03; rel: 2.694e-04; norm: 3.545e+00; mom: 4.698e-02;
#> best it: 7; best obj: 6.956e+00
#> It: 73; obj: 7.582e+00; abs: 2.234e-03; rel: 2.946e-04; norm: 3.536e+00; mom: 4.866e-02;
#> best it: 7; best obj: 6.956e+00
#> It: 74; obj: 7.579e+00; abs: 2.433e-03; rel: 3.210e-04; norm: 3.526e+00; mom: 5.039e-02;
#> best it: 7; best obj: 6.956e+00
#> It: 75; obj: 7.577e+00; abs: 2.641e-03; rel: 3.484e-04; norm: 3.516e+00; mom: 5.216e-02;
#> best it: 7; best obj: 6.956e+00

```

## Iteration 75



```

#> It: 76; obj: 7.574e+00; abs: 2.856e-03; rel: 3.769e-04; norm: 3.505e+00; mom: 5.398e-02;
#> best it: 7; best obj: 6.956e+00
#> It: 77; obj: 7.571e+00; abs: 3.076e-03; rel: 4.062e-04; norm: 3.494e+00; mom: 5.583e-02;
#> best it: 7; best obj: 6.956e+00
#> It: 78; obj: 7.567e+00; abs: 3.301e-03; rel: 4.360e-04; norm: 3.481e+00; mom: 5.773e-02;
#> best it: 7; best obj: 6.956e+00
#> It: 79; obj: 7.564e+00; abs: 3.527e-03; rel: 4.660e-04; norm: 3.468e+00; mom: 5.967e-02;
#> best it: 7; best obj: 6.956e+00
#> It: 80; obj: 7.560e+00; abs: 3.750e-03; rel: 4.958e-04; norm: 3.453e+00; mom: 6.164e-02;
#> best it: 7; best obj: 6.956e+00
#> It: 81; obj: 7.556e+00; abs: 3.966e-03; rel: 5.246e-04; norm: 3.438e+00; mom: 6.364e-02;
#> best it: 7; best obj: 6.956e+00

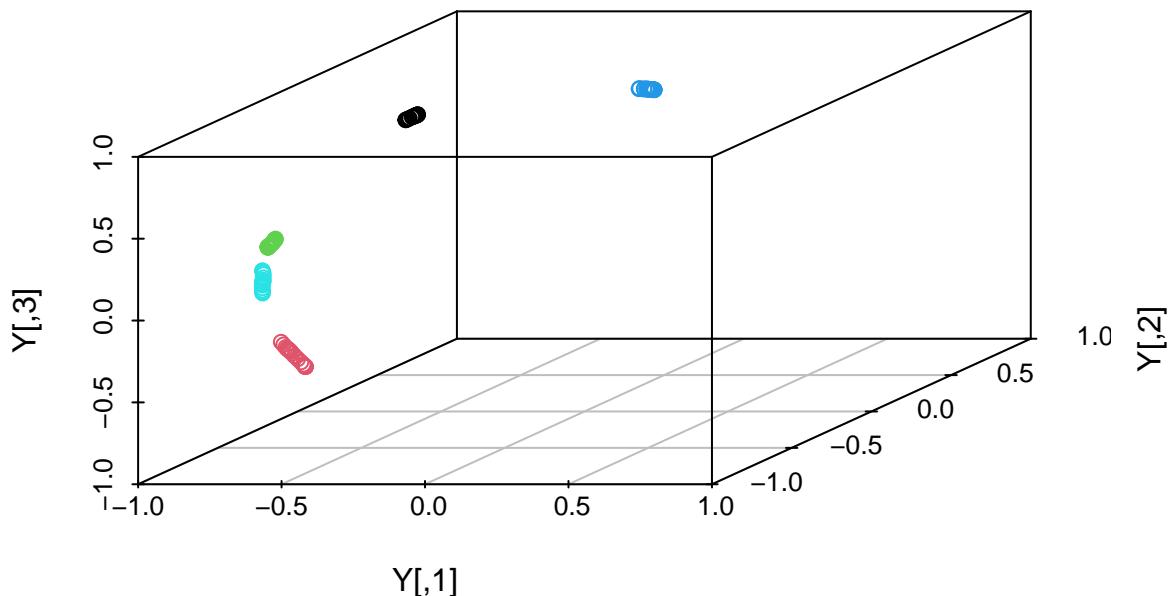
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#> It: 82; obj: 7.552e+00; abs: 4.168e-03; rel: 5.517e-04; norm: 3.422e+00; mom: 6.567e-02;
#> best it: 7; best obj: 6.956e+00
#> It: 83; obj: 7.548e+00; abs: 4.349e-03; rel: 5.759e-04; norm: 3.405e+00; mom: 6.771e-02;
#> best it: 7; best obj: 6.956e+00
#> It: 84; obj: 7.543e+00; abs: 4.497e-03; rel: 5.958e-04; norm: 3.387e+00; mom: 6.977e-02;
#> best it: 7; best obj: 6.956e+00
#> It: 85; obj: 7.538e+00; abs: 4.599e-03; rel: 6.098e-04; norm: 3.368e+00; mom: 7.184e-02;
#> best it: 7; best obj: 6.956e+00
#> It: 86; obj: 7.534e+00; abs: 4.639e-03; rel: 6.154e-04; norm: 3.348e+00; mom: 7.389e-02;
#> best it: 7; best obj: 6.956e+00
#> It: 87; obj: 7.529e+00; abs: 4.595e-03; rel: 6.099e-04; norm: 3.327e+00; mom: 7.594e-02;
#> best it: 7; best obj: 6.956e+00
#> It: 88; obj: 7.525e+00; abs: 4.440e-03; rel: 5.897e-04; norm: 3.306e+00; mom: 7.795e-02;
#> best it: 7; best obj: 6.956e+00
#> It: 89; obj: 7.521e+00; abs: 4.144e-03; rel: 5.507e-04; norm: 3.284e+00; mom: 7.992e-02;
#> best it: 7; best obj: 6.956e+00
#> It: 90; obj: 7.517e+00; abs: 3.667e-03; rel: 4.876e-04; norm: 3.263e+00; mom: 8.184e-02;
#> best it: 7; best obj: 6.956e+00
#> It: 91; obj: 7.514e+00; abs: 2.963e-03; rel: 3.942e-04; norm: 3.241e+00; mom: 8.368e-02;
#> best it: 7; best obj: 6.956e+00
#> It: 92; obj: 7.512e+00; abs: 1.982e-03; rel: 2.637e-04; norm: 3.221e+00; mom: 8.543e-02;
#> best it: 7; best obj: 6.956e+00
#> It: 93; obj: 7.511e+00; abs: 6.640e-04; rel: 8.839e-05; norm: 3.202e+00; mom: 8.706e-02;
#> best it: 7; best obj: 6.956e+00
#> It: 94; obj: 7.512e+00; abs: 1.050e-03; rel: 1.398e-04; norm: 3.187e+00; mom: 8.855e-02;
#> best it: 7; best obj: 6.956e+00
#> It: 95; obj: 7.516e+00; abs: 3.220e-03; rel: 4.286e-04; norm: 3.176e+00; mom: 8.989e-02;
#> best it: 7; best obj: 6.956e+00
#> It: 96; obj: 7.522e+00; abs: 5.891e-03; rel: 7.838e-04; norm: 3.173e+00; mom: 9.104e-02;
#> best it: 7; best obj: 6.956e+00
#> It: 97; obj: 7.531e+00; abs: 9.092e-03; rel: 1.209e-03; norm: 3.178e+00; mom: 9.198e-02;
#> best it: 7; best obj: 6.956e+00
#> It: 98; obj: 7.543e+00; abs: 1.282e-02; rel: 1.702e-03; norm: 3.193e+00; mom: 9.270e-02;
#> best it: 7; best obj: 6.956e+00
#> It: 99; obj: 7.560e+00; abs: 1.701e-02; rel: 2.255e-03; norm: 3.218e+00; mom: 9.318e-02;
#> best it: 7; best obj: 6.956e+00
#> It: 100; obj: 7.582e+00; abs: 2.157e-02; rel: 2.854e-03; norm: 3.254e+00; mom: 9.343e-02;
#> best it: 7; best obj: 6.956e+00

```

## Iteration 100



```

#> It: 101; obj: 4.616e-01; abs: 7.120e+00; rel: 9.391e-01; norm: 2.277e-01; mom: 9.345e-02;
#> best it: 101; best obj: 4.616e-01
#> It: 102; obj: 5.105e-01; abs: 4.890e-02; rel: 1.059e-01; norm: 1.334e-01; mom: 1.716e+00;
#> best it: 101; best obj: 4.616e-01
#> It: 103; obj: 5.852e-01; abs: 7.474e-02; rel: 1.464e-01; norm: 1.900e-01; mom: 1.887e+00;
#> best it: 101; best obj: 4.616e-01
#> It: 104; obj: 5.344e-01; abs: 5.086e-02; rel: 8.690e-02; norm: 1.829e-01; mom: 3.175e+00;
#> best it: 101; best obj: 4.616e-01
#> It: 105; obj: 4.247e-01; abs: 1.097e-01; rel: 2.053e-01; norm: 1.385e-01; mom: 2.468e+00;
#> best it: 105; best obj: 4.247e-01
#> It: 106; obj: 5.887e-01; abs: 1.640e-01; rel: 3.862e-01; norm: 1.620e-01; mom: 2.061e+00;
#> best it: 105; best obj: 4.247e-01
#> It: 107; obj: 6.896e-01; abs: 1.009e-01; rel: 1.713e-01; norm: 2.037e-01; mom: 2.339e+00;
#> best it: 105; best obj: 4.247e-01
#> It: 108; obj: 5.159e-01; abs: 1.737e-01; rel: 2.519e-01; norm: 1.889e-01; mom: 2.500e+00;
#> best it: 105; best obj: 4.247e-01
#> It: 109; obj: 5.128e-01; abs: 3.054e-03; rel: 5.919e-03; norm: 1.726e-01; mom: 2.428e+00;
#> best it: 105; best obj: 4.247e-01
#> It: 110; obj: 5.248e-01; abs: 1.194e-02; rel: 2.327e-02; norm: 2.003e-01; mom: 2.324e+00;
#> best it: 105; best obj: 4.247e-01
#> It: 111; obj: 6.312e-01; abs: 1.064e-01; rel: 2.028e-01; norm: 1.803e-01; mom: 2.408e+00;
#> best it: 105; best obj: 4.247e-01
#> It: 112; obj: 8.401e-01; abs: 2.089e-01; rel: 3.310e-01; norm: 2.503e-01; mom: 2.340e+00;
#> best it: 105; best obj: 4.247e-01
#> It: 113; obj: 8.537e-01; abs: 1.363e-02; rel: 1.623e-02; norm: 3.115e-01; mom: 4.001e+00;
#> best it: 105; best obj: 4.247e-01
#> It: 114; obj: 9.869e-01; abs: 1.332e-01; rel: 1.560e-01; norm: 2.530e-01; mom: 3.688e+00;
#> best it: 105; best obj: 4.247e-01
#> It: 115; obj: 1.161e+00; abs: 1.743e-01; rel: 1.766e-01; norm: 2.508e-01; mom: 3.272e+00;
#> best it: 105; best obj: 4.247e-01
#> It: 116; obj: 1.284e+00; abs: 1.224e-01; rel: 1.054e-01; norm: 3.424e-01; mom: 3.488e+00;

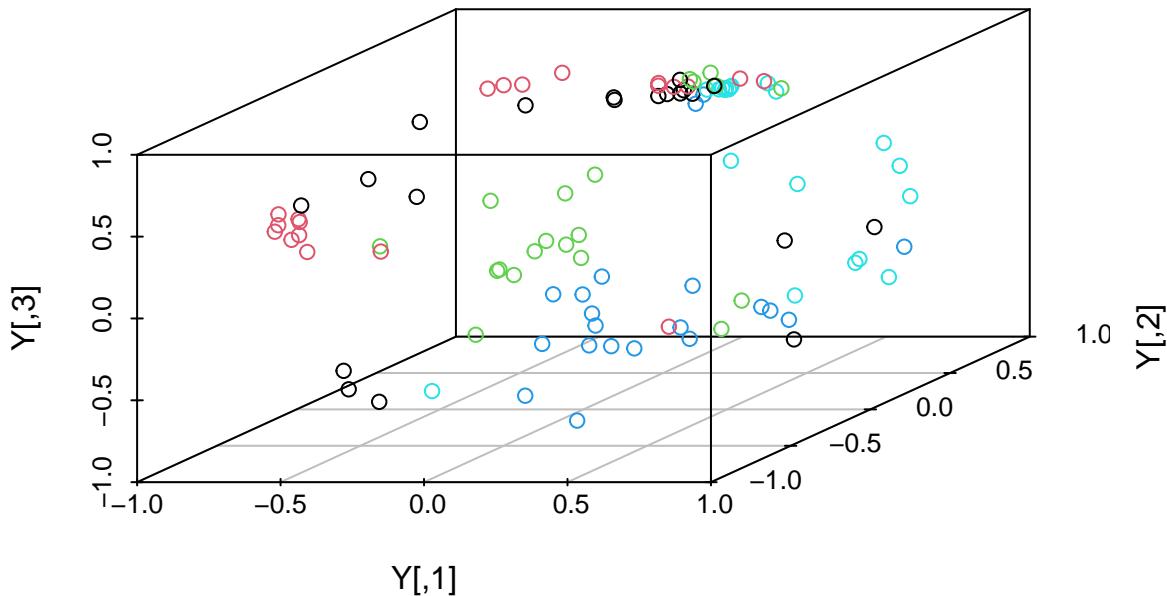
```

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#> best it: 105; best obj: 4.247e-01
#> It: 117; obj: 1.230e+00; abs: 5.397e-02; rel: 4.204e-02; norm: 4.399e-01; mom: 4.591e+00;
#> best it: 105; best obj: 4.247e-01
#> It: 118; obj: 1.262e+00; abs: 3.204e-02; rel: 2.605e-02; norm: 3.968e-01; mom: 4.807e+00;
#> best it: 105; best obj: 4.247e-01
#> It: 119; obj: 1.429e+00; abs: 1.670e-01; rel: 1.324e-01; norm: 4.285e-01; mom: 4.463e+00;
#> best it: 105; best obj: 4.247e-01
#> It: 120; obj: 1.296e+00; abs: 1.323e-01; rel: 9.260e-02; norm: 4.419e-01; mom: 4.863e+00;
#> best it: 105; best obj: 4.247e-01
#> It: 121; obj: 1.255e+00; abs: 4.134e-02; rel: 3.189e-02; norm: 4.516e-01; mom: 4.996e+00;
#> best it: 105; best obj: 4.247e-01
#> It: 122; obj: 1.388e+00; abs: 1.335e-01; rel: 1.063e-01; norm: 5.189e-01; mom: 4.660e+00;
#> best it: 105; best obj: 4.247e-01
#> It: 123; obj: 1.528e+00; abs: 1.397e-01; rel: 1.006e-01; norm: 5.728e-01; mom: 5.224e+00;
#> best it: 105; best obj: 4.247e-01
#> It: 124; obj: 1.488e+00; abs: 4.023e-02; rel: 2.632e-02; norm: 6.635e-01; mom: 5.024e+00;
#> best it: 105; best obj: 4.247e-01
#> It: 125; obj: 1.307e+00; abs: 1.808e-01; rel: 1.215e-01; norm: 8.752e-01; mom: 5.325e+00;
#> best it: 105; best obj: 4.247e-01

```

## Iteration 125



```

#> It: 126; obj: 1.250e+00; abs: 5.706e-02; rel: 4.365e-02; norm: 9.189e-01; mom: 5.457e+00;
#> best it: 105; best obj: 4.247e-01
#> It: 127; obj: 1.075e+00; abs: 1.755e-01; rel: 1.404e-01; norm: 8.522e-01; mom: 5.467e+00;
#> best it: 105; best obj: 4.247e-01
#> It: 128; obj: 1.114e+00; abs: 3.987e-02; rel: 3.711e-02; norm: 7.673e-01; mom: 5.263e+00;
#> best it: 105; best obj: 4.247e-01
#> It: 129; obj: 1.035e+00; abs: 7.930e-02; rel: 7.116e-02; norm: 6.919e-01; mom: 5.131e+00;
#> best it: 105; best obj: 4.247e-01
#> It: 130; obj: 8.849e-01; abs: 1.503e-01; rel: 1.452e-01; norm: 6.796e-01; mom: 5.135e+00;
#> best it: 105; best obj: 4.247e-01
#> It: 131; obj: 7.532e-01; abs: 1.317e-01; rel: 1.488e-01; norm: 5.859e-01; mom: 4.888e+00;
#> best it: 105; best obj: 4.247e-01

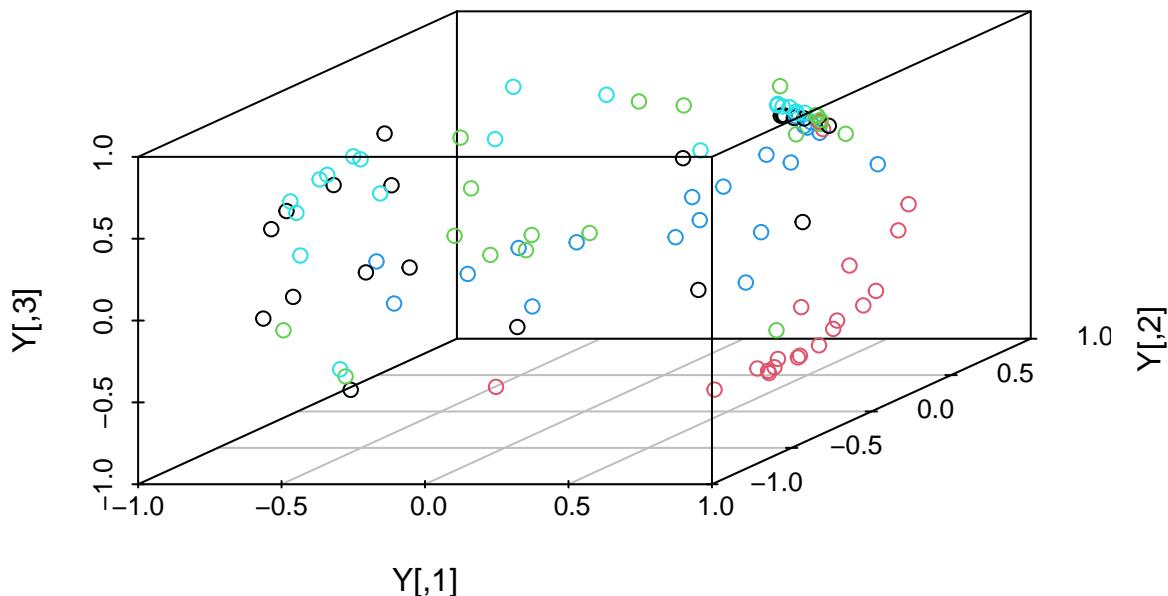
```

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#> It: 132; obj: 7.542e-01; abs: 1.061e-03; rel: 1.408e-03; norm: 4.648e-01; mom: 4.528e+00;
#> best it: 105; best obj: 4.247e-01
#> It: 133; obj: 6.770e-01; abs: 7.723e-02; rel: 1.024e-01; norm: 3.061e-01; mom: 4.227e+00;
#> best it: 105; best obj: 4.247e-01
#> It: 134; obj: 7.070e-01; abs: 2.999e-02; rel: 4.429e-02; norm: 1.579e-01; mom: 3.535e+00;
#> best it: 105; best obj: 4.247e-01
#> It: 135; obj: 7.577e-01; abs: 5.071e-02; rel: 7.172e-02; norm: 2.208e-01; mom: 1.955e+00;
#> best it: 105; best obj: 4.247e-01
#> It: 136; obj: 8.621e-01; abs: 1.044e-01; rel: 1.378e-01; norm: 1.938e-01; mom: 2.819e+00;
#> best it: 105; best obj: 4.247e-01
#> It: 137; obj: 1.014e+00; abs: 1.522e-01; rel: 1.766e-01; norm: 2.664e-01; mom: 2.556e+00;
#> best it: 105; best obj: 4.247e-01
#> It: 138; obj: 1.212e+00; abs: 1.980e-01; rel: 1.952e-01; norm: 2.891e-01; mom: 3.466e+00;
#> best it: 105; best obj: 4.247e-01
#> It: 139; obj: 1.299e+00; abs: 8.652e-02; rel: 7.136e-02; norm: 3.377e-01; mom: 3.738e+00;
#> best it: 105; best obj: 4.247e-01
#> It: 140; obj: 1.217e+00; abs: 8.216e-02; rel: 6.325e-02; norm: 3.099e-01; mom: 4.233e+00;
#> best it: 105; best obj: 4.247e-01
#> It: 141; obj: 1.304e+00; abs: 8.679e-02; rel: 7.133e-02; norm: 3.171e-01; mom: 4.219e+00;
#> best it: 105; best obj: 4.247e-01
#> It: 142; obj: 1.273e+00; abs: 3.069e-02; rel: 2.354e-02; norm: 3.511e-01; mom: 4.413e+00;
#> best it: 105; best obj: 4.247e-01
#> It: 143; obj: 1.388e+00; abs: 1.155e-01; rel: 9.073e-02; norm: 3.604e-01; mom: 4.220e+00;
#> best it: 105; best obj: 4.247e-01
#> It: 144; obj: 1.541e+00; abs: 1.530e-01; rel: 1.102e-01; norm: 3.898e-01; mom: 4.227e+00;
#> best it: 105; best obj: 4.247e-01
#> It: 145; obj: 1.658e+00; abs: 1.165e-01; rel: 7.557e-02; norm: 3.711e-01; mom: 4.658e+00;
#> best it: 105; best obj: 4.247e-01
#> It: 146; obj: 1.551e+00; abs: 1.063e-01; rel: 6.410e-02; norm: 4.218e-01; mom: 4.868e+00;
#> best it: 105; best obj: 4.247e-01
#> It: 147; obj: 1.697e+00; abs: 1.457e-01; rel: 9.389e-02; norm: 3.798e-01; mom: 5.158e+00;
#> best it: 105; best obj: 4.247e-01
#> It: 148; obj: 1.843e+00; abs: 1.464e-01; rel: 8.624e-02; norm: 6.313e-01; mom: 4.413e+00;
#> best it: 105; best obj: 4.247e-01
#> It: 149; obj: 1.799e+00; abs: 4.403e-02; rel: 2.389e-02; norm: 8.911e-01; mom: 5.433e+00;
#> best it: 105; best obj: 4.247e-01
#> It: 150; obj: 1.588e+00; abs: 2.116e-01; rel: 1.176e-01; norm: 1.091e+00; mom: 5.925e+00;
#> best it: 105; best obj: 4.247e-01

```

## Iteration 150



```

#> It: 151; obj: 1.411e+00; abs: 1.767e-01; rel: 1.113e-01; norm: 1.070e+00; mom: 5.824e+00;
#> best it: 105; best obj: 4.247e-01
#> It: 152; obj: 1.282e+00; abs: 1.295e-01; rel: 9.177e-02; norm: 1.006e+00; mom: 5.643e+00;
#> best it: 105; best obj: 4.247e-01
#> It: 153; obj: 1.301e+00; abs: 1.908e-02; rel: 1.489e-02; norm: 9.995e-01; mom: 5.768e+00;
#> best it: 105; best obj: 4.247e-01
#> It: 154; obj: 1.187e+00; abs: 1.142e-01; rel: 8.780e-02; norm: 9.571e-01; mom: 5.625e+00;
#> best it: 105; best obj: 4.247e-01
#> It: 155; obj: 1.133e+00; abs: 5.313e-02; rel: 4.478e-02; norm: 9.335e-01; mom: 5.778e+00;
#> best it: 105; best obj: 4.247e-01
#> It: 156; obj: 1.009e+00; abs: 1.240e-01; rel: 1.094e-01; norm: 9.041e-01; mom: 5.626e+00;
#> best it: 105; best obj: 4.247e-01
#> It: 157; obj: 8.872e-01; abs: 1.221e-01; rel: 1.210e-01; norm: 8.495e-01; mom: 5.484e+00;
#> best it: 105; best obj: 4.247e-01
#> It: 158; obj: 8.046e-01; abs: 8.267e-02; rel: 9.318e-02; norm: 7.750e-01; mom: 5.244e+00;
#> best it: 105; best obj: 4.247e-01
#> It: 159; obj: 7.322e-01; abs: 7.232e-02; rel: 8.988e-02; norm: 6.026e-01; mom: 5.180e+00;
#> best it: 105; best obj: 4.247e-01
#> It: 160; obj: 5.766e-01; abs: 1.556e-01; rel: 2.125e-01; norm: 4.299e-01; mom: 4.714e+00;
#> best it: 105; best obj: 4.247e-01
#> It: 161; obj: 5.224e-01; abs: 5.421e-02; rel: 9.401e-02; norm: 2.247e-01; mom: 4.176e+00;
#> best it: 105; best obj: 4.247e-01
#> It: 162; obj: 4.973e-01; abs: 2.508e-02; rel: 4.801e-02; norm: 1.858e-01; mom: 2.405e+00;
#> best it: 105; best obj: 4.247e-01
#> It: 163; obj: 4.683e-01; abs: 2.899e-02; rel: 5.830e-02; norm: 1.871e-01; mom: 1.934e+00;
#> best it: 105; best obj: 4.247e-01
#> It: 164; obj: 3.770e-01; abs: 9.136e-02; rel: 1.951e-01; norm: 1.474e-01; mom: 1.972e+00;
#> best it: 164; best obj: 3.770e-01
#> It: 165; obj: 4.071e-01; abs: 3.012e-02; rel: 7.991e-02; norm: 1.341e-01; mom: 1.817e+00;
#> best it: 164; best obj: 3.770e-01
#> It: 166; obj: 4.373e-01; abs: 3.019e-02; rel: 7.415e-02; norm: 1.542e-01; mom: 1.612e+00;

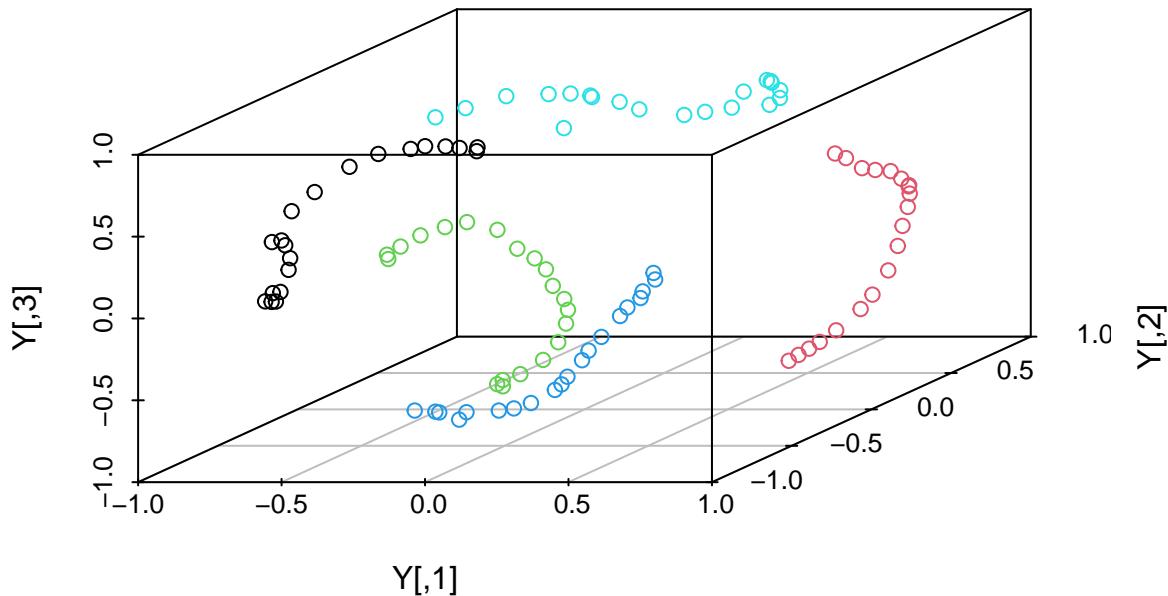
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#> best it: 164; best obj: 3.770e-01
#> It: 167; obj: 3.274e-01; abs: 1.099e-01; rel: 2.513e-01; norm: 1.892e-01; mom: 1.713e+00;
#> best it: 167; best obj: 3.274e-01
#> It: 168; obj: 2.458e-01; abs: 8.160e-02; rel: 2.492e-01; norm: 1.381e-01; mom: 1.911e+00;
#> best it: 168; best obj: 2.458e-01
#> It: 169; obj: 2.467e-01; abs: 8.602e-04; rel: 3.500e-03; norm: 1.370e-01; mom: 1.458e+00;
#> best it: 168; best obj: 2.458e-01
#> It: 170; obj: 2.837e-01; abs: 3.700e-02; rel: 1.500e-01; norm: 1.135e-01; mom: 1.450e+00;
#> best it: 168; best obj: 2.458e-01
#> It: 171; obj: 2.088e-01; abs: 7.486e-02; rel: 2.639e-01; norm: 1.287e-01; mom: 1.366e+00;
#> best it: 171; best obj: 2.088e-01
#> It: 172; obj: 1.579e-01; abs: 5.087e-02; rel: 2.436e-01; norm: 1.021e-01; mom: 1.426e+00;
#> best it: 172; best obj: 1.579e-01
#> It: 173; obj: 1.756e-01; abs: 1.767e-02; rel: 1.119e-01; norm: 1.053e-01; mom: 7.643e-01;
#> best it: 172; best obj: 1.579e-01
#> It: 174; obj: 1.715e-01; abs: 4.097e-03; rel: 2.333e-02; norm: 1.065e-01; mom: 1.041e+00;
#> best it: 172; best obj: 1.579e-01
#> It: 175; obj: 1.533e-01; abs: 1.822e-02; rel: 1.063e-01; norm: 9.872e-02; mom: 1.088e+00;
#> best it: 175; best obj: 1.533e-01

```

## Iteration 175



```

#> It: 176; obj: 1.399e-01; abs: 1.343e-02; rel: 8.761e-02; norm: 9.158e-02; mom: 8.348e-01;
#> best it: 176; best obj: 1.399e-01
#> It: 177; obj: 1.205e-01; abs: 1.936e-02; rel: 1.384e-01; norm: 1.002e-01; mom: 5.265e-01;
#> best it: 177; best obj: 1.205e-01
#> It: 178; obj: 1.185e-01; abs: 1.997e-03; rel: 1.657e-02; norm: 1.004e-01; mom: 7.048e-01;
#> best it: 178; best obj: 1.185e-01
#> It: 179; obj: 1.133e-01; abs: 5.186e-03; rel: 4.377e-02; norm: 9.133e-02; mom: 3.323e-01;
#> best it: 179; best obj: 1.133e-01
#> It: 180; obj: 1.129e-01; abs: 4.476e-04; rel: 3.950e-03; norm: 9.332e-02; mom: 1.784e-01;
#> best it: 180; best obj: 1.129e-01
#> It: 181; obj: 1.126e-01; abs: 2.501e-04; rel: 2.216e-03; norm: 9.657e-02; mom: 1.159e-01;
#> best it: 181; best obj: 1.126e-01

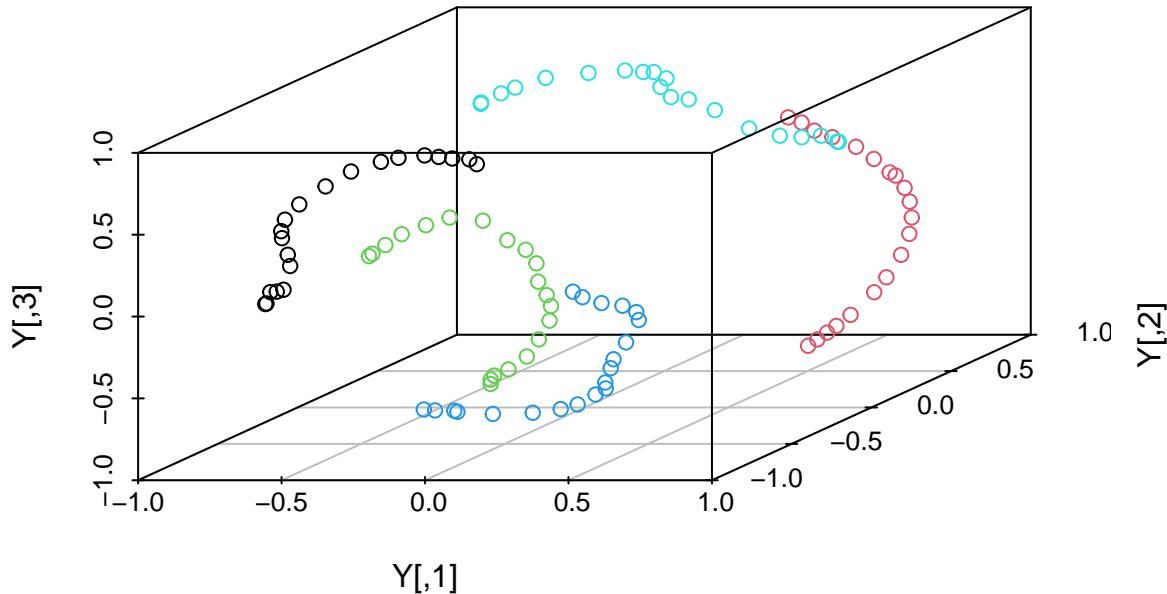
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#> It: 182; obj: 1.122e-01; abs: 3.976e-04; rel: 3.530e-03; norm: 9.463e-02; mom: 8.205e-02;
#> best it: 182; best obj: 1.122e-01
#> It: 183; obj: 1.121e-01; abs: 1.542e-04; rel: 1.374e-03; norm: 9.393e-02; mom: 6.722e-02;
#> best it: 183; best obj: 1.121e-01
#> It: 184; obj: 1.120e-01; abs: 9.734e-05; rel: 8.686e-04; norm: 9.427e-02; mom: 3.428e-02;
#> best it: 184; best obj: 1.120e-01
#> It: 185; obj: 1.119e-01; abs: 8.500e-05; rel: 7.592e-04; norm: 9.448e-02; mom: 2.657e-02;
#> best it: 185; best obj: 1.119e-01
#> It: 186; obj: 1.118e-01; abs: 8.921e-05; rel: 7.974e-04; norm: 9.434e-02; mom: 2.080e-02;
#> best it: 186; best obj: 1.118e-01
#> It: 187; obj: 1.117e-01; abs: 9.427e-05; rel: 8.433e-04; norm: 9.414e-02; mom: 2.163e-02;
#> best it: 187; best obj: 1.117e-01
#> It: 188; obj: 1.116e-01; abs: 1.056e-04; rel: 9.452e-04; norm: 9.409e-02; mom: 2.269e-02;
#> best it: 188; best obj: 1.116e-01
#> It: 189; obj: 1.115e-01; abs: 1.218e-04; rel: 1.091e-03; norm: 9.402e-02; mom: 2.433e-02;
#> best it: 189; best obj: 1.115e-01
#> It: 190; obj: 1.113e-01; abs: 1.441e-04; rel: 1.292e-03; norm: 9.388e-02; mom: 2.639e-02;
#> best it: 190; best obj: 1.113e-01
#> It: 191; obj: 1.112e-01; abs: 1.740e-04; rel: 1.563e-03; norm: 9.371e-02; mom: 2.889e-02;
#> best it: 191; best obj: 1.112e-01
#> It: 192; obj: 1.109e-01; abs: 2.137e-04; rel: 1.922e-03; norm: 9.355e-02; mom: 3.186e-02;
#> best it: 192; best obj: 1.109e-01
#> It: 193; obj: 1.107e-01; abs: 2.655e-04; rel: 2.393e-03; norm: 9.335e-02; mom: 3.547e-02;
#> best it: 193; best obj: 1.107e-01
#> It: 194; obj: 1.103e-01; abs: 3.316e-04; rel: 2.996e-03; norm: 9.313e-02; mom: 3.962e-02;
#> best it: 194; best obj: 1.103e-01
#> It: 195; obj: 1.099e-01; abs: 4.129e-04; rel: 3.742e-03; norm: 9.288e-02; mom: 4.437e-02;
#> best it: 195; best obj: 1.099e-01
#> It: 196; obj: 1.094e-01; abs: 5.073e-04; rel: 4.615e-03; norm: 9.260e-02; mom: 4.964e-02;
#> best it: 196; best obj: 1.094e-01
#> It: 197; obj: 1.088e-01; abs: 6.068e-04; rel: 5.546e-03; norm: 9.229e-02; mom: 5.520e-02;
#> best it: 197; best obj: 1.088e-01
#> It: 198; obj: 1.081e-01; abs: 6.954e-04; rel: 6.390e-03; norm: 9.195e-02; mom: 6.065e-02;
#> best it: 198; best obj: 1.081e-01
#> It: 199; obj: 1.074e-01; abs: 7.497e-04; rel: 6.934e-03; norm: 9.158e-02; mom: 6.529e-02;
#> best it: 199; best obj: 1.074e-01
#> It: 200; obj: 1.066e-01; abs: 7.467e-04; rel: 6.954e-03; norm: 9.118e-02; mom: 6.816e-02;
#> best it: 200; best obj: 1.066e-01

```

## Iteration 200



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#> It: 201; obj: 1.059e-01; abs: 6.767e-04; rel: 6.347e-03; norm: 9.078e-02; mom: 6.820e-02;
#> best it: 201; best obj: 1.059e-01
#> It: 202; obj: 1.054e-01; abs: 5.551e-04; rel: 5.240e-03; norm: 9.045e-02; mom: 6.463e-02;
#> best it: 202; best obj: 1.054e-01
#> It: 203; obj: 1.050e-01; abs: 4.166e-04; rel: 3.953e-03; norm: 9.030e-02; mom: 5.743e-02;
#> best it: 203; best obj: 1.050e-01
#> It: 204; obj: 1.047e-01; abs: 2.937e-04; rel: 2.798e-03; norm: 9.036e-02; mom: 4.775e-02;
#> best it: 204; best obj: 1.047e-01
#> It: 205; obj: 1.045e-01; abs: 2.017e-04; rel: 1.927e-03; norm: 9.062e-02; mom: 3.778e-02;
#> best it: 205; best obj: 1.045e-01
#> It: 206; obj: 1.043e-01; abs: 1.398e-04; rel: 1.338e-03; norm: 9.097e-02; mom: 3.018e-02;
#> best it: 206; best obj: 1.043e-01
#> It: 207; obj: 1.042e-01; abs: 1.005e-04; rel: 9.636e-04; norm: 9.129e-02; mom: 2.599e-02;
#> best it: 207; best obj: 1.042e-01
#> It: 208; obj: 1.042e-01; abs: 7.586e-05; rel: 7.278e-04; norm: 9.154e-02; mom: 2.317e-02;
#> best it: 208; best obj: 1.042e-01
#> It: 209; obj: 1.041e-01; abs: 5.960e-05; rel: 5.722e-04; norm: 9.173e-02; mom: 2.076e-02;
#> best it: 209; best obj: 1.041e-01
#> It: 210; obj: 1.041e-01; abs: 4.814e-05; rel: 4.625e-04; norm: 9.186e-02; mom: 1.866e-02;
#> best it: 210; best obj: 1.041e-01
#> It: 211; obj: 1.040e-01; abs: 3.968e-05; rel: 3.814e-04; norm: 9.197e-02; mom: 1.687e-02;
#> best it: 211; best obj: 1.040e-01
#> It: 212; obj: 1.040e-01; abs: 3.334e-05; rel: 3.205e-04; norm: 9.205e-02; mom: 1.536e-02;
#> best it: 212; best obj: 1.040e-01
#> It: 213; obj: 1.040e-01; abs: 2.861e-05; rel: 2.752e-04; norm: 9.212e-02; mom: 1.411e-02;
#> best it: 213; best obj: 1.040e-01
#> It: 214; obj: 1.039e-01; abs: 2.521e-05; rel: 2.425e-04; norm: 9.217e-02; mom: 1.310e-02;
#> best it: 214; best obj: 1.039e-01
#> It: 215; obj: 1.039e-01; abs: 2.295e-05; rel: 2.208e-04; norm: 9.222e-02; mom: 1.234e-02;
#> best it: 215; best obj: 1.039e-01
#> It: 216; obj: 1.039e-01; abs: 2.174e-05; rel: 2.093e-04; norm: 9.226e-02; mom: 1.182e-02;

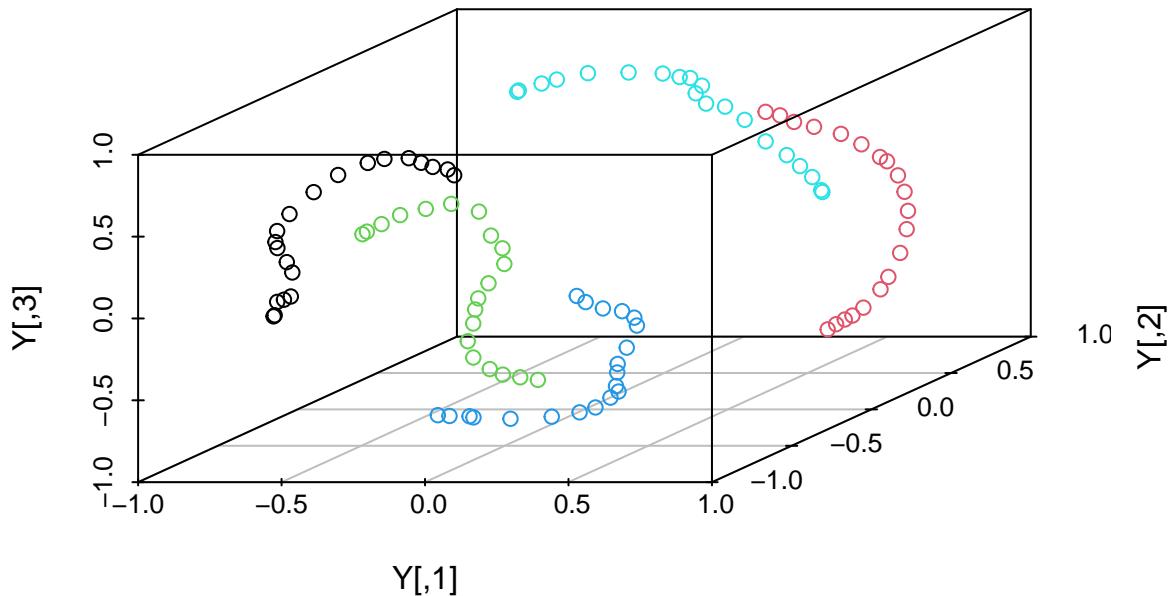
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#> best it: 216; best obj: 1.039e-01
#> It: 217; obj: 1.039e-01; abs: 2.161e-05; rel: 2.080e-04; norm: 9.229e-02; mom: 1.160e-02;
#> best it: 217; best obj: 1.039e-01
#> It: 218; obj: 1.038e-01; abs: 2.265e-05; rel: 2.181e-04; norm: 9.230e-02; mom: 1.169e-02;
#> best it: 218; best obj: 1.038e-01
#> It: 219; obj: 1.038e-01; abs: 2.506e-05; rel: 2.413e-04; norm: 9.231e-02; mom: 1.213e-02;
#> best it: 219; best obj: 1.038e-01
#> It: 220; obj: 1.038e-01; abs: 2.912e-05; rel: 2.805e-04; norm: 9.231e-02; mom: 1.296e-02;
#> best it: 220; best obj: 1.038e-01
#> It: 221; obj: 1.037e-01; abs: 3.517e-05; rel: 3.388e-04; norm: 9.229e-02; mom: 1.419e-02;
#> best it: 221; best obj: 1.037e-01
#> It: 222; obj: 1.037e-01; abs: 4.348e-05; rel: 4.191e-04; norm: 9.225e-02; mom: 1.581e-02;
#> best it: 222; best obj: 1.037e-01
#> It: 223; obj: 1.037e-01; abs: 5.414e-05; rel: 5.221e-04; norm: 9.218e-02; mom: 1.779e-02;
#> best it: 223; best obj: 1.037e-01
#> It: 224; obj: 1.036e-01; abs: 6.684e-05; rel: 6.449e-04; norm: 9.209e-02; mom: 2.005e-02;
#> best it: 224; best obj: 1.036e-01
#> It: 225; obj: 1.035e-01; abs: 8.073e-05; rel: 7.794e-04; norm: 9.196e-02; mom: 2.248e-02;
#> best it: 225; best obj: 1.035e-01

```

## Iteration 225



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#> It: 226; obj: 1.034e-01; abs: 9.441e-05; rel: 9.122e-04; norm: 9.179e-02; mom: 2.492e-02;
#> best it: 226; best obj: 1.034e-01
#> It: 227; obj: 1.033e-01; abs: 1.061e-04; rel: 1.026e-03; norm: 9.159e-02; mom: 2.717e-02;
#> best it: 227; best obj: 1.033e-01
#> It: 228; obj: 1.032e-01; abs: 1.136e-04; rel: 1.100e-03; norm: 9.137e-02; mom: 2.903e-02;
#> best it: 228; best obj: 1.032e-01
#> It: 229; obj: 1.031e-01; abs: 1.150e-04; rel: 1.115e-03; norm: 9.113e-02; mom: 3.029e-02;
#> best it: 229; best obj: 1.031e-01
#> It: 230; obj: 1.030e-01; abs: 1.091e-04; rel: 1.058e-03; norm: 9.090e-02; mom: 3.071e-02;
#> best it: 230; best obj: 1.030e-01
#> It: 231; obj: 1.029e-01; abs: 9.653e-05; rel: 9.375e-04; norm: 9.069e-02; mom: 3.014e-02;
#> best it: 231; best obj: 1.029e-01

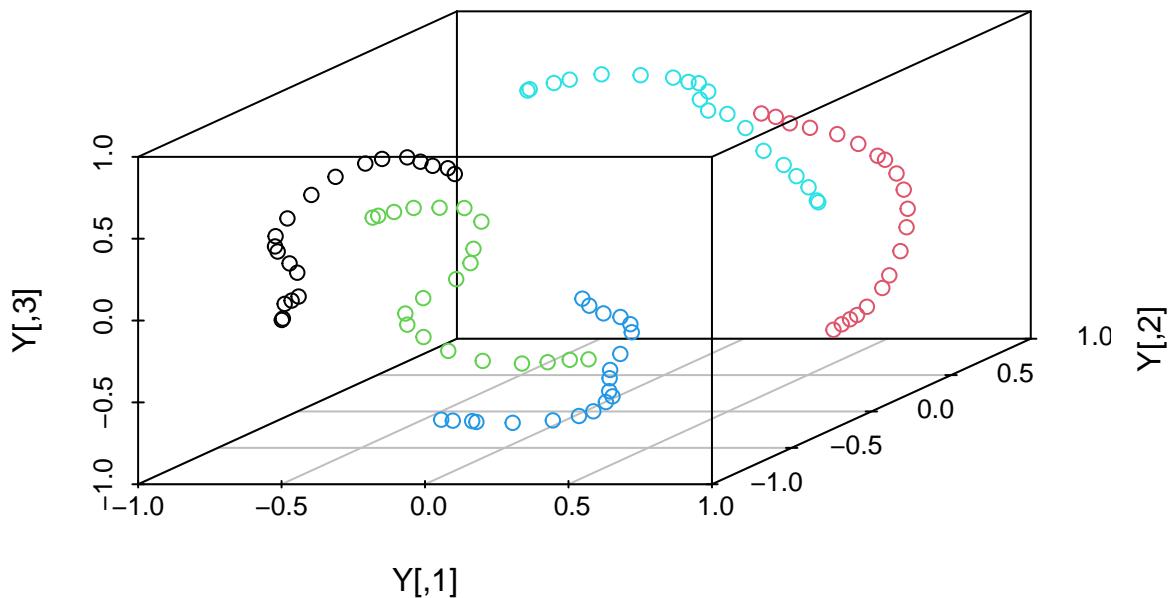
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#> It: 232; obj: 1.028e-01; abs: 7.989e-05; rel: 7.766e-04; norm: 9.051e-02; mom: 2.854e-02;
#> best it: 232; best obj: 1.028e-01
#> It: 233; obj: 1.027e-01; abs: 6.242e-05; rel: 6.073e-04; norm: 9.038e-02; mom: 2.607e-02;
#> best it: 233; best obj: 1.027e-01
#> It: 234; obj: 1.027e-01; abs: 4.674e-05; rel: 4.550e-04; norm: 9.027e-02; mom: 2.304e-02;
#> best it: 234; best obj: 1.027e-01
#> It: 235; obj: 1.026e-01; abs: 3.412e-05; rel: 3.323e-04; norm: 9.020e-02; mom: 1.979e-02;
#> best it: 235; best obj: 1.026e-01
#> It: 236; obj: 1.026e-01; abs: 2.472e-05; rel: 2.409e-04; norm: 9.014e-02; mom: 1.662e-02;
#> best it: 236; best obj: 1.026e-01
#> It: 237; obj: 1.026e-01; abs: 1.805e-05; rel: 1.759e-04; norm: 9.010e-02; mom: 1.373e-02;
#> best it: 237; best obj: 1.026e-01
#> It: 238; obj: 1.026e-01; abs: 1.343e-05; rel: 1.309e-04; norm: 9.007e-02; mom: 1.125e-02;
#> best it: 238; best obj: 1.026e-01
#> It: 239; obj: 1.026e-01; abs: 1.025e-05; rel: 9.989e-05; norm: 9.005e-02; mom: 9.214e-03;
#> best it: 239; best obj: 1.026e-01
#> It: 240; obj: 1.026e-01; abs: 8.036e-06; rel: 7.834e-05; norm: 9.003e-02; mom: 7.626e-03;
#> best it: 240; best obj: 1.026e-01
#> It: 241; obj: 1.026e-01; abs: 6.466e-06; rel: 6.304e-05; norm: 9.001e-02; mom: 6.498e-03;
#> best it: 241; best obj: 1.026e-01
#> It: 242; obj: 1.026e-01; abs: 5.321e-06; rel: 5.188e-05; norm: 9.000e-02; mom: 5.792e-03;
#> best it: 242; best obj: 1.026e-01
#> It: 243; obj: 1.026e-01; abs: 4.462e-06; rel: 4.350e-05; norm: 8.999e-02; mom: 5.315e-03;
#> best it: 243; best obj: 1.026e-01
#> It: 244; obj: 1.026e-01; abs: 3.797e-06; rel: 3.702e-05; norm: 8.999e-02; mom: 4.935e-03;
#> best it: 244; best obj: 1.026e-01
#> It: 245; obj: 1.025e-01; abs: 3.269e-06; rel: 3.188e-05; norm: 8.998e-02; mom: 4.608e-03;
#> best it: 245; best obj: 1.025e-01
#> It: 246; obj: 1.025e-01; abs: 2.841e-06; rel: 2.771e-05; norm: 8.997e-02; mom: 4.318e-03;
#> best it: 246; best obj: 1.025e-01
#> It: 247; obj: 1.025e-01; abs: 2.487e-06; rel: 2.426e-05; norm: 8.997e-02; mom: 4.057e-03;
#> best it: 247; best obj: 1.025e-01
#> It: 248; obj: 1.025e-01; abs: 2.650e-06; rel: 2.585e-05; norm: 8.996e-02; mom: 6.111e-03;
#> best it: 248; best obj: 1.025e-01
#> It: 249; obj: 1.025e-01; abs: 2.536e-06; rel: 2.473e-05; norm: 8.996e-02; mom: 7.100e-03;
#> best it: 249; best obj: 1.025e-01
#> It: 250; obj: 1.025e-01; abs: 2.301e-06; rel: 2.244e-05; norm: 8.995e-02; mom: 7.417e-03;
#> best it: 250; best obj: 1.025e-01

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## Iteration 250



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#> It: 251; obj: 1.025e-01; abs: 2.028e-06; rel: 1.978e-05; norm: 8.995e-02; mom: 7.335e-03;
#> best it: 251; best obj: 1.025e-01
#> It: 252; obj: 1.025e-01; abs: 1.760e-06; rel: 1.717e-05; norm: 8.994e-02; mom: 7.048e-03;
#> best it: 252; best obj: 1.025e-01
#> It: 253; obj: 1.025e-01; abs: 1.518e-06; rel: 1.481e-05; norm: 8.994e-02; mom: 6.662e-03;
#> best it: 253; best obj: 1.025e-01
#> It: 254; obj: 1.025e-01; abs: 1.307e-06; rel: 1.275e-05; norm: 8.993e-02; mom: 6.241e-03;
#> best it: 254; best obj: 1.025e-01
#> It: 255; obj: 1.025e-01; abs: 1.128e-06; rel: 1.101e-05; norm: 8.993e-02; mom: 5.822e-03;
#> best it: 255; best obj: 1.025e-01
#> It: 256; obj: 1.025e-01; abs: 9.787e-07; rel: 9.546e-06; norm: 8.992e-02; mom: 5.424e-03;
#> best it: 256; best obj: 1.025e-01
#> It: 257; obj: 1.025e-01; abs: 8.539e-07; rel: 8.329e-06; norm: 8.992e-02; mom: 5.056e-03;
#> best it: 257; best obj: 1.025e-01
#> It: 258; obj: 1.025e-01; abs: 7.502e-07; rel: 7.317e-06; norm: 8.991e-02; mom: 4.721e-03;
#> best it: 258; best obj: 1.025e-01
#> It: 259; obj: 1.025e-01; abs: 6.639e-07; rel: 6.476e-06; norm: 8.991e-02; mom: 4.419e-03;
#> best it: 259; best obj: 1.025e-01
#> It: 260; obj: 1.025e-01; abs: 5.921e-07; rel: 5.775e-06; norm: 8.990e-02; mom: 4.148e-03;
#> best it: 260; best obj: 1.025e-01
#> It: 261; obj: 1.025e-01; abs: 5.321e-07; rel: 5.190e-06; norm: 8.989e-02; mom: 3.907e-03;
#> best it: 261; best obj: 1.025e-01
#> It: 262; obj: 1.025e-01; abs: 4.815e-07; rel: 4.697e-06; norm: 8.989e-02; mom: 3.690e-03;
#> best it: 262; best obj: 1.025e-01
#> It: 263; obj: 1.025e-01; abs: 4.388e-07; rel: 4.280e-06; norm: 8.988e-02; mom: 3.497e-03;
#> best it: 263; best obj: 1.025e-01
#> It: 264; obj: 1.025e-01; abs: 4.025e-07; rel: 3.926e-06; norm: 8.988e-02; mom: 3.324e-03;
#> best it: 264; best obj: 1.025e-01
#> It: 265; obj: 1.025e-01; abs: 3.713e-07; rel: 3.622e-06; norm: 8.987e-02; mom: 3.169e-03;
#> best it: 265; best obj: 1.025e-01
#> It: 266; obj: 1.025e-01; abs: 3.444e-07; rel: 3.360e-06; norm: 8.986e-02; mom: 3.030e-03;

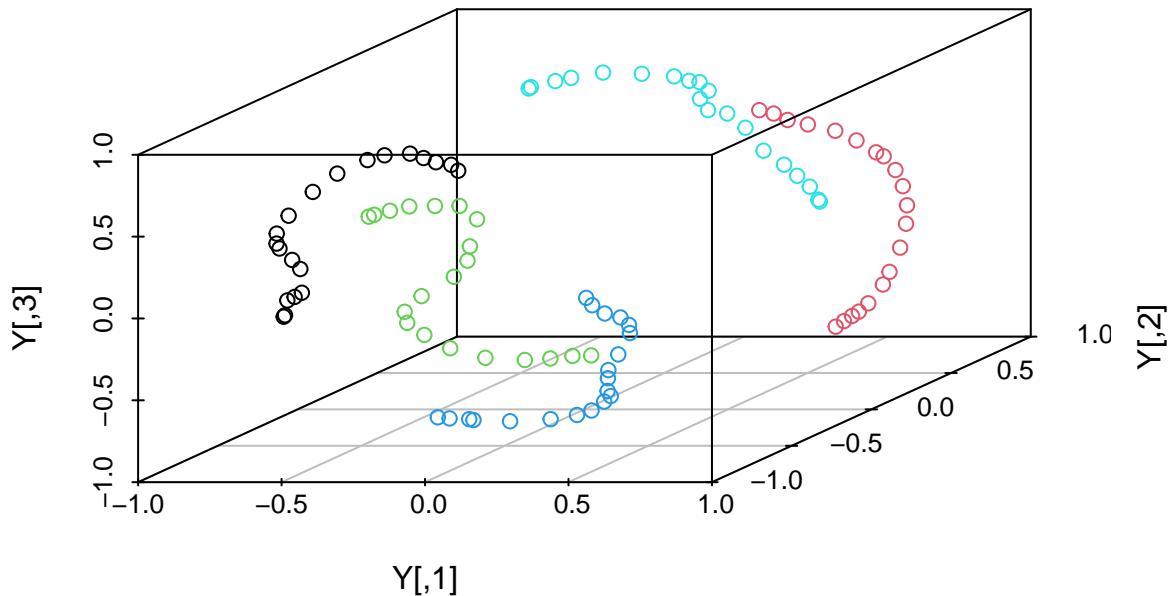
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#> best it: 266; best obj: 1.025e-01
#> It: 267; obj: 1.025e-01; abs: 3.210e-07; rel: 3.131e-06; norm: 8.986e-02; mom: 2.904e-03;
#> best it: 267; best obj: 1.025e-01
#> It: 268; obj: 1.025e-01; abs: 3.005e-07; rel: 2.931e-06; norm: 8.985e-02; mom: 2.791e-03;
#> best it: 268; best obj: 1.025e-01
#> It: 269; obj: 1.025e-01; abs: 2.823e-07; rel: 2.754e-06; norm: 8.984e-02; mom: 2.688e-03;
#> best it: 269; best obj: 1.025e-01
#> It: 270; obj: 1.025e-01; abs: 2.662e-07; rel: 2.597e-06; norm: 8.984e-02; mom: 2.594e-03;
#> best it: 270; best obj: 1.025e-01
#> It: 271; obj: 1.025e-01; abs: 2.518e-07; rel: 2.456e-06; norm: 8.983e-02; mom: 2.508e-03;
#> best it: 271; best obj: 1.025e-01
#> It: 272; obj: 1.025e-01; abs: 2.387e-07; rel: 2.329e-06; norm: 8.983e-02; mom: 2.430e-03;
#> best it: 272; best obj: 1.025e-01
#> It: 273; obj: 1.025e-01; abs: 2.269e-07; rel: 2.213e-06; norm: 8.982e-02; mom: 2.358e-03;
#> best it: 273; best obj: 1.025e-01
#> It: 274; obj: 1.025e-01; abs: 2.161e-07; rel: 2.108e-06; norm: 8.981e-02; mom: 2.291e-03;
#> best it: 274; best obj: 1.025e-01
#> It: 275; obj: 1.025e-01; abs: 2.062e-07; rel: 2.011e-06; norm: 8.981e-02; mom: 2.229e-03;
#> best it: 275; best obj: 1.025e-01

```

## Iteration 275



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#> It: 276; obj: 1.025e-01; abs: 1.970e-07; rel: 1.922e-06; norm: 8.980e-02; mom: 2.171e-03;
#> best it: 276; best obj: 1.025e-01
#> It: 277; obj: 1.025e-01; abs: 1.885e-07; rel: 1.839e-06; norm: 8.980e-02; mom: 2.117e-03;
#> best it: 277; best obj: 1.025e-01
#> It: 278; obj: 1.025e-01; abs: 1.806e-07; rel: 1.762e-06; norm: 8.979e-02; mom: 2.066e-03;
#> best it: 278; best obj: 1.025e-01
#> It: 279; obj: 1.025e-01; abs: 1.732e-07; rel: 1.690e-06; norm: 8.979e-02; mom: 2.017e-03;
#> best it: 279; best obj: 1.025e-01
#> It: 280; obj: 1.025e-01; abs: 1.663e-07; rel: 1.622e-06; norm: 8.978e-02; mom: 1.972e-03;
#> best it: 280; best obj: 1.025e-01
#> It: 281; obj: 1.025e-01; abs: 1.597e-07; rel: 1.558e-06; norm: 8.978e-02; mom: 1.929e-03;
#> best it: 281; best obj: 1.025e-01

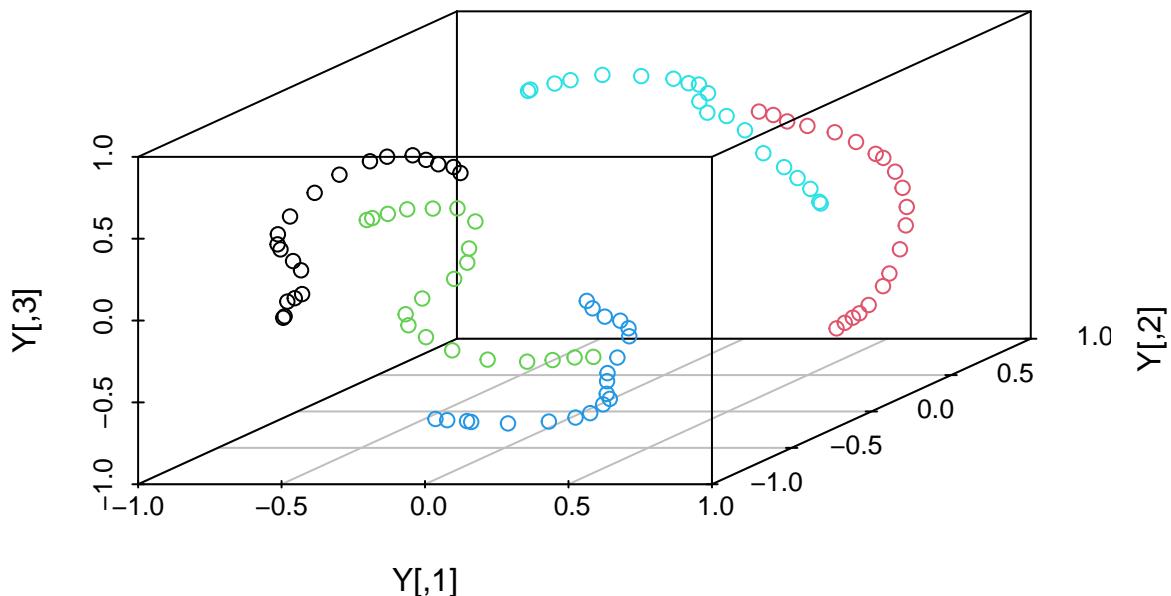
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#> It: 282; obj: 1.025e-01; abs: 1.536e-07; rel: 1.498e-06; norm: 8.977e-02; mom: 1.887e-03;
#> best it: 282; best obj: 1.025e-01
#> It: 283; obj: 1.025e-01; abs: 1.477e-07; rel: 1.441e-06; norm: 8.977e-02; mom: 1.848e-03;
#> best it: 283; best obj: 1.025e-01
#> It: 284; obj: 1.025e-01; abs: 1.422e-07; rel: 1.387e-06; norm: 8.976e-02; mom: 1.810e-03;
#> best it: 284; best obj: 1.025e-01
#> It: 285; obj: 1.025e-01; abs: 1.369e-07; rel: 1.335e-06; norm: 8.976e-02; mom: 1.774e-03;
#> best it: 285; best obj: 1.025e-01
#> It: 286; obj: 1.025e-01; abs: 1.319e-07; rel: 1.287e-06; norm: 8.975e-02; mom: 1.739e-03;
#> best it: 286; best obj: 1.025e-01
#> It: 287; obj: 1.025e-01; abs: 1.271e-07; rel: 1.240e-06; norm: 8.975e-02; mom: 1.705e-03;
#> best it: 287; best obj: 1.025e-01
#> It: 288; obj: 1.025e-01; abs: 1.225e-07; rel: 1.195e-06; norm: 8.974e-02; mom: 1.672e-03;
#> best it: 288; best obj: 1.025e-01
#> It: 289; obj: 1.025e-01; abs: 1.182e-07; rel: 1.153e-06; norm: 8.974e-02; mom: 1.641e-03;
#> best it: 289; best obj: 1.025e-01
#> It: 290; obj: 1.025e-01; abs: 1.140e-07; rel: 1.112e-06; norm: 8.973e-02; mom: 1.610e-03;
#> best it: 290; best obj: 1.025e-01
#> It: 291; obj: 1.025e-01; abs: 1.100e-07; rel: 1.073e-06; norm: 8.973e-02; mom: 1.580e-03;
#> best it: 291; best obj: 1.025e-01
#> It: 292; obj: 1.025e-01; abs: 1.062e-07; rel: 1.036e-06; norm: 8.973e-02; mom: 1.551e-03;
#> best it: 292; best obj: 1.025e-01
#> It: 293; obj: 1.025e-01; abs: 1.025e-07; rel: 9.999e-07; norm: 8.972e-02; mom: 1.523e-03;
#> best it: 293; best obj: 1.025e-01
#> It: 294; obj: 1.025e-01; abs: 9.897e-08; rel: 9.655e-07; norm: 8.972e-02; mom: 1.496e-03;
#> best it: 294; best obj: 1.025e-01
#> It: 295; obj: 1.025e-01; abs: 9.558e-08; rel: 9.324e-07; norm: 8.971e-02; mom: 1.469e-03;
#> best it: 295; best obj: 1.025e-01
#> It: 296; obj: 1.025e-01; abs: 9.233e-08; rel: 9.006e-07; norm: 8.971e-02; mom: 1.443e-03;
#> best it: 296; best obj: 1.025e-01
#> It: 297; obj: 1.025e-01; abs: 8.920e-08; rel: 8.701e-07; norm: 8.971e-02; mom: 1.418e-03;
#> best it: 297; best obj: 1.025e-01
#> It: 298; obj: 1.025e-01; abs: 8.619e-08; rel: 8.407e-07; norm: 8.970e-02; mom: 1.393e-03;
#> best it: 298; best obj: 1.025e-01
#> It: 299; obj: 1.025e-01; abs: 8.329e-08; rel: 8.125e-07; norm: 8.970e-02; mom: 1.369e-03;
#> best it: 299; best obj: 1.025e-01
#> It: 300; obj: 1.025e-01; abs: 8.050e-08; rel: 7.853e-07; norm: 8.969e-02; mom: 1.345e-03;
#> best it: 300; best obj: 1.025e-01

```

### Iteration 300



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#> It: 301; obj: 1.025e-01; abs: 7.782e-08; rel: 7.591e-07; norm: 8.969e-02; mom: 1.322e-03;
#> best it: 301; best obj: 1.025e-01
#> It: 302; obj: 1.025e-01; abs: 7.523e-08; rel: 7.339e-07; norm: 8.969e-02; mom: 1.300e-03;
#> best it: 302; best obj: 1.025e-01
#> It: 303; obj: 1.025e-01; abs: 7.274e-08; rel: 7.096e-07; norm: 8.968e-02; mom: 1.278e-03;
#> best it: 303; best obj: 1.025e-01
#> It: 304; obj: 1.025e-01; abs: 7.034e-08; rel: 6.862e-07; norm: 8.968e-02; mom: 1.256e-03;
#> best it: 304; best obj: 1.025e-01
#> It: 305; obj: 1.025e-01; abs: 6.803e-08; rel: 6.636e-07; norm: 8.968e-02; mom: 1.235e-03;
#> best it: 305; best obj: 1.025e-01
#> It: 306; obj: 1.025e-01; abs: 6.581e-08; rel: 6.419e-07; norm: 8.968e-02; mom: 1.214e-03;
#> best it: 306; best obj: 1.025e-01
#> It: 307; obj: 1.025e-01; abs: 6.366e-08; rel: 6.210e-07; norm: 8.967e-02; mom: 1.194e-03;
#> best it: 307; best obj: 1.025e-01
#> It: 308; obj: 1.025e-01; abs: 6.159e-08; rel: 6.008e-07; norm: 8.967e-02; mom: 1.174e-03;
#> best it: 308; best obj: 1.025e-01
#> It: 309; obj: 1.025e-01; abs: 5.959e-08; rel: 5.813e-07; norm: 8.967e-02; mom: 1.154e-03;
#> best it: 309; best obj: 1.025e-01
#> It: 310; obj: 1.025e-01; abs: 5.766e-08; rel: 5.625e-07; norm: 8.966e-02; mom: 1.135e-03;
#> best it: 310; best obj: 1.025e-01
#> It: 311; obj: 1.025e-01; abs: 5.580e-08; rel: 5.443e-07; norm: 8.966e-02; mom: 1.117e-03;
#> best it: 311; best obj: 1.025e-01
#> It: 312; obj: 1.025e-01; abs: 5.401e-08; rel: 5.268e-07; norm: 8.966e-02; mom: 1.098e-03;
#> best it: 312; best obj: 1.025e-01
#> It: 313; obj: 1.025e-01; abs: 5.228e-08; rel: 5.100e-07; norm: 8.965e-02; mom: 1.080e-03;
#> best it: 313; best obj: 1.025e-01
#> It: 314; obj: 1.025e-01; abs: 5.061e-08; rel: 4.937e-07; norm: 8.965e-02; mom: 1.063e-03;
#> best it: 314; best obj: 1.025e-01
#> It: 315; obj: 1.025e-01; abs: 4.899e-08; rel: 4.779e-07; norm: 8.965e-02; mom: 1.046e-03;
#> best it: 315; best obj: 1.025e-01
#> It: 316; obj: 1.025e-01; abs: 4.744e-08; rel: 4.627e-07; norm: 8.965e-02; mom: 1.029e-03;

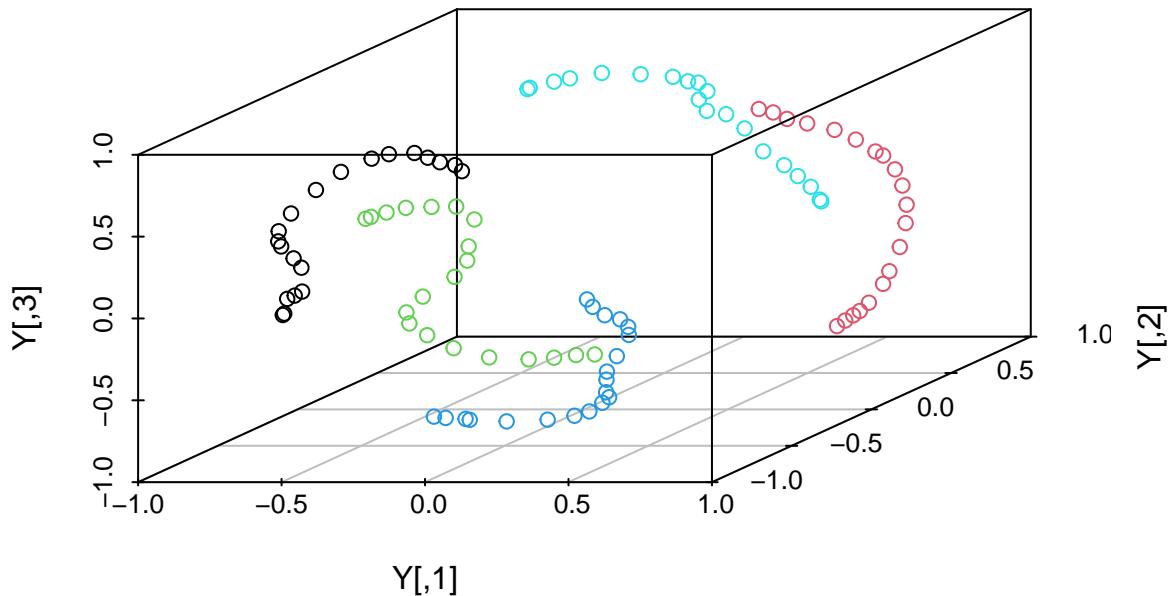
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#> best it: 316; best obj: 1.025e-01
#> It: 317; obj: 1.025e-01; abs: 4.593e-08; rel: 4.481e-07; norm: 8.964e-02; mom: 1.012e-03;
#> best it: 317; best obj: 1.025e-01
#> It: 318; obj: 1.025e-01; abs: 4.448e-08; rel: 4.339e-07; norm: 8.964e-02; mom: 9.957e-04;
#> best it: 318; best obj: 1.025e-01
#> It: 319; obj: 1.025e-01; abs: 4.308e-08; rel: 4.202e-07; norm: 8.964e-02; mom: 9.797e-04;
#> best it: 319; best obj: 1.025e-01
#> It: 320; obj: 1.025e-01; abs: 4.173e-08; rel: 4.070e-07; norm: 8.964e-02; mom: 9.641e-04;
#> best it: 320; best obj: 1.025e-01
#> It: 321; obj: 1.025e-01; abs: 4.042e-08; rel: 3.943e-07; norm: 8.963e-02; mom: 9.487e-04;
#> best it: 321; best obj: 1.025e-01
#> It: 322; obj: 1.025e-01; abs: 3.915e-08; rel: 3.819e-07; norm: 8.963e-02; mom: 9.336e-04;
#> best it: 322; best obj: 1.025e-01
#> It: 323; obj: 1.025e-01; abs: 3.793e-08; rel: 3.700e-07; norm: 8.963e-02; mom: 9.188e-04;
#> best it: 323; best obj: 1.025e-01
#> It: 324; obj: 1.025e-01; abs: 3.675e-08; rel: 3.585e-07; norm: 8.963e-02; mom: 9.043e-04;
#> best it: 324; best obj: 1.025e-01
#> It: 325; obj: 1.025e-01; abs: 3.561e-08; rel: 3.474e-07; norm: 8.963e-02; mom: 8.900e-04;
#> best it: 325; best obj: 1.025e-01

```

## Iteration 325



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#> It: 326; obj: 1.025e-01; abs: 3.451e-08; rel: 3.366e-07; norm: 8.962e-02; mom: 8.760e-04;
#> best it: 326; best obj: 1.025e-01
#> It: 327; obj: 1.025e-01; abs: 3.344e-08; rel: 3.262e-07; norm: 8.962e-02; mom: 8.622e-04;
#> best it: 327; best obj: 1.025e-01
#> It: 328; obj: 1.025e-01; abs: 3.241e-08; rel: 3.161e-07; norm: 8.962e-02; mom: 8.487e-04;
#> best it: 328; best obj: 1.025e-01
#> It: 329; obj: 1.025e-01; abs: 3.141e-08; rel: 3.064e-07; norm: 8.962e-02; mom: 8.355e-04;
#> best it: 329; best obj: 1.025e-01
#> It: 330; obj: 1.025e-01; abs: 3.045e-08; rel: 2.970e-07; norm: 8.961e-02; mom: 8.225e-04;
#> best it: 330; best obj: 1.025e-01
#> It: 331; obj: 1.025e-01; abs: 2.952e-08; rel: 2.879e-07; norm: 8.961e-02; mom: 8.097e-04;
#> best it: 331; best obj: 1.025e-01

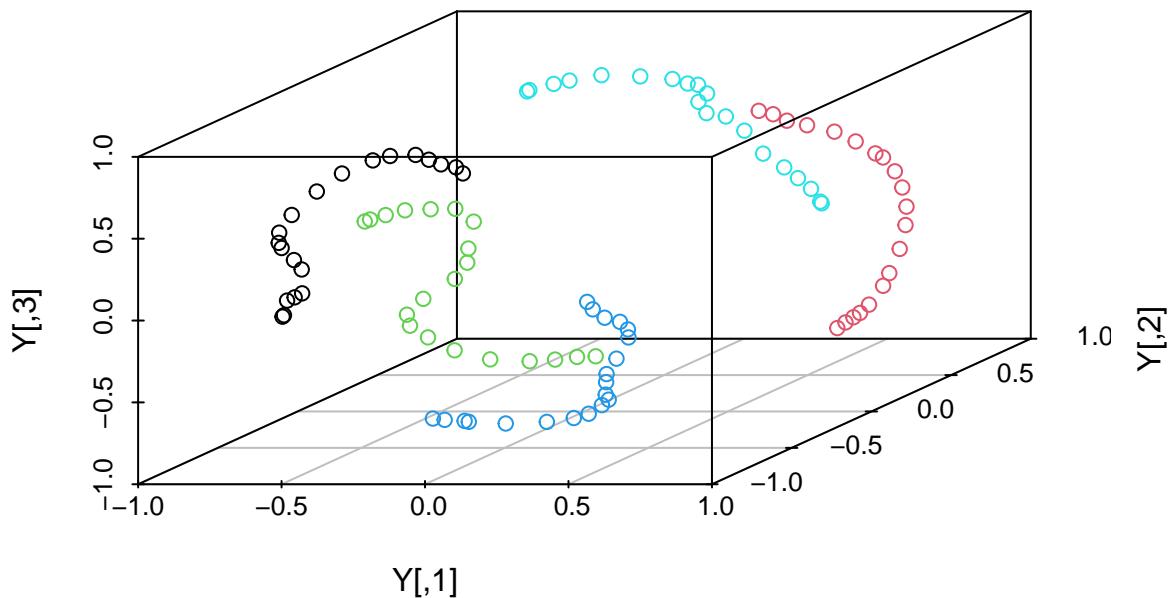
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#> It: 332; obj: 1.025e-01; abs: 2.861e-08; rel: 2.791e-07; norm: 8.961e-02; mom: 7.971e-04;
#> best it: 332; best obj: 1.025e-01
#> It: 333; obj: 1.025e-01; abs: 2.774e-08; rel: 2.706e-07; norm: 8.961e-02; mom: 7.848e-04;
#> best it: 333; best obj: 1.025e-01
#> It: 334; obj: 1.025e-01; abs: 2.690e-08; rel: 2.624e-07; norm: 8.961e-02; mom: 7.727e-04;
#> best it: 334; best obj: 1.025e-01
#> It: 335; obj: 1.025e-01; abs: 2.608e-08; rel: 2.544e-07; norm: 8.961e-02; mom: 7.608e-04;
#> best it: 335; best obj: 1.025e-01
#> It: 336; obj: 1.025e-01; abs: 2.529e-08; rel: 2.467e-07; norm: 8.960e-02; mom: 7.491e-04;
#> best it: 336; best obj: 1.025e-01
#> It: 337; obj: 1.025e-01; abs: 2.453e-08; rel: 2.393e-07; norm: 8.960e-02; mom: 7.376e-04;
#> best it: 337; best obj: 1.025e-01
#> It: 338; obj: 1.025e-01; abs: 2.379e-08; rel: 2.321e-07; norm: 8.960e-02; mom: 7.264e-04;
#> best it: 338; best obj: 1.025e-01
#> It: 339; obj: 1.025e-01; abs: 2.307e-08; rel: 2.251e-07; norm: 8.960e-02; mom: 7.153e-04;
#> best it: 339; best obj: 1.025e-01
#> It: 340; obj: 1.025e-01; abs: 2.238e-08; rel: 2.183e-07; norm: 8.960e-02; mom: 7.044e-04;
#> best it: 340; best obj: 1.025e-01
#> It: 341; obj: 1.025e-01; abs: 2.171e-08; rel: 2.118e-07; norm: 8.959e-02; mom: 6.937e-04;
#> best it: 341; best obj: 1.025e-01
#> It: 342; obj: 1.025e-01; abs: 2.106e-08; rel: 2.054e-07; norm: 8.959e-02; mom: 6.832e-04;
#> best it: 342; best obj: 1.025e-01
#> It: 343; obj: 1.025e-01; abs: 2.043e-08; rel: 1.993e-07; norm: 8.959e-02; mom: 6.728e-04;
#> best it: 343; best obj: 1.025e-01
#> It: 344; obj: 1.025e-01; abs: 1.982e-08; rel: 1.934e-07; norm: 8.959e-02; mom: 6.627e-04;
#> best it: 344; best obj: 1.025e-01
#> It: 345; obj: 1.025e-01; abs: 1.923e-08; rel: 1.876e-07; norm: 8.959e-02; mom: 6.527e-04;
#> best it: 345; best obj: 1.025e-01
#> It: 346; obj: 1.025e-01; abs: 1.866e-08; rel: 1.820e-07; norm: 8.959e-02; mom: 6.429e-04;
#> best it: 346; best obj: 1.025e-01
#> It: 347; obj: 1.025e-01; abs: 1.811e-08; rel: 1.767e-07; norm: 8.959e-02; mom: 6.332e-04;
#> best it: 347; best obj: 1.025e-01
#> It: 348; obj: 1.025e-01; abs: 1.757e-08; rel: 1.714e-07; norm: 8.958e-02; mom: 6.238e-04;
#> best it: 348; best obj: 1.025e-01
#> It: 349; obj: 1.025e-01; abs: 1.705e-08; rel: 1.664e-07; norm: 8.958e-02; mom: 6.144e-04;
#> best it: 349; best obj: 1.025e-01
#> It: 350; obj: 1.025e-01; abs: 1.655e-08; rel: 1.615e-07; norm: 8.958e-02; mom: 6.053e-04;
#> best it: 350; best obj: 1.025e-01

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## Iteration 350



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#> It: 351; obj: 1.025e-01; abs: 1.607e-08; rel: 1.567e-07; norm: 8.958e-02; mom: 5.963e-04;
#> best it: 351; best obj: 1.025e-01
#> It: 352; obj: 1.025e-01; abs: 1.559e-08; rel: 1.521e-07; norm: 8.958e-02; mom: 5.874e-04;
#> best it: 352; best obj: 1.025e-01
#> It: 353; obj: 1.025e-01; abs: 1.514e-08; rel: 1.477e-07; norm: 8.958e-02; mom: 5.787e-04;
#> best it: 353; best obj: 1.025e-01
#> It: 354; obj: 1.025e-01; abs: 1.469e-08; rel: 1.433e-07; norm: 8.958e-02; mom: 5.701e-04;
#> best it: 354; best obj: 1.025e-01
#> It: 355; obj: 1.025e-01; abs: 1.426e-08; rel: 1.391e-07; norm: 8.957e-02; mom: 5.617e-04;
#> best it: 355; best obj: 1.025e-01
#> It: 356; obj: 1.025e-01; abs: 1.385e-08; rel: 1.351e-07; norm: 8.957e-02; mom: 5.534e-04;
#> best it: 356; best obj: 1.025e-01
#> It: 357; obj: 1.025e-01; abs: 1.345e-08; rel: 1.312e-07; norm: 8.957e-02; mom: 5.452e-04;
#> best it: 357; best obj: 1.025e-01
#> It: 358; obj: 1.025e-01; abs: 1.305e-08; rel: 1.273e-07; norm: 8.957e-02; mom: 5.372e-04;
#> best it: 358; best obj: 1.025e-01
#> It: 359; obj: 1.025e-01; abs: 1.268e-08; rel: 1.237e-07; norm: 8.957e-02; mom: 5.293e-04;
#> best it: 359; best obj: 1.025e-01
#> It: 360; obj: 1.025e-01; abs: 1.231e-08; rel: 1.201e-07; norm: 8.957e-02; mom: 5.216e-04;
#> best it: 360; best obj: 1.025e-01
#> It: 361; obj: 1.025e-01; abs: 1.195e-08; rel: 1.166e-07; norm: 8.957e-02; mom: 5.139e-04;
#> best it: 361; best obj: 1.025e-01
#> It: 362; obj: 1.025e-01; abs: 1.161e-08; rel: 1.132e-07; norm: 8.957e-02; mom: 5.064e-04;
#> best it: 362; best obj: 1.025e-01
#> It: 363; obj: 1.025e-01; abs: 1.127e-08; rel: 1.100e-07; norm: 8.956e-02; mom: 4.990e-04;
#> best it: 363; best obj: 1.025e-01
#> It: 364; obj: 1.025e-01; abs: 1.095e-08; rel: 1.068e-07; norm: 8.956e-02; mom: 4.918e-04;
#> best it: 364; best obj: 1.025e-01
#> It: 365; obj: 1.025e-01; abs: 1.063e-08; rel: 1.037e-07; norm: 8.956e-02; mom: 4.846e-04;
#> best it: 365; best obj: 1.025e-01
#> It: 366; obj: 1.025e-01; abs: 1.033e-08; rel: 1.007e-07; norm: 8.956e-02; mom: 4.776e-04;

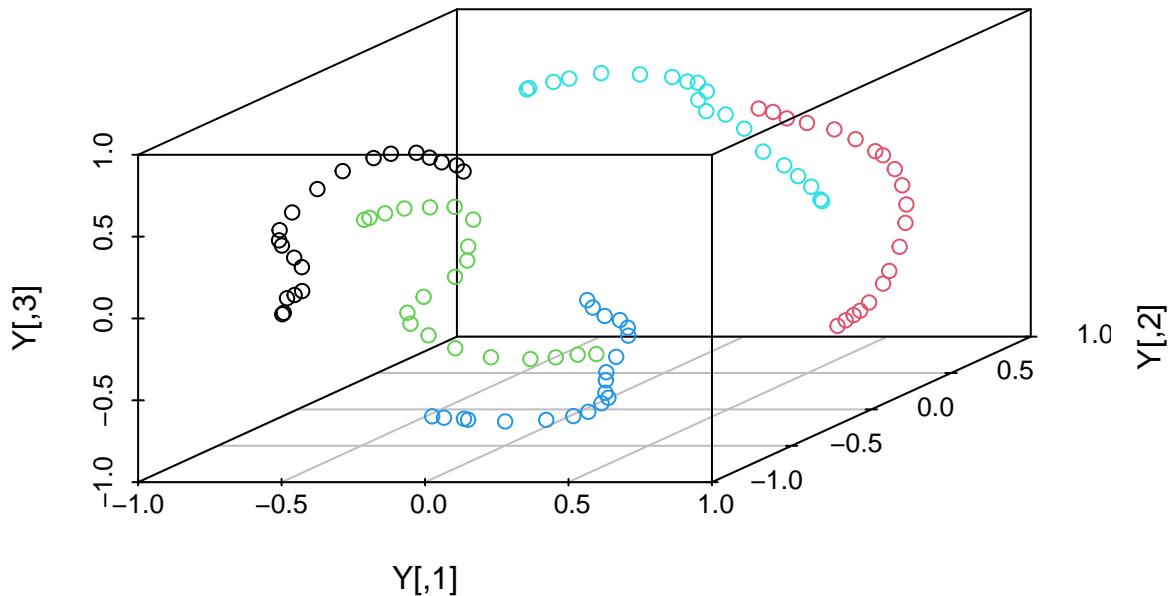
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#> best it: 366; best obj: 1.025e-01
#> It: 367; obj: 1.025e-01; abs: 1.003e-08; rel: 9.786e-08; norm: 8.956e-02; mom: 4.707e-04;
#> best it: 367; best obj: 1.025e-01
#> It: 368; obj: 1.025e-01; abs: 9.745e-09; rel: 9.506e-08; norm: 8.956e-02; mom: 4.639e-04;
#> best it: 368; best obj: 1.025e-01
#> It: 369; obj: 1.025e-01; abs: 9.466e-09; rel: 9.234e-08; norm: 8.956e-02; mom: 4.572e-04;
#> best it: 369; best obj: 1.025e-01
#> It: 370; obj: 1.025e-01; abs: 9.196e-09; rel: 8.971e-08; norm: 8.956e-02; mom: 4.506e-04;
#> best it: 370; best obj: 1.025e-01
#> It: 371; obj: 1.025e-01; abs: 8.934e-09; rel: 8.715e-08; norm: 8.956e-02; mom: 4.441e-04;
#> best it: 371; best obj: 1.025e-01
#> It: 372; obj: 1.025e-01; abs: 8.680e-09; rel: 8.467e-08; norm: 8.955e-02; mom: 4.377e-04;
#> best it: 372; best obj: 1.025e-01
#> It: 373; obj: 1.025e-01; abs: 8.433e-09; rel: 8.226e-08; norm: 8.955e-02; mom: 4.314e-04;
#> best it: 373; best obj: 1.025e-01
#> It: 374; obj: 1.025e-01; abs: 8.194e-09; rel: 7.993e-08; norm: 8.955e-02; mom: 4.252e-04;
#> best it: 374; best obj: 1.025e-01
#> It: 375; obj: 1.025e-01; abs: 7.961e-09; rel: 7.766e-08; norm: 8.955e-02; mom: 4.191e-04;
#> best it: 375; best obj: 1.025e-01

```

## Iteration 375



```

#> It: 376; obj: 1.025e-01; abs: 7.736e-09; rel: 7.546e-08; norm: 8.955e-02; mom: 4.131e-04;
#> best it: 376; best obj: 1.025e-01
#> It: 377; obj: 1.025e-01; abs: 7.517e-09; rel: 7.333e-08; norm: 8.955e-02; mom: 4.072e-04;
#> best it: 377; best obj: 1.025e-01
#> It: 378; obj: 1.025e-01; abs: 7.305e-09; rel: 7.126e-08; norm: 8.955e-02; mom: 4.014e-04;
#> best it: 378; best obj: 1.025e-01
#> It: 379; obj: 1.025e-01; abs: 7.099e-09; rel: 6.925e-08; norm: 8.955e-02; mom: 3.957e-04;
#> best it: 379; best obj: 1.025e-01
#> It: 380; obj: 1.025e-01; abs: 6.899e-09; rel: 6.730e-08; norm: 8.955e-02; mom: 3.900e-04;
#> best it: 380; best obj: 1.025e-01
#> It: 381; obj: 1.025e-01; abs: 6.705e-09; rel: 6.541e-08; norm: 8.955e-02; mom: 3.845e-04;
#> best it: 381; best obj: 1.025e-01

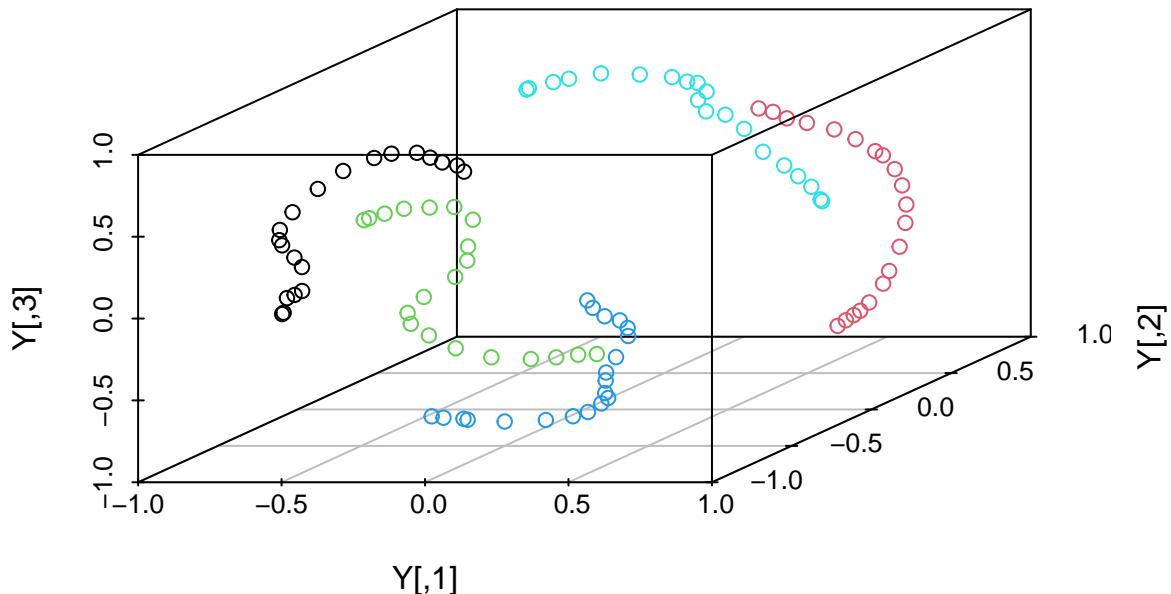
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#> It: 382; obj: 1.025e-01; abs: 6.517e-09; rel: 6.357e-08; norm: 8.955e-02; mom: 3.790e-04;
#> best it: 382; best obj: 1.025e-01
#> It: 383; obj: 1.025e-01; abs: 6.334e-09; rel: 6.178e-08; norm: 8.954e-02; mom: 3.737e-04;
#> best it: 383; best obj: 1.025e-01
#> It: 384; obj: 1.025e-01; abs: 6.156e-09; rel: 6.005e-08; norm: 8.954e-02; mom: 3.684e-04;
#> best it: 384; best obj: 1.025e-01
#> It: 385; obj: 1.025e-01; abs: 5.984e-09; rel: 5.837e-08; norm: 8.954e-02; mom: 3.632e-04;
#> best it: 385; best obj: 1.025e-01
#> It: 386; obj: 1.025e-01; abs: 5.816e-09; rel: 5.674e-08; norm: 8.954e-02; mom: 3.580e-04;
#> best it: 386; best obj: 1.025e-01
#> It: 387; obj: 1.025e-01; abs: 5.654e-09; rel: 5.515e-08; norm: 8.954e-02; mom: 3.530e-04;
#> best it: 387; best obj: 1.025e-01
#> It: 388; obj: 1.025e-01; abs: 5.496e-09; rel: 5.362e-08; norm: 8.954e-02; mom: 3.480e-04;
#> best it: 388; best obj: 1.025e-01
#> It: 389; obj: 1.025e-01; abs: 5.343e-09; rel: 5.212e-08; norm: 8.954e-02; mom: 3.431e-04;
#> best it: 389; best obj: 1.025e-01
#> It: 390; obj: 1.025e-01; abs: 5.194e-09; rel: 5.067e-08; norm: 8.954e-02; mom: 3.383e-04;
#> best it: 390; best obj: 1.025e-01
#> It: 391; obj: 1.025e-01; abs: 5.050e-09; rel: 4.926e-08; norm: 8.954e-02; mom: 3.335e-04;
#> best it: 391; best obj: 1.025e-01
#> It: 392; obj: 1.025e-01; abs: 4.910e-09; rel: 4.789e-08; norm: 8.954e-02; mom: 3.289e-04;
#> best it: 392; best obj: 1.025e-01
#> It: 393; obj: 1.025e-01; abs: 4.773e-09; rel: 4.656e-08; norm: 8.954e-02; mom: 3.242e-04;
#> best it: 393; best obj: 1.025e-01
#> It: 394; obj: 1.025e-01; abs: 4.641e-09; rel: 4.527e-08; norm: 8.954e-02; mom: 3.197e-04;
#> best it: 394; best obj: 1.025e-01
#> It: 395; obj: 1.025e-01; abs: 4.512e-09; rel: 4.402e-08; norm: 8.954e-02; mom: 3.152e-04;
#> best it: 395; best obj: 1.025e-01
#> It: 396; obj: 1.025e-01; abs: 4.388e-09; rel: 4.280e-08; norm: 8.954e-02; mom: 3.108e-04;
#> best it: 396; best obj: 1.025e-01
#> It: 397; obj: 1.025e-01; abs: 4.266e-09; rel: 4.162e-08; norm: 8.953e-02; mom: 3.065e-04;
#> best it: 397; best obj: 1.025e-01
#> It: 398; obj: 1.025e-01; abs: 4.149e-09; rel: 4.047e-08; norm: 8.953e-02; mom: 3.022e-04;
#> best it: 398; best obj: 1.025e-01
#> It: 399; obj: 1.025e-01; abs: 4.034e-09; rel: 3.935e-08; norm: 8.953e-02; mom: 2.980e-04;
#> best it: 399; best obj: 1.025e-01
#> It: 400; obj: 1.025e-01; abs: 3.923e-09; rel: 3.827e-08; norm: 8.953e-02; mom: 2.939e-04;
#> best it: 400; best obj: 1.025e-01

```

## Iteration 400



```

#> It: 401; obj: 1.025e-01; abs: 3.815e-09; rel: 3.722e-08; norm: 8.953e-02; mom: 2.898e-04;
#> best it: 401; best obj: 1.025e-01
#> It: 402; obj: 1.025e-01; abs: 3.710e-09; rel: 3.619e-08; norm: 8.953e-02; mom: 2.858e-04;
#> best it: 402; best obj: 1.025e-01
#> It: 403; obj: 1.025e-01; abs: 3.608e-09; rel: 3.520e-08; norm: 8.953e-02; mom: 2.818e-04;
#> best it: 403; best obj: 1.025e-01
#> It: 404; obj: 1.025e-01; abs: 3.509e-09; rel: 3.423e-08; norm: 8.953e-02; mom: 2.779e-04;
#> best it: 404; best obj: 1.025e-01
#> It: 405; obj: 1.025e-01; abs: 3.413e-09; rel: 3.329e-08; norm: 8.953e-02; mom: 2.741e-04;
#> best it: 405; best obj: 1.025e-01
#> It: 406; obj: 1.025e-01; abs: 3.319e-09; rel: 3.238e-08; norm: 8.953e-02; mom: 2.703e-04;
#> best it: 406; best obj: 1.025e-01
#> It: 407; obj: 1.025e-01; abs: 3.228e-09; rel: 3.149e-08; norm: 8.953e-02; mom: 2.665e-04;
#> best it: 407; best obj: 1.025e-01
#> It: 408; obj: 1.025e-01; abs: 3.140e-09; rel: 3.063e-08; norm: 8.953e-02; mom: 2.628e-04;
#> best it: 408; best obj: 1.025e-01
#> It: 409; obj: 1.025e-01; abs: 3.054e-09; rel: 2.979e-08; norm: 8.953e-02; mom: 2.592e-04;
#> best it: 409; best obj: 1.025e-01
#> It: 410; obj: 1.025e-01; abs: 2.971e-09; rel: 2.898e-08; norm: 8.953e-02; mom: 2.557e-04;
#> best it: 410; best obj: 1.025e-01
#> It: 411; obj: 1.025e-01; abs: 2.890e-09; rel: 2.819e-08; norm: 8.953e-02; mom: 2.521e-04;
#> best it: 411; best obj: 1.025e-01
#> It: 412; obj: 1.025e-01; abs: 2.811e-09; rel: 2.742e-08; norm: 8.953e-02; mom: 2.487e-04;
#> best it: 412; best obj: 1.025e-01
#> It: 413; obj: 1.025e-01; abs: 2.735e-09; rel: 2.668e-08; norm: 8.952e-02; mom: 2.452e-04;
#> best it: 413; best obj: 1.025e-01
#> It: 414; obj: 1.025e-01; abs: 2.660e-09; rel: 2.595e-08; norm: 8.952e-02; mom: 2.419e-04;
#> best it: 414; best obj: 1.025e-01
#> It: 415; obj: 1.025e-01; abs: 2.588e-09; rel: 2.524e-08; norm: 8.952e-02; mom: 2.386e-04;
#> best it: 415; best obj: 1.025e-01
#> It: 416; obj: 1.025e-01; abs: 2.517e-09; rel: 2.456e-08; norm: 8.952e-02; mom: 2.353e-04;

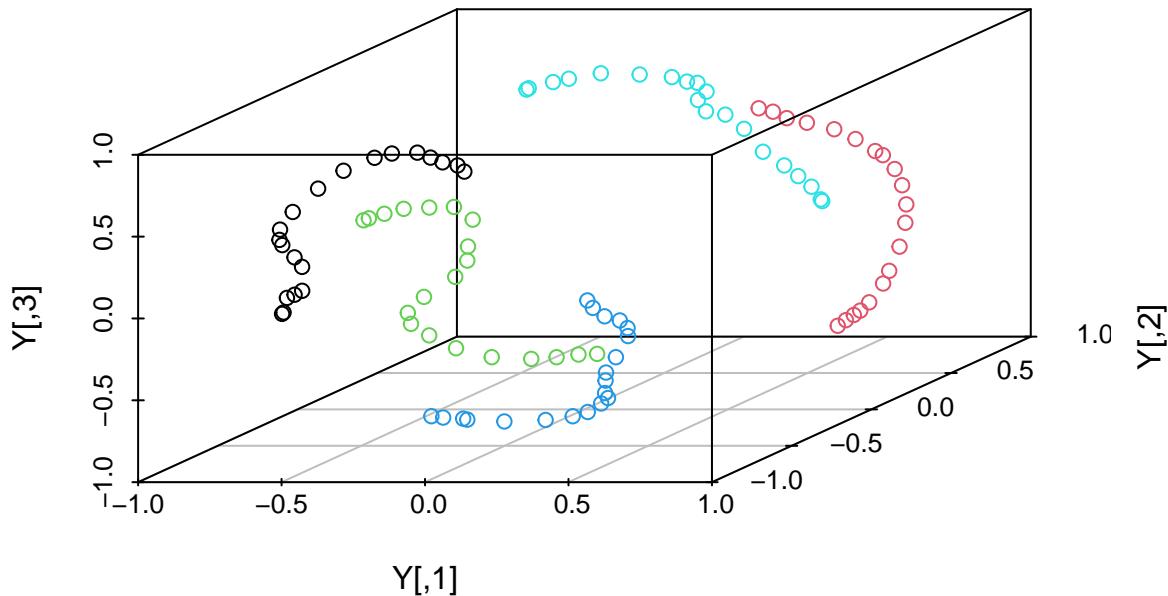
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#> best it: 416; best obj: 1.025e-01
#> It: 417; obj: 1.025e-01; abs: 2.449e-09; rel: 2.389e-08; norm: 8.952e-02; mom: 2.321e-04;
#> best it: 417; best obj: 1.025e-01
#> It: 418; obj: 1.025e-01; abs: 2.383e-09; rel: 2.324e-08; norm: 8.952e-02; mom: 2.289e-04;
#> best it: 418; best obj: 1.025e-01
#> It: 419; obj: 1.025e-01; abs: 2.318e-09; rel: 2.261e-08; norm: 8.952e-02; mom: 2.258e-04;
#> best it: 419; best obj: 1.025e-01
#> It: 420; obj: 1.025e-01; abs: 2.255e-09; rel: 2.200e-08; norm: 8.952e-02; mom: 2.227e-04;
#> best it: 420; best obj: 1.025e-01
#> It: 421; obj: 1.025e-01; abs: 2.194e-09; rel: 2.140e-08; norm: 8.952e-02; mom: 2.196e-04;
#> best it: 421; best obj: 1.025e-01
#> It: 422; obj: 1.025e-01; abs: 2.135e-09; rel: 2.083e-08; norm: 8.952e-02; mom: 2.166e-04;
#> best it: 422; best obj: 1.025e-01
#> It: 423; obj: 1.025e-01; abs: 2.077e-09; rel: 2.026e-08; norm: 8.952e-02; mom: 2.137e-04;
#> best it: 423; best obj: 1.025e-01
#> It: 424; obj: 1.025e-01; abs: 2.021e-09; rel: 1.972e-08; norm: 8.952e-02; mom: 2.108e-04;
#> best it: 424; best obj: 1.025e-01
#> It: 425; obj: 1.025e-01; abs: 1.967e-09; rel: 1.918e-08; norm: 8.952e-02; mom: 2.079e-04;
#> best it: 425; best obj: 1.025e-01

```

## Iteration 425



```

#> It: 426; obj: 1.025e-01; abs: 1.913e-09; rel: 1.867e-08; norm: 8.952e-02; mom: 2.051e-04;
#> best it: 426; best obj: 1.025e-01
#> It: 427; obj: 1.025e-01; abs: 1.862e-09; rel: 1.816e-08; norm: 8.952e-02; mom: 2.023e-04;
#> best it: 427; best obj: 1.025e-01
#> It: 428; obj: 1.025e-01; abs: 1.812e-09; rel: 1.767e-08; norm: 8.952e-02; mom: 1.995e-04;
#> best it: 428; best obj: 1.025e-01
#> It: 429; obj: 1.025e-01; abs: 1.763e-09; rel: 1.720e-08; norm: 8.952e-02; mom: 1.968e-04;
#> best it: 429; best obj: 1.025e-01
#> It: 430; obj: 1.025e-01; abs: 1.716e-09; rel: 1.674e-08; norm: 8.952e-02; mom: 1.942e-04;
#> best it: 430; best obj: 1.025e-01
#> It: 431; obj: 1.025e-01; abs: 1.669e-09; rel: 1.629e-08; norm: 8.952e-02; mom: 1.915e-04;
#> best it: 431; best obj: 1.025e-01

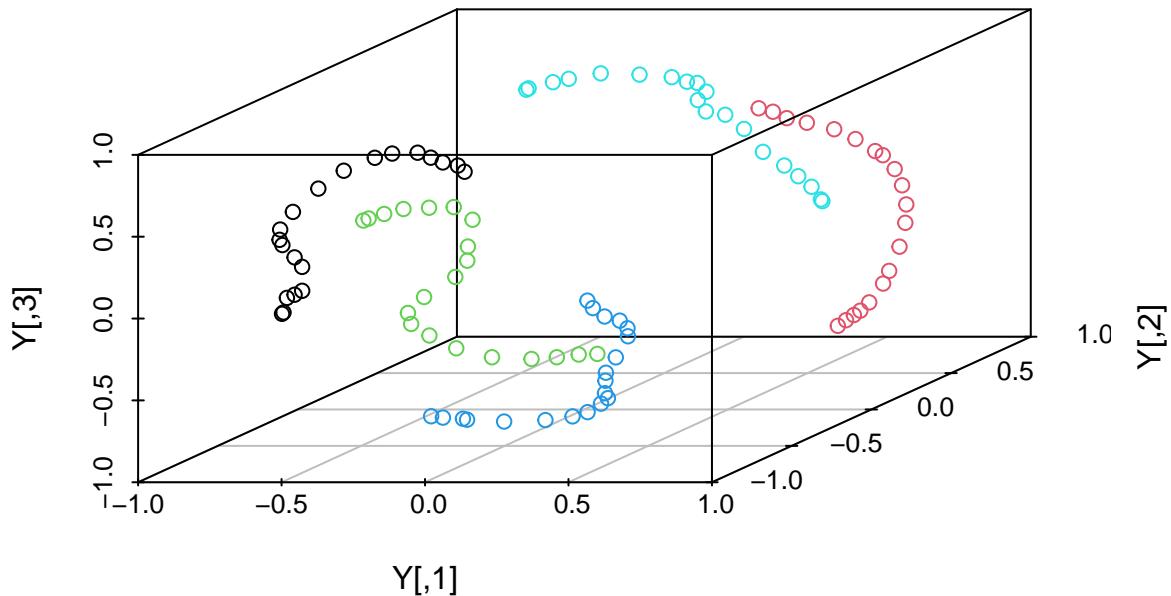
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#> It: 432; obj: 1.025e-01; abs: 1.625e-09; rel: 1.585e-08; norm: 8.952e-02; mom: 1.889e-04;
#> best it: 432; best obj: 1.025e-01
#> It: 433; obj: 1.025e-01; abs: 1.581e-09; rel: 1.542e-08; norm: 8.952e-02; mom: 1.864e-04;
#> best it: 433; best obj: 1.025e-01
#> It: 434; obj: 1.025e-01; abs: 1.539e-09; rel: 1.501e-08; norm: 8.952e-02; mom: 1.839e-04;
#> best it: 434; best obj: 1.025e-01
#> It: 435; obj: 1.025e-01; abs: 1.497e-09; rel: 1.461e-08; norm: 8.951e-02; mom: 1.814e-04;
#> best it: 435; best obj: 1.025e-01
#> It: 436; obj: 1.025e-01; abs: 1.457e-09; rel: 1.422e-08; norm: 8.951e-02; mom: 1.789e-04;
#> best it: 436; best obj: 1.025e-01
#> It: 437; obj: 1.025e-01; abs: 1.418e-09; rel: 1.383e-08; norm: 8.951e-02; mom: 1.765e-04;
#> best it: 437; best obj: 1.025e-01
#> It: 438; obj: 1.025e-01; abs: 1.380e-09; rel: 1.346e-08; norm: 8.951e-02; mom: 1.741e-04;
#> best it: 438; best obj: 1.025e-01
#> It: 439; obj: 1.025e-01; abs: 1.343e-09; rel: 1.310e-08; norm: 8.951e-02; mom: 1.718e-04;
#> best it: 439; best obj: 1.025e-01
#> It: 440; obj: 1.025e-01; abs: 1.307e-09; rel: 1.275e-08; norm: 8.951e-02; mom: 1.695e-04;
#> best it: 440; best obj: 1.025e-01
#> It: 441; obj: 1.025e-01; abs: 1.272e-09; rel: 1.241e-08; norm: 8.951e-02; mom: 1.672e-04;
#> best it: 441; best obj: 1.025e-01
#> It: 442; obj: 1.025e-01; abs: 1.239e-09; rel: 1.208e-08; norm: 8.951e-02; mom: 1.649e-04;
#> best it: 442; best obj: 1.025e-01
#> It: 443; obj: 1.025e-01; abs: 1.205e-09; rel: 1.176e-08; norm: 8.951e-02; mom: 1.627e-04;
#> best it: 443; best obj: 1.025e-01
#> It: 444; obj: 1.025e-01; abs: 1.173e-09; rel: 1.145e-08; norm: 8.951e-02; mom: 1.605e-04;
#> best it: 444; best obj: 1.025e-01
#> It: 445; obj: 1.025e-01; abs: 1.142e-09; rel: 1.114e-08; norm: 8.951e-02; mom: 1.584e-04;
#> best it: 445; best obj: 1.025e-01
#> It: 446; obj: 1.025e-01; abs: 1.112e-09; rel: 1.084e-08; norm: 8.951e-02; mom: 1.562e-04;
#> best it: 446; best obj: 1.025e-01
#> It: 447; obj: 1.025e-01; abs: 1.082e-09; rel: 1.056e-08; norm: 8.951e-02; mom: 1.541e-04;
#> best it: 447; best obj: 1.025e-01
#> It: 448; obj: 1.025e-01; abs: 1.053e-09; rel: 1.027e-08; norm: 8.951e-02; mom: 1.521e-04;
#> best it: 448; best obj: 1.025e-01
#> It: 449; obj: 1.025e-01; abs: 1.025e-09; rel: 1.000e-08; norm: 8.951e-02; mom: 1.500e-04;
#> best it: 449; best obj: 1.025e-01
#> It: 450; obj: 1.025e-01; abs: 9.979e-10; rel: 9.735e-09; norm: 8.951e-02; mom: 1.480e-04;
#> best it: 450; best obj: 1.025e-01

```

## Iteration 450



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#> It: 451; obj: 1.025e-01; abs: 9.714e-10; rel: 9.476e-09; norm: 8.951e-02; mom: 1.460e-04;
#> best it: 451; best obj: 1.025e-01
#> It: 452; obj: 1.025e-01; abs: 9.456e-10; rel: 9.225e-09; norm: 8.951e-02; mom: 1.441e-04;
#> best it: 452; best obj: 1.025e-01
#> It: 453; obj: 1.025e-01; abs: 9.205e-10; rel: 8.980e-09; norm: 8.951e-02; mom: 1.422e-04;
#> best it: 453; best obj: 1.025e-01
#> It: 454; obj: 1.025e-01; abs: 8.961e-10; rel: 8.741e-09; norm: 8.951e-02; mom: 1.403e-04;
#> best it: 454; best obj: 1.025e-01
#> It: 455; obj: 1.025e-01; abs: 8.723e-10; rel: 8.510e-09; norm: 8.951e-02; mom: 1.384e-04;
#> best it: 455; best obj: 1.025e-01
#> It: 456; obj: 1.025e-01; abs: 8.492e-10; rel: 8.284e-09; norm: 8.951e-02; mom: 1.365e-04;
#> best it: 456; best obj: 1.025e-01
#> It: 457; obj: 1.025e-01; abs: 8.267e-10; rel: 8.065e-09; norm: 8.951e-02; mom: 1.347e-04;
#> best it: 457; best obj: 1.025e-01
#> It: 458; obj: 1.025e-01; abs: 8.048e-10; rel: 7.851e-09; norm: 8.951e-02; mom: 1.329e-04;
#> best it: 458; best obj: 1.025e-01
#> It: 459; obj: 1.025e-01; abs: 7.835e-10; rel: 7.643e-09; norm: 8.951e-02; mom: 1.311e-04;
#> best it: 459; best obj: 1.025e-01
#> It: 460; obj: 1.025e-01; abs: 7.628e-10; rel: 7.441e-09; norm: 8.951e-02; mom: 1.294e-04;
#> best it: 460; best obj: 1.025e-01
#> It: 461; obj: 1.025e-01; abs: 7.426e-10; rel: 7.244e-09; norm: 8.951e-02; mom: 1.277e-04;
#> best it: 461; best obj: 1.025e-01
#> It: 462; obj: 1.025e-01; abs: 7.230e-10; rel: 7.053e-09; norm: 8.951e-02; mom: 1.260e-04;
#> best it: 462; best obj: 1.025e-01
#> It: 463; obj: 1.025e-01; abs: 7.039e-10; rel: 6.866e-09; norm: 8.951e-02; mom: 1.243e-04;
#> best it: 463; best obj: 1.025e-01
#> It: 464; obj: 1.025e-01; abs: 6.853e-10; rel: 6.685e-09; norm: 8.951e-02; mom: 1.226e-04;
#> best it: 464; best obj: 1.025e-01
#> It: 465; obj: 1.025e-01; abs: 6.672e-10; rel: 6.509e-09; norm: 8.951e-02; mom: 1.210e-04;
#> best it: 465; best obj: 1.025e-01
#> It: 466; obj: 1.025e-01; abs: 6.496e-10; rel: 6.337e-09; norm: 8.951e-02; mom: 1.194e-04;

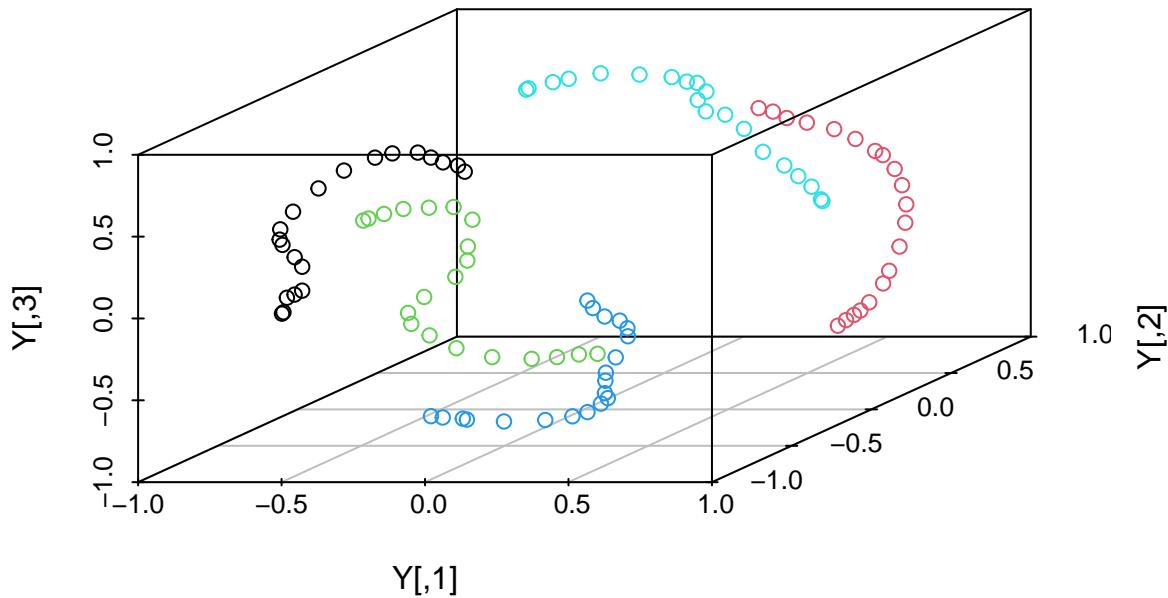
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#> best it: 466; best obj: 1.025e-01
#> It: 467; obj: 1.025e-01; abs: 6.325e-10; rel: 6.170e-09; norm: 8.950e-02; mom: 1.178e-04;
#> best it: 467; best obj: 1.025e-01
#> It: 468; obj: 1.025e-01; abs: 6.158e-10; rel: 6.007e-09; norm: 8.950e-02; mom: 1.162e-04;
#> best it: 468; best obj: 1.025e-01
#> It: 469; obj: 1.025e-01; abs: 5.996e-10; rel: 5.849e-09; norm: 8.950e-02; mom: 1.147e-04;
#> best it: 469; best obj: 1.025e-01
#> It: 470; obj: 1.025e-01; abs: 5.838e-10; rel: 5.695e-09; norm: 8.950e-02; mom: 1.132e-04;
#> best it: 470; best obj: 1.025e-01
#> It: 471; obj: 1.025e-01; abs: 5.684e-10; rel: 5.545e-09; norm: 8.950e-02; mom: 1.117e-04;
#> best it: 471; best obj: 1.025e-01
#> It: 472; obj: 1.025e-01; abs: 5.534e-10; rel: 5.399e-09; norm: 8.950e-02; mom: 1.102e-04;
#> best it: 472; best obj: 1.025e-01
#> It: 473; obj: 1.025e-01; abs: 5.389e-10; rel: 5.257e-09; norm: 8.950e-02; mom: 1.087e-04;
#> best it: 473; best obj: 1.025e-01
#> It: 474; obj: 1.025e-01; abs: 5.247e-10; rel: 5.118e-09; norm: 8.950e-02; mom: 1.073e-04;
#> best it: 474; best obj: 1.025e-01
#> It: 475; obj: 1.025e-01; abs: 5.109e-10; rel: 4.984e-09; norm: 8.950e-02; mom: 1.059e-04;
#> best it: 475; best obj: 1.025e-01

```

## Iteration 475



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#> It: 476; obj: 1.025e-01; abs: 4.975e-10; rel: 4.853e-09; norm: 8.950e-02; mom: 1.045e-04;
#> best it: 476; best obj: 1.025e-01
#> It: 477; obj: 1.025e-01; abs: 4.844e-10; rel: 4.725e-09; norm: 8.950e-02; mom: 1.031e-04;
#> best it: 477; best obj: 1.025e-01
#> It: 478; obj: 1.025e-01; abs: 4.717e-10; rel: 4.601e-09; norm: 8.950e-02; mom: 1.017e-04;
#> best it: 478; best obj: 1.025e-01
#> It: 479; obj: 1.025e-01; abs: 4.593e-10; rel: 4.480e-09; norm: 8.950e-02; mom: 1.004e-04;
#> best it: 479; best obj: 1.025e-01
#> It: 480; obj: 1.025e-01; abs: 4.472e-10; rel: 4.363e-09; norm: 8.950e-02; mom: 9.905e-05;
#> best it: 480; best obj: 1.025e-01
#> It: 481; obj: 1.025e-01; abs: 4.355e-10; rel: 4.248e-09; norm: 8.950e-02; mom: 9.774e-05;
#> best it: 481; best obj: 1.025e-01

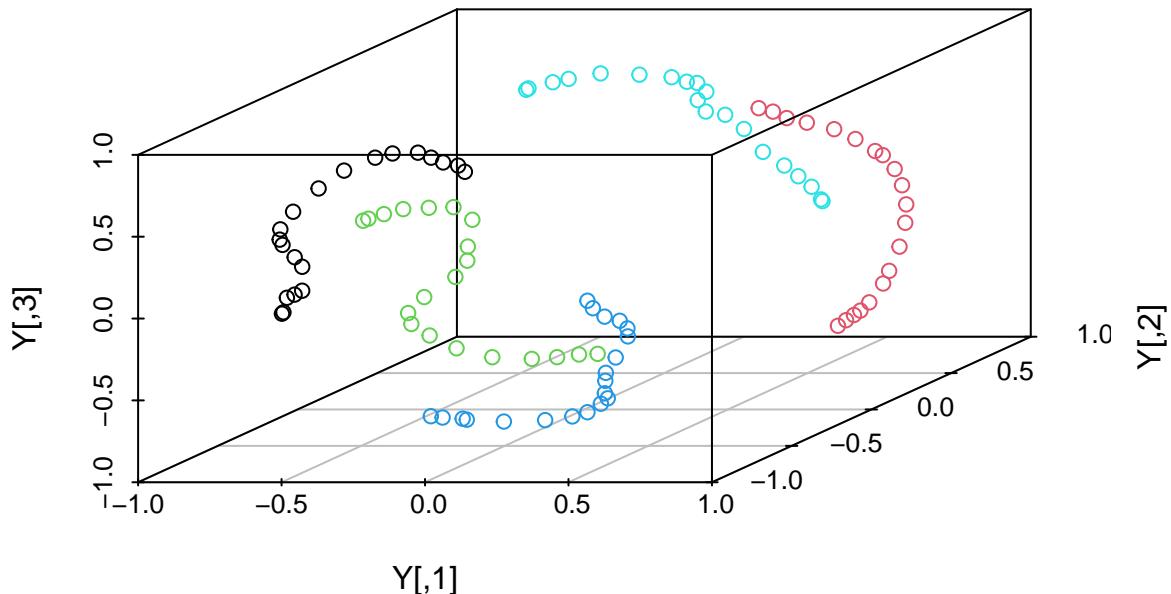
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#> It: 482; obj: 1.025e-01; abs: 4.241e-10; rel: 4.137e-09; norm: 8.950e-02; mom: 9.645e-05;
#> best it: 482; best obj: 1.025e-01
#> It: 483; obj: 1.025e-01; abs: 4.130e-10; rel: 4.028e-09; norm: 8.950e-02; mom: 9.517e-05;
#> best it: 483; best obj: 1.025e-01
#> It: 484; obj: 1.025e-01; abs: 4.021e-10; rel: 3.923e-09; norm: 8.950e-02; mom: 9.391e-05;
#> best it: 484; best obj: 1.025e-01
#> It: 485; obj: 1.025e-01; abs: 3.916e-10; rel: 3.820e-09; norm: 8.950e-02; mom: 9.268e-05;
#> best it: 485; best obj: 1.025e-01
#> It: 486; obj: 1.025e-01; abs: 3.813e-10; rel: 3.720e-09; norm: 8.950e-02; mom: 9.145e-05;
#> best it: 486; best obj: 1.025e-01
#> It: 487; obj: 1.025e-01; abs: 3.714e-10; rel: 3.623e-09; norm: 8.950e-02; mom: 9.025e-05;
#> best it: 487; best obj: 1.025e-01
#> It: 488; obj: 1.025e-01; abs: 3.616e-10; rel: 3.528e-09; norm: 8.950e-02; mom: 8.906e-05;
#> best it: 488; best obj: 1.025e-01
#> It: 489; obj: 1.025e-01; abs: 3.522e-10; rel: 3.435e-09; norm: 8.950e-02; mom: 8.788e-05;
#> best it: 489; best obj: 1.025e-01
#> It: 490; obj: 1.025e-01; abs: 3.430e-10; rel: 3.345e-09; norm: 8.950e-02; mom: 8.672e-05;
#> best it: 490; best obj: 1.025e-01
#> It: 491; obj: 1.025e-01; abs: 3.340e-10; rel: 3.258e-09; norm: 8.950e-02; mom: 8.558e-05;
#> best it: 491; best obj: 1.025e-01
#> It: 492; obj: 1.025e-01; abs: 3.252e-10; rel: 3.173e-09; norm: 8.950e-02; mom: 8.445e-05;
#> best it: 492; best obj: 1.025e-01
#> It: 493; obj: 1.025e-01; abs: 3.168e-10; rel: 3.090e-09; norm: 8.950e-02; mom: 8.334e-05;
#> best it: 493; best obj: 1.025e-01
#> It: 494; obj: 1.025e-01; abs: 3.085e-10; rel: 3.009e-09; norm: 8.950e-02; mom: 8.225e-05;
#> best it: 494; best obj: 1.025e-01
#> It: 495; obj: 1.025e-01; abs: 3.004e-10; rel: 2.931e-09; norm: 8.950e-02; mom: 8.116e-05;
#> best it: 495; best obj: 1.025e-01
#> It: 496; obj: 1.025e-01; abs: 2.926e-10; rel: 2.854e-09; norm: 8.950e-02; mom: 8.010e-05;
#> best it: 496; best obj: 1.025e-01
#> It: 497; obj: 1.025e-01; abs: 2.849e-10; rel: 2.779e-09; norm: 8.950e-02; mom: 7.904e-05;
#> best it: 497; best obj: 1.025e-01
#> It: 498; obj: 1.025e-01; abs: 2.775e-10; rel: 2.707e-09; norm: 8.950e-02; mom: 7.800e-05;
#> best it: 498; best obj: 1.025e-01
#> It: 499; obj: 1.025e-01; abs: 2.703e-10; rel: 2.636e-09; norm: 8.950e-02; mom: 7.698e-05;
#> best it: 499; best obj: 1.025e-01
#> It: 500; obj: 1.025e-01; abs: 2.632e-10; rel: 2.568e-09; norm: 8.950e-02; mom: 7.597e-05;
#> best it: 500; best obj: 1.025e-01

```

## Iteration 500



```

#> It: 501; obj: 1.025e-01; abs: 2.563e-10; rel: 2.501e-09; norm: 8.950e-02; mom: 7.497e-05;
#> best it: 501; best obj: 1.025e-01
#> It: 502; obj: 1.025e-01; abs: 2.497e-10; rel: 2.435e-09; norm: 8.950e-02; mom: 7.398e-05;
#> best it: 502; best obj: 1.025e-01
#> It: 503; obj: 1.025e-01; abs: 2.432e-10; rel: 2.372e-09; norm: 8.950e-02; mom: 7.301e-05;
#> best it: 503; best obj: 1.025e-01
#> It: 504; obj: 1.025e-01; abs: 2.368e-10; rel: 2.310e-09; norm: 8.950e-02; mom: 7.205e-05;
#> best it: 504; best obj: 1.025e-01
#> It: 505; obj: 1.025e-01; abs: 2.306e-10; rel: 2.250e-09; norm: 8.950e-02; mom: 7.111e-05;
#> best it: 505; best obj: 1.025e-01
#> It: 506; obj: 1.025e-01; abs: 2.246e-10; rel: 2.191e-09; norm: 8.950e-02; mom: 7.018e-05;
#> best it: 506; best obj: 1.025e-01
#> It: 507; obj: 1.025e-01; abs: 2.188e-10; rel: 2.134e-09; norm: 8.950e-02; mom: 6.926e-05;
#> best it: 507; best obj: 1.025e-01
#> It: 508; obj: 1.025e-01; abs: 2.131e-10; rel: 2.079e-09; norm: 8.950e-02; mom: 6.835e-05;
#> best it: 508; best obj: 1.025e-01
#> It: 509; obj: 1.025e-01; abs: 2.075e-10; rel: 2.025e-09; norm: 8.950e-02; mom: 6.745e-05;
#> best it: 509; best obj: 1.025e-01
#> It: 510; obj: 1.025e-01; abs: 2.021e-10; rel: 1.972e-09; norm: 8.950e-02; mom: 6.657e-05;
#> best it: 510; best obj: 1.025e-01
#> It: 511; obj: 1.025e-01; abs: 1.969e-10; rel: 1.921e-09; norm: 8.950e-02; mom: 6.570e-05;
#> best it: 511; best obj: 1.025e-01
#> It: 512; obj: 1.025e-01; abs: 1.918e-10; rel: 1.871e-09; norm: 8.950e-02; mom: 6.484e-05;
#> best it: 512; best obj: 1.025e-01
#> It: 513; obj: 1.025e-01; abs: 1.868e-10; rel: 1.822e-09; norm: 8.950e-02; mom: 6.399e-05;
#> best it: 513; best obj: 1.025e-01
#> It: 514; obj: 1.025e-01; abs: 1.819e-10; rel: 1.775e-09; norm: 8.950e-02; mom: 6.315e-05;
#> best it: 514; best obj: 1.025e-01
#> It: 515; obj: 1.025e-01; abs: 1.772e-10; rel: 1.729e-09; norm: 8.950e-02; mom: 6.232e-05;
#> best it: 515; best obj: 1.025e-01
#> It: 516; obj: 1.025e-01; abs: 1.726e-10; rel: 1.684e-09; norm: 8.950e-02; mom: 6.151e-05;

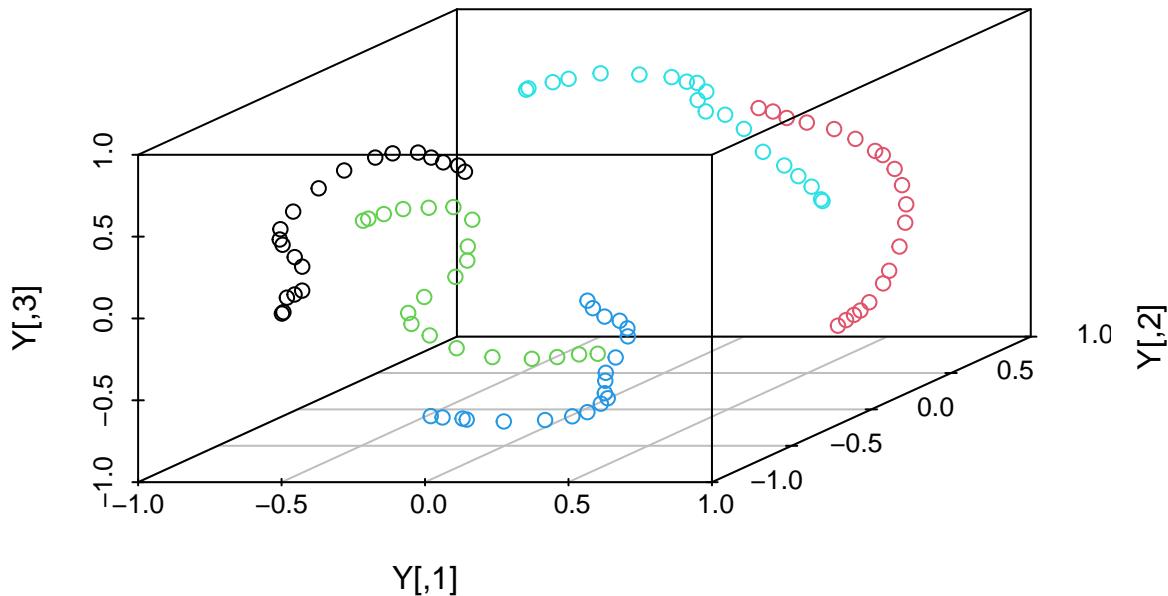
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#> best it: 516; best obj: 1.025e-01
#> It: 517; obj: 1.025e-01; abs: 1.681e-10; rel: 1.640e-09; norm: 8.950e-02; mom: 6.070e-05;
#> best it: 517; best obj: 1.025e-01
#> It: 518; obj: 1.025e-01; abs: 1.637e-10; rel: 1.597e-09; norm: 8.950e-02; mom: 5.991e-05;
#> best it: 518; best obj: 1.025e-01
#> It: 519; obj: 1.025e-01; abs: 1.595e-10; rel: 1.556e-09; norm: 8.950e-02; mom: 5.913e-05;
#> best it: 519; best obj: 1.025e-01
#> It: 520; obj: 1.025e-01; abs: 1.554e-10; rel: 1.515e-09; norm: 8.950e-02; mom: 5.835e-05;
#> best it: 520; best obj: 1.025e-01
#> It: 521; obj: 1.025e-01; abs: 1.513e-10; rel: 1.476e-09; norm: 8.950e-02; mom: 5.759e-05;
#> best it: 521; best obj: 1.025e-01
#> It: 522; obj: 1.025e-01; abs: 1.474e-10; rel: 1.438e-09; norm: 8.950e-02; mom: 5.684e-05;
#> best it: 522; best obj: 1.025e-01
#> It: 523; obj: 1.025e-01; abs: 1.436e-10; rel: 1.400e-09; norm: 8.950e-02; mom: 5.609e-05;
#> best it: 523; best obj: 1.025e-01
#> It: 524; obj: 1.025e-01; abs: 1.398e-10; rel: 1.364e-09; norm: 8.949e-02; mom: 5.536e-05;
#> best it: 524; best obj: 1.025e-01
#> It: 525; obj: 1.025e-01; abs: 1.362e-10; rel: 1.329e-09; norm: 8.949e-02; mom: 5.464e-05;
#> best it: 525; best obj: 1.025e-01

```

## Iteration 525



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#> It: 526; obj: 1.025e-01; abs: 1.327e-10; rel: 1.294e-09; norm: 8.949e-02; mom: 5.393e-05;
#> best it: 526; best obj: 1.025e-01
#> It: 527; obj: 1.025e-01; abs: 1.292e-10; rel: 1.261e-09; norm: 8.949e-02; mom: 5.322e-05;
#> best it: 527; best obj: 1.025e-01
#> It: 528; obj: 1.025e-01; abs: 1.259e-10; rel: 1.228e-09; norm: 8.949e-02; mom: 5.253e-05;
#> best it: 528; best obj: 1.025e-01
#> It: 529; obj: 1.025e-01; abs: 1.226e-10; rel: 1.196e-09; norm: 8.949e-02; mom: 5.184e-05;
#> best it: 529; best obj: 1.025e-01
#> It: 530; obj: 1.025e-01; abs: 1.195e-10; rel: 1.165e-09; norm: 8.949e-02; mom: 5.117e-05;
#> best it: 530; best obj: 1.025e-01
#> It: 531; obj: 1.025e-01; abs: 1.164e-10; rel: 1.135e-09; norm: 8.949e-02; mom: 5.050e-05;
#> best it: 531; best obj: 1.025e-01

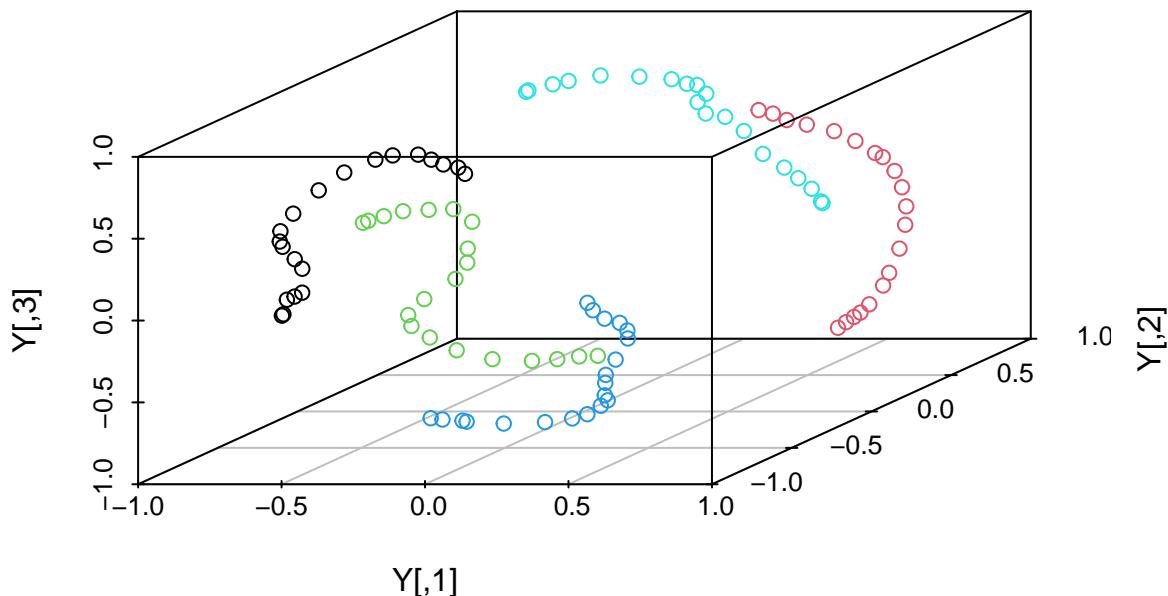
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#> It: 532; obj: 1.025e-01; abs: 1.133e-10; rel: 1.106e-09; norm: 8.949e-02; mom: 4.984e-05;
#> best it: 532; best obj: 1.025e-01
#> It: 533; obj: 1.025e-01; abs: 1.104e-10; rel: 1.077e-09; norm: 8.949e-02; mom: 4.919e-05;
#> best it: 533; best obj: 1.025e-01
#> It: 534; obj: 1.025e-01; abs: 1.075e-10; rel: 1.049e-09; norm: 8.949e-02; mom: 4.855e-05;
#> best it: 534; best obj: 1.025e-01
#> It: 535; obj: 1.025e-01; abs: 1.048e-10; rel: 1.022e-09; norm: 8.949e-02; mom: 4.792e-05;
#> best it: 535; best obj: 1.025e-01
#> It: 536; obj: 1.025e-01; abs: 1.021e-10; rel: 9.955e-10; norm: 8.949e-02; mom: 4.729e-05;
#> best it: 536; best obj: 1.025e-01
#> It: 537; obj: 1.025e-01; abs: 9.942e-11; rel: 9.698e-10; norm: 8.949e-02; mom: 4.667e-05;
#> best it: 537; best obj: 1.025e-01
#> It: 538; obj: 1.025e-01; abs: 9.684e-11; rel: 9.447e-10; norm: 8.949e-02; mom: 4.607e-05;
#> best it: 538; best obj: 1.025e-01
#> It: 539; obj: 1.025e-01; abs: 9.434e-11; rel: 9.203e-10; norm: 8.949e-02; mom: 4.547e-05;
#> best it: 539; best obj: 1.025e-01
#> It: 540; obj: 1.025e-01; abs: 9.189e-11; rel: 8.964e-10; norm: 8.949e-02; mom: 4.487e-05;
#> best it: 540; best obj: 1.025e-01
#> It: 541; obj: 1.025e-01; abs: 8.952e-11; rel: 8.733e-10; norm: 8.949e-02; mom: 4.429e-05;
#> best it: 541; best obj: 1.025e-01
#> It: 542; obj: 1.025e-01; abs: 8.721e-11; rel: 8.507e-10; norm: 8.949e-02; mom: 4.371e-05;
#> best it: 542; best obj: 1.025e-01
#> It: 543; obj: 1.025e-01; abs: 8.495e-11; rel: 8.287e-10; norm: 8.949e-02; mom: 4.314e-05;
#> best it: 543; best obj: 1.025e-01
#> It: 544; obj: 1.025e-01; abs: 8.275e-11; rel: 8.073e-10; norm: 8.949e-02; mom: 4.258e-05;
#> best it: 544; best obj: 1.025e-01
#> It: 545; obj: 1.025e-01; abs: 8.062e-11; rel: 7.864e-10; norm: 8.949e-02; mom: 4.203e-05;
#> best it: 545; best obj: 1.025e-01
#> It: 546; obj: 1.025e-01; abs: 7.853e-11; rel: 7.661e-10; norm: 8.949e-02; mom: 4.148e-05;
#> best it: 546; best obj: 1.025e-01
#> It: 547; obj: 1.025e-01; abs: 7.651e-11; rel: 7.463e-10; norm: 8.949e-02; mom: 4.094e-05;
#> best it: 547; best obj: 1.025e-01
#> It: 548; obj: 1.025e-01; abs: 7.453e-11; rel: 7.270e-10; norm: 8.949e-02; mom: 4.041e-05;
#> best it: 548; best obj: 1.025e-01
#> It: 549; obj: 1.025e-01; abs: 7.260e-11; rel: 7.082e-10; norm: 8.949e-02; mom: 3.988e-05;
#> best it: 549; best obj: 1.025e-01
#> It: 550; obj: 1.025e-01; abs: 7.074e-11; rel: 6.900e-10; norm: 8.949e-02; mom: 3.937e-05;
#> best it: 550; best obj: 1.025e-01

```

## Iteration 550



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#> It: 551; obj: 1.025e-01; abs: 6.890e-11; rel: 6.721e-10; norm: 8.949e-02; mom: 3.885e-05;
#> best it: 551; best obj: 1.025e-01
#> It: 552; obj: 1.025e-01; abs: 6.712e-11; rel: 6.548e-10; norm: 8.949e-02; mom: 3.835e-05;
#> best it: 552; best obj: 1.025e-01
#> It: 553; obj: 1.025e-01; abs: 6.539e-11; rel: 6.379e-10; norm: 8.949e-02; mom: 3.785e-05;
#> best it: 553; best obj: 1.025e-01
#> It: 554; obj: 1.025e-01; abs: 6.370e-11; rel: 6.214e-10; norm: 8.949e-02; mom: 3.736e-05;
#> best it: 554; best obj: 1.025e-01
#> It: 555; obj: 1.025e-01; abs: 6.206e-11; rel: 6.054e-10; norm: 8.949e-02; mom: 3.687e-05;
#> best it: 555; best obj: 1.025e-01
#> It: 556; obj: 1.025e-01; abs: 6.045e-11; rel: 5.897e-10; norm: 8.949e-02; mom: 3.639e-05;
#> best it: 556; best obj: 1.025e-01
#> It: 557; obj: 1.025e-01; abs: 5.890e-11; rel: 5.745e-10; norm: 8.949e-02; mom: 3.592e-05;
#> best it: 557; best obj: 1.025e-01
#> It: 558; obj: 1.025e-01; abs: 5.738e-11; rel: 5.597e-10; norm: 8.949e-02; mom: 3.545e-05;
#> best it: 558; best obj: 1.025e-01
#> It: 559; obj: 1.025e-01; abs: 5.590e-11; rel: 5.453e-10; norm: 8.949e-02; mom: 3.499e-05;
#> best it: 559; best obj: 1.025e-01
#> It: 560; obj: 1.025e-01; abs: 5.445e-11; rel: 5.312e-10; norm: 8.949e-02; mom: 3.454e-05;
#> best it: 560; best obj: 1.025e-01
#> It: 561; obj: 1.025e-01; abs: 5.305e-11; rel: 5.175e-10; norm: 8.949e-02; mom: 3.409e-05;
#> best it: 561; best obj: 1.025e-01
#> It: 562; obj: 1.025e-01; abs: 5.168e-11; rel: 5.041e-10; norm: 8.949e-02; mom: 3.365e-05;
#> best it: 562; best obj: 1.025e-01
#> It: 563; obj: 1.025e-01; abs: 5.036e-11; rel: 4.912e-10; norm: 8.949e-02; mom: 3.321e-05;
#> best it: 563; best obj: 1.025e-01
#> It: 564; obj: 1.025e-01; abs: 4.905e-11; rel: 4.785e-10; norm: 8.949e-02; mom: 3.278e-05;
#> best it: 564; best obj: 1.025e-01
#> It: 565; obj: 1.025e-01; abs: 4.779e-11; rel: 4.662e-10; norm: 8.949e-02; mom: 3.236e-05;
#> best it: 565; best obj: 1.025e-01
#> It: 566; obj: 1.025e-01; abs: 4.656e-11; rel: 4.542e-10; norm: 8.949e-02; mom: 3.194e-05;

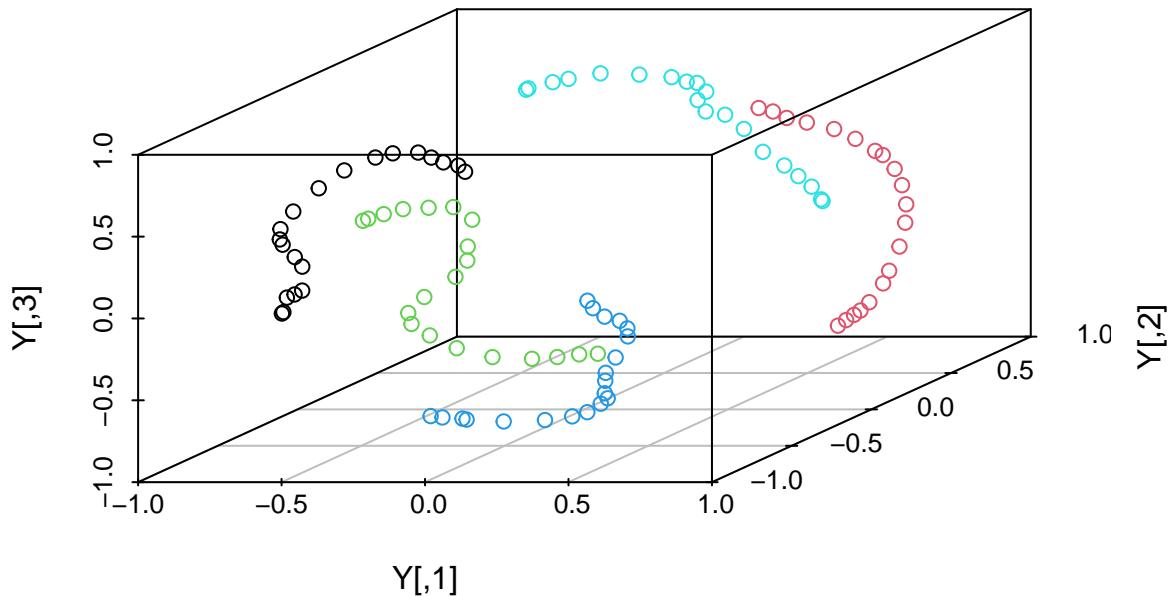
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#> best it: 566; best obj: 1.025e-01
#> It: 567; obj: 1.025e-01; abs: 4.535e-11; rel: 4.424e-10; norm: 8.949e-02; mom: 3.152e-05;
#> best it: 567; best obj: 1.025e-01
#> It: 568; obj: 1.025e-01; abs: 4.419e-11; rel: 4.310e-10; norm: 8.949e-02; mom: 3.111e-05;
#> best it: 568; best obj: 1.025e-01
#> It: 569; obj: 1.025e-01; abs: 4.305e-11; rel: 4.199e-10; norm: 8.949e-02; mom: 3.071e-05;
#> best it: 569; best obj: 1.025e-01
#> It: 570; obj: 1.025e-01; abs: 4.194e-11; rel: 4.091e-10; norm: 8.949e-02; mom: 3.031e-05;
#> best it: 570; best obj: 1.025e-01
#> It: 571; obj: 1.025e-01; abs: 4.086e-11; rel: 3.986e-10; norm: 8.949e-02; mom: 2.992e-05;
#> best it: 571; best obj: 1.025e-01
#> It: 572; obj: 1.025e-01; abs: 3.981e-11; rel: 3.883e-10; norm: 8.949e-02; mom: 2.953e-05;
#> best it: 572; best obj: 1.025e-01
#> It: 573; obj: 1.025e-01; abs: 3.878e-11; rel: 3.783e-10; norm: 8.949e-02; mom: 2.915e-05;
#> best it: 573; best obj: 1.025e-01
#> It: 574; obj: 1.025e-01; abs: 3.778e-11; rel: 3.686e-10; norm: 8.949e-02; mom: 2.877e-05;
#> best it: 574; best obj: 1.025e-01
#> It: 575; obj: 1.025e-01; abs: 3.681e-11; rel: 3.591e-10; norm: 8.949e-02; mom: 2.840e-05;
#> best it: 575; best obj: 1.025e-01

```

## Iteration 575



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#> It: 576; obj: 1.025e-01; abs: 3.586e-11; rel: 3.498e-10; norm: 8.949e-02; mom: 2.803e-05;
#> best it: 576; best obj: 1.025e-01
#> It: 577; obj: 1.025e-01; abs: 3.494e-11; rel: 3.408e-10; norm: 8.949e-02; mom: 2.767e-05;
#> best it: 577; best obj: 1.025e-01
#> It: 578; obj: 1.025e-01; abs: 3.404e-11; rel: 3.320e-10; norm: 8.949e-02; mom: 2.731e-05;
#> best it: 578; best obj: 1.025e-01
#> It: 579; obj: 1.025e-01; abs: 3.316e-11; rel: 3.235e-10; norm: 8.949e-02; mom: 2.695e-05;
#> best it: 579; best obj: 1.025e-01
#> It: 580; obj: 1.025e-01; abs: 3.231e-11; rel: 3.152e-10; norm: 8.949e-02; mom: 2.660e-05;
#> best it: 580; best obj: 1.025e-01
#> It: 581; obj: 1.025e-01; abs: 3.148e-11; rel: 3.070e-10; norm: 8.949e-02; mom: 2.626e-05;
#> best it: 581; best obj: 1.025e-01

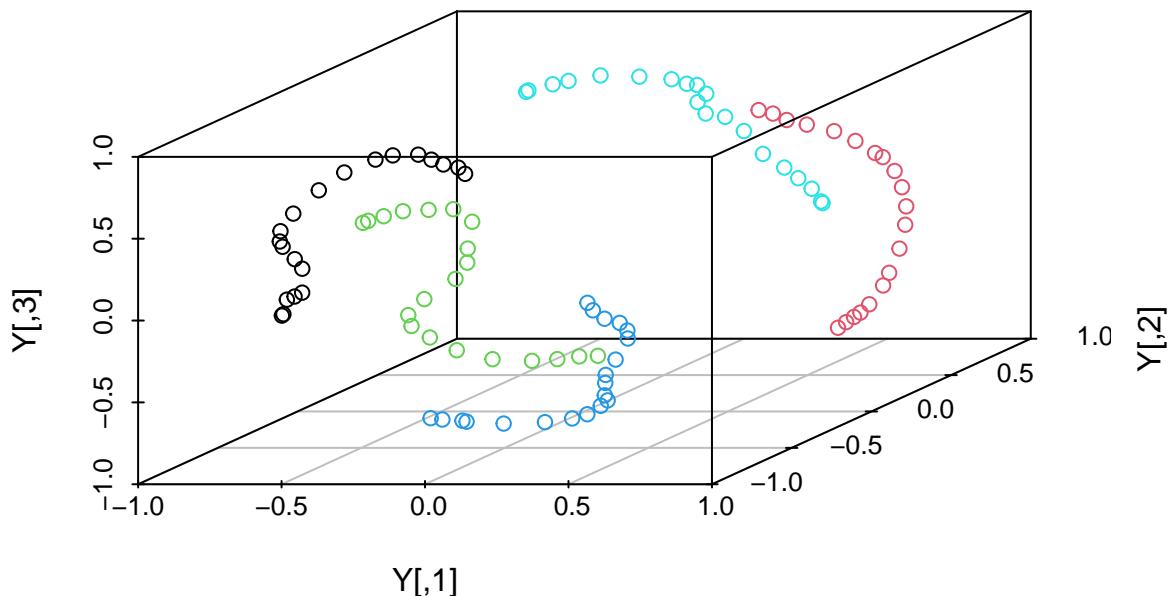
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#> It: 582; obj: 1.025e-01; abs: 3.067e-11; rel: 2.992e-10; norm: 8.949e-02; mom: 2.592e-05;
#> best it: 582; best obj: 1.025e-01
#> It: 583; obj: 1.025e-01; abs: 2.988e-11; rel: 2.915e-10; norm: 8.949e-02; mom: 2.558e-05;
#> best it: 583; best obj: 1.025e-01
#> It: 584; obj: 1.025e-01; abs: 2.911e-11; rel: 2.840e-10; norm: 8.949e-02; mom: 2.525e-05;
#> best it: 584; best obj: 1.025e-01
#> It: 585; obj: 1.025e-01; abs: 2.836e-11; rel: 2.767e-10; norm: 8.949e-02; mom: 2.492e-05;
#> best it: 585; best obj: 1.025e-01
#> It: 586; obj: 1.025e-01; abs: 2.763e-11; rel: 2.696e-10; norm: 8.949e-02; mom: 2.460e-05;
#> best it: 586; best obj: 1.025e-01
#> It: 587; obj: 1.025e-01; abs: 2.692e-11; rel: 2.626e-10; norm: 8.949e-02; mom: 2.428e-05;
#> best it: 587; best obj: 1.025e-01
#> It: 588; obj: 1.025e-01; abs: 2.623e-11; rel: 2.559e-10; norm: 8.949e-02; mom: 2.397e-05;
#> best it: 588; best obj: 1.025e-01
#> It: 589; obj: 1.025e-01; abs: 2.555e-11; rel: 2.493e-10; norm: 8.949e-02; mom: 2.366e-05;
#> best it: 589; best obj: 1.025e-01
#> It: 590; obj: 1.025e-01; abs: 2.490e-11; rel: 2.429e-10; norm: 8.949e-02; mom: 2.335e-05;
#> best it: 590; best obj: 1.025e-01
#> It: 591; obj: 1.025e-01; abs: 2.426e-11; rel: 2.366e-10; norm: 8.949e-02; mom: 2.305e-05;
#> best it: 591; best obj: 1.025e-01
#> It: 592; obj: 1.025e-01; abs: 2.364e-11; rel: 2.306e-10; norm: 8.949e-02; mom: 2.275e-05;
#> best it: 592; best obj: 1.025e-01
#> It: 593; obj: 1.025e-01; abs: 2.302e-11; rel: 2.246e-10; norm: 8.949e-02; mom: 2.246e-05;
#> best it: 593; best obj: 1.025e-01
#> It: 594; obj: 1.025e-01; abs: 2.243e-11; rel: 2.188e-10; norm: 8.949e-02; mom: 2.217e-05;
#> best it: 594; best obj: 1.025e-01
#> It: 595; obj: 1.025e-01; abs: 2.186e-11; rel: 2.133e-10; norm: 8.949e-02; mom: 2.188e-05;
#> best it: 595; best obj: 1.025e-01
#> It: 596; obj: 1.025e-01; abs: 2.129e-11; rel: 2.077e-10; norm: 8.949e-02; mom: 2.160e-05;
#> best it: 596; best obj: 1.025e-01
#> It: 597; obj: 1.025e-01; abs: 2.075e-11; rel: 2.025e-10; norm: 8.949e-02; mom: 2.132e-05;
#> best it: 597; best obj: 1.025e-01
#> It: 598; obj: 1.025e-01; abs: 2.021e-11; rel: 1.972e-10; norm: 8.949e-02; mom: 2.104e-05;
#> best it: 598; best obj: 1.025e-01
#> It: 599; obj: 1.025e-01; abs: 1.970e-11; rel: 1.921e-10; norm: 8.949e-02; mom: 2.077e-05;
#> best it: 599; best obj: 1.025e-01
#> It: 600; obj: 1.025e-01; abs: 1.920e-11; rel: 1.873e-10; norm: 8.949e-02; mom: 2.050e-05;
#> best it: 600; best obj: 1.025e-01

```

## Iteration 600



```

#> It: 601; obj: 1.025e-01; abs: 1.869e-11; rel: 1.823e-10; norm: 8.949e-02; mom: 2.024e-05;
#> best it: 601; best obj: 1.025e-01
#> It: 602; obj: 1.025e-01; abs: 1.822e-11; rel: 1.777e-10; norm: 8.949e-02; mom: 1.997e-05;
#> best it: 602; best obj: 1.025e-01
#> It: 603; obj: 1.025e-01; abs: 1.775e-11; rel: 1.731e-10; norm: 8.949e-02; mom: 1.972e-05;
#> best it: 603; best obj: 1.025e-01
#> It: 604; obj: 1.025e-01; abs: 1.730e-11; rel: 1.687e-10; norm: 8.949e-02; mom: 1.946e-05;
#> best it: 604; best obj: 1.025e-01
#> It: 605; obj: 1.025e-01; abs: 1.684e-11; rel: 1.643e-10; norm: 8.949e-02; mom: 1.921e-05;
#> best it: 605; best obj: 1.025e-01
#> It: 606; obj: 1.025e-01; abs: 1.642e-11; rel: 1.602e-10; norm: 8.949e-02; mom: 1.896e-05;
#> best it: 606; best obj: 1.025e-01
#> It: 607; obj: 1.025e-01; abs: 1.599e-11; rel: 1.560e-10; norm: 8.949e-02; mom: 1.872e-05;
#> best it: 607; best obj: 1.025e-01
#> It: 608; obj: 1.025e-01; abs: 1.558e-11; rel: 1.520e-10; norm: 8.949e-02; mom: 1.847e-05;
#> best it: 608; best obj: 1.025e-01
#> It: 609; obj: 1.025e-01; abs: 1.518e-11; rel: 1.481e-10; norm: 8.949e-02; mom: 1.824e-05;
#> best it: 609; best obj: 1.025e-01
#> It: 610; obj: 1.025e-01; abs: 1.479e-11; rel: 1.443e-10; norm: 8.949e-02; mom: 1.800e-05;
#> best it: 610; best obj: 1.025e-01
#> It: 611; obj: 1.025e-01; abs: 1.442e-11; rel: 1.406e-10; norm: 8.949e-02; mom: 1.777e-05;
#> best it: 611; best obj: 1.025e-01
#> It: 612; obj: 1.025e-01; abs: 1.404e-11; rel: 1.370e-10; norm: 8.949e-02; mom: 1.754e-05;
#> best it: 612; best obj: 1.025e-01
#> It: 613; obj: 1.025e-01; abs: 1.369e-11; rel: 1.335e-10; norm: 8.949e-02; mom: 1.731e-05;
#> best it: 613; best obj: 1.025e-01
#> It: 614; obj: 1.025e-01; abs: 1.333e-11; rel: 1.300e-10; norm: 8.949e-02; mom: 1.709e-05;
#> best it: 614; best obj: 1.025e-01
#> It: 615; obj: 1.025e-01; abs: 1.299e-11; rel: 1.267e-10; norm: 8.949e-02; mom: 1.687e-05;
#> best it: 615; best obj: 1.025e-01
#> It: 616; obj: 1.025e-01; abs: 1.266e-11; rel: 1.235e-10; norm: 8.949e-02; mom: 1.665e-05;

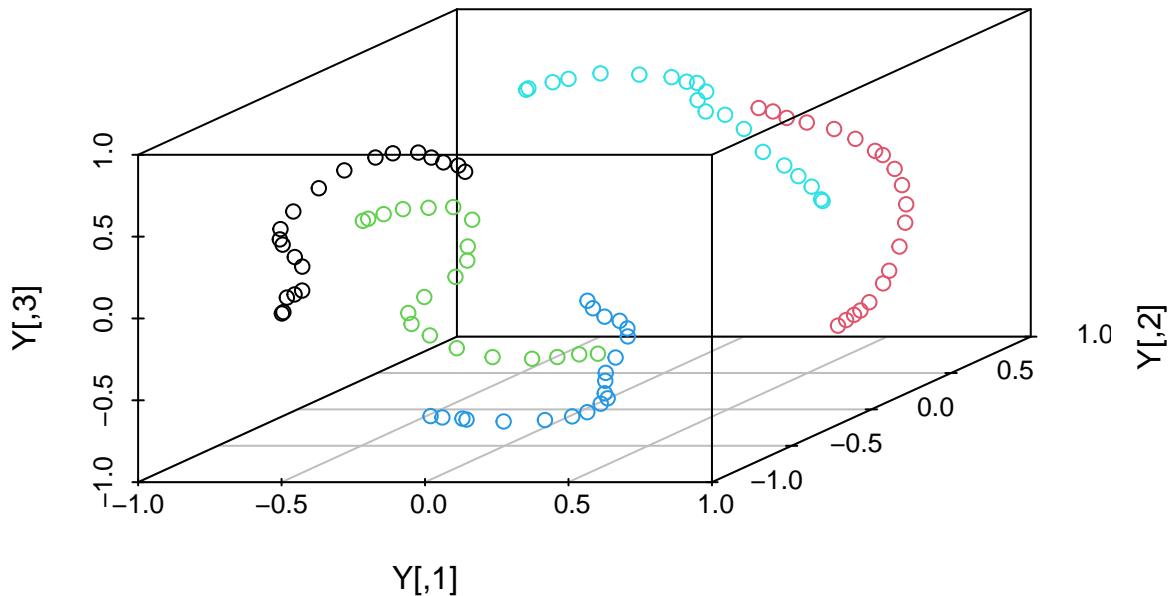
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#> best it: 616; best obj: 1.025e-01
#> It: 617; obj: 1.025e-01; abs: 1.233e-11; rel: 1.203e-10; norm: 8.949e-02; mom: 1.643e-05;
#> best it: 617; best obj: 1.025e-01
#> It: 618; obj: 1.025e-01; abs: 1.202e-11; rel: 1.173e-10; norm: 8.949e-02; mom: 1.622e-05;
#> best it: 618; best obj: 1.025e-01
#> It: 619; obj: 1.025e-01; abs: 1.170e-11; rel: 1.142e-10; norm: 8.949e-02; mom: 1.601e-05;
#> best it: 619; best obj: 1.025e-01
#> It: 620; obj: 1.025e-01; abs: 1.140e-11; rel: 1.112e-10; norm: 8.949e-02; mom: 1.581e-05;
#> best it: 620; best obj: 1.025e-01
#> It: 621; obj: 1.025e-01; abs: 1.112e-11; rel: 1.085e-10; norm: 8.949e-02; mom: 1.560e-05;
#> best it: 621; best obj: 1.025e-01
#> It: 622; obj: 1.025e-01; abs: 1.083e-11; rel: 1.056e-10; norm: 8.949e-02; mom: 1.540e-05;
#> best it: 622; best obj: 1.025e-01
#> It: 623; obj: 1.025e-01; abs: 1.055e-11; rel: 1.029e-10; norm: 8.949e-02; mom: 1.520e-05;
#> best it: 623; best obj: 1.025e-01
#> It: 624; obj: 1.025e-01; abs: 1.029e-11; rel: 1.003e-10; norm: 8.949e-02; mom: 1.501e-05;
#> best it: 624; best obj: 1.025e-01
#> It: 625; obj: 1.025e-01; abs: 1.001e-11; rel: 9.767e-11; norm: 8.949e-02; mom: 1.481e-05;
#> best it: 625; best obj: 1.025e-01

```

## Iteration 625



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#> It: 626; obj: 1.025e-01; abs: 9.761e-12; rel: 9.522e-11; norm: 8.949e-02; mom: 1.462e-05;
#> best it: 626; best obj: 1.025e-01
#> It: 627; obj: 1.025e-01; abs: 9.512e-12; rel: 9.279e-11; norm: 8.949e-02; mom: 1.443e-05;
#> best it: 627; best obj: 1.025e-01
#> It: 628; obj: 1.025e-01; abs: 9.264e-12; rel: 9.037e-11; norm: 8.949e-02; mom: 1.425e-05;
#> best it: 628; best obj: 1.025e-01
#> It: 629; obj: 1.025e-01; abs: 9.029e-12; rel: 8.807e-11; norm: 8.949e-02; mom: 1.406e-05;
#> best it: 629; best obj: 1.025e-01
#> It: 630; obj: 1.025e-01; abs: 8.794e-12; rel: 8.579e-11; norm: 8.949e-02; mom: 1.388e-05;
#> best it: 630; best obj: 1.025e-01
#> It: 631; obj: 1.025e-01; abs: 8.573e-12; rel: 8.363e-11; norm: 8.949e-02; mom: 1.370e-05;
#> best it: 631; best obj: 1.025e-01

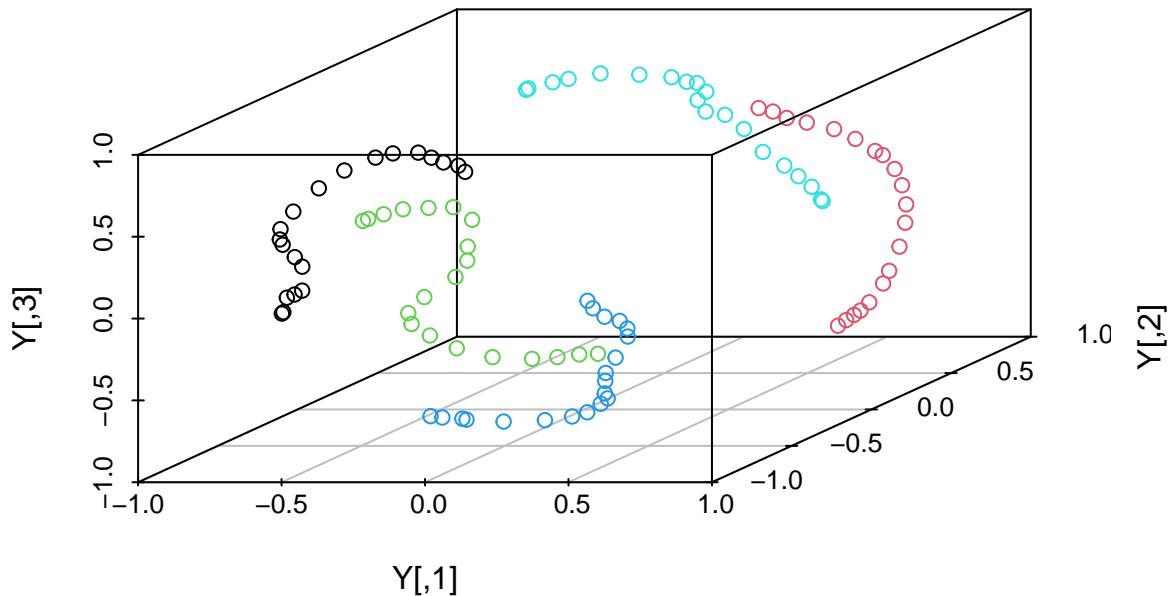
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#> It: 632; obj: 1.025e-01; abs: 8.357e-12; rel: 8.153e-11; norm: 8.949e-02; mom: 1.352e-05;
#> best it: 632; best obj: 1.025e-01
#> It: 633; obj: 1.025e-01; abs: 8.134e-12; rel: 7.934e-11; norm: 8.949e-02; mom: 1.335e-05;
#> best it: 633; best obj: 1.025e-01
#> It: 634; obj: 1.025e-01; abs: 7.932e-12; rel: 7.738e-11; norm: 8.949e-02; mom: 1.318e-05;
#> best it: 634; best obj: 1.025e-01
#> It: 635; obj: 1.025e-01; abs: 7.723e-12; rel: 7.533e-11; norm: 8.949e-02; mom: 1.301e-05;
#> best it: 635; best obj: 1.025e-01
#> It: 636; obj: 1.025e-01; abs: 7.528e-12; rel: 7.343e-11; norm: 8.949e-02; mom: 1.284e-05;
#> best it: 636; best obj: 1.025e-01
#> It: 637; obj: 1.025e-01; abs: 7.335e-12; rel: 7.155e-11; norm: 8.949e-02; mom: 1.267e-05;
#> best it: 637; best obj: 1.025e-01
#> It: 638; obj: 1.025e-01; abs: 7.145e-12; rel: 6.970e-11; norm: 8.949e-02; mom: 1.251e-05;
#> best it: 638; best obj: 1.025e-01
#> It: 639; obj: 1.025e-01; abs: 6.963e-12; rel: 6.793e-11; norm: 8.949e-02; mom: 1.235e-05;
#> best it: 639; best obj: 1.025e-01
#> It: 640; obj: 1.025e-01; abs: 6.784e-12; rel: 6.618e-11; norm: 8.949e-02; mom: 1.219e-05;
#> best it: 640; best obj: 1.025e-01
#> It: 641; obj: 1.025e-01; abs: 6.612e-12; rel: 6.450e-11; norm: 8.949e-02; mom: 1.203e-05;
#> best it: 641; best obj: 1.025e-01
#> It: 642; obj: 1.025e-01; abs: 6.444e-12; rel: 6.286e-11; norm: 8.949e-02; mom: 1.188e-05;
#> best it: 642; best obj: 1.025e-01
#> It: 643; obj: 1.025e-01; abs: 6.277e-12; rel: 6.123e-11; norm: 8.949e-02; mom: 1.172e-05;
#> best it: 643; best obj: 1.025e-01
#> It: 644; obj: 1.025e-01; abs: 6.113e-12; rel: 5.963e-11; norm: 8.949e-02; mom: 1.157e-05;
#> best it: 644; best obj: 1.025e-01
#> It: 645; obj: 1.025e-01; abs: 5.960e-12; rel: 5.814e-11; norm: 8.949e-02; mom: 1.142e-05;
#> best it: 645; best obj: 1.025e-01
#> It: 646; obj: 1.025e-01; abs: 5.806e-12; rel: 5.664e-11; norm: 8.949e-02; mom: 1.128e-05;
#> best it: 646; best obj: 1.025e-01
#> It: 647; obj: 1.025e-01; abs: 5.657e-12; rel: 5.518e-11; norm: 8.949e-02; mom: 1.113e-05;
#> best it: 647; best obj: 1.025e-01
#> It: 648; obj: 1.025e-01; abs: 5.514e-12; rel: 5.379e-11; norm: 8.949e-02; mom: 1.099e-05;
#> best it: 648; best obj: 1.025e-01
#> It: 649; obj: 1.025e-01; abs: 5.372e-12; rel: 5.241e-11; norm: 8.949e-02; mom: 1.085e-05;
#> best it: 649; best obj: 1.025e-01
#> It: 650; obj: 1.025e-01; abs: 5.233e-12; rel: 5.105e-11; norm: 8.949e-02; mom: 1.071e-05;
#> best it: 650; best obj: 1.025e-01

```

## Iteration 650



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#> It: 651; obj: 1.025e-01; abs: 5.102e-12; rel: 4.977e-11; norm: 8.949e-02; mom: 1.057e-05;
#> best it: 651; best obj: 1.025e-01
#> It: 652; obj: 1.025e-01; abs: 4.969e-12; rel: 4.847e-11; norm: 8.949e-02; mom: 1.043e-05;
#> best it: 652; best obj: 1.025e-01
#> It: 653; obj: 1.025e-01; abs: 4.839e-12; rel: 4.721e-11; norm: 8.949e-02; mom: 1.030e-05;
#> best it: 653; best obj: 1.025e-01
#> It: 654; obj: 1.025e-01; abs: 4.715e-12; rel: 4.599e-11; norm: 8.949e-02; mom: 1.016e-05;
#> best it: 654; best obj: 1.025e-01
#> It: 655; obj: 1.025e-01; abs: 4.597e-12; rel: 4.485e-11; norm: 8.949e-02; mom: 1.003e-05;
#> best it: 655; best obj: 1.025e-01
#> It: 656; obj: 1.025e-01; abs: 4.480e-12; rel: 4.370e-11; norm: 8.949e-02; mom: 9.903e-06;
#> best it: 656; best obj: 1.025e-01
#> It: 657; obj: 1.025e-01; abs: 4.364e-12; rel: 4.257e-11; norm: 8.949e-02; mom: 9.776e-06;
#> best it: 657; best obj: 1.025e-01
#> It: 658; obj: 1.025e-01; abs: 4.256e-12; rel: 4.151e-11; norm: 8.949e-02; mom: 9.650e-06;
#> best it: 658; best obj: 1.025e-01
#> It: 659; obj: 1.025e-01; abs: 4.141e-12; rel: 4.040e-11; norm: 8.949e-02; mom: 9.525e-06;
#> best it: 659; best obj: 1.025e-01
#> It: 660; obj: 1.025e-01; abs: 4.037e-12; rel: 3.938e-11; norm: 8.949e-02; mom: 9.403e-06;
#> best it: 660; best obj: 1.025e-01
#> It: 661; obj: 1.025e-01; abs: 3.934e-12; rel: 3.837e-11; norm: 8.949e-02; mom: 9.281e-06;
#> best it: 661; best obj: 1.025e-01
#> It: 662; obj: 1.025e-01; abs: 3.832e-12; rel: 3.738e-11; norm: 8.949e-02; mom: 9.162e-06;
#> best it: 662; best obj: 1.025e-01
#> It: 663; obj: 1.025e-01; abs: 3.736e-12; rel: 3.645e-11; norm: 8.949e-02; mom: 9.044e-06;
#> best it: 663; best obj: 1.025e-01
#> It: 664; obj: 1.025e-01; abs: 3.642e-12; rel: 3.552e-11; norm: 8.949e-02; mom: 8.927e-06;
#> best it: 664; best obj: 1.025e-01
#> It: 665; obj: 1.025e-01; abs: 3.550e-12; rel: 3.463e-11; norm: 8.949e-02; mom: 8.812e-06;
#> best it: 665; best obj: 1.025e-01
#> It: 666; obj: 1.025e-01; abs: 3.454e-12; rel: 3.369e-11; norm: 8.949e-02; mom: 8.699e-06;

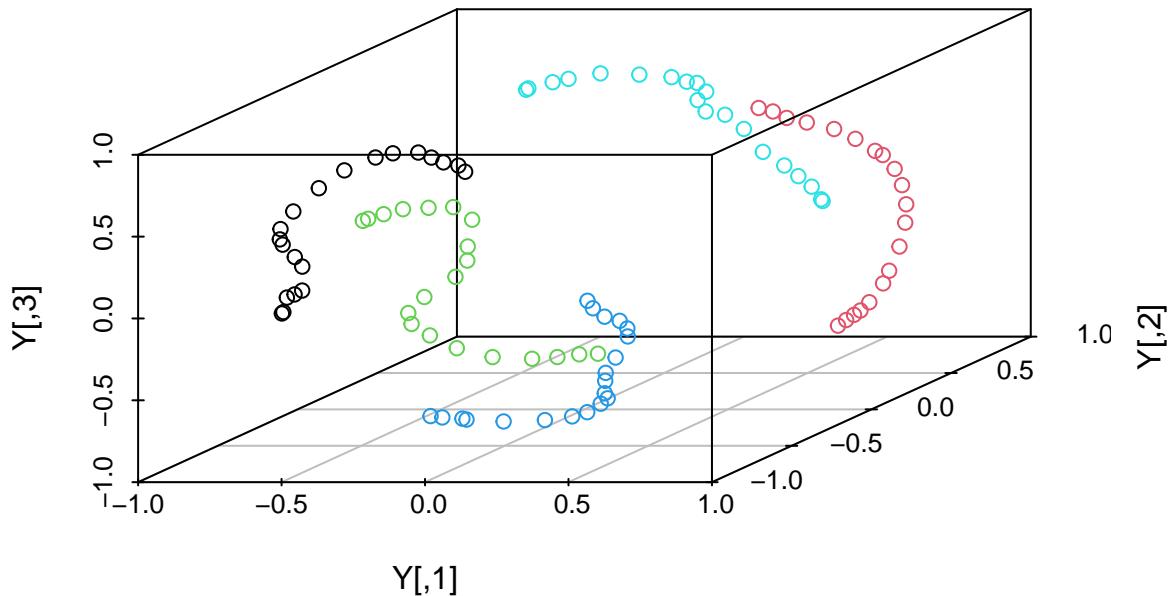
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#> best it: 666; best obj: 1.025e-01
#> It: 667; obj: 1.025e-01; abs: 3.363e-12; rel: 3.281e-11; norm: 8.949e-02; mom: 8.586e-06;
#> best it: 667; best obj: 1.025e-01
#> It: 668; obj: 1.025e-01; abs: 3.286e-12; rel: 3.206e-11; norm: 8.949e-02; mom: 8.476e-06;
#> best it: 668; best obj: 1.025e-01
#> It: 669; obj: 1.025e-01; abs: 3.191e-12; rel: 3.113e-11; norm: 8.949e-02; mom: 8.367e-06;
#> best it: 669; best obj: 1.025e-01
#> It: 670; obj: 1.025e-01; abs: 3.119e-12; rel: 3.042e-11; norm: 8.949e-02; mom: 8.259e-06;
#> best it: 670; best obj: 1.025e-01
#> It: 671; obj: 1.025e-01; abs: 3.028e-12; rel: 2.953e-11; norm: 8.949e-02; mom: 8.152e-06;
#> best it: 671; best obj: 1.025e-01
#> It: 672; obj: 1.025e-01; abs: 2.964e-12; rel: 2.892e-11; norm: 8.949e-02; mom: 8.047e-06;
#> best it: 672; best obj: 1.025e-01
#> It: 673; obj: 1.025e-01; abs: 2.881e-12; rel: 2.810e-11; norm: 8.949e-02; mom: 7.944e-06;
#> best it: 673; best obj: 1.025e-01
#> It: 674; obj: 1.025e-01; abs: 2.809e-12; rel: 2.740e-11; norm: 8.949e-02; mom: 7.841e-06;
#> best it: 674; best obj: 1.025e-01
#> It: 675; obj: 1.025e-01; abs: 2.735e-12; rel: 2.668e-11; norm: 8.949e-02; mom: 7.740e-06;
#> best it: 675; best obj: 1.025e-01

```

## Iteration 675



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#> It: 676; obj: 1.025e-01; abs: 2.665e-12; rel: 2.600e-11; norm: 8.949e-02; mom: 7.641e-06;
#> best it: 676; best obj: 1.025e-01
#> It: 677; obj: 1.025e-01; abs: 2.598e-12; rel: 2.534e-11; norm: 8.949e-02; mom: 7.542e-06;
#> best it: 677; best obj: 1.025e-01
#> It: 678; obj: 1.025e-01; abs: 2.534e-12; rel: 2.472e-11; norm: 8.949e-02; mom: 7.445e-06;
#> best it: 678; best obj: 1.025e-01
#> It: 679; obj: 1.025e-01; abs: 2.467e-12; rel: 2.407e-11; norm: 8.949e-02; mom: 7.349e-06;
#> best it: 679; best obj: 1.025e-01
#> It: 680; obj: 1.025e-01; abs: 2.400e-12; rel: 2.341e-11; norm: 8.949e-02; mom: 7.254e-06;
#> best it: 680; best obj: 1.025e-01
#> It: 681; obj: 1.025e-01; abs: 2.342e-12; rel: 2.285e-11; norm: 8.949e-02; mom: 7.161e-06;
#> best it: 681; best obj: 1.025e-01

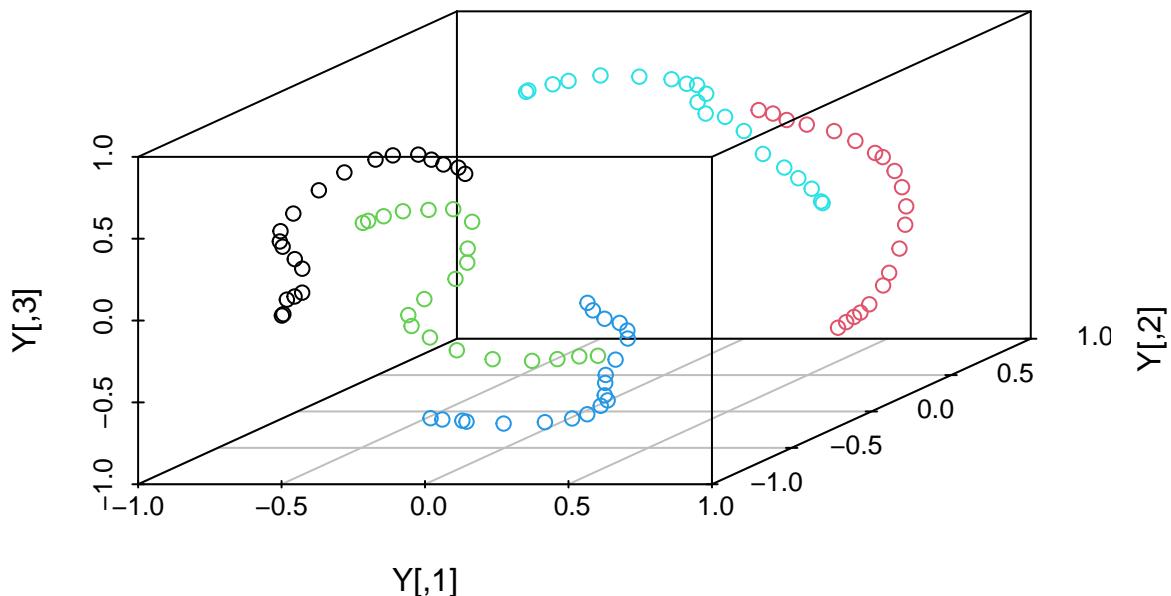
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#> It: 682; obj: 1.025e-01; abs: 2.284e-12; rel: 2.228e-11; norm: 8.949e-02; mom: 7.069e-06;
#> best it: 682; best obj: 1.025e-01
#> It: 683; obj: 1.025e-01; abs: 2.223e-12; rel: 2.168e-11; norm: 8.949e-02; mom: 6.978e-06;
#> best it: 683; best obj: 1.025e-01
#> It: 684; obj: 1.025e-01; abs: 2.165e-12; rel: 2.112e-11; norm: 8.949e-02; mom: 6.888e-06;
#> best it: 684; best obj: 1.025e-01
#> It: 685; obj: 1.025e-01; abs: 2.112e-12; rel: 2.060e-11; norm: 8.949e-02; mom: 6.799e-06;
#> best it: 685; best obj: 1.025e-01
#> It: 686; obj: 1.025e-01; abs: 2.054e-12; rel: 2.004e-11; norm: 8.949e-02; mom: 6.711e-06;
#> best it: 686; best obj: 1.025e-01
#> It: 687; obj: 1.025e-01; abs: 2.007e-12; rel: 1.958e-11; norm: 8.949e-02; mom: 6.625e-06;
#> best it: 687; best obj: 1.025e-01
#> It: 688; obj: 1.025e-01; abs: 1.953e-12; rel: 1.905e-11; norm: 8.949e-02; mom: 6.540e-06;
#> best it: 688; best obj: 1.025e-01
#> It: 689; obj: 1.025e-01; abs: 1.899e-12; rel: 1.853e-11; norm: 8.949e-02; mom: 6.455e-06;
#> best it: 689; best obj: 1.025e-01
#> It: 690; obj: 1.025e-01; abs: 1.854e-12; rel: 1.809e-11; norm: 8.949e-02; mom: 6.372e-06;
#> best it: 690; best obj: 1.025e-01
#> It: 691; obj: 1.025e-01; abs: 1.811e-12; rel: 1.767e-11; norm: 8.949e-02; mom: 6.290e-06;
#> best it: 691; best obj: 1.025e-01
#> It: 692; obj: 1.025e-01; abs: 1.763e-12; rel: 1.720e-11; norm: 8.949e-02; mom: 6.209e-06;
#> best it: 692; best obj: 1.025e-01
#> It: 693; obj: 1.025e-01; abs: 1.715e-12; rel: 1.673e-11; norm: 8.949e-02; mom: 6.129e-06;
#> best it: 693; best obj: 1.025e-01
#> It: 694; obj: 1.025e-01; abs: 1.671e-12; rel: 1.630e-11; norm: 8.949e-02; mom: 6.050e-06;
#> best it: 694; best obj: 1.025e-01
#> It: 695; obj: 1.025e-01; abs: 1.630e-12; rel: 1.590e-11; norm: 8.949e-02; mom: 5.972e-06;
#> best it: 695; best obj: 1.025e-01
#> It: 696; obj: 1.025e-01; abs: 1.585e-12; rel: 1.546e-11; norm: 8.949e-02; mom: 5.896e-06;
#> best it: 696; best obj: 1.025e-01
#> It: 697; obj: 1.025e-01; abs: 1.544e-12; rel: 1.506e-11; norm: 8.949e-02; mom: 5.820e-06;
#> best it: 697; best obj: 1.025e-01
#> It: 698; obj: 1.025e-01; abs: 1.509e-12; rel: 1.472e-11; norm: 8.949e-02; mom: 5.745e-06;
#> best it: 698; best obj: 1.025e-01
#> It: 699; obj: 1.025e-01; abs: 1.468e-12; rel: 1.432e-11; norm: 8.949e-02; mom: 5.671e-06;
#> best it: 699; best obj: 1.025e-01
#> It: 700; obj: 1.025e-01; abs: 1.433e-12; rel: 1.398e-11; norm: 8.949e-02; mom: 5.598e-06;
#> best it: 700; best obj: 1.025e-01

```

## Iteration 700



```

#> It: 701; obj: 1.025e-01; abs: 1.395e-12; rel: 1.361e-11; norm: 8.949e-02; mom: 5.526e-06;
#> best it: 701; best obj: 1.025e-01
#> It: 702; obj: 1.025e-01; abs: 1.355e-12; rel: 1.322e-11; norm: 8.949e-02; mom: 5.454e-06;
#> best it: 702; best obj: 1.025e-01
#> It: 703; obj: 1.025e-01; abs: 1.325e-12; rel: 1.293e-11; norm: 8.949e-02; mom: 5.384e-06;
#> best it: 703; best obj: 1.025e-01
#> It: 704; obj: 1.025e-01; abs: 1.290e-12; rel: 1.258e-11; norm: 8.949e-02; mom: 5.315e-06;
#> best it: 704; best obj: 1.025e-01
#> It: 705; obj: 1.025e-01; abs: 1.256e-12; rel: 1.225e-11; norm: 8.949e-02; mom: 5.247e-06;
#> best it: 705; best obj: 1.025e-01
#> It: 706; obj: 1.025e-01; abs: 1.227e-12; rel: 1.197e-11; norm: 8.949e-02; mom: 5.179e-06;
#> best it: 706; best obj: 1.025e-01
#> It: 707; obj: 1.025e-01; abs: 1.194e-12; rel: 1.164e-11; norm: 8.949e-02; mom: 5.112e-06;
#> best it: 707; best obj: 1.025e-01
#> It: 708; obj: 1.025e-01; abs: 1.165e-12; rel: 1.136e-11; norm: 8.949e-02; mom: 5.046e-06;
#> best it: 708; best obj: 1.025e-01
#> It: 709; obj: 1.025e-01; abs: 1.133e-12; rel: 1.105e-11; norm: 8.949e-02; mom: 4.982e-06;
#> best it: 709; best obj: 1.025e-01
#> It: 710; obj: 1.025e-01; abs: 1.102e-12; rel: 1.075e-11; norm: 8.949e-02; mom: 4.917e-06;
#> best it: 710; best obj: 1.025e-01
#> It: 711; obj: 1.025e-01; abs: 1.080e-12; rel: 1.054e-11; norm: 8.949e-02; mom: 4.854e-06;
#> best it: 711; best obj: 1.025e-01
#> It: 712; obj: 1.025e-01; abs: 1.044e-12; rel: 1.018e-11; norm: 8.949e-02; mom: 4.792e-06;
#> best it: 712; best obj: 1.025e-01
#> It: 713; obj: 1.025e-01; abs: 1.022e-12; rel: 9.968e-12; norm: 8.949e-02; mom: 4.730e-06;
#> best it: 713; best obj: 1.025e-01
#> It: 714; obj: 1.025e-01; abs: 9.975e-13; rel: 9.731e-12; norm: 8.949e-02; mom: 4.669e-06;
#> best it: 714; best obj: 1.025e-01
#> It: 715; obj: 1.025e-01; abs: 9.694e-13; rel: 9.456e-12; norm: 8.949e-02; mom: 4.609e-06;
#> best it: 715; best obj: 1.025e-01
#> It: 716; obj: 1.025e-01; abs: 9.489e-13; rel: 9.256e-12; norm: 8.949e-02; mom: 4.550e-06;

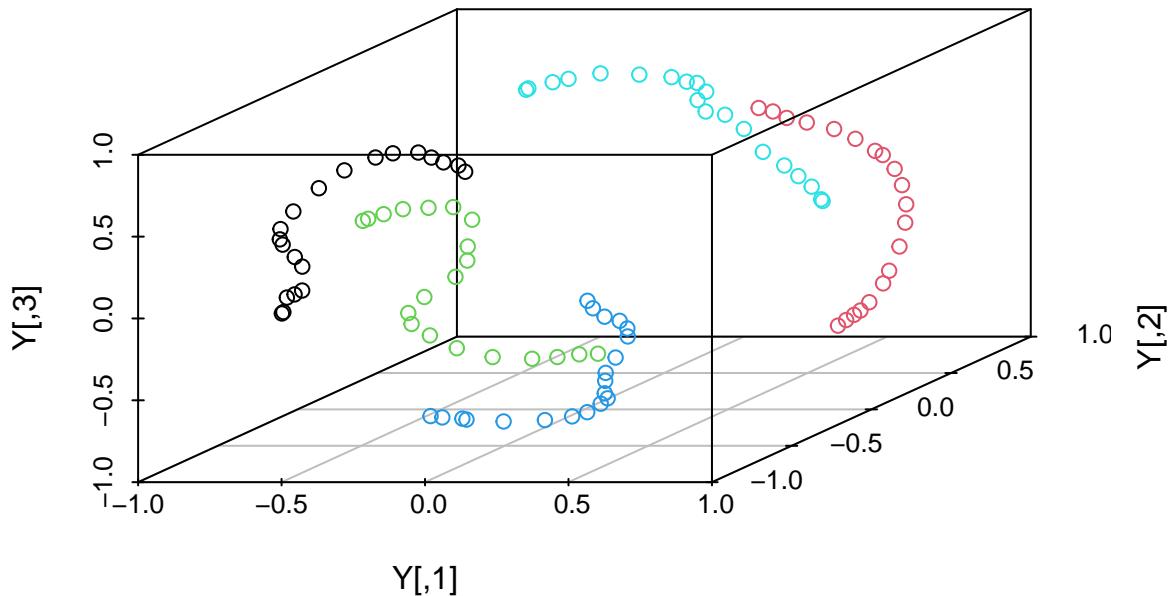
```

```

#> best it: 716; best obj: 1.025e-01
#> It: 717; obj: 1.025e-01; abs: 9.167e-13; rel: 8.942e-12; norm: 8.949e-02; mom: 4.491e-06;
#> best it: 717; best obj: 1.025e-01
#> It: 718; obj: 1.025e-01; abs: 9.016e-13; rel: 8.795e-12; norm: 8.949e-02; mom: 4.433e-06;
#> best it: 718; best obj: 1.025e-01
#> It: 719; obj: 1.025e-01; abs: 8.727e-13; rel: 8.513e-12; norm: 8.949e-02; mom: 4.376e-06;
#> best it: 719; best obj: 1.025e-01
#> It: 720; obj: 1.025e-01; abs: 8.529e-13; rel: 8.320e-12; norm: 8.949e-02; mom: 4.320e-06;
#> best it: 720; best obj: 1.025e-01
#> It: 721; obj: 1.025e-01; abs: 8.283e-13; rel: 8.080e-12; norm: 8.949e-02; mom: 4.264e-06;
#> best it: 721; best obj: 1.025e-01
#> It: 722; obj: 1.025e-01; abs: 8.070e-13; rel: 7.873e-12; norm: 8.949e-02; mom: 4.209e-06;
#> best it: 722; best obj: 1.025e-01
#> It: 723; obj: 1.025e-01; abs: 7.922e-13; rel: 7.728e-12; norm: 8.949e-02; mom: 4.155e-06;
#> best it: 723; best obj: 1.025e-01
#> It: 724; obj: 1.025e-01; abs: 7.671e-13; rel: 7.483e-12; norm: 8.949e-02; mom: 4.102e-06;
#> best it: 724; best obj: 1.025e-01
#> It: 725; obj: 1.025e-01; abs: 7.524e-13; rel: 7.339e-12; norm: 8.949e-02; mom: 4.049e-06;
#> best it: 725; best obj: 1.025e-01

```

## Iteration 725



```

#> It: 726; obj: 1.025e-01; abs: 7.292e-13; rel: 7.113e-12; norm: 8.949e-02; mom: 3.997e-06;
#> best it: 726; best obj: 1.025e-01
#> It: 727; obj: 1.025e-01; abs: 7.082e-13; rel: 6.908e-12; norm: 8.949e-02; mom: 3.945e-06;
#> best it: 727; best obj: 1.025e-01
#> It: 728; obj: 1.025e-01; abs: 6.962e-13; rel: 6.791e-12; norm: 8.949e-02; mom: 3.895e-06;
#> best it: 728; best obj: 1.025e-01
#> It: 729; obj: 1.025e-01; abs: 6.754e-13; rel: 6.588e-12; norm: 8.949e-02; mom: 3.844e-06;
#> best it: 729; best obj: 1.025e-01
#> It: 730; obj: 1.025e-01; abs: 6.607e-13; rel: 6.445e-12; norm: 8.949e-02; mom: 3.795e-06;
#> best it: 730; best obj: 1.025e-01
#> It: 731; obj: 1.025e-01; abs: 6.329e-13; rel: 6.174e-12; norm: 8.949e-02; mom: 3.746e-06;
#> best it: 731; best obj: 1.025e-01

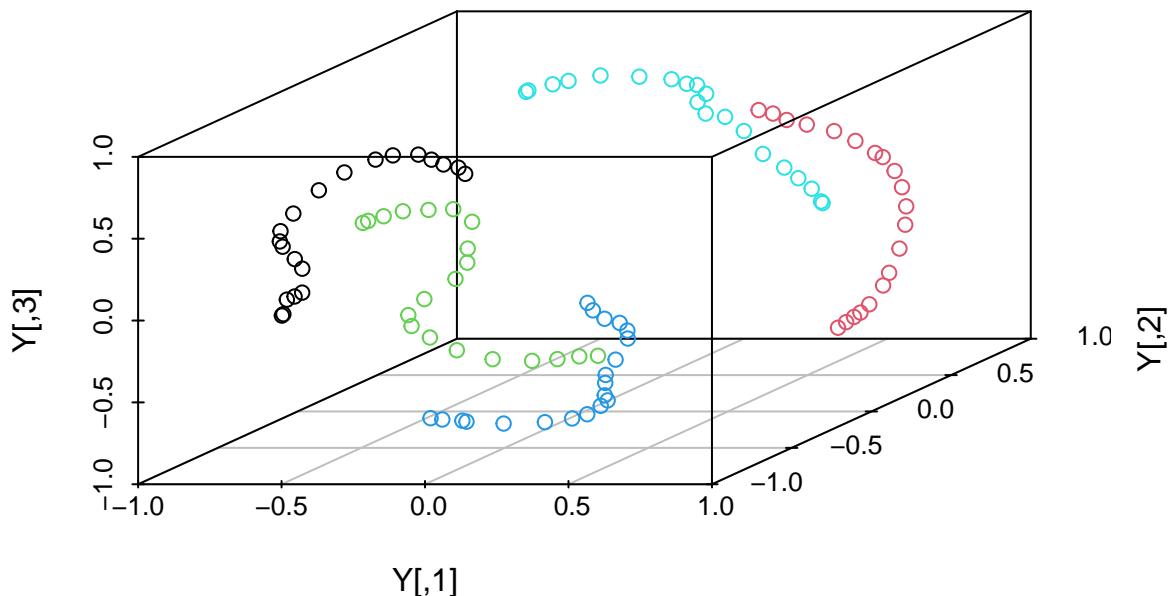
```

```

#> It: 732; obj: 1.025e-01; abs: 6.291e-13; rel: 6.136e-12; norm: 8.949e-02; mom: 3.698e-06;
#> best it: 732; best obj: 1.025e-01
#> It: 733; obj: 1.025e-01; abs: 6.052e-13; rel: 5.904e-12; norm: 8.949e-02; mom: 3.650e-06;
#> best it: 733; best obj: 1.025e-01
#> It: 734; obj: 1.025e-01; abs: 5.989e-13; rel: 5.842e-12; norm: 8.949e-02; mom: 3.603e-06;
#> best it: 734; best obj: 1.025e-01
#> It: 735; obj: 1.025e-01; abs: 5.744e-13; rel: 5.604e-12; norm: 8.949e-02; mom: 3.557e-06;
#> best it: 735; best obj: 1.025e-01
#> It: 736; obj: 1.025e-01; abs: 5.623e-13; rel: 5.485e-12; norm: 8.949e-02; mom: 3.511e-06;
#> best it: 736; best obj: 1.025e-01
#> It: 737; obj: 1.025e-01; abs: 5.507e-13; rel: 5.372e-12; norm: 8.949e-02; mom: 3.466e-06;
#> best it: 737; best obj: 1.025e-01
#> It: 738; obj: 1.025e-01; abs: 5.334e-13; rel: 5.203e-12; norm: 8.949e-02; mom: 3.421e-06;
#> best it: 738; best obj: 1.025e-01
#> It: 739; obj: 1.025e-01; abs: 5.196e-13; rel: 5.069e-12; norm: 8.949e-02; mom: 3.377e-06;
#> best it: 739; best obj: 1.025e-01
#> It: 740; obj: 1.025e-01; abs: 5.072e-13; rel: 4.948e-12; norm: 8.949e-02; mom: 3.334e-06;
#> best it: 740; best obj: 1.025e-01
#> It: 741; obj: 1.025e-01; abs: 4.960e-13; rel: 4.839e-12; norm: 8.949e-02; mom: 3.291e-06;
#> best it: 741; best obj: 1.025e-01
#> It: 742; obj: 1.025e-01; abs: 4.822e-13; rel: 4.704e-12; norm: 8.949e-02; mom: 3.249e-06;
#> best it: 742; best obj: 1.025e-01
#> It: 743; obj: 1.025e-01; abs: 4.713e-13; rel: 4.597e-12; norm: 8.949e-02; mom: 3.207e-06;
#> best it: 743; best obj: 1.025e-01
#> It: 744; obj: 1.025e-01; abs: 4.585e-13; rel: 4.473e-12; norm: 8.949e-02; mom: 3.166e-06;
#> best it: 744; best obj: 1.025e-01
#> It: 745; obj: 1.025e-01; abs: 4.438e-13; rel: 4.329e-12; norm: 8.949e-02; mom: 3.125e-06;
#> best it: 745; best obj: 1.025e-01
#> It: 746; obj: 1.025e-01; abs: 4.323e-13; rel: 4.217e-12; norm: 8.949e-02; mom: 3.085e-06;
#> best it: 746; best obj: 1.025e-01
#> It: 747; obj: 1.025e-01; abs: 4.237e-13; rel: 4.134e-12; norm: 8.949e-02; mom: 3.045e-06;
#> best it: 747; best obj: 1.025e-01
#> It: 748; obj: 1.025e-01; abs: 4.114e-13; rel: 4.014e-12; norm: 8.949e-02; mom: 3.006e-06;
#> best it: 748; best obj: 1.025e-01
#> It: 749; obj: 1.025e-01; abs: 4.074e-13; rel: 3.974e-12; norm: 8.949e-02; mom: 2.967e-06;
#> best it: 749; best obj: 1.025e-01
#> It: 750; obj: 1.025e-01; abs: 3.891e-13; rel: 3.796e-12; norm: 8.949e-02; mom: 2.929e-06;
#> best it: 750; best obj: 1.025e-01

```

## Iteration 750



```

#> It: 751; obj: 1.025e-01; abs: 3.784e-13; rel: 3.691e-12; norm: 8.949e-02; mom: 2.891e-06;
#> best it: 751; best obj: 1.025e-01
#> It: 752; obj: 1.025e-01; abs: 3.787e-13; rel: 3.694e-12; norm: 8.949e-02; mom: 2.854e-06;
#> best it: 752; best obj: 1.025e-01
#> It: 753; obj: 1.025e-01; abs: 3.556e-13; rel: 3.469e-12; norm: 8.949e-02; mom: 2.817e-06;
#> best it: 753; best obj: 1.025e-01
#> It: 754; obj: 1.025e-01; abs: 3.550e-13; rel: 3.463e-12; norm: 8.949e-02; mom: 2.781e-06;
#> best it: 754; best obj: 1.025e-01
#> It: 755; obj: 1.025e-01; abs: 3.477e-13; rel: 3.392e-12; norm: 8.949e-02; mom: 2.745e-06;
#> best it: 755; best obj: 1.025e-01
#> It: 756; obj: 1.025e-01; abs: 3.348e-13; rel: 3.266e-12; norm: 8.949e-02; mom: 2.710e-06;
#> best it: 756; best obj: 1.025e-01
#> It: 757; obj: 1.025e-01; abs: 3.252e-13; rel: 3.172e-12; norm: 8.949e-02; mom: 2.675e-06;
#> best it: 757; best obj: 1.025e-01
#> It: 758; obj: 1.025e-01; abs: 3.200e-13; rel: 3.122e-12; norm: 8.949e-02; mom: 2.641e-06;
#> best it: 758; best obj: 1.025e-01
#> It: 759; obj: 1.025e-01; abs: 3.115e-13; rel: 3.039e-12; norm: 8.949e-02; mom: 2.607e-06;
#> best it: 759; best obj: 1.025e-01
#> It: 760; obj: 1.025e-01; abs: 3.037e-13; rel: 2.962e-12; norm: 8.949e-02; mom: 2.573e-06;
#> best it: 760; best obj: 1.025e-01
#> It: 761; obj: 1.025e-01; abs: 2.900e-13; rel: 2.829e-12; norm: 8.949e-02; mom: 2.540e-06;
#> best it: 761; best obj: 1.025e-01
#> It: 762; obj: 1.025e-01; abs: 2.864e-13; rel: 2.794e-12; norm: 8.949e-02; mom: 2.508e-06;
#> best it: 762; best obj: 1.025e-01
#> It: 763; obj: 1.025e-01; abs: 2.779e-13; rel: 2.711e-12; norm: 8.949e-02; mom: 2.475e-06;
#> best it: 763; best obj: 1.025e-01
#> It: 764; obj: 1.025e-01; abs: 2.743e-13; rel: 2.676e-12; norm: 8.949e-02; mom: 2.443e-06;
#> best it: 764; best obj: 1.025e-01
#> It: 765; obj: 1.025e-01; abs: 2.674e-13; rel: 2.608e-12; norm: 8.949e-02; mom: 2.412e-06;
#> best it: 765; best obj: 1.025e-01
#> It: 766; obj: 1.025e-01; abs: 2.602e-13; rel: 2.538e-12; norm: 8.949e-02; mom: 2.381e-06;

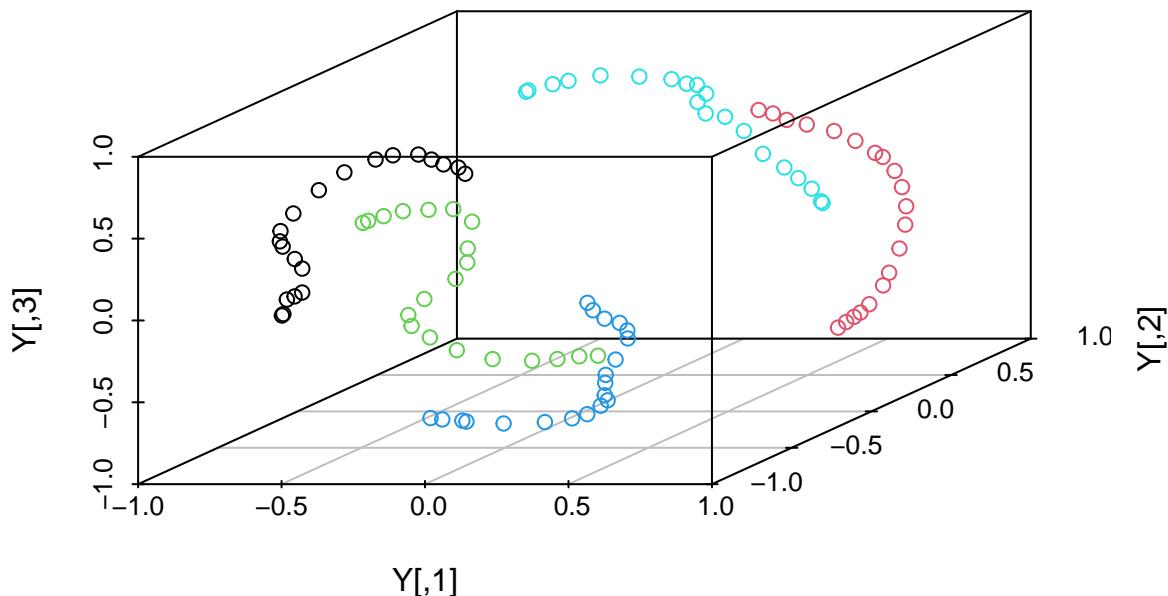
```

```

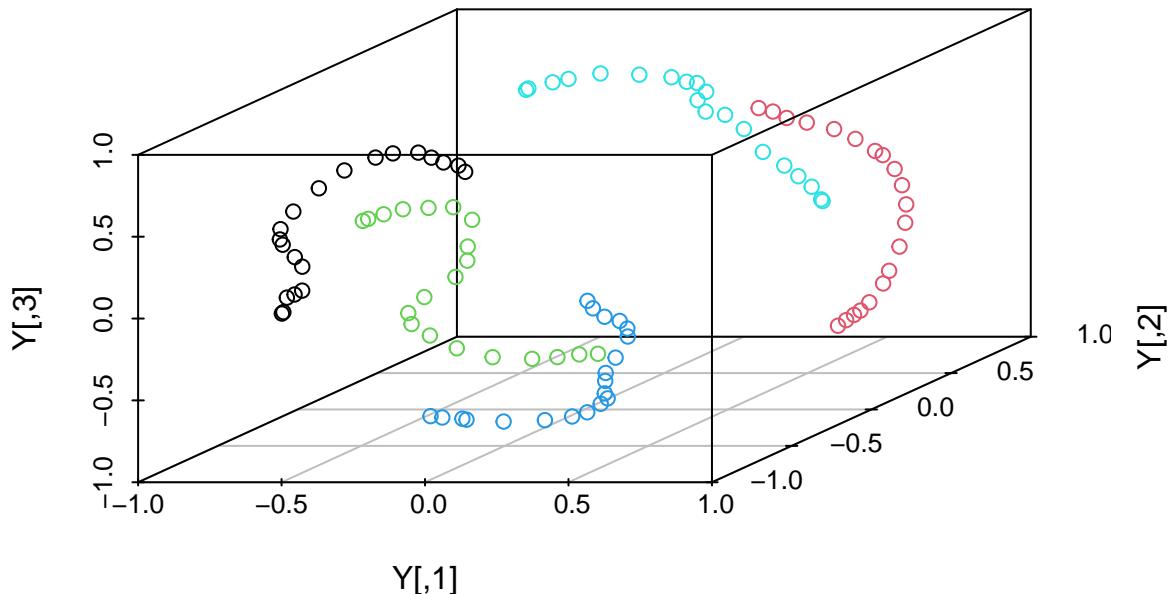
#> best it: 766; best obj: 1.025e-01
#> It: 767; obj: 1.025e-01; abs: 2.509e-13; rel: 2.448e-12; norm: 8.949e-02; mom: 2.350e-06;
#> best it: 767; best obj: 1.025e-01
#> It: 768; obj: 1.025e-01; abs: 2.472e-13; rel: 2.411e-12; norm: 8.949e-02; mom: 2.320e-06;
#> best it: 768; best obj: 1.025e-01
#> It: 769; obj: 1.025e-01; abs: 2.421e-13; rel: 2.362e-12; norm: 8.949e-02; mom: 2.290e-06;
#> best it: 769; best obj: 1.025e-01
#> It: 770; obj: 1.025e-01; abs: 2.285e-13; rel: 2.229e-12; norm: 8.949e-02; mom: 2.261e-06;
#> best it: 770; best obj: 1.025e-01
#> It: 771; obj: 1.025e-01; abs: 2.293e-13; rel: 2.237e-12; norm: 8.949e-02; mom: 2.232e-06;
#> best it: 771; best obj: 1.025e-01
#> It: 772; obj: 1.025e-01; abs: 2.222e-13; rel: 2.168e-12; norm: 8.949e-02; mom: 2.203e-06;
#> best it: 772; best obj: 1.025e-01
#> It: 773; obj: 1.025e-01; abs: 2.162e-13; rel: 2.109e-12; norm: 8.949e-02; mom: 2.175e-06;
#> best it: 773; best obj: 1.025e-01
#> It: 774; obj: 1.025e-01; abs: 2.118e-13; rel: 2.067e-12; norm: 8.949e-02; mom: 2.147e-06;
#> best it: 774; best obj: 1.025e-01
#> It: 775; obj: 1.025e-01; abs: 2.051e-13; rel: 2.000e-12; norm: 8.949e-02; mom: 2.119e-06;
#> best it: 775; best obj: 1.025e-01

```

## Iteration 775



## Iteration 775

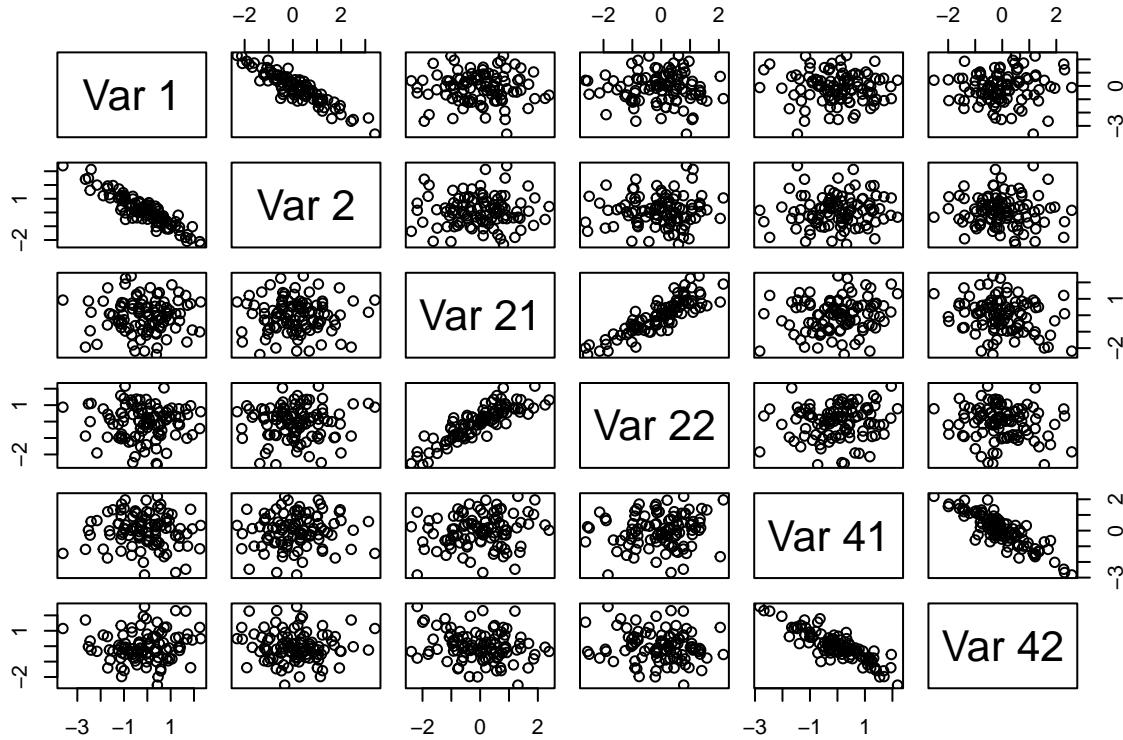


In case of the scores projected onto the sphere, results are good since the 5 groups are clearly separated along the sphere. Let's see the points in the interactive sphere using the package `rgl`.

```
rgl::plot3d(0, 0, 0, xlim = c(-1, 1), ylim = c(-1, 1), zlim = c(-1, 1),
            radius = 1, type = "s", col = "lightblue", alpha = 0.8, lit = FALSE)
rgl::points3d(psc_sne_res_22$best_Y, col = cols)
```

Let's do the same but taking now negative and positive correlations for each group. For example, for the first group we are going to take a significant negative correlation, for the second a large correlation and so on.

```
# Visualize some features
n <- 100
g <- 5
p <- 20
rho_values_neg <- rep(c(-0.9, 0.9), times = g)[1:g]
x <- r_block(n = n, g = g, p = p, rho = rho_values_neg)
pairs(x[, c(1:2, p + 1:2, (2 * p) + 1:2)],
      labels = c("Var 1", "Var 2", paste("Var", p + 1), paste("Var", p + 2),
                paste("Var", (2 * p) + 1), paste("Var", (2 * p) + 2)))
```



```
# Standardize variables -- now the vectors of observations for each variable
# (the columns) live on  $\sqrt{n - 1} \cdot S^{n - 1}$ !
x_sca <- scale(x)
# Make the features live on  $S^{n - 1}$ 
x_sca <- x_sca / sqrt(n - 1)
# Transpose matrix (features become observations)
feat_data_2 <- t(x_sca)
# Colors of the groups
cols <- rep(1:g, each = p)
# Set an array of dimension  $c(g * p, n, 1)$ 
dim(feat_data_2) <- c(dim(feat_data_2), 1)
# Change the order of the data
indexes <- sample(1:(g * p))
feat_data_2 <- feat_data_2[indexes, , drop = FALSE]
cols <- cols[indexes]
```

Let's calculate the rho based on a perplexity of 30

```
rho_list_2 <- rho_optim_bst(x = feat_data_2, perp_fixed = 30,
                               num_cores = num_cores_param)
#> Time difference of 1.804346 secs
```

Run psc\_sne() with colors being the groups of variables. First, reduced the data on the circumference.

```
res_pscsne_21_neg <- psc_sne(X = feat_data_2, d = 1, rho_psc_list = rho_list_2,
                                colors = cols, show_prog = TRUE, num_iteration = 775,
                                eta = 35, parallel_cores = num_cores_param)
#> It: 1; obj: 1.013e+01; abs: 0.000e+00; rel: 0.000e+00; norm: 3.369e-01; mom: 0.000e+00;
#> best it: 1; best obj: 1.013e+01
#> It: 2; obj: 9.337e+00; abs: 7.954e-01; rel: 7.851e-02; norm: 7.376e-01; mom: 2.304e+00;
#> best it: 2; best obj: 9.337e+00
#> It: 3; obj: 8.749e+00; abs: 5.881e-01; rel: 6.298e-02; norm: 1.013e+00; mom: 1.436e+00;
```

```

#> best it: 3; best obj: 8.749e+00
#> It: 4; obj: 8.516e+00; abs: 2.330e-01; rel: 2.663e-02; norm: 1.175e+00; mom: 1.113e+00;
#> best it: 4; best obj: 8.516e+00
#> It: 5; obj: 8.439e+00; abs: 7.691e-02; rel: 9.031e-03; norm: 1.289e+00; mom: 6.221e-01;
#> best it: 5; best obj: 8.439e+00
#> It: 6; obj: 8.396e+00; abs: 4.233e-02; rel: 5.016e-03; norm: 1.359e+00; mom: 3.954e-01;
#> best it: 6; best obj: 8.396e+00
#> It: 7; obj: 8.356e+00; abs: 4.004e-02; rel: 4.768e-03; norm: 1.393e+00; mom: 2.480e-01;
#> best it: 7; best obj: 8.356e+00
#> It: 8; obj: 8.313e+00; abs: 4.348e-02; rel: 5.203e-03; norm: 1.415e+00; mom: 2.003e-01;
#> best it: 8; best obj: 8.313e+00
#> It: 9; obj: 8.271e+00; abs: 4.221e-02; rel: 5.077e-03; norm: 1.434e+00; mom: 1.956e-01;
#> best it: 9; best obj: 8.271e+00
#> It: 10; obj: 8.231e+00; abs: 3.933e-02; rel: 4.755e-03; norm: 1.451e+00; mom: 1.902e-01;
#> best it: 10; best obj: 8.231e+00
#> It: 11; obj: 8.198e+00; abs: 3.382e-02; rel: 4.109e-03; norm: 1.466e+00; mom: 1.834e-01;
#> best it: 11; best obj: 8.198e+00
#> It: 12; obj: 8.173e+00; abs: 2.433e-02; rel: 2.968e-03; norm: 1.479e+00; mom: 1.733e-01;
#> best it: 12; best obj: 8.173e+00
#> It: 13; obj: 8.157e+00; abs: 1.591e-02; rel: 1.947e-03; norm: 1.486e+00; mom: 1.534e-01;
#> best it: 13; best obj: 8.157e+00
#> It: 14; obj: 8.146e+00; abs: 1.128e-02; rel: 1.382e-03; norm: 1.488e+00; mom: 1.327e-01;
#> best it: 14; best obj: 8.146e+00
#> It: 15; obj: 8.136e+00; abs: 9.888e-03; rel: 1.214e-03; norm: 1.488e+00; mom: 1.237e-01;
#> best it: 15; best obj: 8.136e+00
#> It: 16; obj: 8.126e+00; abs: 1.014e-02; rel: 1.247e-03; norm: 1.487e+00; mom: 1.402e-01;
#> best it: 16; best obj: 8.126e+00
#> It: 17; obj: 8.117e+00; abs: 9.350e-03; rel: 1.151e-03; norm: 1.487e+00; mom: 1.604e-01;
#> best it: 17; best obj: 8.117e+00
#> It: 18; obj: 8.109e+00; abs: 7.462e-03; rel: 9.193e-04; norm: 1.488e+00; mom: 1.750e-01;
#> best it: 18; best obj: 8.109e+00
#> It: 19; obj: 8.103e+00; abs: 6.482e-03; rel: 7.993e-04; norm: 1.490e+00; mom: 1.804e-01;
#> best it: 19; best obj: 8.103e+00
#> It: 20; obj: 8.101e+00; abs: 1.524e-03; rel: 1.881e-04; norm: 1.493e+00; mom: 1.820e-01;
#> best it: 20; best obj: 8.101e+00
#> It: 21; obj: 8.108e+00; abs: 6.974e-03; rel: 8.608e-04; norm: 1.497e+00; mom: 1.681e-01;
#> best it: 20; best obj: 8.101e+00
#> It: 22; obj: 8.121e+00; abs: 1.332e-02; rel: 1.642e-03; norm: 1.500e+00; mom: 1.430e-01;
#> best it: 20; best obj: 8.101e+00
#> It: 23; obj: 8.138e+00; abs: 1.635e-02; rel: 2.013e-03; norm: 1.504e+00; mom: 1.357e-01;
#> best it: 20; best obj: 8.101e+00
#> It: 24; obj: 8.156e+00; abs: 1.799e-02; rel: 2.210e-03; norm: 1.509e+00; mom: 1.482e-01;
#> best it: 20; best obj: 8.101e+00
#> It: 25; obj: 8.177e+00; abs: 2.093e-02; rel: 2.566e-03; norm: 1.515e+00; mom: 1.544e-01;
#> best it: 20; best obj: 8.101e+00
#> It: 26; obj: 8.200e+00; abs: 2.343e-02; rel: 2.865e-03; norm: 1.523e+00; mom: 1.398e-01;
#> best it: 20; best obj: 8.101e+00
#> It: 27; obj: 8.224e+00; abs: 2.365e-02; rel: 2.884e-03; norm: 1.529e+00; mom: 1.077e-01;
#> best it: 20; best obj: 8.101e+00
#> It: 28; obj: 8.247e+00; abs: 2.291e-02; rel: 2.786e-03; norm: 1.535e+00; mom: 8.574e-02;
#> best it: 20; best obj: 8.101e+00
#> It: 29; obj: 8.269e+00; abs: 2.181e-02; rel: 2.645e-03; norm: 1.540e+00; mom: 7.680e-02;
#> best it: 20; best obj: 8.101e+00

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#> It: 30; obj: 8.289e+00; abs: 2.052e-02; rel: 2.482e-03; norm: 1.545e+00; mom: 7.310e-02;
#> best it: 20; best obj: 8.101e+00
#> It: 31; obj: 8.308e+00; abs: 1.911e-02; rel: 2.306e-03; norm: 1.550e+00; mom: 7.099e-02;
#> best it: 20; best obj: 8.101e+00
#> It: 32; obj: 8.326e+00; abs: 1.764e-02; rel: 2.123e-03; norm: 1.555e+00; mom: 6.948e-02;
#> best it: 20; best obj: 8.101e+00
#> It: 33; obj: 8.342e+00; abs: 1.615e-02; rel: 1.940e-03; norm: 1.560e+00; mom: 6.820e-02;
#> best it: 20; best obj: 8.101e+00
#> It: 34; obj: 8.357e+00; abs: 1.469e-02; rel: 1.761e-03; norm: 1.565e+00; mom: 6.699e-02;
#> best it: 20; best obj: 8.101e+00
#> It: 35; obj: 8.370e+00; abs: 1.329e-02; rel: 1.591e-03; norm: 1.570e+00; mom: 6.575e-02;
#> best it: 20; best obj: 8.101e+00
#> It: 36; obj: 8.382e+00; abs: 1.201e-02; rel: 1.435e-03; norm: 1.575e+00; mom: 6.445e-02;
#> best it: 20; best obj: 8.101e+00
#> It: 37; obj: 8.393e+00; abs: 1.089e-02; rel: 1.300e-03; norm: 1.580e+00; mom: 6.310e-02;
#> best it: 20; best obj: 8.101e+00
#> It: 38; obj: 8.403e+00; abs: 9.971e-03; rel: 1.188e-03; norm: 1.584e+00; mom: 6.175e-02;
#> best it: 20; best obj: 8.101e+00
#> It: 39; obj: 8.412e+00; abs: 9.272e-03; rel: 1.103e-03; norm: 1.589e+00; mom: 6.048e-02;
#> best it: 20; best obj: 8.101e+00
#> It: 40; obj: 8.421e+00; abs: 8.800e-03; rel: 1.046e-03; norm: 1.594e+00; mom: 5.938e-02;
#> best it: 20; best obj: 8.101e+00
#> It: 41; obj: 8.429e+00; abs: 8.544e-03; rel: 1.015e-03; norm: 1.598e+00; mom: 5.855e-02;
#> best it: 20; best obj: 8.101e+00
#> It: 42; obj: 8.438e+00; abs: 8.480e-03; rel: 1.006e-03; norm: 1.603e+00; mom: 5.807e-02;
#> best it: 20; best obj: 8.101e+00
#> It: 43; obj: 8.446e+00; abs: 8.576e-03; rel: 1.016e-03; norm: 1.608e+00; mom: 5.797e-02;
#> best it: 20; best obj: 8.101e+00
#> It: 44; obj: 8.455e+00; abs: 8.800e-03; rel: 1.042e-03; norm: 1.612e+00; mom: 5.827e-02;
#> best it: 20; best obj: 8.101e+00
#> It: 45; obj: 8.464e+00; abs: 9.120e-03; rel: 1.079e-03; norm: 1.617e+00; mom: 5.895e-02;
#> best it: 20; best obj: 8.101e+00
#> It: 46; obj: 8.474e+00; abs: 9.510e-03; rel: 1.123e-03; norm: 1.622e+00; mom: 5.998e-02;
#> best it: 20; best obj: 8.101e+00
#> It: 47; obj: 8.484e+00; abs: 9.947e-03; rel: 1.174e-03; norm: 1.626e+00; mom: 6.130e-02;
#> best it: 20; best obj: 8.101e+00
#> It: 48; obj: 8.494e+00; abs: 1.041e-02; rel: 1.228e-03; norm: 1.631e+00; mom: 6.288e-02;
#> best it: 20; best obj: 8.101e+00
#> It: 49; obj: 8.505e+00; abs: 1.090e-02; rel: 1.283e-03; norm: 1.636e+00; mom: 6.466e-02;
#> best it: 20; best obj: 8.101e+00
#> It: 50; obj: 8.517e+00; abs: 1.139e-02; rel: 1.340e-03; norm: 1.640e+00; mom: 6.661e-02;
#> best it: 20; best obj: 8.101e+00
#> It: 51; obj: 8.528e+00; abs: 1.189e-02; rel: 1.396e-03; norm: 1.645e+00; mom: 6.869e-02;
#> best it: 20; best obj: 8.101e+00
#> It: 52; obj: 8.541e+00; abs: 1.239e-02; rel: 1.453e-03; norm: 1.649e+00; mom: 7.088e-02;
#> best it: 20; best obj: 8.101e+00
#> It: 53; obj: 8.554e+00; abs: 1.289e-02; rel: 1.509e-03; norm: 1.653e+00; mom: 7.316e-02;
#> best it: 20; best obj: 8.101e+00
#> It: 54; obj: 8.567e+00; abs: 1.338e-02; rel: 1.564e-03; norm: 1.656e+00; mom: 7.550e-02;
#> best it: 20; best obj: 8.101e+00
#> It: 55; obj: 8.581e+00; abs: 1.388e-02; rel: 1.620e-03; norm: 1.660e+00; mom: 7.790e-02;
#> best it: 20; best obj: 8.101e+00
#> It: 56; obj: 8.595e+00; abs: 1.438e-02; rel: 1.676e-03; norm: 1.663e+00; mom: 8.035e-02;

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#> best it: 20; best obj: 8.101e+00
#> It: 57; obj: 8.610e+00; abs: 1.488e-02; rel: 1.731e-03; norm: 1.665e+00; mom: 8.283e-02;
#> best it: 20; best obj: 8.101e+00
#> It: 58; obj: 8.626e+00; abs: 1.539e-02; rel: 1.787e-03; norm: 1.666e+00; mom: 8.534e-02;
#> best it: 20; best obj: 8.101e+00
#> It: 59; obj: 8.642e+00; abs: 1.590e-02; rel: 1.844e-03; norm: 1.667e+00; mom: 8.787e-02;
#> best it: 20; best obj: 8.101e+00
#> It: 60; obj: 8.658e+00; abs: 1.642e-02; rel: 1.901e-03; norm: 1.668e+00; mom: 9.044e-02;
#> best it: 20; best obj: 8.101e+00
#> It: 61; obj: 8.675e+00; abs: 1.696e-02; rel: 1.959e-03; norm: 1.668e+00; mom: 9.302e-02;
#> best it: 20; best obj: 8.101e+00
#> It: 62; obj: 8.692e+00; abs: 1.751e-02; rel: 2.018e-03; norm: 1.667e+00; mom: 9.563e-02;
#> best it: 20; best obj: 8.101e+00
#> It: 63; obj: 8.710e+00; abs: 1.808e-02; rel: 2.080e-03; norm: 1.665e+00; mom: 9.824e-02;
#> best it: 20; best obj: 8.101e+00
#> It: 64; obj: 8.729e+00; abs: 1.869e-02; rel: 2.146e-03; norm: 1.663e+00; mom: 1.009e-01;
#> best it: 20; best obj: 8.101e+00
#> It: 65; obj: 8.749e+00; abs: 1.935e-02; rel: 2.217e-03; norm: 1.662e+00; mom: 1.035e-01;
#> best it: 20; best obj: 8.101e+00
#> It: 66; obj: 8.769e+00; abs: 2.008e-02; rel: 2.296e-03; norm: 1.660e+00; mom: 1.061e-01;
#> best it: 20; best obj: 8.101e+00
#> It: 67; obj: 8.790e+00; abs: 2.091e-02; rel: 2.385e-03; norm: 1.659e+00; mom: 1.086e-01;
#> best it: 20; best obj: 8.101e+00
#> It: 68; obj: 8.811e+00; abs: 2.186e-02; rel: 2.487e-03; norm: 1.659e+00; mom: 1.111e-01;
#> best it: 20; best obj: 8.101e+00
#> It: 69; obj: 8.834e+00; abs: 2.298e-02; rel: 2.608e-03; norm: 1.661e+00; mom: 1.135e-01;
#> best it: 20; best obj: 8.101e+00
#> It: 70; obj: 8.859e+00; abs: 2.430e-02; rel: 2.750e-03; norm: 1.666e+00; mom: 1.157e-01;
#> best it: 20; best obj: 8.101e+00
#> It: 71; obj: 8.885e+00; abs: 2.586e-02; rel: 2.919e-03; norm: 1.675e+00; mom: 1.178e-01;
#> best it: 20; best obj: 8.101e+00
#> It: 72; obj: 8.912e+00; abs: 2.770e-02; rel: 3.118e-03; norm: 1.688e+00; mom: 1.196e-01;
#> best it: 20; best obj: 8.101e+00
#> It: 73; obj: 8.942e+00; abs: 2.986e-02; rel: 3.351e-03; norm: 1.706e+00; mom: 1.213e-01;
#> best it: 20; best obj: 8.101e+00
#> It: 74; obj: 8.974e+00; abs: 3.237e-02; rel: 3.620e-03; norm: 1.729e+00; mom: 1.226e-01;
#> best it: 20; best obj: 8.101e+00
#> It: 75; obj: 9.010e+00; abs: 3.523e-02; rel: 3.925e-03; norm: 1.757e+00; mom: 1.237e-01;
#> best it: 20; best obj: 8.101e+00
#> It: 76; obj: 9.048e+00; abs: 3.842e-02; rel: 4.264e-03; norm: 1.788e+00; mom: 1.245e-01;
#> best it: 20; best obj: 8.101e+00
#> It: 77; obj: 9.090e+00; abs: 4.189e-02; rel: 4.630e-03; norm: 1.822e+00; mom: 1.251e-01;
#> best it: 20; best obj: 8.101e+00
#> It: 78; obj: 9.136e+00; abs: 4.557e-02; rel: 5.014e-03; norm: 1.858e+00; mom: 1.257e-01;
#> best it: 20; best obj: 8.101e+00
#> It: 79; obj: 9.185e+00; abs: 4.935e-02; rel: 5.402e-03; norm: 1.897e+00; mom: 1.265e-01;
#> best it: 20; best obj: 8.101e+00
#> It: 80; obj: 9.238e+00; abs: 5.307e-02; rel: 5.778e-03; norm: 1.936e+00; mom: 1.275e-01;
#> best it: 20; best obj: 8.101e+00
#> It: 81; obj: 9.295e+00; abs: 5.660e-02; rel: 6.127e-03; norm: 1.975e+00; mom: 1.288e-01;
#> best it: 20; best obj: 8.101e+00
#> It: 82; obj: 9.354e+00; abs: 5.978e-02; rel: 6.431e-03; norm: 2.015e+00; mom: 1.303e-01;
#> best it: 20; best obj: 8.101e+00

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#> It: 83; obj: 9.417e+00; abs: 6.245e-02; rel: 6.676e-03; norm: 2.054e+00; mom: 1.317e-01;
#> best it: 20; best obj: 8.101e+00
#> It: 84; obj: 9.481e+00; abs: 6.448e-02; rel: 6.847e-03; norm: 2.092e+00; mom: 1.327e-01;
#> best it: 20; best obj: 8.101e+00
#> It: 85; obj: 9.547e+00; abs: 6.572e-02; rel: 6.931e-03; norm: 2.129e+00; mom: 1.330e-01;
#> best it: 20; best obj: 8.101e+00
#> It: 86; obj: 9.613e+00; abs: 6.605e-02; rel: 6.918e-03; norm: 2.164e+00; mom: 1.323e-01;
#> best it: 20; best obj: 8.101e+00
#> It: 87; obj: 9.678e+00; abs: 6.536e-02; rel: 6.799e-03; norm: 2.196e+00; mom: 1.305e-01;
#> best it: 20; best obj: 8.101e+00
#> It: 88; obj: 9.742e+00; abs: 6.358e-02; rel: 6.569e-03; norm: 2.227e+00; mom: 1.273e-01;
#> best it: 20; best obj: 8.101e+00
#> It: 89; obj: 9.803e+00; abs: 6.073e-02; rel: 6.233e-03; norm: 2.255e+00; mom: 1.227e-01;
#> best it: 20; best obj: 8.101e+00
#> It: 90; obj: 9.860e+00; abs: 5.688e-02; rel: 5.803e-03; norm: 2.279e+00; mom: 1.168e-01;
#> best it: 20; best obj: 8.101e+00
#> It: 91; obj: 9.912e+00; abs: 5.225e-02; rel: 5.299e-03; norm: 2.301e+00; mom: 1.098e-01;
#> best it: 20; best obj: 8.101e+00
#> It: 92; obj: 9.959e+00; abs: 4.710e-02; rel: 4.752e-03; norm: 2.320e+00; mom: 1.018e-01;
#> best it: 20; best obj: 8.101e+00
#> It: 93; obj: 1.000e+01; abs: 4.175e-02; rel: 4.192e-03; norm: 2.336e+00; mom: 9.330e-02;
#> best it: 20; best obj: 8.101e+00
#> It: 94; obj: 1.004e+01; abs: 3.649e-02; rel: 3.649e-03; norm: 2.349e+00; mom: 8.467e-02;
#> best it: 20; best obj: 8.101e+00
#> It: 95; obj: 1.007e+01; abs: 3.155e-02; rel: 3.143e-03; norm: 2.359e+00; mom: 7.625e-02;
#> best it: 20; best obj: 8.101e+00
#> It: 96; obj: 1.010e+01; abs: 2.707e-02; rel: 2.688e-03; norm: 2.368e+00; mom: 6.830e-02;
#> best it: 20; best obj: 8.101e+00
#> It: 97; obj: 1.012e+01; abs: 2.312e-02; rel: 2.290e-03; norm: 2.375e+00; mom: 6.099e-02;
#> best it: 20; best obj: 8.101e+00
#> It: 98; obj: 1.014e+01; abs: 1.970e-02; rel: 1.947e-03; norm: 2.381e+00; mom: 5.441e-02;
#> best it: 20; best obj: 8.101e+00
#> It: 99; obj: 1.016e+01; abs: 1.679e-02; rel: 1.656e-03; norm: 2.386e+00; mom: 4.855e-02;
#> best it: 20; best obj: 8.101e+00
#> It: 100; obj: 1.017e+01; abs: 1.432e-02; rel: 1.410e-03; norm: 2.390e+00; mom: 4.339e-02;
#> best it: 20; best obj: 8.101e+00
#> It: 101; obj: 1.054e+00; abs: 9.115e+00; rel: 8.963e-01; norm: 6.042e-02; mom: 3.887e-02;
#> best it: 101; best obj: 1.054e+00
#> It: 102; obj: 9.279e-01; abs: 1.264e-01; rel: 1.199e-01; norm: 9.253e-02; mom: 8.090e-01;
#> best it: 102; best obj: 9.279e-01
#> It: 103; obj: 8.455e-01; abs: 8.236e-02; rel: 8.876e-02; norm: 9.940e-02; mom: 1.059e+00;
#> best it: 103; best obj: 8.455e-01
#> It: 104; obj: 7.721e-01; abs: 7.345e-02; rel: 8.687e-02; norm: 1.095e-01; mom: 7.409e-01;
#> best it: 104; best obj: 7.721e-01
#> It: 105; obj: 7.285e-01; abs: 4.361e-02; rel: 5.648e-02; norm: 1.182e-01; mom: 7.215e-01;
#> best it: 105; best obj: 7.285e-01
#> It: 106; obj: 6.968e-01; abs: 3.170e-02; rel: 4.352e-02; norm: 1.252e-01; mom: 6.365e-01;
#> best it: 106; best obj: 6.968e-01
#> It: 107; obj: 6.695e-01; abs: 2.723e-02; rel: 3.908e-02; norm: 1.293e-01; mom: 5.315e-01;
#> best it: 107; best obj: 6.695e-01
#> It: 108; obj: 6.473e-01; abs: 2.225e-02; rel: 3.323e-02; norm: 1.336e-01; mom: 4.713e-01;
#> best it: 108; best obj: 6.473e-01
#> It: 109; obj: 6.291e-01; abs: 1.816e-02; rel: 2.805e-02; norm: 1.371e-01; mom: 4.227e-01;

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#> best it: 109; best obj: 6.291e-01
#> It: 110; obj: 6.141e-01; abs: 1.509e-02; rel: 2.399e-02; norm: 1.396e-01; mom: 3.671e-01;
#> best it: 110; best obj: 6.141e-01
#> It: 111; obj: 6.020e-01; abs: 1.205e-02; rel: 1.962e-02; norm: 1.412e-01; mom: 3.155e-01;
#> best it: 111; best obj: 6.020e-01
#> It: 112; obj: 5.927e-01; abs: 9.271e-03; rel: 1.540e-02; norm: 1.416e-01; mom: 2.683e-01;
#> best it: 112; best obj: 5.927e-01
#> It: 113; obj: 5.858e-01; abs: 6.962e-03; rel: 1.175e-02; norm: 1.412e-01; mom: 2.268e-01;
#> best it: 113; best obj: 5.858e-01
#> It: 114; obj: 5.807e-01; abs: 5.082e-03; rel: 8.676e-03; norm: 1.408e-01; mom: 1.931e-01;
#> best it: 114; best obj: 5.807e-01
#> It: 115; obj: 5.771e-01; abs: 3.614e-03; rel: 6.224e-03; norm: 1.405e-01; mom: 1.648e-01;
#> best it: 115; best obj: 5.771e-01
#> It: 116; obj: 5.745e-01; abs: 2.578e-03; rel: 4.467e-03; norm: 1.407e-01; mom: 1.401e-01;
#> best it: 116; best obj: 5.745e-01
#> It: 117; obj: 5.725e-01; abs: 1.973e-03; rel: 3.434e-03; norm: 1.412e-01; mom: 1.198e-01;
#> best it: 117; best obj: 5.725e-01
#> It: 118; obj: 5.708e-01; abs: 1.738e-03; rel: 3.036e-03; norm: 1.421e-01; mom: 1.067e-01;
#> best it: 118; best obj: 5.708e-01
#> It: 119; obj: 5.692e-01; abs: 1.631e-03; rel: 2.857e-03; norm: 1.434e-01; mom: 1.047e-01;
#> best it: 119; best obj: 5.692e-01
#> It: 120; obj: 5.679e-01; abs: 1.214e-03; rel: 2.134e-03; norm: 1.452e-01; mom: 1.095e-01;
#> best it: 120; best obj: 5.679e-01
#> It: 121; obj: 5.673e-01; abs: 6.243e-04; rel: 1.099e-03; norm: 1.470e-01; mom: 1.029e-01;
#> best it: 121; best obj: 5.673e-01
#> It: 122; obj: 5.670e-01; abs: 3.331e-04; rel: 5.872e-04; norm: 1.481e-01; mom: 7.603e-02;
#> best it: 122; best obj: 5.670e-01
#> It: 123; obj: 5.667e-01; abs: 2.869e-04; rel: 5.061e-04; norm: 1.485e-01; mom: 4.719e-02;
#> best it: 123; best obj: 5.667e-01
#> It: 124; obj: 5.664e-01; abs: 3.273e-04; rel: 5.776e-04; norm: 1.487e-01; mom: 4.110e-02;
#> best it: 124; best obj: 5.664e-01
#> It: 125; obj: 5.660e-01; abs: 4.041e-04; rel: 7.135e-04; norm: 1.486e-01; mom: 4.757e-02;
#> best it: 125; best obj: 5.660e-01
#> It: 126; obj: 5.655e-01; abs: 4.832e-04; rel: 8.538e-04; norm: 1.484e-01; mom: 5.525e-02;
#> best it: 126; best obj: 5.655e-01
#> It: 127; obj: 5.650e-01; abs: 5.065e-04; rel: 8.957e-04; norm: 1.482e-01; mom: 6.234e-02;
#> best it: 127; best obj: 5.650e-01
#> It: 128; obj: 5.646e-01; abs: 4.200e-04; rel: 7.433e-04; norm: 1.478e-01; mom: 6.605e-02;
#> best it: 128; best obj: 5.646e-01
#> It: 129; obj: 5.643e-01; abs: 2.518e-04; rel: 4.460e-04; norm: 1.474e-01; mom: 6.284e-02;
#> best it: 129; best obj: 5.643e-01
#> It: 130; obj: 5.642e-01; abs: 1.050e-04; rel: 1.861e-04; norm: 1.471e-01; mom: 5.129e-02;
#> best it: 130; best obj: 5.642e-01
#> It: 131; obj: 5.642e-01; abs: 3.258e-05; rel: 5.775e-05; norm: 1.468e-01; mom: 3.489e-02;
#> best it: 131; best obj: 5.642e-01
#> It: 132; obj: 5.642e-01; abs: 1.061e-05; rel: 1.881e-05; norm: 1.466e-01; mom: 1.952e-02;
#> best it: 132; best obj: 5.642e-01
#> It: 133; obj: 5.641e-01; abs: 5.551e-06; rel: 9.839e-06; norm: 1.466e-01; mom: 9.014e-03;
#> best it: 133; best obj: 5.641e-01
#> It: 134; obj: 5.641e-01; abs: 3.518e-06; rel: 6.235e-06; norm: 1.466e-01; mom: 6.345e-03;
#> best it: 134; best obj: 5.641e-01
#> It: 135; obj: 5.641e-01; abs: 2.080e-06; rel: 3.687e-06; norm: 1.466e-01; mom: 5.023e-03;
#> best it: 135; best obj: 5.641e-01

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#> It: 136; obj: 5.641e-01; abs: 1.164e-06; rel: 2.064e-06; norm: 1.466e-01; mom: 3.868e-03;
#> best it: 136; best obj: 5.641e-01
#> It: 137; obj: 5.641e-01; abs: 6.520e-07; rel: 1.156e-06; norm: 1.466e-01; mom: 2.929e-03;
#> best it: 137; best obj: 5.641e-01
#> It: 138; obj: 5.641e-01; abs: 3.723e-07; rel: 6.600e-07; norm: 1.466e-01; mom: 2.202e-03;
#> best it: 138; best obj: 5.641e-01
#> It: 139; obj: 5.641e-01; abs: 2.151e-07; rel: 3.813e-07; norm: 1.466e-01; mom: 1.654e-03;
#> best it: 139; best obj: 5.641e-01
#> It: 140; obj: 5.641e-01; abs: 1.245e-07; rel: 2.207e-07; norm: 1.466e-01; mom: 1.246e-03;
#> best it: 140; best obj: 5.641e-01
#> It: 141; obj: 5.641e-01; abs: 7.196e-08; rel: 1.276e-07; norm: 1.466e-01; mom: 9.429e-04;
#> best it: 141; best obj: 5.641e-01
#> It: 142; obj: 5.641e-01; abs: 4.155e-08; rel: 7.366e-08; norm: 1.466e-01; mom: 7.160e-04;
#> best it: 142; best obj: 5.641e-01
#> It: 143; obj: 5.641e-01; abs: 2.400e-08; rel: 4.255e-08; norm: 1.466e-01; mom: 5.448e-04;
#> best it: 143; best obj: 5.641e-01
#> It: 144; obj: 5.641e-01; abs: 1.387e-08; rel: 2.459e-08; norm: 1.466e-01; mom: 4.148e-04;
#> best it: 144; best obj: 5.641e-01
#> It: 145; obj: 5.641e-01; abs: 8.020e-09; rel: 1.422e-08; norm: 1.466e-01; mom: 3.158e-04;
#> best it: 145; best obj: 5.641e-01
#> It: 146; obj: 5.641e-01; abs: 4.638e-09; rel: 8.221e-09; norm: 1.466e-01; mom: 2.403e-04;
#> best it: 146; best obj: 5.641e-01
#> It: 147; obj: 5.641e-01; abs: 2.682e-09; rel: 4.754e-09; norm: 1.466e-01; mom: 1.828e-04;
#> best it: 147; best obj: 5.641e-01
#> It: 148; obj: 5.641e-01; abs: 1.551e-09; rel: 2.749e-09; norm: 1.466e-01; mom: 1.390e-04;
#> best it: 148; best obj: 5.641e-01
#> It: 149; obj: 5.641e-01; abs: 8.968e-10; rel: 1.590e-09; norm: 1.466e-01; mom: 1.057e-04;
#> best it: 149; best obj: 5.641e-01
#> It: 150; obj: 5.641e-01; abs: 5.186e-10; rel: 9.193e-10; norm: 1.466e-01; mom: 8.036e-05;
#> best it: 150; best obj: 5.641e-01
#> It: 151; obj: 5.641e-01; abs: 2.999e-10; rel: 5.316e-10; norm: 1.466e-01; mom: 6.110e-05;
#> best it: 151; best obj: 5.641e-01
#> It: 152; obj: 5.641e-01; abs: 1.735e-10; rel: 3.075e-10; norm: 1.466e-01; mom: 4.646e-05;
#> best it: 152; best obj: 5.641e-01
#> It: 153; obj: 5.641e-01; abs: 1.003e-10; rel: 1.778e-10; norm: 1.466e-01; mom: 3.533e-05;
#> best it: 153; best obj: 5.641e-01
#> It: 154; obj: 5.641e-01; abs: 5.801e-11; rel: 1.028e-10; norm: 1.466e-01; mom: 2.686e-05;
#> best it: 154; best obj: 5.641e-01
#> It: 155; obj: 5.641e-01; abs: 3.355e-11; rel: 5.947e-11; norm: 1.466e-01; mom: 2.043e-05;
#> best it: 155; best obj: 5.641e-01
#> It: 156; obj: 5.641e-01; abs: 1.941e-11; rel: 3.440e-11; norm: 1.466e-01; mom: 1.554e-05;
#> best it: 156; best obj: 5.641e-01
#> It: 157; obj: 5.641e-01; abs: 1.122e-11; rel: 1.989e-11; norm: 1.466e-01; mom: 1.182e-05;
#> best it: 157; best obj: 5.641e-01
#> It: 158; obj: 5.641e-01; abs: 6.493e-12; rel: 1.151e-11; norm: 1.466e-01; mom: 8.985e-06;
#> best it: 158; best obj: 5.641e-01
#> It: 159; obj: 5.641e-01; abs: 3.756e-12; rel: 6.658e-12; norm: 1.466e-01; mom: 6.834e-06;
#> best it: 159; best obj: 5.641e-01
#> It: 160; obj: 5.641e-01; abs: 2.172e-12; rel: 3.849e-12; norm: 1.466e-01; mom: 5.197e-06;
#> best it: 160; best obj: 5.641e-01
#> It: 161; obj: 5.641e-01; abs: 1.250e-12; rel: 2.216e-12; norm: 1.466e-01; mom: 3.953e-06;
#> best it: 161; best obj: 5.641e-01
#> It: 162; obj: 5.641e-01; abs: 7.255e-13; rel: 1.286e-12; norm: 1.466e-01; mom: 3.006e-06;

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#> best it: 162; best obj: 5.641e-01
#> It: 163; obj: 5.641e-01; abs: 4.201e-13; rel: 7.447e-13; norm: 1.466e-01; mom: 2.286e-06;
#> best it: 163; best obj: 5.641e-01
#> It: 164; obj: 5.641e-01; abs: 2.447e-13; rel: 4.337e-13; norm: 1.466e-01; mom: 1.739e-06;
#> best it: 164; best obj: 5.641e-01
#> It: 165; obj: 5.641e-01; abs: 1.409e-13; rel: 2.497e-13; norm: 1.466e-01; mom: 1.322e-06;
#> best it: 165; best obj: 5.641e-01
#> It: 166; obj: 5.641e-01; abs: 8.016e-14; rel: 1.421e-13; norm: 1.466e-01; mom: 1.006e-06;
#> best it: 166; best obj: 5.641e-01
#> It: 167; obj: 5.641e-01; abs: 4.852e-14; rel: 8.600e-14; norm: 1.466e-01; mom: 7.649e-07;
#> best it: 167; best obj: 5.641e-01
#> It: 168; obj: 5.641e-01; abs: 2.864e-14; rel: 5.077e-14; norm: 1.466e-01; mom: 5.818e-07;
#> best it: 168; best obj: 5.641e-01
#> It: 169; obj: 5.641e-01; abs: 1.654e-14; rel: 2.932e-14; norm: 1.466e-01; mom: 4.425e-07;
#> best it: 169; best obj: 5.641e-01
#> It: 170; obj: 5.641e-01; abs: 4.108e-15; rel: 7.282e-15; norm: 1.466e-01; mom: 3.366e-07;
#> best it: 170; best obj: 5.641e-01
#> It: 171; obj: 5.641e-01; abs: 4.996e-15; rel: 8.856e-15; norm: 1.466e-01; mom: 2.560e-07;
#> best it: 171; best obj: 5.641e-01
#> It: 172; obj: 5.641e-01; abs: 5.884e-15; rel: 1.043e-14; norm: 1.466e-01; mom: 1.947e-07;
#> best it: 172; best obj: 5.641e-01
#> It: 173; obj: 5.641e-01; abs: 6.661e-16; rel: 1.181e-15; norm: 1.466e-01; mom: 1.481e-07;
#> best it: 173; best obj: 5.641e-01
#> It: 174; obj: 5.641e-01; abs: 1.554e-15; rel: 2.755e-15; norm: 1.466e-01; mom: 1.126e-07;
#> best it: 173; best obj: 5.641e-01
#> It: 175; obj: 5.641e-01; abs: 7.105e-15; rel: 1.260e-14; norm: 1.466e-01; mom: 8.567e-08;
#> best it: 175; best obj: 5.641e-01
#> It: 176; obj: 5.641e-01; abs: 1.443e-15; rel: 2.558e-15; norm: 1.466e-01; mom: 6.516e-08;
#> best it: 175; best obj: 5.641e-01
#> It: 177; obj: 5.641e-01; abs: 0.000e+00; rel: 0.000e+00; norm: 1.466e-01; mom: 4.956e-08;
#> best it: 175; best obj: 5.641e-01
#> It: 178; obj: 5.641e-01; abs: 2.331e-15; rel: 4.133e-15; norm: 1.466e-01; mom: 3.769e-08;
#> best it: 175; best obj: 5.641e-01
#> It: 179; obj: 5.641e-01; abs: 1.110e-15; rel: 1.968e-15; norm: 1.466e-01; mom: 2.867e-08;
#> best it: 175; best obj: 5.641e-01
#> It: 180; obj: 5.641e-01; abs: 6.328e-15; rel: 1.122e-14; norm: 1.466e-01; mom: 2.181e-08;
#> best it: 180; best obj: 5.641e-01
#> It: 181; obj: 5.641e-01; abs: 9.326e-15; rel: 1.653e-14; norm: 1.466e-01; mom: 1.659e-08;
#> best it: 180; best obj: 5.641e-01
#> It: 182; obj: 5.641e-01; abs: 2.109e-15; rel: 3.739e-15; norm: 1.466e-01; mom: 1.262e-08;
#> best it: 180; best obj: 5.641e-01
#> It: 183; obj: 5.641e-01; abs: 1.887e-15; rel: 3.346e-15; norm: 1.466e-01; mom: 9.596e-09;
#> best it: 180; best obj: 5.641e-01
#> It: 184; obj: 5.641e-01; abs: 5.329e-15; rel: 9.446e-15; norm: 1.466e-01; mom: 7.299e-09;
#> best it: 180; best obj: 5.641e-01
#> It: 185; obj: 5.641e-01; abs: 1.221e-15; rel: 2.165e-15; norm: 1.466e-01; mom: 5.552e-09;
#> best it: 180; best obj: 5.641e-01
#> It: 186; obj: 5.641e-01; abs: 1.998e-15; rel: 3.542e-15; norm: 1.466e-01; mom: 4.223e-09;
#> best it: 180; best obj: 5.641e-01
#> It: 187; obj: 5.641e-01; abs: 6.772e-15; rel: 1.200e-14; norm: 1.466e-01; mom: 3.212e-09;
#> best it: 180; best obj: 5.641e-01
#> It: 188; obj: 5.641e-01; abs: 3.664e-15; rel: 6.494e-15; norm: 1.466e-01; mom: 2.443e-09;
#> best it: 180; best obj: 5.641e-01

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#> It: 189; obj: 5.641e-01; abs: 2.442e-15; rel: 4.330e-15; norm: 1.466e-01; mom: 1.858e-09;
#> best it: 180; best obj: 5.641e-01
#> It: 190; obj: 5.641e-01; abs: 4.441e-16; rel: 7.872e-16; norm: 1.466e-01; mom: 1.414e-09;
#> best it: 180; best obj: 5.641e-01
#> It: 191; obj: 5.641e-01; abs: 4.441e-16; rel: 7.872e-16; norm: 1.466e-01; mom: 1.075e-09;
#> best it: 180; best obj: 5.641e-01
#> It: 192; obj: 5.641e-01; abs: 1.665e-15; rel: 2.952e-15; norm: 1.466e-01; mom: 8.179e-10;
#> best it: 180; best obj: 5.641e-01
#> It: 193; obj: 5.641e-01; abs: 2.331e-15; rel: 4.133e-15; norm: 1.466e-01; mom: 6.221e-10;
#> best it: 180; best obj: 5.641e-01
#> It: 194; obj: 5.641e-01; abs: 1.221e-15; rel: 2.165e-15; norm: 1.466e-01; mom: 4.732e-10;
#> best it: 180; best obj: 5.641e-01
#> It: 195; obj: 5.641e-01; abs: 5.551e-16; rel: 9.840e-16; norm: 1.466e-01; mom: 3.599e-10;
#> best it: 180; best obj: 5.641e-01
#> It: 196; obj: 5.641e-01; abs: 3.331e-16; rel: 5.904e-16; norm: 1.466e-01; mom: 2.738e-10;
#> best it: 180; best obj: 5.641e-01
#> It: 197; obj: 5.641e-01; abs: 1.110e-15; rel: 1.968e-15; norm: 1.466e-01; mom: 2.083e-10;
#> best it: 180; best obj: 5.641e-01
#> It: 198; obj: 5.641e-01; abs: 1.887e-15; rel: 3.346e-15; norm: 1.466e-01; mom: 1.584e-10;
#> best it: 180; best obj: 5.641e-01
#> It: 199; obj: 5.641e-01; abs: 1.776e-15; rel: 3.149e-15; norm: 1.466e-01; mom: 1.205e-10;
#> best it: 180; best obj: 5.641e-01
#> It: 200; obj: 5.641e-01; abs: 5.995e-15; rel: 1.063e-14; norm: 1.466e-01; mom: 9.166e-11;
#> best it: 180; best obj: 5.641e-01
#> It: 201; obj: 5.641e-01; abs: 2.220e-15; rel: 3.936e-15; norm: 1.466e-01; mom: 6.972e-11;
#> best it: 180; best obj: 5.641e-01
#> It: 202; obj: 5.641e-01; abs: 2.776e-15; rel: 4.920e-15; norm: 1.466e-01; mom: 5.303e-11;
#> best it: 180; best obj: 5.641e-01
#> It: 203; obj: 5.641e-01; abs: 2.776e-15; rel: 4.920e-15; norm: 1.466e-01; mom: 4.034e-11;
#> best it: 180; best obj: 5.641e-01
#> It: 204; obj: 5.641e-01; abs: 4.663e-15; rel: 8.266e-15; norm: 1.466e-01; mom: 3.069e-11;
#> best it: 180; best obj: 5.641e-01
#> It: 205; obj: 5.641e-01; abs: 9.992e-16; rel: 1.771e-15; norm: 1.466e-01; mom: 2.334e-11;
#> best it: 180; best obj: 5.641e-01
#> It: 206; obj: 5.641e-01; abs: 8.882e-16; rel: 1.574e-15; norm: 1.466e-01; mom: 1.775e-11;
#> best it: 180; best obj: 5.641e-01
#> It: 207; obj: 5.641e-01; abs: 2.220e-15; rel: 3.936e-15; norm: 1.466e-01; mom: 1.351e-11;
#> best it: 180; best obj: 5.641e-01
#> It: 208; obj: 5.641e-01; abs: 3.331e-16; rel: 5.904e-16; norm: 1.466e-01; mom: 1.027e-11;
#> best it: 180; best obj: 5.641e-01
#> It: 209; obj: 5.641e-01; abs: 1.332e-15; rel: 2.362e-15; norm: 1.466e-01; mom: 7.815e-12;
#> best it: 180; best obj: 5.641e-01
#> It: 210; obj: 5.641e-01; abs: 0.000e+00; rel: 0.000e+00; norm: 1.466e-01; mom: 5.944e-12;
#> best it: 180; best obj: 5.641e-01
#> It: 211; obj: 5.641e-01; abs: 8.882e-16; rel: 1.574e-15; norm: 1.466e-01; mom: 4.522e-12;
#> best it: 180; best obj: 5.641e-01
#> It: 212; obj: 5.641e-01; abs: 1.665e-15; rel: 2.952e-15; norm: 1.466e-01; mom: 3.440e-12;
#> best it: 180; best obj: 5.641e-01
#> It: 213; obj: 5.641e-01; abs: 7.772e-16; rel: 1.378e-15; norm: 1.466e-01; mom: 2.616e-12;
#> best it: 180; best obj: 5.641e-01
#> It: 214; obj: 5.641e-01; abs: 8.882e-16; rel: 1.574e-15; norm: 1.466e-01; mom: 1.990e-12;
#> best it: 180; best obj: 5.641e-01
#> It: 215; obj: 5.641e-01; abs: 6.661e-16; rel: 1.181e-15; norm: 1.466e-01; mom: 1.514e-12;

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#> best it: 180; best obj: 5.641e-01
#> It: 216; obj: 5.641e-01; abs: 4.552e-15; rel: 8.069e-15; norm: 1.466e-01; mom: 1.152e-12;
#> best it: 180; best obj: 5.641e-01
#> It: 217; obj: 5.641e-01; abs: 7.772e-16; rel: 1.378e-15; norm: 1.466e-01; mom: 8.759e-13;
#> best it: 180; best obj: 5.641e-01
#> It: 218; obj: 5.641e-01; abs: 6.328e-15; rel: 1.122e-14; norm: 1.466e-01; mom: 6.663e-13;
#> best it: 180; best obj: 5.641e-01
#> It: 219; obj: 5.641e-01; abs: 3.331e-15; rel: 5.904e-15; norm: 1.466e-01; mom: 5.068e-13;
#> best it: 180; best obj: 5.641e-01
#> It: 220; obj: 5.641e-01; abs: 6.661e-16; rel: 1.181e-15; norm: 1.466e-01; mom: 3.856e-13;
#> best it: 180; best obj: 5.641e-01
#> It: 221; obj: 5.641e-01; abs: 4.441e-16; rel: 7.872e-16; norm: 1.466e-01; mom: 2.933e-13;
#> best it: 180; best obj: 5.641e-01
#> It: 222; obj: 5.641e-01; abs: 5.551e-16; rel: 9.840e-16; norm: 1.466e-01; mom: 2.232e-13;
#> best it: 180; best obj: 5.641e-01
#> It: 223; obj: 5.641e-01; abs: 5.551e-16; rel: 9.840e-16; norm: 1.466e-01; mom: 1.698e-13;
#> best it: 180; best obj: 5.641e-01
#> It: 224; obj: 5.641e-01; abs: 1.221e-15; rel: 2.165e-15; norm: 1.466e-01; mom: 1.291e-13;
#> best it: 180; best obj: 5.641e-01
#> It: 225; obj: 5.641e-01; abs: 1.998e-15; rel: 3.542e-15; norm: 1.466e-01; mom: 9.824e-14;
#> best it: 180; best obj: 5.641e-01
#> It: 226; obj: 5.641e-01; abs: 2.109e-15; rel: 3.739e-15; norm: 1.466e-01; mom: 7.469e-14;
#> best it: 180; best obj: 5.641e-01
#> It: 227; obj: 5.641e-01; abs: 4.441e-16; rel: 7.872e-16; norm: 1.466e-01; mom: 5.684e-14;
#> best it: 180; best obj: 5.641e-01
#> It: 228; obj: 5.641e-01; abs: 7.772e-16; rel: 1.378e-15; norm: 1.466e-01; mom: 4.321e-14;
#> best it: 180; best obj: 5.641e-01
#> It: 229; obj: 5.641e-01; abs: 9.992e-16; rel: 1.771e-15; norm: 1.466e-01; mom: 3.285e-14;
#> best it: 180; best obj: 5.641e-01
#> It: 230; obj: 5.641e-01; abs: 3.331e-16; rel: 5.904e-16; norm: 1.466e-01; mom: 2.499e-14;
#> best it: 180; best obj: 5.641e-01
#> It: 231; obj: 5.641e-01; abs: 2.220e-16; rel: 3.936e-16; norm: 1.466e-01; mom: 1.908e-14;
#> best it: 180; best obj: 5.641e-01
#> It: 232; obj: 5.641e-01; abs: 4.441e-16; rel: 7.872e-16; norm: 1.466e-01; mom: 1.446e-14;
#> best it: 180; best obj: 5.641e-01
#> It: 233; obj: 5.641e-01; abs: 1.110e-16; rel: 1.968e-16; norm: 1.466e-01; mom: 1.101e-14;
#> best it: 180; best obj: 5.641e-01
#> It: 234; obj: 5.641e-01; abs: 0.000e+00; rel: 0.000e+00; norm: 1.466e-01; mom: 8.347e-15;
#> best it: 180; best obj: 5.641e-01
#> It: 235; obj: 5.641e-01; abs: 4.441e-16; rel: 7.872e-16; norm: 1.466e-01; mom: 6.422e-15;
#> best it: 180; best obj: 5.641e-01
#> It: 236; obj: 5.641e-01; abs: 1.110e-16; rel: 1.968e-16; norm: 1.466e-01; mom: 4.936e-15;
#> best it: 180; best obj: 5.641e-01
#> It: 237; obj: 5.641e-01; abs: 2.220e-16; rel: 3.936e-16; norm: 1.466e-01; mom: 3.737e-15;
#> best it: 180; best obj: 5.641e-01
#> It: 238; obj: 5.641e-01; abs: 2.220e-16; rel: 3.936e-16; norm: 1.466e-01; mom: 2.833e-15;
#> best it: 180; best obj: 5.641e-01
#> It: 239; obj: 5.641e-01; abs: 3.331e-16; rel: 5.904e-16; norm: 1.466e-01; mom: 2.205e-15;
#> best it: 180; best obj: 5.641e-01
#> It: 240; obj: 5.641e-01; abs: 2.220e-16; rel: 3.936e-16; norm: 1.466e-01; mom: 1.666e-15;
#> best it: 180; best obj: 5.641e-01
#> It: 241; obj: 5.641e-01; abs: 2.220e-16; rel: 3.936e-16; norm: 1.466e-01; mom: 1.308e-15;
#> best it: 180; best obj: 5.641e-01

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#> It: 295; obj: 5.641e-01; abs: 0.000e+00; rel: 0.000e+00; norm: 1.466e-01; mom: 6.600e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 296; obj: 5.641e-01; abs: 1.110e-16; rel: 1.968e-16; norm: 1.466e-01; mom: 5.708e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 297; obj: 5.641e-01; abs: 0.000e+00; rel: 0.000e+00; norm: 1.466e-01; mom: 5.784e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 298; obj: 5.641e-01; abs: 1.110e-16; rel: 1.968e-16; norm: 1.466e-01; mom: 6.353e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 299; obj: 5.641e-01; abs: 1.110e-16; rel: 1.968e-16; norm: 1.466e-01; mom: 5.716e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 300; obj: 5.641e-01; abs: 0.000e+00; rel: 0.000e+00; norm: 1.466e-01; mom: 5.663e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 301; obj: 5.641e-01; abs: 3.331e-16; rel: 5.904e-16; norm: 1.466e-01; mom: 6.646e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 302; obj: 5.641e-01; abs: 2.220e-16; rel: 3.936e-16; norm: 1.466e-01; mom: 6.089e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 303; obj: 5.641e-01; abs: 0.000e+00; rel: 0.000e+00; norm: 1.466e-01; mom: 6.417e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 304; obj: 5.641e-01; abs: 1.110e-16; rel: 1.968e-16; norm: 1.466e-01; mom: 7.154e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 305; obj: 5.641e-01; abs: 1.110e-16; rel: 1.968e-16; norm: 1.466e-01; mom: 6.255e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 306; obj: 5.641e-01; abs: 2.220e-16; rel: 3.936e-16; norm: 1.466e-01; mom: 5.918e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 307; obj: 5.641e-01; abs: 2.220e-16; rel: 3.936e-16; norm: 1.466e-01; mom: 5.289e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 308; obj: 5.641e-01; abs: 0.000e+00; rel: 0.000e+00; norm: 1.466e-01; mom: 6.559e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 309; obj: 5.641e-01; abs: 0.000e+00; rel: 0.000e+00; norm: 1.466e-01; mom: 6.930e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 310; obj: 5.641e-01; abs: 3.331e-16; rel: 5.904e-16; norm: 1.466e-01; mom: 6.510e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 311; obj: 5.641e-01; abs: 3.331e-16; rel: 5.904e-16; norm: 1.466e-01; mom: 6.285e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 312; obj: 5.641e-01; abs: 1.110e-16; rel: 1.968e-16; norm: 1.466e-01; mom: 6.948e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 313; obj: 5.641e-01; abs: 1.110e-16; rel: 1.968e-16; norm: 1.466e-01; mom: 5.667e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 314; obj: 5.641e-01; abs: 3.331e-16; rel: 5.904e-16; norm: 1.466e-01; mom: 6.470e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 315; obj: 5.641e-01; abs: 4.441e-16; rel: 7.872e-16; norm: 1.466e-01; mom: 5.418e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 316; obj: 5.641e-01; abs: 3.331e-16; rel: 5.904e-16; norm: 1.466e-01; mom: 6.159e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 317; obj: 5.641e-01; abs: 1.110e-16; rel: 1.968e-16; norm: 1.466e-01; mom: 6.014e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 318; obj: 5.641e-01; abs: 2.220e-16; rel: 3.936e-16; norm: 1.466e-01; mom: 6.117e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 319; obj: 5.641e-01; abs: 3.331e-16; rel: 5.904e-16; norm: 1.466e-01; mom: 6.351e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 320; obj: 5.641e-01; abs: 3.331e-16; rel: 5.904e-16; norm: 1.466e-01; mom: 6.016e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 321; obj: 5.641e-01; abs: 1.110e-16; rel: 1.968e-16; norm: 1.466e-01; mom: 6.401e-16;

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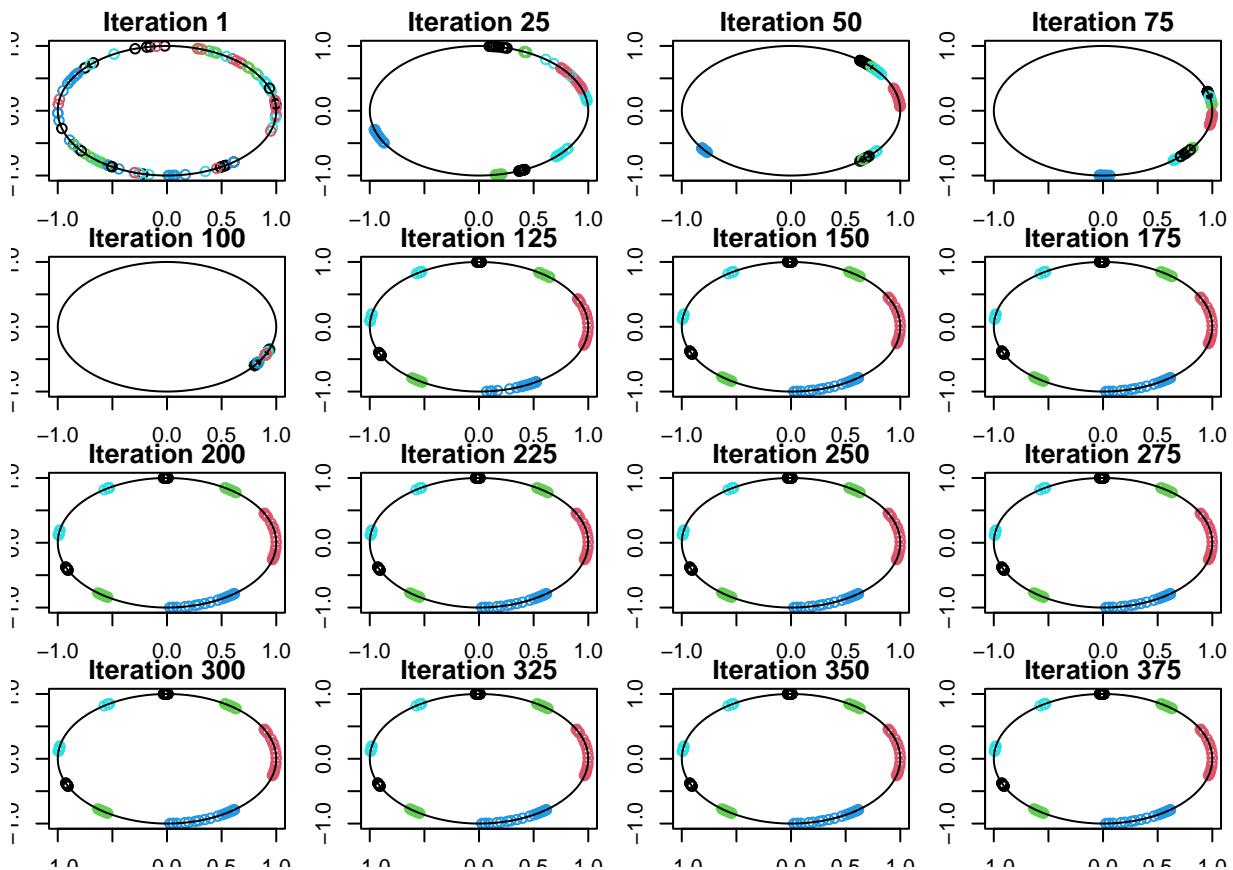


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#> It: 348; obj: 5.641e-01; abs: 1.110e-16; rel: 1.968e-16; norm: 1.466e-01; mom: 5.948e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 349; obj: 5.641e-01; abs: 0.000e+00; rel: 0.000e+00; norm: 1.466e-01; mom: 5.325e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 350; obj: 5.641e-01; abs: 3.331e-16; rel: 5.904e-16; norm: 1.466e-01; mom: 6.214e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 351; obj: 5.641e-01; abs: 3.331e-16; rel: 5.904e-16; norm: 1.466e-01; mom: 6.224e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 352; obj: 5.641e-01; abs: 1.110e-16; rel: 1.968e-16; norm: 1.466e-01; mom: 7.006e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 353; obj: 5.641e-01; abs: 0.000e+00; rel: 0.000e+00; norm: 1.466e-01; mom: 5.674e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 354; obj: 5.641e-01; abs: 2.220e-16; rel: 3.936e-16; norm: 1.466e-01; mom: 5.742e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 355; obj: 5.641e-01; abs: 4.441e-16; rel: 7.872e-16; norm: 1.466e-01; mom: 6.441e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 356; obj: 5.641e-01; abs: 2.220e-16; rel: 3.936e-16; norm: 1.466e-01; mom: 5.712e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 357; obj: 5.641e-01; abs: 0.000e+00; rel: 0.000e+00; norm: 1.466e-01; mom: 5.656e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 358; obj: 5.641e-01; abs: 1.110e-16; rel: 1.968e-16; norm: 1.466e-01; mom: 5.894e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 359; obj: 5.641e-01; abs: 1.110e-16; rel: 1.968e-16; norm: 1.466e-01; mom: 5.298e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 360; obj: 5.641e-01; abs: 0.000e+00; rel: 0.000e+00; norm: 1.466e-01; mom: 5.849e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 361; obj: 5.641e-01; abs: 2.220e-16; rel: 3.936e-16; norm: 1.466e-01; mom: 6.042e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 362; obj: 5.641e-01; abs: 3.331e-16; rel: 5.904e-16; norm: 1.466e-01; mom: 5.856e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 363; obj: 5.641e-01; abs: 2.220e-16; rel: 3.936e-16; norm: 1.466e-01; mom: 5.328e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 364; obj: 5.641e-01; abs: 0.000e+00; rel: 0.000e+00; norm: 1.466e-01; mom: 6.059e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 365; obj: 5.641e-01; abs: 1.110e-16; rel: 1.968e-16; norm: 1.466e-01; mom: 5.655e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 366; obj: 5.641e-01; abs: 2.220e-16; rel: 3.936e-16; norm: 1.466e-01; mom: 6.169e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 367; obj: 5.641e-01; abs: 1.110e-16; rel: 1.968e-16; norm: 1.466e-01; mom: 6.122e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 368; obj: 5.641e-01; abs: 0.000e+00; rel: 0.000e+00; norm: 1.466e-01; mom: 5.857e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 369; obj: 5.641e-01; abs: 1.110e-16; rel: 1.968e-16; norm: 1.466e-01; mom: 5.354e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 370; obj: 5.641e-01; abs: 0.000e+00; rel: 0.000e+00; norm: 1.466e-01; mom: 6.168e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 371; obj: 5.641e-01; abs: 0.000e+00; rel: 0.000e+00; norm: 1.466e-01; mom: 5.319e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 372; obj: 5.641e-01; abs: 1.110e-16; rel: 1.968e-16; norm: 1.466e-01; mom: 5.572e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 373; obj: 5.641e-01; abs: 1.110e-16; rel: 1.968e-16; norm: 1.466e-01; mom: 5.279e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 374; obj: 5.641e-01; abs: 1.110e-16; rel: 1.968e-16; norm: 1.466e-01; mom: 6.058e-16;

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#> best it: 180; best obj: 5.641e-01
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#> best it: 180; best obj: 5.641e-01
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#> best it: 180; best obj: 5.641e-01
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#> best it: 180; best obj: 5.641e-01
#> It: 378; obj: 5.641e-01; abs: 2.220e-16; rel: 3.936e-16; norm: 1.466e-01; mom: 6.059e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 379; obj: 5.641e-01; abs: 3.331e-16; rel: 5.904e-16; norm: 1.466e-01; mom: 5.959e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 380; obj: 5.641e-01; abs: 0.000e+00; rel: 0.000e+00; norm: 1.466e-01; mom: 5.719e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 381; obj: 5.641e-01; abs: 1.110e-16; rel: 1.968e-16; norm: 1.466e-01; mom: 6.186e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 382; obj: 5.641e-01; abs: 1.110e-16; rel: 1.968e-16; norm: 1.466e-01; mom: 6.307e-16;
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#> It: 383; obj: 5.641e-01; abs: 0.000e+00; rel: 0.000e+00; norm: 1.466e-01; mom: 5.975e-16;
#> best it: 180; best obj: 5.641e-01
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#> best it: 180; best obj: 5.641e-01
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#> best it: 180; best obj: 5.641e-01
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#> best it: 180; best obj: 5.641e-01
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#> It: 387; obj: 5.641e-01; abs: 0.000e+00; rel: 0.000e+00; norm: 1.466e-01; mom: 5.940e-16;
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#> It: 388; obj: 5.641e-01; abs: 1.110e-16; rel: 1.968e-16; norm: 1.466e-01; mom: 6.020e-16;
#> best it: 180; best obj: 5.641e-01
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#> best it: 180; best obj: 5.641e-01
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#> best it: 180; best obj: 5.641e-01
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#> best it: 180; best obj: 5.641e-01
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#> best it: 180; best obj: 5.641e-01
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#> best it: 180; best obj: 5.641e-01
#> It: 396; obj: 5.641e-01; abs: 1.110e-16; rel: 1.968e-16; norm: 1.466e-01; mom: 5.325e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 397; obj: 5.641e-01; abs: 0.000e+00; rel: 0.000e+00; norm: 1.466e-01; mom: 5.627e-16;
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#> It: 398; obj: 5.641e-01; abs: 1.110e-16; rel: 1.968e-16; norm: 1.466e-01; mom: 6.094e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 399; obj: 5.641e-01; abs: 1.110e-16; rel: 1.968e-16; norm: 1.466e-01; mom: 6.360e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 400; obj: 5.641e-01; abs: 1.110e-16; rel: 1.968e-16; norm: 1.466e-01; mom: 5.848e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 401; obj: 5.641e-01; abs: 4.441e-16; rel: 7.872e-16; norm: 1.466e-01; mom: 6.423e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 402; obj: 5.641e-01; abs: 4.441e-16; rel: 7.872e-16; norm: 1.466e-01; mom: 5.620e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 403; obj: 5.641e-01; abs: 4.441e-16; rel: 7.872e-16; norm: 1.466e-01; mom: 5.921e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 404; obj: 5.641e-01; abs: 4.441e-16; rel: 7.872e-16; norm: 1.466e-01; mom: 5.864e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 405; obj: 5.641e-01; abs: 0.000e+00; rel: 0.000e+00; norm: 1.466e-01; mom: 5.613e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 406; obj: 5.641e-01; abs: 1.110e-16; rel: 1.968e-16; norm: 1.466e-01; mom: 5.705e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 407; obj: 5.641e-01; abs: 0.000e+00; rel: 0.000e+00; norm: 1.466e-01; mom: 6.122e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 408; obj: 5.641e-01; abs: 1.110e-16; rel: 1.968e-16; norm: 1.466e-01; mom: 6.327e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 409; obj: 5.641e-01; abs: 2.220e-16; rel: 3.936e-16; norm: 1.466e-01; mom: 5.265e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 410; obj: 5.641e-01; abs: 5.551e-16; rel: 9.840e-16; norm: 1.466e-01; mom: 5.550e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 411; obj: 5.641e-01; abs: 3.331e-16; rel: 5.904e-16; norm: 1.466e-01; mom: 6.546e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 412; obj: 5.641e-01; abs: 2.220e-16; rel: 3.936e-16; norm: 1.466e-01; mom: 5.486e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 413; obj: 5.641e-01; abs: 1.110e-16; rel: 1.968e-16; norm: 1.466e-01; mom: 5.010e-16;
#> best it: 180; best obj: 5.641e-01

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#> It: 522; obj: 5.641e-01; abs: 2.220e-16; rel: 3.936e-16; norm: 1.466e-01; mom: 6.078e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 523; obj: 5.641e-01; abs: 3.331e-16; rel: 5.904e-16; norm: 1.466e-01; mom: 6.445e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 524; obj: 5.641e-01; abs: 1.110e-16; rel: 1.968e-16; norm: 1.466e-01; mom: 6.103e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 525; obj: 5.641e-01; abs: 1.110e-16; rel: 1.968e-16; norm: 1.466e-01; mom: 7.034e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 526; obj: 5.641e-01; abs: 2.220e-16; rel: 3.936e-16; norm: 1.466e-01; mom: 5.733e-16;
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#> best it: 180; best obj: 5.641e-01
#> It: 528; obj: 5.641e-01; abs: 4.441e-16; rel: 7.872e-16; norm: 1.466e-01; mom: 6.468e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 529; obj: 5.641e-01; abs: 4.441e-16; rel: 7.872e-16; norm: 1.466e-01; mom: 5.912e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 530; obj: 5.641e-01; abs: 0.000e+00; rel: 0.000e+00; norm: 1.466e-01; mom: 6.328e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 531; obj: 5.641e-01; abs: 2.220e-16; rel: 3.936e-16; norm: 1.466e-01; mom: 6.757e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 532; obj: 5.641e-01; abs: 1.110e-16; rel: 1.968e-16; norm: 1.466e-01; mom: 5.936e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 533; obj: 5.641e-01; abs: 3.331e-16; rel: 5.904e-16; norm: 1.466e-01; mom: 6.114e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 534; obj: 5.641e-01; abs: 1.110e-16; rel: 1.968e-16; norm: 1.466e-01; mom: 5.922e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 535; obj: 5.641e-01; abs: 0.000e+00; rel: 0.000e+00; norm: 1.466e-01; mom: 5.877e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 536; obj: 5.641e-01; abs: 0.000e+00; rel: 0.000e+00; norm: 1.466e-01; mom: 6.146e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 537; obj: 5.641e-01; abs: 1.110e-16; rel: 1.968e-16; norm: 1.466e-01; mom: 5.589e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 538; obj: 5.641e-01; abs: 2.220e-16; rel: 3.936e-16; norm: 1.466e-01; mom: 5.998e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 539; obj: 5.641e-01; abs: 1.110e-16; rel: 1.968e-16; norm: 1.466e-01; mom: 5.792e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 540; obj: 5.641e-01; abs: 1.110e-16; rel: 1.968e-16; norm: 1.466e-01; mom: 6.336e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 541; obj: 5.641e-01; abs: 1.110e-16; rel: 1.968e-16; norm: 1.466e-01; mom: 6.186e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 542; obj: 5.641e-01; abs: 1.110e-16; rel: 1.968e-16; norm: 1.466e-01; mom: 5.874e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 543; obj: 5.641e-01; abs: 2.220e-16; rel: 3.936e-16; norm: 1.466e-01; mom: 6.451e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 544; obj: 5.641e-01; abs: 1.110e-16; rel: 1.968e-16; norm: 1.466e-01; mom: 6.557e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 545; obj: 5.641e-01; abs: 1.110e-16; rel: 1.968e-16; norm: 1.466e-01; mom: 6.251e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 546; obj: 5.641e-01; abs: 1.110e-16; rel: 1.968e-16; norm: 1.466e-01; mom: 5.958e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 547; obj: 5.641e-01; abs: 2.220e-16; rel: 3.936e-16; norm: 1.466e-01; mom: 5.755e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 548; obj: 5.641e-01; abs: 1.110e-16; rel: 1.968e-16; norm: 1.466e-01; mom: 6.408e-16;
#> best it: 180; best obj: 5.641e-01

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#> It: 549; obj: 5.641e-01; abs: 1.110e-16; rel: 1.968e-16; norm: 1.466e-01; mom: 5.882e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 550; obj: 5.641e-01; abs: 2.220e-16; rel: 3.936e-16; norm: 1.466e-01; mom: 6.751e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 551; obj: 5.641e-01; abs: 2.220e-16; rel: 3.936e-16; norm: 1.466e-01; mom: 5.592e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 552; obj: 5.641e-01; abs: 0.000e+00; rel: 0.000e+00; norm: 1.466e-01; mom: 6.236e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 553; obj: 5.641e-01; abs: 1.110e-16; rel: 1.968e-16; norm: 1.466e-01; mom: 5.361e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 554; obj: 5.641e-01; abs: 2.220e-16; rel: 3.936e-16; norm: 1.466e-01; mom: 6.060e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 555; obj: 5.641e-01; abs: 2.220e-16; rel: 3.936e-16; norm: 1.466e-01; mom: 5.831e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 556; obj: 5.641e-01; abs: 2.220e-16; rel: 3.936e-16; norm: 1.466e-01; mom: 5.747e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 557; obj: 5.641e-01; abs: 1.110e-16; rel: 1.968e-16; norm: 1.466e-01; mom: 5.921e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 558; obj: 5.641e-01; abs: 4.441e-16; rel: 7.872e-16; norm: 1.466e-01; mom: 6.222e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 559; obj: 5.641e-01; abs: 4.441e-16; rel: 7.872e-16; norm: 1.466e-01; mom: 6.396e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 560; obj: 5.641e-01; abs: 0.000e+00; rel: 0.000e+00; norm: 1.466e-01; mom: 5.267e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 561; obj: 5.641e-01; abs: 4.441e-16; rel: 7.872e-16; norm: 1.466e-01; mom: 5.853e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 562; obj: 5.641e-01; abs: 3.331e-16; rel: 5.904e-16; norm: 1.466e-01; mom: 6.353e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 563; obj: 5.641e-01; abs: 1.110e-16; rel: 1.968e-16; norm: 1.466e-01; mom: 5.716e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 564; obj: 5.641e-01; abs: 1.110e-16; rel: 1.968e-16; norm: 1.466e-01; mom: 6.259e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 565; obj: 5.641e-01; abs: 3.331e-16; rel: 5.904e-16; norm: 1.466e-01; mom: 5.423e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 566; obj: 5.641e-01; abs: 1.110e-16; rel: 1.968e-16; norm: 1.466e-01; mom: 5.566e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 567; obj: 5.641e-01; abs: 4.441e-16; rel: 7.872e-16; norm: 1.466e-01; mom: 5.976e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 568; obj: 5.641e-01; abs: 2.220e-16; rel: 3.936e-16; norm: 1.466e-01; mom: 6.022e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 569; obj: 5.641e-01; abs: 0.000e+00; rel: 0.000e+00; norm: 1.466e-01; mom: 6.204e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 570; obj: 5.641e-01; abs: 2.220e-16; rel: 3.936e-16; norm: 1.466e-01; mom: 6.342e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 571; obj: 5.641e-01; abs: 0.000e+00; rel: 0.000e+00; norm: 1.466e-01; mom: 5.762e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 572; obj: 5.641e-01; abs: 2.220e-16; rel: 3.936e-16; norm: 1.466e-01; mom: 5.974e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 573; obj: 5.641e-01; abs: 0.000e+00; rel: 0.000e+00; norm: 1.466e-01; mom: 6.215e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 574; obj: 5.641e-01; abs: 4.441e-16; rel: 7.872e-16; norm: 1.466e-01; mom: 5.515e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 575; obj: 5.641e-01; abs: 6.661e-16; rel: 1.181e-15; norm: 1.466e-01; mom: 5.572e-16;
#> best it: 180; best obj: 5.641e-01

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#> It: 576; obj: 5.641e-01; abs: 4.441e-16; rel: 7.872e-16; norm: 1.466e-01; mom: 5.895e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 577; obj: 5.641e-01; abs: 4.441e-16; rel: 7.872e-16; norm: 1.466e-01; mom: 5.338e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 578; obj: 5.641e-01; abs: 0.000e+00; rel: 0.000e+00; norm: 1.466e-01; mom: 6.105e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 579; obj: 5.641e-01; abs: 5.551e-16; rel: 9.840e-16; norm: 1.466e-01; mom: 5.977e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 580; obj: 5.641e-01; abs: 0.000e+00; rel: 0.000e+00; norm: 1.466e-01; mom: 5.978e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 581; obj: 5.641e-01; abs: 3.331e-16; rel: 5.904e-16; norm: 1.466e-01; mom: 6.809e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 582; obj: 5.641e-01; abs: 2.220e-16; rel: 3.936e-16; norm: 1.466e-01; mom: 5.899e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 583; obj: 5.641e-01; abs: 4.441e-16; rel: 7.872e-16; norm: 1.466e-01; mom: 5.847e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 584; obj: 5.641e-01; abs: 3.331e-16; rel: 5.904e-16; norm: 1.466e-01; mom: 6.477e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 585; obj: 5.641e-01; abs: 0.000e+00; rel: 0.000e+00; norm: 1.466e-01; mom: 6.194e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 586; obj: 5.641e-01; abs: 1.110e-16; rel: 1.968e-16; norm: 1.466e-01; mom: 6.391e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 587; obj: 5.641e-01; abs: 1.110e-16; rel: 1.968e-16; norm: 1.466e-01; mom: 6.821e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 588; obj: 5.641e-01; abs: 2.220e-16; rel: 3.936e-16; norm: 1.466e-01; mom: 6.169e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 589; obj: 5.641e-01; abs: 2.220e-16; rel: 3.936e-16; norm: 1.466e-01; mom: 6.310e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 590; obj: 5.641e-01; abs: 0.000e+00; rel: 0.000e+00; norm: 1.466e-01; mom: 5.669e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 591; obj: 5.641e-01; abs: 2.220e-16; rel: 3.936e-16; norm: 1.466e-01; mom: 7.426e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 592; obj: 5.641e-01; abs: 3.331e-16; rel: 5.904e-16; norm: 1.466e-01; mom: 5.771e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 593; obj: 5.641e-01; abs: 2.220e-16; rel: 3.936e-16; norm: 1.466e-01; mom: 5.819e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 594; obj: 5.641e-01; abs: 2.220e-16; rel: 3.936e-16; norm: 1.466e-01; mom: 5.150e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 595; obj: 5.641e-01; abs: 0.000e+00; rel: 0.000e+00; norm: 1.466e-01; mom: 5.713e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 596; obj: 5.641e-01; abs: 0.000e+00; rel: 0.000e+00; norm: 1.466e-01; mom: 5.697e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 597; obj: 5.641e-01; abs: 4.441e-16; rel: 7.872e-16; norm: 1.466e-01; mom: 5.717e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 598; obj: 5.641e-01; abs: 7.772e-16; rel: 1.378e-15; norm: 1.466e-01; mom: 5.154e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 599; obj: 5.641e-01; abs: 0.000e+00; rel: 0.000e+00; norm: 1.466e-01; mom: 5.613e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 600; obj: 5.641e-01; abs: 3.331e-16; rel: 5.904e-16; norm: 1.466e-01; mom: 5.385e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 601; obj: 5.641e-01; abs: 0.000e+00; rel: 0.000e+00; norm: 1.466e-01; mom: 6.523e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 602; obj: 5.641e-01; abs: 1.110e-16; rel: 1.968e-16; norm: 1.466e-01; mom: 6.165e-16;
#> best it: 180; best obj: 5.641e-01

```









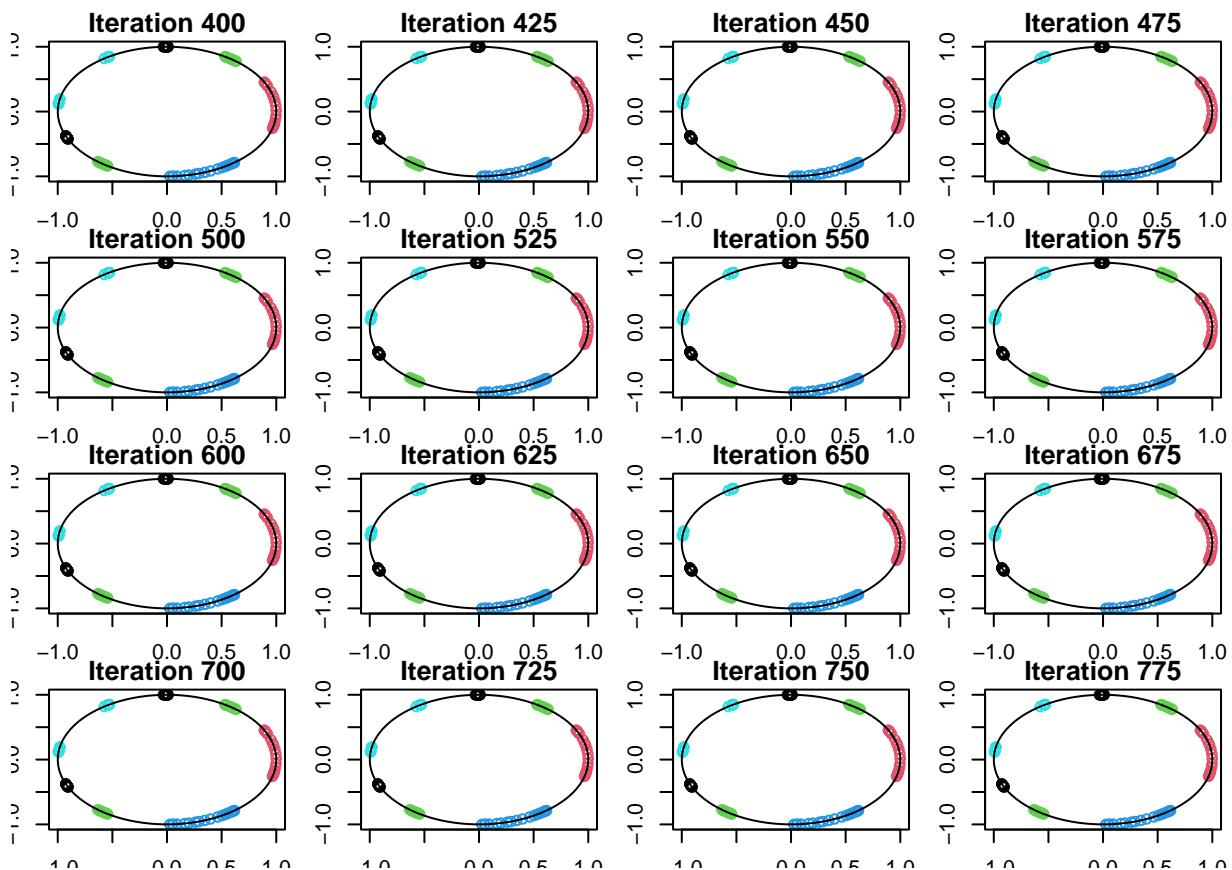




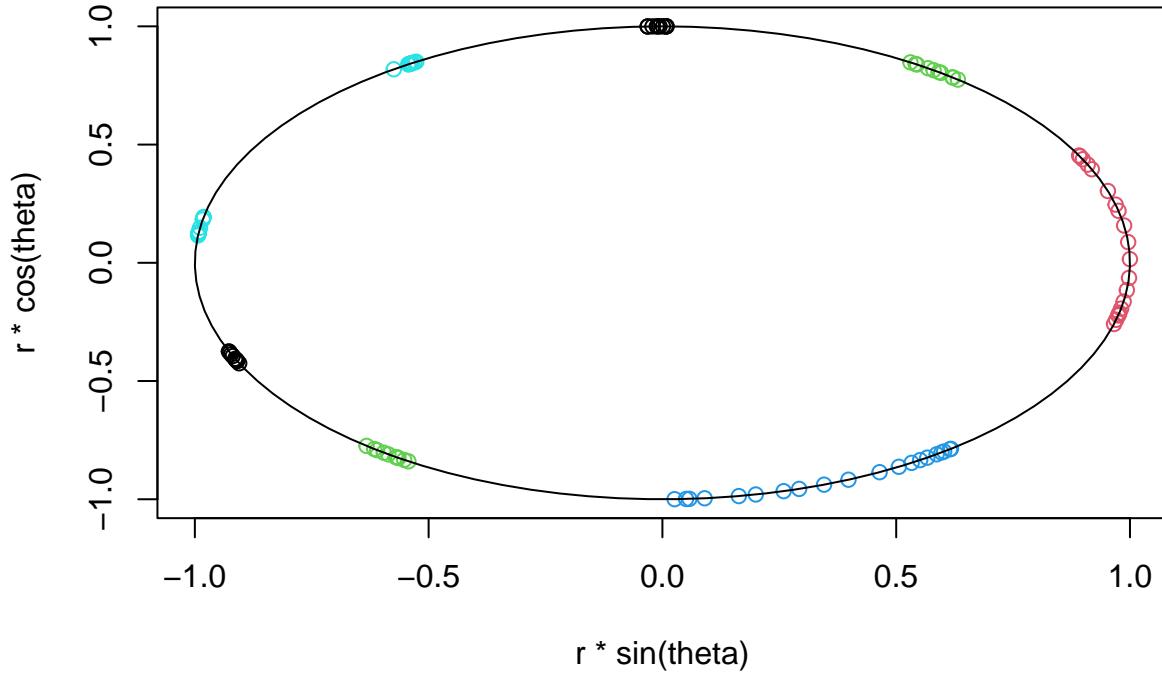
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#> It: 765; obj: 5.641e-01; abs: 3.331e-16; rel: 5.904e-16; norm: 1.466e-01; mom: 5.596e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 766; obj: 5.641e-01; abs: 2.220e-16; rel: 3.936e-16; norm: 1.466e-01; mom: 5.955e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 767; obj: 5.641e-01; abs: 1.110e-16; rel: 1.968e-16; norm: 1.466e-01; mom: 5.896e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 768; obj: 5.641e-01; abs: 3.331e-16; rel: 5.904e-16; norm: 1.466e-01; mom: 6.352e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 769; obj: 5.641e-01; abs: 0.000e+00; rel: 0.000e+00; norm: 1.466e-01; mom: 5.327e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 770; obj: 5.641e-01; abs: 2.220e-16; rel: 3.936e-16; norm: 1.466e-01; mom: 5.835e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 771; obj: 5.641e-01; abs: 0.000e+00; rel: 0.000e+00; norm: 1.466e-01; mom: 5.617e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 772; obj: 5.641e-01; abs: 0.000e+00; rel: 0.000e+00; norm: 1.466e-01; mom: 5.985e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 773; obj: 5.641e-01; abs: 1.110e-16; rel: 1.968e-16; norm: 1.466e-01; mom: 5.518e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 774; obj: 5.641e-01; abs: 0.000e+00; rel: 0.000e+00; norm: 1.466e-01; mom: 5.342e-16;
#> best it: 180; best obj: 5.641e-01
#> It: 775; obj: 5.641e-01; abs: 1.110e-16; rel: 1.968e-16; norm: 1.466e-01; mom: 5.533e-16;
#> best it: 180; best obj: 5.641e-01

```



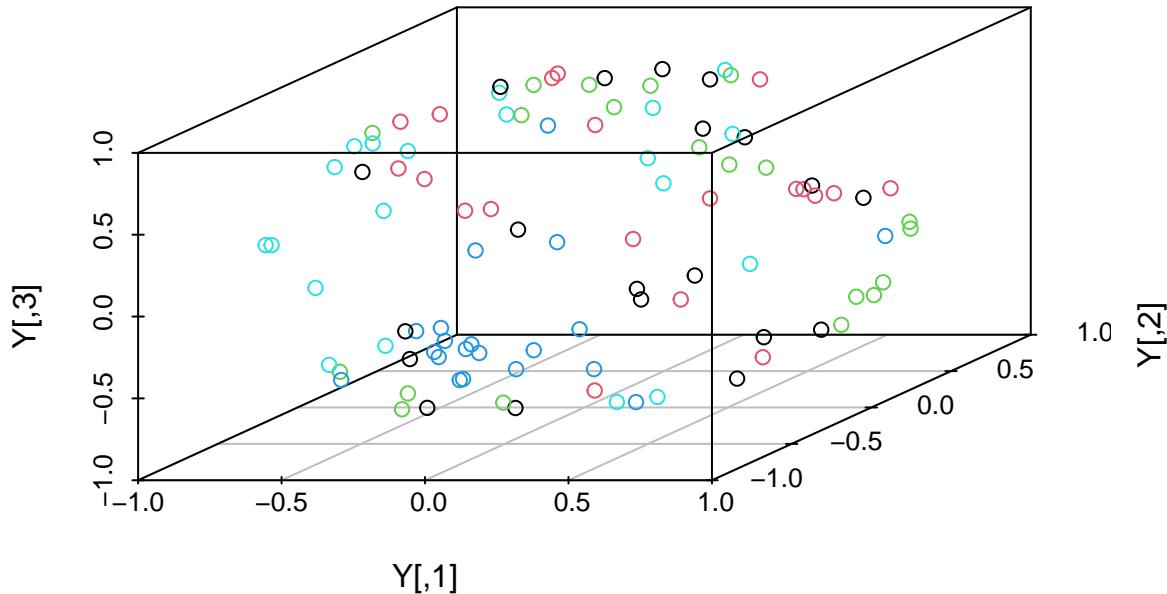
## Iteration 180



In this case, the negative correlation in some groups has an effect on the results produced by the psc-sne algorithm. Each group with negative correlation is split in two where they look like being distributed more or less antipodal. Later on, reduced on the sphere  $d = 2$ .

```
psc_sne_res_22_neg <- psc_sne(feat_data_2, d = 2, rho_psc_list = rho_list_2,
                                 colors = cols, num_iteration = 775,
                                 show_prog = TRUE, eta = 35,
                                 parallel_cores = num_cores_param)
#> It: 1; obj: 1.036e+01; abs: 0.000e+00; rel: 0.000e+00; norm: 3.283e-01; mom: 0.000e+00;
#> best it: 1; best obj: 1.036e+01
```

## Iteration 1



```

#> It: 2; obj: 8.343e+00; abs: 2.021e+00; rel: 1.950e-01; norm: 1.188e+00; mom: 3.943e+00;
#> best it: 2; best obj: 8.343e+00
#> It: 3; obj: 7.822e+00; abs: 5.213e-01; rel: 6.248e-02; norm: 1.732e+00; mom: 1.881e+00;
#> best it: 3; best obj: 7.822e+00
#> It: 4; obj: 7.571e+00; abs: 2.502e-01; rel: 3.199e-02; norm: 1.841e+00; mom: 1.154e+00;
#> best it: 4; best obj: 7.571e+00
#> It: 5; obj: 7.493e+00; abs: 7.822e-02; rel: 1.033e-02; norm: 1.903e+00; mom: 6.186e-01;
#> best it: 5; best obj: 7.493e+00
#> It: 6; obj: 7.474e+00; abs: 1.933e-02; rel: 2.580e-03; norm: 1.982e+00; mom: 3.181e-01;
#> best it: 6; best obj: 7.474e+00
#> It: 7; obj: 7.472e+00; abs: 1.472e-03; rel: 1.970e-04; norm: 2.039e+00; mom: 2.012e-01;
#> best it: 7; best obj: 7.472e+00
#> It: 8; obj: 7.471e+00; abs: 1.392e-03; rel: 1.862e-04; norm: 2.078e+00; mom: 1.476e-01;
#> best it: 8; best obj: 7.471e+00
#> It: 9; obj: 7.464e+00; abs: 7.261e-03; rel: 9.719e-04; norm: 2.113e+00; mom: 1.384e-01;
#> best it: 9; best obj: 7.464e+00
#> It: 10; obj: 7.451e+00; abs: 1.242e-02; rel: 1.664e-03; norm: 2.149e+00; mom: 1.515e-01;
#> best it: 10; best obj: 7.451e+00
#> It: 11; obj: 7.437e+00; abs: 1.413e-02; rel: 1.896e-03; norm: 2.191e+00; mom: 1.699e-01;
#> best it: 11; best obj: 7.437e+00
#> It: 12; obj: 7.427e+00; abs: 1.003e-02; rel: 1.349e-03; norm: 2.240e+00; mom: 1.897e-01;
#> best it: 12; best obj: 7.427e+00
#> It: 13; obj: 7.430e+00; abs: 2.865e-03; rel: 3.857e-04; norm: 2.299e+00; mom: 2.049e-01;
#> best it: 12; best obj: 7.427e+00
#> It: 14; obj: 7.450e+00; abs: 1.998e-02; rel: 2.689e-03; norm: 2.366e+00; mom: 2.024e-01;
#> best it: 12; best obj: 7.427e+00
#> It: 15; obj: 7.484e+00; abs: 3.358e-02; rel: 4.507e-03; norm: 2.432e+00; mom: 1.761e-01;
#> best it: 12; best obj: 7.427e+00
#> It: 16; obj: 7.526e+00; abs: 4.246e-02; rel: 5.674e-03; norm: 2.492e+00; mom: 1.409e-01;
#> best it: 12; best obj: 7.427e+00
#> It: 17; obj: 7.573e+00; abs: 4.728e-02; rel: 6.283e-03; norm: 2.545e+00; mom: 1.130e-01;

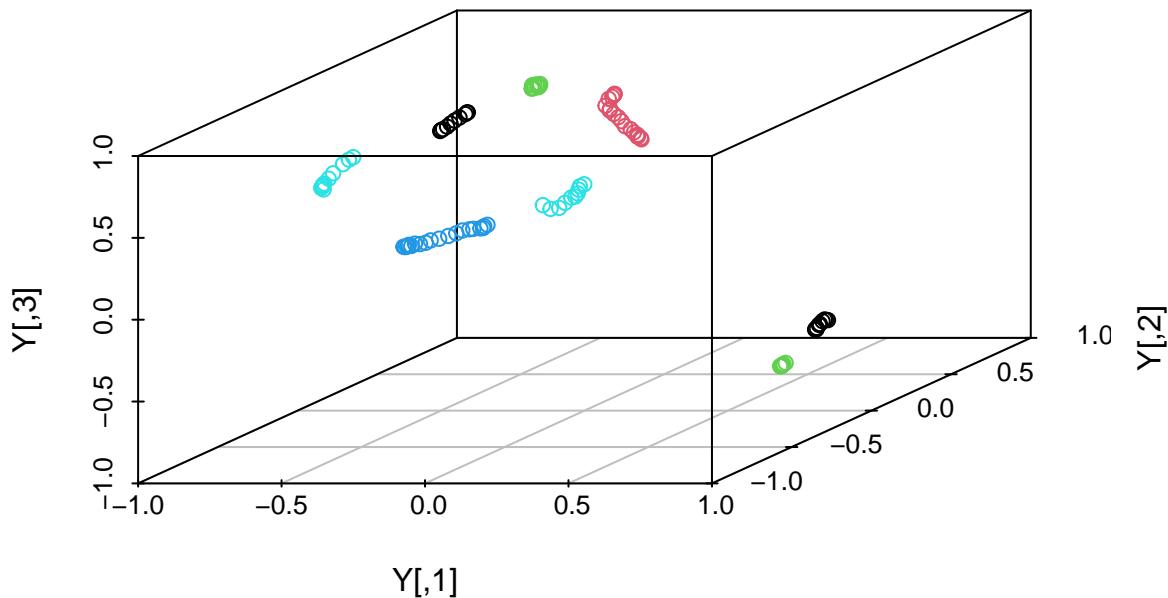
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#> best it: 12; best obj: 7.427e+00
#> It: 18; obj: 7.624e+00; abs: 5.013e-02; rel: 6.619e-03; norm: 2.596e+00; mom: 1.050e-01;
#> best it: 12; best obj: 7.427e+00
#> It: 19; obj: 7.676e+00; abs: 5.229e-02; rel: 6.860e-03; norm: 2.646e+00; mom: 1.056e-01;
#> best it: 12; best obj: 7.427e+00
#> It: 20; obj: 7.730e+00; abs: 5.452e-02; rel: 7.102e-03; norm: 2.696e+00; mom: 1.082e-01;
#> best it: 12; best obj: 7.427e+00
#> It: 21; obj: 7.788e+00; abs: 5.723e-02; rel: 7.404e-03; norm: 2.747e+00; mom: 1.112e-01;
#> best it: 12; best obj: 7.427e+00
#> It: 22; obj: 7.848e+00; abs: 6.063e-02; rel: 7.785e-03; norm: 2.798e+00; mom: 1.142e-01;
#> best it: 12; best obj: 7.427e+00
#> It: 23; obj: 7.913e+00; abs: 6.460e-02; rel: 8.232e-03; norm: 2.849e+00; mom: 1.167e-01;
#> best it: 12; best obj: 7.427e+00
#> It: 24; obj: 7.982e+00; abs: 6.883e-02; rel: 8.698e-03; norm: 2.899e+00; mom: 1.184e-01;
#> best it: 12; best obj: 7.427e+00
#> It: 25; obj: 8.054e+00; abs: 7.274e-02; rel: 9.113e-03; norm: 2.947e+00; mom: 1.192e-01;
#> best it: 12; best obj: 7.427e+00

```

## Iteration 25



```

#> It: 26; obj: 8.130e+00; abs: 7.563e-02; rel: 9.390e-03; norm: 2.994e+00; mom: 1.191e-01;
#> best it: 12; best obj: 7.427e+00
#> It: 27; obj: 8.207e+00; abs: 7.681e-02; rel: 9.448e-03; norm: 3.037e+00; mom: 1.182e-01;
#> best it: 12; best obj: 7.427e+00
#> It: 28; obj: 8.283e+00; abs: 7.571e-02; rel: 9.226e-03; norm: 3.077e+00; mom: 1.169e-01;
#> best it: 12; best obj: 7.427e+00
#> It: 29; obj: 8.355e+00; abs: 7.207e-02; rel: 8.702e-03; norm: 3.112e+00; mom: 1.160e-01;
#> best it: 12; best obj: 7.427e+00
#> It: 30; obj: 8.421e+00; abs: 6.597e-02; rel: 7.896e-03; norm: 3.145e+00; mom: 1.163e-01;
#> best it: 12; best obj: 7.427e+00
#> It: 31; obj: 8.478e+00; abs: 5.782e-02; rel: 6.867e-03; norm: 3.173e+00; mom: 1.186e-01;
#> best it: 12; best obj: 7.427e+00
#> It: 32; obj: 8.527e+00; abs: 4.840e-02; rel: 5.708e-03; norm: 3.200e+00; mom: 1.231e-01;
#> best it: 12; best obj: 7.427e+00

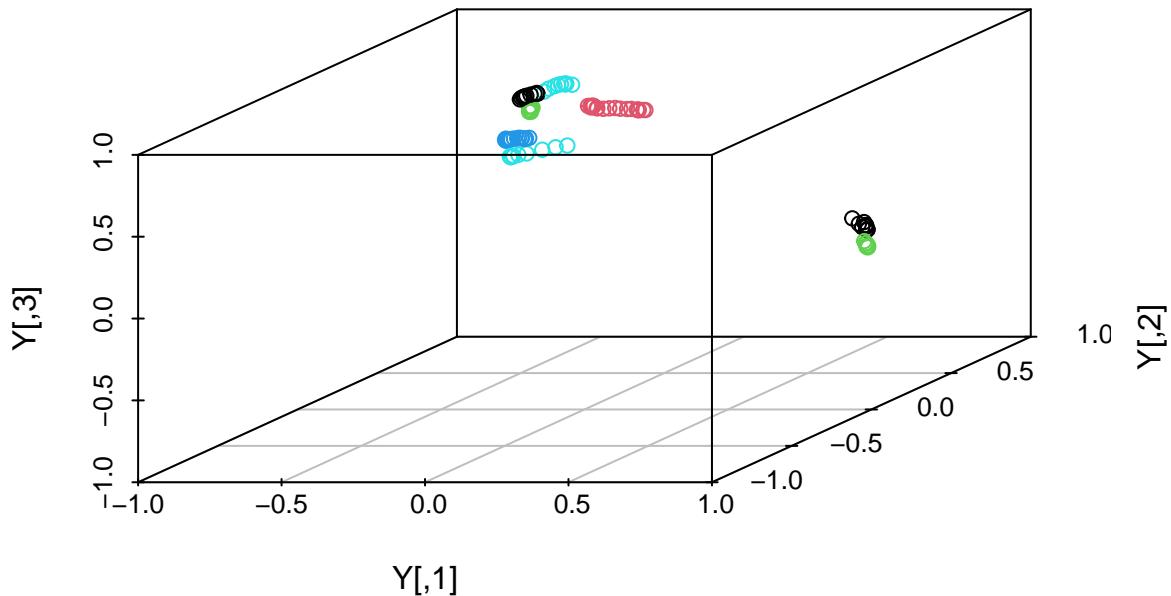
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#> It: 33; obj: 8.565e+00; abs: 3.870e-02; rel: 4.538e-03; norm: 3.225e+00; mom: 1.297e-01;
#> best it: 12; best obj: 7.427e+00
#> It: 34; obj: 8.595e+00; abs: 2.992e-02; rel: 3.493e-03; norm: 3.250e+00; mom: 1.379e-01;
#> best it: 12; best obj: 7.427e+00
#> It: 35; obj: 8.619e+00; abs: 2.338e-02; rel: 2.720e-03; norm: 3.276e+00; mom: 1.469e-01;
#> best it: 12; best obj: 7.427e+00
#> It: 36; obj: 8.639e+00; abs: 2.039e-02; rel: 2.366e-03; norm: 3.305e+00; mom: 1.560e-01;
#> best it: 12; best obj: 7.427e+00
#> It: 37; obj: 8.661e+00; abs: 2.211e-02; rel: 2.560e-03; norm: 3.338e+00; mom: 1.641e-01;
#> best it: 12; best obj: 7.427e+00
#> It: 38; obj: 8.690e+00; abs: 2.903e-02; rel: 3.352e-03; norm: 3.375e+00; mom: 1.701e-01;
#> best it: 12; best obj: 7.427e+00
#> It: 39; obj: 8.730e+00; abs: 4.012e-02; rel: 4.617e-03; norm: 3.414e+00; mom: 1.728e-01;
#> best it: 12; best obj: 7.427e+00
#> It: 40; obj: 8.783e+00; abs: 5.250e-02; rel: 6.014e-03; norm: 3.455e+00; mom: 1.717e-01;
#> best it: 12; best obj: 7.427e+00
#> It: 41; obj: 8.845e+00; abs: 6.255e-02; rel: 7.122e-03; norm: 3.493e+00; mom: 1.672e-01;
#> best it: 12; best obj: 7.427e+00
#> It: 42; obj: 8.913e+00; abs: 6.772e-02; rel: 7.656e-03; norm: 3.527e+00; mom: 1.607e-01;
#> best it: 12; best obj: 7.427e+00
#> It: 43; obj: 8.981e+00; abs: 6.733e-02; rel: 7.554e-03; norm: 3.555e+00; mom: 1.543e-01;
#> best it: 12; best obj: 7.427e+00
#> It: 44; obj: 9.043e+00; abs: 6.198e-02; rel: 6.901e-03; norm: 3.578e+00; mom: 1.493e-01;
#> best it: 12; best obj: 7.427e+00
#> It: 45; obj: 9.095e+00; abs: 5.272e-02; rel: 5.831e-03; norm: 3.596e+00; mom: 1.467e-01;
#> best it: 12; best obj: 7.427e+00
#> It: 46; obj: 9.136e+00; abs: 4.069e-02; rel: 4.473e-03; norm: 3.612e+00; mom: 1.464e-01;
#> best it: 12; best obj: 7.427e+00
#> It: 47; obj: 9.163e+00; abs: 2.690e-02; rel: 2.944e-03; norm: 3.628e+00; mom: 1.483e-01;
#> best it: 12; best obj: 7.427e+00
#> It: 48; obj: 9.175e+00; abs: 1.235e-02; rel: 1.348e-03; norm: 3.646e+00; mom: 1.520e-01;
#> best it: 12; best obj: 7.427e+00
#> It: 49; obj: 9.173e+00; abs: 1.920e-03; rel: 2.092e-04; norm: 3.671e+00; mom: 1.574e-01;
#> best it: 12; best obj: 7.427e+00
#> It: 50; obj: 9.159e+00; abs: 1.474e-02; rel: 1.606e-03; norm: 3.704e+00; mom: 1.646e-01;
#> best it: 12; best obj: 7.427e+00

```

## Iteration 50



```

#> It: 51; obj: 9.134e+00; abs: 2.469e-02; rel: 2.696e-03; norm: 3.749e+00; mom: 1.735e-01;
#> best it: 12; best obj: 7.427e+00
#> It: 52; obj: 9.104e+00; abs: 2.998e-02; rel: 3.282e-03; norm: 3.807e+00; mom: 1.836e-01;
#> best it: 12; best obj: 7.427e+00
#> It: 53; obj: 9.076e+00; abs: 2.833e-02; rel: 3.111e-03; norm: 3.880e+00; mom: 1.940e-01;
#> best it: 12; best obj: 7.427e+00
#> It: 54; obj: 9.058e+00; abs: 1.727e-02; rel: 1.903e-03; norm: 3.966e+00; mom: 2.032e-01;
#> best it: 12; best obj: 7.427e+00
#> It: 55; obj: 9.063e+00; abs: 4.415e-03; rel: 4.874e-04; norm: 4.064e+00; mom: 2.092e-01;
#> best it: 12; best obj: 7.427e+00
#> It: 56; obj: 9.097e+00; abs: 3.438e-02; rel: 3.793e-03; norm: 4.169e+00; mom: 2.098e-01;
#> best it: 12; best obj: 7.427e+00
#> It: 57; obj: 9.163e+00; abs: 6.575e-02; rel: 7.228e-03; norm: 4.275e+00; mom: 2.031e-01;
#> best it: 12; best obj: 7.427e+00
#> It: 58; obj: 9.253e+00; abs: 9.041e-02; rel: 9.867e-03; norm: 4.374e+00; mom: 1.893e-01;
#> best it: 12; best obj: 7.427e+00
#> It: 59; obj: 9.357e+00; abs: 1.039e-01; rel: 1.123e-02; norm: 4.461e+00; mom: 1.704e-01;
#> best it: 12; best obj: 7.427e+00
#> It: 60; obj: 9.464e+00; abs: 1.066e-01; rel: 1.139e-02; norm: 4.534e+00; mom: 1.494e-01;
#> best it: 12; best obj: 7.427e+00
#> It: 61; obj: 9.565e+00; abs: 1.017e-01; rel: 1.074e-02; norm: 4.593e+00; mom: 1.289e-01;
#> best it: 12; best obj: 7.427e+00
#> It: 62; obj: 9.658e+00; abs: 9.242e-02; rel: 9.662e-03; norm: 4.639e+00; mom: 1.102e-01;
#> best it: 12; best obj: 7.427e+00
#> It: 63; obj: 9.739e+00; abs: 8.143e-02; rel: 8.431e-03; norm: 4.675e+00; mom: 9.369e-02;
#> best it: 12; best obj: 7.427e+00
#> It: 64; obj: 9.810e+00; abs: 7.040e-02; rel: 7.228e-03; norm: 4.703e+00; mom: 7.960e-02;
#> best it: 12; best obj: 7.427e+00
#> It: 65; obj: 9.870e+00; abs: 6.023e-02; rel: 6.140e-03; norm: 4.724e+00; mom: 6.781e-02;
#> best it: 12; best obj: 7.427e+00
#> It: 66; obj: 9.921e+00; abs: 5.130e-02; rel: 5.197e-03; norm: 4.741e+00; mom: 5.809e-02;

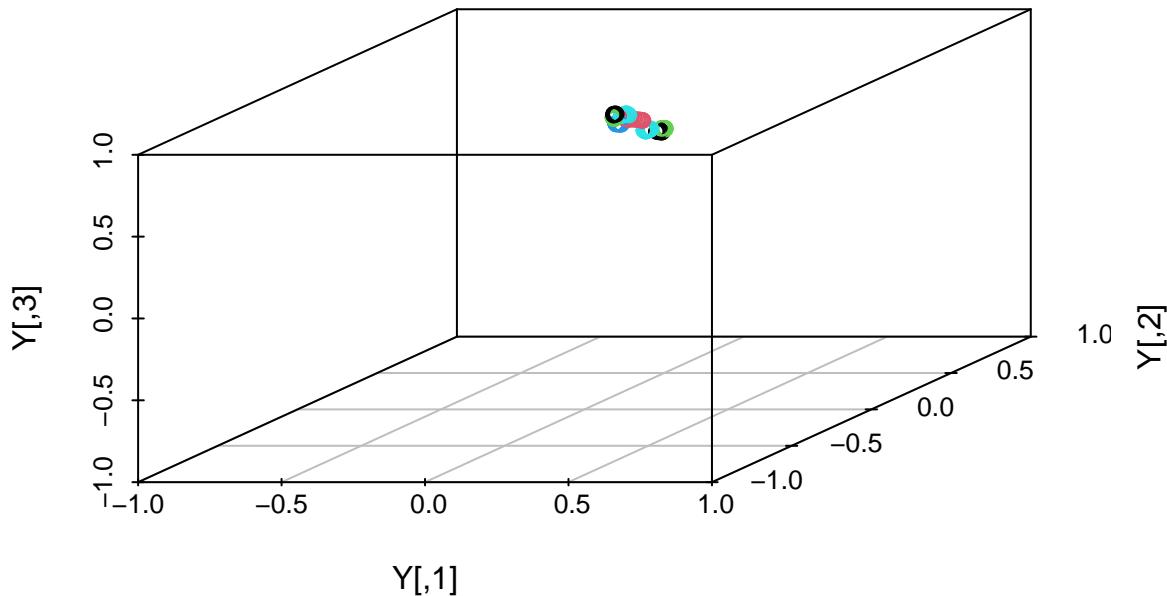
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#> best it: 12; best obj: 7.427e+00
#> It: 67; obj: 9.965e+00; abs: 4.365e-02; rel: 4.400e-03; norm: 4.754e+00; mom: 5.012e-02;
#> best it: 12; best obj: 7.427e+00
#> It: 68; obj: 1.000e+01; abs: 3.720e-02; rel: 3.734e-03; norm: 4.765e+00; mom: 4.360e-02;
#> best it: 12; best obj: 7.427e+00
#> It: 69; obj: 1.003e+01; abs: 3.180e-02; rel: 3.180e-03; norm: 4.774e+00; mom: 3.824e-02;
#> best it: 12; best obj: 7.427e+00
#> It: 70; obj: 1.006e+01; abs: 2.729e-02; rel: 2.719e-03; norm: 4.780e+00; mom: 3.380e-02;
#> best it: 12; best obj: 7.427e+00
#> It: 71; obj: 1.008e+01; abs: 2.351e-02; rel: 2.336e-03; norm: 4.786e+00; mom: 3.010e-02;
#> best it: 12; best obj: 7.427e+00
#> It: 72; obj: 1.010e+01; abs: 2.034e-02; rel: 2.017e-03; norm: 4.791e+00; mom: 2.699e-02;
#> best it: 12; best obj: 7.427e+00
#> It: 73; obj: 1.012e+01; abs: 1.767e-02; rel: 1.749e-03; norm: 4.795e+00; mom: 2.434e-02;
#> best it: 12; best obj: 7.427e+00
#> It: 74; obj: 1.014e+01; abs: 1.542e-02; rel: 1.523e-03; norm: 4.798e+00; mom: 2.208e-02;
#> best it: 12; best obj: 7.427e+00
#> It: 75; obj: 1.015e+01; abs: 1.351e-02; rel: 1.332e-03; norm: 4.801e+00; mom: 2.014e-02;
#> best it: 12; best obj: 7.427e+00

```

## Iteration 75



```

#> It: 76; obj: 1.016e+01; abs: 1.188e-02; rel: 1.170e-03; norm: 4.803e+00; mom: 1.845e-02;
#> best it: 12; best obj: 7.427e+00
#> It: 77; obj: 1.017e+01; abs: 1.049e-02; rel: 1.032e-03; norm: 4.805e+00; mom: 1.697e-02;
#> best it: 12; best obj: 7.427e+00
#> It: 78; obj: 1.018e+01; abs: 9.297e-03; rel: 9.138e-04; norm: 4.807e+00; mom: 1.567e-02;
#> best it: 12; best obj: 7.427e+00
#> It: 79; obj: 1.019e+01; abs: 8.268e-03; rel: 8.119e-04; norm: 4.809e+00; mom: 1.453e-02;
#> best it: 12; best obj: 7.427e+00
#> It: 80; obj: 1.020e+01; abs: 7.378e-03; rel: 7.239e-04; norm: 4.810e+00; mom: 1.351e-02;
#> best it: 12; best obj: 7.427e+00
#> It: 81; obj: 1.021e+01; abs: 6.604e-03; rel: 6.475e-04; norm: 4.811e+00; mom: 1.260e-02;
#> best it: 12; best obj: 7.427e+00

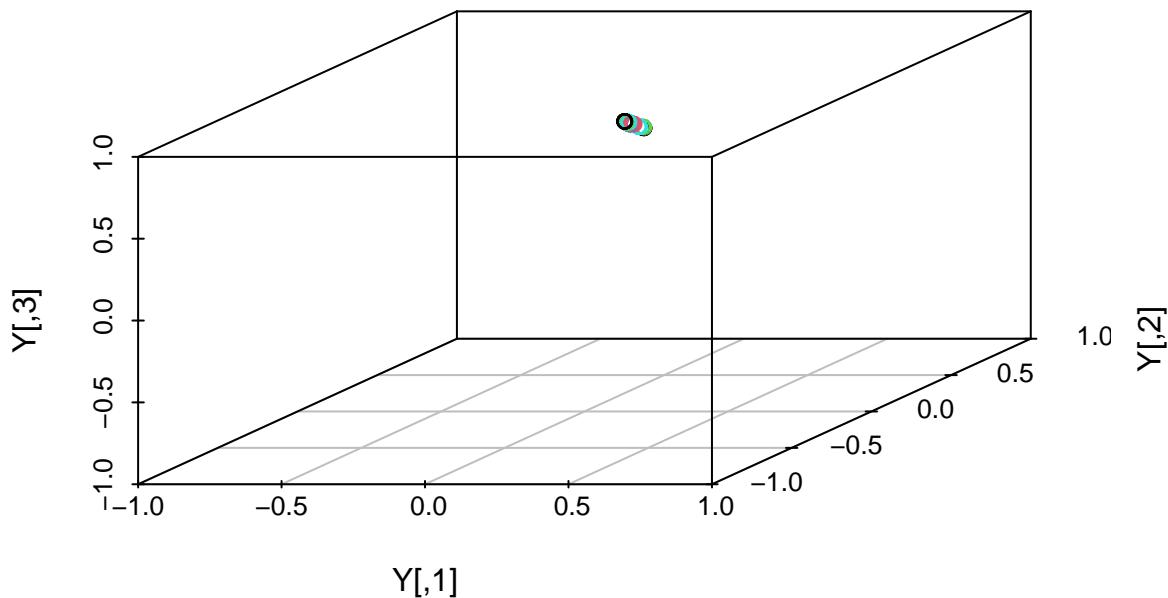
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#> It: 82; obj: 1.021e+01; abs: 5.929e-03; rel: 5.810e-04; norm: 4.812e+00; mom: 1.179e-02;
#> best it: 12; best obj: 7.427e+00
#> It: 83; obj: 1.022e+01; abs: 5.339e-03; rel: 5.229e-04; norm: 4.813e+00; mom: 1.106e-02;
#> best it: 12; best obj: 7.427e+00
#> It: 84; obj: 1.022e+01; abs: 4.821e-03; rel: 4.719e-04; norm: 4.814e+00; mom: 1.040e-02;
#> best it: 12; best obj: 7.427e+00
#> It: 85; obj: 1.023e+01; abs: 4.365e-03; rel: 4.270e-04; norm: 4.815e+00; mom: 9.798e-03;
#> best it: 12; best obj: 7.427e+00
#> It: 86; obj: 1.023e+01; abs: 3.961e-03; rel: 3.874e-04; norm: 4.816e+00; mom: 9.252e-03;
#> best it: 12; best obj: 7.427e+00
#> It: 87; obj: 1.023e+01; abs: 3.603e-03; rel: 3.522e-04; norm: 4.816e+00; mom: 8.752e-03;
#> best it: 12; best obj: 7.427e+00
#> It: 88; obj: 1.024e+01; abs: 3.285e-03; rel: 3.210e-04; norm: 4.817e+00; mom: 8.294e-03;
#> best it: 12; best obj: 7.427e+00
#> It: 89; obj: 1.024e+01; abs: 3.002e-03; rel: 2.932e-04; norm: 4.817e+00; mom: 7.872e-03;
#> best it: 12; best obj: 7.427e+00
#> It: 90; obj: 1.024e+01; abs: 2.748e-03; rel: 2.683e-04; norm: 4.818e+00; mom: 7.484e-03;
#> best it: 12; best obj: 7.427e+00
#> It: 91; obj: 1.025e+01; abs: 2.520e-03; rel: 2.461e-04; norm: 4.818e+00; mom: 7.124e-03;
#> best it: 12; best obj: 7.427e+00
#> It: 92; obj: 1.025e+01; abs: 2.316e-03; rel: 2.260e-04; norm: 4.818e+00; mom: 6.791e-03;
#> best it: 12; best obj: 7.427e+00
#> It: 93; obj: 1.025e+01; abs: 2.131e-03; rel: 2.080e-04; norm: 4.819e+00; mom: 6.481e-03;
#> best it: 12; best obj: 7.427e+00
#> It: 94; obj: 1.025e+01; abs: 1.964e-03; rel: 1.917e-04; norm: 4.819e+00; mom: 6.192e-03;
#> best it: 12; best obj: 7.427e+00
#> It: 95; obj: 1.025e+01; abs: 1.813e-03; rel: 1.769e-04; norm: 4.819e+00; mom: 5.922e-03;
#> best it: 12; best obj: 7.427e+00
#> It: 96; obj: 1.025e+01; abs: 1.676e-03; rel: 1.635e-04; norm: 4.819e+00; mom: 5.669e-03;
#> best it: 12; best obj: 7.427e+00
#> It: 97; obj: 1.026e+01; abs: 1.552e-03; rel: 1.513e-04; norm: 4.820e+00; mom: 5.432e-03;
#> best it: 12; best obj: 7.427e+00
#> It: 98; obj: 1.026e+01; abs: 1.438e-03; rel: 1.402e-04; norm: 4.820e+00; mom: 5.209e-03;
#> best it: 12; best obj: 7.427e+00
#> It: 99; obj: 1.026e+01; abs: 1.334e-03; rel: 1.300e-04; norm: 4.820e+00; mom: 4.999e-03;
#> best it: 12; best obj: 7.427e+00
#> It: 100; obj: 1.026e+01; abs: 1.239e-03; rel: 1.208e-04; norm: 4.820e+00; mom: 4.802e-03;
#> best it: 12; best obj: 7.427e+00

```

## Iteration 100



```

#> It: 101; obj: 1.191e+00; abs: 9.070e+00; rel: 8.839e-01; norm: 1.155e-01; mom: 4.615e-03;
#> best it: 101; best obj: 1.191e+00
#> It: 102; obj: 9.997e-01; abs: 1.912e-01; rel: 1.605e-01; norm: 2.027e-01; mom: 1.256e+00;
#> best it: 102; best obj: 9.997e-01
#> It: 103; obj: 8.743e-01; abs: 1.254e-01; rel: 1.255e-01; norm: 2.898e-01; mom: 2.729e+00;
#> best it: 103; best obj: 8.743e-01
#> It: 104; obj: 9.698e-01; abs: 9.557e-02; rel: 1.093e-01; norm: 3.531e-01; mom: 4.599e+00;
#> best it: 103; best obj: 8.743e-01
#> It: 105; obj: 1.182e+00; abs: 2.126e-01; rel: 2.192e-01; norm: 3.128e-01; mom: 5.214e+00;
#> best it: 103; best obj: 8.743e-01
#> It: 106; obj: 1.215e+00; abs: 3.208e-02; rel: 2.713e-02; norm: 4.350e-01; mom: 4.224e+00;
#> best it: 103; best obj: 8.743e-01
#> It: 107; obj: 1.241e+00; abs: 2.611e-02; rel: 2.150e-02; norm: 3.846e-01; mom: 4.648e+00;
#> best it: 103; best obj: 8.743e-01
#> It: 108; obj: 1.330e+00; abs: 8.922e-02; rel: 7.191e-02; norm: 3.128e-01; mom: 4.187e+00;
#> best it: 103; best obj: 8.743e-01
#> It: 109; obj: 1.375e+00; abs: 4.541e-02; rel: 3.415e-02; norm: 3.189e-01; mom: 4.443e+00;
#> best it: 103; best obj: 8.743e-01
#> It: 110; obj: 1.510e+00; abs: 1.345e-01; rel: 9.778e-02; norm: 3.303e-01; mom: 4.074e+00;
#> best it: 103; best obj: 8.743e-01
#> It: 111; obj: 1.714e+00; abs: 2.045e-01; rel: 1.354e-01; norm: 2.986e-01; mom: 4.877e+00;
#> best it: 103; best obj: 8.743e-01
#> It: 112; obj: 1.807e+00; abs: 9.317e-02; rel: 5.435e-02; norm: 3.859e-01; mom: 4.457e+00;
#> best it: 103; best obj: 8.743e-01
#> It: 113; obj: 1.861e+00; abs: 5.330e-02; rel: 2.949e-02; norm: 5.956e-01; mom: 5.179e+00;
#> best it: 103; best obj: 8.743e-01
#> It: 114; obj: 1.982e+00; abs: 1.212e-01; rel: 6.511e-02; norm: 8.945e-01; mom: 5.657e+00;
#> best it: 103; best obj: 8.743e-01
#> It: 115; obj: 1.853e+00; abs: 1.287e-01; rel: 6.493e-02; norm: 1.142e+00; mom: 6.032e+00;
#> best it: 103; best obj: 8.743e-01
#> It: 116; obj: 1.750e+00; abs: 1.029e-01; rel: 5.552e-02; norm: 1.213e+00; mom: 6.180e+00;

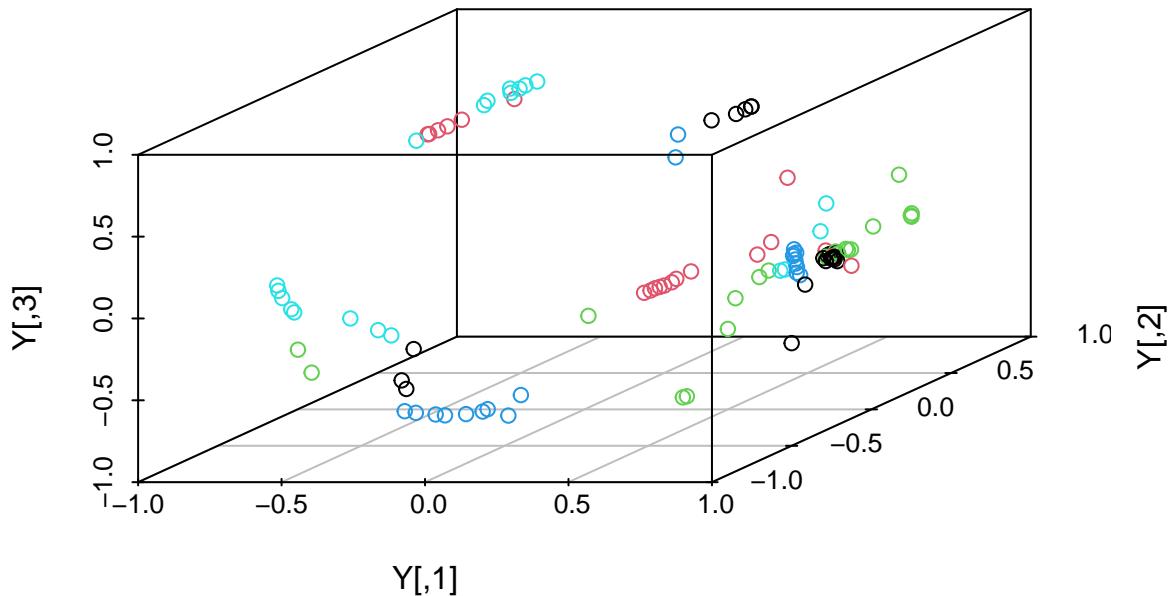
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#> best it: 103; best obj: 8.743e-01
#> It: 117; obj: 1.661e+00; abs: 8.956e-02; rel: 5.117e-02; norm: 1.131e+00; mom: 6.274e+00;
#> best it: 103; best obj: 8.743e-01
#> It: 118; obj: 1.687e+00; abs: 2.594e-02; rel: 1.562e-02; norm: 1.171e+00; mom: 6.366e+00;
#> best it: 103; best obj: 8.743e-01
#> It: 119; obj: 1.590e+00; abs: 9.625e-02; rel: 5.707e-02; norm: 1.155e+00; mom: 6.349e+00;
#> best it: 103; best obj: 8.743e-01
#> It: 120; obj: 1.583e+00; abs: 7.043e-03; rel: 4.428e-03; norm: 1.153e+00; mom: 6.385e+00;
#> best it: 103; best obj: 8.743e-01
#> It: 121; obj: 1.451e+00; abs: 1.321e-01; rel: 8.345e-02; norm: 1.107e+00; mom: 6.424e+00;
#> best it: 103; best obj: 8.743e-01
#> It: 122; obj: 1.480e+00; abs: 2.900e-02; rel: 1.998e-02; norm: 1.074e+00; mom: 6.426e+00;
#> best it: 103; best obj: 8.743e-01
#> It: 123; obj: 1.373e+00; abs: 1.068e-01; rel: 7.216e-02; norm: 1.054e+00; mom: 6.350e+00;
#> best it: 103; best obj: 8.743e-01
#> It: 124; obj: 1.430e+00; abs: 5.634e-02; rel: 4.102e-02; norm: 1.054e+00; mom: 6.295e+00;
#> best it: 103; best obj: 8.743e-01
#> It: 125; obj: 1.338e+00; abs: 9.220e-02; rel: 6.449e-02; norm: 1.018e+00; mom: 6.253e+00;
#> best it: 103; best obj: 8.743e-01

```

## Iteration 125



```

#> It: 126; obj: 1.397e+00; abs: 5.898e-02; rel: 4.409e-02; norm: 1.056e+00; mom: 6.068e+00;
#> best it: 103; best obj: 8.743e-01
#> It: 127; obj: 1.240e+00; abs: 1.564e-01; rel: 1.120e-01; norm: 1.043e+00; mom: 6.108e+00;
#> best it: 103; best obj: 8.743e-01
#> It: 128; obj: 1.318e+00; abs: 7.755e-02; rel: 6.253e-02; norm: 1.026e+00; mom: 6.030e+00;
#> best it: 103; best obj: 8.743e-01
#> It: 129; obj: 1.144e+00; abs: 1.738e-01; rel: 1.319e-01; norm: 9.697e-01; mom: 5.949e+00;
#> best it: 103; best obj: 8.743e-01
#> It: 130; obj: 1.163e+00; abs: 1.873e-02; rel: 1.638e-02; norm: 9.655e-01; mom: 5.856e+00;
#> best it: 103; best obj: 8.743e-01
#> It: 131; obj: 1.101e+00; abs: 6.163e-02; rel: 5.301e-02; norm: 8.976e-01; mom: 5.645e+00;
#> best it: 103; best obj: 8.743e-01

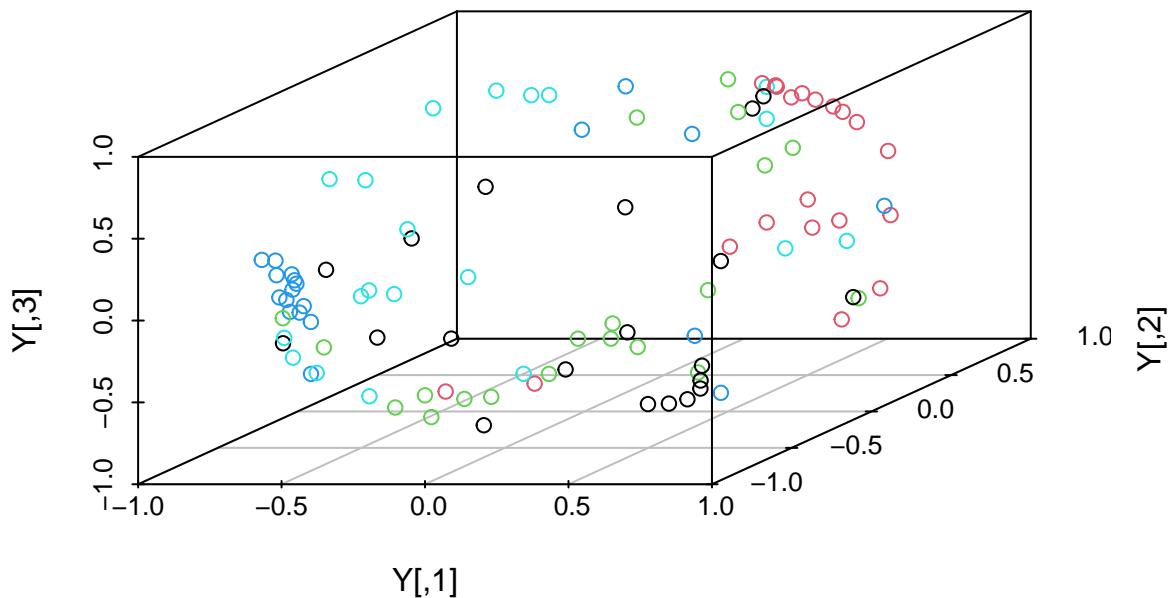
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#> It: 132; obj: 1.109e+00; abs: 8.470e-03; rel: 7.693e-03; norm: 8.982e-01; mom: 5.274e+00;
#> best it: 103; best obj: 8.743e-01
#> It: 133; obj: 1.032e+00; abs: 7.794e-02; rel: 7.025e-02; norm: 8.908e-01; mom: 5.303e+00;
#> best it: 103; best obj: 8.743e-01
#> It: 134; obj: 1.050e+00; abs: 1.854e-02; rel: 1.797e-02; norm: 8.826e-01; mom: 5.333e+00;
#> best it: 103; best obj: 8.743e-01
#> It: 135; obj: 9.173e-01; abs: 1.327e-01; rel: 1.264e-01; norm: 8.698e-01; mom: 5.192e+00;
#> best it: 103; best obj: 8.743e-01
#> It: 136; obj: 9.854e-01; abs: 6.813e-02; rel: 7.427e-02; norm: 8.359e-01; mom: 5.094e+00;
#> best it: 103; best obj: 8.743e-01
#> It: 137; obj: 8.969e-01; abs: 8.854e-02; rel: 8.985e-02; norm: 7.995e-01; mom: 5.059e+00;
#> best it: 103; best obj: 8.743e-01
#> It: 138; obj: 8.881e-01; abs: 8.730e-03; rel: 9.734e-03; norm: 7.896e-01; mom: 5.032e+00;
#> best it: 103; best obj: 8.743e-01
#> It: 139; obj: 7.915e-01; abs: 9.661e-02; rel: 1.088e-01; norm: 7.567e-01; mom: 4.948e+00;
#> best it: 139; best obj: 7.915e-01
#> It: 140; obj: 8.489e-01; abs: 5.740e-02; rel: 7.251e-02; norm: 7.021e-01; mom: 4.901e+00;
#> best it: 139; best obj: 7.915e-01
#> It: 141; obj: 7.082e-01; abs: 1.407e-01; rel: 1.657e-01; norm: 6.531e-01; mom: 4.690e+00;
#> best it: 141; best obj: 7.082e-01
#> It: 142; obj: 8.256e-01; abs: 1.173e-01; rel: 1.657e-01; norm: 5.242e-01; mom: 4.605e+00;
#> best it: 141; best obj: 7.082e-01
#> It: 143; obj: 7.319e-01; abs: 9.370e-02; rel: 1.135e-01; norm: 4.501e-01; mom: 4.181e+00;
#> best it: 141; best obj: 7.082e-01
#> It: 144; obj: 7.293e-01; abs: 2.562e-03; rel: 3.501e-03; norm: 3.937e-01; mom: 4.069e+00;
#> best it: 141; best obj: 7.082e-01
#> It: 145; obj: 6.864e-01; abs: 4.289e-02; rel: 5.881e-02; norm: 2.707e-01; mom: 3.763e+00;
#> best it: 145; best obj: 6.864e-01
#> It: 146; obj: 7.032e-01; abs: 1.676e-02; rel: 2.441e-02; norm: 1.675e-01; mom: 3.207e+00;
#> best it: 145; best obj: 6.864e-01
#> It: 147; obj: 8.621e-01; abs: 1.590e-01; rel: 2.261e-01; norm: 1.913e-01; mom: 2.042e+00;
#> best it: 145; best obj: 6.864e-01
#> It: 148; obj: 8.964e-01; abs: 3.428e-02; rel: 3.976e-02; norm: 2.255e-01; mom: 2.720e+00;
#> best it: 145; best obj: 6.864e-01
#> It: 149; obj: 1.051e+00; abs: 1.547e-01; rel: 1.726e-01; norm: 2.475e-01; mom: 2.829e+00;
#> best it: 145; best obj: 6.864e-01
#> It: 150; obj: 1.185e+00; abs: 1.342e-01; rel: 1.276e-01; norm: 2.366e-01; mom: 3.387e+00;
#> best it: 145; best obj: 6.864e-01

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## Iteration 150



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#> It: 151; obj: 1.450e+00; abs: 2.650e-01; rel: 2.236e-01; norm: 3.369e-01; mom: 3.331e+00;
#> best it: 145; best obj: 6.864e-01
#> It: 152; obj: 1.547e+00; abs: 9.680e-02; rel: 6.675e-02; norm: 3.889e-01; mom: 5.174e+00;
#> best it: 145; best obj: 6.864e-01
#> It: 153; obj: 1.740e+00; abs: 1.931e-01; rel: 1.248e-01; norm: 3.494e-01; mom: 4.794e+00;
#> best it: 145; best obj: 6.864e-01
#> It: 154; obj: 1.794e+00; abs: 5.357e-02; rel: 3.078e-02; norm: 4.195e-01; mom: 4.734e+00;
#> best it: 145; best obj: 6.864e-01
#> It: 155; obj: 1.962e+00; abs: 1.686e-01; rel: 9.401e-02; norm: 5.076e-01; mom: 5.495e+00;
#> best it: 145; best obj: 6.864e-01
#> It: 156; obj: 2.060e+00; abs: 9.718e-02; rel: 4.952e-02; norm: 7.713e-01; mom: 5.632e+00;
#> best it: 145; best obj: 6.864e-01
#> It: 157; obj: 1.984e+00; abs: 7.567e-02; rel: 3.674e-02; norm: 1.144e+00; mom: 5.996e+00;
#> best it: 145; best obj: 6.864e-01
#> It: 158; obj: 1.806e+00; abs: 1.781e-01; rel: 8.975e-02; norm: 1.237e+00; mom: 6.164e+00;
#> best it: 145; best obj: 6.864e-01
#> It: 159; obj: 1.585e+00; abs: 2.206e-01; rel: 1.222e-01; norm: 1.251e+00; mom: 6.382e+00;
#> best it: 145; best obj: 6.864e-01
#> It: 160; obj: 1.544e+00; abs: 4.076e-02; rel: 2.571e-02; norm: 1.189e+00; mom: 6.119e+00;
#> best it: 145; best obj: 6.864e-01
#> It: 161; obj: 1.444e+00; abs: 1.000e-01; rel: 6.476e-02; norm: 1.165e+00; mom: 5.925e+00;
#> best it: 145; best obj: 6.864e-01
#> It: 162; obj: 1.365e+00; abs: 7.990e-02; rel: 5.531e-02; norm: 1.143e+00; mom: 5.912e+00;
#> best it: 145; best obj: 6.864e-01
#> It: 163; obj: 1.327e+00; abs: 3.787e-02; rel: 2.775e-02; norm: 1.095e+00; mom: 5.873e+00;
#> best it: 145; best obj: 6.864e-01
#> It: 164; obj: 1.317e+00; abs: 9.220e-03; rel: 6.949e-03; norm: 1.073e+00; mom: 5.733e+00;
#> best it: 145; best obj: 6.864e-01
#> It: 165; obj: 1.238e+00; abs: 7.988e-02; rel: 6.063e-02; norm: 1.053e+00; mom: 5.663e+00;
#> best it: 145; best obj: 6.864e-01
#> It: 166; obj: 1.223e+00; abs: 1.480e-02; rel: 1.195e-02; norm: 1.035e+00; mom: 5.699e+00;

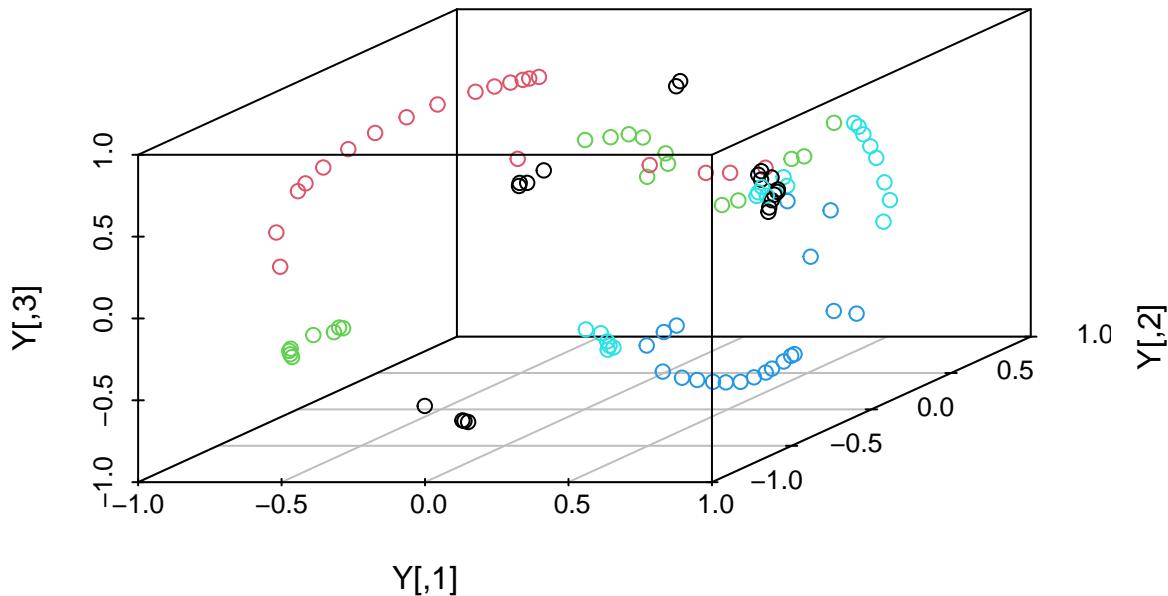
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#> best it: 145; best obj: 6.864e-01
#> It: 167; obj: 1.167e+00; abs: 5.592e-02; rel: 4.573e-02; norm: 1.082e+00; mom: 5.467e+00;
#> best it: 145; best obj: 6.864e-01
#> It: 168; obj: 1.169e+00; abs: 1.695e-03; rel: 1.453e-03; norm: 1.030e+00; mom: 5.634e+00;
#> best it: 145; best obj: 6.864e-01
#> It: 169; obj: 1.138e+00; abs: 3.064e-02; rel: 2.622e-02; norm: 1.036e+00; mom: 5.529e+00;
#> best it: 145; best obj: 6.864e-01
#> It: 170; obj: 1.140e+00; abs: 1.748e-03; rel: 1.536e-03; norm: 9.761e-01; mom: 5.538e+00;
#> best it: 145; best obj: 6.864e-01
#> It: 171; obj: 1.095e+00; abs: 4.470e-02; rel: 3.922e-02; norm: 9.961e-01; mom: 5.406e+00;
#> best it: 145; best obj: 6.864e-01
#> It: 172; obj: 1.103e+00; abs: 8.153e-03; rel: 7.445e-03; norm: 9.363e-01; mom: 5.393e+00;
#> best it: 145; best obj: 6.864e-01
#> It: 173; obj: 1.058e+00; abs: 4.499e-02; rel: 4.078e-02; norm: 9.631e-01; mom: 5.325e+00;
#> best it: 145; best obj: 6.864e-01
#> It: 174; obj: 1.064e+00; abs: 5.639e-03; rel: 5.329e-03; norm: 9.553e-01; mom: 5.350e+00;
#> best it: 145; best obj: 6.864e-01
#> It: 175; obj: 9.988e-01; abs: 6.495e-02; rel: 6.105e-02; norm: 9.735e-01; mom: 5.324e+00;
#> best it: 145; best obj: 6.864e-01

```

## Iteration 175



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#> It: 176; obj: 9.758e-01; abs: 2.307e-02; rel: 2.309e-02; norm: 8.957e-01; mom: 5.362e+00;
#> best it: 145; best obj: 6.864e-01
#> It: 177; obj: 9.312e-01; abs: 4.453e-02; rel: 4.564e-02; norm: 8.864e-01; mom: 5.073e+00;
#> best it: 145; best obj: 6.864e-01
#> It: 178; obj: 9.131e-01; abs: 1.818e-02; rel: 1.952e-02; norm: 8.432e-01; mom: 5.046e+00;
#> best it: 145; best obj: 6.864e-01
#> It: 179; obj: 9.056e-01; abs: 7.489e-03; rel: 8.202e-03; norm: 8.552e-01; mom: 4.961e+00;
#> best it: 145; best obj: 6.864e-01
#> It: 180; obj: 8.575e-01; abs: 4.807e-02; rel: 5.309e-02; norm: 8.086e-01; mom: 4.955e+00;
#> best it: 145; best obj: 6.864e-01
#> It: 181; obj: 8.520e-01; abs: 5.452e-03; rel: 6.358e-03; norm: 7.722e-01; mom: 4.923e+00;
#> best it: 145; best obj: 6.864e-01

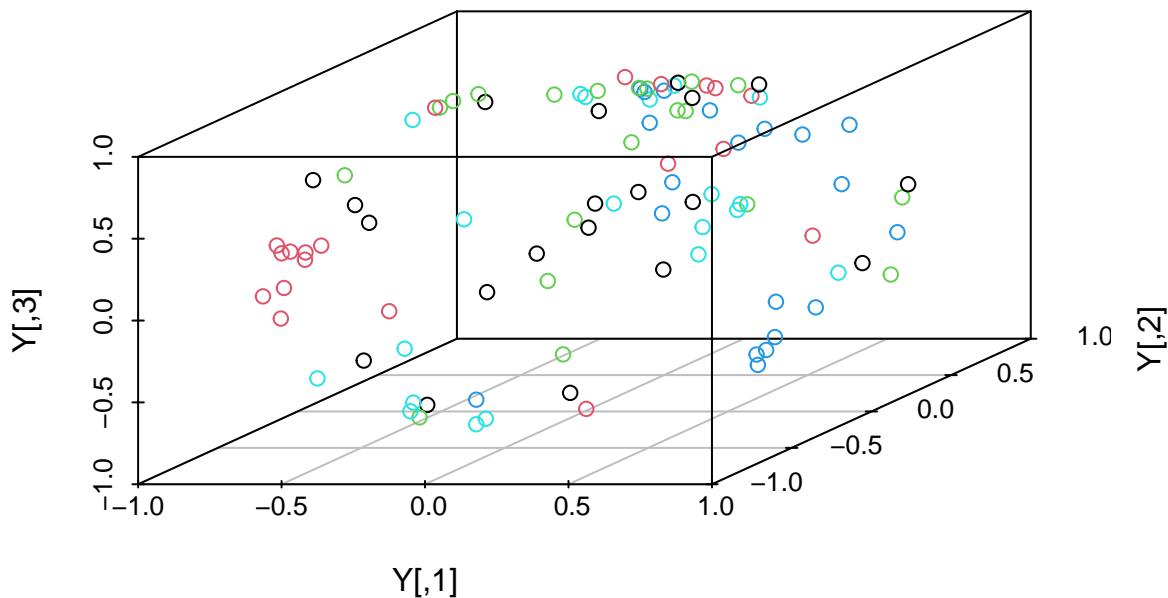
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#> It: 182; obj: 8.365e-01; abs: 1.551e-02; rel: 1.820e-02; norm: 6.935e-01; mom: 4.736e+00;
#> best it: 145; best obj: 6.864e-01
#> It: 183; obj: 8.646e-01; abs: 2.808e-02; rel: 3.356e-02; norm: 6.554e-01; mom: 4.657e+00;
#> best it: 145; best obj: 6.864e-01
#> It: 184; obj: 7.994e-01; abs: 6.526e-02; rel: 7.548e-02; norm: 5.721e-01; mom: 4.374e+00;
#> best it: 145; best obj: 6.864e-01
#> It: 185; obj: 7.990e-01; abs: 3.290e-04; rel: 4.116e-04; norm: 4.964e-01; mom: 4.259e+00;
#> best it: 145; best obj: 6.864e-01
#> It: 186; obj: 8.070e-01; abs: 7.939e-03; rel: 9.936e-03; norm: 4.238e-01; mom: 3.861e+00;
#> best it: 145; best obj: 6.864e-01
#> It: 187; obj: 8.160e-01; abs: 9.027e-03; rel: 1.119e-02; norm: 3.714e-01; mom: 3.837e+00;
#> best it: 145; best obj: 6.864e-01
#> It: 188; obj: 8.426e-01; abs: 2.660e-02; rel: 3.260e-02; norm: 3.369e-01; mom: 3.928e+00;
#> best it: 145; best obj: 6.864e-01
#> It: 189; obj: 9.937e-01; abs: 1.511e-01; rel: 1.794e-01; norm: 2.986e-01; mom: 3.665e+00;
#> best it: 145; best obj: 6.864e-01
#> It: 190; obj: 1.030e+00; abs: 3.614e-02; rel: 3.636e-02; norm: 4.083e-01; mom: 3.899e+00;
#> best it: 145; best obj: 6.864e-01
#> It: 191; obj: 9.593e-01; abs: 7.057e-02; rel: 6.852e-02; norm: 4.421e-01; mom: 4.678e+00;
#> best it: 145; best obj: 6.864e-01
#> It: 192; obj: 9.790e-01; abs: 1.975e-02; rel: 2.058e-02; norm: 3.622e-01; mom: 4.128e+00;
#> best it: 145; best obj: 6.864e-01
#> It: 193; obj: 1.041e+00; abs: 6.213e-02; rel: 6.346e-02; norm: 3.190e-01; mom: 3.747e+00;
#> best it: 145; best obj: 6.864e-01
#> It: 194; obj: 1.045e+00; abs: 4.075e-03; rel: 3.914e-03; norm: 2.808e-01; mom: 4.103e+00;
#> best it: 145; best obj: 6.864e-01
#> It: 195; obj: 1.157e+00; abs: 1.120e-01; rel: 1.072e-01; norm: 2.892e-01; mom: 3.639e+00;
#> best it: 145; best obj: 6.864e-01
#> It: 196; obj: 1.190e+00; abs: 3.281e-02; rel: 2.835e-02; norm: 3.585e-01; mom: 3.993e+00;
#> best it: 145; best obj: 6.864e-01
#> It: 197; obj: 1.308e+00; abs: 1.180e-01; rel: 9.915e-02; norm: 3.154e-01; mom: 4.534e+00;
#> best it: 145; best obj: 6.864e-01
#> It: 198; obj: 1.516e+00; abs: 2.078e-01; rel: 1.589e-01; norm: 3.333e-01; mom: 3.873e+00;
#> best it: 145; best obj: 6.864e-01
#> It: 199; obj: 1.610e+00; abs: 9.389e-02; rel: 6.194e-02; norm: 4.261e-01; mom: 4.624e+00;
#> best it: 145; best obj: 6.864e-01
#> It: 200; obj: 1.613e+00; abs: 3.039e-03; rel: 1.888e-03; norm: 5.497e-01; mom: 5.544e+00;
#> best it: 145; best obj: 6.864e-01

```

## Iteration 200



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#> It: 201; obj: 1.674e+00; abs: 6.071e-02; rel: 3.764e-02; norm: 8.240e-01; mom: 5.355e+00;
#> best it: 145; best obj: 6.864e-01
#> It: 202; obj: 1.542e+00; abs: 1.320e-01; rel: 7.885e-02; norm: 1.030e+00; mom: 5.830e+00;
#> best it: 145; best obj: 6.864e-01
#> It: 203; obj: 1.475e+00; abs: 6.631e-02; rel: 4.302e-02; norm: 1.091e+00; mom: 5.889e+00;
#> best it: 145; best obj: 6.864e-01
#> It: 204; obj: 1.352e+00; abs: 1.235e-01; rel: 8.369e-02; norm: 1.047e+00; mom: 5.706e+00;
#> best it: 145; best obj: 6.864e-01
#> It: 205; obj: 1.264e+00; abs: 8.799e-02; rel: 6.510e-02; norm: 9.860e-01; mom: 5.657e+00;
#> best it: 145; best obj: 6.864e-01
#> It: 206; obj: 1.204e+00; abs: 6.023e-02; rel: 4.766e-02; norm: 9.691e-01; mom: 5.630e+00;
#> best it: 145; best obj: 6.864e-01
#> It: 207; obj: 1.183e+00; abs: 2.092e-02; rel: 1.738e-02; norm: 9.515e-01; mom: 5.383e+00;
#> best it: 145; best obj: 6.864e-01
#> It: 208; obj: 1.104e+00; abs: 7.853e-02; rel: 6.640e-02; norm: 9.074e-01; mom: 5.378e+00;
#> best it: 145; best obj: 6.864e-01
#> It: 209; obj: 1.022e+00; abs: 8.258e-02; rel: 7.480e-02; norm: 8.764e-01; mom: 5.387e+00;
#> best it: 145; best obj: 6.864e-01
#> It: 210; obj: 1.087e+00; abs: 6.516e-02; rel: 6.379e-02; norm: 8.310e-01; mom: 5.500e+00;
#> best it: 145; best obj: 6.864e-01
#> It: 211; obj: 9.300e-01; abs: 1.567e-01; rel: 1.442e-01; norm: 8.583e-01; mom: 5.185e+00;
#> best it: 145; best obj: 6.864e-01
#> It: 212; obj: 9.090e-01; abs: 2.107e-02; rel: 2.266e-02; norm: 7.683e-01; mom: 5.286e+00;
#> best it: 145; best obj: 6.864e-01
#> It: 213; obj: 8.139e-01; abs: 9.505e-02; rel: 1.046e-01; norm: 7.259e-01; mom: 5.057e+00;
#> best it: 145; best obj: 6.864e-01
#> It: 214; obj: 8.263e-01; abs: 1.240e-02; rel: 1.524e-02; norm: 6.610e-01; mom: 4.895e+00;
#> best it: 145; best obj: 6.864e-01
#> It: 215; obj: 6.958e-01; abs: 1.306e-01; rel: 1.580e-01; norm: 6.088e-01; mom: 4.838e+00;
#> best it: 145; best obj: 6.864e-01
#> It: 216; obj: 7.292e-01; abs: 3.341e-02; rel: 4.801e-02; norm: 4.554e-01; mom: 4.754e+00;

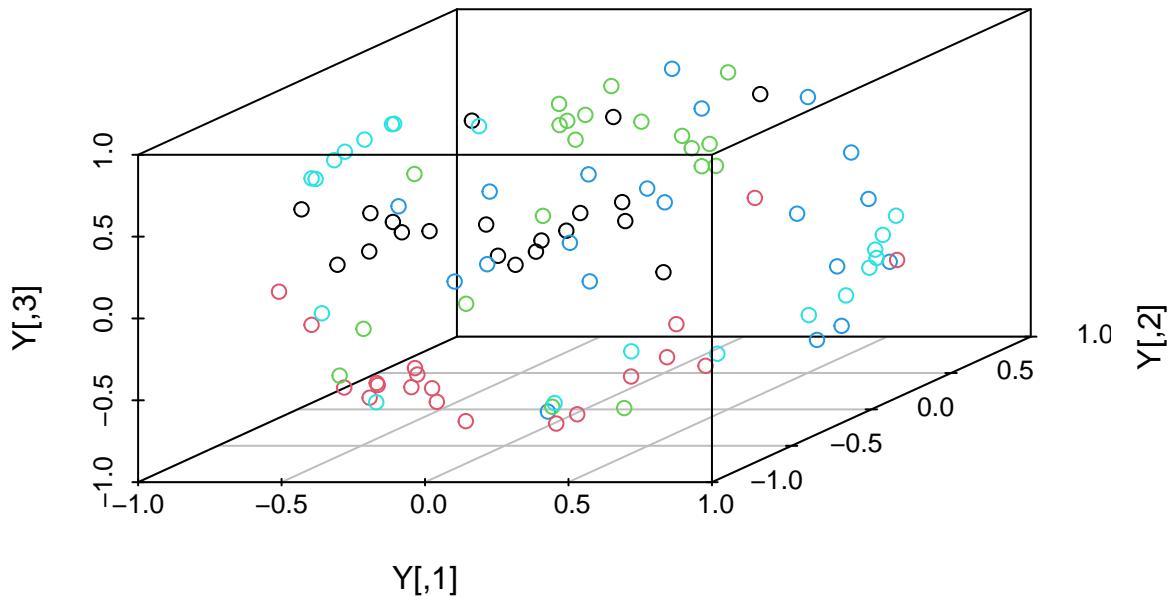
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#> best it: 145; best obj: 6.864e-01
#> It: 217; obj: 7.047e-01; abs: 2.450e-02; rel: 3.360e-02; norm: 2.383e-01; mom: 4.142e+00;
#> best it: 145; best obj: 6.864e-01
#> It: 218; obj: 8.015e-01; abs: 9.685e-02; rel: 1.374e-01; norm: 1.827e-01; mom: 2.360e+00;
#> best it: 145; best obj: 6.864e-01
#> It: 219; obj: 7.028e-01; abs: 9.872e-02; rel: 1.232e-01; norm: 1.867e-01; mom: 2.299e+00;
#> best it: 145; best obj: 6.864e-01
#> It: 220; obj: 6.291e-01; abs: 7.367e-02; rel: 1.048e-01; norm: 2.162e-01; mom: 2.450e+00;
#> best it: 220; best obj: 6.291e-01
#> It: 221; obj: 6.514e-01; abs: 2.224e-02; rel: 3.534e-02; norm: 2.090e-01; mom: 2.588e+00;
#> best it: 220; best obj: 6.291e-01
#> It: 222; obj: 7.648e-01; abs: 1.134e-01; rel: 1.741e-01; norm: 2.178e-01; mom: 2.427e+00;
#> best it: 220; best obj: 6.291e-01
#> It: 223; obj: 8.556e-01; abs: 9.085e-02; rel: 1.188e-01; norm: 2.308e-01; mom: 2.558e+00;
#> best it: 220; best obj: 6.291e-01
#> It: 224; obj: 9.879e-01; abs: 1.323e-01; rel: 1.546e-01; norm: 2.901e-01; mom: 3.085e+00;
#> best it: 220; best obj: 6.291e-01
#> It: 225; obj: 1.089e+00; abs: 1.007e-01; rel: 1.020e-01; norm: 2.430e-01; mom: 3.679e+00;
#> best it: 220; best obj: 6.291e-01

```

## Iteration 225



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#> It: 226; obj: 1.203e+00; abs: 1.146e-01; rel: 1.052e-01; norm: 3.642e-01; mom: 3.634e+00;
#> best it: 220; best obj: 6.291e-01
#> It: 227; obj: 1.398e+00; abs: 1.944e-01; rel: 1.616e-01; norm: 3.727e-01; mom: 4.610e+00;
#> best it: 220; best obj: 6.291e-01
#> It: 228; obj: 1.510e+00; abs: 1.125e-01; rel: 8.046e-02; norm: 3.498e-01; mom: 4.400e+00;
#> best it: 220; best obj: 6.291e-01
#> It: 229; obj: 1.680e+00; abs: 1.696e-01; rel: 1.123e-01; norm: 4.142e-01; mom: 4.505e+00;
#> best it: 220; best obj: 6.291e-01
#> It: 230; obj: 1.721e+00; abs: 4.111e-02; rel: 2.447e-02; norm: 4.848e-01; mom: 5.092e+00;
#> best it: 220; best obj: 6.291e-01
#> It: 231; obj: 1.854e+00; abs: 1.328e-01; rel: 7.718e-02; norm: 6.471e-01; mom: 5.571e+00;
#> best it: 220; best obj: 6.291e-01

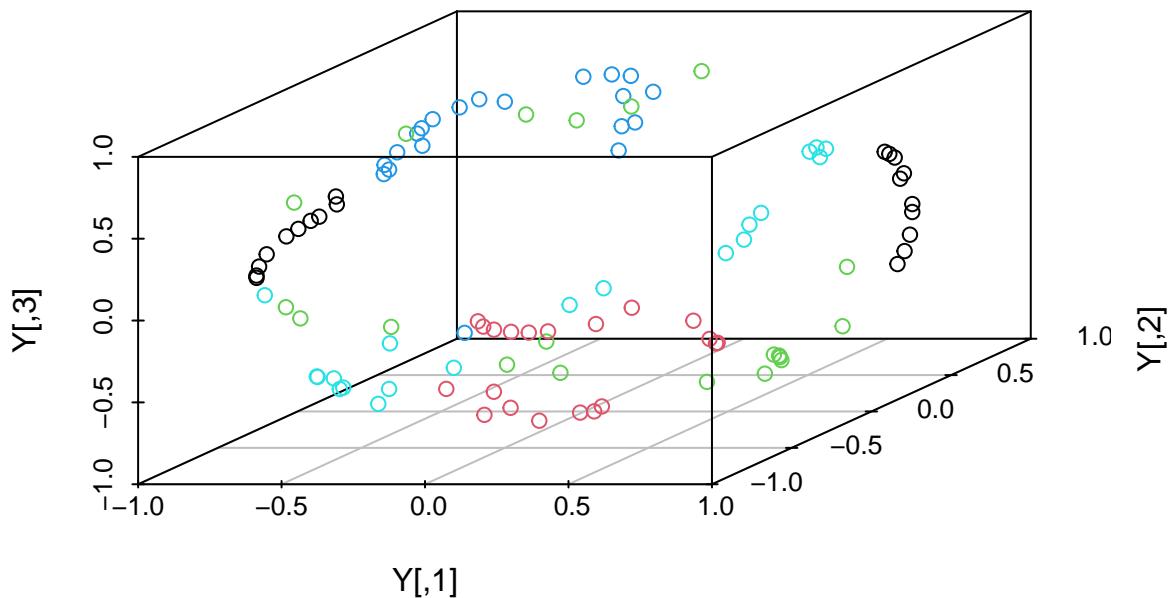
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#> It: 232; obj: 1.834e+00; abs: 1.914e-02; rel: 1.033e-02; norm: 8.559e-01; mom: 5.933e+00;
#> best it: 220; best obj: 6.291e-01
#> It: 233; obj: 1.741e+00; abs: 9.326e-02; rel: 5.084e-02; norm: 1.026e+00; mom: 5.644e+00;
#> best it: 220; best obj: 6.291e-01
#> It: 234; obj: 1.648e+00; abs: 9.353e-02; rel: 5.371e-02; norm: 1.112e+00; mom: 6.058e+00;
#> best it: 220; best obj: 6.291e-01
#> It: 235; obj: 1.584e+00; abs: 6.388e-02; rel: 3.877e-02; norm: 1.157e+00; mom: 5.904e+00;
#> best it: 220; best obj: 6.291e-01
#> It: 236; obj: 1.578e+00; abs: 5.806e-03; rel: 3.666e-03; norm: 1.111e+00; mom: 5.986e+00;
#> best it: 220; best obj: 6.291e-01
#> It: 237; obj: 1.557e+00; abs: 2.081e-02; rel: 1.319e-02; norm: 1.142e+00; mom: 5.985e+00;
#> best it: 220; best obj: 6.291e-01
#> It: 238; obj: 1.409e+00; abs: 1.486e-01; rel: 9.540e-02; norm: 1.155e+00; mom: 6.123e+00;
#> best it: 220; best obj: 6.291e-01
#> It: 239; obj: 1.527e+00; abs: 1.186e-01; rel: 8.421e-02; norm: 1.096e+00; mom: 6.024e+00;
#> best it: 220; best obj: 6.291e-01
#> It: 240; obj: 1.334e+00; abs: 1.933e-01; rel: 1.266e-01; norm: 1.121e+00; mom: 5.952e+00;
#> best it: 220; best obj: 6.291e-01
#> It: 241; obj: 1.402e+00; abs: 6.822e-02; rel: 5.114e-02; norm: 1.079e+00; mom: 5.923e+00;
#> best it: 220; best obj: 6.291e-01
#> It: 242; obj: 1.249e+00; abs: 1.536e-01; rel: 1.095e-01; norm: 1.080e+00; mom: 5.900e+00;
#> best it: 220; best obj: 6.291e-01
#> It: 243; obj: 1.289e+00; abs: 4.083e-02; rel: 3.270e-02; norm: 1.024e+00; mom: 5.951e+00;
#> best it: 220; best obj: 6.291e-01
#> It: 244; obj: 1.172e+00; abs: 1.172e-01; rel: 9.093e-02; norm: 9.828e-01; mom: 5.820e+00;
#> best it: 220; best obj: 6.291e-01
#> It: 245; obj: 1.155e+00; abs: 1.737e-02; rel: 1.482e-02; norm: 9.793e-01; mom: 5.778e+00;
#> best it: 220; best obj: 6.291e-01
#> It: 246; obj: 1.055e+00; abs: 9.946e-02; rel: 8.613e-02; norm: 8.930e-01; mom: 5.669e+00;
#> best it: 220; best obj: 6.291e-01
#> It: 247; obj: 1.045e+00; abs: 1.078e-02; rel: 1.021e-02; norm: 8.677e-01; mom: 5.586e+00;
#> best it: 220; best obj: 6.291e-01
#> It: 248; obj: 8.781e-01; abs: 1.664e-01; rel: 1.593e-01; norm: 8.117e-01; mom: 8.635e+00;
#> best it: 220; best obj: 6.291e-01
#> It: 249; obj: 8.132e-01; abs: 6.498e-02; rel: 7.399e-02; norm: 6.883e-01; mom: 8.186e+00;
#> best it: 220; best obj: 6.291e-01
#> It: 250; obj: 6.261e-01; abs: 1.871e-01; rel: 2.301e-01; norm: 4.884e-01; mom: 7.546e+00;
#> best it: 250; best obj: 6.261e-01

```

## Iteration 250



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#> It: 251; obj: 5.358e-01; abs: 9.022e-02; rel: 1.441e-01; norm: 2.660e-01; mom: 6.304e+00;
#> best it: 251; best obj: 5.358e-01
#> It: 252; obj: 6.082e-01; abs: 7.234e-02; rel: 1.350e-01; norm: 1.462e-01; mom: 3.705e+00;
#> best it: 251; best obj: 5.358e-01
#> It: 253; obj: 5.574e-01; abs: 5.078e-02; rel: 8.349e-02; norm: 1.863e-01; mom: 3.064e+00;
#> best it: 251; best obj: 5.358e-01
#> It: 254; obj: 5.704e-01; abs: 1.304e-02; rel: 2.339e-02; norm: 1.504e-01; mom: 3.271e+00;
#> best it: 251; best obj: 5.358e-01
#> It: 255; obj: 4.973e-01; abs: 7.313e-02; rel: 1.282e-01; norm: 1.650e-01; mom: 2.586e+00;
#> best it: 255; best obj: 4.973e-01
#> It: 256; obj: 4.789e-01; abs: 1.844e-02; rel: 3.707e-02; norm: 1.686e-01; mom: 3.019e+00;
#> best it: 256; best obj: 4.789e-01
#> It: 257; obj: 4.248e-01; abs: 5.404e-02; rel: 1.128e-01; norm: 1.723e-01; mom: 2.721e+00;
#> best it: 257; best obj: 4.248e-01
#> It: 258; obj: 4.371e-01; abs: 1.226e-02; rel: 2.886e-02; norm: 1.592e-01; mom: 2.942e+00;
#> best it: 257; best obj: 4.248e-01
#> It: 259; obj: 4.246e-01; abs: 1.247e-02; rel: 2.854e-02; norm: 1.369e-01; mom: 2.656e+00;
#> best it: 259; best obj: 4.246e-01
#> It: 260; obj: 3.855e-01; abs: 3.915e-02; rel: 9.219e-02; norm: 1.255e-01; mom: 2.274e+00;
#> best it: 260; best obj: 3.855e-01
#> It: 261; obj: 3.968e-01; abs: 1.136e-02; rel: 2.947e-02; norm: 1.545e-01; mom: 2.019e+00;
#> best it: 260; best obj: 3.855e-01
#> It: 262; obj: 4.294e-01; abs: 3.258e-02; rel: 8.210e-02; norm: 1.641e-01; mom: 2.439e+00;
#> best it: 260; best obj: 3.855e-01
#> It: 263; obj: 4.366e-01; abs: 7.140e-03; rel: 1.663e-02; norm: 1.438e-01; mom: 2.683e+00;
#> best it: 260; best obj: 3.855e-01
#> It: 264; obj: 4.110e-01; abs: 2.558e-02; rel: 5.859e-02; norm: 1.617e-01; mom: 2.595e+00;
#> best it: 260; best obj: 3.855e-01
#> It: 265; obj: 4.167e-01; abs: 5.729e-03; rel: 1.394e-02; norm: 1.731e-01; mom: 2.487e+00;
#> best it: 260; best obj: 3.855e-01
#> It: 266; obj: 3.669e-01; abs: 4.978e-02; rel: 1.195e-01; norm: 1.576e-01; mom: 3.123e+00;

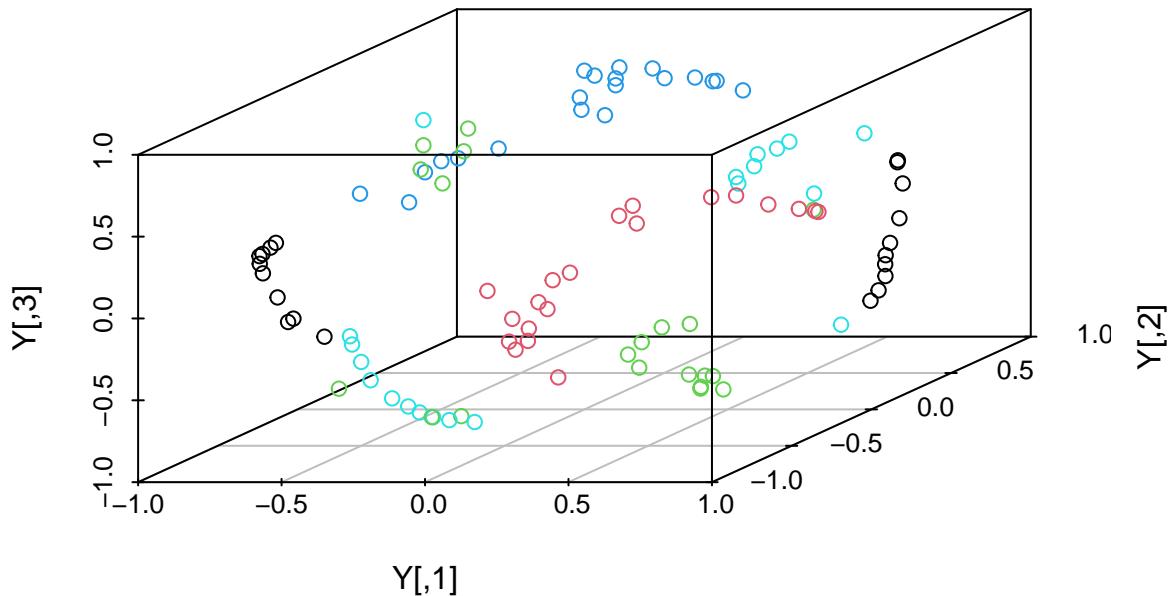
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#> best it: 266; best obj: 3.669e-01
#> It: 267; obj: 3.709e-01; abs: 3.994e-03; rel: 1.089e-02; norm: 1.477e-01; mom: 1.910e+00;
#> best it: 266; best obj: 3.669e-01
#> It: 268; obj: 4.177e-01; abs: 4.682e-02; rel: 1.262e-01; norm: 1.731e-01; mom: 2.794e+00;
#> best it: 266; best obj: 3.669e-01
#> It: 269; obj: 4.255e-01; abs: 7.803e-03; rel: 1.868e-02; norm: 1.432e-01; mom: 2.801e+00;
#> best it: 266; best obj: 3.669e-01
#> It: 270; obj: 4.199e-01; abs: 5.623e-03; rel: 1.321e-02; norm: 1.515e-01; mom: 2.513e+00;
#> best it: 266; best obj: 3.669e-01
#> It: 271; obj: 3.802e-01; abs: 3.974e-02; rel: 9.463e-02; norm: 1.697e-01; mom: 2.612e+00;
#> best it: 266; best obj: 3.669e-01
#> It: 272; obj: 3.886e-01; abs: 8.405e-03; rel: 2.211e-02; norm: 1.355e-01; mom: 2.884e+00;
#> best it: 266; best obj: 3.669e-01
#> It: 273; obj: 4.320e-01; abs: 4.338e-02; rel: 1.116e-01; norm: 1.375e-01; mom: 2.186e+00;
#> best it: 266; best obj: 3.669e-01
#> It: 274; obj: 4.429e-01; abs: 1.087e-02; rel: 2.517e-02; norm: 2.091e-01; mom: 2.767e+00;
#> best it: 266; best obj: 3.669e-01
#> It: 275; obj: 4.167e-01; abs: 2.614e-02; rel: 5.903e-02; norm: 1.553e-01; mom: 3.178e+00;
#> best it: 266; best obj: 3.669e-01

```

## Iteration 275



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#> It: 276; obj: 4.121e-01; abs: 4.619e-03; rel: 1.109e-02; norm: 1.527e-01; mom: 2.684e+00;
#> best it: 266; best obj: 3.669e-01
#> It: 277; obj: 4.499e-01; abs: 3.783e-02; rel: 9.179e-02; norm: 1.620e-01; mom: 2.954e+00;
#> best it: 266; best obj: 3.669e-01
#> It: 278; obj: 4.372e-01; abs: 1.272e-02; rel: 2.826e-02; norm: 1.623e-01; mom: 2.965e+00;
#> best it: 266; best obj: 3.669e-01
#> It: 279; obj: 3.868e-01; abs: 5.044e-02; rel: 1.154e-01; norm: 1.591e-01; mom: 2.597e+00;
#> best it: 266; best obj: 3.669e-01
#> It: 280; obj: 3.674e-01; abs: 1.939e-02; rel: 5.012e-02; norm: 1.523e-01; mom: 3.044e+00;
#> best it: 266; best obj: 3.669e-01
#> It: 281; obj: 3.517e-01; abs: 1.568e-02; rel: 4.268e-02; norm: 1.658e-01; mom: 2.240e+00;
#> best it: 281; best obj: 3.517e-01

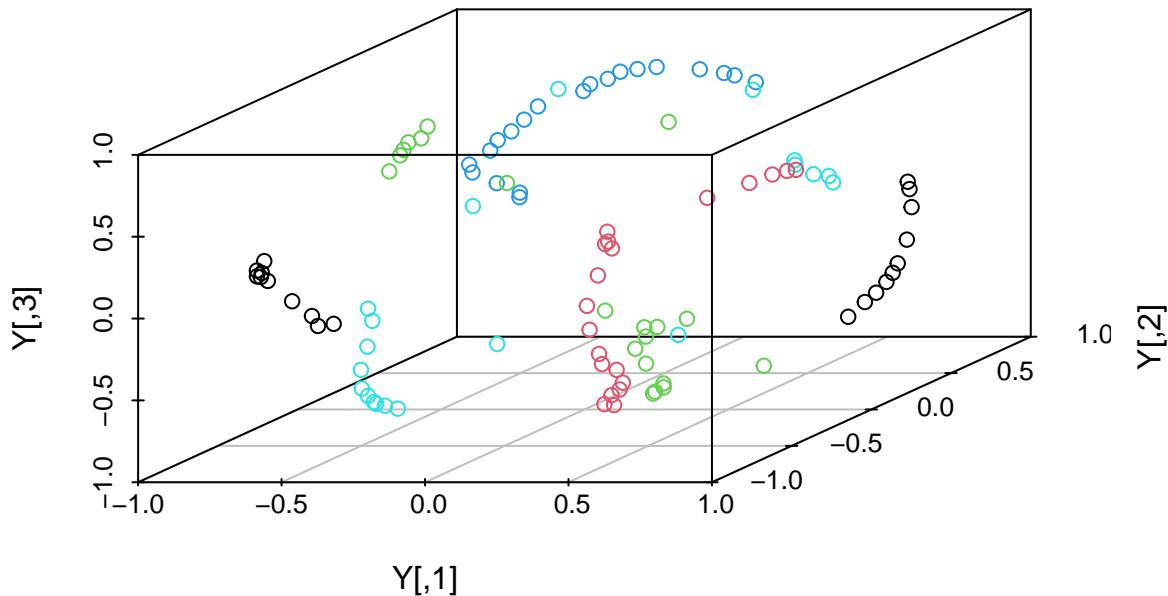
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#> It: 282; obj: 3.547e-01; abs: 3.006e-03; rel: 8.548e-03; norm: 1.459e-01; mom: 2.923e+00;
#> best it: 281; best obj: 3.517e-01
#> It: 283; obj: 3.635e-01; abs: 8.824e-03; rel: 2.488e-02; norm: 1.601e-01; mom: 2.388e+00;
#> best it: 281; best obj: 3.517e-01
#> It: 284; obj: 3.749e-01; abs: 1.137e-02; rel: 3.128e-02; norm: 1.835e-01; mom: 2.601e+00;
#> best it: 281; best obj: 3.517e-01
#> It: 285; obj: 3.708e-01; abs: 4.149e-03; rel: 1.107e-02; norm: 1.522e-01; mom: 2.662e+00;
#> best it: 281; best obj: 3.517e-01
#> It: 286; obj: 3.656e-01; abs: 5.119e-03; rel: 1.381e-02; norm: 1.422e-01; mom: 2.286e+00;
#> best it: 281; best obj: 3.517e-01
#> It: 287; obj: 3.300e-01; abs: 3.568e-02; rel: 9.759e-02; norm: 1.633e-01; mom: 2.842e+00;
#> best it: 287; best obj: 3.300e-01
#> It: 288; obj: 2.998e-01; abs: 3.017e-02; rel: 9.145e-02; norm: 1.385e-01; mom: 2.365e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 289; obj: 3.204e-01; abs: 2.060e-02; rel: 6.873e-02; norm: 1.548e-01; mom: 1.869e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 290; obj: 3.309e-01; abs: 1.047e-02; rel: 3.269e-02; norm: 1.460e-01; mom: 2.547e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 291; obj: 3.516e-01; abs: 2.073e-02; rel: 6.264e-02; norm: 1.437e-01; mom: 2.274e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 292; obj: 3.370e-01; abs: 1.457e-02; rel: 4.144e-02; norm: 1.450e-01; mom: 2.281e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 293; obj: 3.121e-01; abs: 2.491e-02; rel: 7.391e-02; norm: 1.473e-01; mom: 2.637e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 294; obj: 3.366e-01; abs: 2.453e-02; rel: 7.860e-02; norm: 1.341e-01; mom: 2.237e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 295; obj: 3.436e-01; abs: 6.928e-03; rel: 2.058e-02; norm: 1.577e-01; mom: 2.263e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 296; obj: 3.407e-01; abs: 2.901e-03; rel: 8.443e-03; norm: 1.650e-01; mom: 2.567e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 297; obj: 3.601e-01; abs: 1.945e-02; rel: 5.711e-02; norm: 1.528e-01; mom: 2.483e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 298; obj: 3.319e-01; abs: 2.819e-02; rel: 7.827e-02; norm: 1.654e-01; mom: 2.618e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 299; obj: 3.213e-01; abs: 1.064e-02; rel: 3.204e-02; norm: 1.358e-01; mom: 2.585e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 300; obj: 3.813e-01; abs: 5.996e-02; rel: 1.866e-01; norm: 1.599e-01; mom: 2.235e+00;
#> best it: 288; best obj: 2.998e-01

```

## Iteration 300



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#> It: 301; obj: 4.197e-01; abs: 3.849e-02; rel: 1.010e-01; norm: 1.992e-01; mom: 3.093e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 302; obj: 4.810e-01; abs: 6.127e-02; rel: 1.460e-01; norm: 2.279e-01; mom: 3.350e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 303; obj: 5.685e-01; abs: 8.744e-02; rel: 1.818e-01; norm: 2.480e-01; mom: 3.228e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 304; obj: 6.027e-01; abs: 3.427e-02; rel: 6.029e-02; norm: 1.737e-01; mom: 4.091e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 305; obj: 5.531e-01; abs: 4.958e-02; rel: 8.226e-02; norm: 1.905e-01; mom: 3.138e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 306; obj: 5.255e-01; abs: 2.763e-02; rel: 4.995e-02; norm: 1.937e-01; mom: 3.223e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 307; obj: 4.837e-01; abs: 4.184e-02; rel: 7.962e-02; norm: 1.652e-01; mom: 3.232e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 308; obj: 5.061e-01; abs: 2.238e-02; rel: 4.627e-02; norm: 1.589e-01; mom: 3.328e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 309; obj: 5.019e-01; abs: 4.152e-03; rel: 8.204e-03; norm: 1.516e-01; mom: 3.396e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 310; obj: 5.755e-01; abs: 7.359e-02; rel: 1.466e-01; norm: 1.704e-01; mom: 3.027e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 311; obj: 6.571e-01; abs: 8.159e-02; rel: 1.418e-01; norm: 1.880e-01; mom: 3.267e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 312; obj: 6.681e-01; abs: 1.106e-02; rel: 1.683e-02; norm: 1.764e-01; mom: 3.394e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 313; obj: 6.796e-01; abs: 1.146e-02; rel: 1.715e-02; norm: 1.795e-01; mom: 3.391e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 314; obj: 6.860e-01; abs: 6.402e-03; rel: 9.420e-03; norm: 2.281e-01; mom: 3.650e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 315; obj: 6.863e-01; abs: 3.253e-04; rel: 4.742e-04; norm: 2.085e-01; mom: 4.039e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 316; obj: 6.528e-01; abs: 3.357e-02; rel: 4.892e-02; norm: 2.086e-01; mom: 4.139e+00;

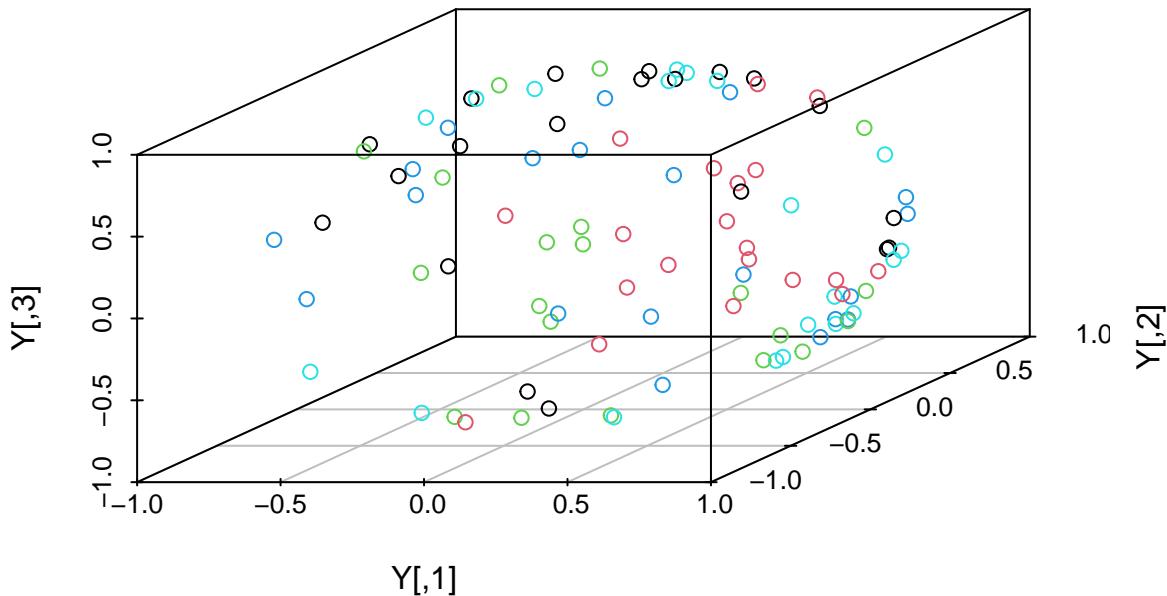
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#> best it: 288; best obj: 2.998e-01
#> It: 317; obj: 7.221e-01; abs: 6.930e-02; rel: 1.062e-01; norm: 2.305e-01; mom: 4.295e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 318; obj: 7.638e-01; abs: 4.170e-02; rel: 5.776e-02; norm: 2.065e-01; mom: 3.795e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 319; obj: 7.191e-01; abs: 4.465e-02; rel: 5.846e-02; norm: 2.270e-01; mom: 3.919e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 320; obj: 7.492e-01; abs: 3.008e-02; rel: 4.183e-02; norm: 2.112e-01; mom: 4.380e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 321; obj: 9.332e-01; abs: 1.841e-01; rel: 2.457e-01; norm: 2.029e-01; mom: 4.285e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 322; obj: 1.097e+00; abs: 1.633e-01; rel: 1.750e-01; norm: 2.595e-01; mom: 3.922e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 323; obj: 1.298e+00; abs: 2.016e-01; rel: 1.839e-01; norm: 2.630e-01; mom: 5.581e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 324; obj: 1.515e+00; abs: 2.171e-01; rel: 1.672e-01; norm: 3.298e-01; mom: 5.284e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 325; obj: 1.788e+00; abs: 2.726e-01; rel: 1.799e-01; norm: 3.308e-01; mom: 6.453e+00;
#> best it: 288; best obj: 2.998e-01

```

## Iteration 325



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#> It: 326; obj: 1.794e+00; abs: 6.434e-03; rel: 3.599e-03; norm: 4.368e-01; mom: 7.129e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 327; obj: 1.767e+00; abs: 2.695e-02; rel: 1.502e-02; norm: 4.739e-01; mom: 8.478e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 328; obj: 1.841e+00; abs: 7.335e-02; rel: 4.150e-02; norm: 4.686e-01; mom: 8.291e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 329; obj: 1.826e+00; abs: 1.512e-02; rel: 8.214e-03; norm: 4.671e-01; mom: 8.022e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 330; obj: 1.874e+00; abs: 4.880e-02; rel: 2.673e-02; norm: 5.198e-01; mom: 8.400e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 331; obj: 1.848e+00; abs: 2.598e-02; rel: 1.386e-02; norm: 6.765e-01; mom: 8.437e+00;
#> best it: 288; best obj: 2.998e-01

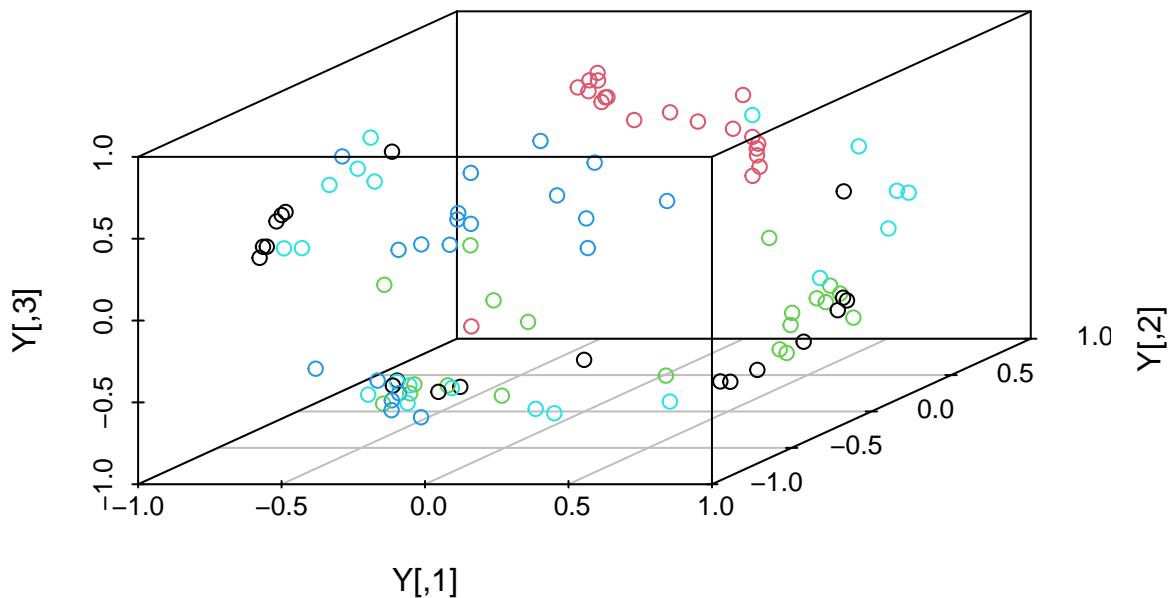
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#> It: 332; obj: 1.915e+00; abs: 6.656e-02; rel: 3.601e-02; norm: 7.230e-01; mom: 8.958e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 333; obj: 1.879e+00; abs: 3.623e-02; rel: 1.892e-02; norm: 8.470e-01; mom: 8.638e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 334; obj: 1.867e+00; abs: 1.191e-02; rel: 6.338e-03; norm: 9.748e-01; mom: 9.538e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 335; obj: 1.888e+00; abs: 2.104e-02; rel: 1.127e-02; norm: 1.029e+00; mom: 8.945e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 336; obj: 1.925e+00; abs: 3.755e-02; rel: 1.989e-02; norm: 1.047e+00; mom: 9.398e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 337; obj: 1.868e+00; abs: 5.741e-02; rel: 2.981e-02; norm: 1.175e+00; mom: 9.664e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 338; obj: 1.759e+00; abs: 1.095e-01; rel: 5.860e-02; norm: 1.177e+00; mom: 9.924e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 339; obj: 1.705e+00; abs: 5.393e-02; rel: 3.067e-02; norm: 1.208e+00; mom: 9.973e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 340; obj: 1.647e+00; abs: 5.792e-02; rel: 3.398e-02; norm: 1.167e+00; mom: 9.555e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 341; obj: 1.541e+00; abs: 1.054e-01; rel: 6.402e-02; norm: 1.153e+00; mom: 9.770e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 342; obj: 1.510e+00; abs: 3.143e-02; rel: 2.039e-02; norm: 1.098e+00; mom: 9.962e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 343; obj: 1.351e+00; abs: 1.594e-01; rel: 1.055e-01; norm: 1.064e+00; mom: 9.849e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 344; obj: 1.247e+00; abs: 1.039e-01; rel: 7.691e-02; norm: 9.953e-01; mom: 9.633e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 345; obj: 1.191e+00; abs: 5.531e-02; rel: 4.437e-02; norm: 8.636e-01; mom: 9.359e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 346; obj: 1.112e+00; abs: 7.931e-02; rel: 6.657e-02; norm: 7.508e-01; mom: 8.666e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 347; obj: 1.085e+00; abs: 2.703e-02; rel: 2.430e-02; norm: 7.037e-01; mom: 8.120e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 348; obj: 1.115e+00; abs: 3.030e-02; rel: 2.793e-02; norm: 6.112e-01; mom: 7.513e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 349; obj: 1.046e+00; abs: 6.958e-02; rel: 6.239e-02; norm: 5.663e-01; mom: 7.351e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 350; obj: 1.035e+00; abs: 1.082e-02; rel: 1.035e-02; norm: 6.078e-01; mom: 7.602e+00;
#> best it: 288; best obj: 2.998e-01

```

## Iteration 350



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#> It: 351; obj: 1.081e+00; abs: 4.598e-02; rel: 4.443e-02; norm: 5.958e-01; mom: 7.502e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 352; obj: 1.106e+00; abs: 2.475e-02; rel: 2.289e-02; norm: 5.281e-01; mom: 7.506e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 353; obj: 1.096e+00; abs: 9.550e-03; rel: 8.637e-03; norm: 5.226e-01; mom: 7.365e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 354; obj: 1.127e+00; abs: 3.044e-02; rel: 2.777e-02; norm: 5.279e-01; mom: 7.306e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 355; obj: 1.180e+00; abs: 5.362e-02; rel: 4.760e-02; norm: 4.418e-01; mom: 7.160e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 356; obj: 1.241e+00; abs: 6.115e-02; rel: 5.181e-02; norm: 4.445e-01; mom: 6.918e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 357; obj: 1.446e+00; abs: 2.044e-01; rel: 1.646e-01; norm: 3.715e-01; mom: 6.575e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 358; obj: 1.515e+00; abs: 6.904e-02; rel: 4.775e-02; norm: 4.364e-01; mom: 6.977e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 359; obj: 1.652e+00; abs: 1.377e-01; rel: 9.088e-02; norm: 3.910e-01; mom: 7.720e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 360; obj: 1.657e+00; abs: 4.623e-03; rel: 2.798e-03; norm: 3.614e-01; mom: 7.144e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 361; obj: 1.748e+00; abs: 9.115e-02; rel: 5.501e-02; norm: 4.381e-01; mom: 7.319e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 362; obj: 1.822e+00; abs: 7.388e-02; rel: 4.226e-02; norm: 4.377e-01; mom: 7.993e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 363; obj: 1.696e+00; abs: 1.263e-01; rel: 6.933e-02; norm: 4.705e-01; mom: 7.762e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 364; obj: 1.762e+00; abs: 6.627e-02; rel: 3.908e-02; norm: 3.859e-01; mom: 7.732e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 365; obj: 1.761e+00; abs: 6.791e-04; rel: 3.854e-04; norm: 4.233e-01; mom: 7.284e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 366; obj: 1.770e+00; abs: 9.183e-03; rel: 5.214e-03; norm: 3.865e-01; mom: 7.955e+00;

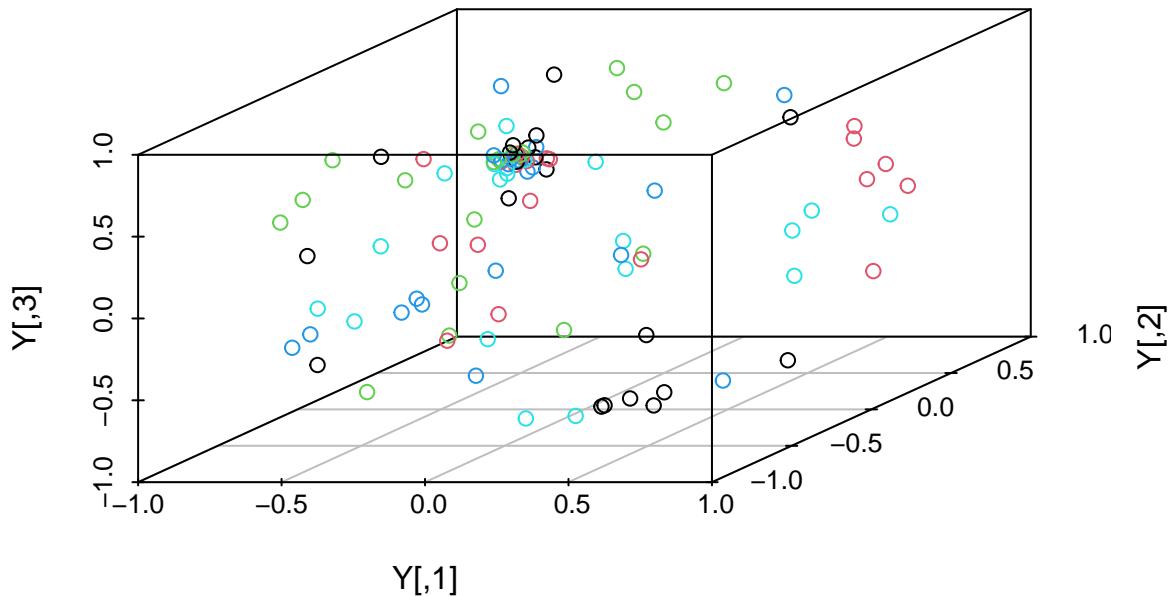
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#> best it: 288; best obj: 2.998e-01
#> It: 367; obj: 1.859e+00; abs: 8.853e-02; rel: 5.000e-02; norm: 4.479e-01; mom: 6.888e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 368; obj: 1.806e+00; abs: 5.277e-02; rel: 2.839e-02; norm: 5.415e-01; mom: 8.256e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 369; obj: 1.896e+00; abs: 8.965e-02; rel: 4.963e-02; norm: 5.366e-01; mom: 9.022e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 370; obj: 1.913e+00; abs: 1.674e-02; rel: 8.829e-03; norm: 6.001e-01; mom: 8.809e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 371; obj: 1.947e+00; abs: 3.471e-02; rel: 1.815e-02; norm: 6.731e-01; mom: 9.144e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 372; obj: 1.940e+00; abs: 7.214e-03; rel: 3.705e-03; norm: 7.589e-01; mom: 9.421e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 373; obj: 2.055e+00; abs: 1.148e-01; rel: 5.917e-02; norm: 8.598e-01; mom: 9.586e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 374; obj: 2.131e+00; abs: 7.614e-02; rel: 3.705e-02; norm: 1.014e+00; mom: 1.004e+01;
#> best it: 288; best obj: 2.998e-01
#> It: 375; obj: 1.910e+00; abs: 2.208e-01; rel: 1.036e-01; norm: 1.159e+00; mom: 1.016e+01;
#> best it: 288; best obj: 2.998e-01

```

## Iteration 375



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#> It: 376; obj: 2.015e+00; abs: 1.046e-01; rel: 5.473e-02; norm: 1.093e+00; mom: 9.933e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 377; obj: 1.942e+00; abs: 7.241e-02; rel: 3.594e-02; norm: 1.187e+00; mom: 1.031e+01;
#> best it: 288; best obj: 2.998e-01
#> It: 378; obj: 1.811e+00; abs: 1.317e-01; rel: 6.780e-02; norm: 1.143e+00; mom: 1.049e+01;
#> best it: 288; best obj: 2.998e-01
#> It: 379; obj: 1.767e+00; abs: 4.413e-02; rel: 2.437e-02; norm: 1.125e+00; mom: 1.042e+01;
#> best it: 288; best obj: 2.998e-01
#> It: 380; obj: 1.567e+00; abs: 1.994e-01; rel: 1.129e-01; norm: 1.144e+00; mom: 1.041e+01;
#> best it: 288; best obj: 2.998e-01
#> It: 381; obj: 1.515e+00; abs: 5.210e-02; rel: 3.324e-02; norm: 1.089e+00; mom: 1.031e+01;
#> best it: 288; best obj: 2.998e-01

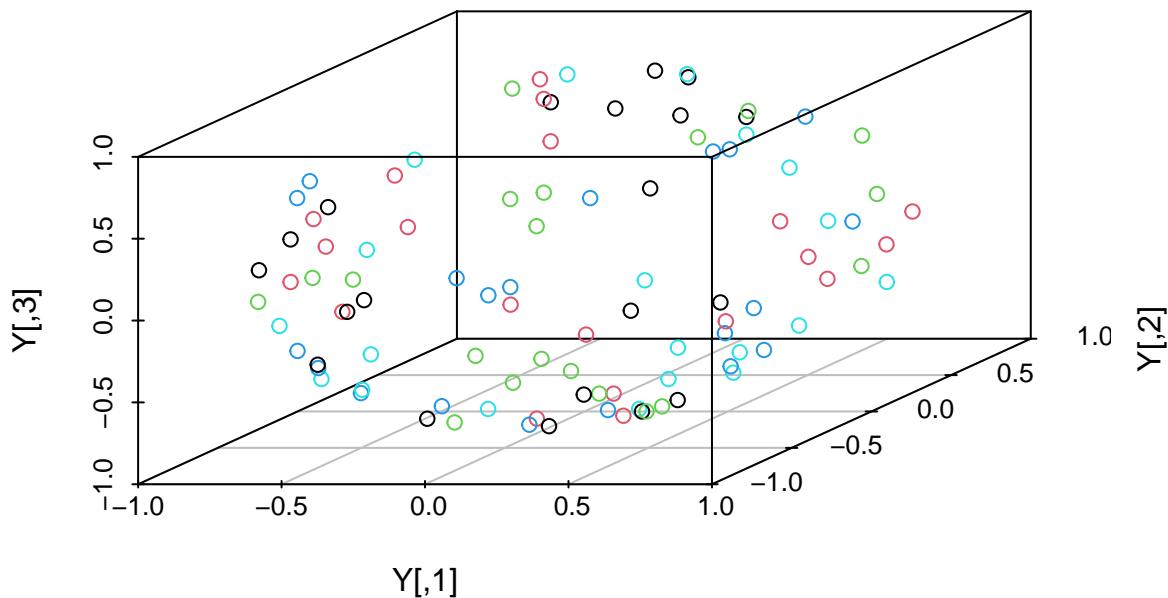
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#> It: 382; obj: 1.370e+00; abs: 1.448e-01; rel: 9.556e-02; norm: 1.005e+00; mom: 1.011e+01;
#> best it: 288; best obj: 2.998e-01
#> It: 383; obj: 1.189e+00; abs: 1.810e-01; rel: 1.321e-01; norm: 9.363e-01; mom: 9.970e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 384; obj: 1.058e+00; abs: 1.309e-01; rel: 1.101e-01; norm: 8.424e-01; mom: 9.457e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 385; obj: 1.033e+00; abs: 2.514e-02; rel: 2.375e-02; norm: 8.039e-01; mom: 9.269e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 386; obj: 9.975e-01; abs: 3.577e-02; rel: 3.461e-02; norm: 6.768e-01; mom: 8.428e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 387; obj: 1.040e+00; abs: 4.210e-02; rel: 4.220e-02; norm: 5.606e-01; mom: 7.574e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 388; obj: 9.664e-01; abs: 7.321e-02; rel: 7.042e-02; norm: 5.204e-01; mom: 7.108e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 389; obj: 9.602e-01; abs: 6.217e-03; rel: 6.433e-03; norm: 4.513e-01; mom: 7.034e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 390; obj: 1.016e+00; abs: 5.546e-02; rel: 5.776e-02; norm: 3.198e-01; mom: 6.518e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 391; obj: 1.101e+00; abs: 8.489e-02; rel: 8.358e-02; norm: 2.371e-01; mom: 5.812e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 392; obj: 1.210e+00; abs: 1.095e-01; rel: 9.947e-02; norm: 3.411e-01; mom: 4.755e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 393; obj: 1.314e+00; abs: 1.045e-01; rel: 8.636e-02; norm: 3.655e-01; mom: 6.737e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 394; obj: 1.340e+00; abs: 2.506e-02; rel: 1.906e-02; norm: 3.027e-01; mom: 6.760e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 395; obj: 1.453e+00; abs: 1.134e-01; rel: 8.465e-02; norm: 3.382e-01; mom: 5.893e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 396; obj: 1.543e+00; abs: 9.045e-02; rel: 6.225e-02; norm: 3.393e-01; mom: 7.044e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 397; obj: 1.670e+00; abs: 1.266e-01; rel: 8.201e-02; norm: 3.667e-01; mom: 6.939e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 398; obj: 1.622e+00; abs: 4.787e-02; rel: 2.866e-02; norm: 3.916e-01; mom: 6.984e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 399; obj: 1.740e+00; abs: 1.179e-01; rel: 7.269e-02; norm: 3.643e-01; mom: 7.553e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 400; obj: 1.783e+00; abs: 4.303e-02; rel: 2.473e-02; norm: 3.938e-01; mom: 7.849e+00;
#> best it: 288; best obj: 2.998e-01

```

## Iteration 400



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#> It: 401; obj: 1.726e+00; abs: 5.690e-02; rel: 3.191e-02; norm: 4.088e-01; mom: 7.789e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 402; obj: 1.802e+00; abs: 7.612e-02; rel: 4.410e-02; norm: 3.970e-01; mom: 7.365e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 403; obj: 1.875e+00; abs: 7.275e-02; rel: 4.037e-02; norm: 3.903e-01; mom: 7.300e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 404; obj: 1.886e+00; abs: 1.095e-02; rel: 5.839e-03; norm: 4.768e-01; mom: 7.931e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 405; obj: 1.960e+00; abs: 7.409e-02; rel: 3.929e-02; norm: 4.433e-01; mom: 8.055e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 406; obj: 1.930e+00; abs: 2.962e-02; rel: 1.511e-02; norm: 5.196e-01; mom: 7.603e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 407; obj: 1.906e+00; abs: 2.463e-02; rel: 1.276e-02; norm: 4.670e-01; mom: 8.209e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 408; obj: 1.993e+00; abs: 8.689e-02; rel: 4.559e-02; norm: 5.256e-01; mom: 8.136e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 409; obj: 1.950e+00; abs: 4.247e-02; rel: 2.131e-02; norm: 6.154e-01; mom: 8.370e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 410; obj: 1.934e+00; abs: 1.644e-02; rel: 8.430e-03; norm: 7.427e-01; mom: 8.828e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 411; obj: 2.058e+00; abs: 1.241e-01; rel: 6.419e-02; norm: 8.863e-01; mom: 9.106e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 412; obj: 1.897e+00; abs: 1.605e-01; rel: 7.800e-02; norm: 1.138e+00; mom: 9.228e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 413; obj: 1.810e+00; abs: 8.747e-02; rel: 4.610e-02; norm: 1.131e+00; mom: 9.654e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 414; obj: 1.803e+00; abs: 7.075e-03; rel: 3.909e-03; norm: 1.104e+00; mom: 9.125e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 415; obj: 1.653e+00; abs: 1.494e-01; rel: 8.290e-02; norm: 1.179e+00; mom: 9.462e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 416; obj: 1.622e+00; abs: 3.099e-02; rel: 1.875e-02; norm: 1.146e+00; mom: 9.524e+00;

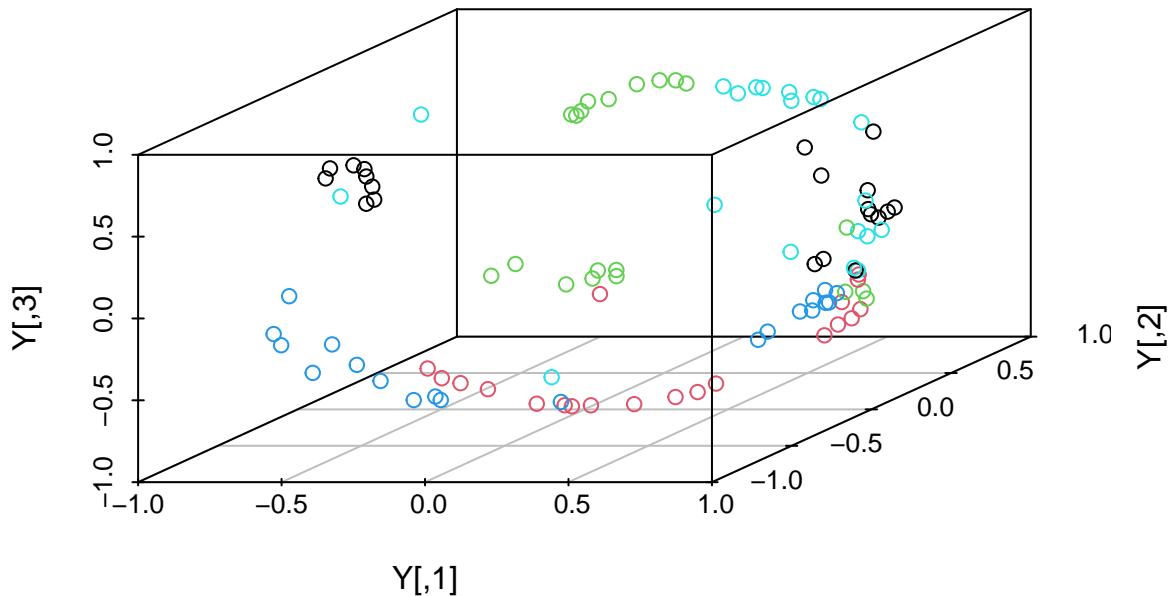
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#> best it: 288; best obj: 2.998e-01
#> It: 417; obj: 1.561e+00; abs: 6.148e-02; rel: 3.789e-02; norm: 1.122e+00; mom: 9.512e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 418; obj: 1.480e+00; abs: 8.137e-02; rel: 5.213e-02; norm: 1.102e+00; mom: 9.823e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 419; obj: 1.375e+00; abs: 1.044e-01; rel: 7.056e-02; norm: 1.036e+00; mom: 9.714e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 420; obj: 1.285e+00; abs: 9.035e-02; rel: 6.570e-02; norm: 1.009e+00; mom: 9.617e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 421; obj: 1.175e+00; abs: 1.097e-01; rel: 8.540e-02; norm: 9.496e-01; mom: 9.093e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 422; obj: 1.049e+00; abs: 1.258e-01; rel: 1.070e-01; norm: 9.079e-01; mom: 8.911e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 423; obj: 1.144e+00; abs: 9.474e-02; rel: 9.029e-02; norm: 8.108e-01; mom: 8.427e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 424; obj: 1.009e+00; abs: 1.350e-01; rel: 1.180e-01; norm: 7.707e-01; mom: 8.334e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 425; obj: 9.792e-01; abs: 2.987e-02; rel: 2.960e-02; norm: 7.493e-01; mom: 8.157e+00;
#> best it: 288; best obj: 2.998e-01

```

## Iteration 425



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#> It: 426; obj: 8.120e-01; abs: 1.672e-01; rel: 1.708e-01; norm: 6.642e-01; mom: 8.109e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 427; obj: 8.153e-01; abs: 3.308e-03; rel: 4.074e-03; norm: 4.973e-01; mom: 7.800e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 428; obj: 8.894e-01; abs: 7.409e-02; rel: 9.087e-02; norm: 2.653e-01; mom: 5.898e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 429; obj: 1.147e+00; abs: 2.577e-01; rel: 2.897e-01; norm: 2.657e-01; mom: 4.626e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 430; obj: 1.324e+00; abs: 1.772e-01; rel: 1.545e-01; norm: 3.216e-01; mom: 5.031e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 431; obj: 1.433e+00; abs: 1.083e-01; rel: 8.178e-02; norm: 3.097e-01; mom: 6.871e+00;
#> best it: 288; best obj: 2.998e-01

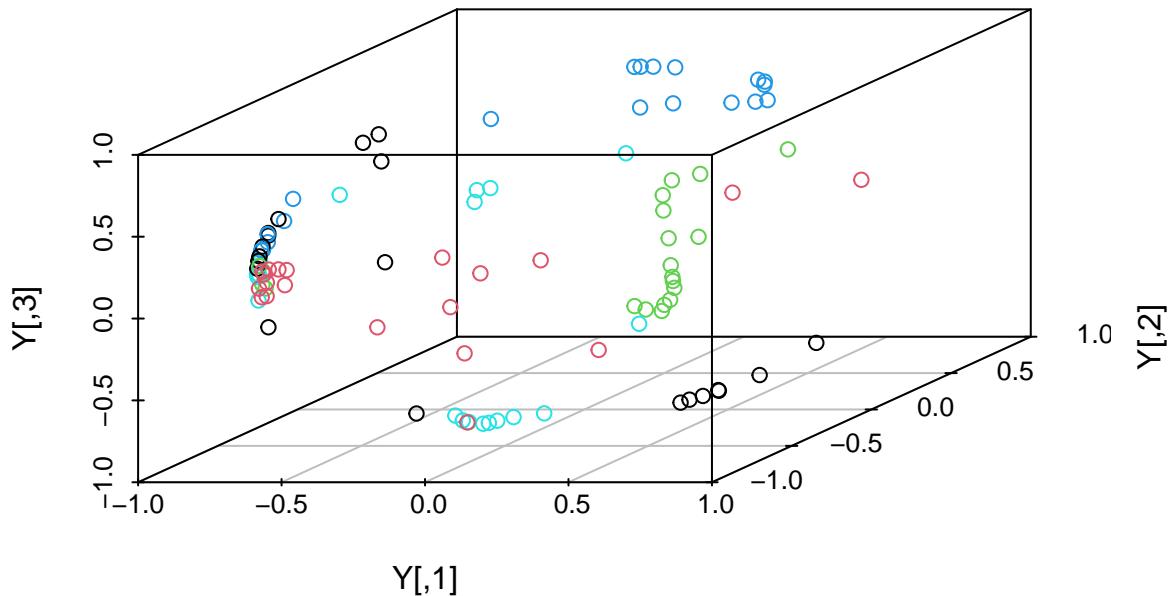
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#> It: 432; obj: 1.589e+00; abs: 1.561e-01; rel: 1.090e-01; norm: 3.229e-01; mom: 6.567e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 433; obj: 1.696e+00; abs: 1.072e-01; rel: 6.750e-02; norm: 3.370e-01; mom: 6.289e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 434; obj: 1.768e+00; abs: 7.223e-02; rel: 4.259e-02; norm: 3.981e-01; mom: 7.760e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 435; obj: 1.885e+00; abs: 1.170e-01; rel: 6.615e-02; norm: 4.385e-01; mom: 7.411e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 436; obj: 1.798e+00; abs: 8.719e-02; rel: 4.625e-02; norm: 4.271e-01; mom: 8.271e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 437; obj: 1.796e+00; abs: 2.242e-03; rel: 1.247e-03; norm: 4.526e-01; mom: 8.163e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 438; obj: 1.899e+00; abs: 1.029e-01; rel: 5.731e-02; norm: 5.711e-01; mom: 7.687e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 439; obj: 1.856e+00; abs: 4.306e-02; rel: 2.268e-02; norm: 7.099e-01; mom: 8.946e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 440; obj: 1.880e+00; abs: 2.456e-02; rel: 1.323e-02; norm: 8.662e-01; mom: 8.729e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 441; obj: 1.860e+00; abs: 2.007e-02; rel: 1.067e-02; norm: 1.028e+00; mom: 9.323e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 442; obj: 1.869e+00; abs: 8.713e-03; rel: 4.685e-03; norm: 1.057e+00; mom: 9.045e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 443; obj: 1.802e+00; abs: 6.643e-02; rel: 3.555e-02; norm: 1.172e+00; mom: 9.588e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 444; obj: 1.812e+00; abs: 1.016e-02; rel: 5.636e-03; norm: 1.188e+00; mom: 9.484e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 445; obj: 1.679e+00; abs: 1.339e-01; rel: 7.389e-02; norm: 1.227e+00; mom: 9.613e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 446; obj: 1.684e+00; abs: 5.044e-03; rel: 3.005e-03; norm: 1.166e+00; mom: 9.606e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 447; obj: 1.558e+00; abs: 1.255e-01; rel: 7.455e-02; norm: 1.105e+00; mom: 9.788e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 448; obj: 1.440e+00; abs: 1.185e-01; rel: 7.608e-02; norm: 1.090e+00; mom: 1.022e+01;
#> best it: 288; best obj: 2.998e-01
#> It: 449; obj: 1.352e+00; abs: 8.786e-02; rel: 6.104e-02; norm: 1.007e+00; mom: 9.687e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 450; obj: 1.232e+00; abs: 1.193e-01; rel: 8.826e-02; norm: 9.601e-01; mom: 9.452e+00;
#> best it: 288; best obj: 2.998e-01

```

## Iteration 450



```

#> It: 451; obj: 1.207e+00; abs: 2.549e-02; rel: 2.068e-02; norm: 9.009e-01; mom: 9.471e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 452; obj: 1.154e+00; abs: 5.263e-02; rel: 4.361e-02; norm: 8.155e-01; mom: 9.195e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 453; obj: 1.100e+00; abs: 5.462e-02; rel: 4.732e-02; norm: 7.697e-01; mom: 8.587e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 454; obj: 1.070e+00; abs: 3.003e-02; rel: 2.731e-02; norm: 7.087e-01; mom: 8.100e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 455; obj: 1.109e+00; abs: 3.913e-02; rel: 3.659e-02; norm: 6.264e-01; mom: 7.774e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 456; obj: 1.063e+00; abs: 4.559e-02; rel: 4.112e-02; norm: 6.060e-01; mom: 7.406e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 457; obj: 1.004e+00; abs: 5.870e-02; rel: 5.522e-02; norm: 6.704e-01; mom: 7.519e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 458; obj: 9.647e-01; abs: 3.975e-02; rel: 3.957e-02; norm: 6.696e-01; mom: 7.540e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 459; obj: 7.529e-01; abs: 2.118e-01; rel: 2.196e-01; norm: 6.282e-01; mom: 7.625e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 460; obj: 7.011e-01; abs: 5.181e-02; rel: 6.882e-02; norm: 4.965e-01; mom: 7.615e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 461; obj: 6.189e-01; abs: 8.219e-02; rel: 1.172e-01; norm: 2.708e-01; mom: 6.383e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 462; obj: 6.551e-01; abs: 3.624e-02; rel: 5.857e-02; norm: 2.217e-01; mom: 4.148e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 463; obj: 6.851e-01; abs: 2.999e-02; rel: 4.579e-02; norm: 1.791e-01; mom: 4.019e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 464; obj: 6.671e-01; abs: 1.796e-02; rel: 2.621e-02; norm: 2.066e-01; mom: 3.809e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 465; obj: 8.117e-01; abs: 1.446e-01; rel: 2.167e-01; norm: 2.083e-01; mom: 3.888e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 466; obj: 9.541e-01; abs: 1.423e-01; rel: 1.753e-01; norm: 2.637e-01; mom: 4.167e+00;

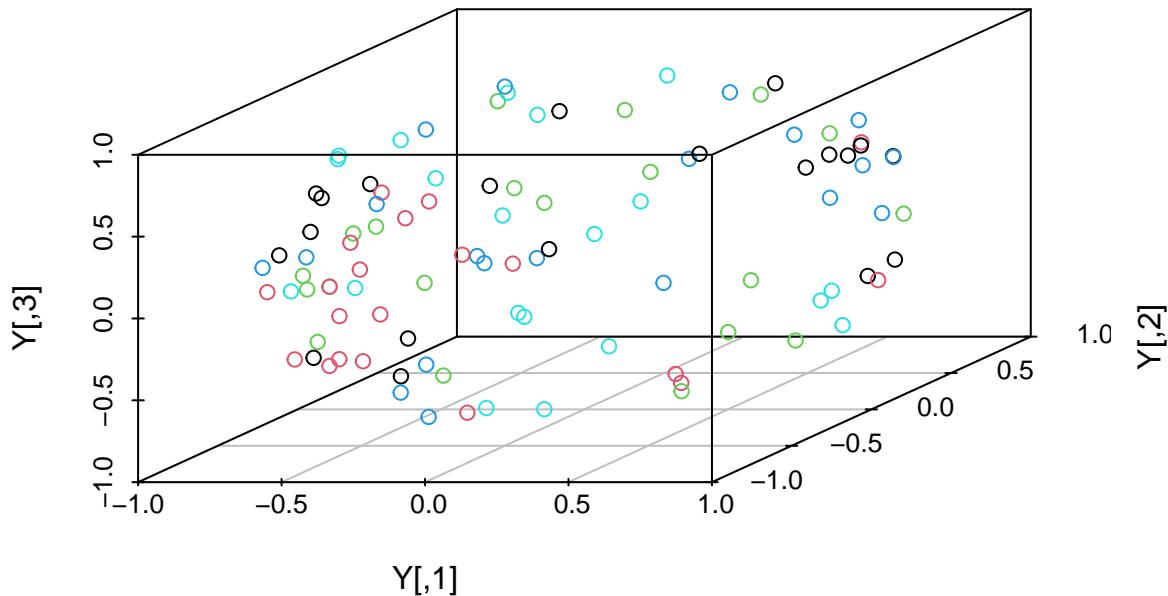
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#> best it: 288; best obj: 2.998e-01
#> It: 467; obj: 1.083e+00; abs: 1.291e-01; rel: 1.353e-01; norm: 3.592e-01; mom: 5.077e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 468; obj: 1.161e+00; abs: 7.742e-02; rel: 7.148e-02; norm: 3.676e-01; mom: 6.239e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 469; obj: 1.368e+00; abs: 2.078e-01; rel: 1.790e-01; norm: 3.386e-01; mom: 6.605e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 470; obj: 1.436e+00; abs: 6.802e-02; rel: 4.971e-02; norm: 3.001e-01; mom: 5.915e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 471; obj: 1.510e+00; abs: 7.338e-02; rel: 5.109e-02; norm: 3.257e-01; mom: 6.099e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 472; obj: 1.718e+00; abs: 2.083e-01; rel: 1.380e-01; norm: 3.627e-01; mom: 6.961e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 473; obj: 1.726e+00; abs: 7.481e-03; rel: 4.354e-03; norm: 4.150e-01; mom: 7.646e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 474; obj: 1.730e+00; abs: 4.737e-03; rel: 2.745e-03; norm: 3.790e-01; mom: 7.891e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 475; obj: 1.831e+00; abs: 1.006e-01; rel: 5.813e-02; norm: 3.716e-01; mom: 7.214e+00;
#> best it: 288; best obj: 2.998e-01

```

## Iteration 475



```

#> It: 476; obj: 1.813e+00; abs: 1.827e-02; rel: 9.981e-03; norm: 4.981e-01; mom: 7.269e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 477; obj: 1.859e+00; abs: 4.673e-02; rel: 2.578e-02; norm: 5.704e-01; mom: 8.286e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 478; obj: 1.920e+00; abs: 6.017e-02; rel: 3.236e-02; norm: 6.164e-01; mom: 8.113e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 479; obj: 1.964e+00; abs: 4.409e-02; rel: 2.297e-02; norm: 7.830e-01; mom: 9.092e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 480; obj: 1.947e+00; abs: 1.698e-02; rel: 8.648e-03; norm: 9.511e-01; mom: 9.176e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 481; obj: 2.058e+00; abs: 1.112e-01; rel: 5.712e-02; norm: 1.083e+00; mom: 9.413e+00;
#> best it: 288; best obj: 2.998e-01

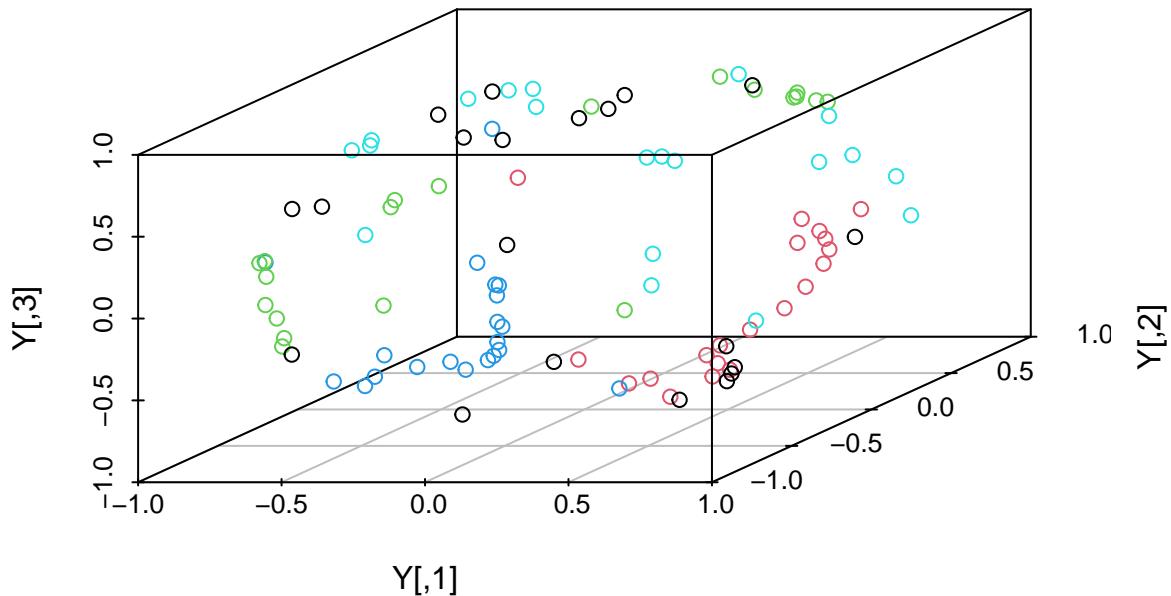
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#> It: 482; obj: 1.912e+00; abs: 1.457e-01; rel: 7.078e-02; norm: 1.183e+00; mom: 9.379e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 483; obj: 1.817e+00; abs: 9.489e-02; rel: 4.963e-02; norm: 1.236e+00; mom: 1.012e+01;
#> best it: 288; best obj: 2.998e-01
#> It: 484; obj: 1.727e+00; abs: 8.981e-02; rel: 4.942e-02; norm: 1.188e+00; mom: 9.976e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 485; obj: 1.653e+00; abs: 7.411e-02; rel: 4.290e-02; norm: 1.152e+00; mom: 9.943e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 486; obj: 1.561e+00; abs: 9.198e-02; rel: 5.563e-02; norm: 1.102e+00; mom: 9.810e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 487; obj: 1.444e+00; abs: 1.173e-01; rel: 7.513e-02; norm: 1.101e+00; mom: 9.899e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 488; obj: 1.334e+00; abs: 1.100e-01; rel: 7.621e-02; norm: 1.068e+00; mom: 9.644e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 489; obj: 1.257e+00; abs: 7.701e-02; rel: 5.773e-02; norm: 1.031e+00; mom: 9.950e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 490; obj: 1.124e+00; abs: 1.328e-01; rel: 1.056e-01; norm: 9.408e-01; mom: 9.596e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 491; obj: 1.092e+00; abs: 3.216e-02; rel: 2.860e-02; norm: 8.689e-01; mom: 9.084e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 492; obj: 1.033e+00; abs: 5.864e-02; rel: 5.370e-02; norm: 7.522e-01; mom: 8.427e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 493; obj: 9.481e-01; abs: 8.532e-02; rel: 8.256e-02; norm: 7.130e-01; mom: 8.235e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 494; obj: 9.736e-01; abs: 2.551e-02; rel: 2.691e-02; norm: 7.018e-01; mom: 7.570e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 495; obj: 8.861e-01; abs: 8.751e-02; rel: 8.988e-02; norm: 6.679e-01; mom: 7.629e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 496; obj: 9.248e-01; abs: 3.873e-02; rel: 4.371e-02; norm: 6.170e-01; mom: 7.695e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 497; obj: 8.471e-01; abs: 7.773e-02; rel: 8.405e-02; norm: 6.043e-01; mom: 7.009e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 498; obj: 8.070e-01; abs: 4.007e-02; rel: 4.731e-02; norm: 5.533e-01; mom: 7.075e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 499; obj: 7.535e-01; abs: 5.352e-02; rel: 6.632e-02; norm: 4.559e-01; mom: 6.690e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 500; obj: 8.733e-01; abs: 1.198e-01; rel: 1.590e-01; norm: 3.009e-01; mom: 6.389e+00;
#> best it: 288; best obj: 2.998e-01

```

## Iteration 500



```

#> It: 501; obj: 1.063e+00; abs: 1.893e-01; rel: 2.167e-01; norm: 1.868e-01; mom: 4.663e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 502; obj: 1.250e+00; abs: 1.879e-01; rel: 1.768e-01; norm: 2.932e-01; mom: 4.240e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 503; obj: 1.414e+00; abs: 1.638e-01; rel: 1.310e-01; norm: 3.772e-01; mom: 5.991e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 504; obj: 1.576e+00; abs: 1.616e-01; rel: 1.143e-01; norm: 3.399e-01; mom: 7.025e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 505; obj: 1.647e+00; abs: 7.137e-02; rel: 4.529e-02; norm: 3.491e-01; mom: 7.267e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 506; obj: 1.680e+00; abs: 3.299e-02; rel: 2.003e-02; norm: 4.312e-01; mom: 7.205e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 507; obj: 1.706e+00; abs: 2.554e-02; rel: 1.520e-02; norm: 4.489e-01; mom: 7.837e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 508; obj: 1.724e+00; abs: 1.832e-02; rel: 1.074e-02; norm: 5.325e-01; mom: 8.531e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 509; obj: 1.771e+00; abs: 4.659e-02; rel: 2.702e-02; norm: 5.623e-01; mom: 8.425e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 510; obj: 1.827e+00; abs: 5.624e-02; rel: 3.176e-02; norm: 6.837e-01; mom: 7.806e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 511; obj: 1.845e+00; abs: 1.814e-02; rel: 9.927e-03; norm: 7.493e-01; mom: 9.270e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 512; obj: 1.845e+00; abs: 1.693e-05; rel: 9.176e-06; norm: 8.409e-01; mom: 8.819e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 513; obj: 1.826e+00; abs: 1.911e-02; rel: 1.036e-02; norm: 9.510e-01; mom: 9.087e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 514; obj: 1.833e+00; abs: 7.331e-03; rel: 4.015e-03; norm: 1.024e+00; mom: 8.792e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 515; obj: 1.776e+00; abs: 5.683e-02; rel: 3.100e-02; norm: 1.056e+00; mom: 8.946e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 516; obj: 1.701e+00; abs: 7.581e-02; rel: 4.268e-02; norm: 1.134e+00; mom: 9.271e+00;

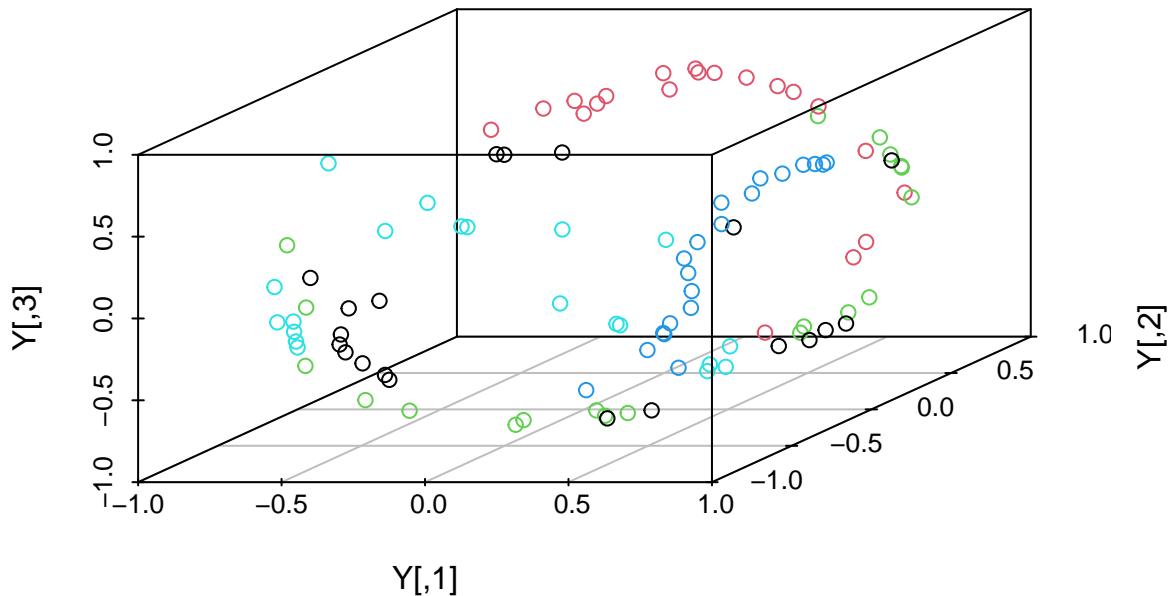
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#> best it: 288; best obj: 2.998e-01
#> It: 517; obj: 1.529e+00; abs: 1.712e-01; rel: 1.007e-01; norm: 1.151e+00; mom: 9.433e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 518; obj: 1.488e+00; abs: 4.128e-02; rel: 2.699e-02; norm: 1.077e+00; mom: 9.393e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 519; obj: 1.420e+00; abs: 6.851e-02; rel: 4.603e-02; norm: 1.054e+00; mom: 9.563e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 520; obj: 1.245e+00; abs: 1.746e-01; rel: 1.230e-01; norm: 9.921e-01; mom: 9.617e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 521; obj: 1.211e+00; abs: 3.434e-02; rel: 2.758e-02; norm: 9.335e-01; mom: 9.512e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 522; obj: 1.135e+00; abs: 7.571e-02; rel: 6.253e-02; norm: 8.921e-01; mom: 9.033e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 523; obj: 1.015e+00; abs: 1.195e-01; rel: 1.053e-01; norm: 8.201e-01; mom: 8.867e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 524; obj: 9.548e-01; abs: 6.069e-02; rel: 5.976e-02; norm: 7.656e-01; mom: 8.507e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 525; obj: 8.064e-01; abs: 1.484e-01; rel: 1.555e-01; norm: 5.962e-01; mom: 8.431e+00;
#> best it: 288; best obj: 2.998e-01

```

## Iteration 525



```

#> It: 526; obj: 7.997e-01; abs: 6.659e-03; rel: 8.258e-03; norm: 3.261e-01; mom: 7.217e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 527; obj: 8.278e-01; abs: 2.812e-02; rel: 3.517e-02; norm: 2.007e-01; mom: 4.819e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 528; obj: 1.081e+00; abs: 2.534e-01; rel: 3.061e-01; norm: 2.444e-01; mom: 3.538e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 529; obj: 1.153e+00; abs: 7.225e-02; rel: 6.682e-02; norm: 3.135e-01; mom: 5.007e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 530; obj: 1.269e+00; abs: 1.160e-01; rel: 1.005e-01; norm: 2.729e-01; mom: 6.134e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 531; obj: 1.541e+00; abs: 2.711e-01; rel: 2.136e-01; norm: 3.034e-01; mom: 5.119e+00;
#> best it: 288; best obj: 2.998e-01

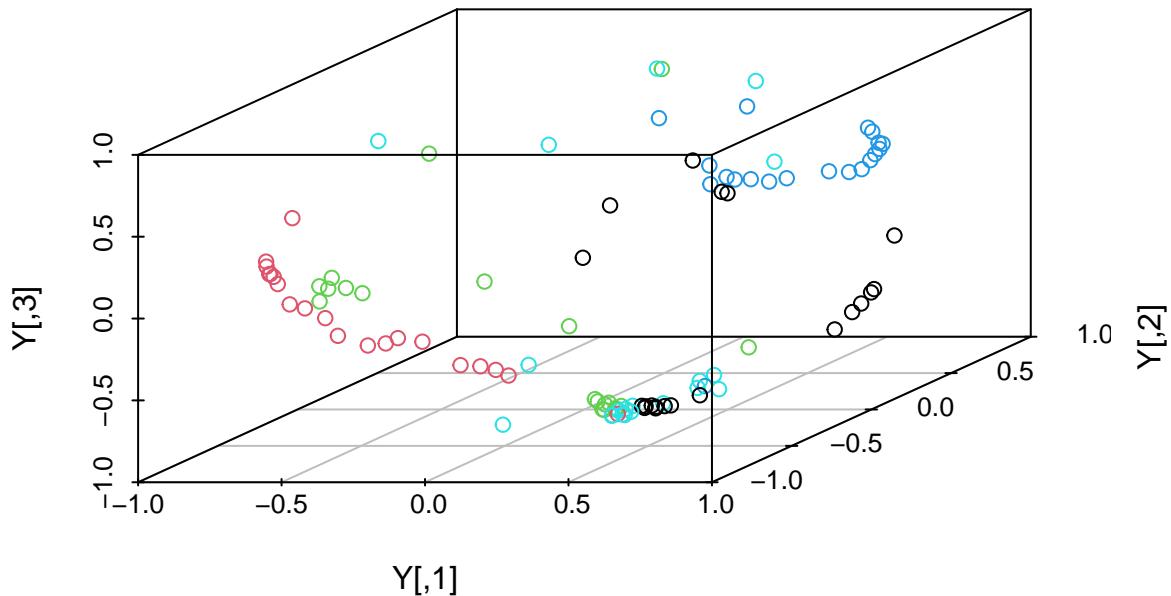
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```

#> It: 532; obj: 1.575e+00; abs: 3.447e-02; rel: 2.238e-02; norm: 3.531e-01; mom: 6.513e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 533; obj: 1.664e+00; abs: 8.862e-02; rel: 5.626e-02; norm: 3.772e-01; mom: 6.921e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 534; obj: 1.695e+00; abs: 3.119e-02; rel: 1.875e-02; norm: 4.017e-01; mom: 7.514e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 535; obj: 1.759e+00; abs: 6.420e-02; rel: 3.788e-02; norm: 4.601e-01; mom: 7.577e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 536; obj: 1.796e+00; abs: 3.692e-02; rel: 2.099e-02; norm: 5.718e-01; mom: 7.299e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 537; obj: 1.902e+00; abs: 1.060e-01; rel: 5.901e-02; norm: 7.193e-01; mom: 8.665e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 538; obj: 2.012e+00; abs: 1.096e-01; rel: 5.764e-02; norm: 8.711e-01; mom: 8.371e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 539; obj: 2.094e+00; abs: 8.191e-02; rel: 4.072e-02; norm: 1.039e+00; mom: 8.916e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 540; obj: 2.077e+00; abs: 1.667e-02; rel: 7.961e-03; norm: 1.131e+00; mom: 9.457e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 541; obj: 1.899e+00; abs: 1.778e-01; rel: 8.560e-02; norm: 1.212e+00; mom: 1.013e+01;
#> best it: 288; best obj: 2.998e-01
#> It: 542; obj: 1.838e+00; abs: 6.137e-02; rel: 3.232e-02; norm: 1.135e+00; mom: 1.032e+01;
#> best it: 288; best obj: 2.998e-01
#> It: 543; obj: 1.759e+00; abs: 7.834e-02; rel: 4.263e-02; norm: 1.093e+00; mom: 1.045e+01;
#> best it: 288; best obj: 2.998e-01
#> It: 544; obj: 1.633e+00; abs: 1.262e-01; rel: 7.174e-02; norm: 1.116e+00; mom: 1.028e+01;
#> best it: 288; best obj: 2.998e-01
#> It: 545; obj: 1.578e+00; abs: 5.528e-02; rel: 3.385e-02; norm: 1.138e+00; mom: 9.944e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 546; obj: 1.556e+00; abs: 2.200e-02; rel: 1.394e-02; norm: 1.084e+00; mom: 9.922e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 547; obj: 1.328e+00; abs: 2.276e-01; rel: 1.463e-01; norm: 1.119e+00; mom: 9.863e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 548; obj: 1.361e+00; abs: 3.232e-02; rel: 2.433e-02; norm: 1.014e+00; mom: 9.652e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 549; obj: 1.247e+00; abs: 1.137e-01; rel: 8.359e-02; norm: 1.006e+00; mom: 9.751e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 550; obj: 1.178e+00; abs: 6.898e-02; rel: 5.532e-02; norm: 1.005e+00; mom: 9.363e+00;
#> best it: 288; best obj: 2.998e-01

```

## Iteration 550



```

#> It: 551; obj: 1.185e+00; abs: 7.268e-03; rel: 6.170e-03; norm: 9.546e-01; mom: 9.108e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 552; obj: 1.078e+00; abs: 1.067e-01; rel: 9.004e-02; norm: 9.321e-01; mom: 9.220e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 553; obj: 1.121e+00; abs: 4.210e-02; rel: 3.904e-02; norm: 8.909e-01; mom: 9.327e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 554; obj: 9.992e-01; abs: 1.213e-01; rel: 1.083e-01; norm: 8.407e-01; mom: 8.784e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 555; obj: 1.012e+00; abs: 1.300e-02; rel: 1.301e-02; norm: 7.199e-01; mom: 8.264e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 556; obj: 9.438e-01; abs: 6.834e-02; rel: 6.752e-02; norm: 6.012e-01; mom: 7.710e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 557; obj: 9.175e-01; abs: 2.632e-02; rel: 2.788e-02; norm: 5.586e-01; mom: 7.070e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 558; obj: 8.718e-01; abs: 4.571e-02; rel: 4.982e-02; norm: 4.666e-01; mom: 6.885e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 559; obj: 8.107e-01; abs: 6.112e-02; rel: 7.010e-02; norm: 3.647e-01; mom: 6.898e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 560; obj: 8.786e-01; abs: 6.791e-02; rel: 8.377e-02; norm: 2.462e-01; mom: 5.681e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 561; obj: 1.127e+00; abs: 2.482e-01; rel: 2.825e-01; norm: 2.722e-01; mom: 4.209e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 562; obj: 1.280e+00; abs: 1.536e-01; rel: 1.363e-01; norm: 3.637e-01; mom: 5.955e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 563; obj: 1.466e+00; abs: 1.852e-01; rel: 1.447e-01; norm: 3.134e-01; mom: 6.798e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 564; obj: 1.460e+00; abs: 5.724e-03; rel: 3.905e-03; norm: 4.053e-01; mom: 6.827e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 565; obj: 1.584e+00; abs: 1.238e-01; rel: 8.481e-02; norm: 3.109e-01; mom: 7.099e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 566; obj: 1.637e+00; abs: 5.279e-02; rel: 3.333e-02; norm: 3.666e-01; mom: 6.672e+00;

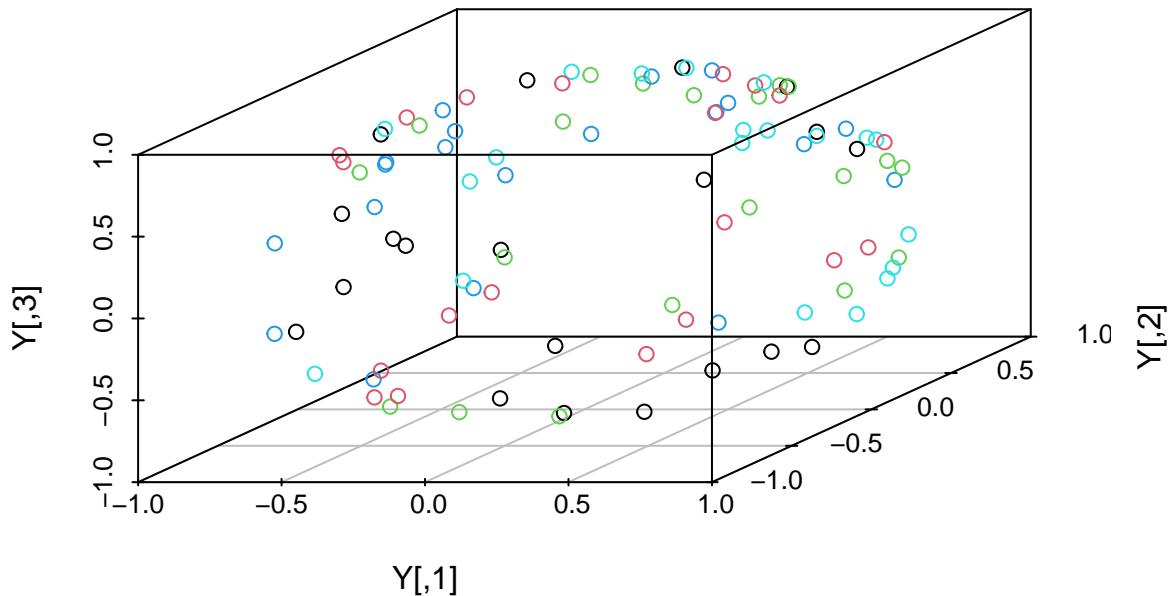
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#> best it: 288; best obj: 2.998e-01
#> It: 567; obj: 1.751e+00; abs: 1.139e-01; rel: 6.962e-02; norm: 3.984e-01; mom: 6.726e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 568; obj: 1.663e+00; abs: 8.711e-02; rel: 4.976e-02; norm: 4.594e-01; mom: 7.962e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 569; obj: 1.734e+00; abs: 7.059e-02; rel: 4.244e-02; norm: 4.568e-01; mom: 8.606e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 570; obj: 1.721e+00; abs: 1.250e-02; rel: 7.210e-03; norm: 4.678e-01; mom: 7.823e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 571; obj: 1.884e+00; abs: 1.622e-01; rel: 9.420e-02; norm: 4.600e-01; mom: 8.258e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 572; obj: 1.929e+00; abs: 4.491e-02; rel: 2.384e-02; norm: 5.166e-01; mom: 8.110e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 573; obj: 1.866e+00; abs: 6.299e-02; rel: 3.266e-02; norm: 5.128e-01; mom: 8.810e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 574; obj: 1.906e+00; abs: 4.038e-02; rel: 2.165e-02; norm: 5.246e-01; mom: 8.222e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 575; obj: 1.850e+00; abs: 5.580e-02; rel: 2.928e-02; norm: 5.373e-01; mom: 8.374e+00;
#> best it: 288; best obj: 2.998e-01

```

## Iteration 575



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#> It: 576; obj: 1.828e+00; abs: 2.237e-02; rel: 1.209e-02; norm: 5.627e-01; mom: 8.913e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 577; obj: 1.990e+00; abs: 1.623e-01; rel: 8.880e-02; norm: 5.876e-01; mom: 8.637e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 578; obj: 2.048e+00; abs: 5.769e-02; rel: 2.899e-02; norm: 7.342e-01; mom: 8.959e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 579; obj: 2.083e+00; abs: 3.557e-02; rel: 1.737e-02; norm: 9.408e-01; mom: 9.359e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 580; obj: 2.087e+00; abs: 3.865e-03; rel: 1.855e-03; norm: 1.065e+00; mom: 9.962e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 581; obj: 2.034e+00; abs: 5.363e-02; rel: 2.569e-02; norm: 1.157e+00; mom: 1.005e+01;
#> best it: 288; best obj: 2.998e-01

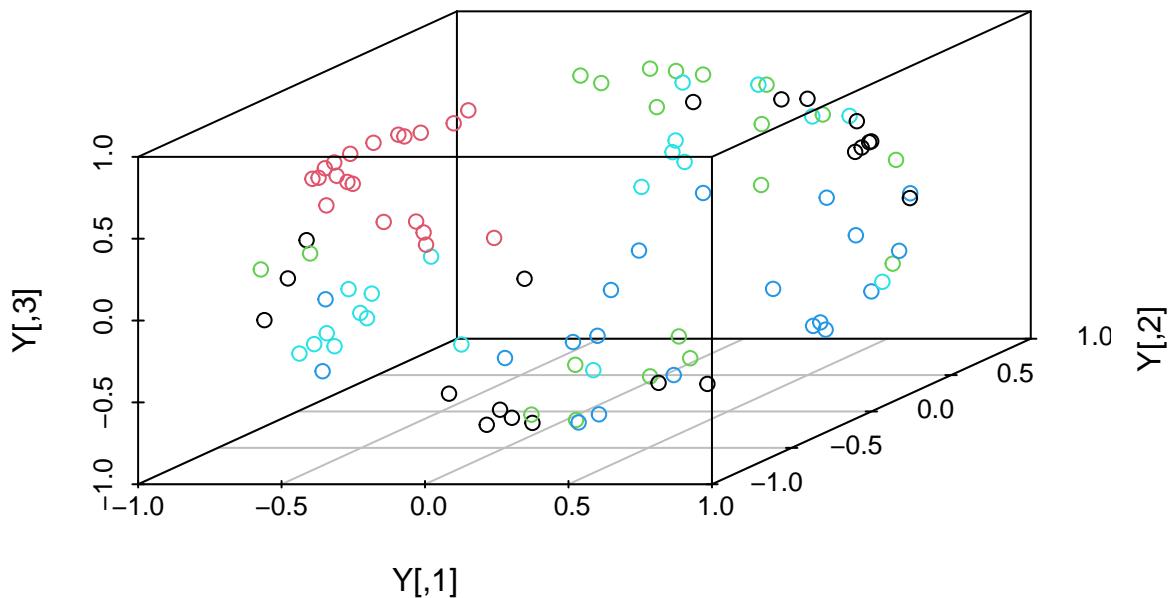
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#> It: 582; obj: 2.064e+00; abs: 3.058e-02; rel: 1.504e-02; norm: 1.166e+00; mom: 1.009e+01;
#> best it: 288; best obj: 2.998e-01
#> It: 583; obj: 1.827e+00; abs: 2.374e-01; rel: 1.150e-01; norm: 1.179e+00; mom: 9.910e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 584; obj: 1.818e+00; abs: 9.116e-03; rel: 4.990e-03; norm: 1.124e+00; mom: 1.057e+01;
#> best it: 288; best obj: 2.998e-01
#> It: 585; obj: 1.696e+00; abs: 1.218e-01; rel: 6.702e-02; norm: 1.162e+00; mom: 1.033e+01;
#> best it: 288; best obj: 2.998e-01
#> It: 586; obj: 1.601e+00; abs: 9.473e-02; rel: 5.586e-02; norm: 1.099e+00; mom: 1.029e+01;
#> best it: 288; best obj: 2.998e-01
#> It: 587; obj: 1.452e+00; abs: 1.494e-01; rel: 9.331e-02; norm: 1.071e+00; mom: 1.021e+01;
#> best it: 288; best obj: 2.998e-01
#> It: 588; obj: 1.323e+00; abs: 1.286e-01; rel: 8.860e-02; norm: 1.011e+00; mom: 9.830e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 589; obj: 1.224e+00; abs: 9.899e-02; rel: 7.482e-02; norm: 9.926e-01; mom: 9.305e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 590; obj: 1.057e+00; abs: 1.671e-01; rel: 1.365e-01; norm: 9.337e-01; mom: 9.062e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 591; obj: 1.064e+00; abs: 7.200e-03; rel: 6.811e-03; norm: 8.527e-01; mom: 8.567e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 592; obj: 1.024e+00; abs: 4.034e-02; rel: 3.791e-02; norm: 7.378e-01; mom: 8.352e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 593; obj: 8.788e-01; abs: 1.451e-01; rel: 1.417e-01; norm: 6.836e-01; mom: 7.947e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 594; obj: 8.645e-01; abs: 1.431e-02; rel: 1.629e-02; norm: 5.830e-01; mom: 7.555e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 595; obj: 8.532e-01; abs: 1.129e-02; rel: 1.306e-02; norm: 5.563e-01; mom: 6.938e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 596; obj: 8.147e-01; abs: 3.851e-02; rel: 4.513e-02; norm: 5.585e-01; mom: 7.091e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 597; obj: 8.015e-01; abs: 1.316e-02; rel: 1.616e-02; norm: 5.011e-01; mom: 7.092e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 598; obj: 7.095e-01; abs: 9.205e-02; rel: 1.148e-01; norm: 3.078e-01; mom: 6.320e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 599; obj: 8.127e-01; abs: 1.032e-01; rel: 1.454e-01; norm: 1.893e-01; mom: 4.834e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 600; obj: 9.963e-01; abs: 1.836e-01; rel: 2.259e-01; norm: 2.208e-01; mom: 3.529e+00;
#> best it: 288; best obj: 2.998e-01

```

## Iteration 600



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#> It: 601; obj: 1.125e+00; abs: 1.286e-01; rel: 1.291e-01; norm: 2.604e-01; mom: 5.286e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 602; obj: 1.338e+00; abs: 2.132e-01; rel: 1.896e-01; norm: 2.646e-01; mom: 5.144e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 603; obj: 1.521e+00; abs: 1.827e-01; rel: 1.366e-01; norm: 2.944e-01; mom: 5.705e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 604; obj: 1.711e+00; abs: 1.897e-01; rel: 1.248e-01; norm: 3.804e-01; mom: 6.846e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 605; obj: 1.758e+00; abs: 4.692e-02; rel: 2.743e-02; norm: 4.570e-01; mom: 7.519e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 606; obj: 1.855e+00; abs: 9.743e-02; rel: 5.544e-02; norm: 4.768e-01; mom: 8.172e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 607; obj: 1.898e+00; abs: 4.327e-02; rel: 2.333e-02; norm: 4.919e-01; mom: 8.569e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 608; obj: 1.994e+00; abs: 9.544e-02; rel: 5.028e-02; norm: 6.047e-01; mom: 8.153e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 609; obj: 2.026e+00; abs: 3.272e-02; rel: 1.641e-02; norm: 8.974e-01; mom: 9.347e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 610; obj: 2.015e+00; abs: 1.137e-02; rel: 5.609e-03; norm: 1.061e+00; mom: 9.722e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 611; obj: 1.962e+00; abs: 5.343e-02; rel: 2.652e-02; norm: 1.129e+00; mom: 9.873e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 612; obj: 1.763e+00; abs: 1.989e-01; rel: 1.014e-01; norm: 1.208e+00; mom: 9.778e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 613; obj: 1.686e+00; abs: 7.678e-02; rel: 4.356e-02; norm: 1.131e+00; mom: 1.005e+01;
#> best it: 288; best obj: 2.998e-01
#> It: 614; obj: 1.644e+00; abs: 4.160e-02; rel: 2.468e-02; norm: 1.186e+00; mom: 9.744e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 615; obj: 1.473e+00; abs: 1.717e-01; rel: 1.044e-01; norm: 1.160e+00; mom: 9.884e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 616; obj: 1.459e+00; abs: 1.381e-02; rel: 9.378e-03; norm: 1.079e+00; mom: 9.940e+00;

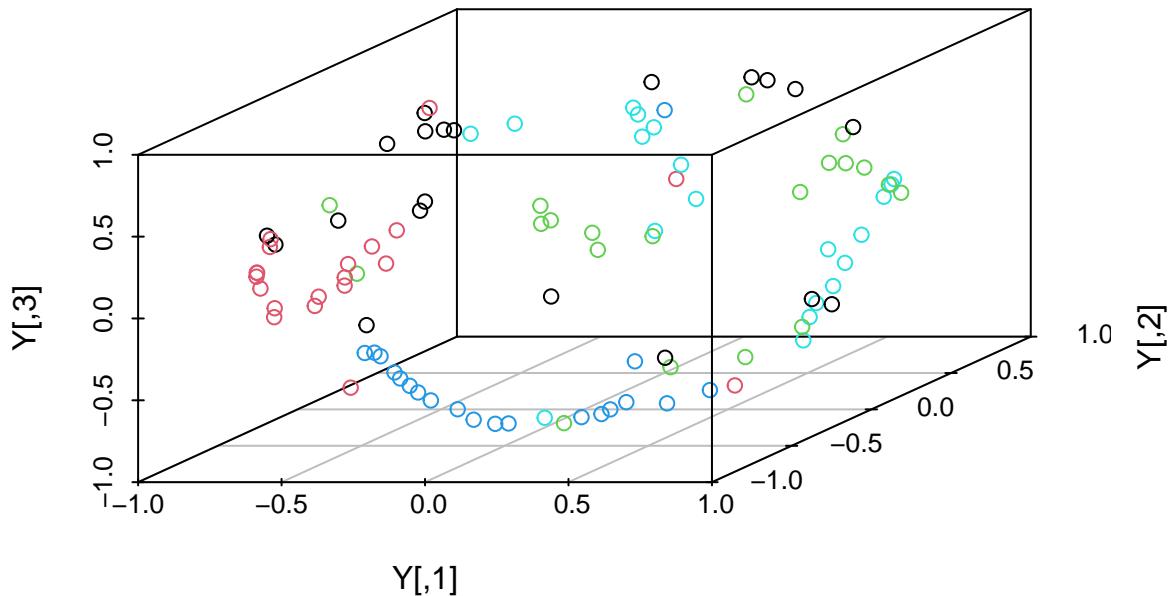
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#> best it: 288; best obj: 2.998e-01
#> It: 617; obj: 1.298e+00; abs: 1.609e-01; rel: 1.103e-01; norm: 1.017e+00; mom: 9.925e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 618; obj: 1.260e+00; abs: 3.744e-02; rel: 2.884e-02; norm: 9.345e-01; mom: 9.727e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 619; obj: 1.136e+00; abs: 1.244e-01; rel: 9.868e-02; norm: 9.301e-01; mom: 9.247e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 620; obj: 1.024e+00; abs: 1.121e-01; rel: 9.864e-02; norm: 8.891e-01; mom: 8.649e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 621; obj: 9.413e-01; abs: 8.271e-02; rel: 8.077e-02; norm: 7.737e-01; mom: 8.195e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 622; obj: 9.434e-01; abs: 2.098e-03; rel: 2.229e-03; norm: 6.881e-01; mom: 7.837e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 623; obj: 8.024e-01; abs: 1.410e-01; rel: 1.495e-01; norm: 6.094e-01; mom: 7.191e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 624; obj: 8.593e-01; abs: 5.685e-02; rel: 7.085e-02; norm: 4.980e-01; mom: 7.131e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 625; obj: 9.034e-01; abs: 4.417e-02; rel: 5.140e-02; norm: 3.126e-01; mom: 6.389e+00;
#> best it: 288; best obj: 2.998e-01

```

## Iteration 625



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#> It: 626; obj: 1.035e+00; abs: 1.314e-01; rel: 1.455e-01; norm: 2.159e-01; mom: 5.169e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 627; obj: 1.113e+00; abs: 7.840e-02; rel: 7.576e-02; norm: 2.443e-01; mom: 4.370e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 628; obj: 1.193e+00; abs: 7.969e-02; rel: 7.158e-02; norm: 2.699e-01; mom: 5.238e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 629; obj: 1.314e+00; abs: 1.210e-01; rel: 1.015e-01; norm: 3.025e-01; mom: 5.259e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 630; obj: 1.355e+00; abs: 4.145e-02; rel: 3.155e-02; norm: 2.624e-01; mom: 6.179e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 631; obj: 1.697e+00; abs: 3.415e-01; rel: 2.519e-01; norm: 2.961e-01; mom: 5.314e+00;
#> best it: 288; best obj: 2.998e-01

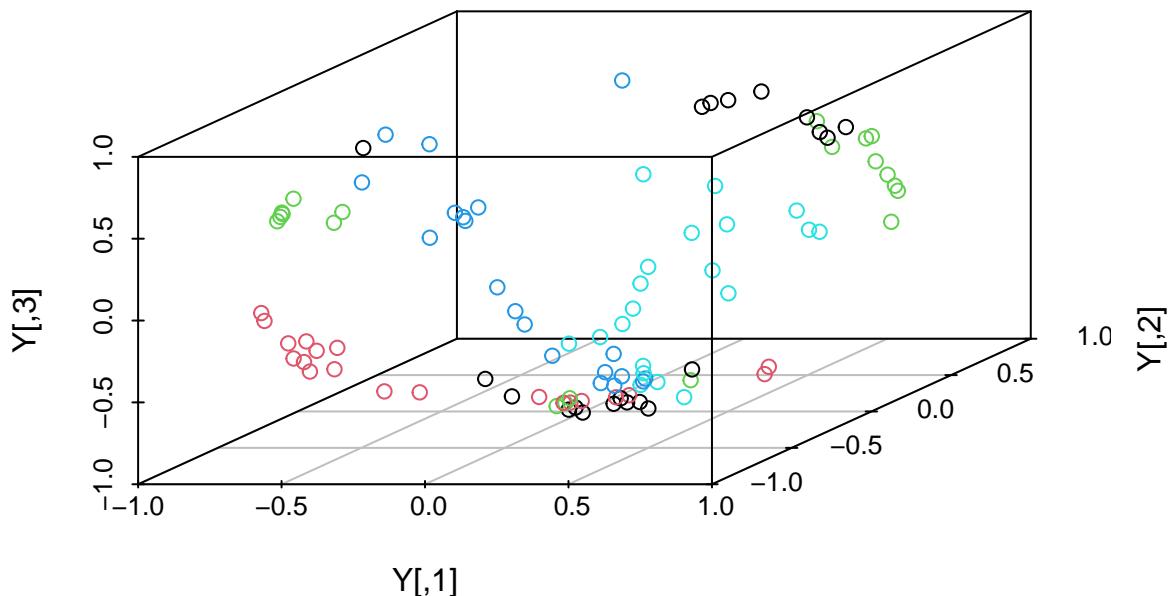
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#> It: 632; obj: 1.785e+00; abs: 8.795e-02; rel: 5.183e-02; norm: 4.435e-01; mom: 6.358e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 633; obj: 1.676e+00; abs: 1.086e-01; rel: 6.083e-02; norm: 4.023e-01; mom: 8.341e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 634; obj: 1.821e+00; abs: 1.447e-01; rel: 8.631e-02; norm: 4.116e-01; mom: 7.565e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 635; obj: 1.841e+00; abs: 1.986e-02; rel: 1.090e-02; norm: 4.501e-01; mom: 8.190e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 636; obj: 1.865e+00; abs: 2.451e-02; rel: 1.331e-02; norm: 4.782e-01; mom: 7.575e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 637; obj: 1.941e+00; abs: 7.529e-02; rel: 4.036e-02; norm: 5.169e-01; mom: 8.093e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 638; obj: 2.053e+00; abs: 1.125e-01; rel: 5.798e-02; norm: 6.076e-01; mom: 8.598e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 639; obj: 2.070e+00; abs: 1.706e-02; rel: 8.307e-03; norm: 8.099e-01; mom: 9.922e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 640; obj: 2.033e+00; abs: 3.726e-02; rel: 1.800e-02; norm: 1.026e+00; mom: 9.469e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 641; obj: 2.036e+00; abs: 3.537e-03; rel: 1.740e-03; norm: 1.083e+00; mom: 9.887e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 642; obj: 1.918e+00; abs: 1.186e-01; rel: 5.824e-02; norm: 1.156e+00; mom: 1.010e+01;
#> best it: 288; best obj: 2.998e-01
#> It: 643; obj: 1.892e+00; abs: 2.633e-02; rel: 1.373e-02; norm: 1.166e+00; mom: 1.044e+01;
#> best it: 288; best obj: 2.998e-01
#> It: 644; obj: 1.790e+00; abs: 1.011e-01; rel: 5.343e-02; norm: 1.211e+00; mom: 1.058e+01;
#> best it: 288; best obj: 2.998e-01
#> It: 645; obj: 1.644e+00; abs: 1.466e-01; rel: 8.190e-02; norm: 1.238e+00; mom: 1.015e+01;
#> best it: 288; best obj: 2.998e-01
#> It: 646; obj: 1.478e+00; abs: 1.655e-01; rel: 1.007e-01; norm: 1.123e+00; mom: 1.020e+01;
#> best it: 288; best obj: 2.998e-01
#> It: 647; obj: 1.498e+00; abs: 1.966e-02; rel: 1.330e-02; norm: 1.038e+00; mom: 1.029e+01;
#> best it: 288; best obj: 2.998e-01
#> It: 648; obj: 1.304e+00; abs: 1.939e-01; rel: 1.294e-01; norm: 9.865e-01; mom: 1.003e+01;
#> best it: 288; best obj: 2.998e-01
#> It: 649; obj: 1.230e+00; abs: 7.411e-02; rel: 5.683e-02; norm: 9.211e-01; mom: 9.443e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 650; obj: 1.053e+00; abs: 1.768e-01; rel: 1.438e-01; norm: 8.923e-01; mom: 9.294e+00;
#> best it: 288; best obj: 2.998e-01

```

## Iteration 650



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#> It: 651; obj: 1.079e+00; abs: 2.624e-02; rel: 2.491e-02; norm: 8.492e-01; mom: 8.690e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 652; obj: 9.239e-01; abs: 1.555e-01; rel: 1.440e-01; norm: 7.828e-01; mom: 8.324e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 653; obj: 8.785e-01; abs: 4.539e-02; rel: 4.913e-02; norm: 6.867e-01; mom: 8.117e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 654; obj: 8.898e-01; abs: 1.132e-02; rel: 1.288e-02; norm: 5.135e-01; mom: 7.487e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 655; obj: 8.827e-01; abs: 7.113e-03; rel: 7.994e-03; norm: 4.246e-01; mom: 7.164e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 656; obj: 9.606e-01; abs: 7.795e-02; rel: 8.831e-02; norm: 3.156e-01; mom: 6.400e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 657; obj: 1.045e+00; abs: 8.426e-02; rel: 8.771e-02; norm: 2.747e-01; mom: 5.782e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 658; obj: 1.132e+00; abs: 8.694e-02; rel: 8.320e-02; norm: 2.320e-01; mom: 5.552e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 659; obj: 1.306e+00; abs: 1.741e-01; rel: 1.538e-01; norm: 2.862e-01; mom: 5.027e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 660; obj: 1.485e+00; abs: 1.793e-01; rel: 1.373e-01; norm: 2.959e-01; mom: 6.239e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 661; obj: 1.721e+00; abs: 2.357e-01; rel: 1.587e-01; norm: 3.347e-01; mom: 6.095e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 662; obj: 1.842e+00; abs: 1.210e-01; rel: 7.029e-02; norm: 4.569e-01; mom: 7.464e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 663; obj: 1.830e+00; abs: 1.153e-02; rel: 6.259e-03; norm: 5.669e-01; mom: 8.420e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 664; obj: 1.916e+00; abs: 8.528e-02; rel: 4.659e-02; norm: 6.239e-01; mom: 8.214e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 665; obj: 1.951e+00; abs: 3.541e-02; rel: 1.849e-02; norm: 6.726e-01; mom: 8.820e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 666; obj: 1.857e+00; abs: 9.360e-02; rel: 4.797e-02; norm: 8.916e-01; mom: 8.347e+00;

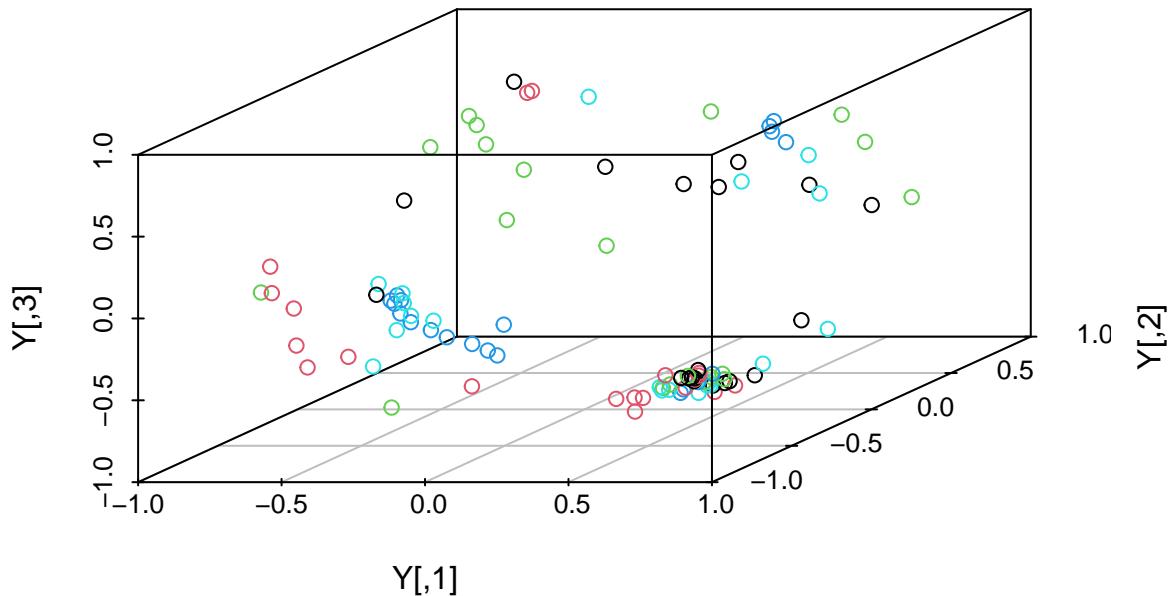
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#> best it: 288; best obj: 2.998e-01
#> It: 667; obj: 1.925e+00; abs: 6.777e-02; rel: 3.648e-02; norm: 9.045e-01; mom: 8.868e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 668; obj: 2.101e+00; abs: 1.762e-01; rel: 9.151e-02; norm: 1.076e+00; mom: 9.109e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 669; obj: 1.862e+00; abs: 2.394e-01; rel: 1.139e-01; norm: 1.222e+00; mom: 9.484e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 670; obj: 1.952e+00; abs: 8.961e-02; rel: 4.813e-02; norm: 1.104e+00; mom: 1.011e+01;
#> best it: 288; best obj: 2.998e-01
#> It: 671; obj: 1.943e+00; abs: 8.857e-03; rel: 4.538e-03; norm: 1.167e+00; mom: 9.975e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 672; obj: 1.821e+00; abs: 1.219e-01; rel: 6.277e-02; norm: 1.188e+00; mom: 9.730e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 673; obj: 1.794e+00; abs: 2.630e-02; rel: 1.444e-02; norm: 1.116e+00; mom: 9.825e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 674; obj: 1.788e+00; abs: 6.643e-03; rel: 3.702e-03; norm: 1.144e+00; mom: 1.009e+01;
#> best it: 288; best obj: 2.998e-01
#> It: 675; obj: 1.672e+00; abs: 1.158e-01; rel: 6.479e-02; norm: 1.206e+00; mom: 9.831e+00;
#> best it: 288; best obj: 2.998e-01

```

## Iteration 675



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#> It: 676; obj: 1.615e+00; abs: 5.718e-02; rel: 3.420e-02; norm: 1.159e+00; mom: 9.832e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 677; obj: 1.533e+00; abs: 8.165e-02; rel: 5.056e-02; norm: 1.131e+00; mom: 9.922e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 678; obj: 1.344e+00; abs: 1.894e-01; rel: 1.235e-01; norm: 1.091e+00; mom: 9.803e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 679; obj: 1.392e+00; abs: 4.866e-02; rel: 3.621e-02; norm: 1.028e+00; mom: 9.411e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 680; obj: 1.281e+00; abs: 1.117e-01; rel: 8.018e-02; norm: 1.025e+00; mom: 9.266e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 681; obj: 1.260e+00; abs: 2.031e-02; rel: 1.586e-02; norm: 9.502e-01; mom: 9.088e+00;
#> best it: 288; best obj: 2.998e-01

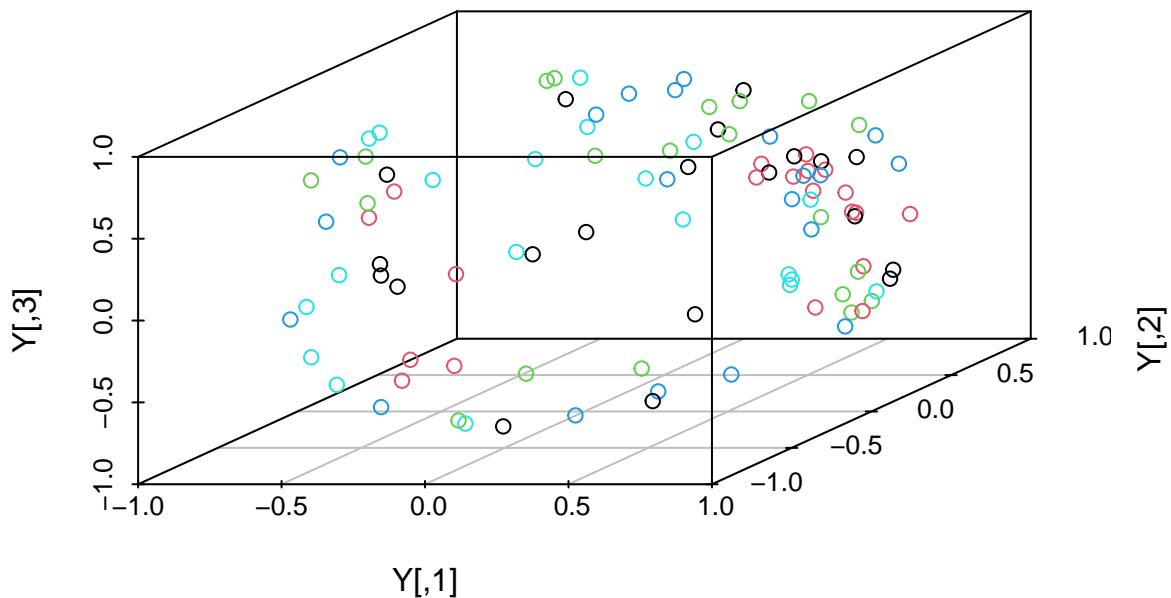
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#> It: 682; obj: 1.126e+00; abs: 1.342e-01; rel: 1.064e-01; norm: 9.414e-01; mom: 8.828e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 683; obj: 1.111e+00; abs: 1.487e-02; rel: 1.320e-02; norm: 8.892e-01; mom: 8.561e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 684; obj: 1.098e+00; abs: 1.369e-02; rel: 1.231e-02; norm: 8.536e-01; mom: 8.018e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 685; obj: 1.077e+00; abs: 2.069e-02; rel: 1.885e-02; norm: 8.024e-01; mom: 7.872e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 686; obj: 1.076e+00; abs: 9.657e-04; rel: 8.966e-04; norm: 7.733e-01; mom: 7.971e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 687; obj: 1.078e+00; abs: 2.079e-03; rel: 1.932e-03; norm: 7.380e-01; mom: 7.660e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 688; obj: 1.006e+00; abs: 7.173e-02; rel: 6.652e-02; norm: 7.825e-01; mom: 7.578e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 689; obj: 1.047e+00; abs: 4.095e-02; rel: 4.068e-02; norm: 7.287e-01; mom: 7.698e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 690; obj: 9.761e-01; abs: 7.137e-02; rel: 6.814e-02; norm: 6.469e-01; mom: 7.268e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 691; obj: 9.682e-01; abs: 7.809e-03; rel: 8.000e-03; norm: 6.243e-01; mom: 7.286e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 692; obj: 9.565e-01; abs: 1.173e-02; rel: 1.212e-02; norm: 5.467e-01; mom: 7.293e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 693; obj: 9.432e-01; abs: 1.331e-02; rel: 1.391e-02; norm: 4.908e-01; mom: 6.875e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 694; obj: 9.247e-01; abs: 1.850e-02; rel: 1.961e-02; norm: 3.289e-01; mom: 6.226e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 695; obj: 1.071e+00; abs: 1.467e-01; rel: 1.586e-01; norm: 2.322e-01; mom: 5.761e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 696; obj: 1.289e+00; abs: 2.179e-01; rel: 2.033e-01; norm: 2.356e-01; mom: 4.508e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 697; obj: 1.625e+00; abs: 3.358e-01; rel: 2.604e-01; norm: 3.291e-01; mom: 5.206e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 698; obj: 1.753e+00; abs: 1.280e-01; rel: 7.879e-02; norm: 3.923e-01; mom: 6.777e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 699; obj: 1.696e+00; abs: 5.711e-02; rel: 3.258e-02; norm: 4.223e-01; mom: 7.946e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 700; obj: 1.711e+00; abs: 1.513e-02; rel: 8.920e-03; norm: 5.036e-01; mom: 7.662e+00;
#> best it: 288; best obj: 2.998e-01

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## Iteration 700



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#> It: 701; obj: 1.842e+00; abs: 1.306e-01; rel: 7.636e-02; norm: 5.802e-01; mom: 8.075e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 702; obj: 1.995e+00; abs: 1.530e-01; rel: 8.306e-02; norm: 6.974e-01; mom: 8.575e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 703; obj: 2.112e+00; abs: 1.178e-01; rel: 5.904e-02; norm: 8.524e-01; mom: 8.710e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 704; obj: 2.093e+00; abs: 1.972e-02; rel: 9.336e-03; norm: 1.138e+00; mom: 9.842e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 705; obj: 2.059e+00; abs: 3.327e-02; rel: 1.590e-02; norm: 1.224e+00; mom: 9.738e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 706; obj: 1.896e+00; abs: 1.630e-01; rel: 7.915e-02; norm: 1.261e+00; mom: 1.010e+01;
#> best it: 288; best obj: 2.998e-01
#> It: 707; obj: 1.891e+00; abs: 5.107e-03; rel: 2.693e-03; norm: 1.198e+00; mom: 9.942e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 708; obj: 1.760e+00; abs: 1.309e-01; rel: 6.921e-02; norm: 1.232e+00; mom: 1.014e+01;
#> best it: 288; best obj: 2.998e-01
#> It: 709; obj: 1.709e+00; abs: 5.108e-02; rel: 2.902e-02; norm: 1.160e+00; mom: 1.044e+01;
#> best it: 288; best obj: 2.998e-01
#> It: 710; obj: 1.588e+00; abs: 1.209e-01; rel: 7.070e-02; norm: 1.132e+00; mom: 1.024e+01;
#> best it: 288; best obj: 2.998e-01
#> It: 711; obj: 1.451e+00; abs: 1.375e-01; rel: 8.658e-02; norm: 1.065e+00; mom: 1.030e+01;
#> best it: 288; best obj: 2.998e-01
#> It: 712; obj: 1.379e+00; abs: 7.192e-02; rel: 4.957e-02; norm: 1.048e+00; mom: 9.644e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 713; obj: 1.269e+00; abs: 1.105e-01; rel: 8.014e-02; norm: 9.972e-01; mom: 9.567e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 714; obj: 1.201e+00; abs: 6.729e-02; rel: 5.305e-02; norm: 9.869e-01; mom: 9.238e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 715; obj: 1.110e+00; abs: 9.141e-02; rel: 7.610e-02; norm: 9.258e-01; mom: 9.180e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 716; obj: 1.148e+00; abs: 3.864e-02; rel: 3.481e-02; norm: 8.853e-01; mom: 8.753e+00;

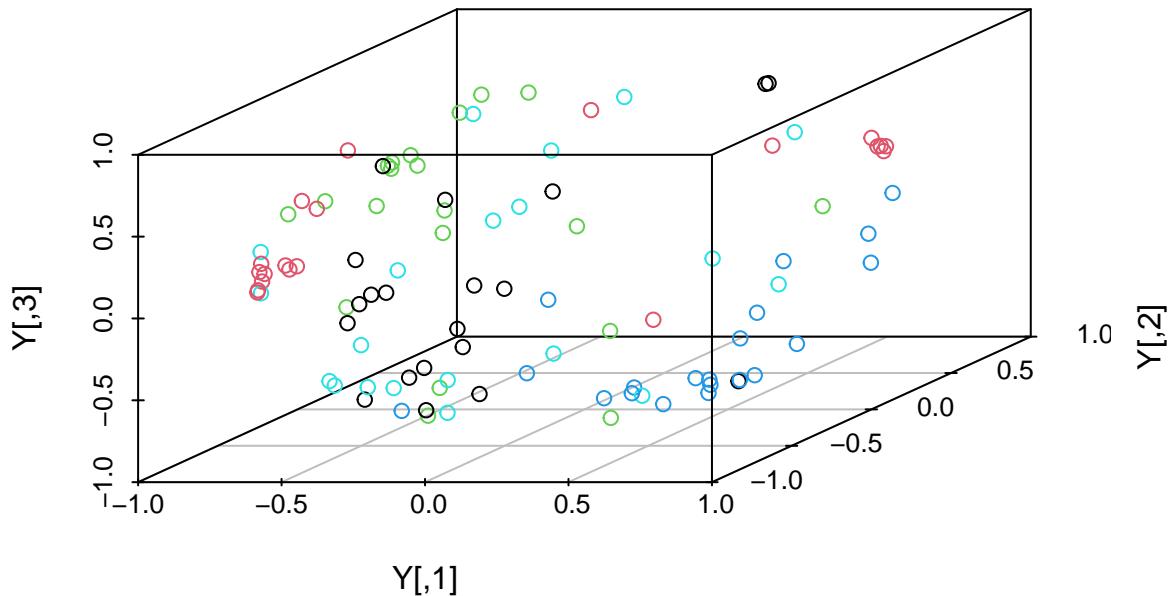
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#> best it: 288; best obj: 2.998e-01
#> It: 717; obj: 1.010e+00; abs: 1.381e-01; rel: 1.202e-01; norm: 8.208e-01; mom: 8.628e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 718; obj: 1.053e+00; abs: 4.282e-02; rel: 4.238e-02; norm: 7.889e-01; mom: 8.149e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 719; obj: 9.479e-01; abs: 1.053e-01; rel: 9.996e-02; norm: 7.591e-01; mom: 8.191e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 720; obj: 9.251e-01; abs: 2.281e-02; rel: 2.407e-02; norm: 6.463e-01; mom: 7.811e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 721; obj: 8.915e-01; abs: 3.365e-02; rel: 3.637e-02; norm: 4.752e-01; mom: 7.289e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 722; obj: 8.739e-01; abs: 1.755e-02; rel: 1.968e-02; norm: 3.724e-01; mom: 6.403e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 723; obj: 1.046e+00; abs: 1.726e-01; rel: 1.975e-01; norm: 2.601e-01; mom: 5.808e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 724; obj: 1.153e+00; abs: 1.064e-01; rel: 1.017e-01; norm: 2.669e-01; mom: 4.831e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 725; obj: 1.277e+00; abs: 1.236e-01; rel: 1.072e-01; norm: 3.011e-01; mom: 5.552e+00;
#> best it: 288; best obj: 2.998e-01

```

## Iteration 725



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#> It: 726; obj: 1.357e+00; abs: 8.008e-02; rel: 6.274e-02; norm: 3.434e-01; mom: 6.356e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 727; obj: 1.409e+00; abs: 5.274e-02; rel: 3.888e-02; norm: 3.511e-01; mom: 6.852e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 728; obj: 1.635e+00; abs: 2.252e-01; rel: 1.598e-01; norm: 3.628e-01; mom: 6.390e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 729; obj: 1.650e+00; abs: 1.510e-02; rel: 9.240e-03; norm: 4.465e-01; mom: 7.450e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 730; obj: 1.737e+00; abs: 8.746e-02; rel: 5.302e-02; norm: 4.528e-01; mom: 7.751e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 731; obj: 1.759e+00; abs: 2.229e-02; rel: 1.283e-02; norm: 4.192e-01; mom: 7.997e+00;
#> best it: 288; best obj: 2.998e-01

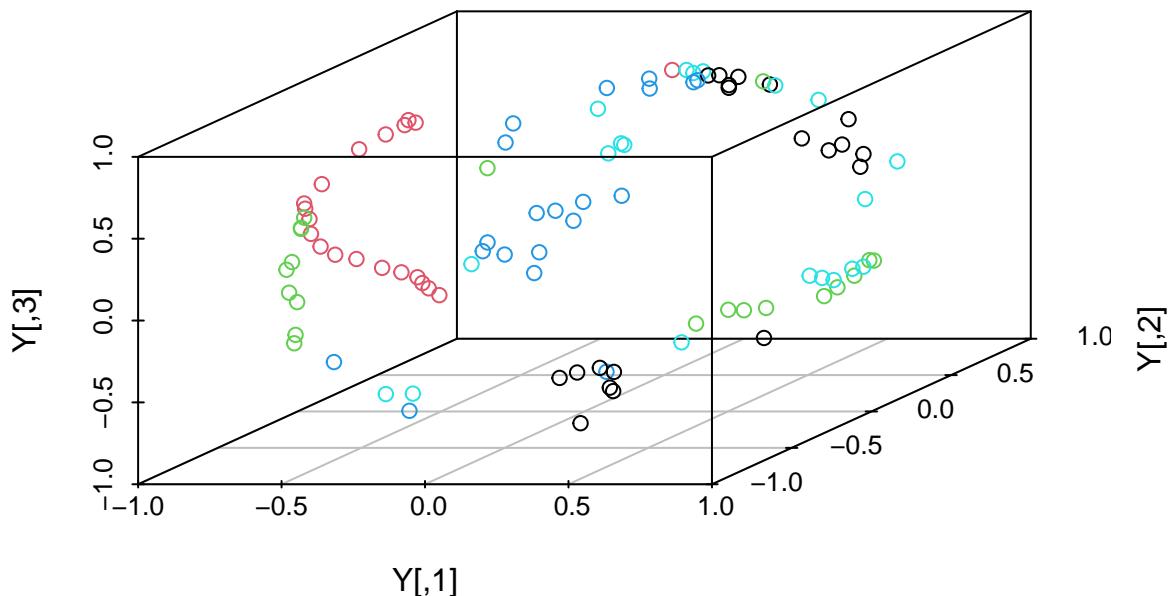
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#> It: 732; obj: 1.868e+00; abs: 1.089e-01; rel: 6.189e-02; norm: 4.664e-01; mom: 7.614e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 733; obj: 1.869e+00; abs: 6.085e-04; rel: 3.257e-04; norm: 5.369e-01; mom: 8.029e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 734; obj: 1.941e+00; abs: 7.215e-02; rel: 3.860e-02; norm: 6.607e-01; mom: 8.581e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 735; obj: 1.925e+00; abs: 1.651e-02; rel: 8.505e-03; norm: 8.669e-01; mom: 8.809e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 736; obj: 1.842e+00; abs: 8.266e-02; rel: 4.295e-02; norm: 1.055e+00; mom: 9.618e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 737; obj: 1.768e+00; abs: 7.357e-02; rel: 3.994e-02; norm: 1.104e+00; mom: 9.472e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 738; obj: 1.710e+00; abs: 5.853e-02; rel: 3.310e-02; norm: 1.126e+00; mom: 9.284e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 739; obj: 1.630e+00; abs: 8.006e-02; rel: 4.682e-02; norm: 1.192e+00; mom: 9.564e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 740; obj: 1.491e+00; abs: 1.392e-01; rel: 8.541e-02; norm: 1.109e+00; mom: 9.507e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 741; obj: 1.528e+00; abs: 3.770e-02; rel: 2.529e-02; norm: 1.076e+00; mom: 9.695e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 742; obj: 1.355e+00; abs: 1.737e-01; rel: 1.137e-01; norm: 1.016e+00; mom: 9.596e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 743; obj: 1.327e+00; abs: 2.712e-02; rel: 2.002e-02; norm: 9.855e-01; mom: 9.385e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 744; obj: 1.249e+00; abs: 7.801e-02; rel: 5.876e-02; norm: 1.017e+00; mom: 9.154e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 745; obj: 1.209e+00; abs: 4.068e-02; rel: 3.256e-02; norm: 1.001e+00; mom: 8.932e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 746; obj: 1.110e+00; abs: 9.840e-02; rel: 8.140e-02; norm: 9.120e-01; mom: 9.199e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 747; obj: 1.047e+00; abs: 6.380e-02; rel: 5.745e-02; norm: 8.282e-01; mom: 9.072e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 748; obj: 9.561e-01; abs: 9.051e-02; rel: 8.648e-02; norm: 7.638e-01; mom: 8.614e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 749; obj: 9.090e-01; abs: 4.707e-02; rel: 4.923e-02; norm: 6.837e-01; mom: 8.087e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 750; obj: 9.017e-01; abs: 7.312e-03; rel: 8.044e-03; norm: 5.817e-01; mom: 7.664e+00;
#> best it: 288; best obj: 2.998e-01

```

## Iteration 750



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#> It: 751; obj: 8.724e-01; abs: 2.934e-02; rel: 3.254e-02; norm: 4.778e-01; mom: 7.169e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 752; obj: 9.299e-01; abs: 5.750e-02; rel: 6.592e-02; norm: 3.566e-01; mom: 6.724e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 753; obj: 9.074e-01; abs: 2.249e-02; rel: 2.418e-02; norm: 2.685e-01; mom: 5.477e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 754; obj: 1.242e+00; abs: 3.343e-01; rel: 3.684e-01; norm: 2.655e-01; mom: 5.120e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 755; obj: 1.221e+00; abs: 2.024e-02; rel: 1.630e-02; norm: 3.214e-01; mom: 5.365e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 756; obj: 1.419e+00; abs: 1.978e-01; rel: 1.620e-01; norm: 2.954e-01; mom: 5.706e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 757; obj: 1.502e+00; abs: 8.254e-02; rel: 5.816e-02; norm: 4.491e-01; mom: 5.855e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 758; obj: 1.628e+00; abs: 1.262e-01; rel: 8.400e-02; norm: 5.617e-01; mom: 8.513e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 759; obj: 1.724e+00; abs: 9.619e-02; rel: 5.909e-02; norm: 6.361e-01; mom: 8.138e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 760; obj: 1.747e+00; abs: 2.320e-02; rel: 1.345e-02; norm: 7.685e-01; mom: 8.719e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 761; obj: 1.617e+00; abs: 1.298e-01; rel: 7.430e-02; norm: 8.960e-01; mom: 9.419e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 762; obj: 1.653e+00; abs: 3.579e-02; rel: 2.213e-02; norm: 9.969e-01; mom: 8.858e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 763; obj: 1.557e+00; abs: 9.661e-02; rel: 5.843e-02; norm: 1.084e+00; mom: 9.567e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 764; obj: 1.388e+00; abs: 1.684e-01; rel: 1.082e-01; norm: 1.087e+00; mom: 9.659e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 765; obj: 1.435e+00; abs: 4.704e-02; rel: 3.388e-02; norm: 9.885e-01; mom: 9.543e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 766; obj: 1.346e+00; abs: 8.982e-02; rel: 6.258e-02; norm: 9.707e-01; mom: 9.130e+00;

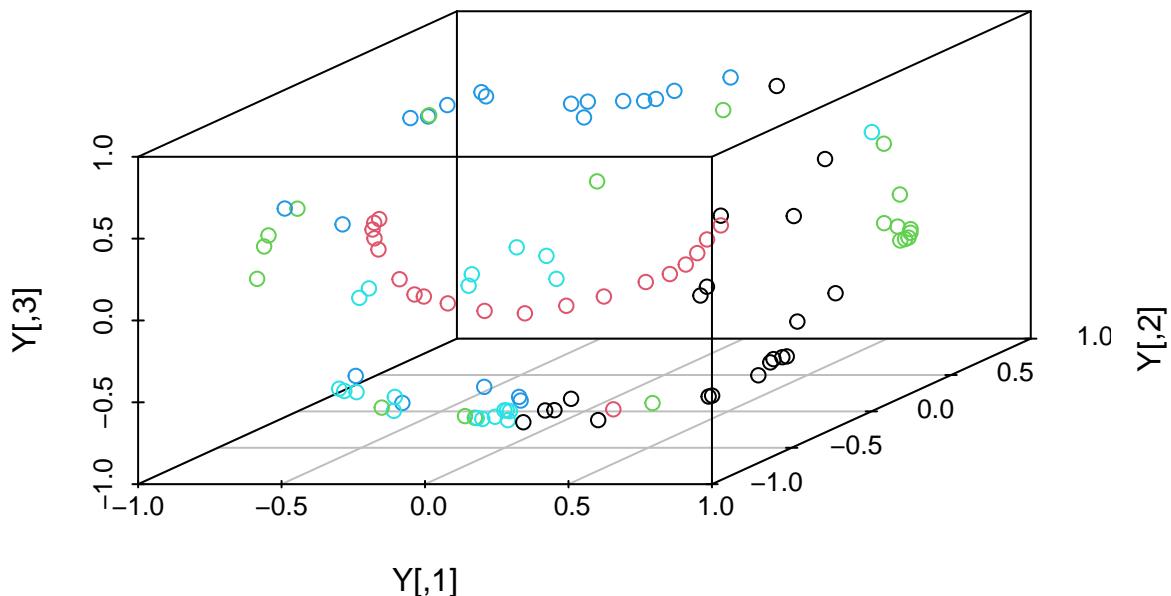
```

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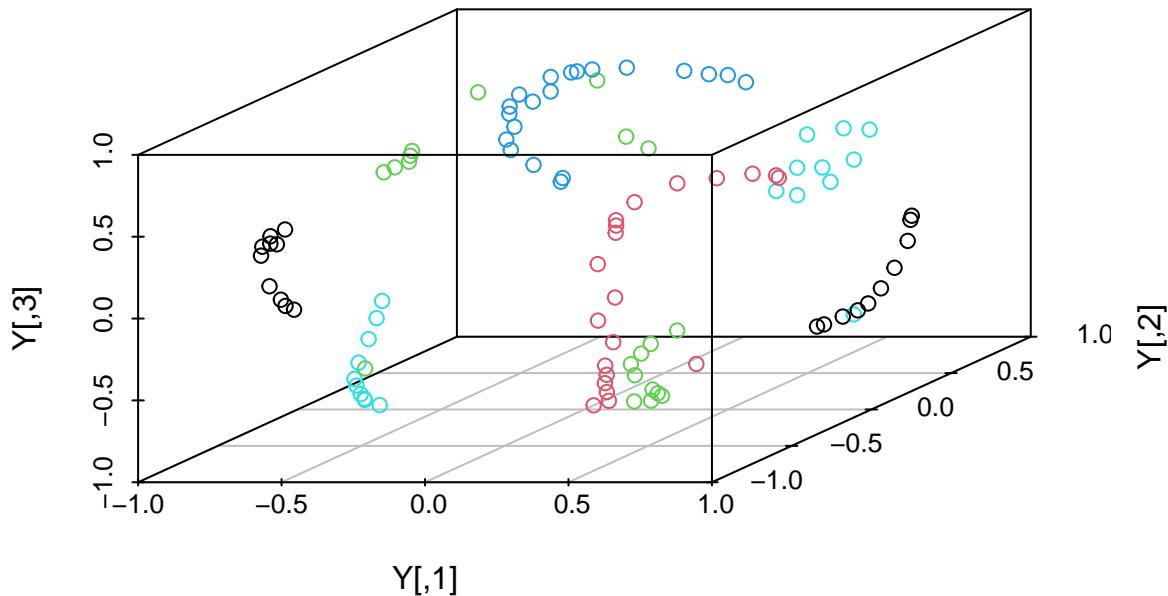
#> best it: 288; best obj: 2.998e-01
#> It: 767; obj: 1.411e+00; abs: 6.536e-02; rel: 4.858e-02; norm: 9.312e-01; mom: 9.400e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 768; obj: 1.346e+00; abs: 6.465e-02; rel: 4.582e-02; norm: 1.017e+00; mom: 9.075e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 769; obj: 1.288e+00; abs: 5.802e-02; rel: 4.310e-02; norm: 1.005e+00; mom: 9.243e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 770; obj: 1.253e+00; abs: 3.563e-02; rel: 2.766e-02; norm: 9.757e-01; mom: 9.084e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 771; obj: 1.126e+00; abs: 1.261e-01; rel: 1.007e-01; norm: 9.342e-01; mom: 8.949e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 772; obj: 1.131e+00; abs: 4.953e-03; rel: 4.397e-03; norm: 8.609e-01; mom: 8.826e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 773; obj: 9.845e-01; abs: 1.469e-01; rel: 1.299e-01; norm: 8.333e-01; mom: 8.296e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 774; obj: 9.846e-01; abs: 1.655e-04; rel: 1.681e-04; norm: 7.624e-01; mom: 8.090e+00;
#> best it: 288; best obj: 2.998e-01
#> It: 775; obj: 9.068e-01; abs: 7.788e-02; rel: 7.910e-02; norm: 6.787e-01; mom: 8.075e+00;
#> best it: 288; best obj: 2.998e-01

```

## Iteration 775



## Iteration 288



In case of the reduced dimension  $d = 2$ , we can confirm the results obtained in the circumference. Let's see these results on the interactive sphere.

```
rgl::plot3d(0, 0, 0, xlim = c(-1, 1), ylim = c(-1, 1), zlim = c(-1, 1),
            radius = 1, type = "s", col = "lightblue", alpha = 0.8, lit = FALSE)
rgl::points3d(psc_sne_res_22_neg$best_Y, col = cols)
```

$(\mathbb{S}^1)^{100}$

Generating samples that are uniform and independent in all 's except in the first five, where two groups are defined by two antipodal vMF distributions at north/south

A medium concentration (not massive, so that one has to rely on the combined information of the first ones).

```
r1 <- 5
r2 <- 95
p <- 1
n <- 100
kappa <- 1
gen_data <- rbinom(n = n, size = n, prob = 0.5)
x_vMF_5 <- sapply(seq_len(r1), function(k1) {
  data_vMF <- lapply(seq_len(n), function(i) {
    if (gen_data[i] <= n / 2) {
      rotasym::r_vMF(n = 1, mu = c(0, 1), kappa = kappa)
    } else {
      rotasym::r_vMF(n = 1, mu = c(0, -1), kappa = kappa)
    }
  })
  do.call(rbind, data_vMF)
}, simplify = "array")
x_uniform_95 <- sphunif::r_unif_sph(n = n, p = p + 1, M = r2)
x_s1_100 <- abind(x_vMF_5, x_uniform_95, along = 3)
```

Let's calculate the rho based on a fixed perplexity of 30.

```
rho_30_s1_100 <- rho_optim_bst(x = x_s1_100, perp_fixed = 30,
                                 num_cores = num_cores_param)
#> Time difference of 39.25951 secs
```

First, let's reduce the dimension to the circumference:

```
cols <- ifelse(gen_data <= n / 2, 2, 3)
psc_sne_res_31 <- psc_sne(X = x_s1_100, d = 1, rho_psc_list = rho_30_s1_100,
                           colors = cols, show_prog = TRUE, num_iteration = 775,
                           eta = 25, parallel_cores = num_cores_param)
#> It: 1; obj: 1.092e+01; abs: 0.000e+00; rel: 0.000e+00; norm: 2.462e-01; mom: 0.000e+00;
#> best it: 1; best obj: 1.092e+01
#> It: 2; obj: 1.052e+01; abs: 3.946e-01; rel: 3.615e-02; norm: 3.678e-01; mom: 1.149e+00;
#> best it: 2; best obj: 1.052e+01
#> It: 3; obj: 1.041e+01; abs: 1.154e-01; rel: 1.096e-02; norm: 5.120e-01; mom: 1.118e+00;
#> best it: 3; best obj: 1.041e+01
#> It: 4; obj: 1.035e+01; abs: 5.976e-02; rel: 5.743e-03; norm: 5.816e-01; mom: 7.877e-01;
#> best it: 4; best obj: 1.035e+01
#> It: 5; obj: 1.031e+01; abs: 3.472e-02; rel: 3.356e-03; norm: 6.339e-01; mom: 6.572e-01;
#> best it: 5; best obj: 1.031e+01
#> It: 6; obj: 1.029e+01; abs: 1.910e-02; rel: 1.852e-03; norm: 6.747e-01; mom: 4.866e-01;
#> best it: 6; best obj: 1.029e+01
#> It: 7; obj: 1.028e+01; abs: 9.484e-03; rel: 9.215e-04; norm: 6.980e-01; mom: 3.328e-01;
#> best it: 7; best obj: 1.028e+01
#> It: 8; obj: 1.029e+01; abs: 3.410e-03; rel: 3.316e-04; norm: 7.172e-01; mom: 2.755e-01;
#> best it: 7; best obj: 1.028e+01
#> It: 9; obj: 1.030e+01; abs: 1.143e-02; rel: 1.111e-03; norm: 7.353e-01; mom: 2.365e-01;
#> best it: 7; best obj: 1.028e+01
#> It: 10; obj: 1.031e+01; abs: 1.255e-02; rel: 1.219e-03; norm: 7.528e-01; mom: 2.481e-01;
#> best it: 7; best obj: 1.028e+01
#> It: 11; obj: 1.032e+01; abs: 1.232e-02; rel: 1.195e-03; norm: 7.685e-01; mom: 2.254e-01;
#> best it: 7; best obj: 1.028e+01
#> It: 12; obj: 1.034e+01; abs: 1.642e-02; rel: 1.591e-03; norm: 7.850e-01; mom: 2.449e-01;
#> best it: 7; best obj: 1.028e+01
#> It: 13; obj: 1.036e+01; abs: 2.185e-02; rel: 2.114e-03; norm: 8.030e-01; mom: 2.626e-01;
#> best it: 7; best obj: 1.028e+01
#> It: 14; obj: 1.038e+01; abs: 2.122e-02; rel: 2.048e-03; norm: 8.189e-01; mom: 2.379e-01;
#> best it: 7; best obj: 1.028e+01
#> It: 15; obj: 1.040e+01; abs: 1.897e-02; rel: 1.828e-03; norm: 8.340e-01; mom: 2.451e-01;
#> best it: 7; best obj: 1.028e+01
#> It: 16; obj: 1.042e+01; abs: 1.556e-02; rel: 1.496e-03; norm: 8.495e-01; mom: 2.670e-01;
#> best it: 7; best obj: 1.028e+01
#> It: 17; obj: 1.042e+01; abs: 5.213e-03; rel: 5.005e-04; norm: 8.634e-01; mom: 2.911e-01;
#> best it: 7; best obj: 1.028e+01
#> It: 18; obj: 1.041e+01; abs: 1.212e-02; rel: 1.163e-03; norm: 8.710e-01; mom: 3.143e-01;
#> best it: 7; best obj: 1.028e+01
#> It: 19; obj: 1.038e+01; abs: 3.322e-02; rel: 3.191e-03; norm: 8.737e-01; mom: 3.557e-01;
#> best it: 7; best obj: 1.028e+01
#> It: 20; obj: 1.032e+01; abs: 5.556e-02; rel: 5.354e-03; norm: 8.779e-01; mom: 4.151e-01;
#> best it: 7; best obj: 1.028e+01
#> It: 21; obj: 1.025e+01; abs: 7.239e-02; rel: 7.014e-03; norm: 9.031e-01; mom: 4.821e-01;
#> best it: 21; best obj: 1.025e+01
#> It: 22; obj: 1.017e+01; abs: 7.911e-02; rel: 7.720e-03; norm: 9.898e-01; mom: 5.546e-01;
```

```

#> best it: 22; best obj: 1.017e+01
#> It: 23; obj: 1.010e+01; abs: 6.729e-02; rel: 6.617e-03; norm: 1.156e+00; mom: 6.436e-01;
#> best it: 23; best obj: 1.010e+01
#> It: 24; obj: 1.007e+01; abs: 3.331e-02; rel: 3.297e-03; norm: 1.382e+00; mom: 6.843e-01;
#> best it: 24; best obj: 1.007e+01
#> It: 25; obj: 1.007e+01; abs: 2.566e-03; rel: 2.549e-04; norm: 1.640e+00; mom: 6.317e-01;
#> best it: 25; best obj: 1.007e+01
#> It: 26; obj: 1.009e+01; abs: 2.688e-02; rel: 2.671e-03; norm: 1.899e+00; mom: 6.493e-01;
#> best it: 25; best obj: 1.007e+01
#> It: 27; obj: 1.015e+01; abs: 5.503e-02; rel: 5.452e-03; norm: 2.129e+00; mom: 6.113e-01;
#> best it: 25; best obj: 1.007e+01
#> It: 28; obj: 1.020e+01; abs: 5.265e-02; rel: 5.188e-03; norm: 2.296e+00; mom: 5.011e-01;
#> best it: 25; best obj: 1.007e+01
#> It: 29; obj: 1.023e+01; abs: 2.734e-02; rel: 2.680e-03; norm: 2.381e+00; mom: 3.416e-01;
#> best it: 25; best obj: 1.007e+01
#> It: 30; obj: 1.024e+01; abs: 1.011e-02; rel: 9.887e-04; norm: 2.410e+00; mom: 1.969e-01;
#> best it: 25; best obj: 1.007e+01
#> It: 31; obj: 1.024e+01; abs: 3.435e-03; rel: 3.355e-04; norm: 2.420e+00; mom: 1.078e-01;
#> best it: 25; best obj: 1.007e+01
#> It: 32; obj: 1.024e+01; abs: 1.170e-03; rel: 1.143e-04; norm: 2.422e+00; mom: 5.965e-02;
#> best it: 25; best obj: 1.007e+01
#> It: 33; obj: 1.024e+01; abs: 4.077e-04; rel: 3.981e-05; norm: 2.423e+00; mom: 3.368e-02;
#> best it: 25; best obj: 1.007e+01
#> It: 34; obj: 1.024e+01; abs: 1.454e-04; rel: 1.420e-05; norm: 2.424e+00; mom: 1.939e-02;
#> best it: 25; best obj: 1.007e+01
#> It: 35; obj: 1.024e+01; abs: 5.290e-05; rel: 5.165e-06; norm: 2.424e+00; mom: 1.136e-02;
#> best it: 25; best obj: 1.007e+01
#> It: 36; obj: 1.024e+01; abs: 1.955e-05; rel: 1.909e-06; norm: 2.424e+00; mom: 6.750e-03;
#> best it: 25; best obj: 1.007e+01
#> It: 37; obj: 1.024e+01; abs: 7.313e-06; rel: 7.139e-07; norm: 2.424e+00; mom: 4.058e-03;
#> best it: 25; best obj: 1.007e+01
#> It: 38; obj: 1.024e+01; abs: 2.759e-06; rel: 2.694e-07; norm: 2.424e+00; mom: 2.461e-03;
#> best it: 25; best obj: 1.007e+01
#> It: 39; obj: 1.024e+01; abs: 1.048e-06; rel: 1.023e-07; norm: 2.424e+00; mom: 1.502e-03;
#> best it: 25; best obj: 1.007e+01
#> It: 40; obj: 1.024e+01; abs: 3.997e-07; rel: 3.902e-08; norm: 2.424e+00; mom: 9.217e-04;
#> best it: 25; best obj: 1.007e+01
#> It: 41; obj: 1.024e+01; abs: 1.530e-07; rel: 1.494e-08; norm: 2.424e+00; mom: 5.675e-04;
#> best it: 25; best obj: 1.007e+01
#> It: 42; obj: 1.024e+01; abs: 5.873e-08; rel: 5.734e-09; norm: 2.424e+00; mom: 3.503e-04;
#> best it: 25; best obj: 1.007e+01
#> It: 43; obj: 1.024e+01; abs: 2.258e-08; rel: 2.205e-09; norm: 2.424e+00; mom: 2.167e-04;
#> best it: 25; best obj: 1.007e+01
#> It: 44; obj: 1.024e+01; abs: 8.694e-09; rel: 8.487e-10; norm: 2.424e+00; mom: 1.342e-04;
#> best it: 25; best obj: 1.007e+01
#> It: 45; obj: 1.024e+01; abs: 3.350e-09; rel: 3.270e-10; norm: 2.424e+00; mom: 8.320e-05;
#> best it: 25; best obj: 1.007e+01
#> It: 46; obj: 1.024e+01; abs: 1.292e-09; rel: 1.261e-10; norm: 2.424e+00; mom: 5.162e-05;
#> best it: 25; best obj: 1.007e+01
#> It: 47; obj: 1.024e+01; abs: 4.984e-10; rel: 4.866e-11; norm: 2.424e+00; mom: 3.204e-05;
#> best it: 25; best obj: 1.007e+01
#> It: 48; obj: 1.024e+01; abs: 1.923e-10; rel: 1.877e-11; norm: 2.424e+00; mom: 1.990e-05;
#> best it: 25; best obj: 1.007e+01

```

```

#> It: 49; obj: 1.024e+01; abs: 7.430e-11; rel: 7.254e-12; norm: 2.424e+00; mom: 1.236e-05;
#> best it: 25; best obj: 1.007e+01
#> It: 50; obj: 1.024e+01; abs: 2.865e-11; rel: 2.797e-12; norm: 2.424e+00; mom: 7.677e-06;
#> best it: 25; best obj: 1.007e+01
#> It: 51; obj: 1.024e+01; abs: 1.106e-11; rel: 1.080e-12; norm: 2.424e+00; mom: 4.770e-06;
#> best it: 25; best obj: 1.007e+01
#> It: 52; obj: 1.024e+01; abs: 4.309e-12; rel: 4.207e-13; norm: 2.424e+00; mom: 2.964e-06;
#> best it: 25; best obj: 1.007e+01
#> It: 53; obj: 1.024e+01; abs: 1.656e-12; rel: 1.616e-13; norm: 2.424e+00; mom: 1.842e-06;
#> best it: 25; best obj: 1.007e+01
#> It: 54; obj: 1.024e+01; abs: 7.194e-13; rel: 7.023e-14; norm: 2.424e+00; mom: 1.145e-06;
#> best it: 25; best obj: 1.007e+01
#> It: 55; obj: 1.024e+01; abs: 2.558e-13; rel: 2.497e-14; norm: 2.424e+00; mom: 7.114e-07;
#> best it: 25; best obj: 1.007e+01
#> It: 56; obj: 1.024e+01; abs: 5.329e-14; rel: 5.203e-15; norm: 2.424e+00; mom: 4.421e-07;
#> best it: 25; best obj: 1.007e+01
#> It: 57; obj: 1.024e+01; abs: 5.329e-15; rel: 5.203e-16; norm: 2.424e+00; mom: 2.748e-07;
#> best it: 25; best obj: 1.007e+01
#> It: 58; obj: 1.024e+01; abs: 1.776e-14; rel: 1.734e-15; norm: 2.424e+00; mom: 1.708e-07;
#> best it: 25; best obj: 1.007e+01
#> It: 59; obj: 1.024e+01; abs: 7.105e-15; rel: 6.937e-16; norm: 2.424e+00; mom: 1.062e-07;
#> best it: 25; best obj: 1.007e+01
#> It: 60; obj: 1.024e+01; abs: 1.776e-15; rel: 1.734e-16; norm: 2.424e+00; mom: 6.598e-08;
#> best it: 25; best obj: 1.007e+01
#> It: 61; obj: 1.024e+01; abs: 3.553e-15; rel: 3.468e-16; norm: 2.424e+00; mom: 4.101e-08;
#> best it: 25; best obj: 1.007e+01
#> It: 62; obj: 1.024e+01; abs: 0.000e+00; rel: 0.000e+00; norm: 2.424e+00; mom: 2.549e-08;
#> best it: 25; best obj: 1.007e+01
#> It: 63; obj: 1.024e+01; abs: 1.776e-15; rel: 1.734e-16; norm: 2.424e+00; mom: 1.584e-08;
#> best it: 25; best obj: 1.007e+01
#> It: 64; obj: 1.024e+01; abs: 0.000e+00; rel: 0.000e+00; norm: 2.424e+00; mom: 9.847e-09;
#> best it: 25; best obj: 1.007e+01
#> It: 65; obj: 1.024e+01; abs: 1.776e-15; rel: 1.734e-16; norm: 2.424e+00; mom: 6.121e-09;
#> best it: 25; best obj: 1.007e+01
#> It: 66; obj: 1.024e+01; abs: 1.776e-15; rel: 1.734e-16; norm: 2.424e+00; mom: 3.804e-09;
#> best it: 25; best obj: 1.007e+01
#> It: 67; obj: 1.024e+01; abs: 0.000e+00; rel: 0.000e+00; norm: 2.424e+00; mom: 2.365e-09;
#> best it: 25; best obj: 1.007e+01
#> It: 68; obj: 1.024e+01; abs: 1.776e-15; rel: 1.734e-16; norm: 2.424e+00; mom: 1.470e-09;
#> best it: 25; best obj: 1.007e+01
#> It: 69; obj: 1.024e+01; abs: 1.776e-15; rel: 1.734e-16; norm: 2.424e+00; mom: 9.135e-10;
#> best it: 25; best obj: 1.007e+01
#> It: 70; obj: 1.024e+01; abs: 0.000e+00; rel: 0.000e+00; norm: 2.424e+00; mom: 5.678e-10;
#> best it: 25; best obj: 1.007e+01
#> It: 71; obj: 1.024e+01; abs: 0.000e+00; rel: 0.000e+00; norm: 2.424e+00; mom: 3.529e-10;
#> best it: 25; best obj: 1.007e+01
#> It: 72; obj: 1.024e+01; abs: 0.000e+00; rel: 0.000e+00; norm: 2.424e+00; mom: 2.194e-10;
#> best it: 25; best obj: 1.007e+01
#> It: 73; obj: 1.024e+01; abs: 0.000e+00; rel: 0.000e+00; norm: 2.424e+00; mom: 1.364e-10;
#> best it: 25; best obj: 1.007e+01
#> It: 74; obj: 1.024e+01; abs: 0.000e+00; rel: 0.000e+00; norm: 2.424e+00; mom: 8.475e-11;
#> best it: 25; best obj: 1.007e+01
#> It: 75; obj: 1.024e+01; abs: 0.000e+00; rel: 0.000e+00; norm: 2.424e+00; mom: 5.268e-11;

```

```

#> best it: 25; best obj: 1.007e+01
#> It: 76; obj: 1.024e+01; abs: 1.776e-15; rel: 1.734e-16; norm: 2.424e+00; mom: 3.274e-11;
#> best it: 25; best obj: 1.007e+01
#> It: 77; obj: 1.024e+01; abs: 1.776e-15; rel: 1.734e-16; norm: 2.424e+00; mom: 2.035e-11;
#> best it: 25; best obj: 1.007e+01
#> It: 78; obj: 1.024e+01; abs: 1.776e-15; rel: 1.734e-16; norm: 2.424e+00; mom: 1.265e-11;
#> best it: 25; best obj: 1.007e+01
#> It: 79; obj: 1.024e+01; abs: 1.776e-15; rel: 1.734e-16; norm: 2.424e+00; mom: 7.863e-12;
#> best it: 25; best obj: 1.007e+01
#> It: 80; obj: 1.024e+01; abs: 0.000e+00; rel: 0.000e+00; norm: 2.424e+00; mom: 4.887e-12;
#> best it: 25; best obj: 1.007e+01
#> It: 81; obj: 1.024e+01; abs: 1.776e-15; rel: 1.734e-16; norm: 2.424e+00; mom: 3.038e-12;
#> best it: 25; best obj: 1.007e+01
#> It: 82; obj: 1.024e+01; abs: 1.776e-15; rel: 1.734e-16; norm: 2.424e+00; mom: 1.888e-12;
#> best it: 25; best obj: 1.007e+01
#> It: 83; obj: 1.024e+01; abs: 0.000e+00; rel: 0.000e+00; norm: 2.424e+00; mom: 1.174e-12;
#> best it: 25; best obj: 1.007e+01
#> It: 84; obj: 1.024e+01; abs: 0.000e+00; rel: 0.000e+00; norm: 2.424e+00; mom: 7.296e-13;
#> best it: 25; best obj: 1.007e+01
#> It: 85; obj: 1.024e+01; abs: 1.776e-15; rel: 1.734e-16; norm: 2.424e+00; mom: 4.535e-13;
#> best it: 25; best obj: 1.007e+01
#> It: 86; obj: 1.024e+01; abs: 1.776e-15; rel: 1.734e-16; norm: 2.424e+00; mom: 2.820e-13;
#> best it: 25; best obj: 1.007e+01
#> It: 87; obj: 1.024e+01; abs: 1.776e-15; rel: 1.734e-16; norm: 2.424e+00; mom: 1.751e-13;
#> best it: 25; best obj: 1.007e+01
#> It: 88; obj: 1.024e+01; abs: 1.776e-15; rel: 1.734e-16; norm: 2.424e+00; mom: 1.088e-13;
#> best it: 25; best obj: 1.007e+01
#> It: 89; obj: 1.024e+01; abs: 1.776e-15; rel: 1.734e-16; norm: 2.424e+00; mom: 6.761e-14;
#> best it: 25; best obj: 1.007e+01
#> It: 90; obj: 1.024e+01; abs: 1.776e-15; rel: 1.734e-16; norm: 2.424e+00; mom: 4.209e-14;
#> best it: 25; best obj: 1.007e+01
#> It: 91; obj: 1.024e+01; abs: 1.776e-15; rel: 1.734e-16; norm: 2.424e+00; mom: 2.622e-14;
#> best it: 25; best obj: 1.007e+01
#> It: 92; obj: 1.024e+01; abs: 0.000e+00; rel: 0.000e+00; norm: 2.424e+00; mom: 1.617e-14;
#> best it: 25; best obj: 1.007e+01
#> It: 93; obj: 1.024e+01; abs: 1.776e-15; rel: 1.734e-16; norm: 2.424e+00; mom: 1.020e-14;
#> best it: 25; best obj: 1.007e+01
#> It: 94; obj: 1.024e+01; abs: 1.776e-15; rel: 1.734e-16; norm: 2.424e+00; mom: 6.292e-15;
#> best it: 25; best obj: 1.007e+01
#> It: 95; obj: 1.024e+01; abs: 1.776e-15; rel: 1.734e-16; norm: 2.424e+00; mom: 3.910e-15;
#> best it: 25; best obj: 1.007e+01
#> It: 96; obj: 1.024e+01; abs: 1.776e-15; rel: 1.734e-16; norm: 2.424e+00; mom: 2.413e-15;
#> best it: 25; best obj: 1.007e+01
#> It: 97; obj: 1.024e+01; abs: 0.000e+00; rel: 0.000e+00; norm: 2.424e+00; mom: 1.572e-15;
#> best it: 25; best obj: 1.007e+01
#> It: 98; obj: 1.024e+01; abs: 1.776e-15; rel: 1.734e-16; norm: 2.424e+00; mom: 9.317e-16;
#> best it: 25; best obj: 1.007e+01
#> It: 99; obj: 1.024e+01; abs: 1.776e-15; rel: 1.734e-16; norm: 2.424e+00; mom: 7.022e-16;
#> best it: 25; best obj: 1.007e+01
#> It: 100; obj: 1.024e+01; abs: 5.329e-15; rel: 5.203e-16; norm: 2.424e+00; mom: 5.102e-16;
#> best it: 25; best obj: 1.007e+01
#> It: 101; obj: 1.174e+00; abs: 9.069e+00; rel: 8.853e-01; norm: 8.487e-02; mom: 4.909e-16;
#> best it: 101; best obj: 1.174e+00

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#> It: 102; obj: 1.174e+00; abs: 2.220e-16; rel: 1.891e-16; norm: 8.487e-02; mom: 1.167e-15;
#> best it: 102; best obj: 1.174e+00
#> It: 103; obj: 1.174e+00; abs: 0.000e+00; rel: 0.000e+00; norm: 8.487e-02; mom: 2.885e-15;
#> best it: 102; best obj: 1.174e+00
#> It: 104; obj: 1.174e+00; abs: 0.000e+00; rel: 0.000e+00; norm: 8.487e-02; mom: 7.378e-15;
#> best it: 102; best obj: 1.174e+00
#> It: 105; obj: 1.174e+00; abs: 0.000e+00; rel: 0.000e+00; norm: 8.487e-02; mom: 1.936e-14;
#> best it: 102; best obj: 1.174e+00
#> It: 106; obj: 1.174e+00; abs: 0.000e+00; rel: 0.000e+00; norm: 8.487e-02; mom: 5.148e-14;
#> best it: 102; best obj: 1.174e+00
#> It: 107; obj: 1.174e+00; abs: 4.441e-16; rel: 3.781e-16; norm: 8.487e-02; mom: 1.381e-13;
#> best it: 107; best obj: 1.174e+00
#> It: 108; obj: 1.174e+00; abs: 2.220e-16; rel: 1.891e-16; norm: 8.487e-02; mom: 3.724e-13;
#> best it: 107; best obj: 1.174e+00
#> It: 109; obj: 1.174e+00; abs: 0.000e+00; rel: 0.000e+00; norm: 8.487e-02; mom: 1.008e-12;
#> best it: 107; best obj: 1.174e+00
#> It: 110; obj: 1.174e+00; abs: 0.000e+00; rel: 0.000e+00; norm: 8.487e-02; mom: 2.735e-12;
#> best it: 107; best obj: 1.174e+00
#> It: 111; obj: 1.174e+00; abs: 2.220e-16; rel: 1.891e-16; norm: 8.487e-02; mom: 7.435e-12;
#> best it: 107; best obj: 1.174e+00
#> It: 112; obj: 1.174e+00; abs: 4.441e-16; rel: 3.781e-16; norm: 8.487e-02; mom: 2.024e-11;
#> best it: 107; best obj: 1.174e+00
#> It: 113; obj: 1.174e+00; abs: 4.441e-16; rel: 3.781e-16; norm: 8.487e-02; mom: 5.516e-11;
#> best it: 107; best obj: 1.174e+00
#> It: 114; obj: 1.174e+00; abs: 2.220e-16; rel: 1.891e-16; norm: 8.487e-02; mom: 1.504e-10;
#> best it: 107; best obj: 1.174e+00
#> It: 115; obj: 1.174e+00; abs: 2.220e-16; rel: 1.891e-16; norm: 8.487e-02; mom: 4.106e-10;
#> best it: 107; best obj: 1.174e+00
#> It: 116; obj: 1.174e+00; abs: 4.441e-16; rel: 3.781e-16; norm: 8.487e-02; mom: 1.121e-09;
#> best it: 107; best obj: 1.174e+00
#> It: 117; obj: 1.174e+00; abs: 2.220e-16; rel: 1.891e-16; norm: 8.487e-02; mom: 3.062e-09;
#> best it: 107; best obj: 1.174e+00
#> It: 118; obj: 1.174e+00; abs: 0.000e+00; rel: 0.000e+00; norm: 8.487e-02; mom: 8.367e-09;
#> best it: 107; best obj: 1.174e+00
#> It: 119; obj: 1.174e+00; abs: 4.441e-16; rel: 3.781e-16; norm: 8.487e-02; mom: 2.287e-08;
#> best it: 119; best obj: 1.174e+00
#> It: 120; obj: 1.174e+00; abs: 2.220e-16; rel: 1.891e-16; norm: 8.487e-02; mom: 6.251e-08;
#> best it: 120; best obj: 1.174e+00
#> It: 121; obj: 1.174e+00; abs: 1.554e-14; rel: 1.323e-14; norm: 8.487e-02; mom: 1.709e-07;
#> best it: 121; best obj: 1.174e+00
#> It: 122; obj: 1.174e+00; abs: 1.592e-13; rel: 1.356e-13; norm: 8.487e-02; mom: 4.673e-07;
#> best it: 122; best obj: 1.174e+00
#> It: 123; obj: 1.174e+00; abs: 1.303e-12; rel: 1.109e-12; norm: 8.487e-02; mom: 1.278e-06;
#> best it: 123; best obj: 1.174e+00
#> It: 124; obj: 1.174e+00; abs: 9.740e-12; rel: 8.293e-12; norm: 8.487e-02; mom: 3.494e-06;
#> best it: 124; best obj: 1.174e+00
#> It: 125; obj: 1.174e+00; abs: 7.270e-11; rel: 6.190e-11; norm: 8.487e-02; mom: 9.555e-06;
#> best it: 125; best obj: 1.174e+00
#> It: 126; obj: 1.174e+00; abs: 5.434e-10; rel: 4.627e-10; norm: 8.487e-02; mom: 2.613e-05;
#> best it: 126; best obj: 1.174e+00
#> It: 127; obj: 1.174e+00; abs: 4.063e-09; rel: 3.460e-09; norm: 8.487e-02; mom: 7.147e-05;
#> best it: 127; best obj: 1.174e+00
#> It: 128; obj: 1.174e+00; abs: 3.038e-08; rel: 2.587e-08; norm: 8.487e-02; mom: 1.955e-04;

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#> best it: 128; best obj: 1.174e+00
#> It: 129; obj: 1.174e+00; abs: 2.272e-07; rel: 1.934e-07; norm: 8.487e-02; mom: 5.347e-04;
#> best it: 129; best obj: 1.174e+00
#> It: 130; obj: 1.174e+00; abs: 1.697e-06; rel: 1.445e-06; norm: 8.487e-02; mom: 1.462e-03;
#> best it: 130; best obj: 1.174e+00
#> It: 131; obj: 1.174e+00; abs: 1.260e-05; rel: 1.072e-05; norm: 8.486e-02; mom: 3.998e-03;
#> best it: 131; best obj: 1.174e+00
#> It: 132; obj: 1.174e+00; abs: 8.904e-05; rel: 7.581e-05; norm: 8.481e-02; mom: 1.091e-02;
#> best it: 132; best obj: 1.174e+00
#> It: 133; obj: 1.174e+00; abs: 4.646e-04; rel: 3.956e-04; norm: 8.446e-02; mom: 2.932e-02;
#> best it: 133; best obj: 1.174e+00
#> It: 134; obj: 1.173e+00; abs: 1.009e-03; rel: 8.596e-04; norm: 8.295e-02; mom: 7.102e-02;
#> best it: 134; best obj: 1.173e+00
#> It: 135; obj: 1.170e+00; abs: 2.618e-03; rel: 2.232e-03; norm: 8.143e-02; mom: 1.110e-01;
#> best it: 135; best obj: 1.170e+00
#> It: 136; obj: 1.161e+00; abs: 8.878e-03; rel: 7.586e-03; norm: 7.944e-02; mom: 1.412e-01;
#> best it: 136; best obj: 1.161e+00
#> It: 137; obj: 1.143e+00; abs: 1.856e-02; rel: 1.598e-02; norm: 7.592e-02; mom: 2.574e-01;
#> best it: 137; best obj: 1.143e+00
#> It: 138; obj: 1.118e+00; abs: 2.512e-02; rel: 2.198e-02; norm: 7.960e-02; mom: 3.817e-01;
#> best it: 138; best obj: 1.118e+00
#> It: 139; obj: 1.096e+00; abs: 2.137e-02; rel: 1.912e-02; norm: 8.499e-02; mom: 4.635e-01;
#> best it: 139; best obj: 1.096e+00
#> It: 140; obj: 1.082e+00; abs: 1.409e-02; rel: 1.285e-02; norm: 8.486e-02; mom: 4.618e-01;
#> best it: 140; best obj: 1.082e+00
#> It: 141; obj: 1.072e+00; abs: 9.949e-03; rel: 9.193e-03; norm: 8.280e-02; mom: 3.931e-01;
#> best it: 141; best obj: 1.072e+00
#> It: 142; obj: 1.065e+00; abs: 7.221e-03; rel: 6.734e-03; norm: 8.178e-02; mom: 3.349e-01;
#> best it: 142; best obj: 1.065e+00
#> It: 143; obj: 1.060e+00; abs: 4.667e-03; rel: 4.382e-03; norm: 8.232e-02; mom: 3.094e-01;
#> best it: 143; best obj: 1.060e+00
#> It: 144; obj: 1.057e+00; abs: 3.413e-03; rel: 3.219e-03; norm: 8.301e-02; mom: 2.694e-01;
#> best it: 144; best obj: 1.057e+00
#> It: 145; obj: 1.055e+00; abs: 2.501e-03; rel: 2.366e-03; norm: 8.248e-02; mom: 2.487e-01;
#> best it: 145; best obj: 1.055e+00
#> It: 146; obj: 1.053e+00; abs: 1.297e-03; rel: 1.230e-03; norm: 8.004e-02; mom: 2.491e-01;
#> best it: 146; best obj: 1.053e+00
#> It: 147; obj: 1.052e+00; abs: 1.209e-03; rel: 1.148e-03; norm: 7.808e-02; mom: 2.020e-01;
#> best it: 147; best obj: 1.052e+00
#> It: 148; obj: 1.051e+00; abs: 1.453e-03; rel: 1.381e-03; norm: 7.790e-02; mom: 1.371e-01;
#> best it: 148; best obj: 1.051e+00
#> It: 149; obj: 1.049e+00; abs: 1.267e-03; rel: 1.206e-03; norm: 7.877e-02; mom: 1.219e-01;
#> best it: 149; best obj: 1.049e+00
#> It: 150; obj: 1.048e+00; abs: 9.538e-04; rel: 9.089e-04; norm: 7.945e-02; mom: 1.376e-01;
#> best it: 150; best obj: 1.048e+00
#> It: 151; obj: 1.048e+00; abs: 6.922e-04; rel: 6.602e-04; norm: 7.864e-02; mom: 1.447e-01;
#> best it: 151; best obj: 1.048e+00
#> It: 152; obj: 1.047e+00; abs: 8.244e-04; rel: 7.869e-04; norm: 7.697e-02; mom: 1.246e-01;
#> best it: 152; best obj: 1.047e+00
#> It: 153; obj: 1.046e+00; abs: 1.045e-03; rel: 9.979e-04; norm: 7.585e-02; mom: 9.683e-02;
#> best it: 153; best obj: 1.046e+00
#> It: 154; obj: 1.045e+00; abs: 9.711e-04; rel: 9.286e-04; norm: 7.558e-02; mom: 9.820e-02;
#> best it: 154; best obj: 1.045e+00

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#> It: 155; obj: 1.044e+00; abs: 8.792e-04; rel: 8.415e-04; norm: 7.584e-02; mom: 1.044e-01;
#> best it: 155; best obj: 1.044e+00
#> It: 156; obj: 1.043e+00; abs: 9.317e-04; rel: 8.925e-04; norm: 7.616e-02; mom: 9.713e-02;
#> best it: 156; best obj: 1.043e+00
#> It: 157; obj: 1.042e+00; abs: 9.782e-04; rel: 9.379e-04; norm: 7.625e-02; mom: 8.963e-02;
#> best it: 157; best obj: 1.042e+00
#> It: 158; obj: 1.041e+00; abs: 9.587e-04; rel: 9.200e-04; norm: 7.649e-02; mom: 9.103e-02;
#> best it: 158; best obj: 1.041e+00
#> It: 159; obj: 1.040e+00; abs: 9.584e-04; rel: 9.206e-04; norm: 7.700e-02; mom: 9.401e-02;
#> best it: 159; best obj: 1.040e+00
#> It: 160; obj: 1.039e+00; abs: 9.840e-04; rel: 9.461e-04; norm: 7.741e-02; mom: 9.427e-02;
#> best it: 160; best obj: 1.039e+00
#> It: 161; obj: 1.038e+00; abs: 9.895e-04; rel: 9.522e-04; norm: 7.756e-02; mom: 9.404e-02;
#> best it: 161; best obj: 1.038e+00
#> It: 162; obj: 1.037e+00; abs: 9.637e-04; rel: 9.283e-04; norm: 7.752e-02; mom: 9.425e-02;
#> best it: 162; best obj: 1.037e+00
#> It: 163; obj: 1.036e+00; abs: 9.354e-04; rel: 9.019e-04; norm: 7.746e-02; mom: 9.421e-02;
#> best it: 163; best obj: 1.036e+00
#> It: 164; obj: 1.035e+00; abs: 9.347e-04; rel: 9.020e-04; norm: 7.756e-02; mom: 9.324e-02;
#> best it: 164; best obj: 1.035e+00
#> It: 165; obj: 1.034e+00; abs: 9.542e-04; rel: 9.217e-04; norm: 7.785e-02; mom: 9.214e-02;
#> best it: 165; best obj: 1.034e+00
#> It: 166; obj: 1.033e+00; abs: 9.709e-04; rel: 9.387e-04; norm: 7.821e-02; mom: 9.203e-02;
#> best it: 166; best obj: 1.033e+00
#> It: 167; obj: 1.032e+00; abs: 9.846e-04; rel: 9.528e-04; norm: 7.852e-02; mom: 9.275e-02;
#> best it: 167; best obj: 1.032e+00
#> It: 168; obj: 1.031e+00; abs: 1.006e-03; rel: 9.748e-04; norm: 7.870e-02; mom: 9.362e-02;
#> best it: 168; best obj: 1.031e+00
#> It: 169; obj: 1.030e+00; abs: 1.041e-03; rel: 1.009e-03; norm: 7.875e-02; mom: 9.457e-02;
#> best it: 169; best obj: 1.030e+00
#> It: 170; obj: 1.029e+00; abs: 1.088e-03; rel: 1.056e-03; norm: 7.873e-02; mom: 9.595e-02;
#> best it: 170; best obj: 1.029e+00
#> It: 171; obj: 1.028e+00; abs: 1.149e-03; rel: 1.117e-03; norm: 7.868e-02; mom: 9.816e-02;
#> best it: 171; best obj: 1.028e+00
#> It: 172; obj: 1.027e+00; abs: 1.225e-03; rel: 1.191e-03; norm: 7.858e-02; mom: 1.014e-01;
#> best it: 172; best obj: 1.027e+00
#> It: 173; obj: 1.026e+00; abs: 1.318e-03; rel: 1.283e-03; norm: 7.840e-02; mom: 1.058e-01;
#> best it: 173; best obj: 1.026e+00
#> It: 174; obj: 1.024e+00; abs: 1.427e-03; rel: 1.392e-03; norm: 7.809e-02; mom: 1.111e-01;
#> best it: 174; best obj: 1.024e+00
#> It: 175; obj: 1.023e+00; abs: 1.543e-03; rel: 1.507e-03; norm: 7.763e-02; mom: 1.171e-01;
#> best it: 175; best obj: 1.023e+00
#> It: 176; obj: 1.021e+00; abs: 1.658e-03; rel: 1.621e-03; norm: 7.706e-02; mom: 1.228e-01;
#> best it: 176; best obj: 1.021e+00
#> It: 177; obj: 1.019e+00; abs: 1.773e-03; rel: 1.737e-03; norm: 7.645e-02; mom: 1.269e-01;
#> best it: 177; best obj: 1.019e+00
#> It: 178; obj: 1.017e+00; abs: 1.897e-03; rel: 1.861e-03; norm: 7.584e-02; mom: 1.291e-01;
#> best it: 178; best obj: 1.017e+00
#> It: 179; obj: 1.015e+00; abs: 2.025e-03; rel: 1.991e-03; norm: 7.523e-02; mom: 1.304e-01;
#> best it: 179; best obj: 1.015e+00
#> It: 180; obj: 1.013e+00; abs: 2.150e-03; rel: 2.118e-03; norm: 7.460e-02; mom: 1.319e-01;
#> best it: 180; best obj: 1.013e+00
#> It: 181; obj: 1.011e+00; abs: 2.263e-03; rel: 2.234e-03; norm: 7.392e-02; mom: 1.338e-01;

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#> best it: 181; best obj: 1.011e+00
#> It: 182; obj: 1.008e+00; abs: 2.355e-03; rel: 2.330e-03; norm: 7.318e-02; mom: 1.358e-01;
#> best it: 182; best obj: 1.008e+00
#> It: 183; obj: 1.006e+00; abs: 2.418e-03; rel: 2.398e-03; norm: 7.236e-02; mom: 1.377e-01;
#> best it: 183; best obj: 1.006e+00
#> It: 184; obj: 1.004e+00; abs: 2.441e-03; rel: 2.426e-03; norm: 7.148e-02; mom: 1.390e-01;
#> best it: 184; best obj: 1.004e+00
#> It: 185; obj: 1.001e+00; abs: 2.419e-03; rel: 2.410e-03; norm: 7.062e-02; mom: 1.395e-01;
#> best it: 185; best obj: 1.001e+00
#> It: 186; obj: 9.988e-01; abs: 2.353e-03; rel: 2.350e-03; norm: 7.048e-02; mom: 1.390e-01;
#> best it: 186; best obj: 9.988e-01
#> It: 187; obj: 9.966e-01; abs: 2.239e-03; rel: 2.241e-03; norm: 7.044e-02; mom: 1.375e-01;
#> best it: 187; best obj: 9.966e-01
#> It: 188; obj: 9.945e-01; abs: 2.084e-03; rel: 2.091e-03; norm: 7.021e-02; mom: 1.352e-01;
#> best it: 188; best obj: 9.945e-01
#> It: 189; obj: 9.926e-01; abs: 1.938e-03; rel: 1.948e-03; norm: 6.977e-02; mom: 1.321e-01;
#> best it: 189; best obj: 9.926e-01
#> It: 190; obj: 9.908e-01; abs: 1.774e-03; rel: 1.787e-03; norm: 6.906e-02; mom: 1.282e-01;
#> best it: 190; best obj: 9.908e-01
#> It: 191; obj: 9.893e-01; abs: 1.526e-03; rel: 1.540e-03; norm: 6.814e-02; mom: 1.237e-01;
#> best it: 191; best obj: 9.893e-01
#> It: 192; obj: 9.880e-01; abs: 1.278e-03; rel: 1.292e-03; norm: 6.727e-02; mom: 1.189e-01;
#> best it: 192; best obj: 9.880e-01
#> It: 193; obj: 9.869e-01; abs: 1.124e-03; rel: 1.138e-03; norm: 6.670e-02; mom: 1.148e-01;
#> best it: 193; best obj: 9.869e-01
#> It: 194; obj: 9.859e-01; abs: 9.456e-04; rel: 9.582e-04; norm: 6.651e-02; mom: 1.140e-01;
#> best it: 194; best obj: 9.859e-01
#> It: 195; obj: 9.852e-01; abs: 6.995e-04; rel: 7.095e-04; norm: 6.668e-02; mom: 1.119e-01;
#> best it: 195; best obj: 9.852e-01
#> It: 196; obj: 9.847e-01; abs: 4.915e-04; rel: 4.988e-04; norm: 6.701e-02; mom: 9.916e-02;
#> best it: 196; best obj: 9.847e-01
#> It: 197; obj: 9.844e-01; abs: 3.151e-04; rel: 3.200e-04; norm: 6.720e-02; mom: 8.201e-02;
#> best it: 197; best obj: 9.844e-01
#> It: 198; obj: 9.842e-01; abs: 2.332e-04; rel: 2.369e-04; norm: 6.721e-02; mom: 6.515e-02;
#> best it: 198; best obj: 9.842e-01
#> It: 199; obj: 9.840e-01; abs: 2.032e-04; rel: 2.064e-04; norm: 6.712e-02; mom: 5.679e-02;
#> best it: 199; best obj: 9.840e-01
#> It: 200; obj: 9.838e-01; abs: 1.608e-04; rel: 1.634e-04; norm: 6.702e-02; mom: 5.075e-02;
#> best it: 200; best obj: 9.838e-01
#> It: 201; obj: 9.837e-01; abs: 1.093e-04; rel: 1.111e-04; norm: 6.697e-02; mom: 4.473e-02;
#> best it: 201; best obj: 9.837e-01
#> It: 202; obj: 9.837e-01; abs: 7.018e-05; rel: 7.134e-05; norm: 6.697e-02; mom: 3.815e-02;
#> best it: 202; best obj: 9.837e-01
#> It: 203; obj: 9.836e-01; abs: 4.589e-05; rel: 4.665e-05; norm: 6.699e-02; mom: 3.133e-02;
#> best it: 203; best obj: 9.836e-01
#> It: 204; obj: 9.836e-01; abs: 2.872e-05; rel: 2.920e-05; norm: 6.702e-02; mom: 2.532e-02;
#> best it: 204; best obj: 9.836e-01
#> It: 205; obj: 9.836e-01; abs: 1.630e-05; rel: 1.657e-05; norm: 6.704e-02; mom: 2.039e-02;
#> best it: 205; best obj: 9.836e-01
#> It: 206; obj: 9.836e-01; abs: 9.122e-06; rel: 9.274e-06; norm: 6.707e-02; mom: 1.618e-02;
#> best it: 206; best obj: 9.836e-01
#> It: 207; obj: 9.835e-01; abs: 5.634e-06; rel: 5.728e-06; norm: 6.708e-02; mom: 1.256e-02;
#> best it: 207; best obj: 9.835e-01

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#> It: 208; obj: 9.835e-01; abs: 3.614e-06; rel: 3.674e-06; norm: 6.708e-02; mom: 9.751e-03;
#> best it: 208; best obj: 9.835e-01
#> It: 209; obj: 9.835e-01; abs: 2.208e-06; rel: 2.245e-06; norm: 6.707e-02; mom: 7.709e-03;
#> best it: 209; best obj: 9.835e-01
#> It: 210; obj: 9.835e-01; abs: 1.368e-06; rel: 1.391e-06; norm: 6.705e-02; mom: 6.189e-03;
#> best it: 210; best obj: 9.835e-01
#> It: 211; obj: 9.835e-01; abs: 9.226e-07; rel: 9.381e-07; norm: 6.704e-02; mom: 4.972e-03;
#> best it: 211; best obj: 9.835e-01
#> It: 212; obj: 9.835e-01; abs: 6.331e-07; rel: 6.437e-07; norm: 6.703e-02; mom: 3.985e-03;
#> best it: 212; best obj: 9.835e-01
#> It: 213; obj: 9.835e-01; abs: 4.231e-07; rel: 4.301e-07; norm: 6.702e-02; mom: 3.227e-03;
#> best it: 213; best obj: 9.835e-01
#> It: 214; obj: 9.835e-01; abs: 2.916e-07; rel: 2.965e-07; norm: 6.702e-02; mom: 2.664e-03;
#> best it: 214; best obj: 9.835e-01
#> It: 215; obj: 9.835e-01; abs: 2.142e-07; rel: 2.178e-07; norm: 6.703e-02; mom: 2.232e-03;
#> best it: 215; best obj: 9.835e-01
#> It: 216; obj: 9.835e-01; abs: 1.628e-07; rel: 1.655e-07; norm: 6.703e-02; mom: 1.888e-03;
#> best it: 216; best obj: 9.835e-01
#> It: 217; obj: 9.835e-01; abs: 1.280e-07; rel: 1.301e-07; norm: 6.703e-02; mom: 1.615e-03;
#> best it: 217; best obj: 9.835e-01
#> It: 218; obj: 9.835e-01; abs: 1.062e-07; rel: 1.080e-07; norm: 6.703e-02; mom: 1.409e-03;
#> best it: 218; best obj: 9.835e-01
#> It: 219; obj: 9.835e-01; abs: 9.143e-08; rel: 9.296e-08; norm: 6.703e-02; mom: 1.258e-03;
#> best it: 219; best obj: 9.835e-01
#> It: 220; obj: 9.835e-01; abs: 7.990e-08; rel: 8.124e-08; norm: 6.703e-02; mom: 1.148e-03;
#> best it: 220; best obj: 9.835e-01
#> It: 221; obj: 9.835e-01; abs: 7.144e-08; rel: 7.264e-08; norm: 6.703e-02; mom: 1.071e-03;
#> best it: 221; best obj: 9.835e-01
#> It: 222; obj: 9.835e-01; abs: 6.576e-08; rel: 6.686e-08; norm: 6.702e-02; mom: 1.020e-03;
#> best it: 222; best obj: 9.835e-01
#> It: 223; obj: 9.835e-01; abs: 6.161e-08; rel: 6.264e-08; norm: 6.702e-02; mom: 9.878e-04;
#> best it: 223; best obj: 9.835e-01
#> It: 224; obj: 9.835e-01; abs: 5.813e-08; rel: 5.910e-08; norm: 6.702e-02; mom: 9.667e-04;
#> best it: 224; best obj: 9.835e-01
#> It: 225; obj: 9.835e-01; abs: 5.511e-08; rel: 5.604e-08; norm: 6.702e-02; mom: 9.486e-04;
#> best it: 225; best obj: 9.835e-01
#> It: 226; obj: 9.835e-01; abs: 5.249e-08; rel: 5.337e-08; norm: 6.701e-02; mom: 9.287e-04;
#> best it: 226; best obj: 9.835e-01
#> It: 227; obj: 9.835e-01; abs: 5.005e-08; rel: 5.088e-08; norm: 6.701e-02; mom: 9.061e-04;
#> best it: 227; best obj: 9.835e-01
#> It: 228; obj: 9.835e-01; abs: 4.764e-08; rel: 4.844e-08; norm: 6.701e-02; mom: 8.821e-04;
#> best it: 228; best obj: 9.835e-01
#> It: 229; obj: 9.835e-01; abs: 4.525e-08; rel: 4.601e-08; norm: 6.700e-02; mom: 8.578e-04;
#> best it: 229; best obj: 9.835e-01
#> It: 230; obj: 9.835e-01; abs: 4.293e-08; rel: 4.365e-08; norm: 6.700e-02; mom: 8.339e-04;
#> best it: 230; best obj: 9.835e-01
#> It: 231; obj: 9.835e-01; abs: 4.072e-08; rel: 4.141e-08; norm: 6.700e-02; mom: 8.109e-04;
#> best it: 231; best obj: 9.835e-01
#> It: 232; obj: 9.835e-01; abs: 3.864e-08; rel: 3.928e-08; norm: 6.700e-02; mom: 7.889e-04;
#> best it: 232; best obj: 9.835e-01
#> It: 233; obj: 9.835e-01; abs: 3.666e-08; rel: 3.727e-08; norm: 6.700e-02; mom: 7.677e-04;
#> best it: 233; best obj: 9.835e-01
#> It: 234; obj: 9.835e-01; abs: 3.478e-08; rel: 3.536e-08; norm: 6.699e-02; mom: 7.471e-04;

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#> best it: 234; best obj: 9.835e-01
#> It: 235; obj: 9.835e-01; abs: 3.297e-08; rel: 3.352e-08; norm: 6.699e-02; mom: 7.267e-04;
#> best it: 235; best obj: 9.835e-01
#> It: 236; obj: 9.835e-01; abs: 3.123e-08; rel: 3.175e-08; norm: 6.699e-02; mom: 7.064e-04;
#> best it: 236; best obj: 9.835e-01
#> It: 237; obj: 9.835e-01; abs: 2.956e-08; rel: 3.005e-08; norm: 6.699e-02; mom: 6.862e-04;
#> best it: 237; best obj: 9.835e-01
#> It: 238; obj: 9.835e-01; abs: 2.795e-08; rel: 2.841e-08; norm: 6.699e-02; mom: 6.665e-04;
#> best it: 238; best obj: 9.835e-01
#> It: 239; obj: 9.835e-01; abs: 2.640e-08; rel: 2.685e-08; norm: 6.698e-02; mom: 6.474e-04;
#> best it: 239; best obj: 9.835e-01
#> It: 240; obj: 9.835e-01; abs: 2.493e-08; rel: 2.535e-08; norm: 6.698e-02; mom: 6.291e-04;
#> best it: 240; best obj: 9.835e-01
#> It: 241; obj: 9.835e-01; abs: 2.353e-08; rel: 2.393e-08; norm: 6.698e-02; mom: 6.115e-04;
#> best it: 241; best obj: 9.835e-01
#> It: 242; obj: 9.835e-01; abs: 2.221e-08; rel: 2.258e-08; norm: 6.698e-02; mom: 5.946e-04;
#> best it: 242; best obj: 9.835e-01
#> It: 243; obj: 9.835e-01; abs: 2.095e-08; rel: 2.130e-08; norm: 6.698e-02; mom: 5.782e-04;
#> best it: 243; best obj: 9.835e-01
#> It: 244; obj: 9.835e-01; abs: 1.976e-08; rel: 2.009e-08; norm: 6.698e-02; mom: 5.623e-04;
#> best it: 244; best obj: 9.835e-01
#> It: 245; obj: 9.835e-01; abs: 1.863e-08; rel: 1.895e-08; norm: 6.697e-02; mom: 5.466e-04;
#> best it: 245; best obj: 9.835e-01
#> It: 246; obj: 9.835e-01; abs: 1.756e-08; rel: 1.786e-08; norm: 6.697e-02; mom: 5.311e-04;
#> best it: 246; best obj: 9.835e-01
#> It: 247; obj: 9.835e-01; abs: 1.654e-08; rel: 1.682e-08; norm: 6.697e-02; mom: 5.158e-04;
#> best it: 247; best obj: 9.835e-01
#> It: 248; obj: 9.835e-01; abs: 2.030e-08; rel: 2.064e-08; norm: 6.697e-02; mom: 8.012e-04;
#> best it: 248; best obj: 9.835e-01
#> It: 249; obj: 9.835e-01; abs: 2.225e-08; rel: 2.262e-08; norm: 6.697e-02; mom: 1.057e-03;
#> best it: 249; best obj: 9.835e-01
#> It: 250; obj: 9.835e-01; abs: 2.195e-08; rel: 2.232e-08; norm: 6.696e-02; mom: 1.310e-03;
#> best it: 250; best obj: 9.835e-01
#> It: 251; obj: 9.835e-01; abs: 1.841e-08; rel: 1.872e-08; norm: 6.696e-02; mom: 1.583e-03;
#> best it: 251; best obj: 9.835e-01
#> It: 252; obj: 9.835e-01; abs: 1.037e-08; rel: 1.055e-08; norm: 6.695e-02; mom: 1.899e-03;
#> best it: 252; best obj: 9.835e-01
#> It: 253; obj: 9.835e-01; abs: 3.136e-09; rel: 3.189e-09; norm: 6.694e-02; mom: 2.266e-03;
#> best it: 252; best obj: 9.835e-01
#> It: 254; obj: 9.835e-01; abs: 2.259e-08; rel: 2.297e-08; norm: 6.693e-02; mom: 2.677e-03;
#> best it: 252; best obj: 9.835e-01
#> It: 255; obj: 9.835e-01; abs: 4.775e-08; rel: 4.855e-08; norm: 6.691e-02; mom: 3.107e-03;
#> best it: 252; best obj: 9.835e-01
#> It: 256; obj: 9.835e-01; abs: 7.657e-08; rel: 7.785e-08; norm: 6.690e-02; mom: 3.514e-03;
#> best it: 252; best obj: 9.835e-01
#> It: 257; obj: 9.835e-01; abs: 1.038e-07; rel: 1.055e-07; norm: 6.688e-02; mom: 3.838e-03;
#> best it: 252; best obj: 9.835e-01
#> It: 258; obj: 9.835e-01; abs: 1.202e-07; rel: 1.222e-07; norm: 6.686e-02; mom: 4.011e-03;
#> best it: 252; best obj: 9.835e-01
#> It: 259; obj: 9.835e-01; abs: 1.137e-07; rel: 1.156e-07; norm: 6.684e-02; mom: 3.966e-03;
#> best it: 252; best obj: 9.835e-01
#> It: 260; obj: 9.835e-01; abs: 7.510e-08; rel: 7.636e-08; norm: 6.683e-02; mom: 3.648e-03;
#> best it: 252; best obj: 9.835e-01

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#> It: 261; obj: 9.835e-01; abs: 4.726e-09; rel: 4.805e-09; norm: 6.682e-02; mom: 3.066e-03;
#> best it: 252; best obj: 9.835e-01
#> It: 262; obj: 9.835e-01; abs: 7.899e-08; rel: 8.032e-08; norm: 6.682e-02; mom: 2.438e-03;
#> best it: 252; best obj: 9.835e-01
#> It: 263; obj: 9.835e-01; abs: 1.348e-07; rel: 1.371e-07; norm: 6.683e-02; mom: 2.506e-03;
#> best it: 252; best obj: 9.835e-01
#> It: 264; obj: 9.835e-01; abs: 9.988e-08; rel: 1.016e-07; norm: 6.685e-02; mom: 3.887e-03;
#> best it: 252; best obj: 9.835e-01
#> It: 265; obj: 9.835e-01; abs: 1.024e-07; rel: 1.041e-07; norm: 6.688e-02; mom: 6.204e-03;
#> best it: 252; best obj: 9.835e-01
#> It: 266; obj: 9.835e-01; abs: 5.494e-07; rel: 5.586e-07; norm: 6.694e-02; mom: 9.065e-03;
#> best it: 252; best obj: 9.835e-01
#> It: 267; obj: 9.835e-01; abs: 1.308e-06; rel: 1.330e-06; norm: 6.701e-02; mom: 1.231e-02;
#> best it: 252; best obj: 9.835e-01
#> It: 268; obj: 9.835e-01; abs: 2.431e-06; rel: 2.472e-06; norm: 6.710e-02; mom: 1.588e-02;
#> best it: 252; best obj: 9.835e-01
#> It: 269; obj: 9.835e-01; abs: 3.969e-06; rel: 4.035e-06; norm: 6.722e-02; mom: 1.989e-02;
#> best it: 252; best obj: 9.835e-01
#> It: 270; obj: 9.835e-01; abs: 5.936e-06; rel: 6.035e-06; norm: 6.736e-02; mom: 2.468e-02;
#> best it: 252; best obj: 9.835e-01
#> It: 271; obj: 9.836e-01; abs: 7.912e-06; rel: 8.044e-06; norm: 6.754e-02; mom: 3.118e-02;
#> best it: 252; best obj: 9.835e-01
#> It: 272; obj: 9.836e-01; abs: 5.967e-06; rel: 6.067e-06; norm: 6.778e-02; mom: 4.153e-02;
#> best it: 252; best obj: 9.835e-01
#> It: 273; obj: 9.835e-01; abs: 2.869e-05; rel: 2.917e-05; norm: 6.811e-02; mom: 6.104e-02;
#> best it: 273; best obj: 9.835e-01
#> It: 274; obj: 9.833e-01; abs: 2.590e-04; rel: 2.633e-04; norm: 6.851e-02; mom: 1.037e-01;
#> best it: 274; best obj: 9.833e-01
#> It: 275; obj: 9.820e-01; abs: 1.252e-03; rel: 1.273e-03; norm: 6.892e-02; mom: 2.039e-01;
#> best it: 275; best obj: 9.820e-01
#> It: 276; obj: 9.820e-01; abs: 4.814e-05; rel: 4.902e-05; norm: 6.824e-02; mom: 3.860e-01;
#> best it: 276; best obj: 9.820e-01
#> It: 277; obj: 9.834e-01; abs: 1.382e-03; rel: 1.408e-03; norm: 6.628e-02; mom: 4.516e-01;
#> best it: 276; best obj: 9.820e-01
#> It: 278; obj: 9.845e-01; abs: 1.119e-03; rel: 1.138e-03; norm: 6.573e-02; mom: 3.626e-01;
#> best it: 276; best obj: 9.820e-01
#> It: 279; obj: 9.848e-01; abs: 3.526e-04; rel: 3.582e-04; norm: 6.884e-02; mom: 3.735e-01;
#> best it: 276; best obj: 9.820e-01
#> It: 280; obj: 9.850e-01; abs: 1.576e-04; rel: 1.600e-04; norm: 7.064e-02; mom: 5.284e-01;
#> best it: 276; best obj: 9.820e-01
#> It: 281; obj: 9.855e-01; abs: 5.207e-04; rel: 5.287e-04; norm: 7.048e-02; mom: 6.075e-01;
#> best it: 276; best obj: 9.820e-01
#> It: 282; obj: 9.861e-01; abs: 5.787e-04; rel: 5.873e-04; norm: 6.876e-02; mom: 5.840e-01;
#> best it: 276; best obj: 9.820e-01
#> It: 283; obj: 9.865e-01; abs: 3.758e-04; rel: 3.811e-04; norm: 6.565e-02; mom: 5.806e-01;
#> best it: 276; best obj: 9.820e-01
#> It: 284; obj: 9.856e-01; abs: 8.341e-04; rel: 8.456e-04; norm: 6.729e-02; mom: 5.875e-01;
#> best it: 276; best obj: 9.820e-01
#> It: 285; obj: 9.828e-01; abs: 2.814e-03; rel: 2.855e-03; norm: 6.969e-02; mom: 5.637e-01;
#> best it: 276; best obj: 9.820e-01
#> It: 286; obj: 9.841e-01; abs: 1.304e-03; rel: 1.327e-03; norm: 6.771e-02; mom: 6.471e-01;
#> best it: 276; best obj: 9.820e-01
#> It: 287; obj: 9.867e-01; abs: 2.543e-03; rel: 2.584e-03; norm: 6.648e-02; mom: 4.948e-01;

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#> best it: 276; best obj: 9.820e-01
#> It: 288; obj: 9.883e-01; abs: 1.665e-03; rel: 1.687e-03; norm: 6.889e-02; mom: 4.479e-01;
#> best it: 276; best obj: 9.820e-01
#> It: 289; obj: 9.899e-01; abs: 1.527e-03; rel: 1.545e-03; norm: 7.232e-02; mom: 5.332e-01;
#> best it: 276; best obj: 9.820e-01
#> It: 290; obj: 9.918e-01; abs: 1.991e-03; rel: 2.011e-03; norm: 7.439e-02; mom: 6.394e-01;
#> best it: 276; best obj: 9.820e-01
#> It: 291; obj: 9.939e-01; abs: 2.081e-03; rel: 2.098e-03; norm: 7.238e-02; mom: 6.507e-01;
#> best it: 276; best obj: 9.820e-01
#> It: 292; obj: 9.944e-01; abs: 4.336e-04; rel: 4.362e-04; norm: 6.834e-02; mom: 6.379e-01;
#> best it: 276; best obj: 9.820e-01
#> It: 293; obj: 9.940e-01; abs: 3.447e-04; rel: 3.466e-04; norm: 6.926e-02; mom: 6.778e-01;
#> best it: 276; best obj: 9.820e-01
#> It: 294; obj: 9.897e-01; abs: 4.351e-03; rel: 4.377e-03; norm: 7.327e-02; mom: 7.126e-01;
#> best it: 276; best obj: 9.820e-01
#> It: 295; obj: 9.890e-01; abs: 7.077e-04; rel: 7.151e-04; norm: 6.838e-02; mom: 7.506e-01;
#> best it: 276; best obj: 9.820e-01
#> It: 296; obj: 9.898e-01; abs: 8.744e-04; rel: 8.841e-04; norm: 6.620e-02; mom: 5.393e-01;
#> best it: 276; best obj: 9.820e-01
#> It: 297; obj: 9.910e-01; abs: 1.157e-03; rel: 1.168e-03; norm: 6.839e-02; mom: 4.610e-01;
#> best it: 276; best obj: 9.820e-01
#> It: 298; obj: 9.918e-01; abs: 7.775e-04; rel: 7.846e-04; norm: 6.784e-02; mom: 5.234e-01;
#> best it: 276; best obj: 9.820e-01
#> It: 299; obj: 9.916e-01; abs: 1.703e-04; rel: 1.717e-04; norm: 7.235e-02; mom: 5.843e-01;
#> best it: 276; best obj: 9.820e-01
#> It: 300; obj: 9.893e-01; abs: 2.312e-03; rel: 2.332e-03; norm: 7.391e-02; mom: 7.918e-01;
#> best it: 276; best obj: 9.820e-01
#> It: 301; obj: 9.894e-01; abs: 8.720e-05; rel: 8.814e-05; norm: 6.832e-02; mom: 7.290e-01;
#> best it: 276; best obj: 9.820e-01
#> It: 302; obj: 9.931e-01; abs: 3.718e-03; rel: 3.758e-03; norm: 6.914e-02; mom: 8.319e-01;
#> best it: 276; best obj: 9.820e-01
#> It: 303; obj: 9.929e-01; abs: 2.069e-04; rel: 2.083e-04; norm: 7.151e-02; mom: 7.509e-01;
#> best it: 276; best obj: 9.820e-01
#> It: 304; obj: 9.912e-01; abs: 1.643e-03; rel: 1.655e-03; norm: 7.255e-02; mom: 7.479e-01;
#> best it: 276; best obj: 9.820e-01
#> It: 305; obj: 9.931e-01; abs: 1.893e-03; rel: 1.910e-03; norm: 7.033e-02; mom: 7.309e-01;
#> best it: 276; best obj: 9.820e-01
#> It: 306; obj: 9.959e-01; abs: 2.804e-03; rel: 2.823e-03; norm: 6.931e-02; mom: 7.105e-01;
#> best it: 276; best obj: 9.820e-01
#> It: 307; obj: 1.000e+00; abs: 4.145e-03; rel: 4.162e-03; norm: 6.860e-02; mom: 7.764e-01;
#> best it: 276; best obj: 9.820e-01
#> It: 308; obj: 1.001e+00; abs: 1.022e-03; rel: 1.022e-03; norm: 7.833e-02; mom: 8.618e-01;
#> best it: 276; best obj: 9.820e-01
#> It: 309; obj: 9.979e-01; abs: 3.221e-03; rel: 3.217e-03; norm: 8.175e-02; mom: 7.987e-01;
#> best it: 276; best obj: 9.820e-01
#> It: 310; obj: 9.948e-01; abs: 3.050e-03; rel: 3.057e-03; norm: 7.207e-02; mom: 9.987e-01;
#> best it: 276; best obj: 9.820e-01
#> It: 311; obj: 9.972e-01; abs: 2.340e-03; rel: 2.352e-03; norm: 7.418e-02; mom: 8.972e-01;
#> best it: 276; best obj: 9.820e-01
#> It: 312; obj: 9.990e-01; abs: 1.855e-03; rel: 1.860e-03; norm: 8.024e-02; mom: 9.937e-01;
#> best it: 276; best obj: 9.820e-01
#> It: 313; obj: 1.005e+00; abs: 5.540e-03; rel: 5.546e-03; norm: 7.385e-02; mom: 9.948e-01;
#> best it: 276; best obj: 9.820e-01

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#> It: 314; obj: 1.008e+00; abs: 3.871e-03; rel: 3.853e-03; norm: 7.841e-02; mom: 8.932e-01;
#> best it: 276; best obj: 9.820e-01
#> It: 315; obj: 1.006e+00; abs: 2.145e-03; rel: 2.127e-03; norm: 8.256e-02; mom: 9.648e-01;
#> best it: 276; best obj: 9.820e-01
#> It: 316; obj: 1.005e+00; abs: 1.413e-03; rel: 1.404e-03; norm: 8.124e-02; mom: 1.038e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 317; obj: 1.009e+00; abs: 4.170e-03; rel: 4.150e-03; norm: 7.079e-02; mom: 1.118e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 318; obj: 1.009e+00; abs: 2.905e-04; rel: 2.879e-04; norm: 8.548e-02; mom: 9.234e-01;
#> best it: 276; best obj: 9.820e-01
#> It: 319; obj: 1.012e+00; abs: 2.395e-03; rel: 2.373e-03; norm: 8.014e-02; mom: 1.107e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 320; obj: 1.012e+00; abs: 7.294e-04; rel: 7.210e-04; norm: 8.712e-02; mom: 1.017e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 321; obj: 1.014e+00; abs: 1.312e-03; rel: 1.296e-03; norm: 8.819e-02; mom: 1.406e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 322; obj: 1.017e+00; abs: 2.956e-03; rel: 2.916e-03; norm: 7.949e-02; mom: 1.246e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 323; obj: 1.019e+00; abs: 2.746e-03; rel: 2.701e-03; norm: 8.303e-02; mom: 1.227e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 324; obj: 1.015e+00; abs: 4.554e-03; rel: 4.467e-03; norm: 9.134e-02; mom: 1.194e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 325; obj: 1.010e+00; abs: 5.404e-03; rel: 5.324e-03; norm: 8.673e-02; mom: 1.345e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 326; obj: 1.009e+00; abs: 3.079e-04; rel: 3.050e-04; norm: 7.504e-02; mom: 1.127e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 327; obj: 1.012e+00; abs: 3.252e-03; rel: 3.222e-03; norm: 7.366e-02; mom: 1.221e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 328; obj: 1.014e+00; abs: 1.435e-03; rel: 1.417e-03; norm: 7.940e-02; mom: 1.092e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 329; obj: 1.015e+00; abs: 1.192e-03; rel: 1.175e-03; norm: 8.851e-02; mom: 1.290e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 330; obj: 1.014e+00; abs: 6.748e-04; rel: 6.647e-04; norm: 7.882e-02; mom: 1.294e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 331; obj: 1.013e+00; abs: 9.620e-04; rel: 9.483e-04; norm: 8.183e-02; mom: 1.207e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 332; obj: 1.013e+00; abs: 9.398e-04; rel: 9.274e-04; norm: 8.907e-02; mom: 1.289e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 333; obj: 1.015e+00; abs: 2.488e-03; rel: 2.457e-03; norm: 8.731e-02; mom: 1.357e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 334; obj: 1.020e+00; abs: 4.545e-03; rel: 4.478e-03; norm: 8.270e-02; mom: 1.428e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 335; obj: 1.024e+00; abs: 4.481e-03; rel: 4.395e-03; norm: 7.945e-02; mom: 1.200e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 336; obj: 1.027e+00; abs: 2.544e-03; rel: 2.485e-03; norm: 8.778e-02; mom: 1.337e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 337; obj: 1.029e+00; abs: 2.584e-03; rel: 2.517e-03; norm: 8.035e-02; mom: 1.195e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 338; obj: 1.028e+00; abs: 1.352e-03; rel: 1.314e-03; norm: 8.556e-02; mom: 1.386e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 339; obj: 1.029e+00; abs: 1.443e-03; rel: 1.404e-03; norm: 7.609e-02; mom: 1.436e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 340; obj: 1.032e+00; abs: 3.233e-03; rel: 3.141e-03; norm: 8.636e-02; mom: 1.344e+00;

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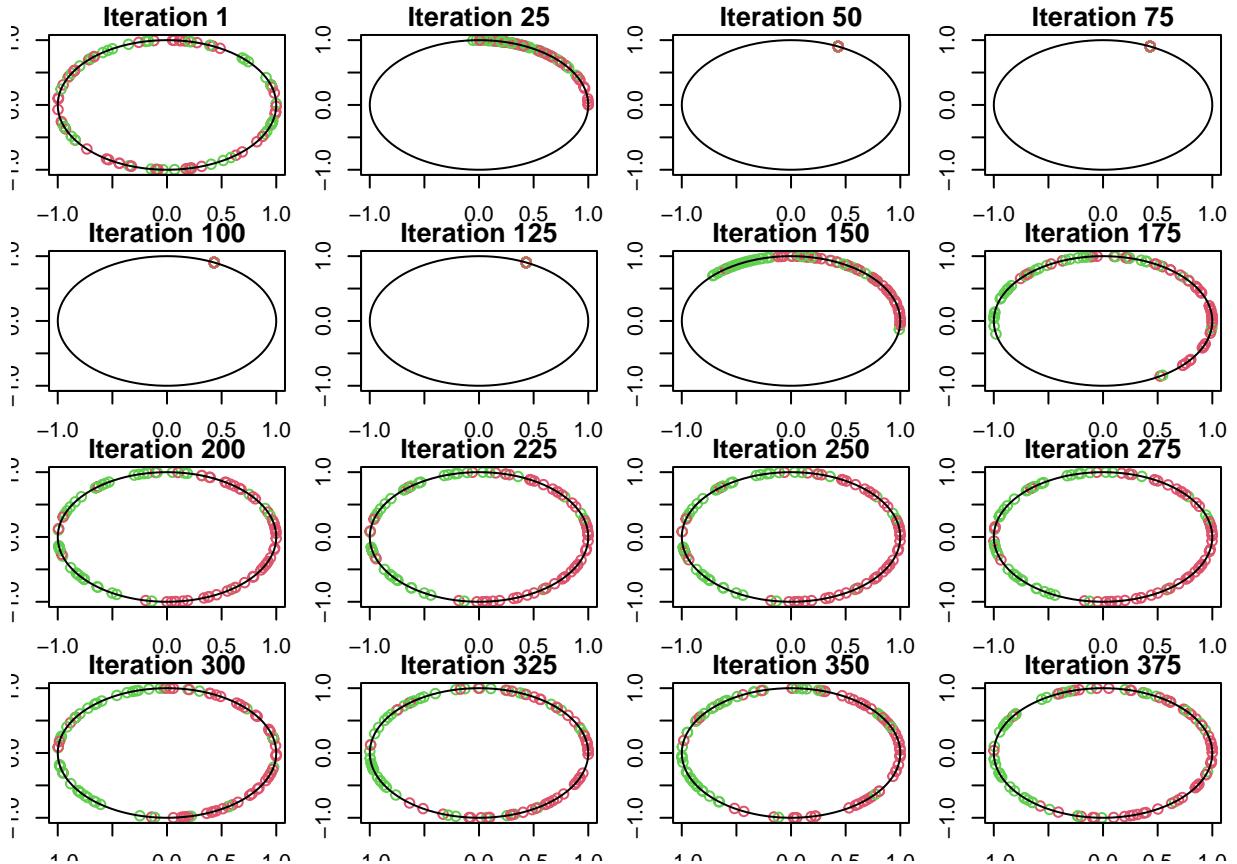
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#> It: 341; obj: 1.026e+00; abs: 6.068e-03; rel: 5.877e-03; norm: 9.151e-02; mom: 1.397e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 342; obj: 1.020e+00; abs: 6.314e-03; rel: 6.152e-03; norm: 8.855e-02; mom: 1.522e+00;
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#> It: 344; obj: 1.017e+00; abs: 2.413e-03; rel: 2.378e-03; norm: 8.019e-02; mom: 1.367e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 345; obj: 1.027e+00; abs: 9.716e-03; rel: 9.550e-03; norm: 8.526e-02; mom: 1.330e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 346; obj: 1.031e+00; abs: 3.849e-03; rel: 3.748e-03; norm: 9.273e-02; mom: 1.090e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 347; obj: 1.031e+00; abs: 3.582e-04; rel: 3.475e-04; norm: 9.188e-02; mom: 1.317e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 348; obj: 1.037e+00; abs: 6.549e-03; rel: 6.355e-03; norm: 8.428e-02; mom: 1.365e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 349; obj: 1.043e+00; abs: 6.179e-03; rel: 5.958e-03; norm: 9.422e-02; mom: 1.296e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 350; obj: 1.037e+00; abs: 6.434e-03; rel: 6.167e-03; norm: 1.017e-01; mom: 1.298e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 351; obj: 1.030e+00; abs: 6.805e-03; rel: 6.563e-03; norm: 1.050e-01; mom: 1.421e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 352; obj: 1.025e+00; abs: 4.928e-03; rel: 4.784e-03; norm: 8.504e-02; mom: 1.375e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 353; obj: 1.025e+00; abs: 7.941e-05; rel: 7.746e-05; norm: 7.936e-02; mom: 1.469e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 354; obj: 1.029e+00; abs: 4.101e-03; rel: 4.000e-03; norm: 8.012e-02; mom: 1.437e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 355; obj: 1.038e+00; abs: 8.327e-03; rel: 8.090e-03; norm: 8.368e-02; mom: 1.304e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 356; obj: 1.041e+00; abs: 3.213e-03; rel: 3.096e-03; norm: 8.321e-02; mom: 1.374e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 357; obj: 1.034e+00; abs: 7.141e-03; rel: 6.861e-03; norm: 8.420e-02; mom: 1.332e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 358; obj: 1.029e+00; abs: 4.309e-03; rel: 4.169e-03; norm: 8.949e-02; mom: 1.449e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 359; obj: 1.041e+00; abs: 1.190e-02; rel: 1.156e-02; norm: 8.655e-02; mom: 1.568e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 360; obj: 1.053e+00; abs: 1.220e-02; rel: 1.171e-02; norm: 9.230e-02; mom: 1.444e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 361; obj: 1.060e+00; abs: 6.677e-03; rel: 6.338e-03; norm: 9.731e-02; mom: 1.521e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 362; obj: 1.057e+00; abs: 3.387e-03; rel: 3.195e-03; norm: 9.175e-02; mom: 1.577e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 363; obj: 1.051e+00; abs: 5.706e-03; rel: 5.399e-03; norm: 1.008e-01; mom: 1.601e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 364; obj: 1.045e+00; abs: 6.200e-03; rel: 5.899e-03; norm: 9.950e-02; mom: 1.663e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 365; obj: 1.037e+00; abs: 7.955e-03; rel: 7.614e-03; norm: 1.022e-01; mom: 1.785e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 366; obj: 1.030e+00; abs: 7.323e-03; rel: 7.062e-03; norm: 1.005e-01; mom: 1.931e+00;
#> best it: 276; best obj: 9.820e-01

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#> It: 367; obj: 1.037e+00; abs: 7.176e-03; rel: 6.970e-03; norm: 8.976e-02; mom: 1.739e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 368; obj: 1.048e+00; abs: 1.151e-02; rel: 1.110e-02; norm: 9.128e-02; mom: 1.691e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 369; obj: 1.053e+00; abs: 4.425e-03; rel: 4.221e-03; norm: 9.582e-02; mom: 1.471e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 370; obj: 1.051e+00; abs: 1.319e-03; rel: 1.253e-03; norm: 8.988e-02; mom: 1.572e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 371; obj: 1.060e+00; abs: 8.368e-03; rel: 7.959e-03; norm: 9.038e-02; mom: 1.702e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 372; obj: 1.066e+00; abs: 6.021e-03; rel: 5.682e-03; norm: 8.730e-02; mom: 1.680e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 373; obj: 1.055e+00; abs: 1.048e-02; rel: 9.830e-03; norm: 1.057e-01; mom: 1.507e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 374; obj: 1.043e+00; abs: 1.246e-02; rel: 1.181e-02; norm: 9.927e-02; mom: 1.731e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 375; obj: 1.040e+00; abs: 2.718e-03; rel: 2.606e-03; norm: 9.278e-02; mom: 1.631e+00;
#> best it: 276; best obj: 9.820e-01

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#> It: 376; obj: 1.048e+00; abs: 8.173e-03; rel: 7.858e-03; norm: 9.399e-02; mom: 1.894e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 377; obj: 1.050e+00; abs: 1.553e-03; rel: 1.482e-03; norm: 9.394e-02; mom: 1.553e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 378; obj: 1.047e+00; abs: 3.321e-03; rel: 3.164e-03; norm: 1.034e-01; mom: 1.726e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 379; obj: 1.058e+00; abs: 1.168e-02; rel: 1.116e-02; norm: 8.664e-02; mom: 1.779e+00;

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#> best it: 276; best obj: 9.820e-01
#> It: 380; obj: 1.069e+00; abs: 1.088e-02; rel: 1.029e-02; norm: 9.860e-02; mom: 1.582e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 381; obj: 1.081e+00; abs: 1.165e-02; rel: 1.090e-02; norm: 9.762e-02; mom: 1.698e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 382; obj: 1.077e+00; abs: 3.804e-03; rel: 3.520e-03; norm: 1.021e-01; mom: 1.666e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 383; obj: 1.059e+00; abs: 1.743e-02; rel: 1.619e-02; norm: 9.931e-02; mom: 1.905e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 384; obj: 1.058e+00; abs: 1.270e-03; rel: 1.199e-03; norm: 9.928e-02; mom: 1.921e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 385; obj: 1.061e+00; abs: 2.724e-03; rel: 2.574e-03; norm: 9.117e-02; mom: 1.816e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 386; obj: 1.051e+00; abs: 1.039e-02; rel: 9.791e-03; norm: 1.048e-01; mom: 1.696e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 387; obj: 1.049e+00; abs: 1.052e-03; rel: 1.002e-03; norm: 1.026e-01; mom: 1.964e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 388; obj: 1.057e+00; abs: 7.451e-03; rel: 7.099e-03; norm: 9.016e-02; mom: 1.668e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 389; obj: 1.065e+00; abs: 7.985e-03; rel: 7.554e-03; norm: 1.058e-01; mom: 1.764e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 390; obj: 1.072e+00; abs: 7.538e-03; rel: 7.078e-03; norm: 9.613e-02; mom: 1.765e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 391; obj: 1.064e+00; abs: 8.961e-03; rel: 8.356e-03; norm: 1.075e-01; mom: 1.917e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 392; obj: 1.058e+00; abs: 5.723e-03; rel: 5.381e-03; norm: 1.024e-01; mom: 1.887e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 393; obj: 1.053e+00; abs: 4.732e-03; rel: 4.473e-03; norm: 1.057e-01; mom: 1.939e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 394; obj: 1.049e+00; abs: 3.684e-03; rel: 3.498e-03; norm: 1.038e-01; mom: 1.814e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 395; obj: 1.050e+00; abs: 2.605e-04; rel: 2.482e-04; norm: 1.199e-01; mom: 2.034e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 396; obj: 1.070e+00; abs: 2.020e-02; rel: 1.924e-02; norm: 9.937e-02; mom: 1.996e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 397; obj: 1.082e+00; abs: 1.183e-02; rel: 1.106e-02; norm: 1.008e-01; mom: 1.755e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 398; obj: 1.081e+00; abs: 4.229e-04; rel: 3.910e-04; norm: 1.037e-01; mom: 1.620e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 399; obj: 1.075e+00; abs: 6.676e-03; rel: 6.174e-03; norm: 1.045e-01; mom: 1.931e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 400; obj: 1.060e+00; abs: 1.454e-02; rel: 1.353e-02; norm: 9.547e-02; mom: 1.861e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 401; obj: 1.057e+00; abs: 3.432e-03; rel: 3.238e-03; norm: 9.999e-02; mom: 1.868e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 402; obj: 1.054e+00; abs: 2.512e-03; rel: 2.377e-03; norm: 9.807e-02; mom: 1.699e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 403; obj: 1.062e+00; abs: 8.041e-03; rel: 7.629e-03; norm: 9.142e-02; mom: 1.778e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 404; obj: 1.064e+00; abs: 2.206e-03; rel: 2.077e-03; norm: 9.471e-02; mom: 1.682e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 405; obj: 1.077e+00; abs: 1.266e-02; rel: 1.190e-02; norm: 9.417e-02; mom: 1.655e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 406; obj: 1.092e+00; abs: 1.520e-02; rel: 1.412e-02; norm: 9.342e-02; mom: 1.617e+00;

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#> best it: 276; best obj: 9.820e-01
#> It: 407; obj: 1.097e+00; abs: 5.054e-03; rel: 4.628e-03; norm: 1.032e-01; mom: 1.454e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 408; obj: 1.095e+00; abs: 2.499e-03; rel: 2.278e-03; norm: 9.988e-02; mom: 1.796e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 409; obj: 1.076e+00; abs: 1.878e-02; rel: 1.715e-02; norm: 1.184e-01; mom: 1.929e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 410; obj: 1.062e+00; abs: 1.405e-02; rel: 1.306e-02; norm: 9.991e-02; mom: 2.130e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 411; obj: 1.058e+00; abs: 3.768e-03; rel: 3.549e-03; norm: 1.020e-01; mom: 2.060e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 412; obj: 1.060e+00; abs: 2.179e-03; rel: 2.059e-03; norm: 9.933e-02; mom: 1.826e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 413; obj: 1.069e+00; abs: 8.826e-03; rel: 8.324e-03; norm: 1.060e-01; mom: 1.912e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 414; obj: 1.094e+00; abs: 2.495e-02; rel: 2.333e-02; norm: 1.005e-01; mom: 1.824e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 415; obj: 1.100e+00; abs: 6.169e-03; rel: 5.638e-03; norm: 1.199e-01; mom: 1.869e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 416; obj: 1.090e+00; abs: 1.074e-02; rel: 9.761e-03; norm: 1.067e-01; mom: 1.930e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 417; obj: 1.073e+00; abs: 1.614e-02; rel: 1.481e-02; norm: 1.042e-01; mom: 1.855e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 418; obj: 1.061e+00; abs: 1.219e-02; rel: 1.136e-02; norm: 1.025e-01; mom: 1.869e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 419; obj: 1.061e+00; abs: 2.871e-04; rel: 2.706e-04; norm: 9.581e-02; mom: 2.013e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 420; obj: 1.058e+00; abs: 2.651e-03; rel: 2.498e-03; norm: 1.073e-01; mom: 1.726e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 421; obj: 1.049e+00; abs: 9.010e-03; rel: 8.514e-03; norm: 9.803e-02; mom: 1.768e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 422; obj: 1.058e+00; abs: 8.571e-03; rel: 8.169e-03; norm: 8.423e-02; mom: 1.631e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 423; obj: 1.072e+00; abs: 1.415e-02; rel: 1.337e-02; norm: 9.086e-02; mom: 1.481e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 424; obj: 1.079e+00; abs: 6.951e-03; rel: 6.485e-03; norm: 1.049e-01; mom: 1.488e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 425; obj: 1.074e+00; abs: 5.224e-03; rel: 4.842e-03; norm: 9.742e-02; mom: 1.724e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 426; obj: 1.072e+00; abs: 1.766e-03; rel: 1.645e-03; norm: 9.494e-02; mom: 1.518e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 427; obj: 1.066e+00; abs: 5.971e-03; rel: 5.570e-03; norm: 9.768e-02; mom: 1.521e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 428; obj: 1.066e+00; abs: 4.400e-04; rel: 4.128e-04; norm: 9.317e-02; mom: 1.576e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 429; obj: 1.059e+00; abs: 7.001e-03; rel: 6.565e-03; norm: 9.785e-02; mom: 1.707e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 430; obj: 1.053e+00; abs: 6.191e-03; rel: 5.844e-03; norm: 1.011e-01; mom: 1.663e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 431; obj: 1.062e+00; abs: 8.907e-03; rel: 8.457e-03; norm: 9.743e-02; mom: 1.729e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 432; obj: 1.077e+00; abs: 1.475e-02; rel: 1.389e-02; norm: 1.040e-01; mom: 1.597e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 433; obj: 1.089e+00; abs: 1.243e-02; rel: 1.155e-02; norm: 1.034e-01; mom: 1.685e+00;

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#> best it: 276; best obj: 9.820e-01
#> It: 434; obj: 1.092e+00; abs: 2.560e-03; rel: 2.350e-03; norm: 1.074e-01; mom: 1.621e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 435; obj: 1.084e+00; abs: 8.125e-03; rel: 7.441e-03; norm: 1.051e-01; mom: 1.773e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 436; obj: 1.061e+00; abs: 2.268e-02; rel: 2.092e-02; norm: 1.053e-01; mom: 1.911e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 437; obj: 1.060e+00; abs: 1.111e-03; rel: 1.047e-03; norm: 9.264e-02; mom: 1.810e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 438; obj: 1.063e+00; abs: 3.438e-03; rel: 3.244e-03; norm: 8.927e-02; mom: 1.865e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 439; obj: 1.060e+00; abs: 3.246e-03; rel: 3.053e-03; norm: 1.053e-01; mom: 1.726e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 440; obj: 1.058e+00; abs: 2.242e-03; rel: 2.114e-03; norm: 1.073e-01; mom: 1.902e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 441; obj: 1.066e+00; abs: 8.564e-03; rel: 8.095e-03; norm: 9.505e-02; mom: 1.785e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 442; obj: 1.072e+00; abs: 5.115e-03; rel: 4.796e-03; norm: 1.075e-01; mom: 1.808e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 443; obj: 1.076e+00; abs: 4.522e-03; rel: 4.220e-03; norm: 9.829e-02; mom: 1.880e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 444; obj: 1.070e+00; abs: 5.900e-03; rel: 5.483e-03; norm: 1.173e-01; mom: 1.928e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 445; obj: 1.072e+00; abs: 1.669e-03; rel: 1.559e-03; norm: 1.005e-01; mom: 2.009e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 446; obj: 1.062e+00; abs: 9.437e-03; rel: 8.804e-03; norm: 1.159e-01; mom: 2.011e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 447; obj: 1.060e+00; abs: 2.592e-03; rel: 2.440e-03; norm: 9.622e-02; mom: 1.964e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 448; obj: 1.059e+00; abs: 1.237e-03; rel: 1.167e-03; norm: 1.012e-01; mom: 1.947e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 449; obj: 1.062e+00; abs: 3.282e-03; rel: 3.100e-03; norm: 1.093e-01; mom: 1.775e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 450; obj: 1.080e+00; abs: 1.802e-02; rel: 1.697e-02; norm: 1.119e-01; mom: 1.943e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 451; obj: 1.095e+00; abs: 1.555e-02; rel: 1.440e-02; norm: 9.948e-02; mom: 1.716e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 452; obj: 1.096e+00; abs: 6.728e-04; rel: 6.142e-04; norm: 1.207e-01; mom: 1.816e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 453; obj: 1.093e+00; abs: 3.558e-03; rel: 3.246e-03; norm: 1.145e-01; mom: 1.937e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 454; obj: 1.086e+00; abs: 6.470e-03; rel: 5.922e-03; norm: 1.117e-01; mom: 1.895e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 455; obj: 1.086e+00; abs: 5.074e-04; rel: 4.671e-04; norm: 1.133e-01; mom: 2.050e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 456; obj: 1.090e+00; abs: 4.114e-03; rel: 3.790e-03; norm: 1.086e-01; mom: 2.109e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 457; obj: 1.086e+00; abs: 4.116e-03; rel: 3.777e-03; norm: 1.060e-01; mom: 2.095e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 458; obj: 1.080e+00; abs: 5.919e-03; rel: 5.452e-03; norm: 1.083e-01; mom: 1.886e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 459; obj: 1.080e+00; abs: 3.804e-04; rel: 3.524e-04; norm: 1.136e-01; mom: 2.049e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 460; obj: 1.076e+00; abs: 3.834e-03; rel: 3.550e-03; norm: 1.035e-01; mom: 1.961e+00;

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#> best it: 276; best obj: 9.820e-01
#> It: 461; obj: 1.084e+00; abs: 8.210e-03; rel: 7.629e-03; norm: 9.564e-02; mom: 1.902e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 462; obj: 1.097e+00; abs: 1.290e-02; rel: 1.190e-02; norm: 1.022e-01; mom: 1.919e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 463; obj: 1.091e+00; abs: 6.054e-03; rel: 5.517e-03; norm: 1.144e-01; mom: 1.912e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 464; obj: 1.088e+00; abs: 3.080e-03; rel: 2.823e-03; norm: 1.000e-01; mom: 1.973e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 465; obj: 1.082e+00; abs: 6.105e-03; rel: 5.610e-03; norm: 1.104e-01; mom: 1.822e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 466; obj: 1.083e+00; abs: 9.294e-04; rel: 8.589e-04; norm: 1.067e-01; mom: 2.159e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 467; obj: 1.086e+00; abs: 3.388e-03; rel: 3.128e-03; norm: 1.031e-01; mom: 1.922e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 468; obj: 1.078e+00; abs: 8.782e-03; rel: 8.084e-03; norm: 1.086e-01; mom: 1.920e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 469; obj: 1.074e+00; abs: 3.901e-03; rel: 3.620e-03; norm: 1.055e-01; mom: 1.838e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 470; obj: 1.075e+00; abs: 1.210e-03; rel: 1.127e-03; norm: 9.882e-02; mom: 1.802e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 471; obj: 1.084e+00; abs: 9.172e-03; rel: 8.533e-03; norm: 9.983e-02; mom: 1.748e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 472; obj: 1.104e+00; abs: 1.980e-02; rel: 1.826e-02; norm: 1.054e-01; mom: 1.791e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 473; obj: 1.123e+00; abs: 1.903e-02; rel: 1.724e-02; norm: 1.109e-01; mom: 1.854e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 474; obj: 1.112e+00; abs: 1.066e-02; rel: 9.494e-03; norm: 1.142e-01; mom: 1.975e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 475; obj: 1.106e+00; abs: 6.619e-03; rel: 5.951e-03; norm: 1.099e-01; mom: 1.925e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 476; obj: 1.093e+00; abs: 1.217e-02; rel: 1.101e-02; norm: 1.010e-01; mom: 1.891e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 477; obj: 1.076e+00; abs: 1.758e-02; rel: 1.608e-02; norm: 1.050e-01; mom: 1.879e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 478; obj: 1.072e+00; abs: 4.225e-03; rel: 3.927e-03; norm: 9.846e-02; mom: 1.871e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 479; obj: 1.069e+00; abs: 3.115e-03; rel: 2.907e-03; norm: 9.802e-02; mom: 1.806e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 480; obj: 1.086e+00; abs: 1.716e-02; rel: 1.606e-02; norm: 9.813e-02; mom: 1.893e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 481; obj: 1.110e+00; abs: 2.476e-02; rel: 2.281e-02; norm: 1.034e-01; mom: 1.806e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 482; obj: 1.121e+00; abs: 1.080e-02; rel: 9.728e-03; norm: 1.200e-01; mom: 1.885e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 483; obj: 1.131e+00; abs: 1.019e-02; rel: 9.086e-03; norm: 1.089e-01; mom: 2.024e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 484; obj: 1.125e+00; abs: 6.572e-03; rel: 5.808e-03; norm: 1.150e-01; mom: 2.095e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 485; obj: 1.102e+00; abs: 2.294e-02; rel: 2.039e-02; norm: 1.184e-01; mom: 2.011e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 486; obj: 1.087e+00; abs: 1.458e-02; rel: 1.323e-02; norm: 1.087e-01; mom: 2.260e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 487; obj: 1.085e+00; abs: 2.790e-03; rel: 2.566e-03; norm: 1.035e-01; mom: 2.128e+00;

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#> best it: 276; best obj: 9.820e-01
#> It: 488; obj: 1.090e+00; abs: 5.533e-03; rel: 5.102e-03; norm: 1.022e-01; mom: 1.968e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 489; obj: 1.089e+00; abs: 1.595e-03; rel: 1.464e-03; norm: 1.145e-01; mom: 1.781e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 490; obj: 1.103e+00; abs: 1.433e-02; rel: 1.316e-02; norm: 1.148e-01; mom: 2.014e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 491; obj: 1.107e+00; abs: 4.571e-03; rel: 4.145e-03; norm: 1.160e-01; mom: 2.048e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 492; obj: 1.117e+00; abs: 9.321e-03; rel: 8.417e-03; norm: 1.260e-01; mom: 2.222e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 493; obj: 1.115e+00; abs: 1.275e-03; rel: 1.141e-03; norm: 1.269e-01; mom: 2.274e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 494; obj: 1.105e+00; abs: 1.008e-02; rel: 9.035e-03; norm: 1.230e-01; mom: 2.307e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 495; obj: 1.112e+00; abs: 6.929e-03; rel: 6.268e-03; norm: 1.151e-01; mom: 2.168e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 496; obj: 1.099e+00; abs: 1.363e-02; rel: 1.225e-02; norm: 1.340e-01; mom: 2.182e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 497; obj: 1.097e+00; abs: 1.428e-03; rel: 1.299e-03; norm: 1.016e-01; mom: 2.208e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 498; obj: 1.091e+00; abs: 6.187e-03; rel: 5.638e-03; norm: 1.115e-01; mom: 2.004e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 499; obj: 1.101e+00; abs: 9.988e-03; rel: 9.154e-03; norm: 9.926e-02; mom: 2.002e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 500; obj: 1.098e+00; abs: 2.620e-03; rel: 2.379e-03; norm: 1.110e-01; mom: 1.883e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 501; obj: 1.098e+00; abs: 5.663e-04; rel: 5.155e-04; norm: 9.868e-02; mom: 2.036e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 502; obj: 1.101e+00; abs: 3.031e-03; rel: 2.761e-03; norm: 1.018e-01; mom: 1.796e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 503; obj: 1.104e+00; abs: 3.259e-03; rel: 2.960e-03; norm: 1.176e-01; mom: 1.871e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 504; obj: 1.105e+00; abs: 8.862e-04; rel: 8.026e-04; norm: 1.045e-01; mom: 2.148e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 505; obj: 1.086e+00; abs: 1.870e-02; rel: 1.693e-02; norm: 1.249e-01; mom: 1.987e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 506; obj: 1.091e+00; abs: 5.026e-03; rel: 4.627e-03; norm: 1.052e-01; mom: 2.098e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 507; obj: 1.085e+00; abs: 6.100e-03; rel: 5.589e-03; norm: 1.081e-01; mom: 2.038e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 508; obj: 1.094e+00; abs: 8.947e-03; rel: 8.244e-03; norm: 1.218e-01; mom: 2.139e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 509; obj: 1.098e+00; abs: 3.743e-03; rel: 3.420e-03; norm: 1.360e-01; mom: 2.136e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 510; obj: 1.094e+00; abs: 4.211e-03; rel: 3.835e-03; norm: 1.204e-01; mom: 2.285e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 511; obj: 1.102e+00; abs: 8.710e-03; rel: 7.964e-03; norm: 1.086e-01; mom: 2.114e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 512; obj: 1.101e+00; abs: 1.133e-03; rel: 1.028e-03; norm: 1.315e-01; mom: 1.864e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 513; obj: 1.097e+00; abs: 3.995e-03; rel: 3.628e-03; norm: 1.127e-01; mom: 2.299e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 514; obj: 1.099e+00; abs: 1.348e-03; rel: 1.228e-03; norm: 1.215e-01; mom: 2.198e+00;

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#> best it: 276; best obj: 9.820e-01
#> It: 515; obj: 1.104e+00; abs: 5.559e-03; rel: 5.060e-03; norm: 1.091e-01; mom: 2.218e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 516; obj: 1.090e+00; abs: 1.465e-02; rel: 1.327e-02; norm: 1.365e-01; mom: 2.019e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 517; obj: 1.088e+00; abs: 1.896e-03; rel: 1.740e-03; norm: 1.020e-01; mom: 2.336e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 518; obj: 1.084e+00; abs: 3.825e-03; rel: 3.516e-03; norm: 1.078e-01; mom: 1.975e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 519; obj: 1.092e+00; abs: 8.175e-03; rel: 7.543e-03; norm: 9.909e-02; mom: 2.106e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 520; obj: 1.097e+00; abs: 5.162e-03; rel: 4.727e-03; norm: 1.084e-01; mom: 1.916e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 521; obj: 1.095e+00; abs: 2.652e-03; rel: 2.417e-03; norm: 1.020e-01; mom: 1.930e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 522; obj: 1.094e+00; abs: 7.289e-04; rel: 6.659e-04; norm: 1.098e-01; mom: 1.989e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 523; obj: 1.098e+00; abs: 4.215e-03; rel: 3.853e-03; norm: 1.083e-01; mom: 1.888e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 524; obj: 1.103e+00; abs: 5.148e-03; rel: 4.689e-03; norm: 1.035e-01; mom: 2.031e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 525; obj: 1.108e+00; abs: 4.614e-03; rel: 4.182e-03; norm: 1.073e-01; mom: 1.968e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 526; obj: 1.093e+00; abs: 1.491e-02; rel: 1.346e-02; norm: 1.162e-01; mom: 2.035e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 527; obj: 1.094e+00; abs: 1.495e-03; rel: 1.368e-03; norm: 1.030e-01; mom: 2.015e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 528; obj: 1.091e+00; abs: 3.424e-03; rel: 3.129e-03; norm: 1.067e-01; mom: 2.094e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 529; obj: 1.101e+00; abs: 1.013e-02; rel: 9.284e-03; norm: 1.024e-01; mom: 1.853e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 530; obj: 1.110e+00; abs: 8.765e-03; rel: 7.961e-03; norm: 1.171e-01; mom: 1.823e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 531; obj: 1.110e+00; abs: 3.422e-04; rel: 3.083e-04; norm: 1.063e-01; mom: 1.917e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 532; obj: 1.110e+00; abs: 1.183e-04; rel: 1.066e-04; norm: 1.198e-01; mom: 1.927e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 533; obj: 1.112e+00; abs: 2.728e-03; rel: 2.459e-03; norm: 1.034e-01; mom: 2.036e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 534; obj: 1.111e+00; abs: 1.259e-03; rel: 1.132e-03; norm: 1.183e-01; mom: 1.912e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 535; obj: 1.109e+00; abs: 2.582e-03; rel: 2.324e-03; norm: 1.132e-01; mom: 2.173e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 536; obj: 1.104e+00; abs: 4.709e-03; rel: 4.248e-03; norm: 1.348e-01; mom: 2.143e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 537; obj: 1.108e+00; abs: 3.717e-03; rel: 3.368e-03; norm: 1.245e-01; mom: 2.538e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 538; obj: 1.104e+00; abs: 3.693e-03; rel: 3.335e-03; norm: 1.140e-01; mom: 2.193e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 539; obj: 1.105e+00; abs: 1.314e-03; rel: 1.190e-03; norm: 1.161e-01; mom: 2.045e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 540; obj: 1.117e+00; abs: 1.204e-02; rel: 1.089e-02; norm: 1.101e-01; mom: 2.111e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 541; obj: 1.121e+00; abs: 3.950e-03; rel: 3.536e-03; norm: 1.165e-01; mom: 1.987e+00;

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#> best it: 276; best obj: 9.820e-01
#> It: 542; obj: 1.107e+00; abs: 1.387e-02; rel: 1.237e-02; norm: 1.250e-01; mom: 2.114e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 543; obj: 1.103e+00; abs: 3.878e-03; rel: 3.503e-03; norm: 1.157e-01; mom: 2.293e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 544; obj: 1.095e+00; abs: 8.243e-03; rel: 7.471e-03; norm: 1.206e-01; mom: 2.340e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 545; obj: 1.095e+00; abs: 3.005e-04; rel: 2.744e-04; norm: 1.194e-01; mom: 2.270e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 546; obj: 1.106e+00; abs: 1.074e-02; rel: 9.807e-03; norm: 1.136e-01; mom: 2.150e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 547; obj: 1.117e+00; abs: 1.050e-02; rel: 9.492e-03; norm: 1.158e-01; mom: 2.062e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 548; obj: 1.113e+00; abs: 3.195e-03; rel: 2.861e-03; norm: 1.150e-01; mom: 2.146e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 549; obj: 1.105e+00; abs: 8.976e-03; rel: 8.061e-03; norm: 1.149e-01; mom: 2.129e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 550; obj: 1.102e+00; abs: 2.496e-03; rel: 2.260e-03; norm: 1.101e-01; mom: 1.965e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 551; obj: 1.099e+00; abs: 3.356e-03; rel: 3.045e-03; norm: 1.116e-01; mom: 2.092e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 552; obj: 1.107e+00; abs: 8.173e-03; rel: 7.439e-03; norm: 1.049e-01; mom: 2.061e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 553; obj: 1.117e+00; abs: 9.684e-03; rel: 8.749e-03; norm: 1.132e-01; mom: 2.139e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 554; obj: 1.111e+00; abs: 5.735e-03; rel: 5.137e-03; norm: 1.210e-01; mom: 2.068e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 555; obj: 1.113e+00; abs: 2.554e-03; rel: 2.299e-03; norm: 1.055e-01; mom: 2.237e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 556; obj: 1.107e+00; abs: 5.890e-03; rel: 5.290e-03; norm: 1.066e-01; mom: 1.945e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 557; obj: 1.100e+00; abs: 7.841e-03; rel: 7.080e-03; norm: 1.068e-01; mom: 2.006e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 558; obj: 1.098e+00; abs: 1.371e-03; rel: 1.247e-03; norm: 1.042e-01; mom: 2.018e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 559; obj: 1.098e+00; abs: 8.688e-05; rel: 7.911e-05; norm: 1.060e-01; mom: 1.961e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 560; obj: 1.083e+00; abs: 1.541e-02; rel: 1.403e-02; norm: 1.153e-01; mom: 1.816e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 561; obj: 1.076e+00; abs: 6.812e-03; rel: 6.290e-03; norm: 9.304e-02; mom: 1.937e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 562; obj: 1.071e+00; abs: 4.901e-03; rel: 4.554e-03; norm: 1.010e-01; mom: 1.745e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 563; obj: 1.079e+00; abs: 8.136e-03; rel: 7.595e-03; norm: 9.756e-02; mom: 2.002e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 564; obj: 1.088e+00; abs: 9.097e-03; rel: 8.428e-03; norm: 9.353e-02; mom: 1.763e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 565; obj: 1.084e+00; abs: 4.831e-03; rel: 4.438e-03; norm: 1.122e-01; mom: 1.673e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 566; obj: 1.080e+00; abs: 3.817e-03; rel: 3.522e-03; norm: 9.801e-02; mom: 1.957e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 567; obj: 1.084e+00; abs: 4.176e-03; rel: 3.868e-03; norm: 1.051e-01; mom: 1.800e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 568; obj: 1.091e+00; abs: 7.348e-03; rel: 6.778e-03; norm: 9.798e-02; mom: 1.772e+00;

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#> best it: 276; best obj: 9.820e-01
#> It: 569; obj: 1.097e+00; abs: 5.692e-03; rel: 5.216e-03; norm: 1.071e-01; mom: 1.884e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 570; obj: 1.097e+00; abs: 8.466e-05; rel: 7.718e-05; norm: 1.065e-01; mom: 1.917e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 571; obj: 1.093e+00; abs: 4.246e-03; rel: 3.870e-03; norm: 1.110e-01; mom: 1.934e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 572; obj: 1.095e+00; abs: 2.289e-03; rel: 2.095e-03; norm: 1.016e-01; mom: 1.956e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 573; obj: 1.087e+00; abs: 7.686e-03; rel: 7.018e-03; norm: 1.166e-01; mom: 1.883e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 574; obj: 1.096e+00; abs: 8.077e-03; rel: 7.427e-03; norm: 9.913e-02; mom: 2.111e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 575; obj: 1.097e+00; abs: 1.950e-03; rel: 1.780e-03; norm: 1.147e-01; mom: 1.839e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 576; obj: 1.098e+00; abs: 8.800e-04; rel: 8.018e-04; norm: 1.117e-01; mom: 2.020e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 577; obj: 1.104e+00; abs: 5.996e-03; rel: 5.459e-03; norm: 1.251e-01; mom: 2.089e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 578; obj: 1.114e+00; abs: 9.745e-03; rel: 8.825e-03; norm: 1.040e-01; mom: 2.150e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 579; obj: 1.119e+00; abs: 4.537e-03; rel: 4.073e-03; norm: 1.050e-01; mom: 2.036e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 580; obj: 1.106e+00; abs: 1.289e-02; rel: 1.152e-02; norm: 1.076e-01; mom: 1.889e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 581; obj: 1.099e+00; abs: 6.609e-03; rel: 5.977e-03; norm: 1.040e-01; mom: 1.977e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 582; obj: 1.098e+00; abs: 1.502e-03; rel: 1.366e-03; norm: 9.862e-02; mom: 1.981e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 583; obj: 1.100e+00; abs: 2.764e-03; rel: 2.518e-03; norm: 1.079e-01; mom: 1.867e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 584; obj: 1.102e+00; abs: 1.600e-03; rel: 1.454e-03; norm: 1.066e-01; mom: 2.011e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 585; obj: 1.097e+00; abs: 4.830e-03; rel: 4.383e-03; norm: 1.111e-01; mom: 2.029e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 586; obj: 1.091e+00; abs: 6.111e-03; rel: 5.569e-03; norm: 1.041e-01; mom: 1.917e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 587; obj: 1.096e+00; abs: 4.645e-03; rel: 4.258e-03; norm: 9.911e-02; mom: 2.069e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 588; obj: 1.104e+00; abs: 8.139e-03; rel: 7.428e-03; norm: 1.142e-01; mom: 1.993e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 589; obj: 1.085e+00; abs: 1.835e-02; rel: 1.663e-02; norm: 1.142e-01; mom: 2.012e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 590; obj: 1.075e+00; abs: 1.022e-02; rel: 9.412e-03; norm: 1.016e-01; mom: 2.202e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 591; obj: 1.081e+00; abs: 5.304e-03; rel: 4.933e-03; norm: 1.091e-01; mom: 1.870e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 592; obj: 1.089e+00; abs: 7.984e-03; rel: 7.389e-03; norm: 1.052e-01; mom: 2.009e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 593; obj: 1.078e+00; abs: 1.055e-02; rel: 9.691e-03; norm: 1.233e-01; mom: 1.696e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 594; obj: 1.081e+00; abs: 2.703e-03; rel: 2.507e-03; norm: 9.792e-02; mom: 1.946e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 595; obj: 1.088e+00; abs: 6.890e-03; rel: 6.375e-03; norm: 1.060e-01; mom: 1.799e+00;

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#> best it: 276; best obj: 9.820e-01
#> It: 596; obj: 1.090e+00; abs: 1.968e-03; rel: 1.810e-03; norm: 1.032e-01; mom: 1.795e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 597; obj: 1.096e+00; abs: 6.079e-03; rel: 5.579e-03; norm: 1.008e-01; mom: 1.795e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 598; obj: 1.104e+00; abs: 8.654e-03; rel: 7.899e-03; norm: 1.040e-01; mom: 1.776e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 599; obj: 1.091e+00; abs: 1.322e-02; rel: 1.197e-02; norm: 1.112e-01; mom: 1.631e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 600; obj: 1.078e+00; abs: 1.357e-02; rel: 1.243e-02; norm: 1.020e-01; mom: 1.968e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 601; obj: 1.073e+00; abs: 4.125e-03; rel: 3.828e-03; norm: 1.074e-01; mom: 1.892e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 602; obj: 1.084e+00; abs: 1.042e-02; rel: 9.712e-03; norm: 1.043e-01; mom: 2.001e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 603; obj: 1.100e+00; abs: 1.628e-02; rel: 1.502e-02; norm: 1.140e-01; mom: 2.000e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 604; obj: 1.107e+00; abs: 7.360e-03; rel: 6.690e-03; norm: 1.130e-01; mom: 2.083e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 605; obj: 1.093e+00; abs: 1.423e-02; rel: 1.285e-02; norm: 1.106e-01; mom: 1.879e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 606; obj: 1.089e+00; abs: 4.672e-03; rel: 4.273e-03; norm: 9.954e-02; mom: 2.058e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 607; obj: 1.099e+00; abs: 1.029e-02; rel: 9.452e-03; norm: 1.065e-01; mom: 1.911e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 608; obj: 1.095e+00; abs: 3.782e-03; rel: 3.442e-03; norm: 1.204e-01; mom: 1.951e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 609; obj: 1.087e+00; abs: 8.099e-03; rel: 7.396e-03; norm: 1.175e-01; mom: 2.140e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 610; obj: 1.088e+00; abs: 9.392e-04; rel: 8.641e-04; norm: 1.208e-01; mom: 2.112e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 611; obj: 1.088e+00; abs: 1.244e-04; rel: 1.144e-04; norm: 1.076e-01; mom: 2.296e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 612; obj: 1.088e+00; abs: 6.023e-04; rel: 5.537e-04; norm: 1.025e-01; mom: 1.940e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 613; obj: 1.089e+00; abs: 7.578e-04; rel: 6.963e-04; norm: 1.069e-01; mom: 2.085e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 614; obj: 1.098e+00; abs: 9.250e-03; rel: 8.494e-03; norm: 1.086e-01; mom: 2.100e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 615; obj: 1.115e+00; abs: 1.626e-02; rel: 1.480e-02; norm: 1.063e-01; mom: 2.069e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 616; obj: 1.126e+00; abs: 1.159e-02; rel: 1.040e-02; norm: 1.173e-01; mom: 1.938e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 617; obj: 1.122e+00; abs: 4.143e-03; rel: 3.679e-03; norm: 1.274e-01; mom: 2.106e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 618; obj: 1.109e+00; abs: 1.340e-02; rel: 1.194e-02; norm: 1.103e-01; mom: 2.326e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 619; obj: 1.102e+00; abs: 6.740e-03; rel: 6.079e-03; norm: 1.072e-01; mom: 2.178e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 620; obj: 1.091e+00; abs: 1.048e-02; rel: 9.510e-03; norm: 1.088e-01; mom: 2.255e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 621; obj: 1.093e+00; abs: 1.554e-03; rel: 1.424e-03; norm: 1.177e-01; mom: 2.321e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 622; obj: 1.104e+00; abs: 1.117e-02; rel: 1.022e-02; norm: 1.086e-01; mom: 2.304e+00;

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#> best it: 276; best obj: 9.820e-01
#> It: 623; obj: 1.106e+00; abs: 2.113e-03; rel: 1.914e-03; norm: 1.255e-01; mom: 2.217e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 624; obj: 1.114e+00; abs: 7.484e-03; rel: 6.765e-03; norm: 1.044e-01; mom: 2.185e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 625; obj: 1.118e+00; abs: 3.914e-03; rel: 3.514e-03; norm: 1.230e-01; mom: 2.046e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 626; obj: 1.108e+00; abs: 9.396e-03; rel: 8.407e-03; norm: 1.178e-01; mom: 2.195e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 627; obj: 1.106e+00; abs: 1.922e-03; rel: 1.734e-03; norm: 1.099e-01; mom: 2.220e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 628; obj: 1.113e+00; abs: 6.768e-03; rel: 6.118e-03; norm: 1.096e-01; mom: 2.144e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 629; obj: 1.106e+00; abs: 7.269e-03; rel: 6.530e-03; norm: 1.213e-01; mom: 2.021e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 630; obj: 1.087e+00; abs: 1.903e-02; rel: 1.721e-02; norm: 1.097e-01; mom: 2.228e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 631; obj: 1.081e+00; abs: 5.871e-03; rel: 5.402e-03; norm: 1.072e-01; mom: 2.119e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 632; obj: 1.094e+00; abs: 1.305e-02; rel: 1.207e-02; norm: 1.021e-01; mom: 2.019e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 633; obj: 1.102e+00; abs: 8.468e-03; rel: 7.740e-03; norm: 1.114e-01; mom: 1.932e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 634; obj: 1.110e+00; abs: 7.223e-03; rel: 6.551e-03; norm: 1.046e-01; mom: 2.016e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 635; obj: 1.096e+00; abs: 1.384e-02; rel: 1.248e-02; norm: 1.242e-01; mom: 2.058e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 636; obj: 1.096e+00; abs: 3.411e-05; rel: 3.113e-05; norm: 1.020e-01; mom: 2.221e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 637; obj: 1.100e+00; abs: 4.594e-03; rel: 4.192e-03; norm: 1.049e-01; mom: 1.828e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 638; obj: 1.099e+00; abs: 1.153e-03; rel: 1.048e-03; norm: 9.538e-02; mom: 2.017e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 639; obj: 1.085e+00; abs: 1.391e-02; rel: 1.265e-02; norm: 1.212e-01; mom: 1.899e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 640; obj: 1.081e+00; abs: 4.014e-03; rel: 3.698e-03; norm: 9.880e-02; mom: 2.168e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 641; obj: 1.080e+00; abs: 1.094e-03; rel: 1.012e-03; norm: 1.086e-01; mom: 1.965e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 642; obj: 1.101e+00; abs: 2.099e-02; rel: 1.943e-02; norm: 1.074e-01; mom: 1.932e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 643; obj: 1.103e+00; abs: 1.827e-03; rel: 1.659e-03; norm: 1.231e-01; mom: 1.925e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 644; obj: 1.099e+00; abs: 4.277e-03; rel: 3.877e-03; norm: 1.074e-01; mom: 2.015e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 645; obj: 1.089e+00; abs: 1.026e-02; rel: 9.339e-03; norm: 1.079e-01; mom: 2.094e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 646; obj: 1.096e+00; abs: 7.182e-03; rel: 6.598e-03; norm: 1.006e-01; mom: 1.921e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 647; obj: 1.091e+00; abs: 4.946e-03; rel: 4.514e-03; norm: 1.067e-01; mom: 1.998e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 648; obj: 1.081e+00; abs: 1.009e-02; rel: 9.249e-03; norm: 1.061e-01; mom: 2.099e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 649; obj: 1.083e+00; abs: 2.742e-03; rel: 2.537e-03; norm: 9.912e-02; mom: 2.018e+00;

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#> best it: 276; best obj: 9.820e-01
#> It: 650; obj: 1.085e+00; abs: 1.357e-03; rel: 1.252e-03; norm: 1.147e-01; mom: 2.027e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 651; obj: 1.093e+00; abs: 8.705e-03; rel: 8.024e-03; norm: 9.774e-02; mom: 1.902e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 652; obj: 1.098e+00; abs: 4.953e-03; rel: 4.529e-03; norm: 1.077e-01; mom: 2.008e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 653; obj: 1.090e+00; abs: 7.972e-03; rel: 7.258e-03; norm: 1.098e-01; mom: 1.882e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 654; obj: 1.080e+00; abs: 1.020e-02; rel: 9.350e-03; norm: 1.022e-01; mom: 1.870e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 655; obj: 1.083e+00; abs: 2.806e-03; rel: 2.598e-03; norm: 9.498e-02; mom: 1.857e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 656; obj: 1.079e+00; abs: 3.855e-03; rel: 3.559e-03; norm: 1.035e-01; mom: 1.777e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 657; obj: 1.075e+00; abs: 4.140e-03; rel: 3.836e-03; norm: 1.002e-01; mom: 1.859e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 658; obj: 1.067e+00; abs: 7.795e-03; rel: 7.251e-03; norm: 9.365e-02; mom: 1.829e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 659; obj: 1.067e+00; abs: 6.439e-04; rel: 6.033e-04; norm: 9.910e-02; mom: 1.801e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 660; obj: 1.078e+00; abs: 1.172e-02; rel: 1.099e-02; norm: 9.407e-02; mom: 1.896e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 661; obj: 1.082e+00; abs: 3.425e-03; rel: 3.176e-03; norm: 1.216e-01; mom: 1.697e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 662; obj: 1.085e+00; abs: 3.581e-03; rel: 3.310e-03; norm: 9.865e-02; mom: 2.033e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 663; obj: 1.087e+00; abs: 1.393e-03; rel: 1.284e-03; norm: 1.021e-01; mom: 1.871e+00;
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#> best it: 276; best obj: 9.820e-01
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#> best it: 276; best obj: 9.820e-01
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#> It: 667; obj: 1.101e+00; abs: 1.257e-03; rel: 1.140e-03; norm: 1.092e-01; mom: 2.011e+00;
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#> It: 672; obj: 1.084e+00; abs: 4.505e-03; rel: 4.139e-03; norm: 1.030e-01; mom: 1.958e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 673; obj: 1.070e+00; abs: 1.418e-02; rel: 1.309e-02; norm: 1.175e-01; mom: 1.939e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 674; obj: 1.076e+00; abs: 6.241e-03; rel: 5.833e-03; norm: 9.363e-02; mom: 2.079e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 675; obj: 1.076e+00; abs: 4.222e-04; rel: 3.923e-04; norm: 1.022e-01; mom: 1.871e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 676; obj: 1.084e+00; abs: 7.127e-03; rel: 6.621e-03; norm: 1.077e-01; mom: 1.834e+00;

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#> best it: 276; best obj: 9.820e-01
#> It: 677; obj: 1.080e+00; abs: 3.499e-03; rel: 3.229e-03; norm: 1.002e-01; mom: 1.784e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 678; obj: 1.078e+00; abs: 1.670e-03; rel: 1.546e-03; norm: 9.503e-02; mom: 1.780e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 679; obj: 1.080e+00; abs: 1.099e-03; rel: 1.019e-03; norm: 1.043e-01; mom: 1.784e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 680; obj: 1.080e+00; abs: 5.091e-04; rel: 4.716e-04; norm: 1.022e-01; mom: 1.850e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 681; obj: 1.091e+00; abs: 1.074e-02; rel: 9.945e-03; norm: 9.742e-02; mom: 1.740e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 682; obj: 1.086e+00; abs: 5.023e-03; rel: 4.605e-03; norm: 9.798e-02; mom: 1.740e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 683; obj: 1.084e+00; abs: 1.570e-03; rel: 1.446e-03; norm: 9.796e-02; mom: 1.746e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 684; obj: 1.073e+00; abs: 1.105e-02; rel: 1.019e-02; norm: 1.111e-01; mom: 1.685e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 685; obj: 1.070e+00; abs: 3.417e-03; rel: 3.184e-03; norm: 1.084e-01; mom: 2.005e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 686; obj: 1.067e+00; abs: 2.569e-03; rel: 2.402e-03; norm: 1.076e-01; mom: 1.812e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 687; obj: 1.078e+00; abs: 1.042e-02; rel: 9.766e-03; norm: 9.388e-02; mom: 2.066e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 688; obj: 1.091e+00; abs: 1.362e-02; rel: 1.264e-02; norm: 1.112e-01; mom: 1.672e+00;
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#> It: 689; obj: 1.091e+00; abs: 1.288e-04; rel: 1.180e-04; norm: 1.121e-01; mom: 1.783e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 690; obj: 1.080e+00; abs: 1.161e-02; rel: 1.064e-02; norm: 1.018e-01; mom: 1.739e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 691; obj: 1.068e+00; abs: 1.171e-02; rel: 1.085e-02; norm: 1.051e-01; mom: 1.954e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 692; obj: 1.083e+00; abs: 1.507e-02; rel: 1.411e-02; norm: 9.018e-02; mom: 1.920e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 693; obj: 1.076e+00; abs: 6.911e-03; rel: 6.381e-03; norm: 1.106e-01; mom: 1.905e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 694; obj: 1.058e+00; abs: 1.852e-02; rel: 1.721e-02; norm: 1.095e-01; mom: 1.785e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 695; obj: 1.055e+00; abs: 2.171e-03; rel: 2.053e-03; norm: 9.379e-02; mom: 1.886e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 696; obj: 1.062e+00; abs: 6.962e-03; rel: 6.597e-03; norm: 9.293e-02; mom: 1.616e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 697; obj: 1.072e+00; abs: 9.187e-03; rel: 8.648e-03; norm: 9.528e-02; mom: 1.611e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 698; obj: 1.078e+00; abs: 6.278e-03; rel: 5.859e-03; norm: 9.042e-02; mom: 1.534e+00;
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#> best it: 276; best obj: 9.820e-01
#> It: 703; obj: 1.072e+00; abs: 5.201e-03; rel: 4.826e-03; norm: 1.048e-01; mom: 1.918e+00;

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#> best it: 276; best obj: 9.820e-01
#> It: 704; obj: 1.068e+00; abs: 4.233e-03; rel: 3.948e-03; norm: 1.008e-01; mom: 1.841e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 705; obj: 1.063e+00; abs: 5.292e-03; rel: 4.954e-03; norm: 1.033e-01; mom: 1.977e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 706; obj: 1.071e+00; abs: 7.705e-03; rel: 7.250e-03; norm: 9.188e-02; mom: 1.899e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 707; obj: 1.076e+00; abs: 5.678e-03; rel: 5.304e-03; norm: 9.588e-02; mom: 1.788e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 708; obj: 1.073e+00; abs: 3.100e-03; rel: 2.880e-03; norm: 1.002e-01; mom: 1.692e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 709; obj: 1.070e+00; abs: 2.633e-03; rel: 2.454e-03; norm: 9.876e-02; mom: 1.817e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 710; obj: 1.071e+00; abs: 1.003e-03; rel: 9.368e-04; norm: 1.152e-01; mom: 1.790e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 711; obj: 1.081e+00; abs: 9.207e-03; rel: 8.592e-03; norm: 1.019e-01; mom: 2.055e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 712; obj: 1.087e+00; abs: 5.884e-03; rel: 5.444e-03; norm: 1.115e-01; mom: 1.913e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 713; obj: 1.099e+00; abs: 1.263e-02; rel: 1.163e-02; norm: 9.711e-02; mom: 1.937e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 714; obj: 1.091e+00; abs: 8.523e-03; rel: 7.754e-03; norm: 1.128e-01; mom: 1.918e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 715; obj: 1.082e+00; abs: 8.817e-03; rel: 8.084e-03; norm: 1.077e-01; mom: 2.134e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 716; obj: 1.086e+00; abs: 4.619e-03; rel: 4.270e-03; norm: 1.085e-01; mom: 2.138e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 717; obj: 1.087e+00; abs: 2.146e-04; rel: 1.975e-04; norm: 1.034e-01; mom: 2.114e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 718; obj: 1.089e+00; abs: 2.407e-03; rel: 2.215e-03; norm: 1.171e-01; mom: 2.005e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 719; obj: 1.091e+00; abs: 2.225e-03; rel: 2.043e-03; norm: 1.187e-01; mom: 2.017e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 720; obj: 1.094e+00; abs: 2.471e-03; rel: 2.264e-03; norm: 1.143e-01; mom: 2.191e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 721; obj: 1.100e+00; abs: 5.719e-03; rel: 5.228e-03; norm: 1.050e-01; mom: 2.194e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 722; obj: 1.108e+00; abs: 8.468e-03; rel: 7.702e-03; norm: 1.172e-01; mom: 2.017e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 723; obj: 1.108e+00; abs: 2.288e-05; rel: 2.065e-05; norm: 1.025e-01; mom: 2.135e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 724; obj: 1.079e+00; abs: 2.866e-02; rel: 2.587e-02; norm: 1.224e-01; mom: 1.981e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 725; obj: 1.083e+00; abs: 3.863e-03; rel: 3.579e-03; norm: 1.005e-01; mom: 2.339e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 726; obj: 1.091e+00; abs: 7.526e-03; rel: 6.948e-03; norm: 1.196e-01; mom: 1.941e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 727; obj: 1.092e+00; abs: 1.658e-03; rel: 1.520e-03; norm: 1.057e-01; mom: 1.926e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 728; obj: 1.079e+00; abs: 1.357e-02; rel: 1.243e-02; norm: 1.101e-01; mom: 1.935e+00;
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#> It: 729; obj: 1.068e+00; abs: 1.111e-02; rel: 1.030e-02; norm: 1.132e-01; mom: 2.012e+00;
#> best it: 276; best obj: 9.820e-01
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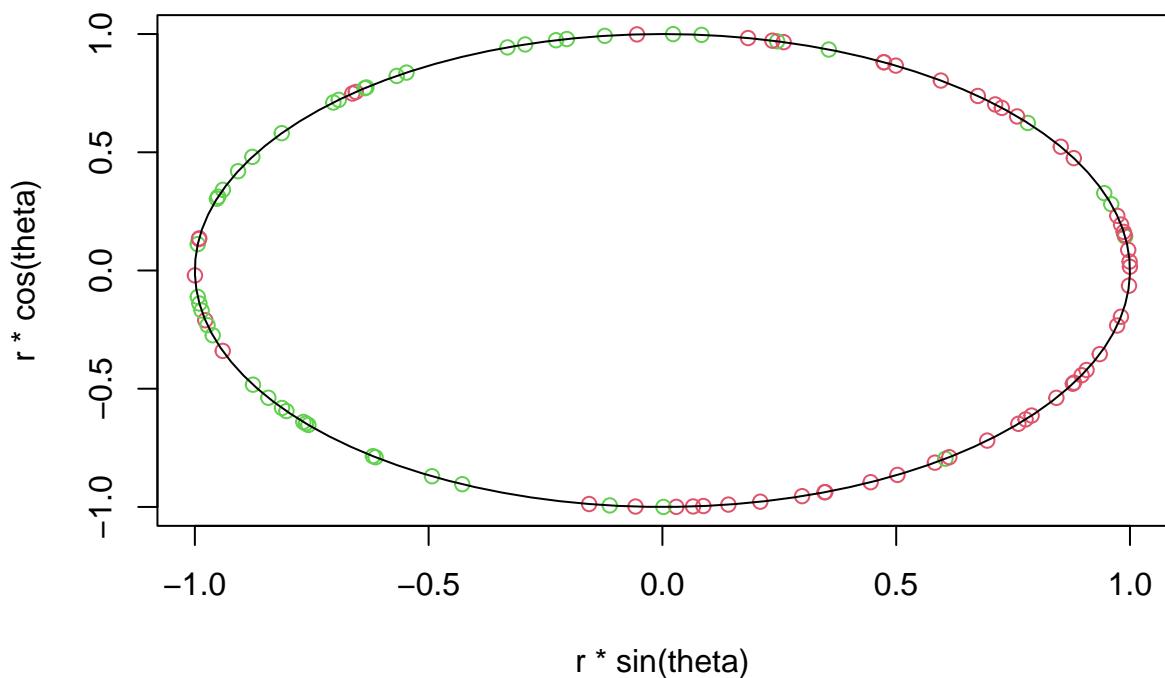
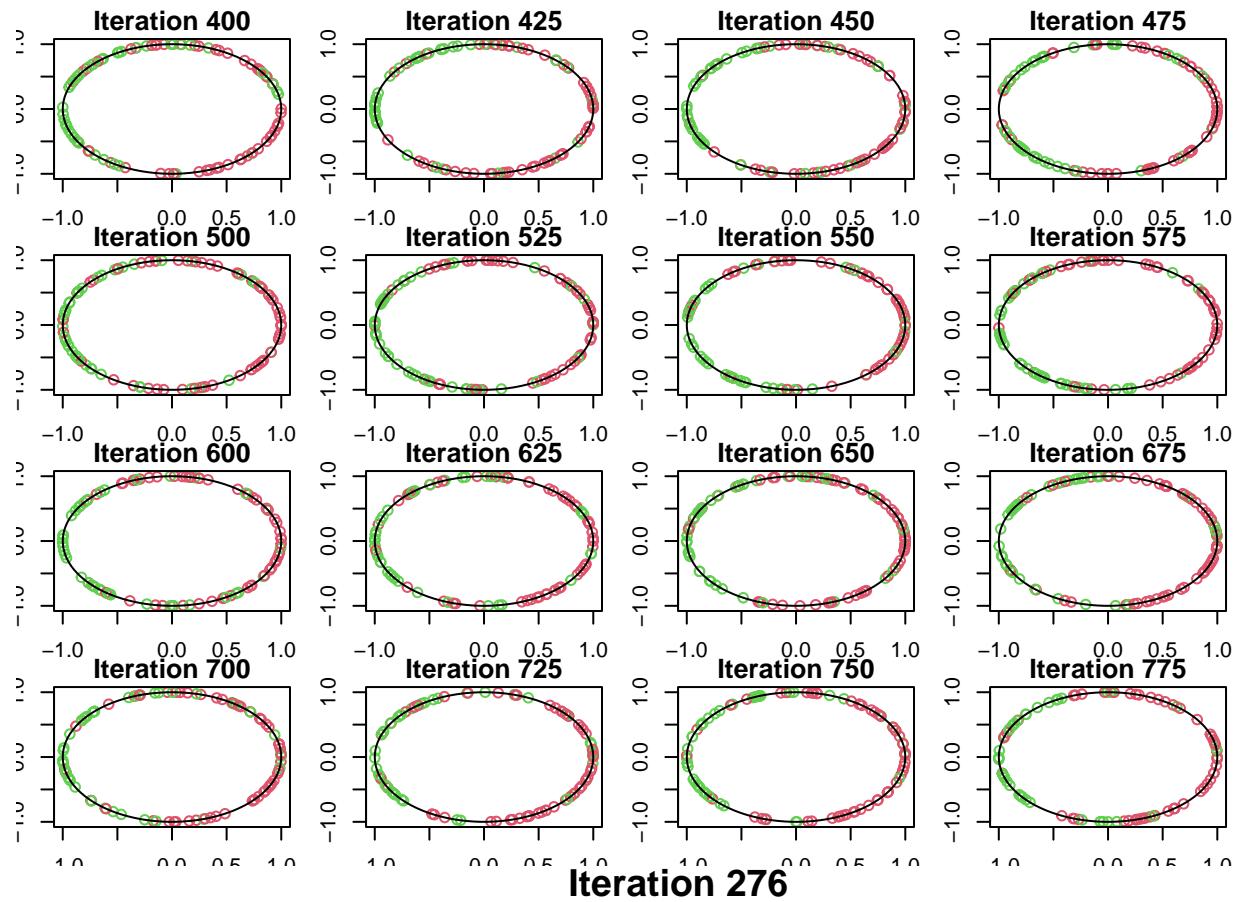
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#> best it: 276; best obj: 9.820e-01
#> It: 747; obj: 1.071e+00; abs: 1.579e-03; rel: 1.477e-03; norm: 1.111e-01; mom: 1.759e+00;
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#> It: 748; obj: 1.081e+00; abs: 1.063e-02; rel: 9.926e-03; norm: 1.102e-01; mom: 1.851e+00;
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#> It: 756; obj: 1.082e+00; abs: 3.897e-04; rel: 3.604e-04; norm: 1.017e-01; mom: 2.027e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 757; obj: 1.079e+00; abs: 2.339e-03; rel: 2.163e-03; norm: 1.102e-01; mom: 1.887e+00;

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#> best it: 276; best obj: 9.820e-01
#> It: 758; obj: 1.083e+00; abs: 3.297e-03; rel: 3.055e-03; norm: 1.004e-01; mom: 1.878e+00;
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#> It: 759; obj: 1.093e+00; abs: 1.063e-02; rel: 9.824e-03; norm: 1.032e-01; mom: 1.877e+00;
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#> It: 760; obj: 1.094e+00; abs: 7.867e-04; rel: 7.196e-04; norm: 1.015e-01; mom: 1.796e+00;
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#> It: 761; obj: 1.088e+00; abs: 5.780e-03; rel: 5.284e-03; norm: 1.153e-01; mom: 1.891e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 762; obj: 1.097e+00; abs: 8.384e-03; rel: 7.705e-03; norm: 9.836e-02; mom: 2.064e+00;
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#> It: 763; obj: 1.098e+00; abs: 1.668e-03; rel: 1.521e-03; norm: 1.114e-01; mom: 1.778e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 764; obj: 1.090e+00; abs: 7.752e-03; rel: 7.059e-03; norm: 1.108e-01; mom: 1.992e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 765; obj: 1.085e+00; abs: 5.336e-03; rel: 4.893e-03; norm: 1.119e-01; mom: 1.784e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 766; obj: 1.085e+00; abs: 3.270e-04; rel: 3.014e-04; norm: 1.050e-01; mom: 2.047e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 767; obj: 1.086e+00; abs: 9.944e-04; rel: 9.161e-04; norm: 1.095e-01; mom: 1.821e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 768; obj: 1.082e+00; abs: 4.680e-03; rel: 4.308e-03; norm: 1.021e-01; mom: 1.921e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 769; obj: 1.070e+00; abs: 1.185e-02; rel: 1.095e-02; norm: 1.084e-01; mom: 1.942e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 770; obj: 1.065e+00; abs: 4.623e-03; rel: 4.321e-03; norm: 9.712e-02; mom: 1.932e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 771; obj: 1.057e+00; abs: 8.246e-03; rel: 7.741e-03; norm: 1.075e-01; mom: 1.811e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 772; obj: 1.059e+00; abs: 2.232e-03; rel: 2.112e-03; norm: 9.625e-02; mom: 1.850e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 773; obj: 1.067e+00; abs: 8.115e-03; rel: 7.661e-03; norm: 9.207e-02; mom: 1.725e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 774; obj: 1.061e+00; abs: 5.980e-03; rel: 5.602e-03; norm: 9.246e-02; mom: 1.604e+00;
#> best it: 276; best obj: 9.820e-01
#> It: 775; obj: 1.058e+00; abs: 3.587e-03; rel: 3.380e-03; norm: 9.593e-02; mom: 1.649e+00;
#> best it: 276; best obj: 9.820e-01

```

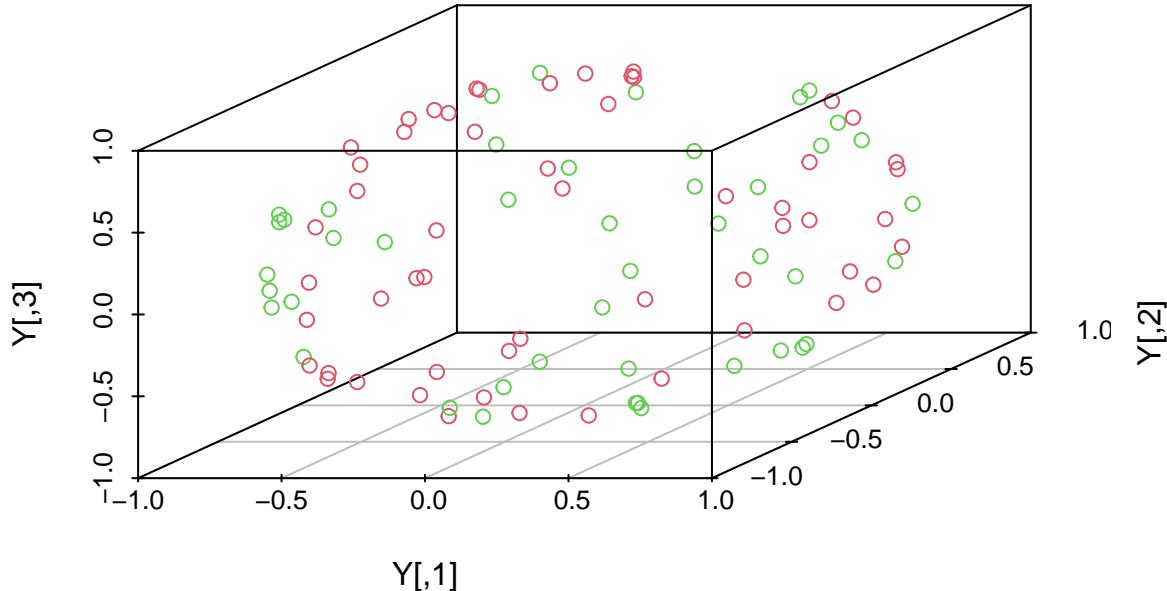


We can see the two different antipodal groups defined in the first five circumferences so the psc-sne can detect these von Mises-Fisher distributions even with the noise added with the remainder 95 uniform distributions

onto the circumference. Later on, let's reduce the dimension to the sphere:

```
psc_sne_res_32 <- psc_sne(X = x_s1_100, d = 2, rho_psc_list = rho_30_s1_100,
                           colors = cols, show_prog = TRUE, num_iteration = 775,
                           eta = 25, parallel_cores = num_cores_param)
#> It: 1; obj: 1.168e+01; abs: 0.000e+00; rel: 0.000e+00; norm: 3.154e-01; mom: 0.000e+00;
#> best it: 1; best obj: 1.168e+01
```

## Iteration 1



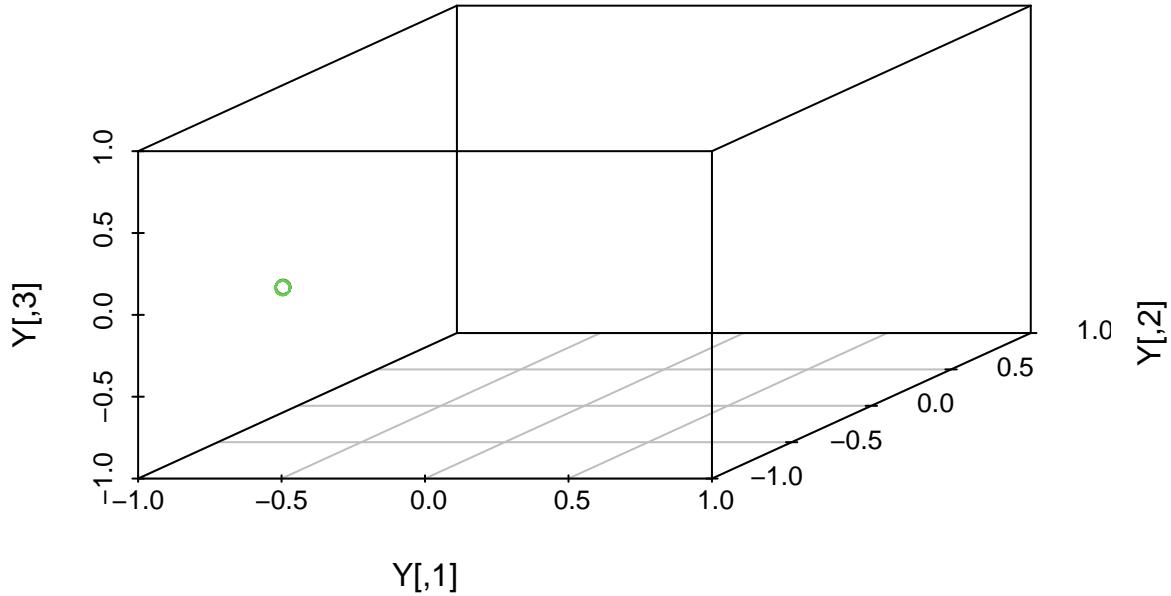
```
#> It: 2; obj: 1.069e+01; abs: 9.942e-01; rel: 8.512e-02; norm: 5.087e-01; mom: 3.296e+00;
#> best it: 2; best obj: 1.069e+01
#> It: 3; obj: 1.033e+01; abs: 3.506e-01; rel: 3.281e-02; norm: 7.163e-01; mom: 1.492e+00;
#> best it: 3; best obj: 1.033e+01
#> It: 4; obj: 1.025e+01; abs: 8.350e-02; rel: 8.080e-03; norm: 8.261e-01; mom: 9.659e-01;
#> best it: 4; best obj: 1.025e+01
#> It: 5; obj: 1.018e+01; abs: 6.744e-02; rel: 6.578e-03; norm: 8.900e-01; mom: 5.387e-01;
#> best it: 5; best obj: 1.018e+01
#> It: 6; obj: 1.019e+01; abs: 2.284e-03; rel: 2.243e-04; norm: 9.408e-01; mom: 4.913e-01;
#> best it: 5; best obj: 1.018e+01
#> It: 7; obj: 1.023e+01; abs: 4.664e-02; rel: 4.579e-03; norm: 1.014e+00; mom: 4.582e-01;
#> best it: 5; best obj: 1.018e+01
#> It: 8; obj: 1.032e+01; abs: 8.247e-02; rel: 8.060e-03; norm: 1.124e+00; mom: 5.413e-01;
#> best it: 5; best obj: 1.018e+01
#> It: 9; obj: 1.040e+01; abs: 8.639e-02; rel: 8.375e-03; norm: 1.302e+00; mom: 5.827e-01;
#> best it: 5; best obj: 1.018e+01
#> It: 10; obj: 1.052e+01; abs: 1.185e-01; rel: 1.139e-02; norm: 1.585e+00; mom: 6.408e-01;
#> best it: 5; best obj: 1.018e+01
#> It: 11; obj: 1.066e+01; abs: 1.416e-01; rel: 1.346e-02; norm: 1.985e+00; mom: 6.772e-01;
#> best it: 5; best obj: 1.018e+01
#> It: 12; obj: 1.076e+01; abs: 9.741e-02; rel: 9.137e-03; norm: 2.469e+00; mom: 6.877e-01;
#> best it: 5; best obj: 1.018e+01
#> It: 13; obj: 1.078e+01; abs: 1.827e-02; rel: 1.698e-03; norm: 2.986e+00; mom: 6.933e-01;
#> best it: 5; best obj: 1.018e+01
```

```

#> It: 14; obj: 1.070e+01; abs: 8.033e-02; rel: 7.454e-03; norm: 3.458e+00; mom: 6.332e-01;
#> best it: 5; best obj: 1.018e+01
#> It: 15; obj: 1.061e+01; abs: 8.541e-02; rel: 7.985e-03; norm: 3.859e+00; mom: 5.264e-01;
#> best it: 5; best obj: 1.018e+01
#> It: 16; obj: 1.058e+01; abs: 3.190e-02; rel: 3.006e-03; norm: 4.198e+00; mom: 4.582e-01;
#> best it: 5; best obj: 1.018e+01
#> It: 17; obj: 1.050e+01; abs: 7.914e-02; rel: 7.481e-03; norm: 4.419e+00; mom: 4.207e-01;
#> best it: 5; best obj: 1.018e+01
#> It: 18; obj: 1.038e+01; abs: 1.166e-01; rel: 1.110e-02; norm: 4.537e+00; mom: 4.349e-01;
#> best it: 5; best obj: 1.018e+01
#> It: 19; obj: 1.029e+01; abs: 9.733e-02; rel: 9.373e-03; norm: 4.641e+00; mom: 3.766e-01;
#> best it: 5; best obj: 1.018e+01
#> It: 20; obj: 1.023e+01; abs: 5.226e-02; rel: 5.080e-03; norm: 4.728e+00; mom: 3.402e-01;
#> best it: 5; best obj: 1.018e+01
#> It: 21; obj: 1.024e+01; abs: 4.646e-03; rel: 4.540e-04; norm: 4.811e+00; mom: 2.923e-01;
#> best it: 5; best obj: 1.018e+01
#> It: 22; obj: 1.024e+01; abs: 3.189e-03; rel: 3.114e-04; norm: 4.842e+00; mom: 1.580e-01;
#> best it: 5; best obj: 1.018e+01
#> It: 23; obj: 1.024e+01; abs: 7.675e-04; rel: 7.494e-05; norm: 4.847e+00; mom: 6.037e-02;
#> best it: 5; best obj: 1.018e+01
#> It: 24; obj: 1.024e+01; abs: 2.066e-04; rel: 2.017e-05; norm: 4.848e+00; mom: 2.452e-02;
#> best it: 5; best obj: 1.018e+01
#> It: 25; obj: 1.024e+01; abs: 6.127e-05; rel: 5.981e-06; norm: 4.848e+00; mom: 1.142e-02;
#> best it: 5; best obj: 1.018e+01

```

## Iteration 25



```

#> It: 26; obj: 1.024e+01; abs: 1.931e-05; rel: 1.885e-06; norm: 4.848e+00; mom: 5.832e-03;
#> best it: 5; best obj: 1.018e+01
#> It: 27; obj: 1.024e+01; abs: 6.343e-06; rel: 6.193e-07; norm: 4.848e+00; mom: 3.140e-03;
#> best it: 5; best obj: 1.018e+01
#> It: 28; obj: 1.024e+01; abs: 2.147e-06; rel: 2.096e-07; norm: 4.848e+00; mom: 1.747e-03;
#> best it: 5; best obj: 1.018e+01
#> It: 29; obj: 1.024e+01; abs: 7.428e-07; rel: 7.252e-08; norm: 4.848e+00; mom: 9.943e-04;

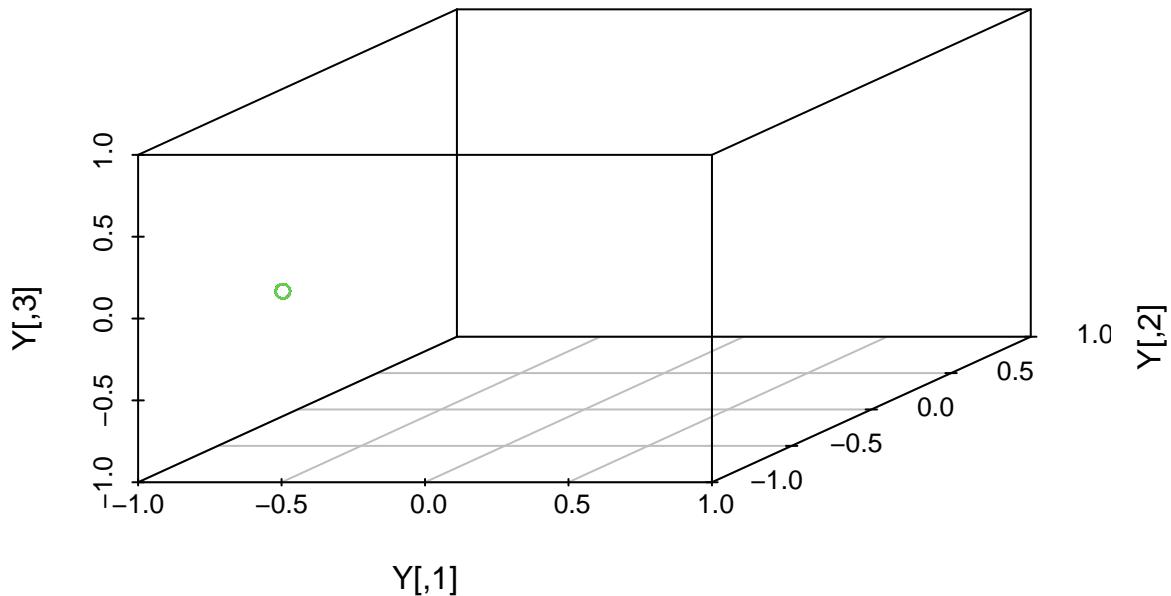
```

```

#> best it: 5; best obj: 1.018e+01
#> It: 30; obj: 1.024e+01; abs: 2.614e-07; rel: 2.552e-08; norm: 4.848e+00; mom: 5.753e-04;
#> best it: 5; best obj: 1.018e+01
#> It: 31; obj: 1.024e+01; abs: 9.323e-08; rel: 9.102e-09; norm: 4.848e+00; mom: 3.371e-04;
#> best it: 5; best obj: 1.018e+01
#> It: 32; obj: 1.024e+01; abs: 3.358e-08; rel: 3.278e-09; norm: 4.848e+00; mom: 1.994e-04;
#> best it: 5; best obj: 1.018e+01
#> It: 33; obj: 1.024e+01; abs: 1.219e-08; rel: 1.190e-09; norm: 4.848e+00; mom: 1.188e-04;
#> best it: 5; best obj: 1.018e+01
#> It: 34; obj: 1.024e+01; abs: 4.452e-09; rel: 4.346e-10; norm: 4.848e+00; mom: 7.124e-05;
#> best it: 5; best obj: 1.018e+01
#> It: 35; obj: 1.024e+01; abs: 1.634e-09; rel: 1.595e-10; norm: 4.848e+00; mom: 4.289e-05;
#> best it: 5; best obj: 1.018e+01
#> It: 36; obj: 1.024e+01; abs: 6.019e-10; rel: 5.876e-11; norm: 4.848e+00; mom: 2.591e-05;
#> best it: 5; best obj: 1.018e+01
#> It: 37; obj: 1.024e+01; abs: 2.225e-10; rel: 2.172e-11; norm: 4.848e+00; mom: 1.570e-05;
#> best it: 5; best obj: 1.018e+01
#> It: 38; obj: 1.024e+01; abs: 8.249e-11; rel: 8.053e-12; norm: 4.848e+00; mom: 9.528e-06;
#> best it: 5; best obj: 1.018e+01
#> It: 39; obj: 1.024e+01; abs: 3.070e-11; rel: 2.998e-12; norm: 4.848e+00; mom: 5.794e-06;
#> best it: 5; best obj: 1.018e+01
#> It: 40; obj: 1.024e+01; abs: 1.135e-11; rel: 1.108e-12; norm: 4.848e+00; mom: 3.528e-06;
#> best it: 5; best obj: 1.018e+01
#> It: 41; obj: 1.024e+01; abs: 4.254e-12; rel: 4.153e-13; norm: 4.848e+00; mom: 2.151e-06;
#> best it: 5; best obj: 1.018e+01
#> It: 42; obj: 1.024e+01; abs: 1.613e-12; rel: 1.575e-13; norm: 4.848e+00; mom: 1.313e-06;
#> best it: 5; best obj: 1.018e+01
#> It: 43; obj: 1.024e+01; abs: 6.715e-13; rel: 6.555e-14; norm: 4.848e+00; mom: 8.019e-07;
#> best it: 5; best obj: 1.018e+01
#> It: 44; obj: 1.024e+01; abs: 2.363e-13; rel: 2.306e-14; norm: 4.848e+00; mom: 4.902e-07;
#> best it: 5; best obj: 1.018e+01
#> It: 45; obj: 1.024e+01; abs: 3.375e-14; rel: 3.295e-15; norm: 4.848e+00; mom: 2.999e-07;
#> best it: 5; best obj: 1.018e+01
#> It: 46; obj: 1.024e+01; abs: 1.421e-14; rel: 1.387e-15; norm: 4.848e+00; mom: 1.836e-07;
#> best it: 5; best obj: 1.018e+01
#> It: 47; obj: 1.024e+01; abs: 1.599e-14; rel: 1.561e-15; norm: 4.848e+00; mom: 1.124e-07;
#> best it: 5; best obj: 1.018e+01
#> It: 48; obj: 1.024e+01; abs: 1.776e-15; rel: 1.734e-16; norm: 4.848e+00; mom: 6.888e-08;
#> best it: 5; best obj: 1.018e+01
#> It: 49; obj: 1.024e+01; abs: 5.329e-15; rel: 5.203e-16; norm: 4.848e+00; mom: 4.222e-08;
#> best it: 5; best obj: 1.018e+01
#> It: 50; obj: 1.024e+01; abs: 3.553e-15; rel: 3.468e-16; norm: 4.848e+00; mom: 2.589e-08;
#> best it: 5; best obj: 1.018e+01

```

## Iteration 50



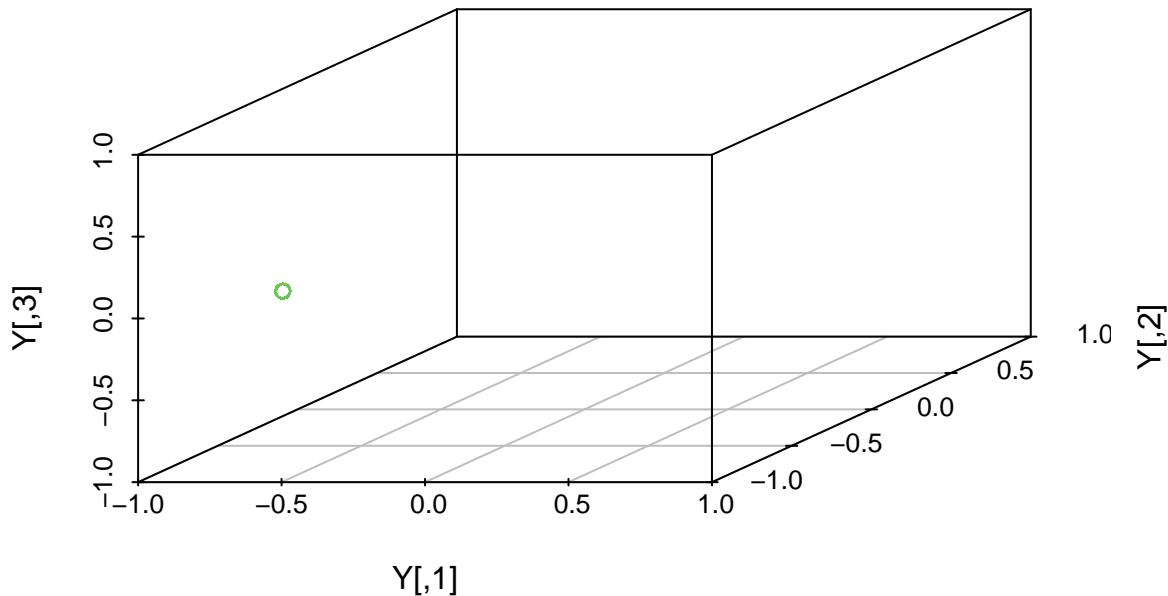
```
#> It: 51; obj: 1.024e+01; abs: 1.776e-15; rel: 1.734e-16; norm: 4.848e+00; mom: 1.588e-08;
#> best it: 5; best obj: 1.018e+01
#> It: 52; obj: 1.024e+01; abs: 1.776e-15; rel: 1.734e-16; norm: 4.848e+00; mom: 9.744e-09;
#> best it: 5; best obj: 1.018e+01
#> It: 53; obj: 1.024e+01; abs: 1.776e-15; rel: 1.734e-16; norm: 4.848e+00; mom: 5.981e-09;
#> best it: 5; best obj: 1.018e+01
#> It: 54; obj: 1.024e+01; abs: 0.000e+00; rel: 0.000e+00; norm: 4.848e+00; mom: 3.672e-09;
#> best it: 5; best obj: 1.018e+01
#> It: 55; obj: 1.024e+01; abs: 1.776e-15; rel: 1.734e-16; norm: 4.848e+00; mom: 2.255e-09;
#> best it: 5; best obj: 1.018e+01
#> It: 56; obj: 1.024e+01; abs: 0.000e+00; rel: 0.000e+00; norm: 4.848e+00; mom: 1.385e-09;
#> best it: 5; best obj: 1.018e+01
#> It: 57; obj: 1.024e+01; abs: 1.776e-15; rel: 1.734e-16; norm: 4.848e+00; mom: 8.507e-10;
#> best it: 5; best obj: 1.018e+01
#> It: 58; obj: 1.024e+01; abs: 0.000e+00; rel: 0.000e+00; norm: 4.848e+00; mom: 5.227e-10;
#> best it: 5; best obj: 1.018e+01
#> It: 59; obj: 1.024e+01; abs: 0.000e+00; rel: 0.000e+00; norm: 4.848e+00; mom: 3.212e-10;
#> best it: 5; best obj: 1.018e+01
#> It: 60; obj: 1.024e+01; abs: 1.776e-15; rel: 1.734e-16; norm: 4.848e+00; mom: 1.974e-10;
#> best it: 5; best obj: 1.018e+01
#> It: 61; obj: 1.024e+01; abs: 1.776e-15; rel: 1.734e-16; norm: 4.848e+00; mom: 1.213e-10;
#> best it: 5; best obj: 1.018e+01
#> It: 62; obj: 1.024e+01; abs: 0.000e+00; rel: 0.000e+00; norm: 4.848e+00; mom: 7.458e-11;
#> best it: 5; best obj: 1.018e+01
#> It: 63; obj: 1.024e+01; abs: 1.776e-15; rel: 1.734e-16; norm: 4.848e+00; mom: 4.585e-11;
#> best it: 5; best obj: 1.018e+01
#> It: 64; obj: 1.024e+01; abs: 0.000e+00; rel: 0.000e+00; norm: 4.848e+00; mom: 2.819e-11;
#> best it: 5; best obj: 1.018e+01
#> It: 65; obj: 1.024e+01; abs: 0.000e+00; rel: 0.000e+00; norm: 4.848e+00; mom: 1.734e-11;
#> best it: 5; best obj: 1.018e+01
#> It: 66; obj: 1.024e+01; abs: 1.776e-15; rel: 1.734e-16; norm: 4.848e+00; mom: 1.066e-11;
```

```

#> best it: 5; best obj: 1.018e+01
#> It: 67; obj: 1.024e+01; abs: 3.553e-15; rel: 3.468e-16; norm: 4.848e+00; mom: 6.556e-12;
#> best it: 5; best obj: 1.018e+01
#> It: 68; obj: 1.024e+01; abs: 1.776e-15; rel: 1.734e-16; norm: 4.848e+00; mom: 4.032e-12;
#> best it: 5; best obj: 1.018e+01
#> It: 69; obj: 1.024e+01; abs: 1.776e-15; rel: 1.734e-16; norm: 4.848e+00; mom: 2.480e-12;
#> best it: 5; best obj: 1.018e+01
#> It: 70; obj: 1.024e+01; abs: 1.776e-15; rel: 1.734e-16; norm: 4.848e+00; mom: 1.525e-12;
#> best it: 5; best obj: 1.018e+01
#> It: 71; obj: 1.024e+01; abs: 1.776e-15; rel: 1.734e-16; norm: 4.848e+00; mom: 9.382e-13;
#> best it: 5; best obj: 1.018e+01
#> It: 72; obj: 1.024e+01; abs: 3.553e-15; rel: 3.468e-16; norm: 4.848e+00; mom: 5.771e-13;
#> best it: 5; best obj: 1.018e+01
#> It: 73; obj: 1.024e+01; abs: 3.553e-15; rel: 3.468e-16; norm: 4.848e+00; mom: 3.550e-13;
#> best it: 5; best obj: 1.018e+01
#> It: 74; obj: 1.024e+01; abs: 0.000e+00; rel: 0.000e+00; norm: 4.848e+00; mom: 2.184e-13;
#> best it: 5; best obj: 1.018e+01
#> It: 75; obj: 1.024e+01; abs: 0.000e+00; rel: 0.000e+00; norm: 4.848e+00; mom: 1.344e-13;
#> best it: 5; best obj: 1.018e+01

```

## Iteration 75



```

#> It: 76; obj: 1.024e+01; abs: 0.000e+00; rel: 0.000e+00; norm: 4.848e+00; mom: 8.268e-14;
#> best it: 5; best obj: 1.018e+01
#> It: 77; obj: 1.024e+01; abs: 1.776e-15; rel: 1.734e-16; norm: 4.848e+00; mom: 5.082e-14;
#> best it: 5; best obj: 1.018e+01
#> It: 78; obj: 1.024e+01; abs: 1.776e-15; rel: 1.734e-16; norm: 4.848e+00; mom: 3.133e-14;
#> best it: 5; best obj: 1.018e+01
#> It: 79; obj: 1.024e+01; abs: 3.553e-15; rel: 3.468e-16; norm: 4.848e+00; mom: 1.926e-14;
#> best it: 5; best obj: 1.018e+01
#> It: 80; obj: 1.024e+01; abs: 1.776e-15; rel: 1.734e-16; norm: 4.848e+00; mom: 1.178e-14;
#> best it: 5; best obj: 1.018e+01
#> It: 81; obj: 1.024e+01; abs: 3.553e-15; rel: 3.468e-16; norm: 4.848e+00; mom: 7.256e-15;
#> best it: 5; best obj: 1.018e+01

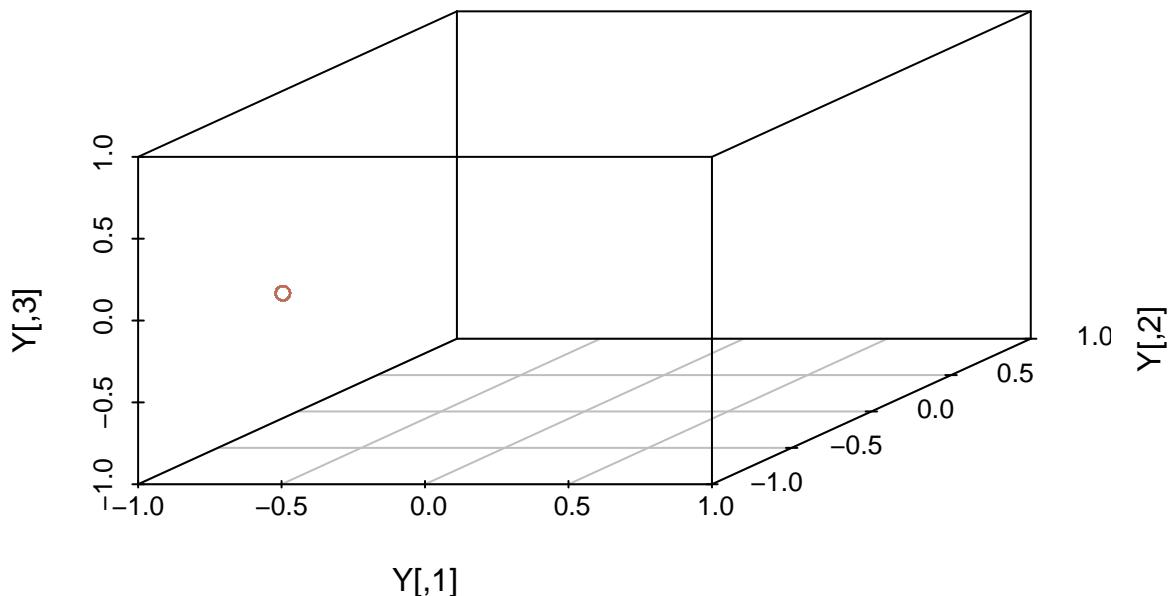
```

```

#> It: 82; obj: 1.024e+01; abs: 5.329e-15; rel: 5.203e-16; norm: 4.848e+00; mom: 4.489e-15;
#> best it: 5; best obj: 1.018e+01
#> It: 83; obj: 1.024e+01; abs: 1.776e-15; rel: 1.734e-16; norm: 4.848e+00; mom: 2.795e-15;
#> best it: 5; best obj: 1.018e+01
#> It: 84; obj: 1.024e+01; abs: 1.776e-15; rel: 1.734e-16; norm: 4.848e+00; mom: 1.742e-15;
#> best it: 5; best obj: 1.018e+01
#> It: 85; obj: 1.024e+01; abs: 1.776e-15; rel: 1.734e-16; norm: 4.848e+00; mom: 1.097e-15;
#> best it: 5; best obj: 1.018e+01
#> It: 86; obj: 1.024e+01; abs: 3.553e-15; rel: 3.468e-16; norm: 4.848e+00; mom: 6.524e-16;
#> best it: 5; best obj: 1.018e+01
#> It: 87; obj: 1.024e+01; abs: 3.553e-15; rel: 3.468e-16; norm: 4.848e+00; mom: 5.069e-16;
#> best it: 5; best obj: 1.018e+01
#> It: 88; obj: 1.024e+01; abs: 0.000e+00; rel: 0.000e+00; norm: 4.848e+00; mom: 3.615e-16;
#> best it: 5; best obj: 1.018e+01
#> It: 89; obj: 1.024e+01; abs: 1.776e-15; rel: 1.734e-16; norm: 4.848e+00; mom: 3.240e-16;
#> best it: 5; best obj: 1.018e+01
#> It: 90; obj: 1.024e+01; abs: 0.000e+00; rel: 0.000e+00; norm: 4.848e+00; mom: 3.567e-16;
#> best it: 5; best obj: 1.018e+01
#> It: 91; obj: 1.024e+01; abs: 0.000e+00; rel: 0.000e+00; norm: 4.848e+00; mom: 3.652e-16;
#> best it: 5; best obj: 1.018e+01
#> It: 92; obj: 1.024e+01; abs: 3.553e-15; rel: 3.468e-16; norm: 4.848e+00; mom: 3.268e-16;
#> best it: 5; best obj: 1.018e+01
#> It: 93; obj: 1.024e+01; abs: 3.553e-15; rel: 3.468e-16; norm: 4.848e+00; mom: 3.392e-16;
#> best it: 5; best obj: 1.018e+01
#> It: 94; obj: 1.024e+01; abs: 0.000e+00; rel: 0.000e+00; norm: 4.848e+00; mom: 3.735e-16;
#> best it: 5; best obj: 1.018e+01
#> It: 95; obj: 1.024e+01; abs: 0.000e+00; rel: 0.000e+00; norm: 4.848e+00; mom: 3.426e-16;
#> best it: 5; best obj: 1.018e+01
#> It: 96; obj: 1.024e+01; abs: 1.776e-15; rel: 1.734e-16; norm: 4.848e+00; mom: 2.736e-16;
#> best it: 5; best obj: 1.018e+01
#> It: 97; obj: 1.024e+01; abs: 1.776e-15; rel: 1.734e-16; norm: 4.848e+00; mom: 2.786e-16;
#> best it: 5; best obj: 1.018e+01
#> It: 98; obj: 1.024e+01; abs: 1.776e-15; rel: 1.734e-16; norm: 4.848e+00; mom: 3.296e-16;
#> best it: 5; best obj: 1.018e+01
#> It: 99; obj: 1.024e+01; abs: 0.000e+00; rel: 0.000e+00; norm: 4.848e+00; mom: 3.449e-16;
#> best it: 5; best obj: 1.018e+01
#> It: 100; obj: 1.024e+01; abs: 0.000e+00; rel: 0.000e+00; norm: 4.848e+00; mom: 3.777e-16;
#> best it: 5; best obj: 1.018e+01

```

## Iteration 100



```

#> It: 101; obj: 1.174e+00; abs: 9.069e+00; rel: 8.853e-01; norm: 1.697e-01; mom: 3.616e-16;
#> best it: 101; best obj: 1.174e+00
#> It: 102; obj: 1.174e+00; abs: 2.220e-16; rel: 1.891e-16; norm: 1.697e-01; mom: 8.709e-15;
#> best it: 101; best obj: 1.174e+00
#> It: 103; obj: 1.174e+00; abs: 4.441e-16; rel: 3.781e-16; norm: 1.697e-01; mom: 1.334e-12;
#> best it: 103; best obj: 1.174e+00
#> It: 104; obj: 1.174e+00; abs: 4.441e-16; rel: 3.781e-16; norm: 1.697e-01; mom: 2.070e-10;
#> best it: 103; best obj: 1.174e+00
#> It: 105; obj: 1.174e+00; abs: 2.003e-12; rel: 1.705e-12; norm: 1.697e-01; mom: 3.213e-08;
#> best it: 105; best obj: 1.174e+00
#> It: 106; obj: 1.174e+00; abs: 4.827e-08; rel: 4.109e-08; norm: 1.697e-01; mom: 4.987e-06;
#> best it: 106; best obj: 1.174e+00
#> It: 107; obj: 1.174e+00; abs: 6.400e-04; rel: 5.449e-04; norm: 1.697e-01; mom: 7.740e-04;
#> best it: 107; best obj: 1.174e+00
#> It: 108; obj: 1.174e+00; abs: 4.404e-06; rel: 3.752e-06; norm: 1.647e-01; mom: 1.171e-01;
#> best it: 107; best obj: 1.174e+00
#> It: 109; obj: 1.168e+00; abs: 5.773e-03; rel: 4.918e-03; norm: 1.654e-01; mom: 1.203e-01;
#> best it: 109; best obj: 1.168e+00
#> It: 110; obj: 1.150e+00; abs: 1.801e-02; rel: 1.542e-02; norm: 1.490e-01; mom: 3.200e-01;
#> best it: 110; best obj: 1.150e+00
#> It: 111; obj: 1.125e+00; abs: 2.501e-02; rel: 2.175e-02; norm: 1.351e-01; mom: 4.357e-01;
#> best it: 111; best obj: 1.125e+00
#> It: 112; obj: 1.110e+00; abs: 1.495e-02; rel: 1.328e-02; norm: 1.474e-01; mom: 5.677e-01;
#> best it: 112; best obj: 1.110e+00
#> It: 113; obj: 1.137e+00; abs: 2.728e-02; rel: 2.458e-02; norm: 1.703e-01; mom: 6.597e-01;
#> best it: 112; best obj: 1.110e+00
#> It: 114; obj: 1.200e+00; abs: 6.236e-02; rel: 5.483e-02; norm: 1.925e-01; mom: 1.143e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 115; obj: 1.402e+00; abs: 2.024e-01; rel: 1.687e-01; norm: 2.188e-01; mom: 1.498e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 116; obj: 2.008e+00; abs: 6.056e-01; rel: 4.319e-01; norm: 3.427e-01; mom: 1.911e+00;

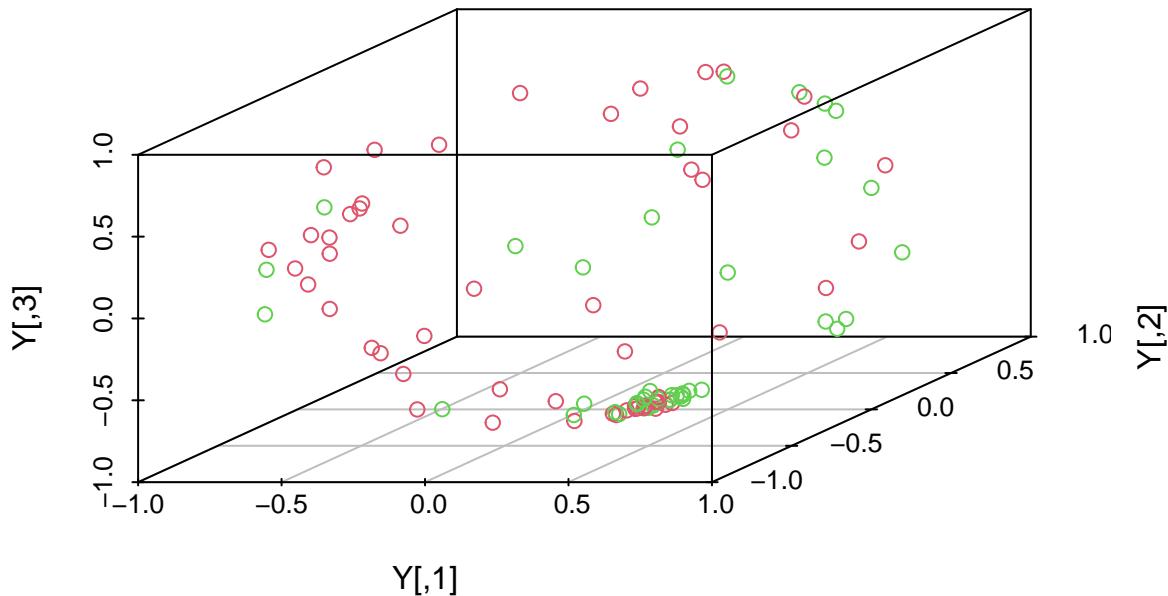
```

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#> best it: 112; best obj: 1.110e+00
#> It: 117; obj: 2.089e+00; abs: 8.156e-02; rel: 4.062e-02; norm: 5.627e-01; mom: 4.926e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 118; obj: 2.317e+00; abs: 2.279e-01; rel: 1.091e-01; norm: 6.056e-01; mom: 6.226e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 119; obj: 2.503e+00; abs: 1.853e-01; rel: 7.996e-02; norm: 8.184e-01; mom: 5.686e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 120; obj: 2.318e+00; abs: 1.849e-01; rel: 7.387e-02; norm: 1.018e+00; mom: 7.156e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 121; obj: 2.270e+00; abs: 4.772e-02; rel: 2.059e-02; norm: 9.723e-01; mom: 7.263e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 122; obj: 2.230e+00; abs: 3.957e-02; rel: 1.743e-02; norm: 9.833e-01; mom: 6.835e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 123; obj: 2.143e+00; abs: 8.733e-02; rel: 3.915e-02; norm: 1.021e+00; mom: 7.218e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 124; obj: 2.126e+00; abs: 1.730e-02; rel: 8.075e-03; norm: 1.022e+00; mom: 7.116e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 125; obj: 2.080e+00; abs: 4.601e-02; rel: 2.164e-02; norm: 1.144e+00; mom: 6.800e+00;
#> best it: 112; best obj: 1.110e+00

```

## Iteration 125



```

#> It: 126; obj: 2.065e+00; abs: 1.507e-02; rel: 7.246e-03; norm: 1.267e+00; mom: 6.565e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 127; obj: 2.028e+00; abs: 3.649e-02; rel: 1.767e-02; norm: 1.320e+00; mom: 6.447e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 128; obj: 1.961e+00; abs: 6.747e-02; rel: 3.326e-02; norm: 1.353e+00; mom: 6.534e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 129; obj: 1.968e+00; abs: 6.870e-03; rel: 3.504e-03; norm: 1.329e+00; mom: 6.493e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 130; obj: 1.907e+00; abs: 6.094e-02; rel: 3.097e-02; norm: 1.358e+00; mom: 6.420e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 131; obj: 1.920e+00; abs: 1.375e-02; rel: 7.210e-03; norm: 1.304e+00; mom: 6.419e+00;
#> best it: 112; best obj: 1.110e+00

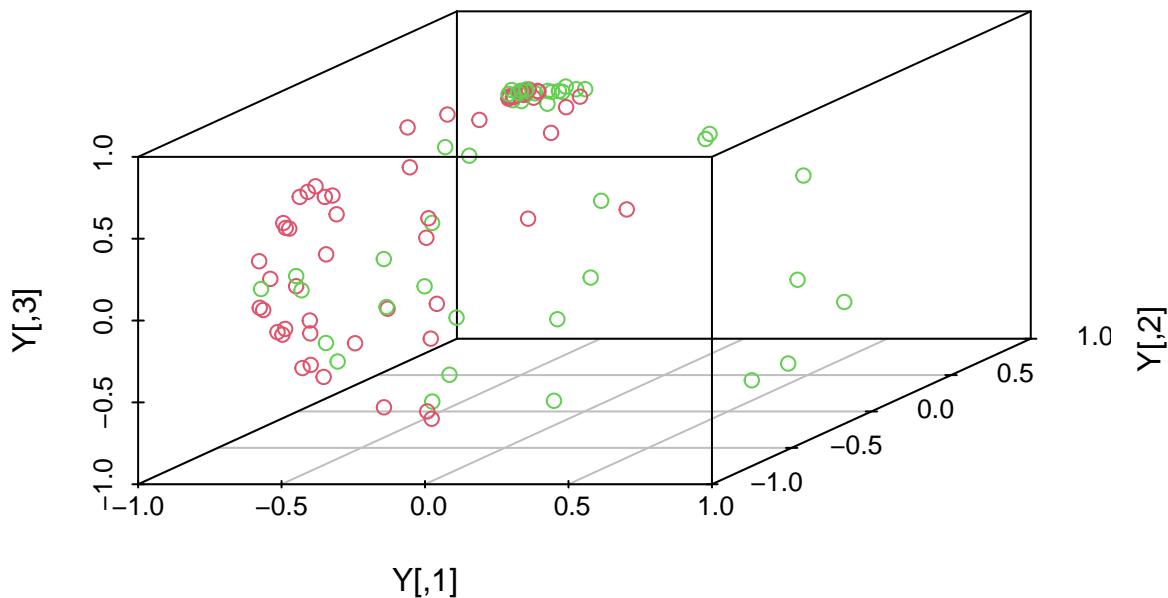
```

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#> It: 132; obj: 1.873e+00; abs: 4.789e-02; rel: 2.494e-02; norm: 1.331e+00; mom: 6.410e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 133; obj: 1.907e+00; abs: 3.476e-02; rel: 1.856e-02; norm: 1.277e+00; mom: 6.399e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 134; obj: 1.847e+00; abs: 6.050e-02; rel: 3.172e-02; norm: 1.318e+00; mom: 6.401e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 135; obj: 1.885e+00; abs: 3.835e-02; rel: 2.077e-02; norm: 1.261e+00; mom: 6.391e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 136; obj: 1.799e+00; abs: 8.587e-02; rel: 4.555e-02; norm: 1.311e+00; mom: 6.369e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 137; obj: 1.879e+00; abs: 8.017e-02; rel: 4.456e-02; norm: 1.233e+00; mom: 6.316e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 138; obj: 1.767e+00; abs: 1.129e-01; rel: 6.008e-02; norm: 1.293e+00; mom: 6.322e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 139; obj: 1.871e+00; abs: 1.040e-01; rel: 5.886e-02; norm: 1.189e+00; mom: 6.314e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 140; obj: 1.736e+00; abs: 1.347e-01; rel: 7.202e-02; norm: 1.260e+00; mom: 6.316e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 141; obj: 1.844e+00; abs: 1.085e-01; rel: 6.251e-02; norm: 1.137e+00; mom: 6.308e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 142; obj: 1.715e+00; abs: 1.295e-01; rel: 7.021e-02; norm: 1.201e+00; mom: 6.302e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 143; obj: 1.759e+00; abs: 4.400e-02; rel: 2.566e-02; norm: 1.087e+00; mom: 6.258e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 144; obj: 1.721e+00; abs: 3.831e-02; rel: 2.178e-02; norm: 1.147e+00; mom: 6.104e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 145; obj: 1.717e+00; abs: 3.570e-03; rel: 2.075e-03; norm: 1.077e+00; mom: 5.990e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 146; obj: 1.655e+00; abs: 6.197e-02; rel: 3.610e-02; norm: 1.117e+00; mom: 5.924e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 147; obj: 1.705e+00; abs: 4.963e-02; rel: 2.999e-02; norm: 1.063e+00; mom: 5.938e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 148; obj: 1.663e+00; abs: 4.169e-02; rel: 2.446e-02; norm: 1.115e+00; mom: 5.903e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 149; obj: 1.681e+00; abs: 1.835e-02; rel: 1.103e-02; norm: 1.083e+00; mom: 5.766e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 150; obj: 1.634e+00; abs: 4.683e-02; rel: 2.785e-02; norm: 1.137e+00; mom: 5.751e+00;
#> best it: 112; best obj: 1.110e+00

```

## Iteration 150



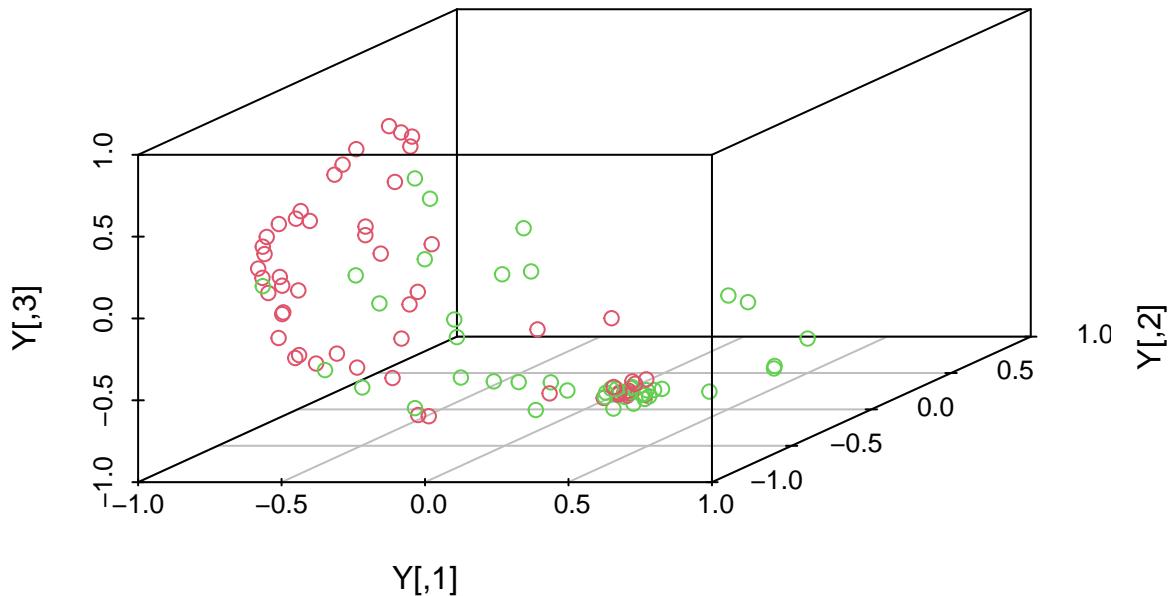
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#> It: 151; obj: 1.663e+00; abs: 2.821e-02; rel: 1.726e-02; norm: 1.094e+00; mom: 5.837e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 152; obj: 1.627e+00; abs: 3.562e-02; rel: 2.142e-02; norm: 1.129e+00; mom: 5.831e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 153; obj: 1.640e+00; abs: 1.345e-02; rel: 8.266e-03; norm: 1.070e+00; mom: 5.831e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 154; obj: 1.648e+00; abs: 7.460e-03; rel: 4.547e-03; norm: 1.089e+00; mom: 5.739e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 155; obj: 1.623e+00; abs: 2.531e-02; rel: 1.536e-02; norm: 1.062e+00; mom: 5.662e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 156; obj: 1.634e+00; abs: 1.162e-02; rel: 7.159e-03; norm: 1.068e+00; mom: 5.576e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 157; obj: 1.590e+00; abs: 4.429e-02; rel: 2.710e-02; norm: 1.046e+00; mom: 5.591e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 158; obj: 1.659e+00; abs: 6.891e-02; rel: 4.334e-02; norm: 1.019e+00; mom: 5.570e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 159; obj: 1.616e+00; abs: 4.305e-02; rel: 2.595e-02; norm: 1.037e+00; mom: 5.457e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 160; obj: 1.632e+00; abs: 1.582e-02; rel: 9.791e-03; norm: 1.057e+00; mom: 5.450e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 161; obj: 1.578e+00; abs: 5.328e-02; rel: 3.265e-02; norm: 1.057e+00; mom: 5.657e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 162; obj: 1.630e+00; abs: 5.126e-02; rel: 3.248e-02; norm: 1.040e+00; mom: 5.710e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 163; obj: 1.598e+00; abs: 3.129e-02; rel: 1.920e-02; norm: 1.042e+00; mom: 5.661e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 164; obj: 1.629e+00; abs: 3.097e-02; rel: 1.937e-02; norm: 1.025e+00; mom: 5.598e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 165; obj: 1.562e+00; abs: 6.777e-02; rel: 4.160e-02; norm: 1.058e+00; mom: 5.657e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 166; obj: 1.626e+00; abs: 6.409e-02; rel: 4.104e-02; norm: 1.026e+00; mom: 5.648e+00;
```

```

#> best it: 112; best obj: 1.110e+00
#> It: 167; obj: 1.547e+00; abs: 7.827e-02; rel: 4.815e-02; norm: 1.065e+00; mom: 5.493e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 168; obj: 1.622e+00; abs: 7.511e-02; rel: 4.854e-02; norm: 1.033e+00; mom: 5.494e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 169; obj: 1.523e+00; abs: 9.950e-02; rel: 6.133e-02; norm: 1.072e+00; mom: 5.495e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 170; obj: 1.614e+00; abs: 9.146e-02; rel: 6.005e-02; norm: 1.014e+00; mom: 5.484e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 171; obj: 1.506e+00; abs: 1.087e-01; rel: 6.732e-02; norm: 1.060e+00; mom: 5.483e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 172; obj: 1.574e+00; abs: 6.834e-02; rel: 4.538e-02; norm: 9.860e-01; mom: 5.473e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 173; obj: 1.479e+00; abs: 9.460e-02; rel: 6.010e-02; norm: 1.030e+00; mom: 5.501e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 174; obj: 1.585e+00; abs: 1.058e-01; rel: 7.154e-02; norm: 9.458e-01; mom: 5.471e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 175; obj: 1.488e+00; abs: 9.723e-02; rel: 6.133e-02; norm: 1.008e+00; mom: 5.395e+00;
#> best it: 112; best obj: 1.110e+00

```

## Iteration 175



```

#> It: 176; obj: 1.573e+00; abs: 8.523e-02; rel: 5.728e-02; norm: 9.521e-01; mom: 5.403e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 177; obj: 1.476e+00; abs: 9.745e-02; rel: 6.194e-02; norm: 1.027e+00; mom: 5.495e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 178; obj: 1.565e+00; abs: 8.905e-02; rel: 6.034e-02; norm: 9.562e-01; mom: 5.483e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 179; obj: 1.480e+00; abs: 8.481e-02; rel: 5.419e-02; norm: 1.013e+00; mom: 5.486e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 180; obj: 1.566e+00; abs: 8.548e-02; rel: 5.776e-02; norm: 9.444e-01; mom: 5.489e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 181; obj: 1.476e+00; abs: 8.988e-02; rel: 5.741e-02; norm: 9.876e-01; mom: 5.497e+00;
#> best it: 112; best obj: 1.110e+00

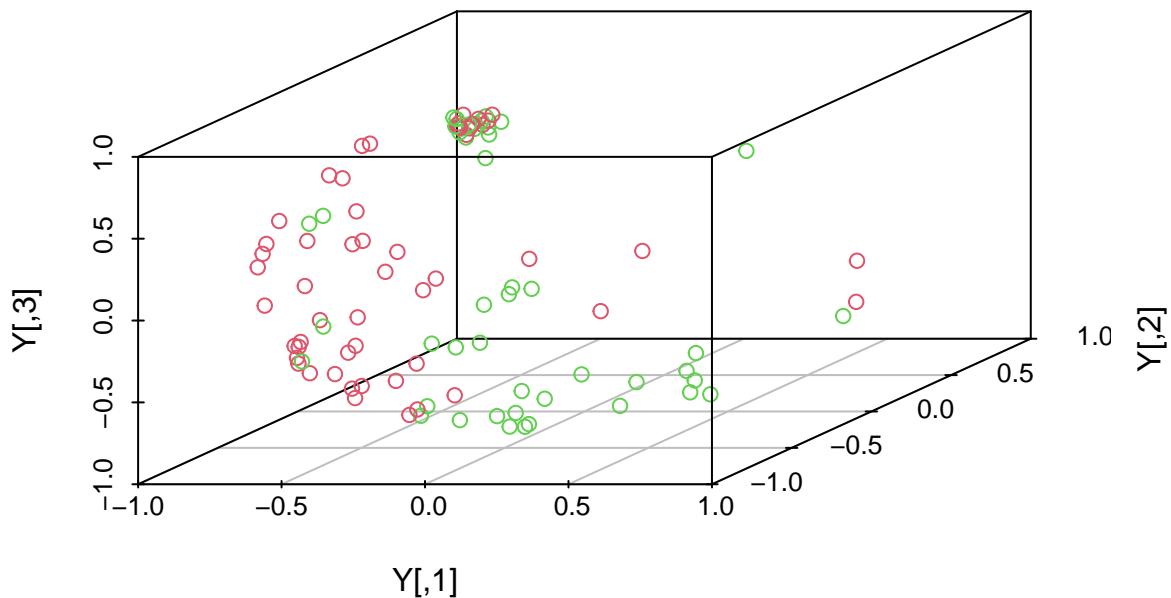
```

```

#> It: 182; obj: 1.577e+00; abs: 1.018e-01; rel: 6.897e-02; norm: 9.146e-01; mom: 5.481e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 183; obj: 1.498e+00; abs: 7.905e-02; rel: 5.011e-02; norm: 9.515e-01; mom: 5.383e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 184; obj: 1.573e+00; abs: 7.485e-02; rel: 4.995e-02; norm: 8.952e-01; mom: 5.382e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 185; obj: 1.550e+00; abs: 2.302e-02; rel: 1.463e-02; norm: 9.728e-01; mom: 5.349e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 186; obj: 1.599e+00; abs: 4.832e-02; rel: 3.117e-02; norm: 9.843e-01; mom: 5.243e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 187; obj: 1.534e+00; abs: 6.501e-02; rel: 4.067e-02; norm: 1.034e+00; mom: 5.548e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 188; obj: 1.660e+00; abs: 1.267e-01; rel: 8.262e-02; norm: 9.987e-01; mom: 5.498e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 189; obj: 1.493e+00; abs: 1.669e-01; rel: 1.005e-01; norm: 1.068e+00; mom: 5.529e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 190; obj: 1.621e+00; abs: 1.277e-01; rel: 8.550e-02; norm: 9.876e-01; mom: 5.572e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 191; obj: 1.490e+00; abs: 1.305e-01; rel: 8.053e-02; norm: 1.039e+00; mom: 5.659e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 192; obj: 1.613e+00; abs: 1.229e-01; rel: 8.248e-02; norm: 9.627e-01; mom: 5.650e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 193; obj: 1.487e+00; abs: 1.266e-01; rel: 7.845e-02; norm: 9.796e-01; mom: 5.575e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 194; obj: 1.581e+00; abs: 9.420e-02; rel: 6.336e-02; norm: 9.158e-01; mom: 5.499e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 195; obj: 1.480e+00; abs: 1.008e-01; rel: 6.376e-02; norm: 9.350e-01; mom: 5.443e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 196; obj: 1.512e+00; abs: 3.131e-02; rel: 2.115e-02; norm: 8.876e-01; mom: 5.388e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 197; obj: 1.477e+00; abs: 3.468e-02; rel: 2.294e-02; norm: 8.601e-01; mom: 5.397e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 198; obj: 1.516e+00; abs: 3.901e-02; rel: 2.641e-02; norm: 8.320e-01; mom: 5.227e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 199; obj: 1.490e+00; abs: 2.629e-02; rel: 1.734e-02; norm: 8.617e-01; mom: 5.260e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 200; obj: 1.537e+00; abs: 4.774e-02; rel: 3.205e-02; norm: 8.520e-01; mom: 5.232e+00;
#> best it: 112; best obj: 1.110e+00

```

## Iteration 200



```

#> It: 201; obj: 1.526e+00; abs: 1.139e-02; rel: 7.409e-03; norm: 9.018e-01; mom: 5.212e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 202; obj: 1.569e+00; abs: 4.308e-02; rel: 2.823e-02; norm: 9.027e-01; mom: 5.220e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 203; obj: 1.522e+00; abs: 4.734e-02; rel: 3.017e-02; norm: 9.419e-01; mom: 5.101e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 204; obj: 1.600e+00; abs: 7.878e-02; rel: 5.177e-02; norm: 9.665e-01; mom: 5.299e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 205; obj: 1.537e+00; abs: 6.378e-02; rel: 3.985e-02; norm: 1.034e+00; mom: 5.277e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 206; obj: 1.562e+00; abs: 2.509e-02; rel: 1.633e-02; norm: 1.017e+00; mom: 5.490e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 207; obj: 1.483e+00; abs: 7.848e-02; rel: 5.025e-02; norm: 1.004e+00; mom: 5.406e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 208; obj: 1.532e+00; abs: 4.827e-02; rel: 3.255e-02; norm: 9.517e-01; mom: 5.369e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 209; obj: 1.479e+00; abs: 5.279e-02; rel: 3.447e-02; norm: 9.704e-01; mom: 5.238e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 210; obj: 1.527e+00; abs: 4.839e-02; rel: 3.272e-02; norm: 9.506e-01; mom: 5.239e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 211; obj: 1.458e+00; abs: 6.928e-02; rel: 4.537e-02; norm: 1.001e+00; mom: 5.228e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 212; obj: 1.511e+00; abs: 5.358e-02; rel: 3.676e-02; norm: 9.754e-01; mom: 5.203e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 213; obj: 1.459e+00; abs: 5.216e-02; rel: 3.451e-02; norm: 1.015e+00; mom: 5.209e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 214; obj: 1.502e+00; abs: 4.229e-02; rel: 2.898e-02; norm: 9.842e-01; mom: 5.210e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 215; obj: 1.444e+00; abs: 5.720e-02; rel: 3.809e-02; norm: 1.003e+00; mom: 5.207e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 216; obj: 1.498e+00; abs: 5.376e-02; rel: 3.722e-02; norm: 9.584e-01; mom: 5.203e+00;

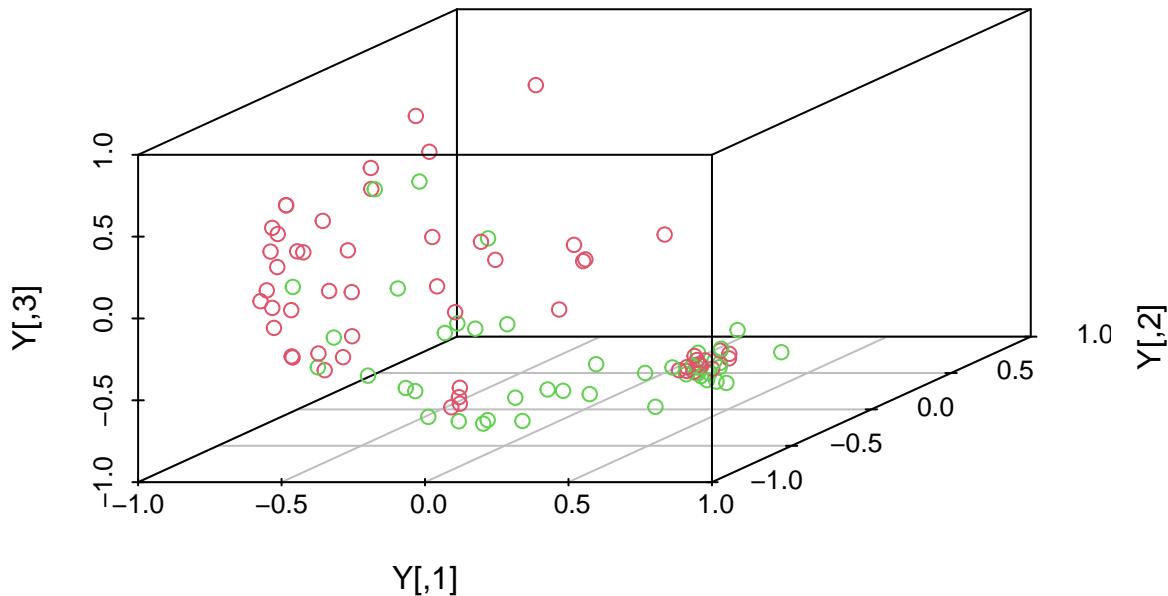
```

```

#> best it: 112; best obj: 1.110e+00
#> It: 217; obj: 1.450e+00; abs: 4.829e-02; rel: 3.224e-02; norm: 9.821e-01; mom: 5.208e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 218; obj: 1.511e+00; abs: 6.091e-02; rel: 4.201e-02; norm: 9.493e-01; mom: 5.204e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 219; obj: 1.454e+00; abs: 5.682e-02; rel: 3.761e-02; norm: 9.756e-01; mom: 5.211e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 220; obj: 1.515e+00; abs: 6.063e-02; rel: 4.170e-02; norm: 9.297e-01; mom: 5.217e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 221; obj: 1.445e+00; abs: 6.980e-02; rel: 4.609e-02; norm: 9.727e-01; mom: 5.220e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 222; obj: 1.505e+00; abs: 6.040e-02; rel: 4.181e-02; norm: 9.352e-01; mom: 5.204e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 223; obj: 1.447e+00; abs: 5.843e-02; rel: 3.882e-02; norm: 9.617e-01; mom: 5.209e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 224; obj: 1.483e+00; abs: 3.657e-02; rel: 2.528e-02; norm: 9.261e-01; mom: 5.208e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 225; obj: 1.452e+00; abs: 3.112e-02; rel: 2.098e-02; norm: 9.421e-01; mom: 5.323e+00;
#> best it: 112; best obj: 1.110e+00

```

## Iteration 225



```

#> It: 226; obj: 1.492e+00; abs: 4.004e-02; rel: 2.758e-02; norm: 9.205e-01; mom: 5.210e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 227; obj: 1.448e+00; abs: 4.386e-02; rel: 2.939e-02; norm: 9.391e-01; mom: 5.295e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 228; obj: 1.488e+00; abs: 3.985e-02; rel: 2.751e-02; norm: 9.084e-01; mom: 5.289e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 229; obj: 1.471e+00; abs: 1.676e-02; rel: 1.126e-02; norm: 9.186e-01; mom: 5.225e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 230; obj: 1.489e+00; abs: 1.790e-02; rel: 1.217e-02; norm: 8.988e-01; mom: 5.234e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 231; obj: 1.442e+00; abs: 4.771e-02; rel: 3.203e-02; norm: 9.044e-01; mom: 5.206e+00;
#> best it: 112; best obj: 1.110e+00

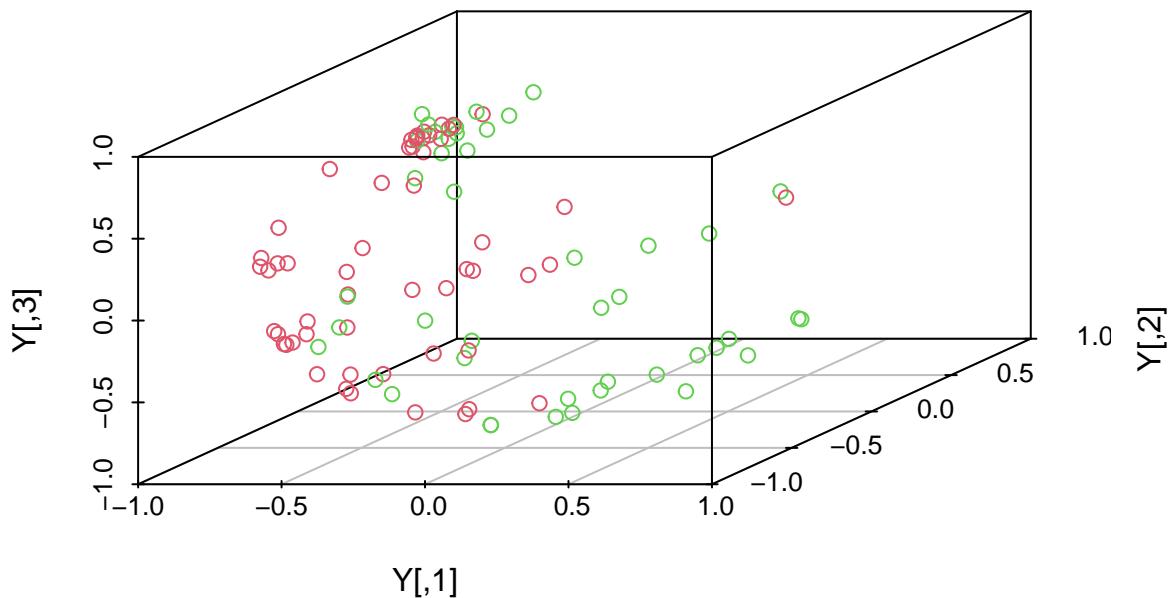
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```

#> It: 232; obj: 1.475e+00; abs: 3.373e-02; rel: 2.340e-02; norm: 8.684e-01; mom: 5.281e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 233; obj: 1.426e+00; abs: 4.969e-02; rel: 3.368e-02; norm: 8.688e-01; mom: 5.273e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 234; obj: 1.485e+00; abs: 5.964e-02; rel: 4.183e-02; norm: 8.239e-01; mom: 5.144e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 235; obj: 1.461e+00; abs: 2.479e-02; rel: 1.669e-02; norm: 8.466e-01; mom: 5.057e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 236; obj: 1.538e+00; abs: 7.779e-02; rel: 5.326e-02; norm: 8.336e-01; mom: 5.062e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 237; obj: 1.481e+00; abs: 5.777e-02; rel: 3.756e-02; norm: 8.950e-01; mom: 5.058e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 238; obj: 1.531e+00; abs: 5.020e-02; rel: 3.391e-02; norm: 8.947e-01; mom: 5.040e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 239; obj: 1.474e+00; abs: 5.713e-02; rel: 3.732e-02; norm: 9.301e-01; mom: 5.125e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 240; obj: 1.539e+00; abs: 6.526e-02; rel: 4.428e-02; norm: 9.136e-01; mom: 5.056e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 241; obj: 1.488e+00; abs: 5.112e-02; rel: 3.322e-02; norm: 9.690e-01; mom: 5.147e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 242; obj: 1.522e+00; abs: 3.404e-02; rel: 2.288e-02; norm: 9.520e-01; mom: 5.014e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 243; obj: 1.494e+00; abs: 2.782e-02; rel: 1.828e-02; norm: 9.810e-01; mom: 5.078e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 244; obj: 1.509e+00; abs: 1.506e-02; rel: 1.008e-02; norm: 9.762e-01; mom: 5.086e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 245; obj: 1.488e+00; abs: 2.102e-02; rel: 1.393e-02; norm: 1.036e+00; mom: 5.167e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 246; obj: 1.534e+00; abs: 4.598e-02; rel: 3.090e-02; norm: 1.034e+00; mom: 5.116e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 247; obj: 1.500e+00; abs: 3.434e-02; rel: 2.238e-02; norm: 1.070e+00; mom: 5.238e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 248; obj: 1.519e+00; abs: 1.932e-02; rel: 1.288e-02; norm: 1.041e+00; mom: 8.359e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 249; obj: 1.504e+00; abs: 1.506e-02; rel: 9.913e-03; norm: 1.009e+00; mom: 8.436e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 250; obj: 1.536e+00; abs: 3.255e-02; rel: 2.164e-02; norm: 9.521e-01; mom: 8.486e+00;
#> best it: 112; best obj: 1.110e+00

```

## Iteration 250



```

#> It: 251; obj: 1.506e+00; abs: 3.048e-02; rel: 1.984e-02; norm: 9.283e-01; mom: 8.251e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 252; obj: 1.547e+00; abs: 4.078e-02; rel: 2.708e-02; norm: 8.846e-01; mom: 8.230e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 253; obj: 1.534e+00; abs: 1.313e-02; rel: 8.487e-03; norm: 9.037e-01; mom: 8.300e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 254; obj: 1.548e+00; abs: 1.417e-02; rel: 9.238e-03; norm: 9.012e-01; mom: 8.292e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 255; obj: 1.533e+00; abs: 1.529e-02; rel: 9.881e-03; norm: 9.097e-01; mom: 8.457e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 256; obj: 1.608e+00; abs: 7.525e-02; rel: 4.911e-02; norm: 9.305e-01; mom: 8.040e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 257; obj: 1.630e+00; abs: 2.227e-02; rel: 1.385e-02; norm: 1.053e+00; mom: 8.011e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 258; obj: 1.596e+00; abs: 3.399e-02; rel: 2.085e-02; norm: 1.104e+00; mom: 8.791e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 259; obj: 1.661e+00; abs: 6.522e-02; rel: 4.086e-02; norm: 1.069e+00; mom: 8.843e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 260; obj: 1.586e+00; abs: 7.518e-02; rel: 4.526e-02; norm: 1.097e+00; mom: 8.891e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 261; obj: 1.592e+00; abs: 5.910e-03; rel: 3.726e-03; norm: 1.045e+00; mom: 8.994e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 262; obj: 1.644e+00; abs: 5.226e-02; rel: 3.283e-02; norm: 1.039e+00; mom: 8.915e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 263; obj: 1.571e+00; abs: 7.365e-02; rel: 4.479e-02; norm: 1.061e+00; mom: 8.884e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 264; obj: 1.667e+00; abs: 9.597e-02; rel: 6.110e-02; norm: 9.627e-01; mom: 8.785e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 265; obj: 1.577e+00; abs: 8.939e-02; rel: 5.364e-02; norm: 1.029e+00; mom: 8.834e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 266; obj: 1.598e+00; abs: 2.119e-02; rel: 1.344e-02; norm: 9.978e-01; mom: 8.485e+00;

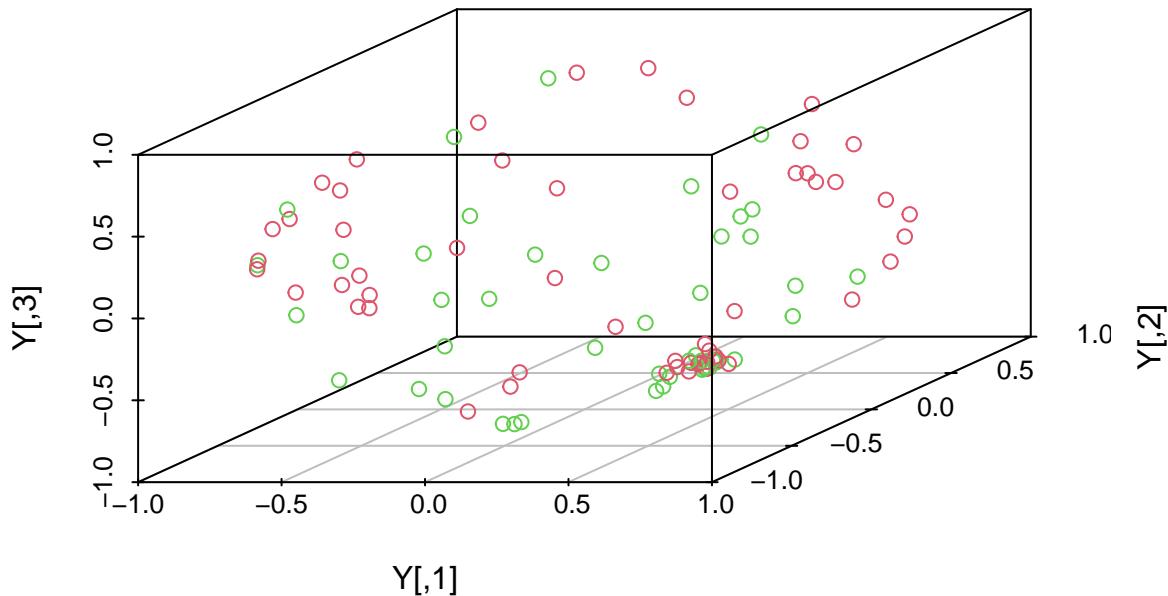
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```

#> best it: 112; best obj: 1.110e+00
#> It: 267; obj: 1.618e+00; abs: 1.933e-02; rel: 1.209e-02; norm: 9.844e-01; mom: 8.532e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 268; obj: 1.629e+00; abs: 1.147e-02; rel: 7.090e-03; norm: 9.694e-01; mom: 8.282e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 269; obj: 1.657e+00; abs: 2.796e-02; rel: 1.716e-02; norm: 9.900e-01; mom: 8.086e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 270; obj: 1.659e+00; abs: 2.071e-03; rel: 1.250e-03; norm: 1.048e+00; mom: 8.656e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 271; obj: 1.667e+00; abs: 7.415e-03; rel: 4.469e-03; norm: 1.081e+00; mom: 8.415e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 272; obj: 1.690e+00; abs: 2.312e-02; rel: 1.387e-02; norm: 1.078e+00; mom: 8.718e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 273; obj: 1.655e+00; abs: 3.477e-02; rel: 2.058e-02; norm: 1.090e+00; mom: 8.604e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 274; obj: 1.714e+00; abs: 5.924e-02; rel: 3.580e-02; norm: 1.060e+00; mom: 8.750e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 275; obj: 1.725e+00; abs: 1.060e-02; rel: 6.182e-03; norm: 1.112e+00; mom: 8.666e+00;
#> best it: 112; best obj: 1.110e+00

```

## Iteration 275



```

#> It: 276; obj: 1.701e+00; abs: 2.414e-02; rel: 1.399e-02; norm: 1.110e+00; mom: 8.534e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 277; obj: 1.728e+00; abs: 2.716e-02; rel: 1.597e-02; norm: 1.147e+00; mom: 8.685e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 278; obj: 1.739e+00; abs: 1.081e-02; rel: 6.259e-03; norm: 1.140e+00; mom: 8.717e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 279; obj: 1.753e+00; abs: 1.441e-02; rel: 8.288e-03; norm: 1.165e+00; mom: 8.918e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 280; obj: 1.713e+00; abs: 4.014e-02; rel: 2.290e-02; norm: 1.213e+00; mom: 9.354e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 281; obj: 1.675e+00; abs: 3.803e-02; rel: 2.220e-02; norm: 1.218e+00; mom: 9.394e+00;
#> best it: 112; best obj: 1.110e+00

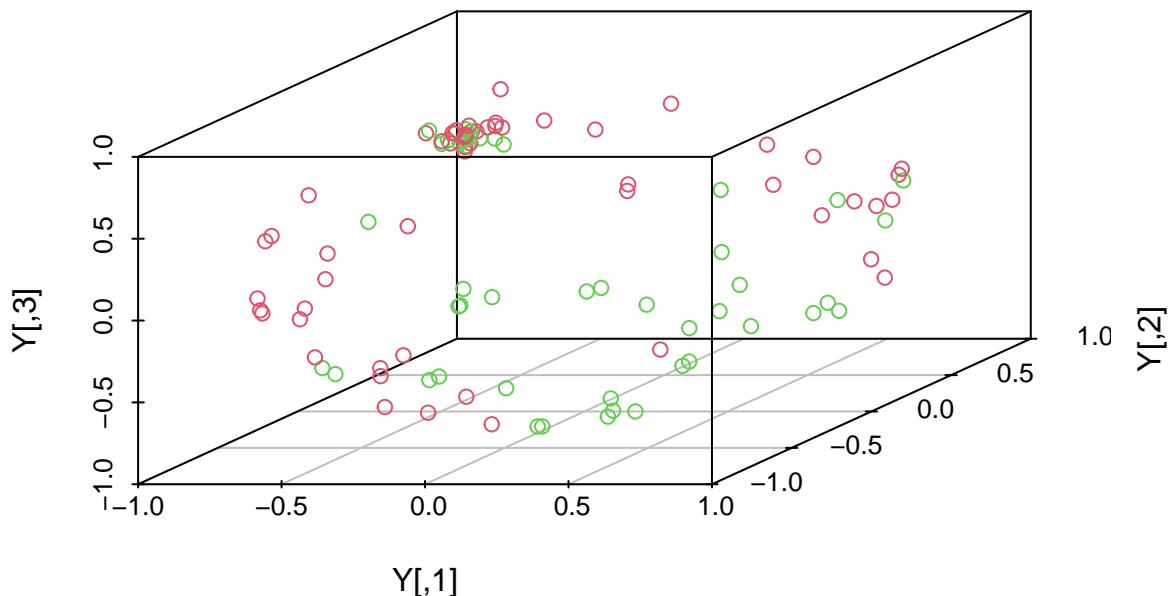
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```

#> It: 282; obj: 1.694e+00; abs: 1.888e-02; rel: 1.127e-02; norm: 1.209e+00; mom: 9.627e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 283; obj: 1.620e+00; abs: 7.401e-02; rel: 4.369e-02; norm: 1.228e+00; mom: 9.197e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 284; obj: 1.680e+00; abs: 6.030e-02; rel: 3.723e-02; norm: 1.195e+00; mom: 9.218e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 285; obj: 1.588e+00; abs: 9.203e-02; rel: 5.478e-02; norm: 1.196e+00; mom: 9.366e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 286; obj: 1.604e+00; abs: 1.551e-02; rel: 9.767e-03; norm: 1.149e+00; mom: 9.459e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 287; obj: 1.543e+00; abs: 6.040e-02; rel: 3.767e-02; norm: 1.150e+00; mom: 9.300e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 288; obj: 1.534e+00; abs: 9.249e-03; rel: 5.994e-03; norm: 1.138e+00; mom: 8.963e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 289; obj: 1.497e+00; abs: 3.679e-02; rel: 2.399e-02; norm: 1.159e+00; mom: 8.614e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 290; obj: 1.618e+00; abs: 1.208e-01; rel: 8.067e-02; norm: 1.133e+00; mom: 8.826e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 291; obj: 1.505e+00; abs: 1.131e-01; rel: 6.990e-02; norm: 1.170e+00; mom: 8.946e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 292; obj: 1.570e+00; abs: 6.546e-02; rel: 4.350e-02; norm: 1.122e+00; mom: 8.869e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 293; obj: 1.580e+00; abs: 9.955e-03; rel: 6.340e-03; norm: 1.189e+00; mom: 9.024e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 294; obj: 1.612e+00; abs: 3.198e-02; rel: 2.024e-02; norm: 1.198e+00; mom: 9.143e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 295; obj: 1.572e+00; abs: 4.044e-02; rel: 2.508e-02; norm: 1.243e+00; mom: 9.546e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 296; obj: 1.615e+00; abs: 4.299e-02; rel: 2.735e-02; norm: 1.220e+00; mom: 9.543e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 297; obj: 1.532e+00; abs: 8.266e-02; rel: 5.119e-02; norm: 1.236e+00; mom: 9.440e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 298; obj: 1.581e+00; abs: 4.921e-02; rel: 3.212e-02; norm: 1.183e+00; mom: 9.354e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 299; obj: 1.509e+00; abs: 7.251e-02; rel: 4.586e-02; norm: 1.225e+00; mom: 9.171e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 300; obj: 1.552e+00; abs: 4.352e-02; rel: 2.885e-02; norm: 1.153e+00; mom: 9.137e+00;
#> best it: 112; best obj: 1.110e+00

```

## Iteration 300



```

#> It: 301; obj: 1.509e+00; abs: 4.355e-02; rel: 2.805e-02; norm: 1.196e+00; mom: 9.021e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 302; obj: 1.523e+00; abs: 1.458e-02; rel: 9.666e-03; norm: 1.154e+00; mom: 8.779e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 303; obj: 1.495e+00; abs: 2.784e-02; rel: 1.828e-02; norm: 1.164e+00; mom: 8.992e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 304; obj: 1.517e+00; abs: 2.201e-02; rel: 1.472e-02; norm: 1.131e+00; mom: 8.939e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 305; obj: 1.486e+00; abs: 3.110e-02; rel: 2.050e-02; norm: 1.148e+00; mom: 8.733e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 306; obj: 1.540e+00; abs: 5.350e-02; rel: 3.599e-02; norm: 1.143e+00; mom: 8.631e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 307; obj: 1.489e+00; abs: 5.090e-02; rel: 3.306e-02; norm: 1.180e+00; mom: 8.941e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 308; obj: 1.577e+00; abs: 8.841e-02; rel: 5.938e-02; norm: 1.131e+00; mom: 8.766e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 309; obj: 1.451e+00; abs: 1.264e-01; rel: 8.016e-02; norm: 1.186e+00; mom: 8.982e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 310; obj: 1.543e+00; abs: 9.246e-02; rel: 6.373e-02; norm: 1.096e+00; mom: 8.885e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 311; obj: 1.483e+00; abs: 6.038e-02; rel: 3.912e-02; norm: 1.166e+00; mom: 8.905e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 312; obj: 1.522e+00; abs: 3.946e-02; rel: 2.661e-02; norm: 1.106e+00; mom: 8.769e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 313; obj: 1.495e+00; abs: 2.765e-02; rel: 1.816e-02; norm: 1.136e+00; mom: 8.736e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 314; obj: 1.491e+00; abs: 3.682e-03; rel: 2.463e-03; norm: 1.121e+00; mom: 8.974e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 315; obj: 1.452e+00; abs: 3.886e-02; rel: 2.606e-02; norm: 1.130e+00; mom: 8.891e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 316; obj: 1.503e+00; abs: 5.108e-02; rel: 3.518e-02; norm: 1.092e+00; mom: 9.051e+00;

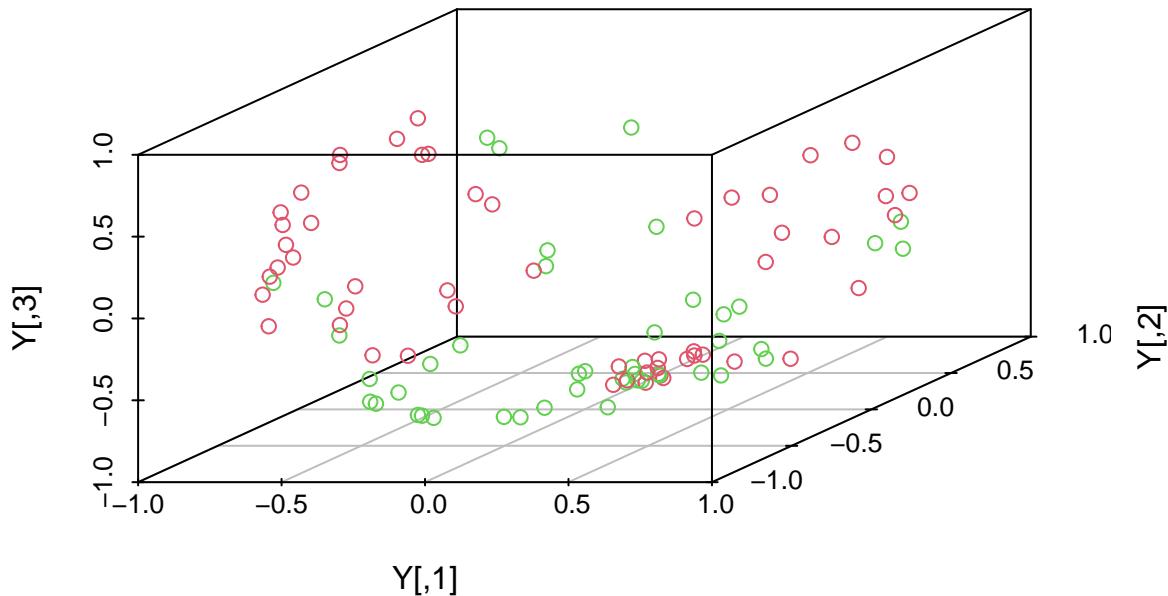
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#> best it: 112; best obj: 1.110e+00
#> It: 317; obj: 1.476e+00; abs: 2.700e-02; rel: 1.796e-02; norm: 1.111e+00; mom: 8.768e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 318; obj: 1.483e+00; abs: 6.273e-03; rel: 4.249e-03; norm: 1.112e+00; mom: 8.769e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 319; obj: 1.464e+00; abs: 1.874e-02; rel: 1.264e-02; norm: 1.114e+00; mom: 9.028e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 320; obj: 1.467e+00; abs: 2.794e-03; rel: 1.909e-03; norm: 1.085e+00; mom: 9.016e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 321; obj: 1.441e+00; abs: 2.533e-02; rel: 1.727e-02; norm: 1.038e+00; mom: 8.890e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 322; obj: 1.445e+00; abs: 3.171e-03; rel: 2.200e-03; norm: 9.807e-01; mom: 8.886e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 323; obj: 1.404e+00; abs: 4.088e-02; rel: 2.830e-02; norm: 9.318e-01; mom: 8.552e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 324; obj: 1.396e+00; abs: 8.025e-03; rel: 5.717e-03; norm: 8.442e-01; mom: 8.408e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 325; obj: 1.384e+00; abs: 1.208e-02; rel: 8.656e-03; norm: 8.024e-01; mom: 7.800e+00;
#> best it: 112; best obj: 1.110e+00

```

### Iteration 325



```

#> It: 326; obj: 1.402e+00; abs: 1.894e-02; rel: 1.369e-02; norm: 8.344e-01; mom: 7.747e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 327; obj: 1.437e+00; abs: 3.440e-02; rel: 2.453e-02; norm: 8.995e-01; mom: 7.696e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 328; obj: 1.434e+00; abs: 3.056e-03; rel: 2.127e-03; norm: 9.183e-01; mom: 8.085e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 329; obj: 1.477e+00; abs: 4.332e-02; rel: 3.021e-02; norm: 9.508e-01; mom: 7.906e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 330; obj: 1.524e+00; abs: 4.663e-02; rel: 3.157e-02; norm: 1.015e+00; mom: 8.021e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 331; obj: 1.502e+00; abs: 2.193e-02; rel: 1.439e-02; norm: 1.073e+00; mom: 8.377e+00;
#> best it: 112; best obj: 1.110e+00

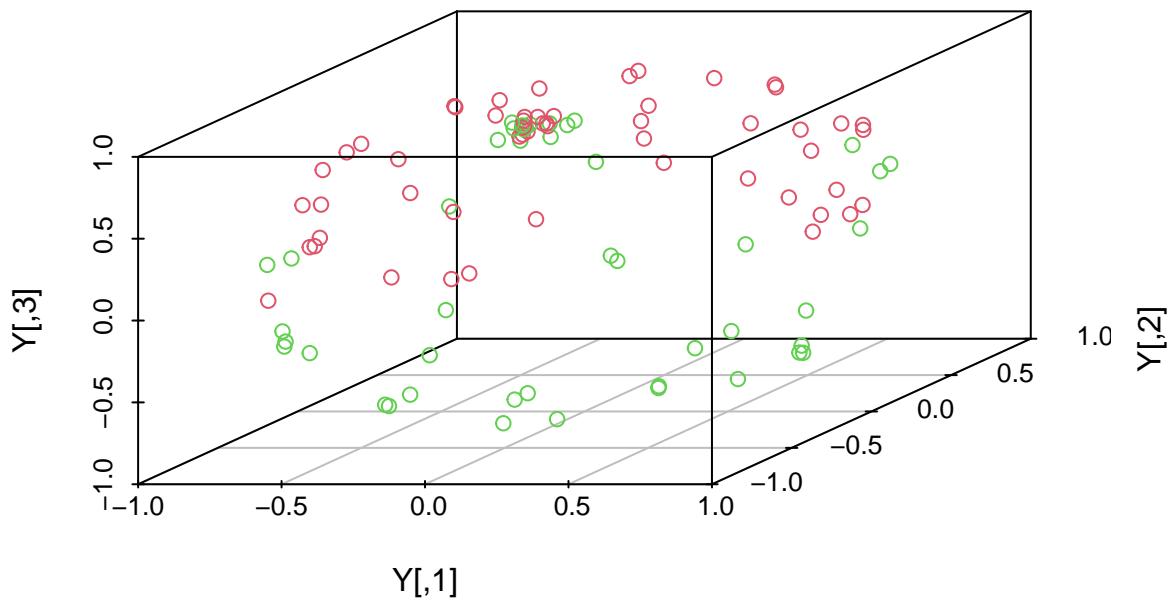
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#> It: 332; obj: 1.499e+00; abs: 2.858e-03; rel: 1.903e-03; norm: 1.108e+00; mom: 8.409e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 333; obj: 1.536e+00; abs: 3.728e-02; rel: 2.487e-02; norm: 1.135e+00; mom: 8.742e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 334; obj: 1.470e+00; abs: 6.605e-02; rel: 4.299e-02; norm: 1.164e+00; mom: 8.878e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 335; obj: 1.520e+00; abs: 4.963e-02; rel: 3.376e-02; norm: 1.125e+00; mom: 8.913e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 336; obj: 1.455e+00; abs: 6.446e-02; rel: 4.241e-02; norm: 1.195e+00; mom: 8.915e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 337; obj: 1.563e+00; abs: 1.077e-01; rel: 7.403e-02; norm: 1.144e+00; mom: 8.772e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 338; obj: 1.477e+00; abs: 8.590e-02; rel: 5.495e-02; norm: 1.247e+00; mom: 8.982e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 339; obj: 1.529e+00; abs: 5.183e-02; rel: 3.509e-02; norm: 1.161e+00; mom: 8.946e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 340; obj: 1.433e+00; abs: 9.646e-02; rel: 6.308e-02; norm: 1.214e+00; mom: 9.047e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 341; obj: 1.493e+00; abs: 6.016e-02; rel: 4.199e-02; norm: 1.112e+00; mom: 9.190e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 342; obj: 1.438e+00; abs: 5.519e-02; rel: 3.697e-02; norm: 1.170e+00; mom: 8.954e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 343; obj: 1.462e+00; abs: 2.460e-02; rel: 1.711e-02; norm: 1.083e+00; mom: 8.773e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 344; obj: 1.392e+00; abs: 7.025e-02; rel: 4.805e-02; norm: 1.156e+00; mom: 8.743e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 345; obj: 1.448e+00; abs: 5.562e-02; rel: 3.996e-02; norm: 1.084e+00; mom: 8.611e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 346; obj: 1.417e+00; abs: 3.017e-02; rel: 2.084e-02; norm: 1.167e+00; mom: 8.800e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 347; obj: 1.439e+00; abs: 2.141e-02; rel: 1.511e-02; norm: 1.096e+00; mom: 8.594e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 348; obj: 1.379e+00; abs: 5.980e-02; rel: 4.156e-02; norm: 1.148e+00; mom: 8.584e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 349; obj: 1.406e+00; abs: 2.707e-02; rel: 1.963e-02; norm: 1.063e+00; mom: 8.580e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 350; obj: 1.363e+00; abs: 4.344e-02; rel: 3.090e-02; norm: 1.112e+00; mom: 8.429e+00;
#> best it: 112; best obj: 1.110e+00

```

## Iteration 350



```

#> It: 351; obj: 1.373e+00; abs: 1.034e-02; rel: 7.591e-03; norm: 1.036e+00; mom: 8.299e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 352; obj: 1.371e+00; abs: 2.142e-03; rel: 1.560e-03; norm: 1.076e+00; mom: 8.014e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 353; obj: 1.364e+00; abs: 6.750e-03; rel: 4.924e-03; norm: 1.040e+00; mom: 8.112e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 354; obj: 1.377e+00; abs: 1.309e-02; rel: 9.593e-03; norm: 1.070e+00; mom: 7.885e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 355; obj: 1.379e+00; abs: 1.424e-03; rel: 1.034e-03; norm: 1.057e+00; mom: 8.101e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 356; obj: 1.391e+00; abs: 1.282e-02; rel: 9.303e-03; norm: 1.103e+00; mom: 8.042e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 357; obj: 1.385e+00; abs: 6.784e-03; rel: 4.876e-03; norm: 1.074e+00; mom: 8.172e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 358; obj: 1.395e+00; abs: 1.065e-02; rel: 7.693e-03; norm: 1.112e+00; mom: 8.233e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 359; obj: 1.408e+00; abs: 1.249e-02; rel: 8.951e-03; norm: 1.088e+00; mom: 8.165e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 360; obj: 1.388e+00; abs: 1.976e-02; rel: 1.404e-02; norm: 1.142e+00; mom: 8.332e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 361; obj: 1.413e+00; abs: 2.542e-02; rel: 1.832e-02; norm: 1.083e+00; mom: 8.401e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 362; obj: 1.419e+00; abs: 5.320e-03; rel: 3.764e-03; norm: 1.132e+00; mom: 8.345e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 363; obj: 1.457e+00; abs: 3.783e-02; rel: 2.667e-02; norm: 1.093e+00; mom: 8.361e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 364; obj: 1.459e+00; abs: 2.032e-03; rel: 1.395e-03; norm: 1.168e+00; mom: 8.486e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 365; obj: 1.449e+00; abs: 9.644e-03; rel: 6.612e-03; norm: 1.151e+00; mom: 8.731e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 366; obj: 1.454e+00; abs: 5.251e-03; rel: 3.624e-03; norm: 1.197e+00; mom: 8.585e+00;

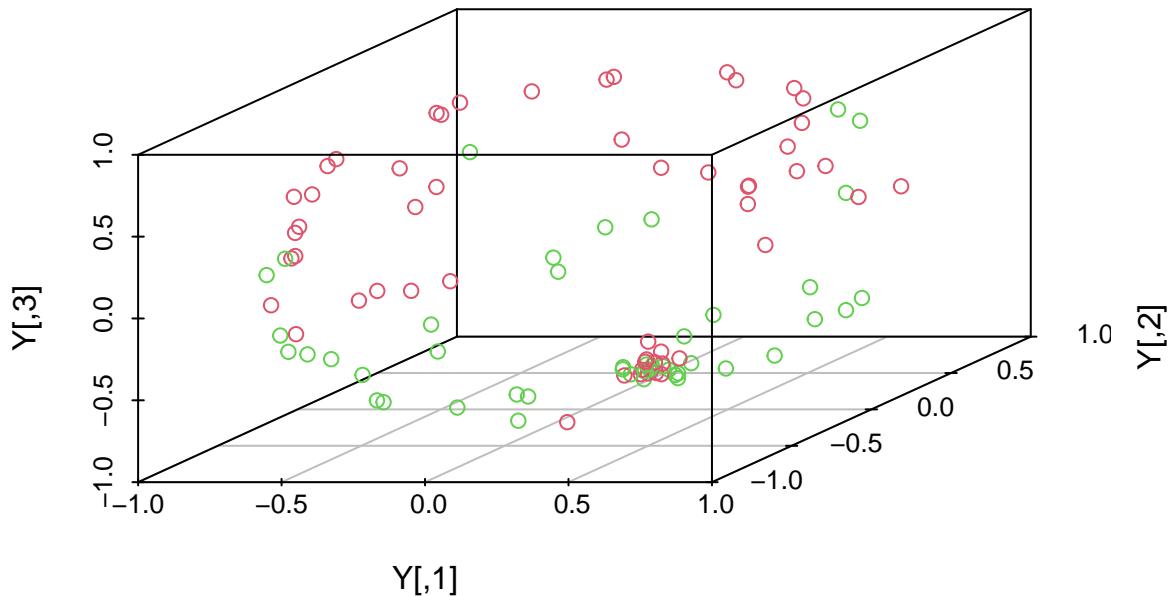
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#> best it: 112; best obj: 1.110e+00
#> It: 367; obj: 1.455e+00; abs: 1.103e-03; rel: 7.588e-04; norm: 1.176e+00; mom: 8.614e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 368; obj: 1.442e+00; abs: 1.380e-02; rel: 9.482e-03; norm: 1.215e+00; mom: 8.761e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 369; obj: 1.464e+00; abs: 2.222e-02; rel: 1.541e-02; norm: 1.165e+00; mom: 8.749e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 370; obj: 1.421e+00; abs: 4.235e-02; rel: 2.893e-02; norm: 1.208e+00; mom: 8.779e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 371; obj: 1.433e+00; abs: 1.163e-02; rel: 8.183e-03; norm: 1.141e+00; mom: 8.754e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 372; obj: 1.421e+00; abs: 1.163e-02; rel: 8.117e-03; norm: 1.192e+00; mom: 8.685e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 373; obj: 1.424e+00; abs: 2.778e-03; rel: 1.954e-03; norm: 1.134e+00; mom: 8.608e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 374; obj: 1.420e+00; abs: 4.174e-03; rel: 2.931e-03; norm: 1.162e+00; mom: 8.591e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 375; obj: 1.438e+00; abs: 1.808e-02; rel: 1.273e-02; norm: 1.107e+00; mom: 8.494e+00;
#> best it: 112; best obj: 1.110e+00

```

## Iteration 375



```

#> It: 376; obj: 1.402e+00; abs: 3.571e-02; rel: 2.483e-02; norm: 1.148e+00; mom: 8.320e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 377; obj: 1.453e+00; abs: 5.023e-02; rel: 3.582e-02; norm: 1.083e+00; mom: 8.260e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 378; obj: 1.449e+00; abs: 3.770e-03; rel: 2.596e-03; norm: 1.153e+00; mom: 8.266e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 379; obj: 1.481e+00; abs: 3.180e-02; rel: 2.195e-02; norm: 1.145e+00; mom: 8.209e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 380; obj: 1.453e+00; abs: 2.794e-02; rel: 1.887e-02; norm: 1.233e+00; mom: 8.476e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 381; obj: 1.475e+00; abs: 2.276e-02; rel: 1.567e-02; norm: 1.176e+00; mom: 8.761e+00;
#> best it: 112; best obj: 1.110e+00

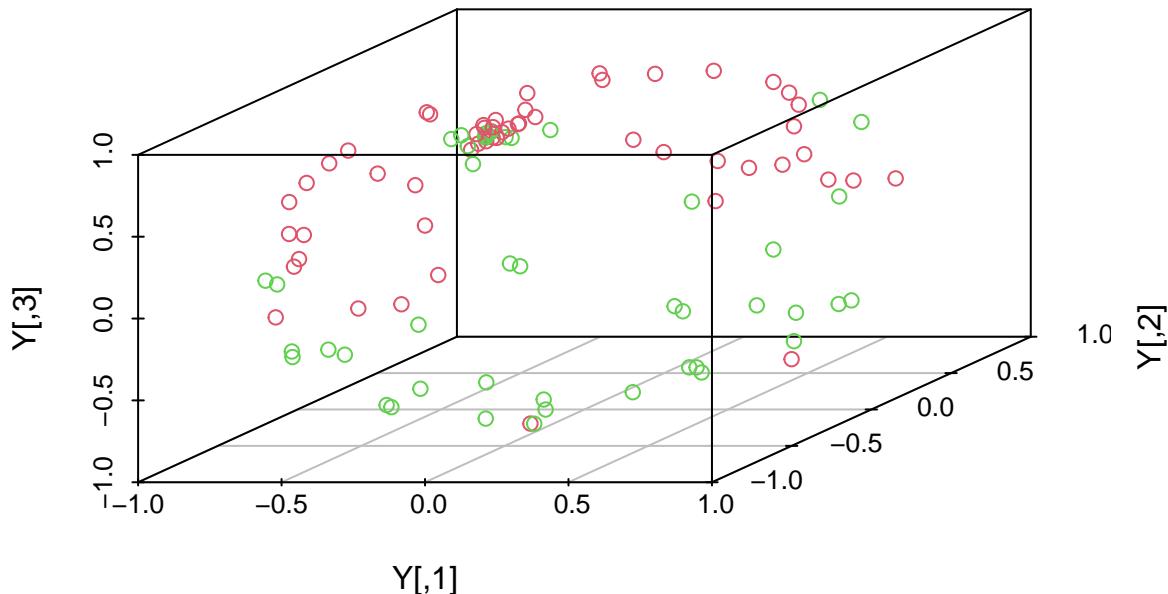
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#> It: 382; obj: 1.433e+00; abs: 4.269e-02; rel: 2.893e-02; norm: 1.226e+00; mom: 8.752e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 383; obj: 1.475e+00; abs: 4.208e-02; rel: 2.937e-02; norm: 1.148e+00; mom: 8.755e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 384; obj: 1.416e+00; abs: 5.886e-02; rel: 3.991e-02; norm: 1.207e+00; mom: 8.714e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 385; obj: 1.454e+00; abs: 3.796e-02; rel: 2.681e-02; norm: 1.135e+00; mom: 8.612e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 386; obj: 1.415e+00; abs: 3.941e-02; rel: 2.711e-02; norm: 1.193e+00; mom: 8.733e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 387; obj: 1.447e+00; abs: 3.247e-02; rel: 2.295e-02; norm: 1.106e+00; mom: 8.661e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 388; obj: 1.394e+00; abs: 5.276e-02; rel: 3.646e-02; norm: 1.167e+00; mom: 8.591e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 389; obj: 1.455e+00; abs: 6.052e-02; rel: 4.341e-02; norm: 1.075e+00; mom: 8.552e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 390; obj: 1.376e+00; abs: 7.832e-02; rel: 5.384e-02; norm: 1.154e+00; mom: 8.543e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 391; obj: 1.454e+00; abs: 7.738e-02; rel: 5.622e-02; norm: 1.055e+00; mom: 8.548e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 392; obj: 1.386e+00; abs: 6.813e-02; rel: 4.686e-02; norm: 1.142e+00; mom: 8.408e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 393; obj: 1.432e+00; abs: 4.639e-02; rel: 3.348e-02; norm: 1.045e+00; mom: 8.347e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 394; obj: 1.383e+00; abs: 4.857e-02; rel: 3.392e-02; norm: 1.146e+00; mom: 8.490e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 395; obj: 1.436e+00; abs: 5.214e-02; rel: 3.769e-02; norm: 1.090e+00; mom: 8.327e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 396; obj: 1.368e+00; abs: 6.720e-02; rel: 4.681e-02; norm: 1.167e+00; mom: 8.494e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 397; obj: 1.458e+00; abs: 8.937e-02; rel: 6.531e-02; norm: 1.073e+00; mom: 8.521e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 398; obj: 1.368e+00; abs: 8.946e-02; rel: 6.137e-02; norm: 1.165e+00; mom: 8.586e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 399; obj: 1.434e+00; abs: 6.602e-02; rel: 4.825e-02; norm: 1.067e+00; mom: 8.484e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 400; obj: 1.396e+00; abs: 3.837e-02; rel: 2.675e-02; norm: 1.156e+00; mom: 8.473e+00;
#> best it: 112; best obj: 1.110e+00

```

## Iteration 400



```

#> It: 401; obj: 1.467e+00; abs: 7.139e-02; rel: 5.114e-02; norm: 1.090e+00; mom: 8.336e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 402; obj: 1.390e+00; abs: 7.745e-02; rel: 5.278e-02; norm: 1.179e+00; mom: 8.494e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 403; obj: 1.463e+00; abs: 7.300e-02; rel: 5.252e-02; norm: 1.095e+00; mom: 8.492e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 404; obj: 1.402e+00; abs: 6.086e-02; rel: 4.160e-02; norm: 1.171e+00; mom: 8.550e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 405; obj: 1.461e+00; abs: 5.884e-02; rel: 4.197e-02; norm: 1.096e+00; mom: 8.587e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 406; obj: 1.376e+00; abs: 8.461e-02; rel: 5.791e-02; norm: 1.183e+00; mom: 8.458e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 407; obj: 1.426e+00; abs: 5.003e-02; rel: 3.635e-02; norm: 1.082e+00; mom: 8.612e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 408; obj: 1.380e+00; abs: 4.682e-02; rel: 3.282e-02; norm: 1.149e+00; mom: 8.457e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 409; obj: 1.402e+00; abs: 2.286e-02; rel: 1.657e-02; norm: 1.062e+00; mom: 8.487e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 410; obj: 1.371e+00; abs: 3.141e-02; rel: 2.240e-02; norm: 1.103e+00; mom: 8.447e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 411; obj: 1.420e+00; abs: 4.876e-02; rel: 3.556e-02; norm: 1.048e+00; mom: 8.282e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 412; obj: 1.399e+00; abs: 2.092e-02; rel: 1.474e-02; norm: 1.110e+00; mom: 8.012e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 413; obj: 1.411e+00; abs: 1.189e-02; rel: 8.503e-03; norm: 1.099e+00; mom: 8.016e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 414; obj: 1.372e+00; abs: 3.867e-02; rel: 2.741e-02; norm: 1.141e+00; mom: 8.475e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 415; obj: 1.395e+00; abs: 2.333e-02; rel: 1.700e-02; norm: 1.081e+00; mom: 8.441e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 416; obj: 1.364e+00; abs: 3.129e-02; rel: 2.242e-02; norm: 1.095e+00; mom: 8.399e+00;

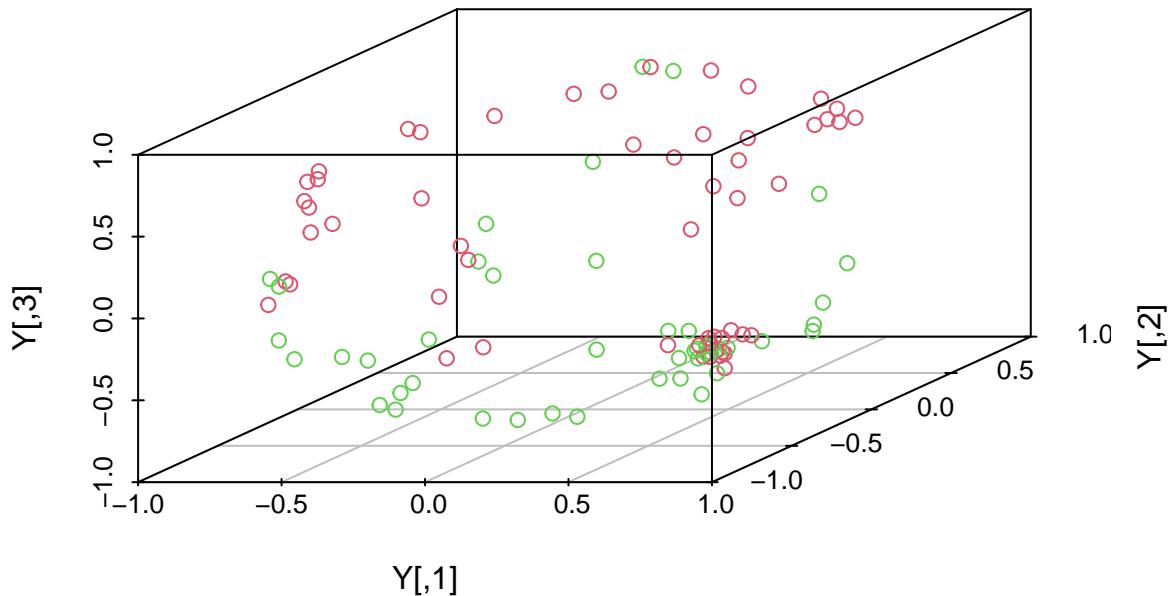
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#> best it: 112; best obj: 1.110e+00
#> It: 417; obj: 1.398e+00; abs: 3.382e-02; rel: 2.480e-02; norm: 1.028e+00; mom: 8.140e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 418; obj: 1.348e+00; abs: 5.020e-02; rel: 3.591e-02; norm: 1.107e+00; mom: 8.008e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 419; obj: 1.395e+00; abs: 4.768e-02; rel: 3.538e-02; norm: 1.047e+00; mom: 8.186e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 420; obj: 1.354e+00; abs: 4.168e-02; rel: 2.987e-02; norm: 1.113e+00; mom: 8.183e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 421; obj: 1.426e+00; abs: 7.196e-02; rel: 5.316e-02; norm: 1.056e+00; mom: 8.305e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 422; obj: 1.387e+00; abs: 3.840e-02; rel: 2.694e-02; norm: 1.151e+00; mom: 8.341e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 423; obj: 1.421e+00; abs: 3.332e-02; rel: 2.402e-02; norm: 1.105e+00; mom: 8.460e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 424; obj: 1.380e+00; abs: 4.053e-02; rel: 2.853e-02; norm: 1.150e+00; mom: 8.616e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 425; obj: 1.427e+00; abs: 4.691e-02; rel: 3.399e-02; norm: 1.081e+00; mom: 8.490e+00;
#> best it: 112; best obj: 1.110e+00

```

## Iteration 425



```

#> It: 426; obj: 1.367e+00; abs: 5.961e-02; rel: 4.177e-02; norm: 1.147e+00; mom: 8.342e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 427; obj: 1.430e+00; abs: 6.239e-02; rel: 4.563e-02; norm: 1.078e+00; mom: 8.440e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 428; obj: 1.376e+00; abs: 5.328e-02; rel: 3.727e-02; norm: 1.161e+00; mom: 8.454e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 429; obj: 1.414e+00; abs: 3.730e-02; rel: 2.710e-02; norm: 1.092e+00; mom: 8.479e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 430; obj: 1.404e+00; abs: 9.875e-03; rel: 6.985e-03; norm: 1.135e+00; mom: 8.711e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 431; obj: 1.421e+00; abs: 1.680e-02; rel: 1.197e-02; norm: 1.083e+00; mom: 8.424e+00;
#> best it: 112; best obj: 1.110e+00

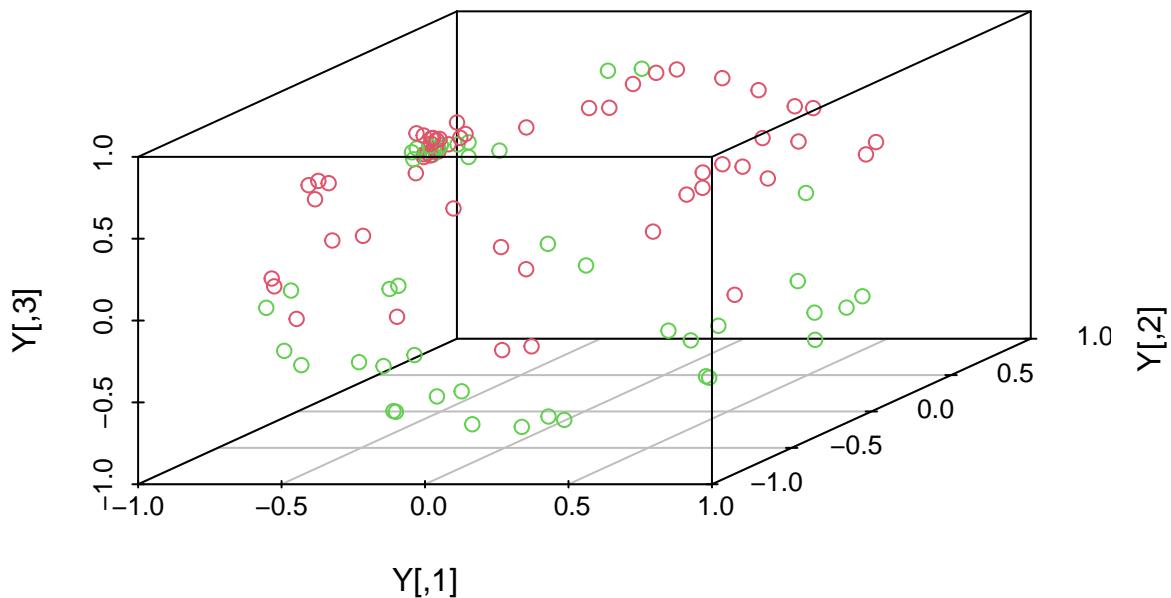
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#> It: 432; obj: 1.387e+00; abs: 3.369e-02; rel: 2.372e-02; norm: 1.131e+00; mom: 8.204e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 433; obj: 1.416e+00; abs: 2.896e-02; rel: 2.088e-02; norm: 1.077e+00; mom: 8.129e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 434; obj: 1.365e+00; abs: 5.092e-02; rel: 3.596e-02; norm: 1.128e+00; mom: 8.146e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 435; obj: 1.421e+00; abs: 5.615e-02; rel: 4.113e-02; norm: 1.072e+00; mom: 8.249e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 436; obj: 1.369e+00; abs: 5.207e-02; rel: 3.664e-02; norm: 1.153e+00; mom: 8.291e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 437; obj: 1.433e+00; abs: 6.411e-02; rel: 4.682e-02; norm: 1.104e+00; mom: 8.373e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 438; obj: 1.387e+00; abs: 4.571e-02; rel: 3.189e-02; norm: 1.193e+00; mom: 8.471e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 439; obj: 1.417e+00; abs: 2.939e-02; rel: 2.118e-02; norm: 1.131e+00; mom: 8.489e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 440; obj: 1.387e+00; abs: 3.009e-02; rel: 2.124e-02; norm: 1.187e+00; mom: 8.607e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 441; obj: 1.439e+00; abs: 5.173e-02; rel: 3.730e-02; norm: 1.126e+00; mom: 8.633e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 442; obj: 1.372e+00; abs: 6.678e-02; rel: 4.642e-02; norm: 1.205e+00; mom: 8.624e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 443; obj: 1.407e+00; abs: 3.516e-02; rel: 2.563e-02; norm: 1.113e+00; mom: 8.597e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 444; obj: 1.384e+00; abs: 2.325e-02; rel: 1.653e-02; norm: 1.167e+00; mom: 8.709e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 445; obj: 1.427e+00; abs: 4.310e-02; rel: 3.115e-02; norm: 1.102e+00; mom: 8.482e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 446; obj: 1.378e+00; abs: 4.893e-02; rel: 3.429e-02; norm: 1.174e+00; mom: 8.461e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 447; obj: 1.418e+00; abs: 3.985e-02; rel: 2.893e-02; norm: 1.124e+00; mom: 8.592e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 448; obj: 1.373e+00; abs: 4.430e-02; rel: 3.125e-02; norm: 1.195e+00; mom: 8.738e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 449; obj: 1.416e+00; abs: 4.283e-02; rel: 3.119e-02; norm: 1.120e+00; mom: 8.736e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 450; obj: 1.384e+00; abs: 3.234e-02; rel: 2.283e-02; norm: 1.179e+00; mom: 8.661e+00;
#> best it: 112; best obj: 1.110e+00

```

## Iteration 450



```

#> It: 451; obj: 1.408e+00; abs: 2.396e-02; rel: 1.732e-02; norm: 1.115e+00; mom: 8.600e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 452; obj: 1.378e+00; abs: 3.029e-02; rel: 2.152e-02; norm: 1.178e+00; mom: 8.574e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 453; obj: 1.425e+00; abs: 4.721e-02; rel: 3.427e-02; norm: 1.122e+00; mom: 8.588e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 454; obj: 1.370e+00; abs: 5.496e-02; rel: 3.857e-02; norm: 1.193e+00; mom: 8.456e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 455; obj: 1.429e+00; abs: 5.944e-02; rel: 4.340e-02; norm: 1.117e+00; mom: 8.455e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 456; obj: 1.370e+00; abs: 5.880e-02; rel: 4.114e-02; norm: 1.181e+00; mom: 8.476e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 457; obj: 1.401e+00; abs: 3.016e-02; rel: 2.200e-02; norm: 1.100e+00; mom: 8.489e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 458; obj: 1.367e+00; abs: 3.380e-02; rel: 2.413e-02; norm: 1.155e+00; mom: 8.452e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 459; obj: 1.414e+00; abs: 4.688e-02; rel: 3.430e-02; norm: 1.086e+00; mom: 8.311e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 460; obj: 1.382e+00; abs: 3.117e-02; rel: 2.205e-02; norm: 1.170e+00; mom: 8.346e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 461; obj: 1.421e+00; abs: 3.886e-02; rel: 2.811e-02; norm: 1.115e+00; mom: 8.483e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 462; obj: 1.371e+00; abs: 5.052e-02; rel: 3.554e-02; norm: 1.196e+00; mom: 8.586e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 463; obj: 1.422e+00; abs: 5.159e-02; rel: 3.763e-02; norm: 1.128e+00; mom: 8.726e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 464; obj: 1.370e+00; abs: 5.229e-02; rel: 3.676e-02; norm: 1.201e+00; mom: 8.603e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 465; obj: 1.407e+00; abs: 3.638e-02; rel: 2.655e-02; norm: 1.120e+00; mom: 8.602e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 466; obj: 1.375e+00; abs: 3.113e-02; rel: 2.213e-02; norm: 1.179e+00; mom: 8.710e+00;

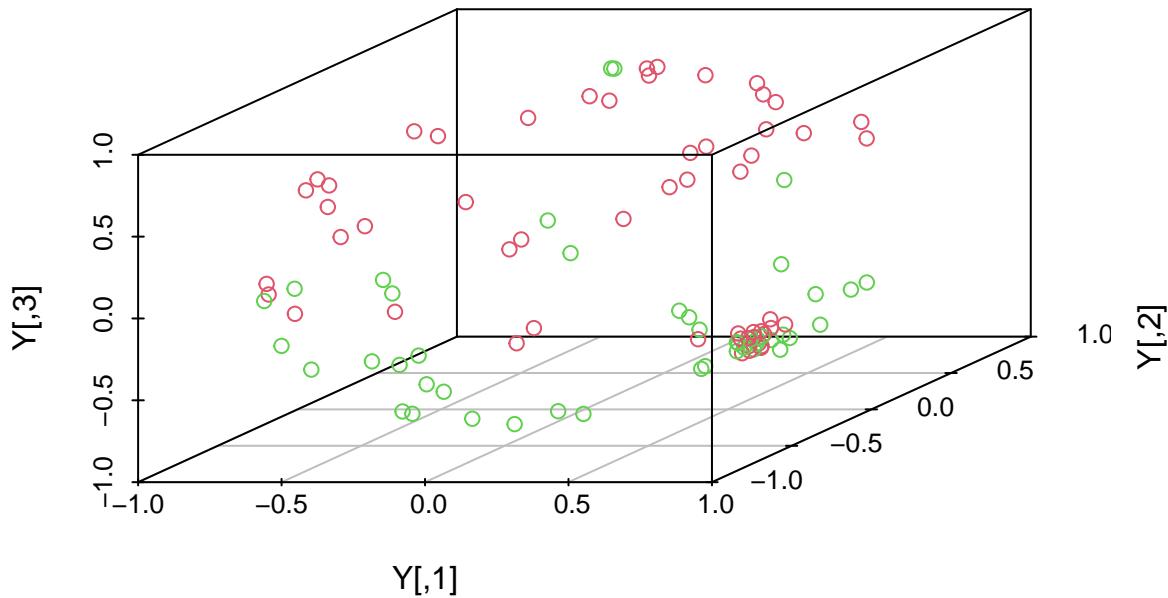
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#> best it: 112; best obj: 1.110e+00
#> It: 467; obj: 1.407e+00; abs: 3.167e-02; rel: 2.303e-02; norm: 1.119e+00; mom: 8.595e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 468; obj: 1.351e+00; abs: 5.616e-02; rel: 3.991e-02; norm: 1.167e+00; mom: 8.589e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 469; obj: 1.420e+00; abs: 6.959e-02; rel: 5.152e-02; norm: 1.071e+00; mom: 8.671e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 470; obj: 1.400e+00; abs: 2.027e-02; rel: 1.427e-02; norm: 1.129e+00; mom: 8.303e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 471; obj: 1.440e+00; abs: 3.938e-02; rel: 2.813e-02; norm: 1.098e+00; mom: 8.281e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 472; obj: 1.389e+00; abs: 5.091e-02; rel: 3.537e-02; norm: 1.206e+00; mom: 8.353e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 473; obj: 1.429e+00; abs: 4.052e-02; rel: 2.918e-02; norm: 1.157e+00; mom: 8.604e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 474; obj: 1.385e+00; abs: 4.382e-02; rel: 3.066e-02; norm: 1.216e+00; mom: 8.750e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 475; obj: 1.415e+00; abs: 2.938e-02; rel: 2.121e-02; norm: 1.140e+00; mom: 8.749e+00;
#> best it: 112; best obj: 1.110e+00

```

## Iteration 475



```

#> It: 476; obj: 1.364e+00; abs: 5.118e-02; rel: 3.617e-02; norm: 1.189e+00; mom: 8.741e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 477; obj: 1.418e+00; abs: 5.473e-02; rel: 4.014e-02; norm: 1.102e+00; mom: 8.711e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 478; obj: 1.348e+00; abs: 7.002e-02; rel: 4.937e-02; norm: 1.166e+00; mom: 8.580e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 479; obj: 1.381e+00; abs: 3.252e-02; rel: 2.412e-02; norm: 1.086e+00; mom: 8.460e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 480; obj: 1.369e+00; abs: 1.165e-02; rel: 8.436e-03; norm: 1.136e+00; mom: 8.561e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 481; obj: 1.432e+00; abs: 6.236e-02; rel: 4.555e-02; norm: 1.077e+00; mom: 8.280e+00;
#> best it: 112; best obj: 1.110e+00

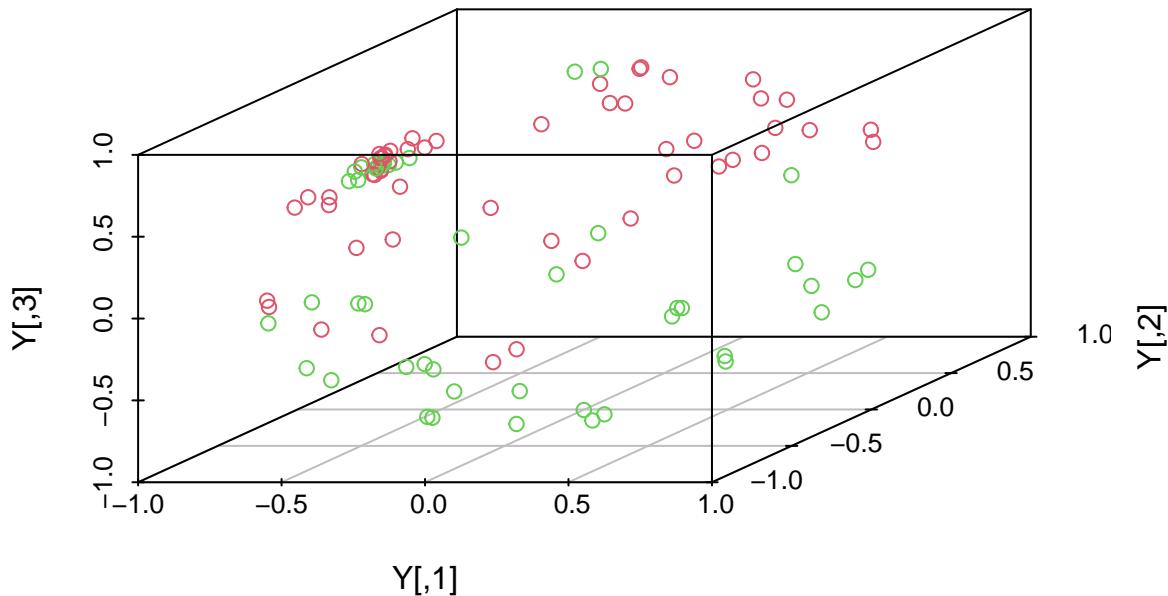
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#> It: 482; obj: 1.382e+00; abs: 4.996e-02; rel: 3.490e-02; norm: 1.170e+00; mom: 8.298e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 483; obj: 1.417e+00; abs: 3.564e-02; rel: 2.580e-02; norm: 1.120e+00; mom: 8.445e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 484; obj: 1.377e+00; abs: 3.979e-02; rel: 2.808e-02; norm: 1.184e+00; mom: 8.589e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 485; obj: 1.416e+00; abs: 3.877e-02; rel: 2.815e-02; norm: 1.108e+00; mom: 8.579e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 486; obj: 1.369e+00; abs: 4.766e-02; rel: 3.365e-02; norm: 1.166e+00; mom: 8.441e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 487; obj: 1.431e+00; abs: 6.248e-02; rel: 4.565e-02; norm: 1.115e+00; mom: 8.531e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 488; obj: 1.371e+00; abs: 6.049e-02; rel: 4.227e-02; norm: 1.196e+00; mom: 8.594e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 489; obj: 1.421e+00; abs: 5.050e-02; rel: 3.684e-02; norm: 1.125e+00; mom: 8.542e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 490; obj: 1.377e+00; abs: 4.400e-02; rel: 3.096e-02; norm: 1.199e+00; mom: 8.606e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 491; obj: 1.424e+00; abs: 4.657e-02; rel: 3.382e-02; norm: 1.131e+00; mom: 8.599e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 492; obj: 1.365e+00; abs: 5.881e-02; rel: 4.131e-02; norm: 1.206e+00; mom: 8.743e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 493; obj: 1.419e+00; abs: 5.422e-02; rel: 3.972e-02; norm: 1.113e+00; mom: 8.732e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 494; obj: 1.361e+00; abs: 5.838e-02; rel: 4.114e-02; norm: 1.172e+00; mom: 8.574e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 495; obj: 1.393e+00; abs: 3.274e-02; rel: 2.406e-02; norm: 1.103e+00; mom: 8.470e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 496; obj: 1.366e+00; abs: 2.769e-02; rel: 1.987e-02; norm: 1.157e+00; mom: 8.448e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 497; obj: 1.393e+00; abs: 2.740e-02; rel: 2.006e-02; norm: 1.094e+00; mom: 8.466e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 498; obj: 1.344e+00; abs: 4.900e-02; rel: 3.517e-02; norm: 1.155e+00; mom: 8.454e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 499; obj: 1.407e+00; abs: 6.242e-02; rel: 4.644e-02; norm: 1.085e+00; mom: 8.511e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 500; obj: 1.357e+00; abs: 4.918e-02; rel: 3.497e-02; norm: 1.168e+00; mom: 8.457e+00;
#> best it: 112; best obj: 1.110e+00

```

## Iteration 500



```

#> It: 501; obj: 1.401e+00; abs: 4.320e-02; rel: 3.183e-02; norm: 1.105e+00; mom: 8.446e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 502; obj: 1.378e+00; abs: 2.291e-02; rel: 1.635e-02; norm: 1.176e+00; mom: 8.589e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 503; obj: 1.407e+00; abs: 2.937e-02; rel: 2.132e-02; norm: 1.129e+00; mom: 8.485e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 504; obj: 1.371e+00; abs: 3.586e-02; rel: 2.549e-02; norm: 1.181e+00; mom: 8.453e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 505; obj: 1.384e+00; abs: 1.254e-02; rel: 9.147e-03; norm: 1.110e+00; mom: 8.723e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 506; obj: 1.366e+00; abs: 1.813e-02; rel: 1.310e-02; norm: 1.155e+00; mom: 8.670e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 507; obj: 1.372e+00; abs: 6.473e-03; rel: 4.740e-03; norm: 1.099e+00; mom: 8.438e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 508; obj: 1.377e+00; abs: 5.425e-03; rel: 3.954e-03; norm: 1.120e+00; mom: 8.329e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 509; obj: 1.409e+00; abs: 3.150e-02; rel: 2.287e-02; norm: 1.089e+00; mom: 8.283e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 510; obj: 1.364e+00; abs: 4.503e-02; rel: 3.196e-02; norm: 1.161e+00; mom: 8.168e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 511; obj: 1.431e+00; abs: 6.682e-02; rel: 4.899e-02; norm: 1.106e+00; mom: 8.408e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 512; obj: 1.401e+00; abs: 2.973e-02; rel: 2.078e-02; norm: 1.177e+00; mom: 8.446e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 513; obj: 1.417e+00; abs: 1.582e-02; rel: 1.129e-02; norm: 1.109e+00; mom: 8.389e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 514; obj: 1.369e+00; abs: 4.743e-02; rel: 3.348e-02; norm: 1.165e+00; mom: 8.479e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 515; obj: 1.397e+00; abs: 2.712e-02; rel: 1.981e-02; norm: 1.095e+00; mom: 8.464e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 516; obj: 1.405e+00; abs: 8.376e-03; rel: 5.998e-03; norm: 1.148e+00; mom: 8.584e+00;

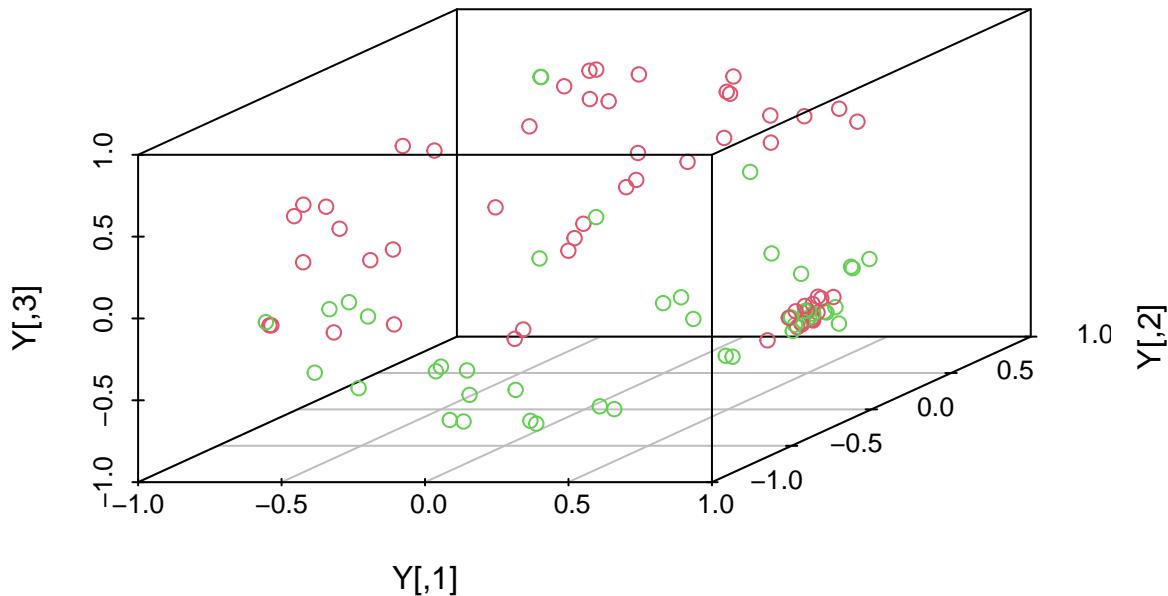
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#> best it: 112; best obj: 1.110e+00
#> It: 517; obj: 1.421e+00; abs: 1.592e-02; rel: 1.133e-02; norm: 1.135e+00; mom: 8.268e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 518; obj: 1.406e+00; abs: 1.477e-02; rel: 1.040e-02; norm: 1.192e+00; mom: 8.301e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 519; obj: 1.412e+00; abs: 6.046e-03; rel: 4.300e-03; norm: 1.172e+00; mom: 8.455e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 520; obj: 1.400e+00; abs: 1.192e-02; rel: 8.444e-03; norm: 1.208e+00; mom: 8.608e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 521; obj: 1.404e+00; abs: 3.525e-03; rel: 2.518e-03; norm: 1.161e+00; mom: 8.606e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 522; obj: 1.394e+00; abs: 1.003e-02; rel: 7.143e-03; norm: 1.192e+00; mom: 8.601e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 523; obj: 1.414e+00; abs: 2.026e-02; rel: 1.454e-02; norm: 1.145e+00; mom: 8.600e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 524; obj: 1.371e+00; abs: 4.278e-02; rel: 3.026e-02; norm: 1.187e+00; mom: 8.613e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 525; obj: 1.405e+00; abs: 3.421e-02; rel: 2.495e-02; norm: 1.116e+00; mom: 8.590e+00;
#> best it: 112; best obj: 1.110e+00

```

## Iteration 525



```

#> It: 526; obj: 1.360e+00; abs: 4.498e-02; rel: 3.200e-02; norm: 1.162e+00; mom: 8.526e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 527; obj: 1.408e+00; abs: 4.810e-02; rel: 3.536e-02; norm: 1.097e+00; mom: 8.397e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 528; obj: 1.385e+00; abs: 2.358e-02; rel: 1.674e-02; norm: 1.169e+00; mom: 8.358e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 529; obj: 1.425e+00; abs: 4.044e-02; rel: 2.920e-02; norm: 1.121e+00; mom: 8.463e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 530; obj: 1.386e+00; abs: 3.912e-02; rel: 2.744e-02; norm: 1.209e+00; mom: 8.591e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 531; obj: 1.421e+00; abs: 3.504e-02; rel: 2.527e-02; norm: 1.151e+00; mom: 8.751e+00;
#> best it: 112; best obj: 1.110e+00

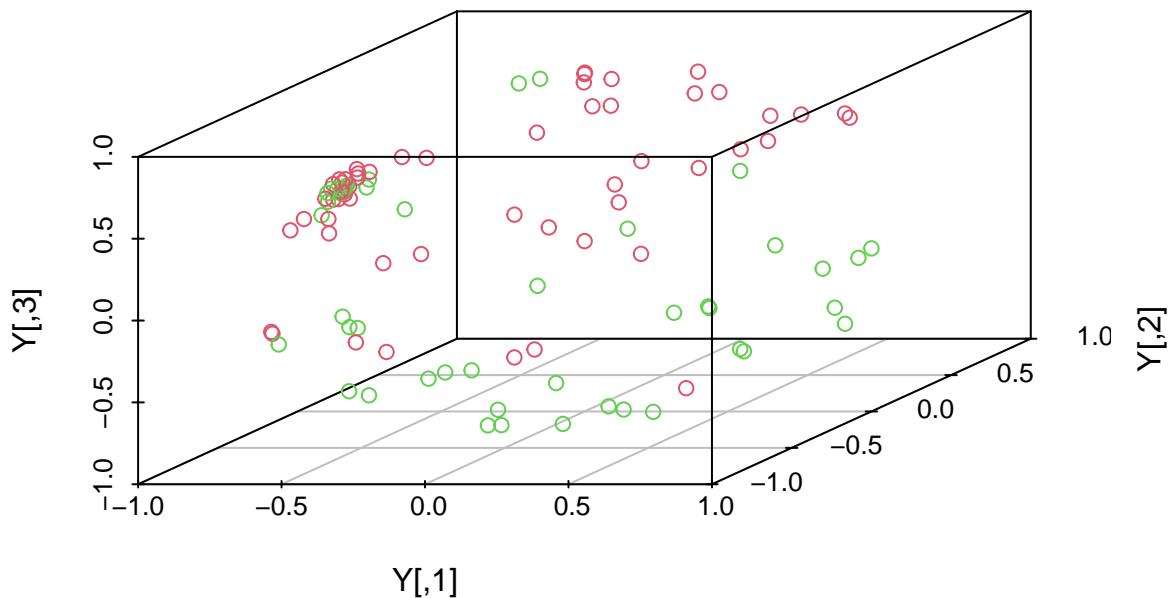
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#> It: 532; obj: 1.382e+00; abs: 3.964e-02; rel: 2.789e-02; norm: 1.213e+00; mom: 8.747e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 533; obj: 1.416e+00; abs: 3.442e-02; rel: 2.491e-02; norm: 1.140e+00; mom: 8.746e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 534; obj: 1.372e+00; abs: 4.368e-02; rel: 3.085e-02; norm: 1.198e+00; mom: 8.743e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 535; obj: 1.401e+00; abs: 2.889e-02; rel: 2.105e-02; norm: 1.121e+00; mom: 8.736e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 536; obj: 1.352e+00; abs: 4.974e-02; rel: 3.550e-02; norm: 1.165e+00; mom: 8.725e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 537; obj: 1.401e+00; abs: 4.974e-02; rel: 3.681e-02; norm: 1.080e+00; mom: 8.574e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 538; obj: 1.364e+00; abs: 3.763e-02; rel: 2.686e-02; norm: 1.144e+00; mom: 8.367e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 539; obj: 1.403e+00; abs: 3.984e-02; rel: 2.922e-02; norm: 1.105e+00; mom: 8.298e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 540; obj: 1.360e+00; abs: 4.373e-02; rel: 3.116e-02; norm: 1.178e+00; mom: 8.590e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 541; obj: 1.423e+00; abs: 6.309e-02; rel: 4.640e-02; norm: 1.114e+00; mom: 8.614e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 542; obj: 1.388e+00; abs: 3.489e-02; rel: 2.452e-02; norm: 1.168e+00; mom: 8.467e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 543; obj: 1.421e+00; abs: 3.350e-02; rel: 2.413e-02; norm: 1.116e+00; mom: 8.519e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 544; obj: 1.379e+00; abs: 4.259e-02; rel: 2.996e-02; norm: 1.203e+00; mom: 8.593e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 545; obj: 1.411e+00; abs: 3.180e-02; rel: 2.306e-02; norm: 1.135e+00; mom: 8.742e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 546; obj: 1.385e+00; abs: 2.594e-02; rel: 1.839e-02; norm: 1.187e+00; mom: 8.732e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 547; obj: 1.402e+00; abs: 1.762e-02; rel: 1.273e-02; norm: 1.126e+00; mom: 8.592e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 548; obj: 1.371e+00; abs: 3.170e-02; rel: 2.261e-02; norm: 1.176e+00; mom: 8.588e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 549; obj: 1.389e+00; abs: 1.861e-02; rel: 1.358e-02; norm: 1.101e+00; mom: 8.567e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 550; obj: 1.368e+00; abs: 2.138e-02; rel: 1.539e-02; norm: 1.156e+00; mom: 8.426e+00;
#> best it: 112; best obj: 1.110e+00

```

## Iteration 550



```

#> It: 551; obj: 1.374e+00; abs: 6.367e-03; rel: 4.655e-03; norm: 1.107e+00; mom: 8.302e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 552; obj: 1.372e+00; abs: 1.871e-03; rel: 1.362e-03; norm: 1.145e+00; mom: 8.429e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 553; obj: 1.401e+00; abs: 2.842e-02; rel: 2.071e-02; norm: 1.100e+00; mom: 8.311e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 554; obj: 1.359e+00; abs: 4.135e-02; rel: 2.952e-02; norm: 1.148e+00; mom: 8.380e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 555; obj: 1.396e+00; abs: 3.673e-02; rel: 2.702e-02; norm: 1.098e+00; mom: 8.308e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 556; obj: 1.391e+00; abs: 4.627e-03; rel: 3.314e-03; norm: 1.153e+00; mom: 8.580e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 557; obj: 1.393e+00; abs: 1.886e-03; rel: 1.356e-03; norm: 1.132e+00; mom: 8.442e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 558; obj: 1.374e+00; abs: 1.942e-02; rel: 1.394e-02; norm: 1.164e+00; mom: 8.573e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 559; obj: 1.411e+00; abs: 3.720e-02; rel: 2.708e-02; norm: 1.109e+00; mom: 8.529e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 560; obj: 1.367e+00; abs: 4.438e-02; rel: 3.145e-02; norm: 1.168e+00; mom: 8.303e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 561; obj: 1.409e+00; abs: 4.258e-02; rel: 3.115e-02; norm: 1.111e+00; mom: 8.353e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 562; obj: 1.353e+00; abs: 5.643e-02; rel: 4.004e-02; norm: 1.157e+00; mom: 8.574e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 563; obj: 1.388e+00; abs: 3.487e-02; rel: 2.577e-02; norm: 1.089e+00; mom: 8.433e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 564; obj: 1.359e+00; abs: 2.848e-02; rel: 2.052e-02; norm: 1.138e+00; mom: 8.407e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 565; obj: 1.397e+00; abs: 3.812e-02; rel: 2.804e-02; norm: 1.090e+00; mom: 8.300e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 566; obj: 1.375e+00; abs: 2.225e-02; rel: 1.592e-02; norm: 1.148e+00; mom: 8.345e+00;

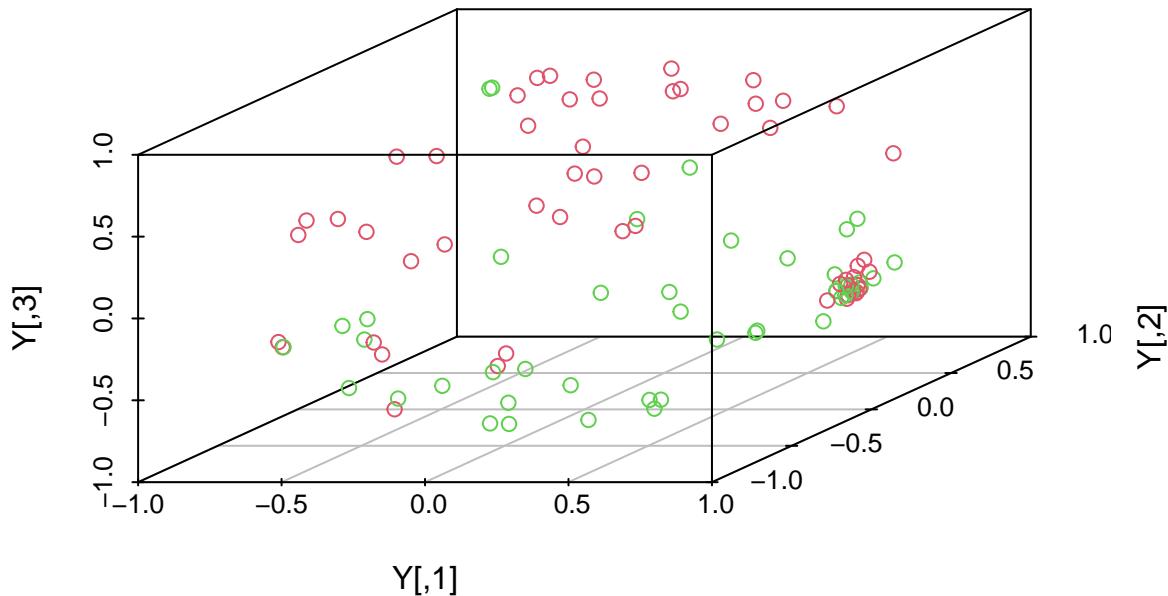
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#> best it: 112; best obj: 1.110e+00
#> It: 567; obj: 1.385e+00; abs: 1.008e-02; rel: 7.329e-03; norm: 1.099e+00; mom: 8.471e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 568; obj: 1.363e+00; abs: 2.203e-02; rel: 1.590e-02; norm: 1.153e+00; mom: 8.542e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 569; obj: 1.372e+00; abs: 9.250e-03; rel: 6.785e-03; norm: 1.125e+00; mom: 8.455e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 570; obj: 1.362e+00; abs: 1.007e-02; rel: 7.335e-03; norm: 1.159e+00; mom: 8.452e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 571; obj: 1.379e+00; abs: 1.641e-02; rel: 1.204e-02; norm: 1.125e+00; mom: 8.459e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 572; obj: 1.353e+00; abs: 2.589e-02; rel: 1.878e-02; norm: 1.164e+00; mom: 8.472e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 573; obj: 1.377e+00; abs: 2.413e-02; rel: 1.783e-02; norm: 1.113e+00; mom: 8.451e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 574; obj: 1.338e+00; abs: 3.943e-02; rel: 2.863e-02; norm: 1.148e+00; mom: 8.449e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 575; obj: 1.358e+00; abs: 2.053e-02; rel: 1.535e-02; norm: 1.081e+00; mom: 8.444e+00;
#> best it: 112; best obj: 1.110e+00

```

## Iteration 575



```

#> It: 576; obj: 1.357e+00; abs: 1.581e-03; rel: 1.164e-03; norm: 1.103e+00; mom: 8.297e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 577; obj: 1.359e+00; abs: 2.579e-03; rel: 1.901e-03; norm: 1.078e+00; mom: 8.178e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 578; obj: 1.347e+00; abs: 1.191e-02; rel: 8.760e-03; norm: 1.120e+00; mom: 8.135e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 579; obj: 1.365e+00; abs: 1.745e-02; rel: 1.295e-02; norm: 1.075e+00; mom: 8.492e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 580; obj: 1.359e+00; abs: 5.232e-03; rel: 3.834e-03; norm: 1.118e+00; mom: 8.198e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 581; obj: 1.352e+00; abs: 7.597e-03; rel: 5.588e-03; norm: 1.096e+00; mom: 8.177e+00;
#> best it: 112; best obj: 1.110e+00

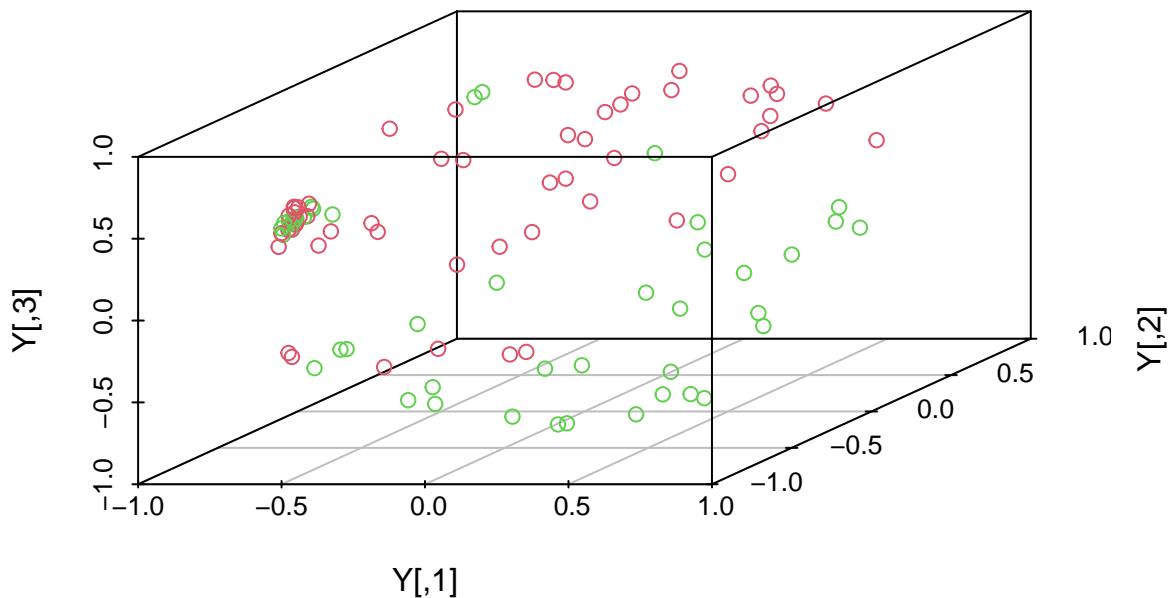
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#> It: 582; obj: 1.354e+00; abs: 1.676e-03; rel: 1.240e-03; norm: 1.115e+00; mom: 8.312e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 583; obj: 1.350e+00; abs: 3.876e-03; rel: 2.863e-03; norm: 1.100e+00; mom: 8.227e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 584; obj: 1.354e+00; abs: 4.085e-03; rel: 3.027e-03; norm: 1.114e+00; mom: 8.157e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 585; obj: 1.383e+00; abs: 2.953e-02; rel: 2.181e-02; norm: 1.101e+00; mom: 8.287e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 586; obj: 1.368e+00; abs: 1.509e-02; rel: 1.091e-02; norm: 1.136e+00; mom: 8.335e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 587; obj: 1.377e+00; abs: 8.760e-03; rel: 6.403e-03; norm: 1.113e+00; mom: 8.329e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 588; obj: 1.355e+00; abs: 2.175e-02; rel: 1.579e-02; norm: 1.155e+00; mom: 8.305e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 589; obj: 1.360e+00; abs: 4.893e-03; rel: 3.611e-03; norm: 1.114e+00; mom: 8.460e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 590; obj: 1.361e+00; abs: 1.073e-03; rel: 7.887e-04; norm: 1.140e+00; mom: 8.443e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 591; obj: 1.366e+00; abs: 4.971e-03; rel: 3.652e-03; norm: 1.120e+00; mom: 8.310e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 592; obj: 1.357e+00; abs: 9.574e-03; rel: 7.008e-03; norm: 1.143e+00; mom: 8.321e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 593; obj: 1.371e+00; abs: 1.450e-02; rel: 1.069e-02; norm: 1.100e+00; mom: 8.436e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 594; obj: 1.354e+00; abs: 1.720e-02; rel: 1.254e-02; norm: 1.133e+00; mom: 8.318e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 595; obj: 1.380e+00; abs: 2.569e-02; rel: 1.897e-02; norm: 1.095e+00; mom: 8.334e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 596; obj: 1.357e+00; abs: 2.268e-02; rel: 1.644e-02; norm: 1.130e+00; mom: 8.327e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 597; obj: 1.373e+00; abs: 1.657e-02; rel: 1.221e-02; norm: 1.079e+00; mom: 8.393e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 598; obj: 1.354e+00; abs: 1.927e-02; rel: 1.403e-02; norm: 1.122e+00; mom: 8.133e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 599; obj: 1.383e+00; abs: 2.892e-02; rel: 2.135e-02; norm: 1.089e+00; mom: 8.154e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 600; obj: 1.367e+00; abs: 1.589e-02; rel: 1.149e-02; norm: 1.140e+00; mom: 8.466e+00;
#> best it: 112; best obj: 1.110e+00

```

## Iteration 600



```

#> It: 601; obj: 1.397e+00; abs: 3.003e-02; rel: 2.196e-02; norm: 1.111e+00; mom: 8.433e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 602; obj: 1.372e+00; abs: 2.563e-02; rel: 1.835e-02; norm: 1.153e+00; mom: 8.439e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 603; obj: 1.388e+00; abs: 1.601e-02; rel: 1.167e-02; norm: 1.129e+00; mom: 8.303e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 604; obj: 1.359e+00; abs: 2.864e-02; rel: 2.064e-02; norm: 1.168e+00; mom: 8.478e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 605; obj: 1.380e+00; abs: 2.068e-02; rel: 1.522e-02; norm: 1.111e+00; mom: 8.460e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 606; obj: 1.377e+00; abs: 2.322e-03; rel: 1.683e-03; norm: 1.155e+00; mom: 8.438e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 607; obj: 1.383e+00; abs: 5.639e-03; rel: 4.094e-03; norm: 1.106e+00; mom: 8.295e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 608; obj: 1.356e+00; abs: 2.653e-02; rel: 1.919e-02; norm: 1.150e+00; mom: 8.429e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 609; obj: 1.370e+00; abs: 1.317e-02; rel: 9.706e-03; norm: 1.100e+00; mom: 8.507e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 610; obj: 1.351e+00; abs: 1.895e-02; rel: 1.383e-02; norm: 1.111e+00; mom: 8.390e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 611; obj: 1.338e+00; abs: 1.286e-02; rel: 9.518e-03; norm: 1.087e+00; mom: 8.136e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 612; obj: 1.353e+00; abs: 1.517e-02; rel: 1.134e-02; norm: 1.103e+00; mom: 8.230e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 613; obj: 1.359e+00; abs: 6.527e-03; rel: 4.824e-03; norm: 1.074e+00; mom: 8.158e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 614; obj: 1.359e+00; abs: 2.965e-04; rel: 2.181e-04; norm: 1.109e+00; mom: 8.058e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 615; obj: 1.389e+00; abs: 2.982e-02; rel: 2.194e-02; norm: 1.105e+00; mom: 8.209e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 616; obj: 1.389e+00; abs: 3.889e-04; rel: 2.800e-04; norm: 1.160e+00; mom: 8.317e+00;

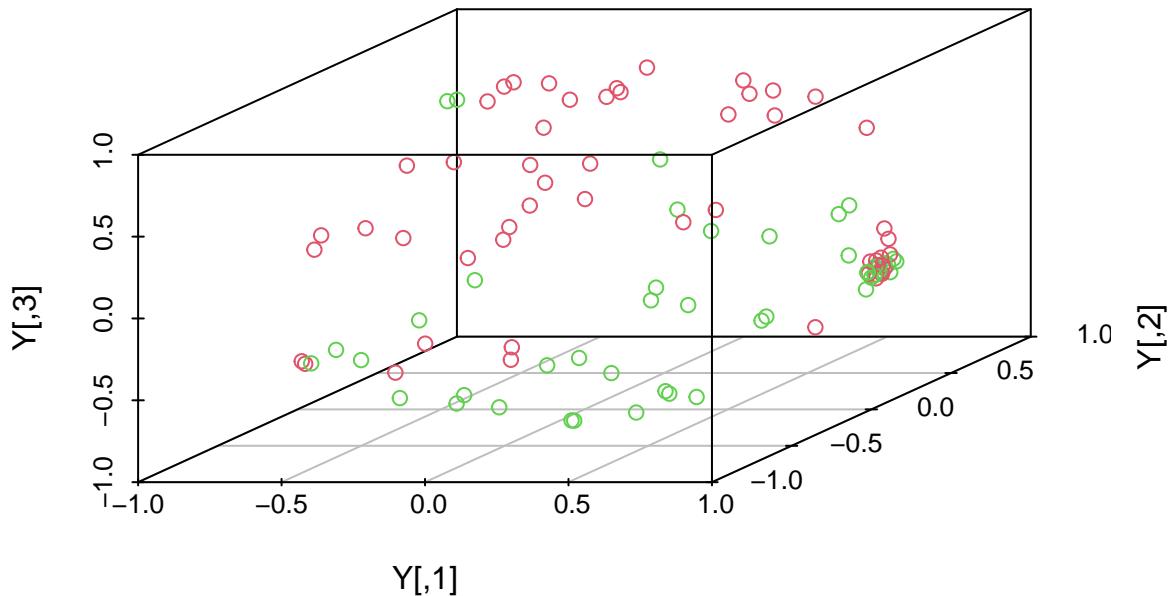
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#> best it: 112; best obj: 1.110e+00
#> It: 617; obj: 1.390e+00; abs: 5.434e-04; rel: 3.911e-04; norm: 1.151e+00; mom: 8.498e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 618; obj: 1.383e+00; abs: 7.325e-03; rel: 5.270e-03; norm: 1.180e+00; mom: 8.462e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 619; obj: 1.378e+00; abs: 4.910e-03; rel: 3.551e-03; norm: 1.149e+00; mom: 8.600e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 620; obj: 1.391e+00; abs: 1.288e-02; rel: 9.347e-03; norm: 1.157e+00; mom: 8.588e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 621; obj: 1.377e+00; abs: 1.401e-02; rel: 1.007e-02; norm: 1.138e+00; mom: 8.447e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 622; obj: 1.387e+00; abs: 1.012e-02; rel: 7.353e-03; norm: 1.157e+00; mom: 8.450e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 623; obj: 1.371e+00; abs: 1.534e-02; rel: 1.106e-02; norm: 1.134e+00; mom: 8.446e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 624; obj: 1.384e+00; abs: 1.294e-02; rel: 9.435e-03; norm: 1.152e+00; mom: 8.444e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 625; obj: 1.370e+00; abs: 1.428e-02; rel: 1.031e-02; norm: 1.128e+00; mom: 8.441e+00;
#> best it: 112; best obj: 1.110e+00

```

## Iteration 625



```

#> It: 626; obj: 1.349e+00; abs: 2.093e-02; rel: 1.527e-02; norm: 1.140e+00; mom: 8.438e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 627; obj: 1.389e+00; abs: 4.012e-02; rel: 2.974e-02; norm: 1.084e+00; mom: 8.538e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 628; obj: 1.349e+00; abs: 4.016e-02; rel: 2.891e-02; norm: 1.113e+00; mom: 8.273e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 629; obj: 1.350e+00; abs: 7.974e-04; rel: 5.911e-04; norm: 1.085e+00; mom: 8.241e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 630; obj: 1.351e+00; abs: 1.357e-03; rel: 1.005e-03; norm: 1.104e+00; mom: 8.413e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 631; obj: 1.368e+00; abs: 1.690e-02; rel: 1.251e-02; norm: 1.071e+00; mom: 8.106e+00;
#> best it: 112; best obj: 1.110e+00

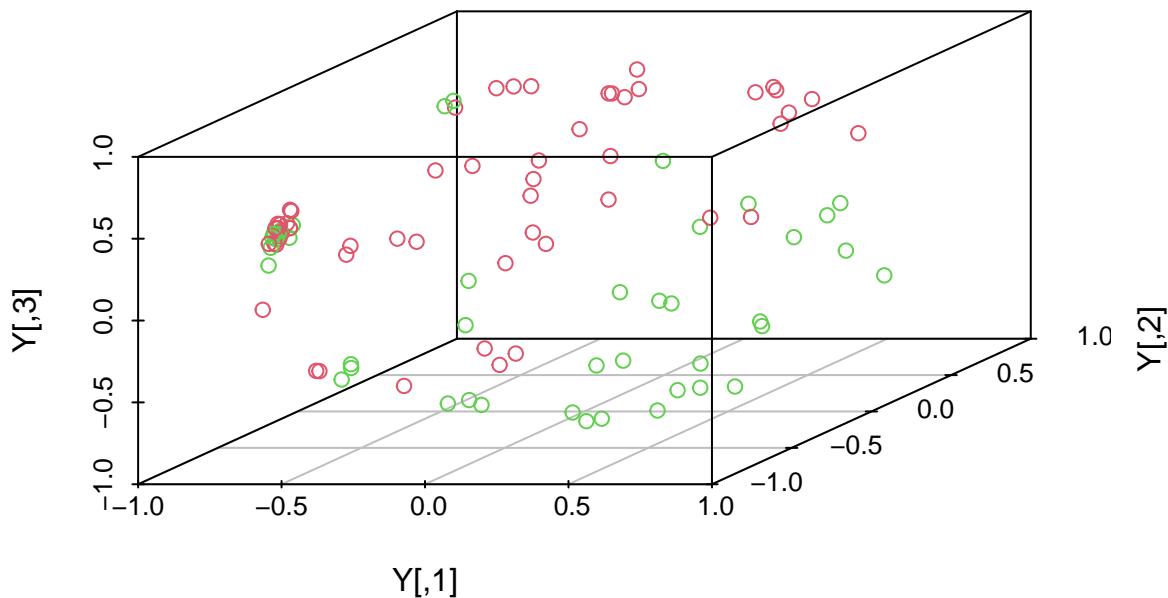
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#> It: 632; obj: 1.336e+00; abs: 3.255e-02; rel: 2.379e-02; norm: 1.106e+00; mom: 8.090e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 633; obj: 1.373e+00; abs: 3.710e-02; rel: 2.778e-02; norm: 1.071e+00; mom: 8.060e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 634; obj: 1.375e+00; abs: 2.144e-03; rel: 1.562e-03; norm: 1.121e+00; mom: 8.167e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 635; obj: 1.381e+00; abs: 6.412e-03; rel: 4.664e-03; norm: 1.117e+00; mom: 8.300e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 636; obj: 1.367e+00; abs: 1.457e-02; rel: 1.055e-02; norm: 1.162e+00; mom: 8.451e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 637; obj: 1.380e+00; abs: 1.315e-02; rel: 9.619e-03; norm: 1.123e+00; mom: 8.571e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 638; obj: 1.367e+00; abs: 1.315e-02; rel: 9.528e-03; norm: 1.149e+00; mom: 8.445e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 639; obj: 1.375e+00; abs: 8.511e-03; rel: 6.228e-03; norm: 1.101e+00; mom: 8.300e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 640; obj: 1.365e+00; abs: 9.813e-03; rel: 7.136e-03; norm: 1.119e+00; mom: 8.290e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 641; obj: 1.377e+00; abs: 1.141e-02; rel: 8.356e-03; norm: 1.076e+00; mom: 8.179e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 642; obj: 1.361e+00; abs: 1.577e-02; rel: 1.145e-02; norm: 1.122e+00; mom: 8.071e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 643; obj: 1.404e+00; abs: 4.303e-02; rel: 3.162e-02; norm: 1.095e+00; mom: 8.271e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 644; obj: 1.393e+00; abs: 1.078e-02; rel: 7.675e-03; norm: 1.158e+00; mom: 8.151e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 645; obj: 1.365e+00; abs: 2.849e-02; rel: 2.045e-02; norm: 1.136e+00; mom: 8.371e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 646; obj: 1.351e+00; abs: 1.417e-02; rel: 1.039e-02; norm: 1.140e+00; mom: 8.359e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 647; obj: 1.358e+00; abs: 7.404e-03; rel: 5.482e-03; norm: 1.107e+00; mom: 8.435e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 648; obj: 1.381e+00; abs: 2.287e-02; rel: 1.684e-02; norm: 1.125e+00; mom: 8.279e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 649; obj: 1.363e+00; abs: 1.765e-02; rel: 1.278e-02; norm: 1.116e+00; mom: 8.292e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 650; obj: 1.367e+00; abs: 3.861e-03; rel: 2.832e-03; norm: 1.139e+00; mom: 8.346e+00;
#> best it: 112; best obj: 1.110e+00

```

## Iteration 650



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#> It: 651; obj: 1.398e+00; abs: 3.065e-02; rel: 2.242e-02; norm: 1.122e+00; mom: 8.443e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 652; obj: 1.371e+00; abs: 2.693e-02; rel: 1.927e-02; norm: 1.161e+00; mom: 8.295e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 653; obj: 1.361e+00; abs: 1.028e-02; rel: 7.498e-03; norm: 1.123e+00; mom: 8.445e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 654; obj: 1.377e+00; abs: 1.660e-02; rel: 1.220e-02; norm: 1.120e+00; mom: 8.490e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 655; obj: 1.388e+00; abs: 1.082e-02; rel: 7.859e-03; norm: 1.091e+00; mom: 8.221e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 656; obj: 1.359e+00; abs: 2.901e-02; rel: 2.090e-02; norm: 1.134e+00; mom: 8.209e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 657; obj: 1.377e+00; abs: 1.763e-02; rel: 1.298e-02; norm: 1.102e+00; mom: 8.268e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 658; obj: 1.376e+00; abs: 9.054e-04; rel: 6.577e-04; norm: 1.154e+00; mom: 8.436e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 659; obj: 1.385e+00; abs: 9.776e-03; rel: 7.107e-03; norm: 1.133e+00; mom: 8.446e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 660; obj: 1.362e+00; abs: 2.344e-02; rel: 1.692e-02; norm: 1.172e+00; mom: 8.591e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 661; obj: 1.381e+00; abs: 1.932e-02; rel: 1.419e-02; norm: 1.134e+00; mom: 8.509e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 662; obj: 1.364e+00; abs: 1.746e-02; rel: 1.264e-02; norm: 1.169e+00; mom: 8.464e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 663; obj: 1.392e+00; abs: 2.784e-02; rel: 2.041e-02; norm: 1.122e+00; mom: 8.451e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 664; obj: 1.364e+00; abs: 2.772e-02; rel: 1.992e-02; norm: 1.172e+00; mom: 8.587e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 665; obj: 1.401e+00; abs: 3.706e-02; rel: 2.717e-02; norm: 1.120e+00; mom: 8.586e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 666; obj: 1.357e+00; abs: 4.355e-02; rel: 3.108e-02; norm: 1.161e+00; mom: 8.443e+00;

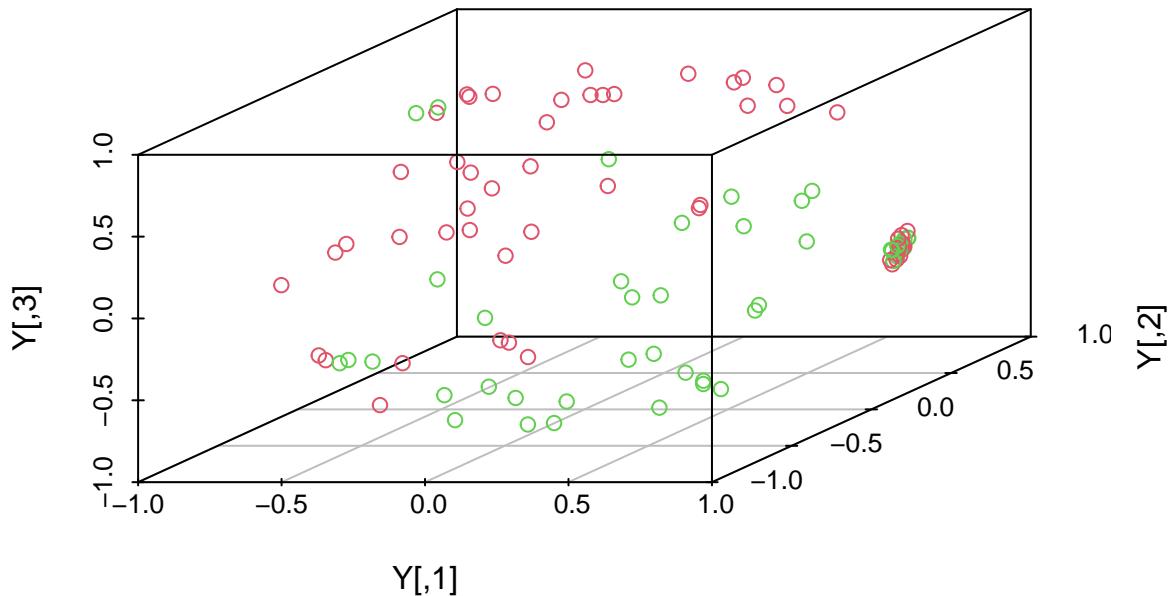
```

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#> best it: 112; best obj: 1.110e+00
#> It: 667; obj: 1.386e+00; abs: 2.884e-02; rel: 2.125e-02; norm: 1.104e+00; mom: 8.442e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 668; obj: 1.339e+00; abs: 4.696e-02; rel: 3.387e-02; norm: 1.134e+00; mom: 8.429e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 669; obj: 1.385e+00; abs: 4.599e-02; rel: 3.434e-02; norm: 1.067e+00; mom: 8.312e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 670; obj: 1.333e+00; abs: 5.254e-02; rel: 3.792e-02; norm: 1.098e+00; mom: 8.142e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 671; obj: 1.357e+00; abs: 2.383e-02; rel: 1.788e-02; norm: 1.047e+00; mom: 8.057e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 672; obj: 1.357e+00; abs: 6.791e-04; rel: 5.006e-04; norm: 1.094e+00; mom: 8.043e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 673; obj: 1.372e+00; abs: 1.478e-02; rel: 1.089e-02; norm: 1.092e+00; mom: 8.010e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 674; obj: 1.344e+00; abs: 2.776e-02; rel: 2.023e-02; norm: 1.131e+00; mom: 8.153e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 675; obj: 1.371e+00; abs: 2.699e-02; rel: 2.007e-02; norm: 1.081e+00; mom: 8.287e+00;
#> best it: 112; best obj: 1.110e+00

```

## Iteration 675



```

#> It: 676; obj: 1.332e+00; abs: 3.963e-02; rel: 2.890e-02; norm: 1.115e+00; mom: 8.139e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 677; obj: 1.357e+00; abs: 2.579e-02; rel: 1.936e-02; norm: 1.075e+00; mom: 8.081e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 678; obj: 1.341e+00; abs: 1.679e-02; rel: 1.237e-02; norm: 1.123e+00; mom: 8.150e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 679; obj: 1.371e+00; abs: 3.049e-02; rel: 2.274e-02; norm: 1.093e+00; mom: 8.147e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 680; obj: 1.347e+00; abs: 2.469e-02; rel: 1.800e-02; norm: 1.143e+00; mom: 8.297e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 681; obj: 1.361e+00; abs: 1.462e-02; rel: 1.086e-02; norm: 1.105e+00; mom: 8.303e+00;
#> best it: 112; best obj: 1.110e+00

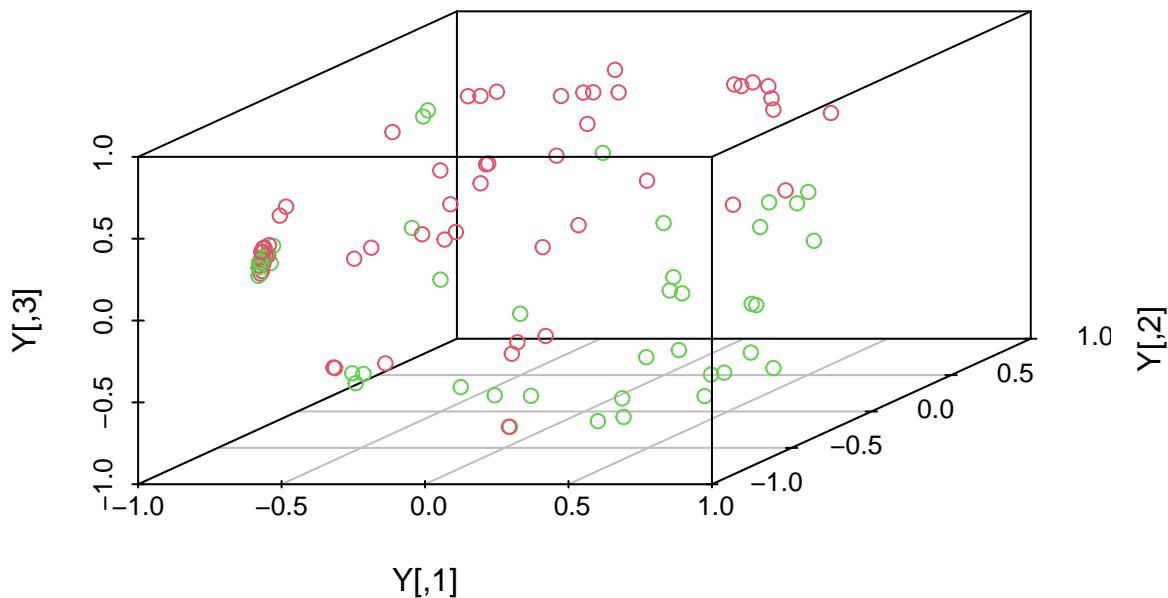
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#> It: 682; obj: 1.343e+00; abs: 1.795e-02; rel: 1.319e-02; norm: 1.135e+00; mom: 8.295e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 683; obj: 1.352e+00; abs: 8.371e-03; rel: 6.232e-03; norm: 1.090e+00; mom: 8.292e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 684; obj: 1.316e+00; abs: 3.574e-02; rel: 2.644e-02; norm: 1.110e+00; mom: 8.286e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 685; obj: 1.347e+00; abs: 3.136e-02; rel: 2.384e-02; norm: 1.040e+00; mom: 8.238e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 686; obj: 1.325e+00; abs: 2.172e-02; rel: 1.612e-02; norm: 1.070e+00; mom: 7.961e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 687; obj: 1.331e+00; abs: 5.577e-03; rel: 4.208e-03; norm: 1.057e+00; mom: 7.829e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 688; obj: 1.330e+00; abs: 5.985e-04; rel: 4.497e-04; norm: 1.079e+00; mom: 8.034e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 689; obj: 1.355e+00; abs: 2.429e-02; rel: 1.826e-02; norm: 1.060e+00; mom: 8.008e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 690; obj: 1.349e+00; abs: 5.974e-03; rel: 4.410e-03; norm: 1.109e+00; mom: 8.016e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 691; obj: 1.353e+00; abs: 3.927e-03; rel: 2.911e-03; norm: 1.099e+00; mom: 8.143e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 692; obj: 1.340e+00; abs: 1.309e-02; rel: 9.676e-03; norm: 1.111e+00; mom: 8.269e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 693; obj: 1.342e+00; abs: 2.160e-03; rel: 1.612e-03; norm: 1.100e+00; mom: 8.157e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 694; obj: 1.337e+00; abs: 4.408e-03; rel: 3.285e-03; norm: 1.115e+00; mom: 8.148e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 695; obj: 1.348e+00; abs: 1.045e-02; rel: 7.815e-03; norm: 1.090e+00; mom: 8.165e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 696; obj: 1.351e+00; abs: 2.787e-03; rel: 2.068e-03; norm: 1.114e+00; mom: 8.175e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 697; obj: 1.365e+00; abs: 1.408e-02; rel: 1.043e-02; norm: 1.108e+00; mom: 8.146e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 698; obj: 1.349e+00; abs: 1.601e-02; rel: 1.173e-02; norm: 1.132e+00; mom: 8.300e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 699; obj: 1.349e+00; abs: 3.396e-04; rel: 2.518e-04; norm: 1.104e+00; mom: 8.299e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 700; obj: 1.326e+00; abs: 2.337e-02; rel: 1.733e-02; norm: 1.109e+00; mom: 8.285e+00;
#> best it: 112; best obj: 1.110e+00

```

## Iteration 700



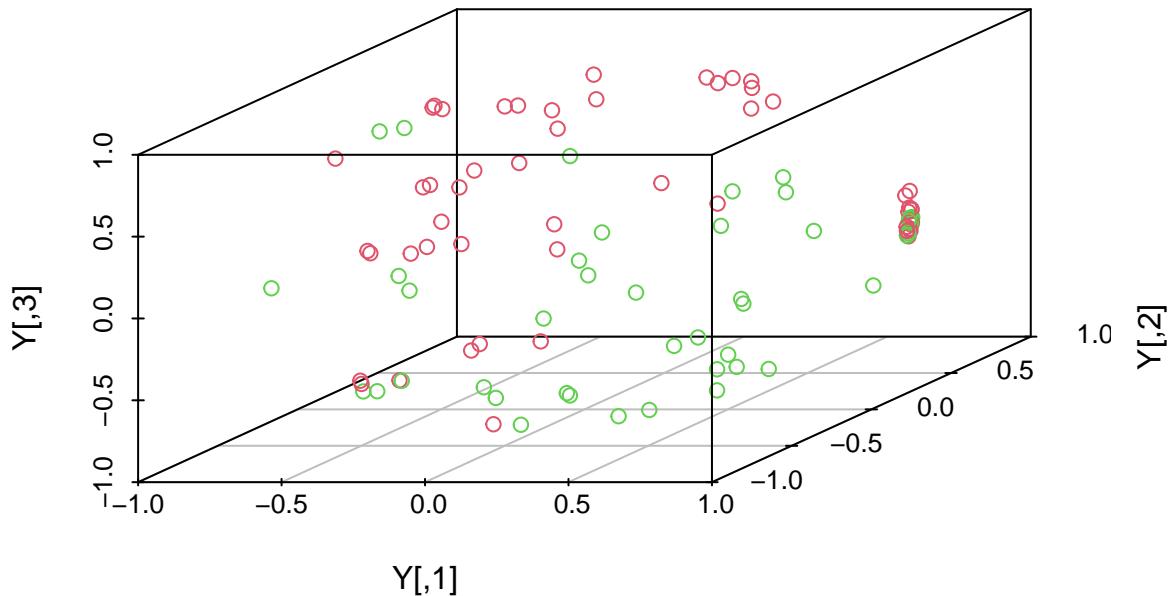
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#> It: 701; obj: 1.347e+00; abs: 2.166e-02; rel: 1.634e-02; norm: 1.052e+00; mom: 8.234e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 702; obj: 1.336e+00; abs: 1.078e-02; rel: 8.005e-03; norm: 1.069e+00; mom: 7.977e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 703; obj: 1.350e+00; abs: 1.379e-02; rel: 1.032e-02; norm: 1.061e+00; mom: 7.912e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 704; obj: 1.338e+00; abs: 1.178e-02; rel: 8.726e-03; norm: 1.104e+00; mom: 8.008e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 705; obj: 1.355e+00; abs: 1.672e-02; rel: 1.249e-02; norm: 1.084e+00; mom: 8.159e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 706; obj: 1.332e+00; abs: 2.339e-02; rel: 1.726e-02; norm: 1.117e+00; mom: 8.146e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 707; obj: 1.336e+00; abs: 4.448e-03; rel: 3.340e-03; norm: 1.066e+00; mom: 8.138e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 708; obj: 1.327e+00; abs: 8.866e-03; rel: 6.635e-03; norm: 1.075e+00; mom: 8.096e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 709; obj: 1.335e+00; abs: 7.765e-03; rel: 5.850e-03; norm: 1.061e+00; mom: 8.033e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 710; obj: 1.327e+00; abs: 7.838e-03; rel: 5.871e-03; norm: 1.083e+00; mom: 7.986e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 711; obj: 1.335e+00; abs: 7.389e-03; rel: 5.567e-03; norm: 1.051e+00; mom: 8.235e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 712; obj: 1.324e+00; abs: 1.054e-02; rel: 7.896e-03; norm: 1.072e+00; mom: 8.117e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 713; obj: 1.343e+00; abs: 1.925e-02; rel: 1.454e-02; norm: 1.053e+00; mom: 7.985e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 714; obj: 1.325e+00; abs: 1.868e-02; rel: 1.391e-02; norm: 1.086e+00; mom: 8.145e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 715; obj: 1.345e+00; abs: 2.041e-02; rel: 1.540e-02; norm: 1.056e+00; mom: 8.136e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 716; obj: 1.335e+00; abs: 1.054e-02; rel: 7.834e-03; norm: 1.078e+00; mom: 8.080e+00;
```

```

#> best it: 112; best obj: 1.110e+00
#> It: 717; obj: 1.343e+00; abs: 8.799e-03; rel: 6.593e-03; norm: 1.044e+00; mom: 7.997e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 718; obj: 1.318e+00; abs: 2.582e-02; rel: 1.922e-02; norm: 1.074e+00; mom: 7.973e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 719; obj: 1.337e+00; abs: 1.914e-02; rel: 1.452e-02; norm: 1.028e+00; mom: 8.056e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 720; obj: 1.349e+00; abs: 1.194e-02; rel: 8.929e-03; norm: 1.047e+00; mom: 8.030e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 721; obj: 1.354e+00; abs: 5.040e-03; rel: 3.737e-03; norm: 1.066e+00; mom: 7.982e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 722; obj: 1.330e+00; abs: 2.392e-02; rel: 1.767e-02; norm: 1.086e+00; mom: 8.290e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 723; obj: 1.353e+00; abs: 2.371e-02; rel: 1.783e-02; norm: 1.057e+00; mom: 8.138e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 724; obj: 1.326e+00; abs: 2.754e-02; rel: 2.035e-02; norm: 1.086e+00; mom: 8.030e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 725; obj: 1.363e+00; abs: 3.681e-02; rel: 2.776e-02; norm: 1.029e+00; mom: 8.121e+00;
#> best it: 112; best obj: 1.110e+00

```

## Iteration 725



```

#> It: 726; obj: 1.333e+00; abs: 2.926e-02; rel: 2.147e-02; norm: 1.097e+00; mom: 7.968e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 727; obj: 1.328e+00; abs: 5.100e-03; rel: 3.824e-03; norm: 1.040e+00; mom: 8.049e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 728; obj: 1.349e+00; abs: 2.088e-02; rel: 1.572e-02; norm: 1.060e+00; mom: 8.115e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 729; obj: 1.355e+00; abs: 5.257e-03; rel: 3.896e-03; norm: 1.062e+00; mom: 8.007e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 730; obj: 1.366e+00; abs: 1.120e-02; rel: 8.270e-03; norm: 1.086e+00; mom: 8.024e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 731; obj: 1.374e+00; abs: 8.488e-03; rel: 6.215e-03; norm: 1.080e+00; mom: 8.288e+00;
#> best it: 112; best obj: 1.110e+00

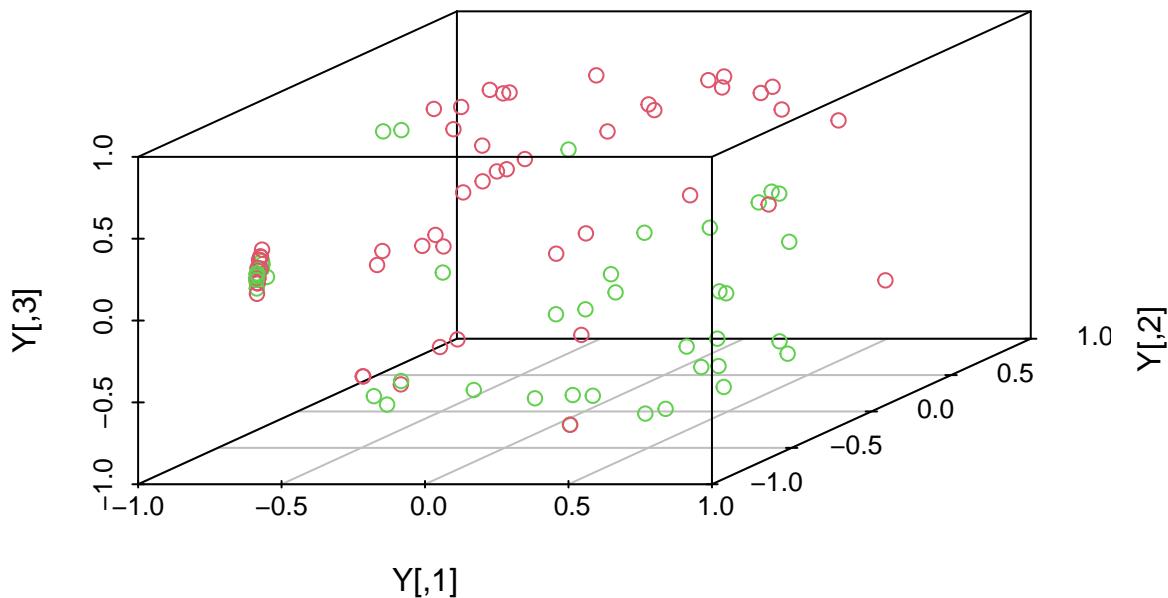
```

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#> It: 732; obj: 1.358e+00; abs: 1.620e-02; rel: 1.179e-02; norm: 1.083e+00; mom: 8.048e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 733; obj: 1.352e+00; abs: 6.115e-03; rel: 4.503e-03; norm: 1.064e+00; mom: 8.105e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 734; obj: 1.401e+00; abs: 4.864e-02; rel: 3.598e-02; norm: 1.088e+00; mom: 8.028e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 735; obj: 1.398e+00; abs: 2.092e-03; rel: 1.493e-03; norm: 1.143e+00; mom: 8.160e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 736; obj: 1.403e+00; abs: 4.450e-03; rel: 3.182e-03; norm: 1.181e+00; mom: 8.461e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 737; obj: 1.403e+00; abs: 1.276e-04; rel: 9.095e-05; norm: 1.175e+00; mom: 8.610e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 738; obj: 1.391e+00; abs: 1.179e-02; rel: 8.402e-03; norm: 1.181e+00; mom: 8.609e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 739; obj: 1.397e+00; abs: 5.857e-03; rel: 4.211e-03; norm: 1.159e+00; mom: 8.602e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 740; obj: 1.379e+00; abs: 1.746e-02; rel: 1.250e-02; norm: 1.174e+00; mom: 8.601e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 741; obj: 1.389e+00; abs: 9.206e-03; rel: 6.674e-03; norm: 1.140e+00; mom: 8.597e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 742; obj: 1.358e+00; abs: 3.027e-02; rel: 2.180e-02; norm: 1.156e+00; mom: 8.589e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 743; obj: 1.373e+00; abs: 1.435e-02; rel: 1.057e-02; norm: 1.101e+00; mom: 8.567e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 744; obj: 1.340e+00; abs: 3.304e-02; rel: 2.407e-02; norm: 1.121e+00; mom: 8.311e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 745; obj: 1.362e+00; abs: 2.274e-02; rel: 1.697e-02; norm: 1.077e+00; mom: 8.319e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 746; obj: 1.346e+00; abs: 1.672e-02; rel: 1.227e-02; norm: 1.099e+00; mom: 8.145e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 747; obj: 1.370e+00; abs: 2.402e-02; rel: 1.785e-02; norm: 1.074e+00; mom: 8.232e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 748; obj: 1.367e+00; abs: 2.291e-03; rel: 1.673e-03; norm: 1.119e+00; mom: 8.170e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 749; obj: 1.375e+00; abs: 7.633e-03; rel: 5.582e-03; norm: 1.098e+00; mom: 8.288e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 750; obj: 1.375e+00; abs: 2.892e-04; rel: 2.103e-04; norm: 1.131e+00; mom: 8.425e+00;
#> best it: 112; best obj: 1.110e+00

```

## Iteration 750



```

#> It: 751; obj: 1.387e+00; abs: 1.139e-02; rel: 8.284e-03; norm: 1.116e+00; mom: 8.298e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 752; obj: 1.366e+00; abs: 2.071e-02; rel: 1.493e-02; norm: 1.151e+00; mom: 8.298e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 753; obj: 1.384e+00; abs: 1.815e-02; rel: 1.328e-02; norm: 1.125e+00; mom: 8.445e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 754; obj: 1.355e+00; abs: 2.872e-02; rel: 2.075e-02; norm: 1.152e+00; mom: 8.444e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 755; obj: 1.380e+00; abs: 2.495e-02; rel: 1.841e-02; norm: 1.109e+00; mom: 8.432e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 756; obj: 1.342e+00; abs: 3.847e-02; rel: 2.787e-02; norm: 1.145e+00; mom: 8.302e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 757; obj: 1.372e+00; abs: 3.058e-02; rel: 2.279e-02; norm: 1.100e+00; mom: 8.319e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 758; obj: 1.345e+00; abs: 2.746e-02; rel: 2.001e-02; norm: 1.138e+00; mom: 8.309e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 759; obj: 1.374e+00; abs: 2.881e-02; rel: 2.142e-02; norm: 1.103e+00; mom: 8.301e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 760; obj: 1.345e+00; abs: 2.879e-02; rel: 2.095e-02; norm: 1.140e+00; mom: 8.294e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 761; obj: 1.380e+00; abs: 3.516e-02; rel: 2.614e-02; norm: 1.096e+00; mom: 8.365e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 762; obj: 1.351e+00; abs: 2.882e-02; rel: 2.088e-02; norm: 1.141e+00; mom: 8.306e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 763; obj: 1.399e+00; abs: 4.806e-02; rel: 3.556e-02; norm: 1.104e+00; mom: 8.294e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 764; obj: 1.355e+00; abs: 4.422e-02; rel: 3.160e-02; norm: 1.161e+00; mom: 8.443e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 765; obj: 1.384e+00; abs: 2.888e-02; rel: 2.131e-02; norm: 1.111e+00; mom: 8.449e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 766; obj: 1.349e+00; abs: 3.526e-02; rel: 2.548e-02; norm: 1.147e+00; mom: 8.433e+00;

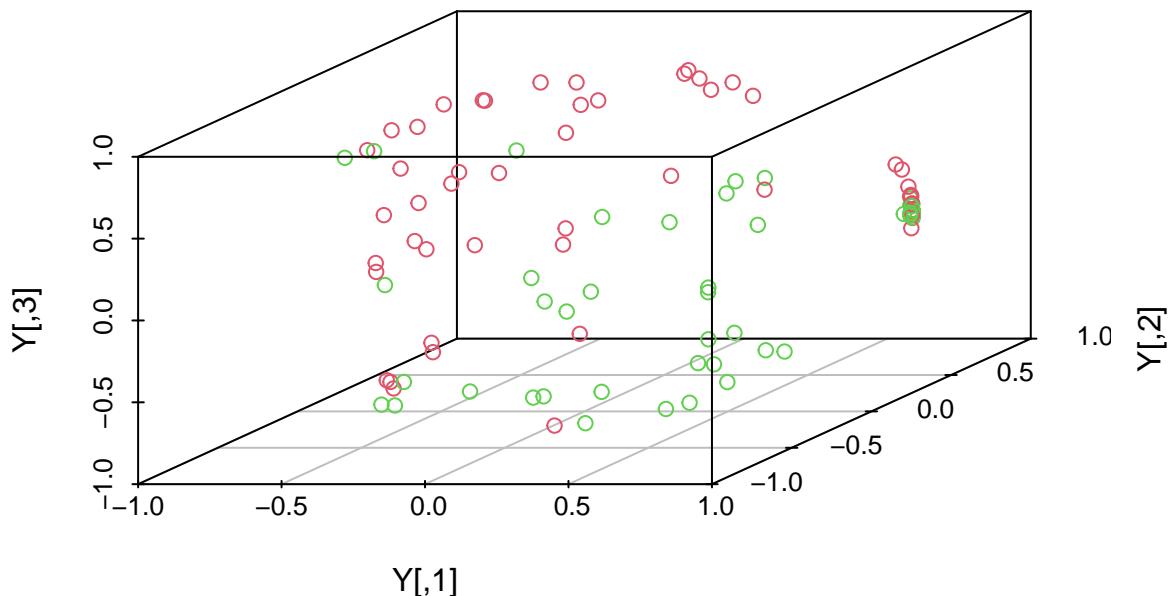
```

```

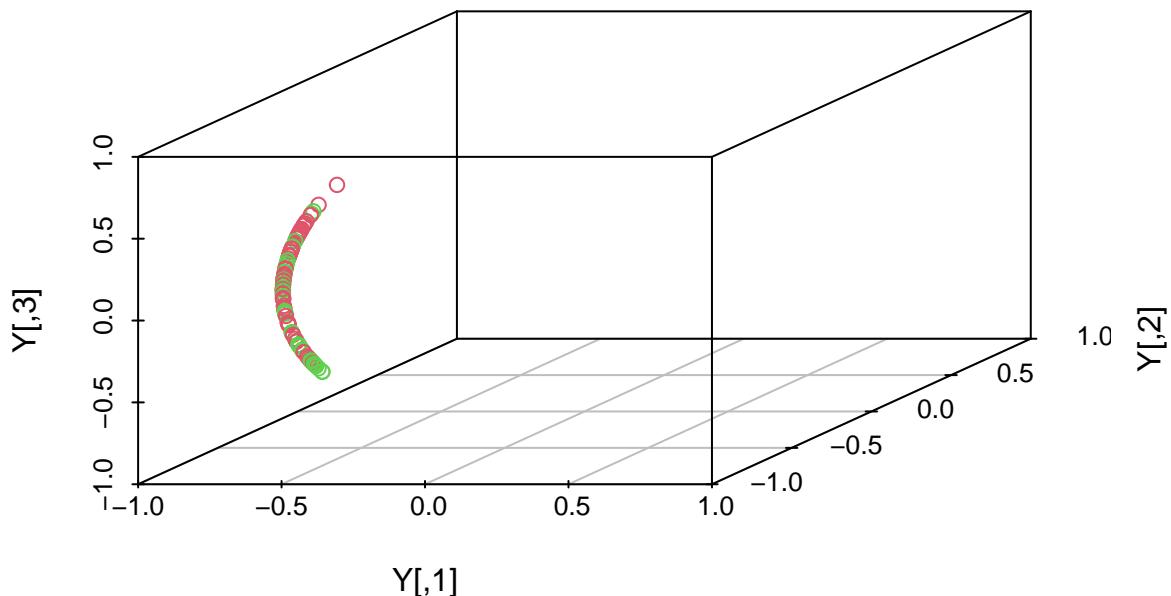
#> best it: 112; best obj: 1.110e+00
#> It: 767; obj: 1.385e+00; abs: 3.591e-02; rel: 2.662e-02; norm: 1.094e+00; mom: 8.307e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 768; obj: 1.348e+00; abs: 3.638e-02; rel: 2.627e-02; norm: 1.140e+00; mom: 8.328e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 769; obj: 1.390e+00; abs: 4.187e-02; rel: 3.106e-02; norm: 1.088e+00; mom: 8.308e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 770; obj: 1.354e+00; abs: 3.648e-02; rel: 2.624e-02; norm: 1.136e+00; mom: 8.359e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 771; obj: 1.399e+00; abs: 4.525e-02; rel: 3.343e-02; norm: 1.098e+00; mom: 8.307e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 772; obj: 1.354e+00; abs: 4.511e-02; rel: 3.225e-02; norm: 1.161e+00; mom: 8.295e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 773; obj: 1.391e+00; abs: 3.751e-02; rel: 2.771e-02; norm: 1.106e+00; mom: 8.443e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 774; obj: 1.353e+00; abs: 3.880e-02; rel: 2.789e-02; norm: 1.152e+00; mom: 8.440e+00;
#> best it: 112; best obj: 1.110e+00
#> It: 775; obj: 1.380e+00; abs: 2.777e-02; rel: 2.053e-02; norm: 1.098e+00; mom: 8.439e+00;
#> best it: 112; best obj: 1.110e+00

```

## Iteration 775



## Iteration 112



In this case, results show two groups antipodal in the sphere. There are some not well identified points but this is something expected since there are 95 points distributed uniformly. Let's visualize the results in the interactive sphere using `rgl`:

```
rgl::plot3d(0, 0, 0, xlim = c(-1, 1), ylim = c(-1, 1), zlim = c(-1, 1),
            radius = 1, type = "s", col = "lightblue", lit = FALSE)
rgl::points3d(psc_sne_res_32$best_Y, col = cols)
```

**A path in  $(\mathbb{S}^1)^{100}$  indexed by time.**

For example, generated by

$$\theta_i(t) = (\alpha_i + 2\pi k_i t) \mod 2\pi, \quad t \in [0, 1], k_i \in \mathbb{Z}, \alpha_i \in [0, 2\pi).$$

These are wrapped straight lines with different slopes and starting points.

```
n <- 100
r <- 100
x_s1_100_path <- r_path_s1r(n = n, r = r)
cols <- rainbow(n, alpha = 1)
# Change the order of the data
indexes <- sample(1:n)
x_s1_100_path <- x_s1_100_path[indexes, , ]
cols <- cols[indexes]
```

Now that we have created the data, we can calculate the rho based on a fixed perplexity.

```
rho_30_s1_100_path <- rho_optim_bst(x = x_s1_100_path, perp_fixed = 30,
                                         num_cores = num_cores_param)
##> Time difference of 39.5625 secs
```

First, let's reduce the dimension to the circumference:

```

psc_sne_res_41 <- psc_sne(X = x_s1_100_path, d = 1,
                           rho_psc_list = rho_30_s1_100_path, colors = cols,
                           show_prog = TRUE, num_iteration = 775, eta = 25,
                           parallel_cores = num_cores_param)
#> It: 1; obj: 1.085e+01; abs: 0.000e+00; rel: 0.000e+00; norm: 2.562e-01; mom: 0.000e+00;
#> best it: 1; best obj: 1.085e+01
#> It: 2; obj: 1.012e+01; abs: 7.321e-01; rel: 6.748e-02; norm: 4.204e-01; mom: 1.079e+00;
#> best it: 2; best obj: 1.012e+01
#> It: 3; obj: 9.423e+00; abs: 6.945e-01; rel: 6.865e-02; norm: 6.695e-01; mom: 1.465e+00;
#> best it: 3; best obj: 9.423e+00
#> It: 4; obj: 8.477e+00; abs: 9.454e-01; rel: 1.003e-01; norm: 8.890e-01; mom: 1.229e+00;
#> best it: 4; best obj: 8.477e+00
#> It: 5; obj: 7.824e+00; abs: 6.527e-01; rel: 7.700e-02; norm: 1.197e+00; mom: 1.402e+00;
#> best it: 5; best obj: 7.824e+00
#> It: 6; obj: 7.513e+00; abs: 3.111e-01; rel: 3.976e-02; norm: 1.405e+00; mom: 1.051e+00;
#> best it: 6; best obj: 7.513e+00
#> It: 7; obj: 7.407e+00; abs: 1.067e-01; rel: 1.421e-02; norm: 1.479e+00; mom: 7.450e-01;
#> best it: 7; best obj: 7.407e+00
#> It: 8; obj: 7.381e+00; abs: 2.521e-02; rel: 3.404e-03; norm: 1.518e+00; mom: 4.456e-01;
#> best it: 8; best obj: 7.381e+00
#> It: 9; obj: 7.347e+00; abs: 3.422e-02; rel: 4.636e-03; norm: 1.530e+00; mom: 2.414e-01;
#> best it: 9; best obj: 7.347e+00
#> It: 10; obj: 7.290e+00; abs: 5.698e-02; rel: 7.755e-03; norm: 1.537e+00; mom: 2.238e-01;
#> best it: 10; best obj: 7.290e+00
#> It: 11; obj: 7.224e+00; abs: 6.590e-02; rel: 9.039e-03; norm: 1.544e+00; mom: 2.222e-01;
#> best it: 11; best obj: 7.224e+00
#> It: 12; obj: 7.167e+00; abs: 5.692e-02; rel: 7.879e-03; norm: 1.550e+00; mom: 2.063e-01;
#> best it: 12; best obj: 7.167e+00
#> It: 13; obj: 7.126e+00; abs: 4.130e-02; rel: 5.762e-03; norm: 1.554e+00; mom: 1.747e-01;
#> best it: 13; best obj: 7.126e+00
#> It: 14; obj: 7.098e+00; abs: 2.771e-02; rel: 3.889e-03; norm: 1.558e+00; mom: 1.393e-01;
#> best it: 14; best obj: 7.098e+00
#> It: 15; obj: 7.080e+00; abs: 1.793e-02; rel: 2.525e-03; norm: 1.563e+00; mom: 1.095e-01;
#> best it: 15; best obj: 7.080e+00
#> It: 16; obj: 7.069e+00; abs: 1.110e-02; rel: 1.567e-03; norm: 1.570e+00; mom: 8.849e-02;
#> best it: 16; best obj: 7.069e+00
#> It: 17; obj: 7.063e+00; abs: 6.400e-03; rel: 9.054e-04; norm: 1.579e+00; mom: 7.655e-02;
#> best it: 17; best obj: 7.063e+00
#> It: 18; obj: 7.060e+00; abs: 3.396e-03; rel: 4.808e-04; norm: 1.587e+00; mom: 6.773e-02;
#> best it: 18; best obj: 7.060e+00
#> It: 19; obj: 7.058e+00; abs: 1.647e-03; rel: 2.333e-04; norm: 1.596e+00; mom: 5.954e-02;
#> best it: 19; best obj: 7.058e+00
#> It: 20; obj: 7.057e+00; abs: 6.234e-04; rel: 8.833e-05; norm: 1.604e+00; mom: 5.361e-02;
#> best it: 20; best obj: 7.057e+00
#> It: 21; obj: 7.057e+00; abs: 8.675e-05; rel: 1.229e-05; norm: 1.612e+00; mom: 5.059e-02;
#> best it: 20; best obj: 7.057e+00
#> It: 22; obj: 7.058e+00; abs: 6.890e-04; rel: 9.763e-05; norm: 1.620e+00; mom: 4.939e-02;
#> best it: 20; best obj: 7.057e+00
#> It: 23; obj: 7.059e+00; abs: 1.253e-03; rel: 1.776e-04; norm: 1.628e+00; mom: 4.884e-02;
#> best it: 20; best obj: 7.057e+00
#> It: 24; obj: 7.061e+00; abs: 1.795e-03; rel: 2.542e-04; norm: 1.636e+00; mom: 4.840e-02;
#> best it: 20; best obj: 7.057e+00
#> It: 25; obj: 7.063e+00; abs: 2.311e-03; rel: 3.273e-04; norm: 1.644e+00; mom: 4.793e-02;

```

```

#> best it: 20; best obj: 7.057e+00
#> It: 26; obj: 7.066e+00; abs: 2.797e-03; rel: 3.960e-04; norm: 1.652e+00; mom: 4.742e-02;
#> best it: 20; best obj: 7.057e+00
#> It: 27; obj: 7.069e+00; abs: 3.248e-03; rel: 4.597e-04; norm: 1.660e+00; mom: 4.688e-02;
#> best it: 20; best obj: 7.057e+00
#> It: 28; obj: 7.073e+00; abs: 3.663e-03; rel: 5.181e-04; norm: 1.667e+00; mom: 4.631e-02;
#> best it: 20; best obj: 7.057e+00
#> It: 29; obj: 7.077e+00; abs: 4.040e-03; rel: 5.711e-04; norm: 1.675e+00; mom: 4.573e-02;
#> best it: 20; best obj: 7.057e+00
#> It: 30; obj: 7.081e+00; abs: 4.379e-03; rel: 6.188e-04; norm: 1.683e+00; mom: 4.515e-02;
#> best it: 20; best obj: 7.057e+00
#> It: 31; obj: 7.086e+00; abs: 4.682e-03; rel: 6.612e-04; norm: 1.690e+00; mom: 4.457e-02;
#> best it: 20; best obj: 7.057e+00
#> It: 32; obj: 7.091e+00; abs: 4.952e-03; rel: 6.988e-04; norm: 1.698e+00; mom: 4.399e-02;
#> best it: 20; best obj: 7.057e+00
#> It: 33; obj: 7.096e+00; abs: 5.191e-03; rel: 7.320e-04; norm: 1.705e+00; mom: 4.344e-02;
#> best it: 20; best obj: 7.057e+00
#> It: 34; obj: 7.102e+00; abs: 5.402e-03; rel: 7.612e-04; norm: 1.712e+00; mom: 4.290e-02;
#> best it: 20; best obj: 7.057e+00
#> It: 35; obj: 7.107e+00; abs: 5.589e-03; rel: 7.870e-04; norm: 1.719e+00; mom: 4.239e-02;
#> best it: 20; best obj: 7.057e+00
#> It: 36; obj: 7.113e+00; abs: 5.755e-03; rel: 8.097e-04; norm: 1.725e+00; mom: 4.191e-02;
#> best it: 20; best obj: 7.057e+00
#> It: 37; obj: 7.119e+00; abs: 5.903e-03; rel: 8.299e-04; norm: 1.732e+00; mom: 4.146e-02;
#> best it: 20; best obj: 7.057e+00
#> It: 38; obj: 7.125e+00; abs: 6.036e-03; rel: 8.479e-04; norm: 1.738e+00; mom: 4.104e-02;
#> best it: 20; best obj: 7.057e+00
#> It: 39; obj: 7.131e+00; abs: 6.157e-03; rel: 8.641e-04; norm: 1.744e+00; mom: 4.064e-02;
#> best it: 20; best obj: 7.057e+00
#> It: 40; obj: 7.137e+00; abs: 6.266e-03; rel: 8.787e-04; norm: 1.750e+00; mom: 4.026e-02;
#> best it: 20; best obj: 7.057e+00
#> It: 41; obj: 7.144e+00; abs: 6.366e-03; rel: 8.919e-04; norm: 1.756e+00; mom: 3.991e-02;
#> best it: 20; best obj: 7.057e+00
#> It: 42; obj: 7.150e+00; abs: 6.459e-03; rel: 9.041e-04; norm: 1.761e+00; mom: 3.957e-02;
#> best it: 20; best obj: 7.057e+00
#> It: 43; obj: 7.157e+00; abs: 6.544e-03; rel: 9.152e-04; norm: 1.767e+00; mom: 3.925e-02;
#> best it: 20; best obj: 7.057e+00
#> It: 44; obj: 7.163e+00; abs: 6.624e-03; rel: 9.255e-04; norm: 1.772e+00; mom: 3.894e-02;
#> best it: 20; best obj: 7.057e+00
#> It: 45; obj: 7.170e+00; abs: 6.698e-03; rel: 9.350e-04; norm: 1.777e+00; mom: 3.864e-02;
#> best it: 20; best obj: 7.057e+00
#> It: 46; obj: 7.177e+00; abs: 6.767e-03; rel: 9.438e-04; norm: 1.782e+00; mom: 3.834e-02;
#> best it: 20; best obj: 7.057e+00
#> It: 47; obj: 7.184e+00; abs: 6.832e-03; rel: 9.520e-04; norm: 1.786e+00; mom: 3.806e-02;
#> best it: 20; best obj: 7.057e+00
#> It: 48; obj: 7.191e+00; abs: 6.893e-03; rel: 9.595e-04; norm: 1.791e+00; mom: 3.778e-02;
#> best it: 20; best obj: 7.057e+00
#> It: 49; obj: 7.198e+00; abs: 6.950e-03; rel: 9.665e-04; norm: 1.795e+00; mom: 3.750e-02;
#> best it: 20; best obj: 7.057e+00
#> It: 50; obj: 7.205e+00; abs: 7.002e-03; rel: 9.729e-04; norm: 1.799e+00; mom: 3.722e-02;
#> best it: 20; best obj: 7.057e+00
#> It: 51; obj: 7.212e+00; abs: 7.051e-03; rel: 9.788e-04; norm: 1.803e+00; mom: 3.695e-02;
#> best it: 20; best obj: 7.057e+00

```

```

#> It: 52; obj: 7.219e+00; abs: 7.097e-03; rel: 9.841e-04; norm: 1.807e+00; mom: 3.667e-02;
#> best it: 20; best obj: 7.057e+00
#> It: 53; obj: 7.226e+00; abs: 7.139e-03; rel: 9.890e-04; norm: 1.810e+00; mom: 3.640e-02;
#> best it: 20; best obj: 7.057e+00
#> It: 54; obj: 7.233e+00; abs: 7.178e-03; rel: 9.933e-04; norm: 1.814e+00; mom: 3.612e-02;
#> best it: 20; best obj: 7.057e+00
#> It: 55; obj: 7.240e+00; abs: 7.213e-03; rel: 9.972e-04; norm: 1.817e+00; mom: 3.585e-02;
#> best it: 20; best obj: 7.057e+00
#> It: 56; obj: 7.247e+00; abs: 7.245e-03; rel: 1.001e-03; norm: 1.820e+00; mom: 3.557e-02;
#> best it: 20; best obj: 7.057e+00
#> It: 57; obj: 7.255e+00; abs: 7.274e-03; rel: 1.004e-03; norm: 1.823e+00; mom: 3.530e-02;
#> best it: 20; best obj: 7.057e+00
#> It: 58; obj: 7.262e+00; abs: 7.300e-03; rel: 1.006e-03; norm: 1.826e+00; mom: 3.502e-02;
#> best it: 20; best obj: 7.057e+00
#> It: 59; obj: 7.269e+00; abs: 7.323e-03; rel: 1.008e-03; norm: 1.828e+00; mom: 3.473e-02;
#> best it: 20; best obj: 7.057e+00
#> It: 60; obj: 7.277e+00; abs: 7.344e-03; rel: 1.010e-03; norm: 1.831e+00; mom: 3.445e-02;
#> best it: 20; best obj: 7.057e+00
#> It: 61; obj: 7.284e+00; abs: 7.361e-03; rel: 1.012e-03; norm: 1.833e+00; mom: 3.417e-02;
#> best it: 20; best obj: 7.057e+00
#> It: 62; obj: 7.291e+00; abs: 7.376e-03; rel: 1.013e-03; norm: 1.836e+00; mom: 3.388e-02;
#> best it: 20; best obj: 7.057e+00
#> It: 63; obj: 7.299e+00; abs: 7.388e-03; rel: 1.013e-03; norm: 1.838e+00; mom: 3.359e-02;
#> best it: 20; best obj: 7.057e+00
#> It: 64; obj: 7.306e+00; abs: 7.398e-03; rel: 1.014e-03; norm: 1.840e+00; mom: 3.329e-02;
#> best it: 20; best obj: 7.057e+00
#> It: 65; obj: 7.314e+00; abs: 7.405e-03; rel: 1.014e-03; norm: 1.841e+00; mom: 3.300e-02;
#> best it: 20; best obj: 7.057e+00
#> It: 66; obj: 7.321e+00; abs: 7.410e-03; rel: 1.013e-03; norm: 1.843e+00; mom: 3.270e-02;
#> best it: 20; best obj: 7.057e+00
#> It: 67; obj: 7.328e+00; abs: 7.413e-03; rel: 1.013e-03; norm: 1.845e+00; mom: 3.240e-02;
#> best it: 20; best obj: 7.057e+00
#> It: 68; obj: 7.336e+00; abs: 7.413e-03; rel: 1.012e-03; norm: 1.846e+00; mom: 3.210e-02;
#> best it: 20; best obj: 7.057e+00
#> It: 69; obj: 7.343e+00; abs: 7.411e-03; rel: 1.010e-03; norm: 1.847e+00; mom: 3.180e-02;
#> best it: 20; best obj: 7.057e+00
#> It: 70; obj: 7.351e+00; abs: 7.407e-03; rel: 1.009e-03; norm: 1.849e+00; mom: 3.149e-02;
#> best it: 20; best obj: 7.057e+00
#> It: 71; obj: 7.358e+00; abs: 7.401e-03; rel: 1.007e-03; norm: 1.850e+00; mom: 3.118e-02;
#> best it: 20; best obj: 7.057e+00
#> It: 72; obj: 7.366e+00; abs: 7.393e-03; rel: 1.005e-03; norm: 1.851e+00; mom: 3.087e-02;
#> best it: 20; best obj: 7.057e+00
#> It: 73; obj: 7.373e+00; abs: 7.383e-03; rel: 1.002e-03; norm: 1.852e+00; mom: 3.055e-02;
#> best it: 20; best obj: 7.057e+00
#> It: 74; obj: 7.380e+00; abs: 7.371e-03; rel: 9.997e-04; norm: 1.852e+00; mom: 3.024e-02;
#> best it: 20; best obj: 7.057e+00
#> It: 75; obj: 7.388e+00; abs: 7.357e-03; rel: 9.968e-04; norm: 1.853e+00; mom: 2.992e-02;
#> best it: 20; best obj: 7.057e+00
#> It: 76; obj: 7.395e+00; abs: 7.341e-03; rel: 9.936e-04; norm: 1.853e+00; mom: 2.960e-02;
#> best it: 20; best obj: 7.057e+00
#> It: 77; obj: 7.402e+00; abs: 7.323e-03; rel: 9.903e-04; norm: 1.854e+00; mom: 2.928e-02;
#> best it: 20; best obj: 7.057e+00
#> It: 78; obj: 7.410e+00; abs: 7.303e-03; rel: 9.866e-04; norm: 1.854e+00; mom: 2.896e-02;

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#> best it: 20; best obj: 7.057e+00
#> It: 79; obj: 7.417e+00; abs: 7.282e-03; rel: 9.828e-04; norm: 1.854e+00; mom: 2.864e-02;
#> best it: 20; best obj: 7.057e+00
#> It: 80; obj: 7.424e+00; abs: 7.259e-03; rel: 9.787e-04; norm: 1.855e+00; mom: 2.831e-02;
#> best it: 20; best obj: 7.057e+00
#> It: 81; obj: 7.431e+00; abs: 7.234e-03; rel: 9.744e-04; norm: 1.855e+00; mom: 2.799e-02;
#> best it: 20; best obj: 7.057e+00
#> It: 82; obj: 7.439e+00; abs: 7.207e-03; rel: 9.699e-04; norm: 1.855e+00; mom: 2.766e-02;
#> best it: 20; best obj: 7.057e+00
#> It: 83; obj: 7.446e+00; abs: 7.179e-03; rel: 9.651e-04; norm: 1.854e+00; mom: 2.733e-02;
#> best it: 20; best obj: 7.057e+00
#> It: 84; obj: 7.453e+00; abs: 7.150e-03; rel: 9.602e-04; norm: 1.854e+00; mom: 2.701e-02;
#> best it: 20; best obj: 7.057e+00
#> It: 85; obj: 7.460e+00; abs: 7.118e-03; rel: 9.551e-04; norm: 1.854e+00; mom: 2.668e-02;
#> best it: 20; best obj: 7.057e+00
#> It: 86; obj: 7.467e+00; abs: 7.086e-03; rel: 9.498e-04; norm: 1.854e+00; mom: 2.635e-02;
#> best it: 20; best obj: 7.057e+00
#> It: 87; obj: 7.474e+00; abs: 7.051e-03; rel: 9.443e-04; norm: 1.853e+00; mom: 2.602e-02;
#> best it: 20; best obj: 7.057e+00
#> It: 88; obj: 7.481e+00; abs: 7.016e-03; rel: 9.387e-04; norm: 1.853e+00; mom: 2.569e-02;
#> best it: 20; best obj: 7.057e+00
#> It: 89; obj: 7.488e+00; abs: 6.979e-03; rel: 9.328e-04; norm: 1.852e+00; mom: 2.536e-02;
#> best it: 20; best obj: 7.057e+00
#> It: 90; obj: 7.495e+00; abs: 6.940e-03; rel: 9.268e-04; norm: 1.851e+00; mom: 2.504e-02;
#> best it: 20; best obj: 7.057e+00
#> It: 91; obj: 7.502e+00; abs: 6.901e-03; rel: 9.207e-04; norm: 1.851e+00; mom: 2.471e-02;
#> best it: 20; best obj: 7.057e+00
#> It: 92; obj: 7.509e+00; abs: 6.860e-03; rel: 9.144e-04; norm: 1.850e+00; mom: 2.438e-02;
#> best it: 20; best obj: 7.057e+00
#> It: 93; obj: 7.516e+00; abs: 6.817e-03; rel: 9.079e-04; norm: 1.849e+00; mom: 2.406e-02;
#> best it: 20; best obj: 7.057e+00
#> It: 94; obj: 7.522e+00; abs: 6.774e-03; rel: 9.013e-04; norm: 1.848e+00; mom: 2.373e-02;
#> best it: 20; best obj: 7.057e+00
#> It: 95; obj: 7.529e+00; abs: 6.729e-03; rel: 8.946e-04; norm: 1.847e+00; mom: 2.341e-02;
#> best it: 20; best obj: 7.057e+00
#> It: 96; obj: 7.536e+00; abs: 6.684e-03; rel: 8.877e-04; norm: 1.846e+00; mom: 2.308e-02;
#> best it: 20; best obj: 7.057e+00
#> It: 97; obj: 7.542e+00; abs: 6.637e-03; rel: 8.807e-04; norm: 1.845e+00; mom: 2.276e-02;
#> best it: 20; best obj: 7.057e+00
#> It: 98; obj: 7.549e+00; abs: 6.589e-03; rel: 8.736e-04; norm: 1.844e+00; mom: 2.244e-02;
#> best it: 20; best obj: 7.057e+00
#> It: 99; obj: 7.556e+00; abs: 6.540e-03; rel: 8.664e-04; norm: 1.843e+00; mom: 2.212e-02;
#> best it: 20; best obj: 7.057e+00
#> It: 100; obj: 7.562e+00; abs: 6.490e-03; rel: 8.590e-04; norm: 1.842e+00; mom: 2.180e-02;
#> best it: 20; best obj: 7.057e+00
#> It: 101; obj: 4.815e-01; abs: 7.081e+00; rel: 9.363e-01; norm: 1.985e-01; mom: 2.149e-02;
#> best it: 101; best obj: 4.815e-01
#> It: 102; obj: 4.563e-01; abs: 2.516e-02; rel: 5.225e-02; norm: 2.006e-01; mom: 3.074e-01;
#> best it: 102; best obj: 4.563e-01
#> It: 103; obj: 4.346e-01; abs: 2.176e-02; rel: 4.768e-02; norm: 2.014e-01; mom: 3.740e-01;
#> best it: 103; best obj: 4.346e-01
#> It: 104; obj: 4.167e-01; abs: 1.788e-02; rel: 4.114e-02; norm: 2.000e-01; mom: 3.484e-01;
#> best it: 104; best obj: 4.167e-01

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#> It: 105; obj: 4.022e-01; abs: 1.449e-02; rel: 3.477e-02; norm: 1.971e-01; mom: 3.066e-01;
#> best it: 105; best obj: 4.022e-01
#> It: 106; obj: 3.905e-01; abs: 1.164e-02; rel: 2.895e-02; norm: 1.937e-01; mom: 2.688e-01;
#> best it: 106; best obj: 3.905e-01
#> It: 107; obj: 3.813e-01; abs: 9.228e-03; rel: 2.363e-02; norm: 1.903e-01; mom: 2.358e-01;
#> best it: 107; best obj: 3.813e-01
#> It: 108; obj: 3.742e-01; abs: 7.160e-03; rel: 1.878e-02; norm: 1.872e-01; mom: 2.058e-01;
#> best it: 108; best obj: 3.742e-01
#> It: 109; obj: 3.688e-01; abs: 5.404e-03; rel: 1.444e-02; norm: 1.846e-01; mom: 1.780e-01;
#> best it: 109; best obj: 3.688e-01
#> It: 110; obj: 3.648e-01; abs: 3.946e-03; rel: 1.070e-02; norm: 1.824e-01; mom: 1.523e-01;
#> best it: 110; best obj: 3.648e-01
#> It: 111; obj: 3.620e-01; abs: 2.778e-03; rel: 7.616e-03; norm: 1.808e-01; mom: 1.289e-01;
#> best it: 111; best obj: 3.620e-01
#> It: 112; obj: 3.601e-01; abs: 1.886e-03; rel: 5.210e-03; norm: 1.795e-01; mom: 1.078e-01;
#> best it: 112; best obj: 3.601e-01
#> It: 113; obj: 3.589e-01; abs: 1.238e-03; rel: 3.436e-03; norm: 1.785e-01; mom: 8.905e-02;
#> best it: 113; best obj: 3.589e-01
#> It: 114; obj: 3.581e-01; abs: 7.879e-04; rel: 2.195e-03; norm: 1.778e-01; mom: 7.268e-02;
#> best it: 114; best obj: 3.581e-01
#> It: 115; obj: 3.576e-01; abs: 4.889e-04; rel: 1.365e-03; norm: 1.772e-01; mom: 5.861e-02;
#> best it: 115; best obj: 3.576e-01
#> It: 116; obj: 3.573e-01; abs: 2.970e-04; rel: 8.305e-04; norm: 1.768e-01; mom: 4.671e-02;
#> best it: 116; best obj: 3.573e-01
#> It: 117; obj: 3.572e-01; abs: 1.774e-04; rel: 4.965e-04; norm: 1.765e-01; mom: 3.682e-02;
#> best it: 117; best obj: 3.572e-01
#> It: 118; obj: 3.571e-01; abs: 1.046e-04; rel: 2.928e-04; norm: 1.763e-01; mom: 2.874e-02;
#> best it: 118; best obj: 3.571e-01
#> It: 119; obj: 3.570e-01; abs: 6.099e-05; rel: 1.708e-04; norm: 1.762e-01; mom: 2.225e-02;
#> best it: 119; best obj: 3.570e-01
#> It: 120; obj: 3.570e-01; abs: 3.528e-05; rel: 9.883e-05; norm: 1.761e-01; mom: 1.711e-02;
#> best it: 120; best obj: 3.570e-01
#> It: 121; obj: 3.569e-01; abs: 2.028e-05; rel: 5.682e-05; norm: 1.760e-01; mom: 1.308e-02;
#> best it: 121; best obj: 3.569e-01
#> It: 122; obj: 3.569e-01; abs: 1.160e-05; rel: 3.250e-05; norm: 1.759e-01; mom: 9.962e-03;
#> best it: 122; best obj: 3.569e-01
#> It: 123; obj: 3.569e-01; abs: 6.612e-06; rel: 1.853e-05; norm: 1.759e-01; mom: 7.561e-03;
#> best it: 123; best obj: 3.569e-01
#> It: 124; obj: 3.569e-01; abs: 3.758e-06; rel: 1.053e-05; norm: 1.759e-01; mom: 5.725e-03;
#> best it: 124; best obj: 3.569e-01
#> It: 125; obj: 3.569e-01; abs: 2.131e-06; rel: 5.972e-06; norm: 1.758e-01; mom: 4.326e-03;
#> best it: 125; best obj: 3.569e-01
#> It: 126; obj: 3.569e-01; abs: 1.207e-06; rel: 3.382e-06; norm: 1.758e-01; mom: 3.265e-03;
#> best it: 126; best obj: 3.569e-01
#> It: 127; obj: 3.569e-01; abs: 6.827e-07; rel: 1.913e-06; norm: 1.758e-01; mom: 2.461e-03;
#> best it: 127; best obj: 3.569e-01
#> It: 128; obj: 3.569e-01; abs: 3.859e-07; rel: 1.081e-06; norm: 1.758e-01; mom: 1.854e-03;
#> best it: 128; best obj: 3.569e-01
#> It: 129; obj: 3.569e-01; abs: 2.179e-07; rel: 6.106e-07; norm: 1.758e-01; mom: 1.395e-03;
#> best it: 129; best obj: 3.569e-01
#> It: 130; obj: 3.569e-01; abs: 1.230e-07; rel: 3.447e-07; norm: 1.758e-01; mom: 1.050e-03;
#> best it: 130; best obj: 3.569e-01
#> It: 131; obj: 3.569e-01; abs: 6.944e-08; rel: 1.946e-07; norm: 1.758e-01; mom: 7.898e-04;

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#> best it: 131; best obj: 3.569e-01
#> It: 132; obj: 3.569e-01; abs: 3.918e-08; rel: 1.098e-07; norm: 1.758e-01; mom: 5.940e-04;
#> best it: 132; best obj: 3.569e-01
#> It: 133; obj: 3.569e-01; abs: 2.211e-08; rel: 6.193e-08; norm: 1.758e-01; mom: 4.466e-04;
#> best it: 133; best obj: 3.569e-01
#> It: 134; obj: 3.569e-01; abs: 1.247e-08; rel: 3.494e-08; norm: 1.758e-01; mom: 3.358e-04;
#> best it: 134; best obj: 3.569e-01
#> It: 135; obj: 3.569e-01; abs: 7.033e-09; rel: 1.971e-08; norm: 1.758e-01; mom: 2.524e-04;
#> best it: 135; best obj: 3.569e-01
#> It: 136; obj: 3.569e-01; abs: 3.967e-09; rel: 1.111e-08; norm: 1.758e-01; mom: 1.897e-04;
#> best it: 136; best obj: 3.569e-01
#> It: 137; obj: 3.569e-01; abs: 2.237e-09; rel: 6.268e-09; norm: 1.758e-01; mom: 1.426e-04;
#> best it: 137; best obj: 3.569e-01
#> It: 138; obj: 3.569e-01; abs: 1.262e-09; rel: 3.535e-09; norm: 1.758e-01; mom: 1.072e-04;
#> best it: 138; best obj: 3.569e-01
#> It: 139; obj: 3.569e-01; abs: 7.115e-10; rel: 1.994e-09; norm: 1.758e-01; mom: 8.054e-05;
#> best it: 139; best obj: 3.569e-01
#> It: 140; obj: 3.569e-01; abs: 4.013e-10; rel: 1.124e-09; norm: 1.758e-01; mom: 6.052e-05;
#> best it: 140; best obj: 3.569e-01
#> It: 141; obj: 3.569e-01; abs: 2.263e-10; rel: 6.341e-10; norm: 1.758e-01; mom: 4.548e-05;
#> best it: 141; best obj: 3.569e-01
#> It: 142; obj: 3.569e-01; abs: 1.276e-10; rel: 3.576e-10; norm: 1.758e-01; mom: 3.418e-05;
#> best it: 142; best obj: 3.569e-01
#> It: 143; obj: 3.569e-01; abs: 7.198e-11; rel: 2.017e-10; norm: 1.758e-01; mom: 2.568e-05;
#> best it: 143; best obj: 3.569e-01
#> It: 144; obj: 3.569e-01; abs: 4.059e-11; rel: 1.137e-10; norm: 1.758e-01; mom: 1.930e-05;
#> best it: 144; best obj: 3.569e-01
#> It: 145; obj: 3.569e-01; abs: 2.289e-11; rel: 6.413e-11; norm: 1.758e-01; mom: 1.450e-05;
#> best it: 145; best obj: 3.569e-01
#> It: 146; obj: 3.569e-01; abs: 1.291e-11; rel: 3.617e-11; norm: 1.758e-01; mom: 1.090e-05;
#> best it: 146; best obj: 3.569e-01
#> It: 147; obj: 3.569e-01; abs: 7.281e-12; rel: 2.040e-11; norm: 1.758e-01; mom: 8.188e-06;
#> best it: 147; best obj: 3.569e-01
#> It: 148; obj: 3.569e-01; abs: 4.109e-12; rel: 1.151e-11; norm: 1.758e-01; mom: 6.152e-06;
#> best it: 148; best obj: 3.569e-01
#> It: 149; obj: 3.569e-01; abs: 2.317e-12; rel: 6.492e-12; norm: 1.758e-01; mom: 4.622e-06;
#> best it: 149; best obj: 3.569e-01
#> It: 150; obj: 3.569e-01; abs: 1.303e-12; rel: 3.651e-12; norm: 1.758e-01; mom: 3.473e-06;
#> best it: 150; best obj: 3.569e-01
#> It: 151; obj: 3.569e-01; abs: 7.351e-13; rel: 2.060e-12; norm: 1.758e-01; mom: 2.609e-06;
#> best it: 151; best obj: 3.569e-01
#> It: 152; obj: 3.569e-01; abs: 4.191e-13; rel: 1.174e-12; norm: 1.758e-01; mom: 1.961e-06;
#> best it: 152; best obj: 3.569e-01
#> It: 153; obj: 3.569e-01; abs: 2.360e-13; rel: 6.613e-13; norm: 1.758e-01; mom: 1.473e-06;
#> best it: 153; best obj: 3.569e-01
#> It: 154; obj: 3.569e-01; abs: 1.287e-13; rel: 3.605e-13; norm: 1.758e-01; mom: 1.107e-06;
#> best it: 154; best obj: 3.569e-01
#> It: 155; obj: 3.569e-01; abs: 7.305e-14; rel: 2.047e-13; norm: 1.758e-01; mom: 8.315e-07;
#> best it: 155; best obj: 3.569e-01
#> It: 156; obj: 3.569e-01; abs: 4.674e-14; rel: 1.310e-13; norm: 1.758e-01; mom: 6.247e-07;
#> best it: 156; best obj: 3.569e-01
#> It: 157; obj: 3.569e-01; abs: 2.193e-14; rel: 6.144e-14; norm: 1.758e-01; mom: 4.693e-07;
#> best it: 157; best obj: 3.569e-01

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#> It: 158; obj: 3.569e-01; abs: 1.549e-14; rel: 4.339e-14; norm: 1.758e-01; mom: 3.526e-07;
#> best it: 158; best obj: 3.569e-01
#> It: 159; obj: 3.569e-01; abs: 9.159e-15; rel: 2.566e-14; norm: 1.758e-01; mom: 2.649e-07;
#> best it: 159; best obj: 3.569e-01
#> It: 160; obj: 3.569e-01; abs: 1.110e-15; rel: 3.111e-15; norm: 1.758e-01; mom: 1.990e-07;
#> best it: 159; best obj: 3.569e-01
#> It: 161; obj: 3.569e-01; abs: 4.274e-15; rel: 1.198e-14; norm: 1.758e-01; mom: 1.495e-07;
#> best it: 161; best obj: 3.569e-01
#> It: 162; obj: 3.569e-01; abs: 0.000e+00; rel: 0.000e+00; norm: 1.758e-01; mom: 1.123e-07;
#> best it: 161; best obj: 3.569e-01
#> It: 163; obj: 3.569e-01; abs: 1.332e-15; rel: 3.733e-15; norm: 1.758e-01; mom: 8.438e-08;
#> best it: 161; best obj: 3.569e-01
#> It: 164; obj: 3.569e-01; abs: 1.443e-15; rel: 4.044e-15; norm: 1.758e-01; mom: 6.339e-08;
#> best it: 164; best obj: 3.569e-01
#> It: 165; obj: 3.569e-01; abs: 4.219e-15; rel: 1.182e-14; norm: 1.758e-01; mom: 4.762e-08;
#> best it: 165; best obj: 3.569e-01
#> It: 166; obj: 3.569e-01; abs: 1.776e-15; rel: 4.977e-15; norm: 1.758e-01; mom: 3.577e-08;
#> best it: 165; best obj: 3.569e-01
#> It: 167; obj: 3.569e-01; abs: 2.831e-15; rel: 7.932e-15; norm: 1.758e-01; mom: 2.687e-08;
#> best it: 165; best obj: 3.569e-01
#> It: 168; obj: 3.569e-01; abs: 3.053e-15; rel: 8.554e-15; norm: 1.758e-01; mom: 2.019e-08;
#> best it: 165; best obj: 3.569e-01
#> It: 169; obj: 3.569e-01; abs: 3.941e-15; rel: 1.104e-14; norm: 1.758e-01; mom: 1.516e-08;
#> best it: 169; best obj: 3.569e-01
#> It: 170; obj: 3.569e-01; abs: 5.662e-15; rel: 1.586e-14; norm: 1.758e-01; mom: 1.139e-08;
#> best it: 169; best obj: 3.569e-01
#> It: 171; obj: 3.569e-01; abs: 2.720e-15; rel: 7.621e-15; norm: 1.758e-01; mom: 8.557e-09;
#> best it: 169; best obj: 3.569e-01
#> It: 172; obj: 3.569e-01; abs: 1.388e-15; rel: 3.888e-15; norm: 1.758e-01; mom: 6.428e-09;
#> best it: 169; best obj: 3.569e-01
#> It: 173; obj: 3.569e-01; abs: 1.998e-15; rel: 5.599e-15; norm: 1.758e-01; mom: 4.828e-09;
#> best it: 169; best obj: 3.569e-01
#> It: 174; obj: 3.569e-01; abs: 3.886e-16; rel: 1.089e-15; norm: 1.758e-01; mom: 3.627e-09;
#> best it: 169; best obj: 3.569e-01
#> It: 175; obj: 3.569e-01; abs: 2.776e-15; rel: 7.777e-15; norm: 1.758e-01; mom: 2.724e-09;
#> best it: 169; best obj: 3.569e-01
#> It: 176; obj: 3.569e-01; abs: 7.438e-15; rel: 2.084e-14; norm: 1.758e-01; mom: 2.046e-09;
#> best it: 176; best obj: 3.569e-01
#> It: 177; obj: 3.569e-01; abs: 3.220e-15; rel: 9.021e-15; norm: 1.758e-01; mom: 1.537e-09;
#> best it: 176; best obj: 3.569e-01
#> It: 178; obj: 3.569e-01; abs: 3.331e-15; rel: 9.332e-15; norm: 1.758e-01; mom: 1.155e-09;
#> best it: 176; best obj: 3.569e-01
#> It: 179; obj: 3.569e-01; abs: 2.720e-15; rel: 7.621e-15; norm: 1.758e-01; mom: 8.674e-10;
#> best it: 176; best obj: 3.569e-01
#> It: 180; obj: 3.569e-01; abs: 7.216e-16; rel: 2.022e-15; norm: 1.758e-01; mom: 6.515e-10;
#> best it: 176; best obj: 3.569e-01
#> It: 181; obj: 3.569e-01; abs: 2.220e-15; rel: 6.221e-15; norm: 1.758e-01; mom: 4.894e-10;
#> best it: 176; best obj: 3.569e-01
#> It: 182; obj: 3.569e-01; abs: 2.109e-15; rel: 5.910e-15; norm: 1.758e-01; mom: 3.676e-10;
#> best it: 176; best obj: 3.569e-01
#> It: 183; obj: 3.569e-01; abs: 1.277e-15; rel: 3.577e-15; norm: 1.758e-01; mom: 2.761e-10;
#> best it: 176; best obj: 3.569e-01
#> It: 184; obj: 3.569e-01; abs: 1.110e-16; rel: 3.111e-16; norm: 1.758e-01; mom: 2.074e-10;

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#> best it: 176; best obj: 3.569e-01
#> It: 185; obj: 3.569e-01; abs: 1.943e-15; rel: 5.444e-15; norm: 1.758e-01; mom: 1.558e-10;
#> best it: 176; best obj: 3.569e-01
#> It: 186; obj: 3.569e-01; abs: 4.885e-15; rel: 1.369e-14; norm: 1.758e-01; mom: 1.170e-10;
#> best it: 176; best obj: 3.569e-01
#> It: 187; obj: 3.569e-01; abs: 6.661e-16; rel: 1.866e-15; norm: 1.758e-01; mom: 8.789e-11;
#> best it: 176; best obj: 3.569e-01
#> It: 188; obj: 3.569e-01; abs: 5.551e-17; rel: 1.555e-16; norm: 1.758e-01; mom: 6.601e-11;
#> best it: 176; best obj: 3.569e-01
#> It: 189; obj: 3.569e-01; abs: 8.882e-16; rel: 2.489e-15; norm: 1.758e-01; mom: 4.958e-11;
#> best it: 176; best obj: 3.569e-01
#> It: 190; obj: 3.569e-01; abs: 6.106e-16; rel: 1.711e-15; norm: 1.758e-01; mom: 3.724e-11;
#> best it: 176; best obj: 3.569e-01
#> It: 191; obj: 3.569e-01; abs: 2.998e-15; rel: 8.399e-15; norm: 1.758e-01; mom: 2.797e-11;
#> best it: 176; best obj: 3.569e-01
#> It: 192; obj: 3.569e-01; abs: 1.499e-15; rel: 4.199e-15; norm: 1.758e-01; mom: 2.101e-11;
#> best it: 176; best obj: 3.569e-01
#> It: 193; obj: 3.569e-01; abs: 6.883e-15; rel: 1.929e-14; norm: 1.758e-01; mom: 1.578e-11;
#> best it: 176; best obj: 3.569e-01
#> It: 194; obj: 3.569e-01; abs: 5.940e-15; rel: 1.664e-14; norm: 1.758e-01; mom: 1.185e-11;
#> best it: 176; best obj: 3.569e-01
#> It: 195; obj: 3.569e-01; abs: 1.110e-15; rel: 3.111e-15; norm: 1.758e-01; mom: 8.903e-12;
#> best it: 176; best obj: 3.569e-01
#> It: 196; obj: 3.569e-01; abs: 6.495e-15; rel: 1.820e-14; norm: 1.758e-01; mom: 6.687e-12;
#> best it: 176; best obj: 3.569e-01
#> It: 197; obj: 3.569e-01; abs: 5.440e-15; rel: 1.524e-14; norm: 1.758e-01; mom: 5.022e-12;
#> best it: 176; best obj: 3.569e-01
#> It: 198; obj: 3.569e-01; abs: 3.220e-15; rel: 9.021e-15; norm: 1.758e-01; mom: 3.772e-12;
#> best it: 176; best obj: 3.569e-01
#> It: 199; obj: 3.569e-01; abs: 3.164e-15; rel: 8.865e-15; norm: 1.758e-01; mom: 2.833e-12;
#> best it: 176; best obj: 3.569e-01
#> It: 200; obj: 3.569e-01; abs: 3.997e-15; rel: 1.120e-14; norm: 1.758e-01; mom: 2.128e-12;
#> best it: 176; best obj: 3.569e-01
#> It: 201; obj: 3.569e-01; abs: 6.051e-15; rel: 1.695e-14; norm: 1.758e-01; mom: 1.598e-12;
#> best it: 176; best obj: 3.569e-01
#> It: 202; obj: 3.569e-01; abs: 1.665e-16; rel: 4.666e-16; norm: 1.758e-01; mom: 1.201e-12;
#> best it: 176; best obj: 3.569e-01
#> It: 203; obj: 3.569e-01; abs: 5.551e-17; rel: 1.555e-16; norm: 1.758e-01; mom: 9.018e-13;
#> best it: 176; best obj: 3.569e-01
#> It: 204; obj: 3.569e-01; abs: 2.220e-15; rel: 6.221e-15; norm: 1.758e-01; mom: 6.773e-13;
#> best it: 176; best obj: 3.569e-01
#> It: 205; obj: 3.569e-01; abs: 3.775e-15; rel: 1.058e-14; norm: 1.758e-01; mom: 5.087e-13;
#> best it: 176; best obj: 3.569e-01
#> It: 206; obj: 3.569e-01; abs: 6.106e-16; rel: 1.711e-15; norm: 1.758e-01; mom: 3.820e-13;
#> best it: 176; best obj: 3.569e-01
#> It: 207; obj: 3.569e-01; abs: 4.385e-15; rel: 1.229e-14; norm: 1.758e-01; mom: 2.869e-13;
#> best it: 176; best obj: 3.569e-01
#> It: 208; obj: 3.569e-01; abs: 3.775e-15; rel: 1.058e-14; norm: 1.758e-01; mom: 2.155e-13;
#> best it: 176; best obj: 3.569e-01
#> It: 209; obj: 3.569e-01; abs: 9.992e-16; rel: 2.800e-15; norm: 1.758e-01; mom: 1.618e-13;
#> best it: 176; best obj: 3.569e-01
#> It: 210; obj: 3.569e-01; abs: 1.721e-15; rel: 4.822e-15; norm: 1.758e-01; mom: 1.216e-13;
#> best it: 176; best obj: 3.569e-01

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#> It: 211; obj: 3.569e-01; abs: 4.996e-16; rel: 1.400e-15; norm: 1.758e-01; mom: 9.144e-14;
#> best it: 176; best obj: 3.569e-01
#> It: 212; obj: 3.569e-01; abs: 9.992e-16; rel: 2.800e-15; norm: 1.758e-01; mom: 6.876e-14;
#> best it: 176; best obj: 3.569e-01
#> It: 213; obj: 3.569e-01; abs: 4.441e-16; rel: 1.244e-15; norm: 1.758e-01; mom: 5.168e-14;
#> best it: 176; best obj: 3.569e-01
#> It: 214; obj: 3.569e-01; abs: 7.216e-16; rel: 2.022e-15; norm: 1.758e-01; mom: 3.883e-14;
#> best it: 176; best obj: 3.569e-01
#> It: 215; obj: 3.569e-01; abs: 2.220e-16; rel: 6.221e-16; norm: 1.758e-01; mom: 2.912e-14;
#> best it: 176; best obj: 3.569e-01
#> It: 216; obj: 3.569e-01; abs: 6.661e-16; rel: 1.866e-15; norm: 1.758e-01; mom: 2.182e-14;
#> best it: 176; best obj: 3.569e-01
#> It: 217; obj: 3.569e-01; abs: 1.665e-16; rel: 4.666e-16; norm: 1.758e-01; mom: 1.640e-14;
#> best it: 176; best obj: 3.569e-01
#> It: 218; obj: 3.569e-01; abs: 2.776e-16; rel: 7.777e-16; norm: 1.758e-01; mom: 1.230e-14;
#> best it: 176; best obj: 3.569e-01
#> It: 219; obj: 3.569e-01; abs: 6.661e-16; rel: 1.866e-15; norm: 1.758e-01; mom: 9.241e-15;
#> best it: 176; best obj: 3.569e-01
#> It: 220; obj: 3.569e-01; abs: 0.000e+00; rel: 0.000e+00; norm: 1.758e-01; mom: 6.961e-15;
#> best it: 176; best obj: 3.569e-01
#> It: 221; obj: 3.569e-01; abs: 1.110e-16; rel: 3.111e-16; norm: 1.758e-01; mom: 5.194e-15;
#> best it: 176; best obj: 3.569e-01
#> It: 222; obj: 3.569e-01; abs: 5.551e-17; rel: 1.555e-16; norm: 1.758e-01; mom: 3.935e-15;
#> best it: 176; best obj: 3.569e-01
#> It: 223; obj: 3.569e-01; abs: 1.665e-16; rel: 4.666e-16; norm: 1.758e-01; mom: 3.061e-15;
#> best it: 176; best obj: 3.569e-01
#> It: 224; obj: 3.569e-01; abs: 2.776e-16; rel: 7.777e-16; norm: 1.758e-01; mom: 2.325e-15;
#> best it: 176; best obj: 3.569e-01
#> It: 225; obj: 3.569e-01; abs: 1.110e-16; rel: 3.111e-16; norm: 1.758e-01; mom: 1.749e-15;
#> best it: 176; best obj: 3.569e-01
#> It: 226; obj: 3.569e-01; abs: 2.220e-16; rel: 6.221e-16; norm: 1.758e-01; mom: 1.299e-15;
#> best it: 176; best obj: 3.569e-01
#> It: 227; obj: 3.569e-01; abs: 5.551e-17; rel: 1.555e-16; norm: 1.758e-01; mom: 9.659e-16;
#> best it: 176; best obj: 3.569e-01
#> It: 228; obj: 3.569e-01; abs: 2.220e-16; rel: 6.221e-16; norm: 1.758e-01; mom: 7.742e-16;
#> best it: 176; best obj: 3.569e-01
#> It: 229; obj: 3.569e-01; abs: 5.551e-17; rel: 1.555e-16; norm: 1.758e-01; mom: 6.525e-16;
#> best it: 176; best obj: 3.569e-01
#> It: 230; obj: 3.569e-01; abs: 5.551e-17; rel: 1.555e-16; norm: 1.758e-01; mom: 5.256e-16;
#> best it: 176; best obj: 3.569e-01
#> It: 231; obj: 3.569e-01; abs: 5.551e-17; rel: 1.555e-16; norm: 1.758e-01; mom: 4.703e-16;
#> best it: 176; best obj: 3.569e-01
#> It: 232; obj: 3.569e-01; abs: 5.551e-17; rel: 1.555e-16; norm: 1.758e-01; mom: 3.742e-16;
#> best it: 176; best obj: 3.569e-01
#> It: 233; obj: 3.569e-01; abs: 1.665e-16; rel: 4.666e-16; norm: 1.758e-01; mom: 3.758e-16;
#> best it: 176; best obj: 3.569e-01
#> It: 234; obj: 3.569e-01; abs: 5.551e-17; rel: 1.555e-16; norm: 1.758e-01; mom: 3.425e-16;
#> best it: 176; best obj: 3.569e-01
#> It: 235; obj: 3.569e-01; abs: 5.551e-17; rel: 1.555e-16; norm: 1.758e-01; mom: 3.640e-16;
#> best it: 176; best obj: 3.569e-01
#> It: 236; obj: 3.569e-01; abs: 5.551e-17; rel: 1.555e-16; norm: 1.758e-01; mom: 3.436e-16;
#> best it: 176; best obj: 3.569e-01
#> It: 237; obj: 3.569e-01; abs: 1.665e-16; rel: 4.666e-16; norm: 1.758e-01; mom: 2.950e-16;

```







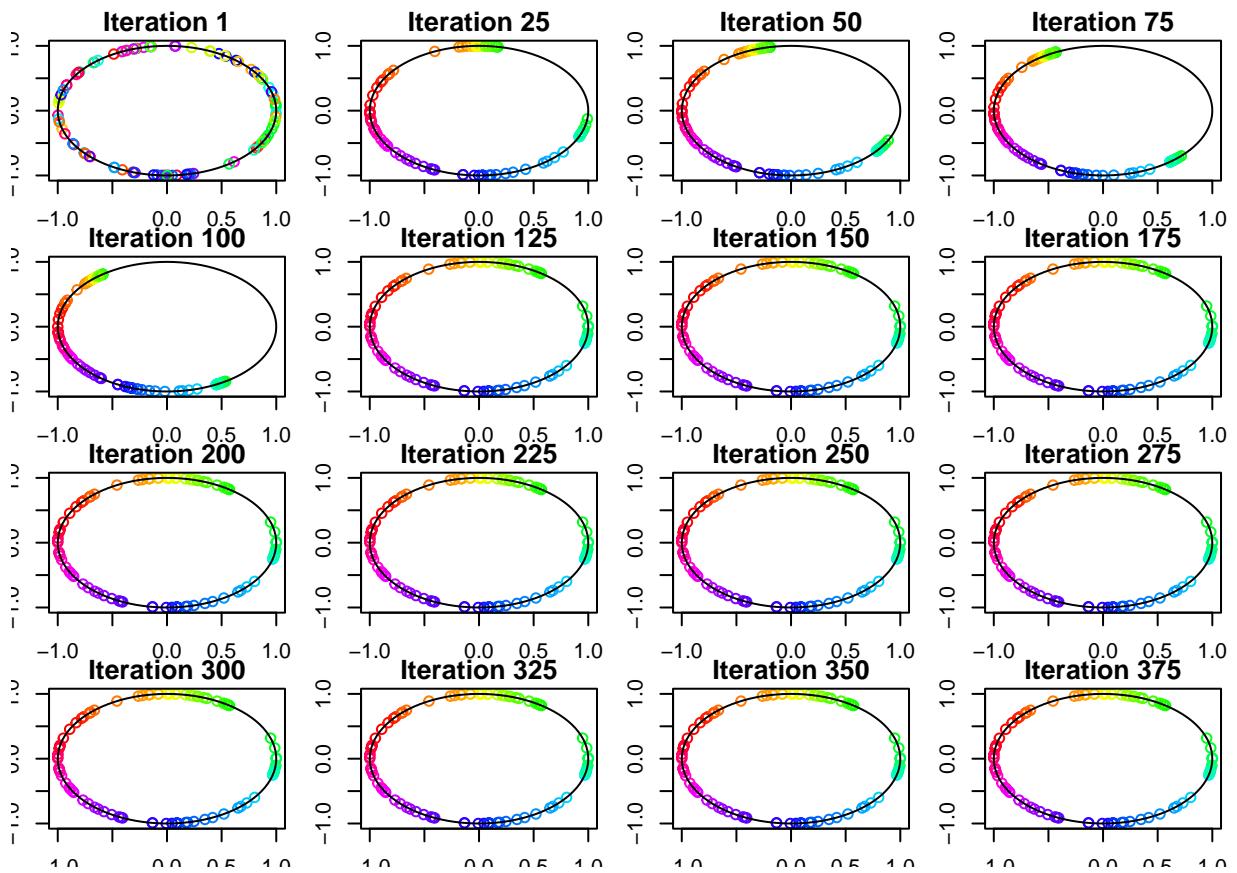




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#> It: 370; obj: 3.569e-01; abs: 1.110e-16; rel: 3.111e-16; norm: 1.758e-01; mom: 4.746e-16;
#> best it: 176; best obj: 3.569e-01
#> It: 371; obj: 3.569e-01; abs: 0.000e+00; rel: 0.000e+00; norm: 1.758e-01; mom: 4.354e-16;
#> best it: 176; best obj: 3.569e-01
#> It: 372; obj: 3.569e-01; abs: 5.551e-17; rel: 1.555e-16; norm: 1.758e-01; mom: 4.064e-16;
#> best it: 176; best obj: 3.569e-01
#> It: 373; obj: 3.569e-01; abs: 0.000e+00; rel: 0.000e+00; norm: 1.758e-01; mom: 3.825e-16;
#> best it: 176; best obj: 3.569e-01
#> It: 374; obj: 3.569e-01; abs: 5.551e-17; rel: 1.555e-16; norm: 1.758e-01; mom: 3.748e-16;
#> best it: 176; best obj: 3.569e-01
#> It: 375; obj: 3.569e-01; abs: 1.110e-16; rel: 3.111e-16; norm: 1.758e-01; mom: 4.221e-16;
#> best it: 176; best obj: 3.569e-01

```



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#> It: 376; obj: 3.569e-01; abs: 0.000e+00; rel: 0.000e+00; norm: 1.758e-01; mom: 4.790e-16;
#> best it: 176; best obj: 3.569e-01
#> It: 377; obj: 3.569e-01; abs: 1.110e-16; rel: 3.111e-16; norm: 1.758e-01; mom: 4.019e-16;
#> best it: 176; best obj: 3.569e-01
#> It: 378; obj: 3.569e-01; abs: 0.000e+00; rel: 0.000e+00; norm: 1.758e-01; mom: 5.032e-16;
#> best it: 176; best obj: 3.569e-01
#> It: 379; obj: 3.569e-01; abs: 5.551e-17; rel: 1.555e-16; norm: 1.758e-01; mom: 4.411e-16;
#> best it: 176; best obj: 3.569e-01
#> It: 380; obj: 3.569e-01; abs: 1.665e-16; rel: 4.666e-16; norm: 1.758e-01; mom: 3.560e-16;
#> best it: 176; best obj: 3.569e-01
#> It: 381; obj: 3.569e-01; abs: 0.000e+00; rel: 0.000e+00; norm: 1.758e-01; mom: 4.960e-16;
#> best it: 176; best obj: 3.569e-01
#> It: 382; obj: 3.569e-01; abs: 1.665e-16; rel: 4.666e-16; norm: 1.758e-01; mom: 4.611e-16;

```





















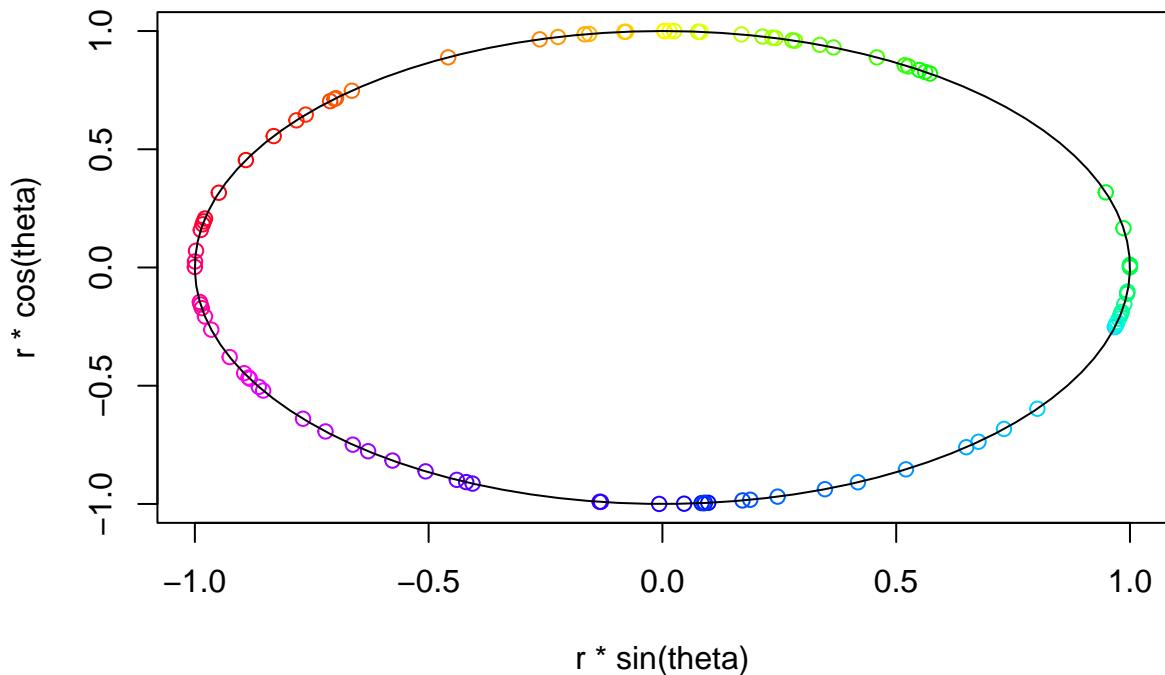
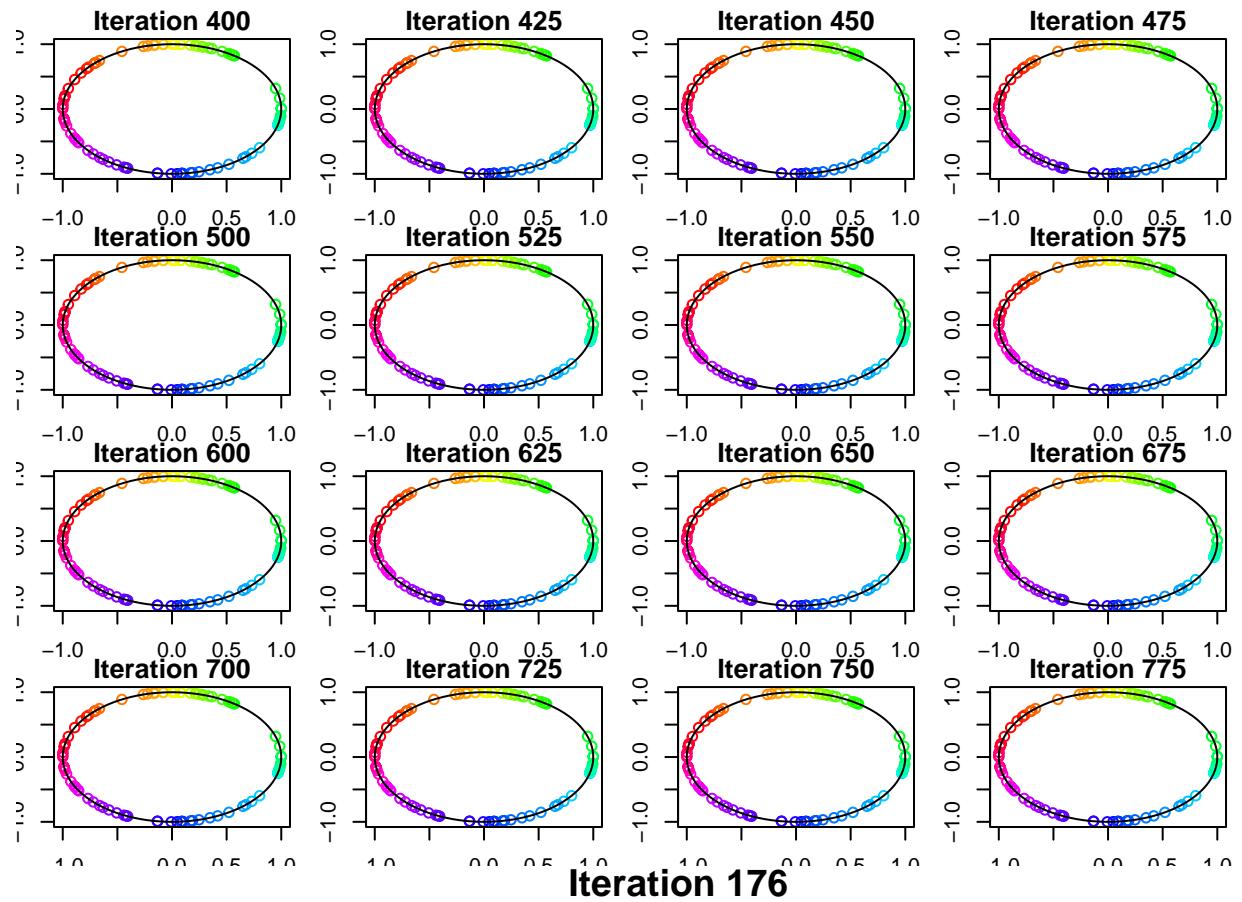








```
#> best it: 176; best obj: 3.569e-01
#> It: 761; obj: 3.569e-01; abs: 0.000e+00; rel: 0.000e+00; norm: 1.758e-01; mom: 4.617e-16;
#> best it: 176; best obj: 3.569e-01
#> It: 762; obj: 3.569e-01; abs: 2.220e-16; rel: 6.221e-16; norm: 1.758e-01; mom: 4.781e-16;
#> best it: 176; best obj: 3.569e-01
#> It: 763; obj: 3.569e-01; abs: 3.331e-16; rel: 9.332e-16; norm: 1.758e-01; mom: 4.428e-16;
#> best it: 176; best obj: 3.569e-01
#> It: 764; obj: 3.569e-01; abs: 5.551e-17; rel: 1.555e-16; norm: 1.758e-01; mom: 5.010e-16;
#> best it: 176; best obj: 3.569e-01
#> It: 765; obj: 3.569e-01; abs: 5.551e-17; rel: 1.555e-16; norm: 1.758e-01; mom: 5.024e-16;
#> best it: 176; best obj: 3.569e-01
#> It: 766; obj: 3.569e-01; abs: 5.551e-17; rel: 1.555e-16; norm: 1.758e-01; mom: 4.174e-16;
#> best it: 176; best obj: 3.569e-01
#> It: 767; obj: 3.569e-01; abs: 5.551e-17; rel: 1.555e-16; norm: 1.758e-01; mom: 4.235e-16;
#> best it: 176; best obj: 3.569e-01
#> It: 768; obj: 3.569e-01; abs: 1.110e-16; rel: 3.111e-16; norm: 1.758e-01; mom: 4.253e-16;
#> best it: 176; best obj: 3.569e-01
#> It: 769; obj: 3.569e-01; abs: 5.551e-17; rel: 1.555e-16; norm: 1.758e-01; mom: 4.102e-16;
#> best it: 176; best obj: 3.569e-01
#> It: 770; obj: 3.569e-01; abs: 0.000e+00; rel: 0.000e+00; norm: 1.758e-01; mom: 4.546e-16;
#> best it: 176; best obj: 3.569e-01
#> It: 771; obj: 3.569e-01; abs: 5.551e-17; rel: 1.555e-16; norm: 1.758e-01; mom: 4.712e-16;
#> best it: 176; best obj: 3.569e-01
#> It: 772; obj: 3.569e-01; abs: 5.551e-17; rel: 1.555e-16; norm: 1.758e-01; mom: 4.550e-16;
#> best it: 176; best obj: 3.569e-01
#> It: 773; obj: 3.569e-01; abs: 0.000e+00; rel: 0.000e+00; norm: 1.758e-01; mom: 3.763e-16;
#> best it: 176; best obj: 3.569e-01
#> It: 774; obj: 3.569e-01; abs: 5.551e-17; rel: 1.555e-16; norm: 1.758e-01; mom: 4.287e-16;
#> best it: 176; best obj: 3.569e-01
#> It: 775; obj: 3.569e-01; abs: 5.551e-17; rel: 1.555e-16; norm: 1.758e-01; mom: 3.407e-16;
#> best it: 176; best obj: 3.569e-01
```

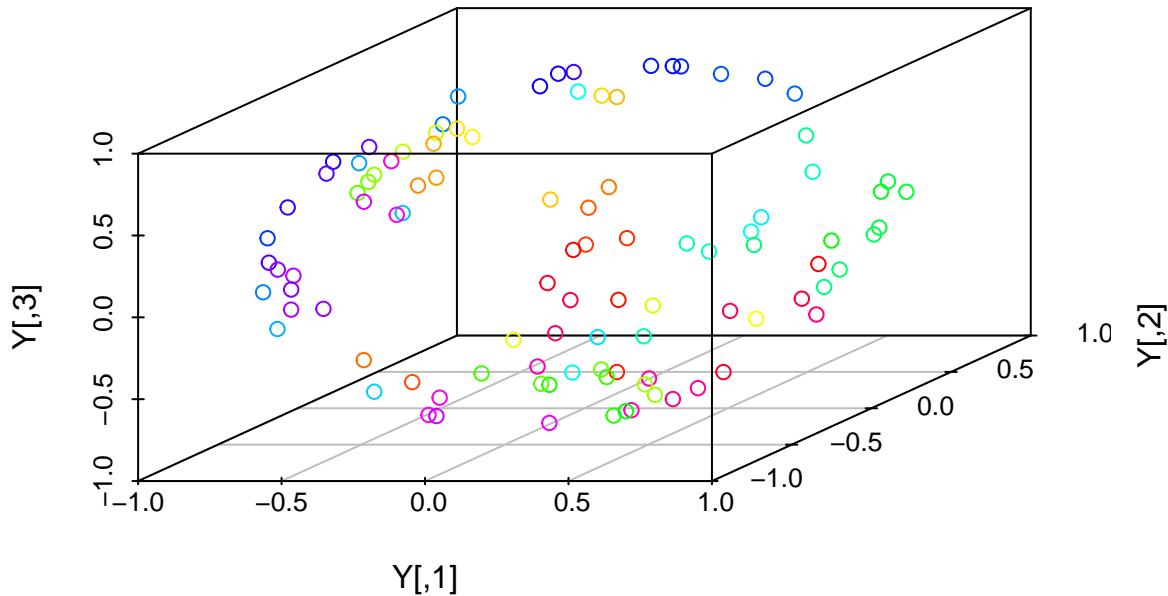


We can see that the points in the circumference are more or less well arranged. Nevertheless, it looks like this reduced dimension is not appropriate since results are not as satisfactory as other cases. Let's see if results

onto the sphere are better:

```
psc_sne_res_42 <- psc_sne(X = x_s1_100_path, d = 2,
                           rho_psc_list = rho_30_s1_100_path, colors = cols,
                           show_prog = TRUE, num_iteration = 775, eta = 25,
                           parallel_cores = num_cores_param)
#> It: 1; obj: 1.039e+01; abs: 0.000e+00; rel: 0.000e+00; norm: 2.239e-01; mom: 0.000e+00;
#> best it: 1; best obj: 1.039e+01
```

## Iteration 1



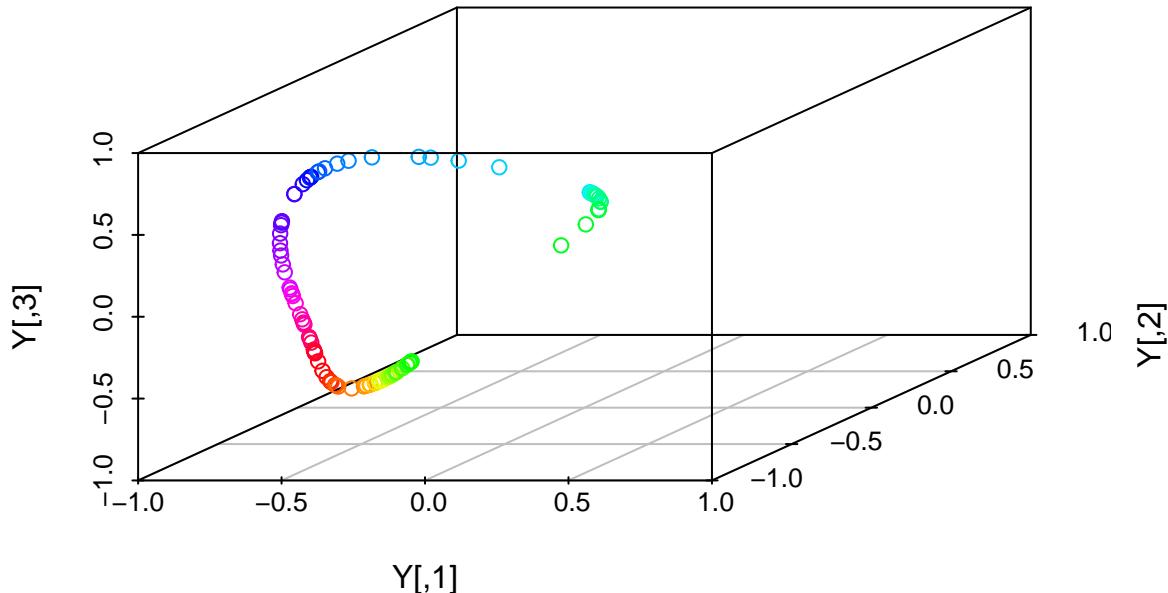
```
#> It: 2; obj: 8.725e+00; abs: 1.666e+00; rel: 1.603e-01; norm: 9.837e-01; mom: 2.641e+00;
#> best it: 2; best obj: 8.725e+00
#> It: 3; obj: 8.317e+00; abs: 4.087e-01; rel: 4.684e-02; norm: 1.692e+00; mom: 1.656e+00;
#> best it: 3; best obj: 8.317e+00
#> It: 4; obj: 7.997e+00; abs: 3.201e-01; rel: 3.849e-02; norm: 1.914e+00; mom: 8.659e-01;
#> best it: 4; best obj: 7.997e+00
#> It: 5; obj: 7.407e+00; abs: 5.897e-01; rel: 7.374e-02; norm: 2.018e+00; mom: 6.346e-01;
#> best it: 5; best obj: 7.407e+00
#> It: 6; obj: 6.861e+00; abs: 5.458e-01; rel: 7.368e-02; norm: 2.106e+00; mom: 5.689e-01;
#> best it: 6; best obj: 6.861e+00
#> It: 7; obj: 6.631e+00; abs: 2.301e-01; rel: 3.354e-02; norm: 2.227e+00; mom: 5.789e-01;
#> best it: 7; best obj: 6.631e+00
#> It: 8; obj: 6.629e+00; abs: 1.800e-03; rel: 2.714e-04; norm: 2.369e+00; mom: 5.053e-01;
#> best it: 8; best obj: 6.629e+00
#> It: 9; obj: 6.639e+00; abs: 9.989e-03; rel: 1.507e-03; norm: 2.495e+00; mom: 3.482e-01;
#> best it: 8; best obj: 6.629e+00
#> It: 10; obj: 6.594e+00; abs: 4.522e-02; rel: 6.811e-03; norm: 2.585e+00; mom: 2.301e-01;
#> best it: 10; best obj: 6.594e+00
#> It: 11; obj: 6.523e+00; abs: 7.058e-02; rel: 1.070e-02; norm: 2.648e+00; mom: 2.120e-01;
#> best it: 11; best obj: 6.523e+00
#> It: 12; obj: 6.445e+00; abs: 7.816e-02; rel: 1.198e-02; norm: 2.696e+00; mom: 2.055e-01;
#> best it: 12; best obj: 6.445e+00
#> It: 13; obj: 6.375e+00; abs: 7.067e-02; rel: 1.096e-02; norm: 2.735e+00; mom: 1.986e-01;
```

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#> best it: 13; best obj: 6.375e+00
#> It: 14; obj: 6.320e+00; abs: 5.481e-02; rel: 8.598e-03; norm: 2.770e+00; mom: 1.895e-01;
#> best it: 14; best obj: 6.320e+00
#> It: 15; obj: 6.283e+00; abs: 3.678e-02; rel: 5.820e-03; norm: 2.801e+00; mom: 1.791e-01;
#> best it: 15; best obj: 6.283e+00
#> It: 16; obj: 6.264e+00; abs: 1.874e-02; rel: 2.983e-03; norm: 2.830e+00; mom: 1.686e-01;
#> best it: 16; best obj: 6.264e+00
#> It: 17; obj: 6.261e+00; abs: 3.111e-03; rel: 4.967e-04; norm: 2.857e+00; mom: 1.576e-01;
#> best it: 17; best obj: 6.261e+00
#> It: 18; obj: 6.269e+00; abs: 8.222e-03; rel: 1.313e-03; norm: 2.883e+00; mom: 1.465e-01;
#> best it: 17; best obj: 6.261e+00
#> It: 19; obj: 6.285e+00; abs: 1.524e-02; rel: 2.430e-03; norm: 2.906e+00; mom: 1.367e-01;
#> best it: 17; best obj: 6.261e+00
#> It: 20; obj: 6.304e+00; abs: 1.909e-02; rel: 3.037e-03; norm: 2.929e+00; mom: 1.287e-01;
#> best it: 17; best obj: 6.261e+00
#> It: 21; obj: 6.325e+00; abs: 2.107e-02; rel: 3.343e-03; norm: 2.950e+00; mom: 1.224e-01;
#> best it: 17; best obj: 6.261e+00
#> It: 22; obj: 6.347e+00; abs: 2.213e-02; rel: 3.500e-03; norm: 2.972e+00; mom: 1.173e-01;
#> best it: 17; best obj: 6.261e+00
#> It: 23; obj: 6.370e+00; abs: 2.283e-02; rel: 3.598e-03; norm: 2.996e+00; mom: 1.128e-01;
#> best it: 17; best obj: 6.261e+00
#> It: 24; obj: 6.393e+00; abs: 2.346e-02; rel: 3.682e-03; norm: 3.022e+00; mom: 1.088e-01;
#> best it: 17; best obj: 6.261e+00
#> It: 25; obj: 6.417e+00; abs: 2.414e-02; rel: 3.775e-03; norm: 3.052e+00; mom: 1.050e-01;
#> best it: 17; best obj: 6.261e+00

```

## Iteration 25



```

#> It: 26; obj: 6.442e+00; abs: 2.494e-02; rel: 3.886e-03; norm: 3.086e+00; mom: 1.014e-01;
#> best it: 17; best obj: 6.261e+00
#> It: 27; obj: 6.468e+00; abs: 2.590e-02; rel: 4.021e-03; norm: 3.125e+00; mom: 9.791e-02;
#> best it: 17; best obj: 6.261e+00
#> It: 28; obj: 6.495e+00; abs: 2.704e-02; rel: 4.180e-03; norm: 3.168e+00; mom: 9.446e-02;
#> best it: 17; best obj: 6.261e+00

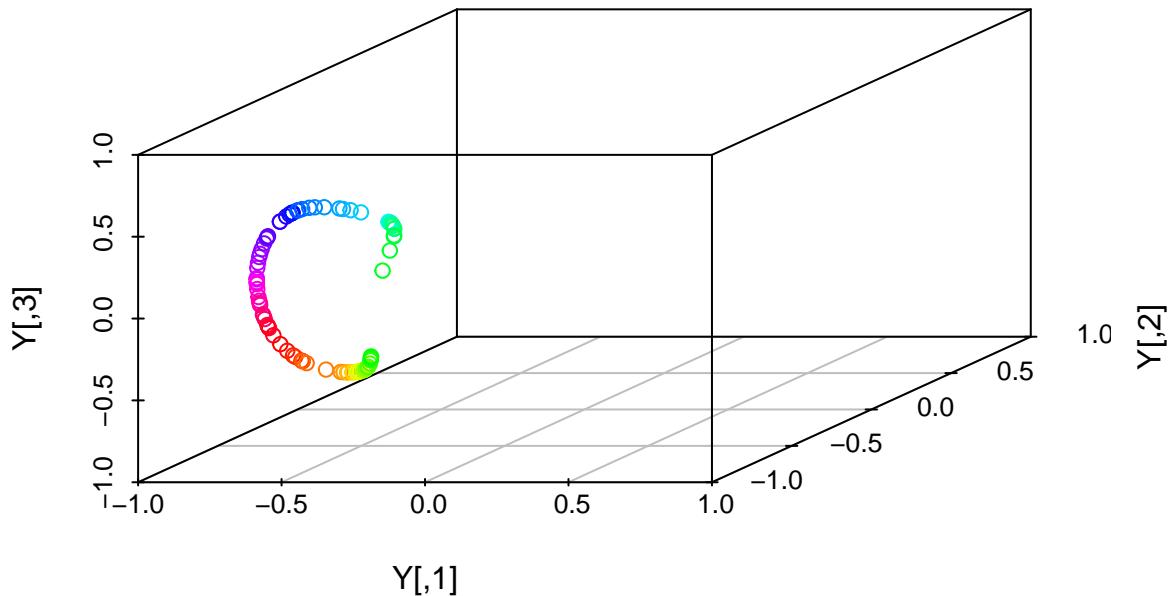
```

```

#> It: 29; obj: 6.524e+00; abs: 2.834e-02; rel: 4.364e-03; norm: 3.215e+00; mom: 9.108e-02;
#> best it: 17; best obj: 6.261e+00
#> It: 30; obj: 6.553e+00; abs: 2.979e-02; rel: 4.567e-03; norm: 3.266e+00; mom: 8.776e-02;
#> best it: 17; best obj: 6.261e+00
#> It: 31; obj: 6.585e+00; abs: 3.135e-02; rel: 4.783e-03; norm: 3.319e+00; mom: 8.452e-02;
#> best it: 17; best obj: 6.261e+00
#> It: 32; obj: 6.618e+00; abs: 3.295e-02; rel: 5.004e-03; norm: 3.373e+00; mom: 8.136e-02;
#> best it: 17; best obj: 6.261e+00
#> It: 33; obj: 6.652e+00; abs: 3.454e-02; rel: 5.220e-03; norm: 3.428e+00; mom: 7.830e-02;
#> best it: 17; best obj: 6.261e+00
#> It: 34; obj: 6.688e+00; abs: 3.605e-02; rel: 5.419e-03; norm: 3.483e+00; mom: 7.531e-02;
#> best it: 17; best obj: 6.261e+00
#> It: 35; obj: 6.726e+00; abs: 3.741e-02; rel: 5.594e-03; norm: 3.538e+00; mom: 7.240e-02;
#> best it: 17; best obj: 6.261e+00
#> It: 36; obj: 6.764e+00; abs: 3.858e-02; rel: 5.736e-03; norm: 3.591e+00; mom: 6.952e-02;
#> best it: 17; best obj: 6.261e+00
#> It: 37; obj: 6.804e+00; abs: 3.950e-02; rel: 5.839e-03; norm: 3.643e+00; mom: 6.665e-02;
#> best it: 17; best obj: 6.261e+00
#> It: 38; obj: 6.844e+00; abs: 4.014e-02; rel: 5.899e-03; norm: 3.693e+00; mom: 6.377e-02;
#> best it: 17; best obj: 6.261e+00
#> It: 39; obj: 6.884e+00; abs: 4.048e-02; rel: 5.915e-03; norm: 3.740e+00; mom: 6.087e-02;
#> best it: 17; best obj: 6.261e+00
#> It: 40; obj: 6.925e+00; abs: 4.052e-02; rel: 5.886e-03; norm: 3.786e+00; mom: 5.795e-02;
#> best it: 17; best obj: 6.261e+00
#> It: 41; obj: 6.965e+00; abs: 4.027e-02; rel: 5.815e-03; norm: 3.829e+00; mom: 5.503e-02;
#> best it: 17; best obj: 6.261e+00
#> It: 42; obj: 7.005e+00; abs: 3.974e-02; rel: 5.705e-03; norm: 3.869e+00; mom: 5.211e-02;
#> best it: 17; best obj: 6.261e+00
#> It: 43; obj: 7.044e+00; abs: 3.896e-02; rel: 5.561e-03; norm: 3.907e+00; mom: 4.923e-02;
#> best it: 17; best obj: 6.261e+00
#> It: 44; obj: 7.082e+00; abs: 3.795e-02; rel: 5.388e-03; norm: 3.942e+00; mom: 4.639e-02;
#> best it: 17; best obj: 6.261e+00
#> It: 45; obj: 7.119e+00; abs: 3.676e-02; rel: 5.191e-03; norm: 3.975e+00; mom: 4.361e-02;
#> best it: 17; best obj: 6.261e+00
#> It: 46; obj: 7.154e+00; abs: 3.542e-02; rel: 4.976e-03; norm: 4.006e+00; mom: 4.090e-02;
#> best it: 17; best obj: 6.261e+00
#> It: 47; obj: 7.188e+00; abs: 3.396e-02; rel: 4.748e-03; norm: 4.034e+00; mom: 3.829e-02;
#> best it: 17; best obj: 6.261e+00
#> It: 48; obj: 7.220e+00; abs: 3.242e-02; rel: 4.510e-03; norm: 4.060e+00; mom: 3.577e-02;
#> best it: 17; best obj: 6.261e+00
#> It: 49; obj: 7.251e+00; abs: 3.082e-02; rel: 4.268e-03; norm: 4.084e+00; mom: 3.336e-02;
#> best it: 17; best obj: 6.261e+00
#> It: 50; obj: 7.280e+00; abs: 2.919e-02; rel: 4.025e-03; norm: 4.107e+00; mom: 3.105e-02;
#> best it: 17; best obj: 6.261e+00

```

## Iteration 50



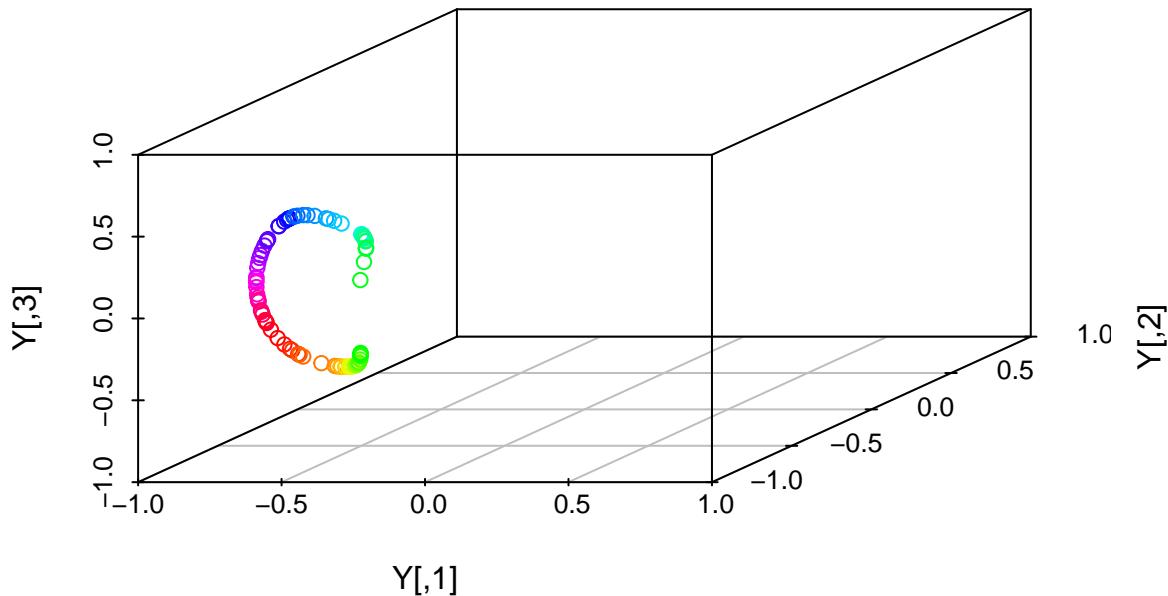
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#> It: 51; obj: 7.308e+00; abs: 2.755e-02; rel: 3.784e-03; norm: 4.127e+00; mom: 2.886e-02;
#> best it: 17; best obj: 6.261e+00
#> It: 52; obj: 7.334e+00; abs: 2.592e-02; rel: 3.546e-03; norm: 4.146e+00; mom: 2.678e-02;
#> best it: 17; best obj: 6.261e+00
#> It: 53; obj: 7.358e+00; abs: 2.432e-02; rel: 3.316e-03; norm: 4.163e+00; mom: 2.481e-02;
#> best it: 17; best obj: 6.261e+00
#> It: 54; obj: 7.381e+00; abs: 2.276e-02; rel: 3.093e-03; norm: 4.179e+00; mom: 2.296e-02;
#> best it: 17; best obj: 6.261e+00
#> It: 55; obj: 7.402e+00; abs: 2.125e-02; rel: 2.878e-03; norm: 4.193e+00; mom: 2.122e-02;
#> best it: 17; best obj: 6.261e+00
#> It: 56; obj: 7.422e+00; abs: 1.979e-02; rel: 2.674e-03; norm: 4.206e+00; mom: 1.959e-02;
#> best it: 17; best obj: 6.261e+00
#> It: 57; obj: 7.440e+00; abs: 1.840e-02; rel: 2.480e-03; norm: 4.218e+00; mom: 1.807e-02;
#> best it: 17; best obj: 6.261e+00
#> It: 58; obj: 7.457e+00; abs: 1.708e-02; rel: 2.296e-03; norm: 4.229e+00; mom: 1.665e-02;
#> best it: 17; best obj: 6.261e+00
#> It: 59; obj: 7.473e+00; abs: 1.583e-02; rel: 2.123e-03; norm: 4.239e+00; mom: 1.533e-02;
#> best it: 17; best obj: 6.261e+00
#> It: 60; obj: 7.488e+00; abs: 1.465e-02; rel: 1.961e-03; norm: 4.249e+00; mom: 1.410e-02;
#> best it: 17; best obj: 6.261e+00
#> It: 61; obj: 7.501e+00; abs: 1.354e-02; rel: 1.808e-03; norm: 4.257e+00; mom: 1.296e-02;
#> best it: 17; best obj: 6.261e+00
#> It: 62; obj: 7.514e+00; abs: 1.250e-02; rel: 1.666e-03; norm: 4.265e+00; mom: 1.190e-02;
#> best it: 17; best obj: 6.261e+00
#> It: 63; obj: 7.526e+00; abs: 1.153e-02; rel: 1.534e-03; norm: 4.272e+00; mom: 1.093e-02;
#> best it: 17; best obj: 6.261e+00
#> It: 64; obj: 7.536e+00; abs: 1.062e-02; rel: 1.411e-03; norm: 4.278e+00; mom: 1.002e-02;
#> best it: 17; best obj: 6.261e+00
#> It: 65; obj: 7.546e+00; abs: 9.774e-03; rel: 1.297e-03; norm: 4.284e+00; mom: 9.191e-03;
#> best it: 17; best obj: 6.261e+00
#> It: 66; obj: 7.555e+00; abs: 8.989e-03; rel: 1.191e-03; norm: 4.289e+00; mom: 8.424e-03;
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#> best it: 17; best obj: 6.261e+00
#> It: 67; obj: 7.563e+00; abs: 8.261e-03; rel: 1.093e-03; norm: 4.294e+00; mom: 7.717e-03;
#> best it: 17; best obj: 6.261e+00
#> It: 68; obj: 7.571e+00; abs: 7.587e-03; rel: 1.003e-03; norm: 4.299e+00; mom: 7.067e-03;
#> best it: 17; best obj: 6.261e+00
#> It: 69; obj: 7.578e+00; abs: 6.963e-03; rel: 9.198e-04; norm: 4.303e+00; mom: 6.470e-03;
#> best it: 17; best obj: 6.261e+00
#> It: 70; obj: 7.584e+00; abs: 6.388e-03; rel: 8.430e-04; norm: 4.306e+00; mom: 5.921e-03;
#> best it: 17; best obj: 6.261e+00
#> It: 71; obj: 7.590e+00; abs: 5.857e-03; rel: 7.723e-04; norm: 4.310e+00; mom: 5.417e-03;
#> best it: 17; best obj: 6.261e+00
#> It: 72; obj: 7.595e+00; abs: 5.368e-03; rel: 7.073e-04; norm: 4.313e+00; mom: 4.955e-03;
#> best it: 17; best obj: 6.261e+00
#> It: 73; obj: 7.600e+00; abs: 4.918e-03; rel: 6.475e-04; norm: 4.316e+00; mom: 4.531e-03;
#> best it: 17; best obj: 6.261e+00
#> It: 74; obj: 7.605e+00; abs: 4.504e-03; rel: 5.926e-04; norm: 4.318e+00; mom: 4.143e-03;
#> best it: 17; best obj: 6.261e+00
#> It: 75; obj: 7.609e+00; abs: 4.123e-03; rel: 5.422e-04; norm: 4.320e+00; mom: 3.787e-03;
#> best it: 17; best obj: 6.261e+00

```

## Iteration 75



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#> It: 76; obj: 7.613e+00; abs: 3.773e-03; rel: 4.959e-04; norm: 4.323e+00; mom: 3.461e-03;
#> best it: 17; best obj: 6.261e+00
#> It: 77; obj: 7.616e+00; abs: 3.453e-03; rel: 4.535e-04; norm: 4.325e+00; mom: 3.163e-03;
#> best it: 17; best obj: 6.261e+00
#> It: 78; obj: 7.619e+00; abs: 3.158e-03; rel: 4.147e-04; norm: 4.326e+00; mom: 2.890e-03;
#> best it: 17; best obj: 6.261e+00
#> It: 79; obj: 7.622e+00; abs: 2.888e-03; rel: 3.791e-04; norm: 4.328e+00; mom: 2.640e-03;
#> best it: 17; best obj: 6.261e+00
#> It: 80; obj: 7.625e+00; abs: 2.641e-03; rel: 3.465e-04; norm: 4.329e+00; mom: 2.412e-03;
#> best it: 17; best obj: 6.261e+00
#> It: 81; obj: 7.627e+00; abs: 2.414e-03; rel: 3.166e-04; norm: 4.331e+00; mom: 2.203e-03;
#> best it: 17; best obj: 6.261e+00

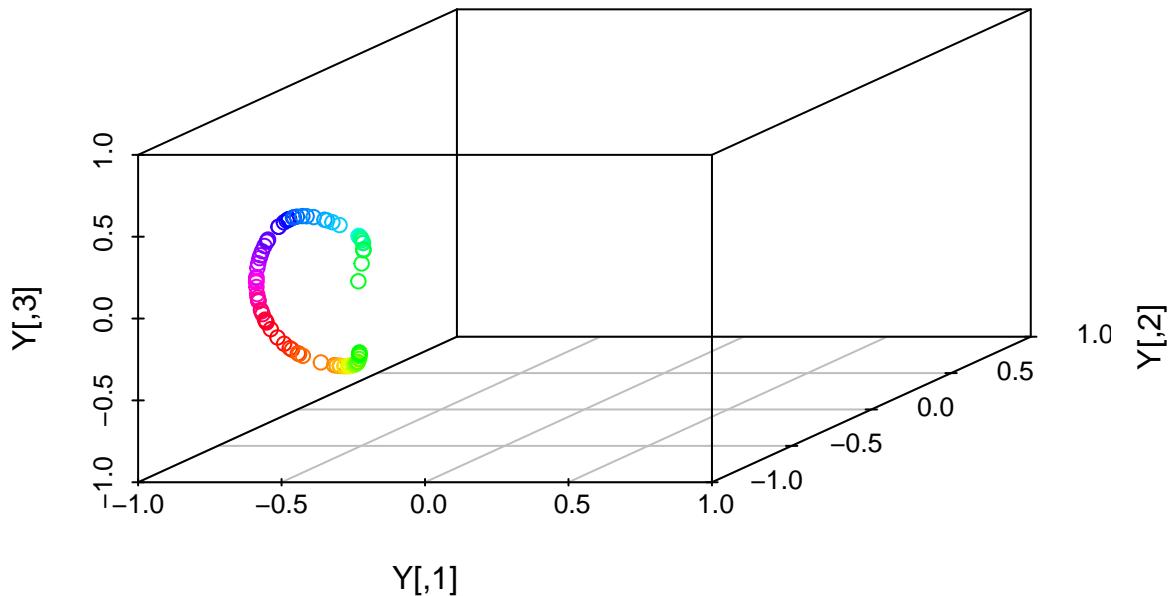
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#> It: 82; obj: 7.629e+00; abs: 2.207e-03; rel: 2.893e-04; norm: 4.332e+00; mom: 2.012e-03;
#> best it: 17; best obj: 6.261e+00
#> It: 83; obj: 7.631e+00; abs: 2.017e-03; rel: 2.644e-04; norm: 4.333e+00; mom: 1.838e-03;
#> best it: 17; best obj: 6.261e+00
#> It: 84; obj: 7.633e+00; abs: 1.843e-03; rel: 2.415e-04; norm: 4.334e+00; mom: 1.678e-03;
#> best it: 17; best obj: 6.261e+00
#> It: 85; obj: 7.635e+00; abs: 1.684e-03; rel: 2.206e-04; norm: 4.335e+00; mom: 1.533e-03;
#> best it: 17; best obj: 6.261e+00
#> It: 86; obj: 7.636e+00; abs: 1.539e-03; rel: 2.015e-04; norm: 4.336e+00; mom: 1.400e-03;
#> best it: 17; best obj: 6.261e+00
#> It: 87; obj: 7.638e+00; abs: 1.406e-03; rel: 1.841e-04; norm: 4.337e+00; mom: 1.278e-03;
#> best it: 17; best obj: 6.261e+00
#> It: 88; obj: 7.639e+00; abs: 1.284e-03; rel: 1.681e-04; norm: 4.337e+00; mom: 1.167e-03;
#> best it: 17; best obj: 6.261e+00
#> It: 89; obj: 7.640e+00; abs: 1.173e-03; rel: 1.535e-04; norm: 4.338e+00; mom: 1.066e-03;
#> best it: 17; best obj: 6.261e+00
#> It: 90; obj: 7.641e+00; abs: 1.071e-03; rel: 1.402e-04; norm: 4.339e+00; mom: 9.731e-04;
#> best it: 17; best obj: 6.261e+00
#> It: 91; obj: 7.642e+00; abs: 9.783e-04; rel: 1.280e-04; norm: 4.339e+00; mom: 8.886e-04;
#> best it: 17; best obj: 6.261e+00
#> It: 92; obj: 7.643e+00; abs: 8.934e-04; rel: 1.169e-04; norm: 4.340e+00; mom: 8.114e-04;
#> best it: 17; best obj: 6.261e+00
#> It: 93; obj: 7.644e+00; abs: 8.159e-04; rel: 1.068e-04; norm: 4.340e+00; mom: 7.409e-04;
#> best it: 17; best obj: 6.261e+00
#> It: 94; obj: 7.645e+00; abs: 7.451e-04; rel: 9.748e-05; norm: 4.341e+00; mom: 6.766e-04;
#> best it: 17; best obj: 6.261e+00
#> It: 95; obj: 7.646e+00; abs: 6.804e-04; rel: 8.901e-05; norm: 4.341e+00; mom: 6.178e-04;
#> best it: 17; best obj: 6.261e+00
#> It: 96; obj: 7.646e+00; abs: 6.214e-04; rel: 8.127e-05; norm: 4.341e+00; mom: 5.642e-04;
#> best it: 17; best obj: 6.261e+00
#> It: 97; obj: 7.647e+00; abs: 5.674e-04; rel: 7.421e-05; norm: 4.342e+00; mom: 5.152e-04;
#> best it: 17; best obj: 6.261e+00
#> It: 98; obj: 7.647e+00; abs: 5.181e-04; rel: 6.776e-05; norm: 4.342e+00; mom: 4.705e-04;
#> best it: 17; best obj: 6.261e+00
#> It: 99; obj: 7.648e+00; abs: 4.731e-04; rel: 6.187e-05; norm: 4.342e+00; mom: 4.298e-04;
#> best it: 17; best obj: 6.261e+00
#> It: 100; obj: 7.648e+00; abs: 4.320e-04; rel: 5.649e-05; norm: 4.342e+00; mom: 3.925e-04;
#> best it: 17; best obj: 6.261e+00

```

## Iteration 100



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#> It: 101; obj: 3.017e-01; abs: 7.346e+00; rel: 9.605e-01; norm: 2.604e-01; mom: 3.585e-04;
#> best it: 101; best obj: 3.017e-01
#> It: 102; obj: 1.813e-01; abs: 1.205e-01; rel: 3.992e-01; norm: 2.141e-01; mom: 6.446e-01;
#> best it: 102; best obj: 1.813e-01
#> It: 103; obj: 1.284e-01; abs: 5.293e-02; rel: 2.919e-01; norm: 1.682e-01; mom: 5.711e-01;
#> best it: 103; best obj: 1.284e-01
#> It: 104; obj: 1.016e-01; abs: 2.672e-02; rel: 2.081e-01; norm: 1.477e-01; mom: 4.880e-01;
#> best it: 104; best obj: 1.016e-01
#> It: 105; obj: 8.667e-02; abs: 1.497e-02; rel: 1.473e-01; norm: 1.354e-01; mom: 3.908e-01;
#> best it: 105; best obj: 8.667e-02
#> It: 106; obj: 7.719e-02; abs: 9.480e-03; rel: 1.094e-01; norm: 1.277e-01; mom: 3.167e-01;
#> best it: 106; best obj: 7.719e-02
#> It: 107; obj: 7.084e-02; abs: 6.351e-03; rel: 8.227e-02; norm: 1.208e-01; mom: 2.639e-01;
#> best it: 107; best obj: 7.084e-02
#> It: 108; obj: 6.634e-02; abs: 4.499e-03; rel: 6.351e-02; norm: 1.166e-01; mom: 2.233e-01;
#> best it: 108; best obj: 6.634e-02
#> It: 109; obj: 6.302e-02; abs: 3.323e-03; rel: 5.009e-02; norm: 1.142e-01; mom: 1.922e-01;
#> best it: 109; best obj: 6.302e-02
#> It: 110; obj: 6.049e-02; abs: 2.530e-03; rel: 4.015e-02; norm: 1.120e-01; mom: 1.680e-01;
#> best it: 110; best obj: 6.049e-02
#> It: 111; obj: 5.851e-02; abs: 1.977e-03; rel: 3.268e-02; norm: 1.101e-01; mom: 1.484e-01;
#> best it: 111; best obj: 5.851e-02
#> It: 112; obj: 5.693e-02; abs: 1.582e-03; rel: 2.703e-02; norm: 1.086e-01; mom: 1.323e-01;
#> best it: 112; best obj: 5.693e-02
#> It: 113; obj: 5.564e-02; abs: 1.293e-03; rel: 2.271e-02; norm: 1.074e-01; mom: 1.190e-01;
#> best it: 113; best obj: 5.564e-02
#> It: 114; obj: 5.456e-02; abs: 1.079e-03; rel: 1.939e-02; norm: 1.065e-01; mom: 1.079e-01;
#> best it: 114; best obj: 5.456e-02
#> It: 115; obj: 5.364e-02; abs: 9.193e-04; rel: 1.685e-02; norm: 1.057e-01; mom: 9.864e-02;
#> best it: 115; best obj: 5.364e-02
#> It: 116; obj: 5.284e-02; abs: 7.996e-04; rel: 1.491e-02; norm: 1.049e-01; mom: 9.095e-02;

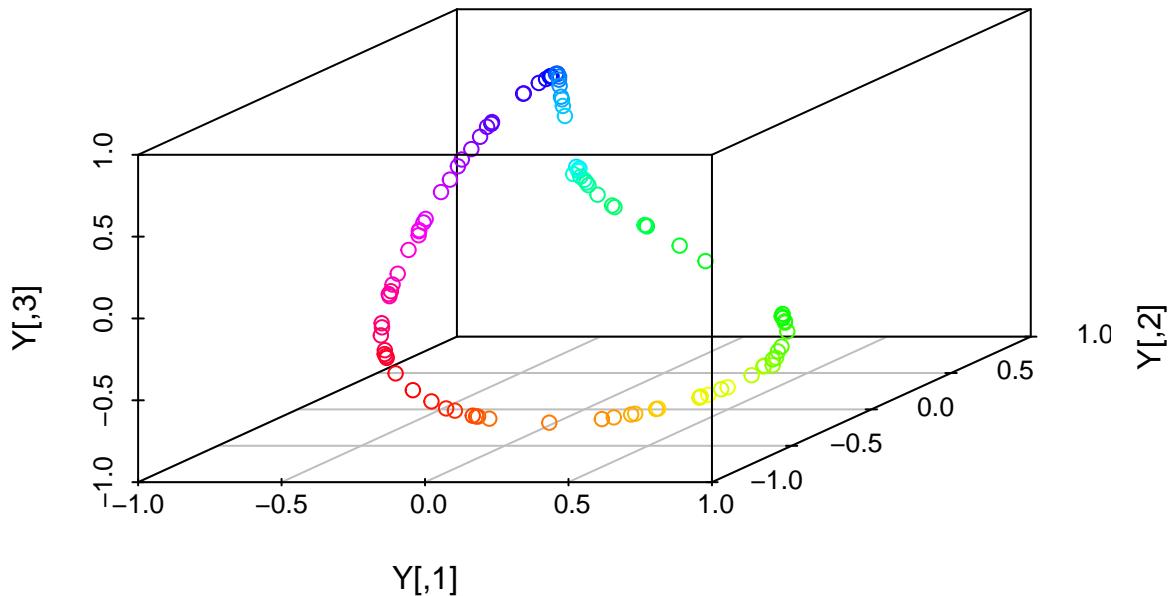
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#> best it: 116; best obj: 5.284e-02
#> It: 117; obj: 5.213e-02; abs: 7.097e-04; rel: 1.343e-02; norm: 1.043e-01; mom: 8.459e-02;
#> best it: 117; best obj: 5.213e-02
#> It: 118; obj: 5.149e-02; abs: 6.421e-04; rel: 1.232e-02; norm: 1.037e-01; mom: 7.940e-02;
#> best it: 118; best obj: 5.149e-02
#> It: 119; obj: 5.090e-02; abs: 5.909e-04; rel: 1.148e-02; norm: 1.031e-01; mom: 7.520e-02;
#> best it: 119; best obj: 5.090e-02
#> It: 120; obj: 5.035e-02; abs: 5.517e-04; rel: 1.084e-02; norm: 1.026e-01; mom: 7.182e-02;
#> best it: 120; best obj: 5.035e-02
#> It: 121; obj: 4.983e-02; abs: 5.207e-04; rel: 1.034e-02; norm: 1.021e-01; mom: 6.911e-02;
#> best it: 121; best obj: 4.983e-02
#> It: 122; obj: 4.933e-02; abs: 4.950e-04; rel: 9.935e-03; norm: 1.016e-01; mom: 6.691e-02;
#> best it: 122; best obj: 4.933e-02
#> It: 123; obj: 4.886e-02; abs: 4.722e-04; rel: 9.572e-03; norm: 1.011e-01; mom: 6.507e-02;
#> best it: 123; best obj: 4.886e-02
#> It: 124; obj: 4.841e-02; abs: 4.505e-04; rel: 9.219e-03; norm: 1.005e-01; mom: 6.344e-02;
#> best it: 124; best obj: 4.841e-02
#> It: 125; obj: 4.798e-02; abs: 4.283e-04; rel: 8.848e-03; norm: 1.000e-01; mom: 6.190e-02;
#> best it: 125; best obj: 4.798e-02

```

## Iteration 125



```

#> It: 126; obj: 4.758e-02; abs: 4.050e-04; rel: 8.441e-03; norm: 9.950e-02; mom: 6.034e-02;
#> best it: 126; best obj: 4.758e-02
#> It: 127; obj: 4.720e-02; abs: 3.801e-04; rel: 7.988e-03; norm: 9.897e-02; mom: 5.869e-02;
#> best it: 127; best obj: 4.720e-02
#> It: 128; obj: 4.684e-02; abs: 3.535e-04; rel: 7.490e-03; norm: 9.844e-02; mom: 5.689e-02;
#> best it: 128; best obj: 4.684e-02
#> It: 129; obj: 4.652e-02; abs: 3.256e-04; rel: 6.951e-03; norm: 9.792e-02; mom: 5.492e-02;
#> best it: 129; best obj: 4.652e-02
#> It: 130; obj: 4.622e-02; abs: 2.969e-04; rel: 6.382e-03; norm: 9.741e-02; mom: 5.277e-02;
#> best it: 130; best obj: 4.622e-02
#> It: 131; obj: 4.595e-02; abs: 2.679e-04; rel: 5.796e-03; norm: 9.692e-02; mom: 5.045e-02;
#> best it: 131; best obj: 4.595e-02

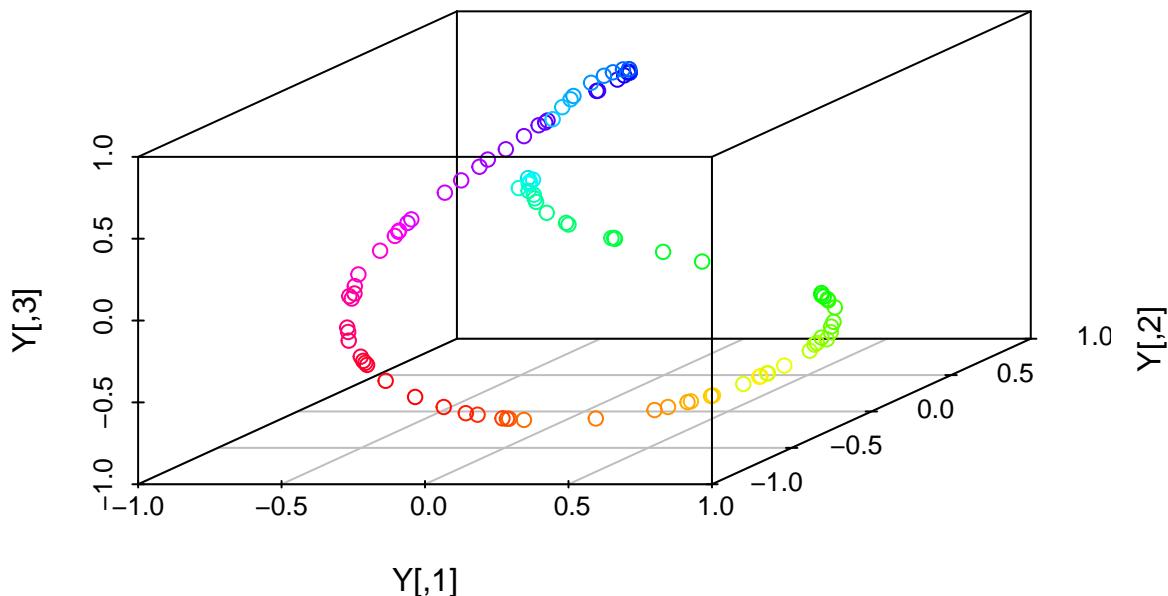
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#> It: 132; obj: 4.571e-02; abs: 2.393e-04; rel: 5.207e-03; norm: 9.644e-02; mom: 4.799e-02;
#> best it: 132; best obj: 4.571e-02
#> It: 133; obj: 4.550e-02; abs: 2.116e-04; rel: 4.630e-03; norm: 9.599e-02; mom: 4.542e-02;
#> best it: 133; best obj: 4.550e-02
#> It: 134; obj: 4.532e-02; abs: 1.855e-04; rel: 4.077e-03; norm: 9.556e-02; mom: 4.278e-02;
#> best it: 134; best obj: 4.532e-02
#> It: 135; obj: 4.515e-02; abs: 1.613e-04; rel: 3.560e-03; norm: 9.516e-02; mom: 4.010e-02;
#> best it: 135; best obj: 4.515e-02
#> It: 136; obj: 4.502e-02; abs: 1.394e-04; rel: 3.086e-03; norm: 9.478e-02; mom: 3.743e-02;
#> best it: 136; best obj: 4.502e-02
#> It: 137; obj: 4.490e-02; abs: 1.198e-04; rel: 2.661e-03; norm: 9.443e-02; mom: 3.480e-02;
#> best it: 137; best obj: 4.490e-02
#> It: 138; obj: 4.479e-02; abs: 1.026e-04; rel: 2.285e-03; norm: 9.411e-02; mom: 3.225e-02;
#> best it: 138; best obj: 4.479e-02
#> It: 139; obj: 4.471e-02; abs: 8.767e-05; rel: 1.957e-03; norm: 9.381e-02; mom: 2.982e-02;
#> best it: 139; best obj: 4.471e-02
#> It: 140; obj: 4.463e-02; abs: 7.491e-05; rel: 1.676e-03; norm: 9.355e-02; mom: 2.752e-02;
#> best it: 140; best obj: 4.463e-02
#> It: 141; obj: 4.457e-02; abs: 6.409e-05; rel: 1.436e-03; norm: 9.331e-02; mom: 2.537e-02;
#> best it: 141; best obj: 4.457e-02
#> It: 142; obj: 4.451e-02; abs: 5.502e-05; rel: 1.235e-03; norm: 9.309e-02; mom: 2.339e-02;
#> best it: 142; best obj: 4.451e-02
#> It: 143; obj: 4.446e-02; abs: 4.748e-05; rel: 1.067e-03; norm: 9.291e-02; mom: 2.157e-02;
#> best it: 143; best obj: 4.446e-02
#> It: 144; obj: 4.442e-02; abs: 4.126e-05; rel: 9.280e-04; norm: 9.275e-02; mom: 1.993e-02;
#> best it: 144; best obj: 4.442e-02
#> It: 145; obj: 4.439e-02; abs: 3.615e-05; rel: 8.138e-04; norm: 9.262e-02; mom: 1.846e-02;
#> best it: 145; best obj: 4.439e-02
#> It: 146; obj: 4.435e-02; abs: 3.194e-05; rel: 7.197e-04; norm: 9.251e-02; mom: 1.715e-02;
#> best it: 146; best obj: 4.435e-02
#> It: 147; obj: 4.433e-02; abs: 2.847e-05; rel: 6.418e-04; norm: 9.242e-02; mom: 1.601e-02;
#> best it: 147; best obj: 4.433e-02
#> It: 148; obj: 4.430e-02; abs: 2.557e-05; rel: 5.769e-04; norm: 9.234e-02; mom: 1.501e-02;
#> best it: 148; best obj: 4.430e-02
#> It: 149; obj: 4.428e-02; abs: 2.314e-05; rel: 5.223e-04; norm: 9.228e-02; mom: 1.412e-02;
#> best it: 149; best obj: 4.428e-02
#> It: 150; obj: 4.426e-02; abs: 2.106e-05; rel: 4.757e-04; norm: 9.222e-02; mom: 1.335e-02;
#> best it: 150; best obj: 4.426e-02

```

## Iteration 150



```

#> It: 151; obj: 4.424e-02; abs: 1.928e-05; rel: 4.356e-04; norm: 9.217e-02; mom: 1.265e-02;
#> best it: 151; best obj: 4.424e-02
#> It: 152; obj: 4.422e-02; abs: 1.772e-05; rel: 4.007e-04; norm: 9.213e-02; mom: 1.204e-02;
#> best it: 152; best obj: 4.422e-02
#> It: 153; obj: 4.420e-02; abs: 1.635e-05; rel: 3.698e-04; norm: 9.210e-02; mom: 1.148e-02;
#> best it: 153; best obj: 4.420e-02
#> It: 154; obj: 4.419e-02; abs: 1.513e-05; rel: 3.424e-04; norm: 9.207e-02; mom: 1.097e-02;
#> best it: 154; best obj: 4.419e-02
#> It: 155; obj: 4.417e-02; abs: 1.404e-05; rel: 3.177e-04; norm: 9.204e-02; mom: 1.051e-02;
#> best it: 155; best obj: 4.417e-02
#> It: 156; obj: 4.416e-02; abs: 1.305e-05; rel: 2.955e-04; norm: 9.202e-02; mom: 1.008e-02;
#> best it: 156; best obj: 4.416e-02
#> It: 157; obj: 4.415e-02; abs: 1.216e-05; rel: 2.753e-04; norm: 9.201e-02; mom: 9.690e-03;
#> best it: 157; best obj: 4.415e-02
#> It: 158; obj: 4.414e-02; abs: 1.134e-05; rel: 2.568e-04; norm: 9.200e-02; mom: 9.324e-03;
#> best it: 158; best obj: 4.414e-02
#> It: 159; obj: 4.413e-02; abs: 1.059e-05; rel: 2.400e-04; norm: 9.199e-02; mom: 8.982e-03;
#> best it: 159; best obj: 4.413e-02
#> It: 160; obj: 4.412e-02; abs: 9.904e-06; rel: 2.244e-04; norm: 9.198e-02; mom: 8.663e-03;
#> best it: 160; best obj: 4.412e-02
#> It: 161; obj: 4.411e-02; abs: 9.270e-06; rel: 2.101e-04; norm: 9.198e-02; mom: 8.363e-03;
#> best it: 161; best obj: 4.411e-02
#> It: 162; obj: 4.410e-02; abs: 8.684e-06; rel: 1.969e-04; norm: 9.198e-02; mom: 8.081e-03;
#> best it: 162; best obj: 4.410e-02
#> It: 163; obj: 4.409e-02; abs: 8.139e-06; rel: 1.846e-04; norm: 9.198e-02; mom: 7.814e-03;
#> best it: 163; best obj: 4.409e-02
#> It: 164; obj: 4.408e-02; abs: 7.631e-06; rel: 1.731e-04; norm: 9.198e-02; mom: 7.561e-03;
#> best it: 164; best obj: 4.408e-02
#> It: 165; obj: 4.408e-02; abs: 7.156e-06; rel: 1.623e-04; norm: 9.198e-02; mom: 7.319e-03;
#> best it: 165; best obj: 4.408e-02
#> It: 166; obj: 4.407e-02; abs: 6.712e-06; rel: 1.523e-04; norm: 9.198e-02; mom: 7.087e-03;

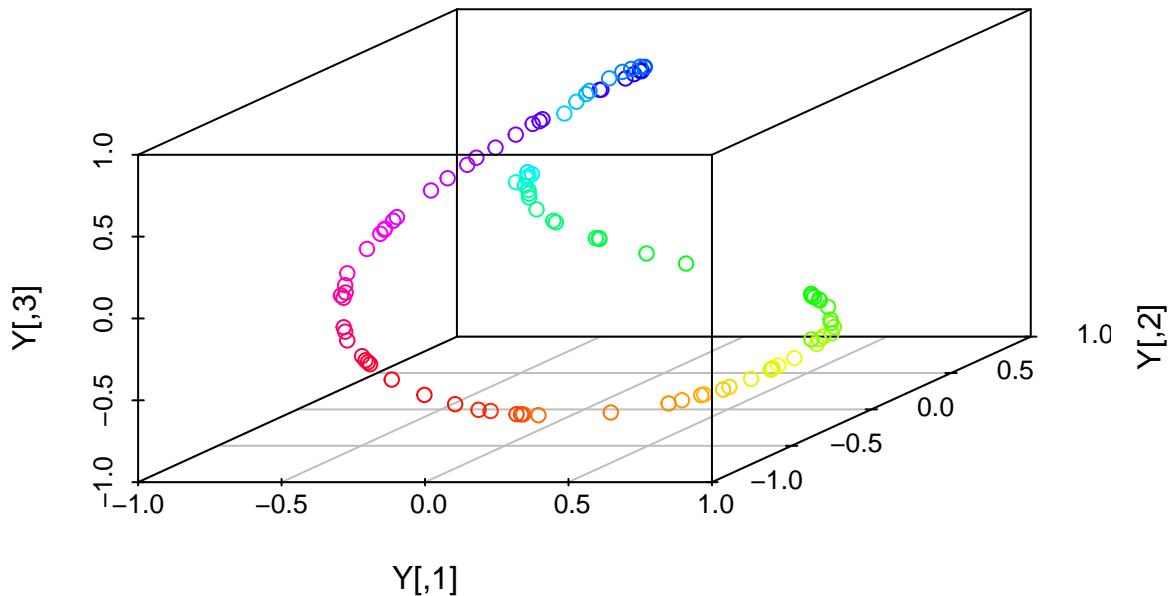
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#> best it: 166; best obj: 4.407e-02
#> It: 167; obj: 4.406e-02; abs: 6.295e-06; rel: 1.428e-04; norm: 9.199e-02; mom: 6.863e-03;
#> best it: 167; best obj: 4.406e-02
#> It: 168; obj: 4.406e-02; abs: 5.904e-06; rel: 1.340e-04; norm: 9.199e-02; mom: 6.647e-03;
#> best it: 168; best obj: 4.406e-02
#> It: 169; obj: 4.405e-02; abs: 5.537e-06; rel: 1.257e-04; norm: 9.199e-02; mom: 6.437e-03;
#> best it: 169; best obj: 4.405e-02
#> It: 170; obj: 4.405e-02; abs: 5.192e-06; rel: 1.179e-04; norm: 9.200e-02; mom: 6.233e-03;
#> best it: 170; best obj: 4.405e-02
#> It: 171; obj: 4.404e-02; abs: 4.867e-06; rel: 1.105e-04; norm: 9.200e-02; mom: 6.035e-03;
#> best it: 171; best obj: 4.404e-02
#> It: 172; obj: 4.404e-02; abs: 4.563e-06; rel: 1.036e-04; norm: 9.201e-02; mom: 5.842e-03;
#> best it: 172; best obj: 4.404e-02
#> It: 173; obj: 4.403e-02; abs: 4.278e-06; rel: 9.714e-05; norm: 9.201e-02; mom: 5.654e-03;
#> best it: 173; best obj: 4.403e-02
#> It: 174; obj: 4.403e-02; abs: 4.010e-06; rel: 9.107e-05; norm: 9.201e-02; mom: 5.472e-03;
#> best it: 174; best obj: 4.403e-02
#> It: 175; obj: 4.402e-02; abs: 3.760e-06; rel: 8.539e-05; norm: 9.202e-02; mom: 5.295e-03;
#> best it: 175; best obj: 4.402e-02

```

## Iteration 175



```

#> It: 176; obj: 4.402e-02; abs: 3.525e-06; rel: 8.007e-05; norm: 9.202e-02; mom: 5.125e-03;
#> best it: 176; best obj: 4.402e-02
#> It: 177; obj: 4.402e-02; abs: 3.306e-06; rel: 7.510e-05; norm: 9.203e-02; mom: 4.959e-03;
#> best it: 177; best obj: 4.402e-02
#> It: 178; obj: 4.401e-02; abs: 3.101e-06; rel: 7.044e-05; norm: 9.203e-02; mom: 4.800e-03;
#> best it: 178; best obj: 4.401e-02
#> It: 179; obj: 4.401e-02; abs: 2.909e-06; rel: 6.609e-05; norm: 9.204e-02; mom: 4.647e-03;
#> best it: 179; best obj: 4.401e-02
#> It: 180; obj: 4.401e-02; abs: 2.729e-06; rel: 6.201e-05; norm: 9.205e-02; mom: 4.499e-03;
#> best it: 180; best obj: 4.401e-02
#> It: 181; obj: 4.401e-02; abs: 2.561e-06; rel: 5.820e-05; norm: 9.205e-02; mom: 4.357e-03;
#> best it: 181; best obj: 4.401e-02

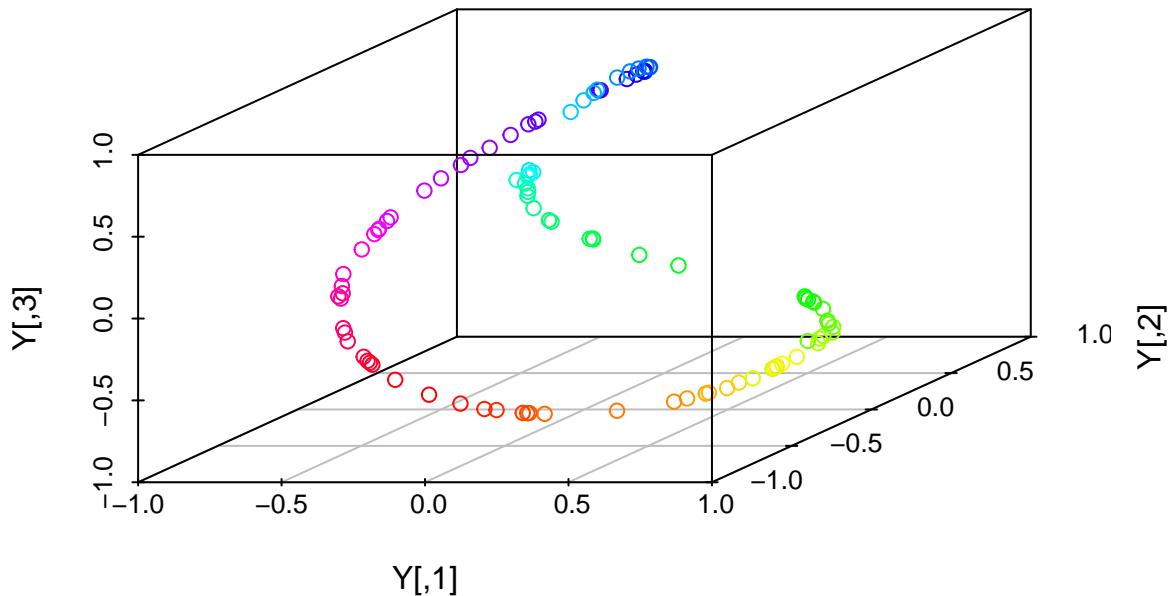
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#> It: 182; obj: 4.400e-02; abs: 2.404e-06; rel: 5.462e-05; norm: 9.206e-02; mom: 4.221e-03;
#> best it: 182; best obj: 4.400e-02
#> It: 183; obj: 4.400e-02; abs: 2.256e-06; rel: 5.127e-05; norm: 9.206e-02; mom: 4.089e-03;
#> best it: 183; best obj: 4.400e-02
#> It: 184; obj: 4.400e-02; abs: 2.118e-06; rel: 4.813e-05; norm: 9.207e-02; mom: 3.962e-03;
#> best it: 184; best obj: 4.400e-02
#> It: 185; obj: 4.400e-02; abs: 1.988e-06; rel: 4.519e-05; norm: 9.207e-02; mom: 3.839e-03;
#> best it: 185; best obj: 4.400e-02
#> It: 186; obj: 4.400e-02; abs: 1.866e-06; rel: 4.242e-05; norm: 9.208e-02; mom: 3.720e-03;
#> best it: 186; best obj: 4.400e-02
#> It: 187; obj: 4.399e-02; abs: 1.752e-06; rel: 3.982e-05; norm: 9.208e-02; mom: 3.605e-03;
#> best it: 187; best obj: 4.399e-02
#> It: 188; obj: 4.399e-02; abs: 1.645e-06; rel: 3.738e-05; norm: 9.209e-02; mom: 3.494e-03;
#> best it: 188; best obj: 4.399e-02
#> It: 189; obj: 4.399e-02; abs: 1.543e-06; rel: 3.509e-05; norm: 9.209e-02; mom: 3.386e-03;
#> best it: 189; best obj: 4.399e-02
#> It: 190; obj: 4.399e-02; abs: 1.448e-06; rel: 3.293e-05; norm: 9.210e-02; mom: 3.280e-03;
#> best it: 190; best obj: 4.399e-02
#> It: 191; obj: 4.399e-02; abs: 1.359e-06; rel: 3.090e-05; norm: 9.210e-02; mom: 3.178e-03;
#> best it: 191; best obj: 4.399e-02
#> It: 192; obj: 4.399e-02; abs: 1.275e-06; rel: 2.899e-05; norm: 9.211e-02; mom: 3.079e-03;
#> best it: 192; best obj: 4.399e-02
#> It: 193; obj: 4.399e-02; abs: 1.196e-06; rel: 2.719e-05; norm: 9.211e-02; mom: 2.982e-03;
#> best it: 193; best obj: 4.399e-02
#> It: 194; obj: 4.398e-02; abs: 1.122e-06; rel: 2.551e-05; norm: 9.211e-02; mom: 2.888e-03;
#> best it: 194; best obj: 4.398e-02
#> It: 195; obj: 4.398e-02; abs: 1.052e-06; rel: 2.392e-05; norm: 9.212e-02; mom: 2.796e-03;
#> best it: 195; best obj: 4.398e-02
#> It: 196; obj: 4.398e-02; abs: 9.865e-07; rel: 2.243e-05; norm: 9.212e-02; mom: 2.706e-03;
#> best it: 196; best obj: 4.398e-02
#> It: 197; obj: 4.398e-02; abs: 9.250e-07; rel: 2.103e-05; norm: 9.213e-02; mom: 2.619e-03;
#> best it: 197; best obj: 4.398e-02
#> It: 198; obj: 4.398e-02; abs: 8.672e-07; rel: 1.972e-05; norm: 9.213e-02; mom: 2.535e-03;
#> best it: 198; best obj: 4.398e-02
#> It: 199; obj: 4.398e-02; abs: 8.130e-07; rel: 1.848e-05; norm: 9.213e-02; mom: 2.453e-03;
#> best it: 199; best obj: 4.398e-02
#> It: 200; obj: 4.398e-02; abs: 7.621e-07; rel: 1.733e-05; norm: 9.214e-02; mom: 2.374e-03;
#> best it: 200; best obj: 4.398e-02

```

## Iteration 200



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#> It: 201; obj: 4.398e-02; abs: 7.145e-07; rel: 1.625e-05; norm: 9.214e-02; mom: 2.297e-03;
#> best it: 201; best obj: 4.398e-02
#> It: 202; obj: 4.398e-02; abs: 6.698e-07; rel: 1.523e-05; norm: 9.214e-02; mom: 2.222e-03;
#> best it: 202; best obj: 4.398e-02
#> It: 203; obj: 4.398e-02; abs: 6.280e-07; rel: 1.428e-05; norm: 9.215e-02; mom: 2.150e-03;
#> best it: 203; best obj: 4.398e-02
#> It: 204; obj: 4.398e-02; abs: 5.888e-07; rel: 1.339e-05; norm: 9.215e-02; mom: 2.080e-03;
#> best it: 204; best obj: 4.398e-02
#> It: 205; obj: 4.398e-02; abs: 5.520e-07; rel: 1.255e-05; norm: 9.215e-02; mom: 2.013e-03;
#> best it: 205; best obj: 4.398e-02
#> It: 206; obj: 4.398e-02; abs: 5.177e-07; rel: 1.177e-05; norm: 9.216e-02; mom: 1.948e-03;
#> best it: 206; best obj: 4.398e-02
#> It: 207; obj: 4.397e-02; abs: 4.854e-07; rel: 1.104e-05; norm: 9.216e-02; mom: 1.885e-03;
#> best it: 207; best obj: 4.397e-02
#> It: 208; obj: 4.397e-02; abs: 4.553e-07; rel: 1.035e-05; norm: 9.216e-02; mom: 1.824e-03;
#> best it: 208; best obj: 4.397e-02
#> It: 209; obj: 4.397e-02; abs: 4.270e-07; rel: 9.710e-06; norm: 9.217e-02; mom: 1.765e-03;
#> best it: 209; best obj: 4.397e-02
#> It: 210; obj: 4.397e-02; abs: 4.005e-07; rel: 9.108e-06; norm: 9.217e-02; mom: 1.709e-03;
#> best it: 210; best obj: 4.397e-02
#> It: 211; obj: 4.397e-02; abs: 3.757e-07; rel: 8.544e-06; norm: 9.217e-02; mom: 1.654e-03;
#> best it: 211; best obj: 4.397e-02
#> It: 212; obj: 4.397e-02; abs: 3.524e-07; rel: 8.015e-06; norm: 9.217e-02; mom: 1.602e-03;
#> best it: 212; best obj: 4.397e-02
#> It: 213; obj: 4.397e-02; abs: 3.306e-07; rel: 7.519e-06; norm: 9.218e-02; mom: 1.551e-03;
#> best it: 213; best obj: 4.397e-02
#> It: 214; obj: 4.397e-02; abs: 3.102e-07; rel: 7.055e-06; norm: 9.218e-02; mom: 1.501e-03;
#> best it: 214; best obj: 4.397e-02
#> It: 215; obj: 4.397e-02; abs: 2.911e-07; rel: 6.619e-06; norm: 9.218e-02; mom: 1.454e-03;
#> best it: 215; best obj: 4.397e-02
#> It: 216; obj: 4.397e-02; abs: 2.731e-07; rel: 6.211e-06; norm: 9.219e-02; mom: 1.408e-03;

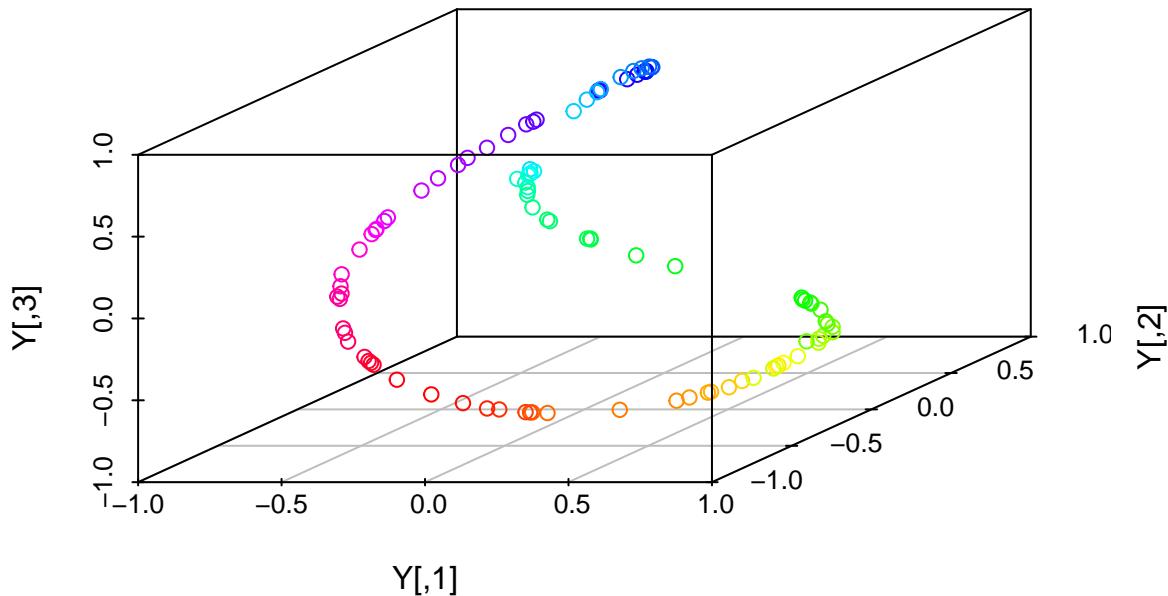
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#> best it: 216; best obj: 4.397e-02
#> It: 217; obj: 4.397e-02; abs: 2.563e-07; rel: 5.828e-06; norm: 9.219e-02; mom: 1.363e-03;
#> best it: 217; best obj: 4.397e-02
#> It: 218; obj: 4.397e-02; abs: 2.405e-07; rel: 5.469e-06; norm: 9.219e-02; mom: 1.321e-03;
#> best it: 218; best obj: 4.397e-02
#> It: 219; obj: 4.397e-02; abs: 2.257e-07; rel: 5.132e-06; norm: 9.219e-02; mom: 1.279e-03;
#> best it: 219; best obj: 4.397e-02
#> It: 220; obj: 4.397e-02; abs: 2.118e-07; rel: 4.816e-06; norm: 9.220e-02; mom: 1.239e-03;
#> best it: 220; best obj: 4.397e-02
#> It: 221; obj: 4.397e-02; abs: 1.987e-07; rel: 4.520e-06; norm: 9.220e-02; mom: 1.200e-03;
#> best it: 221; best obj: 4.397e-02
#> It: 222; obj: 4.397e-02; abs: 1.865e-07; rel: 4.242e-06; norm: 9.220e-02; mom: 1.162e-03;
#> best it: 222; best obj: 4.397e-02
#> It: 223; obj: 4.397e-02; abs: 1.750e-07; rel: 3.981e-06; norm: 9.220e-02; mom: 1.126e-03;
#> best it: 223; best obj: 4.397e-02
#> It: 224; obj: 4.397e-02; abs: 1.643e-07; rel: 3.736e-06; norm: 9.220e-02; mom: 1.091e-03;
#> best it: 224; best obj: 4.397e-02
#> It: 225; obj: 4.397e-02; abs: 1.542e-07; rel: 3.507e-06; norm: 9.221e-02; mom: 1.057e-03;
#> best it: 225; best obj: 4.397e-02

```

## Iteration 225



```

#> It: 226; obj: 4.397e-02; abs: 1.447e-07; rel: 3.292e-06; norm: 9.221e-02; mom: 1.023e-03;
#> best it: 226; best obj: 4.397e-02
#> It: 227; obj: 4.397e-02; abs: 1.358e-07; rel: 3.089e-06; norm: 9.221e-02; mom: 9.915e-04;
#> best it: 227; best obj: 4.397e-02
#> It: 228; obj: 4.397e-02; abs: 1.275e-07; rel: 2.900e-06; norm: 9.221e-02; mom: 9.606e-04;
#> best it: 228; best obj: 4.397e-02
#> It: 229; obj: 4.397e-02; abs: 1.197e-07; rel: 2.722e-06; norm: 9.221e-02; mom: 9.306e-04;
#> best it: 229; best obj: 4.397e-02
#> It: 230; obj: 4.397e-02; abs: 1.123e-07; rel: 2.555e-06; norm: 9.221e-02; mom: 9.016e-04;
#> best it: 230; best obj: 4.397e-02
#> It: 231; obj: 4.397e-02; abs: 1.055e-07; rel: 2.398e-06; norm: 9.222e-02; mom: 8.735e-04;
#> best it: 231; best obj: 4.397e-02

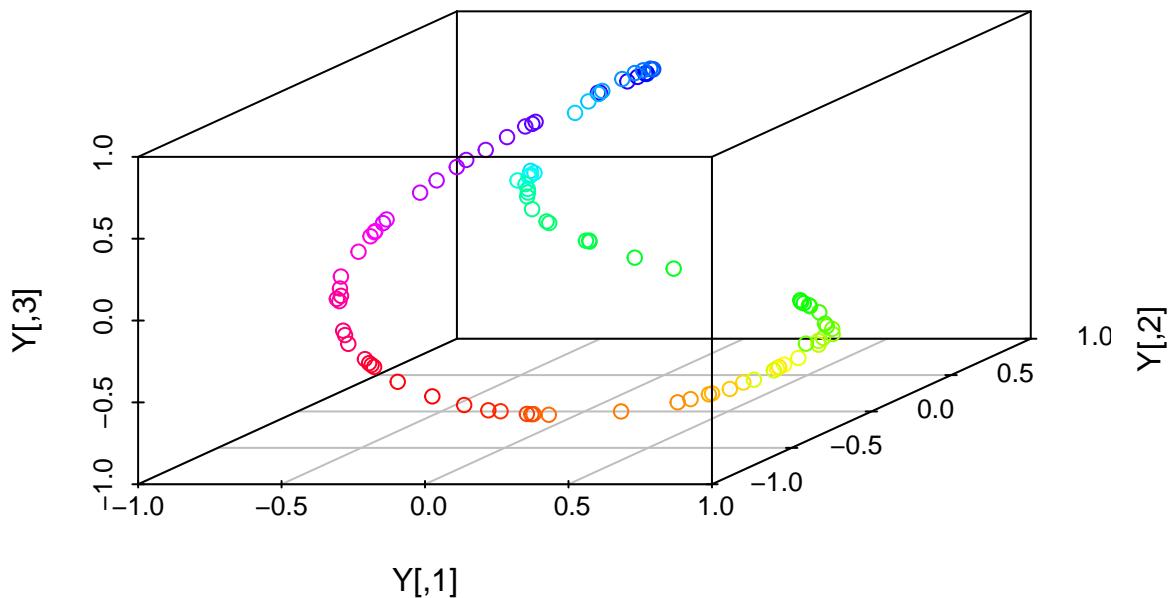
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#> It: 232; obj: 4.397e-02; abs: 9.900e-08; rel: 2.251e-06; norm: 9.222e-02; mom: 8.463e-04;
#> best it: 232; best obj: 4.397e-02
#> It: 233; obj: 4.397e-02; abs: 9.293e-08; rel: 2.114e-06; norm: 9.222e-02; mom: 8.199e-04;
#> best it: 233; best obj: 4.397e-02
#> It: 234; obj: 4.397e-02; abs: 8.724e-08; rel: 1.984e-06; norm: 9.222e-02; mom: 7.944e-04;
#> best it: 234; best obj: 4.397e-02
#> It: 235; obj: 4.397e-02; abs: 8.190e-08; rel: 1.863e-06; norm: 9.222e-02; mom: 7.697e-04;
#> best it: 235; best obj: 4.397e-02
#> It: 236; obj: 4.397e-02; abs: 7.688e-08; rel: 1.749e-06; norm: 9.222e-02; mom: 7.457e-04;
#> best it: 236; best obj: 4.397e-02
#> It: 237; obj: 4.397e-02; abs: 7.218e-08; rel: 1.642e-06; norm: 9.223e-02; mom: 7.225e-04;
#> best it: 237; best obj: 4.397e-02
#> It: 238; obj: 4.397e-02; abs: 6.776e-08; rel: 1.541e-06; norm: 9.223e-02; mom: 7.001e-04;
#> best it: 238; best obj: 4.397e-02
#> It: 239; obj: 4.397e-02; abs: 6.361e-08; rel: 1.447e-06; norm: 9.223e-02; mom: 6.783e-04;
#> best it: 239; best obj: 4.397e-02
#> It: 240; obj: 4.397e-02; abs: 5.972e-08; rel: 1.358e-06; norm: 9.223e-02; mom: 6.572e-04;
#> best it: 240; best obj: 4.397e-02
#> It: 241; obj: 4.397e-02; abs: 5.607e-08; rel: 1.275e-06; norm: 9.223e-02; mom: 6.368e-04;
#> best it: 241; best obj: 4.397e-02
#> It: 242; obj: 4.397e-02; abs: 5.264e-08; rel: 1.197e-06; norm: 9.223e-02; mom: 6.170e-04;
#> best it: 242; best obj: 4.397e-02
#> It: 243; obj: 4.397e-02; abs: 4.943e-08; rel: 1.124e-06; norm: 9.223e-02; mom: 5.979e-04;
#> best it: 243; best obj: 4.397e-02
#> It: 244; obj: 4.397e-02; abs: 4.641e-08; rel: 1.055e-06; norm: 9.223e-02; mom: 5.793e-04;
#> best it: 244; best obj: 4.397e-02
#> It: 245; obj: 4.397e-02; abs: 4.357e-08; rel: 9.910e-07; norm: 9.224e-02; mom: 5.613e-04;
#> best it: 245; best obj: 4.397e-02
#> It: 246; obj: 4.397e-02; abs: 4.091e-08; rel: 9.304e-07; norm: 9.224e-02; mom: 5.439e-04;
#> best it: 246; best obj: 4.397e-02
#> It: 247; obj: 4.397e-02; abs: 3.841e-08; rel: 8.736e-07; norm: 9.224e-02; mom: 5.271e-04;
#> best it: 247; best obj: 4.397e-02
#> It: 248; obj: 4.397e-02; abs: 4.432e-08; rel: 1.008e-06; norm: 9.224e-02; mom: 8.171e-04;
#> best it: 248; best obj: 4.397e-02
#> It: 249; obj: 4.397e-02; abs: 4.604e-08; rel: 1.047e-06; norm: 9.224e-02; mom: 9.817e-04;
#> best it: 249; best obj: 4.397e-02
#> It: 250; obj: 4.397e-02; abs: 4.532e-08; rel: 1.031e-06; norm: 9.224e-02; mom: 1.072e-03;
#> best it: 250; best obj: 4.397e-02

```

## Iteration 250



```

#> It: 251; obj: 4.397e-02; abs: 4.313e-08; rel: 9.810e-07; norm: 9.224e-02; mom: 1.112e-03;
#> best it: 251; best obj: 4.397e-02
#> It: 252; obj: 4.397e-02; abs: 4.024e-08; rel: 9.153e-07; norm: 9.224e-02; mom: 1.115e-03;
#> best it: 252; best obj: 4.397e-02
#> It: 253; obj: 4.397e-02; abs: 3.713e-08; rel: 8.445e-07; norm: 9.224e-02; mom: 1.093e-03;
#> best it: 253; best obj: 4.397e-02
#> It: 254; obj: 4.397e-02; abs: 3.397e-08; rel: 7.726e-07; norm: 9.225e-02; mom: 1.058e-03;
#> best it: 254; best obj: 4.397e-02
#> It: 255; obj: 4.397e-02; abs: 3.084e-08; rel: 7.015e-07; norm: 9.225e-02; mom: 1.014e-03;
#> best it: 255; best obj: 4.397e-02
#> It: 256; obj: 4.397e-02; abs: 2.784e-08; rel: 6.332e-07; norm: 9.225e-02; mom: 9.653e-04;
#> best it: 256; best obj: 4.397e-02
#> It: 257; obj: 4.397e-02; abs: 2.505e-08; rel: 5.698e-07; norm: 9.225e-02; mom: 9.154e-04;
#> best it: 257; best obj: 4.397e-02
#> It: 258; obj: 4.397e-02; abs: 2.250e-08; rel: 5.118e-07; norm: 9.225e-02; mom: 8.668e-04;
#> best it: 258; best obj: 4.397e-02
#> It: 259; obj: 4.397e-02; abs: 2.020e-08; rel: 4.594e-07; norm: 9.225e-02; mom: 8.207e-04;
#> best it: 259; best obj: 4.397e-02
#> It: 260; obj: 4.397e-02; abs: 1.812e-08; rel: 4.121e-07; norm: 9.225e-02; mom: 7.773e-04;
#> best it: 260; best obj: 4.397e-02
#> It: 261; obj: 4.397e-02; abs: 1.625e-08; rel: 3.696e-07; norm: 9.225e-02; mom: 7.362e-04;
#> best it: 261; best obj: 4.397e-02
#> It: 262; obj: 4.397e-02; abs: 1.458e-08; rel: 3.316e-07; norm: 9.225e-02; mom: 6.971e-04;
#> best it: 262; best obj: 4.397e-02
#> It: 263; obj: 4.397e-02; abs: 1.308e-08; rel: 2.974e-07; norm: 9.225e-02; mom: 6.600e-04;
#> best it: 263; best obj: 4.397e-02
#> It: 264; obj: 4.397e-02; abs: 1.173e-08; rel: 2.667e-07; norm: 9.226e-02; mom: 6.247e-04;
#> best it: 264; best obj: 4.397e-02
#> It: 265; obj: 4.397e-02; abs: 1.051e-08; rel: 2.390e-07; norm: 9.226e-02; mom: 5.907e-04;
#> best it: 265; best obj: 4.397e-02
#> It: 266; obj: 4.397e-02; abs: 9.412e-09; rel: 2.141e-07; norm: 9.226e-02; mom: 5.585e-04;

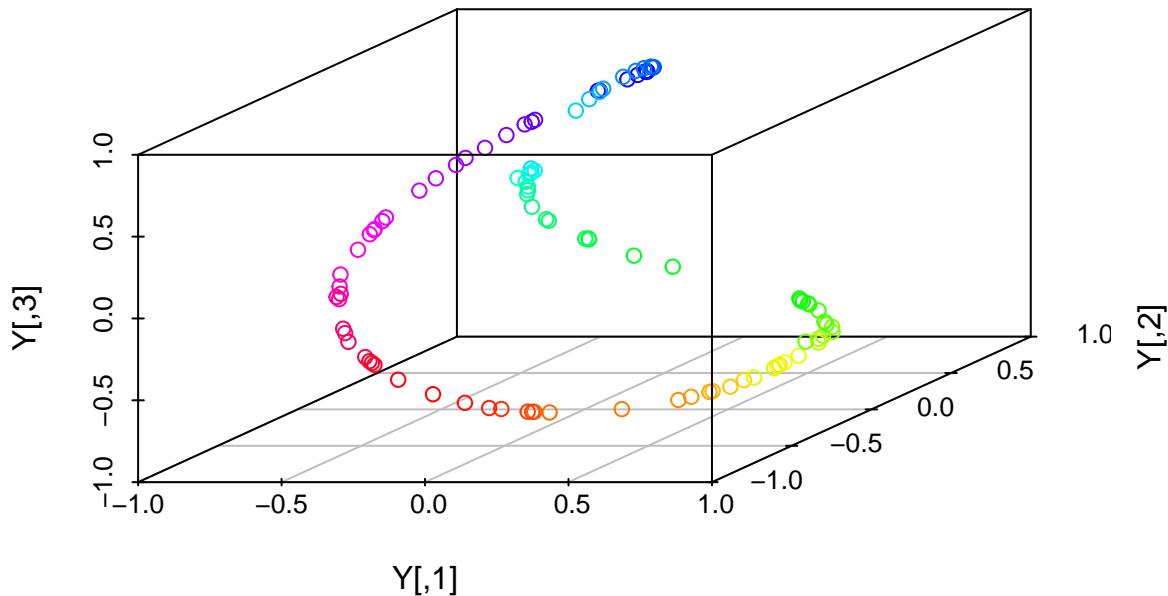
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#> best it: 266; best obj: 4.397e-02
#> It: 267; obj: 4.397e-02; abs: 8.430e-09; rel: 1.917e-07; norm: 9.226e-02; mom: 5.284e-04;
#> best it: 267; best obj: 4.397e-02
#> It: 268; obj: 4.397e-02; abs: 7.551e-09; rel: 1.717e-07; norm: 9.226e-02; mom: 5.002e-04;
#> best it: 268; best obj: 4.397e-02
#> It: 269; obj: 4.397e-02; abs: 6.766e-09; rel: 1.539e-07; norm: 9.226e-02; mom: 4.737e-04;
#> best it: 269; best obj: 4.397e-02
#> It: 270; obj: 4.397e-02; abs: 6.066e-09; rel: 1.380e-07; norm: 9.226e-02; mom: 4.489e-04;
#> best it: 270; best obj: 4.397e-02
#> It: 271; obj: 4.397e-02; abs: 5.440e-09; rel: 1.237e-07; norm: 9.226e-02; mom: 4.259e-04;
#> best it: 271; best obj: 4.397e-02
#> It: 272; obj: 4.397e-02; abs: 4.880e-09; rel: 1.110e-07; norm: 9.226e-02; mom: 4.041e-04;
#> best it: 272; best obj: 4.397e-02
#> It: 273; obj: 4.397e-02; abs: 4.379e-09; rel: 9.960e-08; norm: 9.226e-02; mom: 3.832e-04;
#> best it: 273; best obj: 4.397e-02
#> It: 274; obj: 4.397e-02; abs: 3.931e-09; rel: 8.941e-08; norm: 9.226e-02; mom: 3.632e-04;
#> best it: 274; best obj: 4.397e-02
#> It: 275; obj: 4.397e-02; abs: 3.528e-09; rel: 8.024e-08; norm: 9.226e-02; mom: 3.442e-04;
#> best it: 275; best obj: 4.397e-02

```

## Iteration 275



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#> It: 276; obj: 4.397e-02; abs: 3.165e-09; rel: 7.198e-08; norm: 9.226e-02; mom: 3.260e-04;
#> best it: 276; best obj: 4.397e-02
#> It: 277; obj: 4.397e-02; abs: 2.838e-09; rel: 6.454e-08; norm: 9.226e-02; mom: 3.086e-04;
#> best it: 277; best obj: 4.397e-02
#> It: 278; obj: 4.397e-02; abs: 2.545e-09; rel: 5.789e-08; norm: 9.226e-02; mom: 2.921e-04;
#> best it: 278; best obj: 4.397e-02
#> It: 279; obj: 4.397e-02; abs: 2.283e-09; rel: 5.192e-08; norm: 9.226e-02; mom: 2.766e-04;
#> best it: 279; best obj: 4.397e-02
#> It: 280; obj: 4.397e-02; abs: 2.048e-09; rel: 4.657e-08; norm: 9.226e-02; mom: 2.620e-04;
#> best it: 280; best obj: 4.397e-02
#> It: 281; obj: 4.397e-02; abs: 1.836e-09; rel: 4.177e-08; norm: 9.226e-02; mom: 2.481e-04;
#> best it: 281; best obj: 4.397e-02

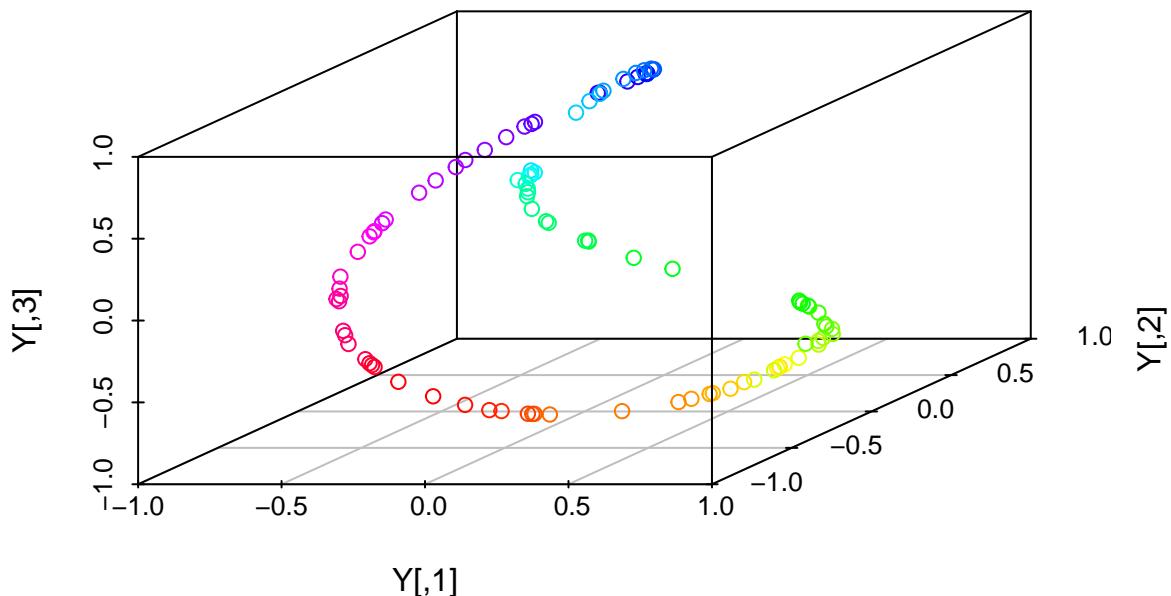
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#> It: 282; obj: 4.397e-02; abs: 1.647e-09; rel: 3.745e-08; norm: 9.226e-02; mom: 2.349e-04;
#> best it: 282; best obj: 4.397e-02
#> It: 283; obj: 4.397e-02; abs: 1.477e-09; rel: 3.358e-08; norm: 9.226e-02; mom: 2.224e-04;
#> best it: 283; best obj: 4.397e-02
#> It: 284; obj: 4.397e-02; abs: 1.324e-09; rel: 3.011e-08; norm: 9.227e-02; mom: 2.105e-04;
#> best it: 284; best obj: 4.397e-02
#> It: 285; obj: 4.397e-02; abs: 1.187e-09; rel: 2.700e-08; norm: 9.227e-02; mom: 1.991e-04;
#> best it: 285; best obj: 4.397e-02
#> It: 286; obj: 4.397e-02; abs: 1.064e-09; rel: 2.421e-08; norm: 9.227e-02; mom: 1.883e-04;
#> best it: 286; best obj: 4.397e-02
#> It: 287; obj: 4.397e-02; abs: 9.542e-10; rel: 2.170e-08; norm: 9.227e-02; mom: 1.782e-04;
#> best it: 287; best obj: 4.397e-02
#> It: 288; obj: 4.397e-02; abs: 8.551e-10; rel: 1.945e-08; norm: 9.227e-02; mom: 1.687e-04;
#> best it: 288; best obj: 4.397e-02
#> It: 289; obj: 4.397e-02; abs: 7.665e-10; rel: 1.743e-08; norm: 9.227e-02; mom: 1.598e-04;
#> best it: 289; best obj: 4.397e-02
#> It: 290; obj: 4.397e-02; abs: 6.873e-10; rel: 1.563e-08; norm: 9.227e-02; mom: 1.514e-04;
#> best it: 290; best obj: 4.397e-02
#> It: 291; obj: 4.397e-02; abs: 6.165e-10; rel: 1.402e-08; norm: 9.227e-02; mom: 1.435e-04;
#> best it: 291; best obj: 4.397e-02
#> It: 292; obj: 4.397e-02; abs: 5.530e-10; rel: 1.258e-08; norm: 9.227e-02; mom: 1.361e-04;
#> best it: 292; best obj: 4.397e-02
#> It: 293; obj: 4.397e-02; abs: 4.960e-10; rel: 1.128e-08; norm: 9.227e-02; mom: 1.289e-04;
#> best it: 293; best obj: 4.397e-02
#> It: 294; obj: 4.397e-02; abs: 4.449e-10; rel: 1.012e-08; norm: 9.227e-02; mom: 1.221e-04;
#> best it: 294; best obj: 4.397e-02
#> It: 295; obj: 4.397e-02; abs: 3.992e-10; rel: 9.079e-09; norm: 9.227e-02; mom: 1.157e-04;
#> best it: 295; best obj: 4.397e-02
#> It: 296; obj: 4.397e-02; abs: 3.581e-10; rel: 8.144e-09; norm: 9.227e-02; mom: 1.095e-04;
#> best it: 296; best obj: 4.397e-02
#> It: 297; obj: 4.397e-02; abs: 3.212e-10; rel: 7.304e-09; norm: 9.227e-02; mom: 1.036e-04;
#> best it: 297; best obj: 4.397e-02
#> It: 298; obj: 4.397e-02; abs: 2.881e-10; rel: 6.552e-09; norm: 9.227e-02; mom: 9.808e-05;
#> best it: 298; best obj: 4.397e-02
#> It: 299; obj: 4.397e-02; abs: 2.585e-10; rel: 5.878e-09; norm: 9.227e-02; mom: 9.289e-05;
#> best it: 299; best obj: 4.397e-02
#> It: 300; obj: 4.397e-02; abs: 2.319e-10; rel: 5.274e-09; norm: 9.227e-02; mom: 8.802e-05;
#> best it: 300; best obj: 4.397e-02

```

## Iteration 300



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#> It: 301; obj: 4.397e-02; abs: 2.080e-10; rel: 4.731e-09; norm: 9.227e-02; mom: 8.342e-05;
#> best it: 301; best obj: 4.397e-02
#> It: 302; obj: 4.397e-02; abs: 1.866e-10; rel: 4.243e-09; norm: 9.227e-02; mom: 7.908e-05;
#> best it: 302; best obj: 4.397e-02
#> It: 303; obj: 4.397e-02; abs: 1.672e-10; rel: 3.804e-09; norm: 9.227e-02; mom: 7.499e-05;
#> best it: 303; best obj: 4.397e-02
#> It: 304; obj: 4.397e-02; abs: 1.499e-10; rel: 3.409e-09; norm: 9.227e-02; mom: 7.106e-05;
#> best it: 304; best obj: 4.397e-02
#> It: 305; obj: 4.397e-02; abs: 1.343e-10; rel: 3.054e-09; norm: 9.227e-02; mom: 6.726e-05;
#> best it: 305; best obj: 4.397e-02
#> It: 306; obj: 4.397e-02; abs: 1.204e-10; rel: 2.738e-09; norm: 9.227e-02; mom: 6.360e-05;
#> best it: 306; best obj: 4.397e-02
#> It: 307; obj: 4.397e-02; abs: 1.079e-10; rel: 2.455e-09; norm: 9.227e-02; mom: 6.014e-05;
#> best it: 307; best obj: 4.397e-02
#> It: 308; obj: 4.397e-02; abs: 9.683e-11; rel: 2.202e-09; norm: 9.227e-02; mom: 5.687e-05;
#> best it: 308; best obj: 4.397e-02
#> It: 309; obj: 4.397e-02; abs: 8.690e-11; rel: 1.976e-09; norm: 9.227e-02; mom: 5.379e-05;
#> best it: 309; best obj: 4.397e-02
#> It: 310; obj: 4.397e-02; abs: 7.802e-11; rel: 1.774e-09; norm: 9.227e-02; mom: 5.094e-05;
#> best it: 310; best obj: 4.397e-02
#> It: 311; obj: 4.397e-02; abs: 7.004e-11; rel: 1.593e-09; norm: 9.227e-02; mom: 4.831e-05;
#> best it: 311; best obj: 4.397e-02
#> It: 312; obj: 4.397e-02; abs: 6.285e-11; rel: 1.429e-09; norm: 9.227e-02; mom: 4.586e-05;
#> best it: 312; best obj: 4.397e-02
#> It: 313; obj: 4.397e-02; abs: 5.635e-11; rel: 1.282e-09; norm: 9.227e-02; mom: 4.354e-05;
#> best it: 313; best obj: 4.397e-02
#> It: 314; obj: 4.397e-02; abs: 5.051e-11; rel: 1.149e-09; norm: 9.227e-02; mom: 4.133e-05;
#> best it: 314; best obj: 4.397e-02
#> It: 315; obj: 4.397e-02; abs: 4.527e-11; rel: 1.030e-09; norm: 9.227e-02; mom: 3.919e-05;
#> best it: 315; best obj: 4.397e-02
#> It: 316; obj: 4.397e-02; abs: 4.058e-11; rel: 9.229e-10; norm: 9.227e-02; mom: 3.711e-05;

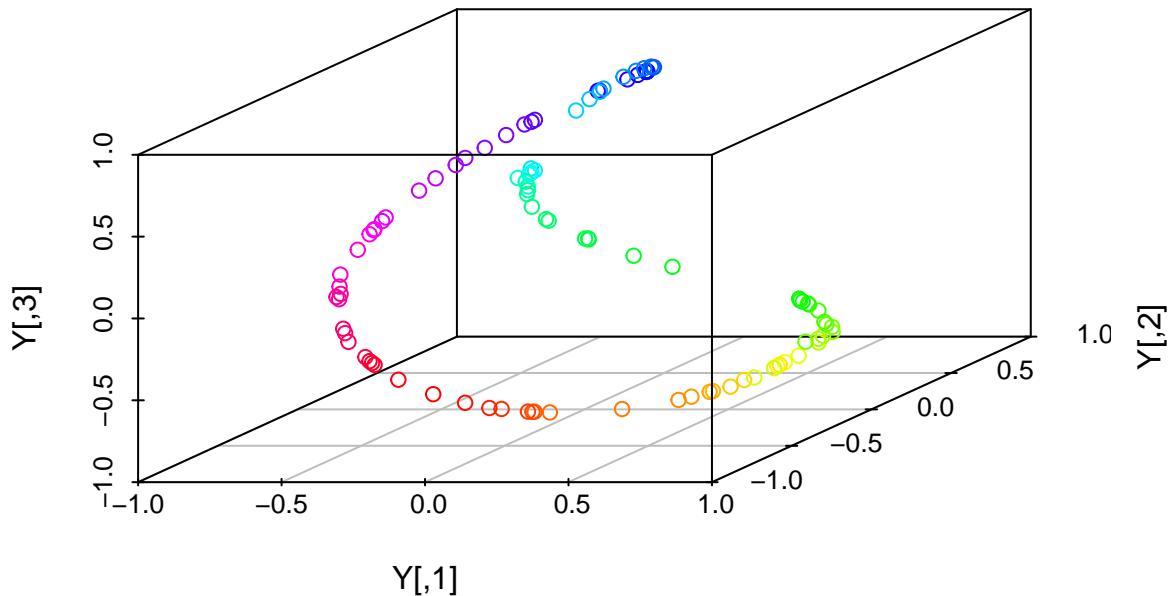
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#> best it: 316; best obj: 4.397e-02
#> It: 317; obj: 4.397e-02; abs: 3.639e-11; rel: 8.276e-10; norm: 9.227e-02; mom: 3.508e-05;
#> best it: 317; best obj: 4.397e-02
#> It: 318; obj: 4.397e-02; abs: 3.265e-11; rel: 7.425e-10; norm: 9.227e-02; mom: 3.314e-05;
#> best it: 318; best obj: 4.397e-02
#> It: 319; obj: 4.397e-02; abs: 2.931e-11; rel: 6.665e-10; norm: 9.227e-02; mom: 3.132e-05;
#> best it: 319; best obj: 4.397e-02
#> It: 320; obj: 4.397e-02; abs: 2.629e-11; rel: 5.980e-10; norm: 9.227e-02; mom: 2.961e-05;
#> best it: 320; best obj: 4.397e-02
#> It: 321; obj: 4.397e-02; abs: 2.361e-11; rel: 5.369e-10; norm: 9.227e-02; mom: 2.803e-05;
#> best it: 321; best obj: 4.397e-02
#> It: 322; obj: 4.397e-02; abs: 2.117e-11; rel: 4.815e-10; norm: 9.227e-02; mom: 2.656e-05;
#> best it: 322; best obj: 4.397e-02
#> It: 323; obj: 4.397e-02; abs: 1.898e-11; rel: 4.317e-10; norm: 9.227e-02; mom: 2.520e-05;
#> best it: 323; best obj: 4.397e-02
#> It: 324; obj: 4.397e-02; abs: 1.701e-11; rel: 3.868e-10; norm: 9.227e-02; mom: 2.392e-05;
#> best it: 324; best obj: 4.397e-02
#> It: 325; obj: 4.397e-02; abs: 1.523e-11; rel: 3.465e-10; norm: 9.227e-02; mom: 2.269e-05;
#> best it: 325; best obj: 4.397e-02

```

### Iteration 325



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#> It: 326; obj: 4.397e-02; abs: 1.365e-11; rel: 3.104e-10; norm: 9.227e-02; mom: 2.150e-05;
#> best it: 326; best obj: 4.397e-02
#> It: 327; obj: 4.397e-02; abs: 1.224e-11; rel: 2.784e-10; norm: 9.227e-02; mom: 2.035e-05;
#> best it: 327; best obj: 4.397e-02
#> It: 328; obj: 4.397e-02; abs: 1.098e-11; rel: 2.498e-10; norm: 9.227e-02; mom: 1.925e-05;
#> best it: 328; best obj: 4.397e-02
#> It: 329; obj: 4.397e-02; abs: 9.852e-12; rel: 2.241e-10; norm: 9.227e-02; mom: 1.821e-05;
#> best it: 329; best obj: 4.397e-02
#> It: 330; obj: 4.397e-02; abs: 8.855e-12; rel: 2.014e-10; norm: 9.227e-02; mom: 1.723e-05;
#> best it: 330; best obj: 4.397e-02
#> It: 331; obj: 4.397e-02; abs: 7.951e-12; rel: 1.808e-10; norm: 9.227e-02; mom: 1.632e-05;
#> best it: 331; best obj: 4.397e-02

```

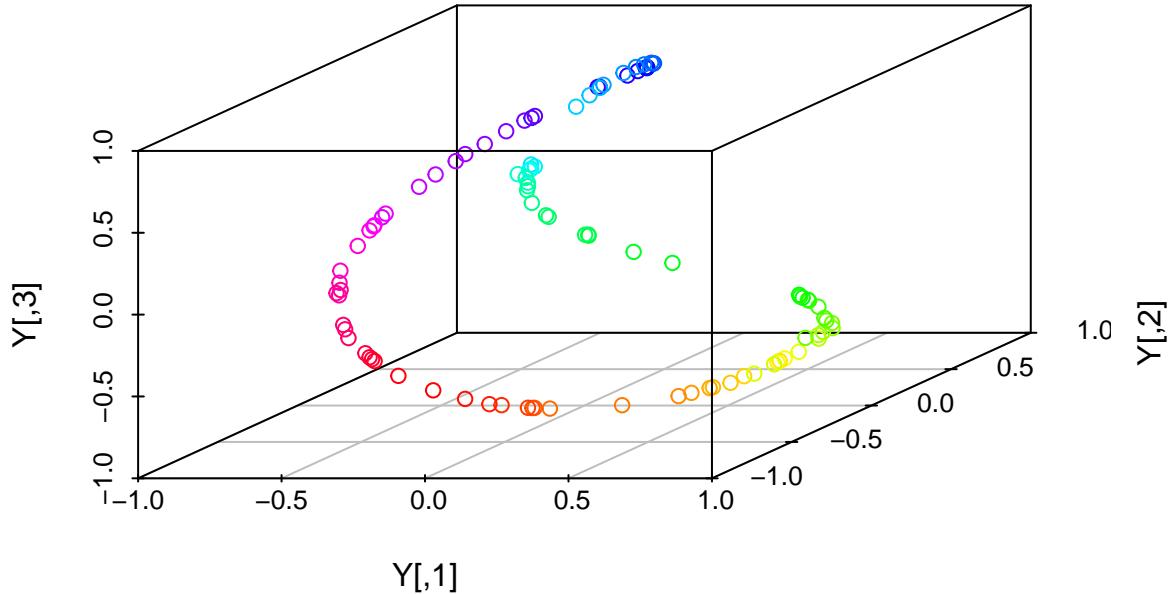
```

#> It: 332; obj: 4.397e-02; abs: 7.138e-12; rel: 1.623e-10; norm: 9.227e-02; mom: 1.548e-05;
#> best it: 332; best obj: 4.397e-02
#> It: 333; obj: 4.397e-02; abs: 6.394e-12; rel: 1.454e-10; norm: 9.227e-02; mom: 1.469e-05;
#> best it: 333; best obj: 4.397e-02
#> It: 334; obj: 4.397e-02; abs: 5.735e-12; rel: 1.304e-10; norm: 9.227e-02; mom: 1.395e-05;
#> best it: 334; best obj: 4.397e-02
#> It: 335; obj: 4.397e-02; abs: 5.137e-12; rel: 1.168e-10; norm: 9.227e-02; mom: 1.324e-05;
#> best it: 335; best obj: 4.397e-02
#> It: 336; obj: 4.397e-02; abs: 4.604e-12; rel: 1.047e-10; norm: 9.227e-02; mom: 1.255e-05;
#> best it: 336; best obj: 4.397e-02
#> It: 337; obj: 4.397e-02; abs: 4.122e-12; rel: 9.375e-11; norm: 9.227e-02; mom: 1.188e-05;
#> best it: 337; best obj: 4.397e-02
#> It: 338; obj: 4.397e-02; abs: 3.702e-12; rel: 8.420e-11; norm: 9.227e-02; mom: 1.122e-05;
#> best it: 338; best obj: 4.397e-02
#> It: 339; obj: 4.397e-02; abs: 3.319e-12; rel: 7.550e-11; norm: 9.227e-02; mom: 1.060e-05;
#> best it: 339; best obj: 4.397e-02
#> It: 340; obj: 4.397e-02; abs: 2.982e-12; rel: 6.783e-11; norm: 9.227e-02; mom: 1.001e-05;
#> best it: 340; best obj: 4.397e-02
#> It: 341; obj: 4.397e-02; abs: 2.684e-12; rel: 6.105e-11; norm: 9.227e-02; mom: 9.458e-06;
#> best it: 341; best obj: 4.397e-02
#> It: 342; obj: 4.397e-02; abs: 2.411e-12; rel: 5.485e-11; norm: 9.227e-02; mom: 8.956e-06;
#> best it: 342; best obj: 4.397e-02
#> It: 343; obj: 4.397e-02; abs: 2.164e-12; rel: 4.921e-11; norm: 9.227e-02; mom: 8.498e-06;
#> best it: 343; best obj: 4.397e-02
#> It: 344; obj: 4.397e-02; abs: 1.941e-12; rel: 4.414e-11; norm: 9.227e-02; mom: 8.074e-06;
#> best it: 344; best obj: 4.397e-02
#> It: 345; obj: 4.397e-02; abs: 1.736e-12; rel: 3.948e-11; norm: 9.227e-02; mom: 7.673e-06;
#> best it: 345; best obj: 4.397e-02
#> It: 346; obj: 4.397e-02; abs: 1.547e-12; rel: 3.519e-11; norm: 9.227e-02; mom: 7.288e-06;
#> best it: 346; best obj: 4.397e-02
#> It: 347; obj: 4.397e-02; abs: 1.383e-12; rel: 3.146e-11; norm: 9.227e-02; mom: 6.912e-06;
#> best it: 347; best obj: 4.397e-02
#> It: 348; obj: 4.397e-02; abs: 1.242e-12; rel: 2.825e-11; norm: 9.227e-02; mom: 6.539e-06;
#> best it: 348; best obj: 4.397e-02
#> It: 349; obj: 4.397e-02; abs: 1.109e-12; rel: 2.521e-11; norm: 9.227e-02; mom: 6.175e-06;
#> best it: 349; best obj: 4.397e-02
#> It: 350; obj: 4.397e-02; abs: 9.983e-13; rel: 2.271e-11; norm: 9.227e-02; mom: 5.829e-06;
#> best it: 350; best obj: 4.397e-02
#> It: 351; obj: 4.397e-02; abs: 9.013e-13; rel: 2.050e-11; norm: 9.227e-02; mom: 5.510e-06;
#> best it: 351; best obj: 4.397e-02
#> It: 352; obj: 4.397e-02; abs: 8.065e-13; rel: 1.834e-11; norm: 9.227e-02; mom: 5.219e-06;
#> best it: 352; best obj: 4.397e-02
#> It: 353; obj: 4.397e-02; abs: 7.285e-13; rel: 1.657e-11; norm: 9.227e-02; mom: 4.957e-06;
#> best it: 353; best obj: 4.397e-02
#> It: 354; obj: 4.397e-02; abs: 6.563e-13; rel: 1.493e-11; norm: 9.227e-02; mom: 4.723e-06;
#> best it: 354; best obj: 4.397e-02
#> It: 355; obj: 4.397e-02; abs: 5.860e-13; rel: 1.333e-11; norm: 9.227e-02; mom: 4.506e-06;
#> best it: 355; best obj: 4.397e-02
#> It: 356; obj: 4.397e-02; abs: 5.235e-13; rel: 1.191e-11; norm: 9.227e-02; mom: 4.292e-06;
#> best it: 356; best obj: 4.397e-02
#> It: 357; obj: 4.397e-02; abs: 4.690e-13; rel: 1.067e-11; norm: 9.227e-02; mom: 4.074e-06;
#> best it: 357; best obj: 4.397e-02
#> It: 358; obj: 4.397e-02; abs: 4.180e-13; rel: 9.507e-12; norm: 9.227e-02; mom: 3.852e-06;
#> best it: 358; best obj: 4.397e-02

```

```
#> Warning in selectChildren(ac[!fin], -1): error 'No child processes' in select
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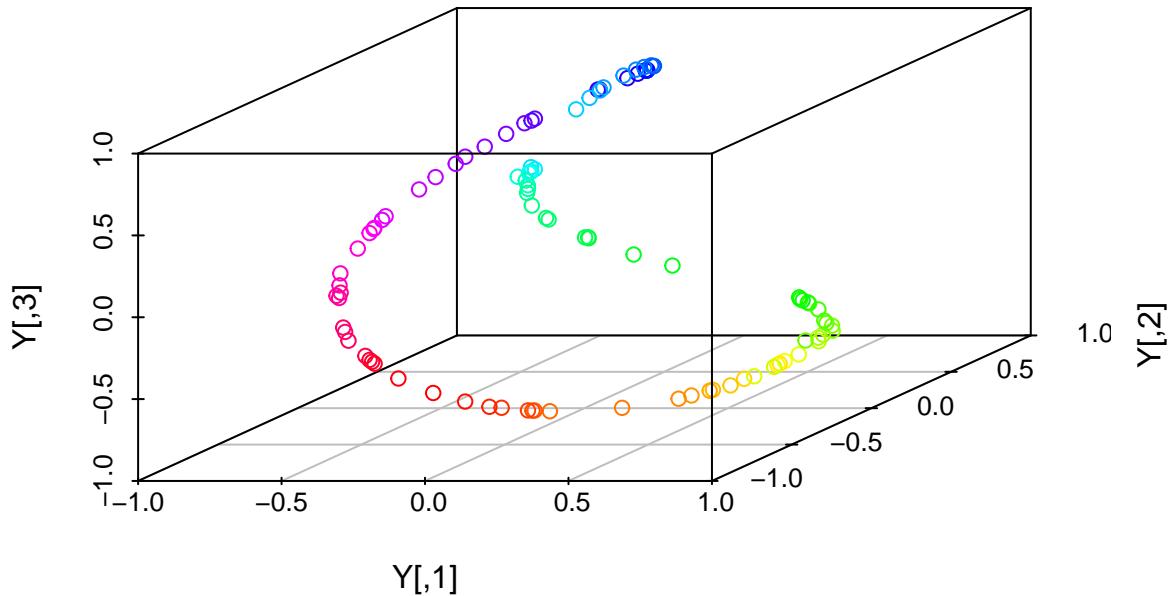
## Iteration 350



```
#> It: 359; obj: 4.397e-02; abs: 3.769e-13; rel: 8.572e-12; norm: 9.227e-02; mom: 3.630e-06;
#> best it: 359; best obj: 4.397e-02
#> It: 360; obj: 4.397e-02; abs: 3.394e-13; rel: 7.719e-12; norm: 9.227e-02; mom: 3.412e-06;
#> best it: 360; best obj: 4.397e-02
#> It: 361; obj: 4.397e-02; abs: 3.046e-13; rel: 6.928e-12; norm: 9.227e-02; mom: 3.208e-06;
#> best it: 361; best obj: 4.397e-02
#> It: 362; obj: 4.397e-02; abs: 2.793e-13; rel: 6.352e-12; norm: 9.227e-02; mom: 3.028e-06;
#> best it: 362; best obj: 4.397e-02
#> It: 363; obj: 4.397e-02; abs: 2.488e-13; rel: 5.658e-12; norm: 9.227e-02; mom: 2.872e-06;
#> best it: 363; best obj: 4.397e-02
#> It: 364; obj: 4.397e-02; abs: 2.238e-13; rel: 5.090e-12; norm: 9.227e-02; mom: 2.735e-06;
#> best it: 364; best obj: 4.397e-02
#> It: 365; obj: 4.397e-02; abs: 1.934e-13; rel: 4.399e-12; norm: 9.227e-02; mom: 2.608e-06;
#> best it: 365; best obj: 4.397e-02
#> It: 366; obj: 4.397e-02; abs: 1.776e-13; rel: 4.038e-12; norm: 9.227e-02; mom: 2.484e-06;
#> best it: 366; best obj: 4.397e-02
#> It: 367; obj: 4.397e-02; abs: 1.524e-13; rel: 3.465e-12; norm: 9.227e-02; mom: 2.357e-06;
#> best it: 367; best obj: 4.397e-02
#> It: 368; obj: 4.397e-02; abs: 1.416e-13; rel: 3.220e-12; norm: 9.227e-02; mom: 2.225e-06;
#> best it: 368; best obj: 4.397e-02
#> It: 369; obj: 4.397e-02; abs: 1.247e-13; rel: 2.836e-12; norm: 9.227e-02; mom: 2.089e-06;
#> best it: 369; best obj: 4.397e-02
#> It: 370; obj: 4.397e-02; abs: 1.132e-13; rel: 2.574e-12; norm: 9.227e-02; mom: 1.960e-06;
#> best it: 370; best obj: 4.397e-02
#> It: 371; obj: 4.397e-02; abs: 1.009e-13; rel: 2.295e-12; norm: 9.227e-02; mom: 1.846e-06;
#> best it: 371; best obj: 4.397e-02
#> It: 372; obj: 4.397e-02; abs: 9.105e-14; rel: 2.071e-12; norm: 9.227e-02; mom: 1.750e-06;
#> best it: 372; best obj: 4.397e-02
#> It: 373; obj: 4.397e-02; abs: 8.245e-14; rel: 1.875e-12; norm: 9.227e-02; mom: 1.671e-06;
#> best it: 373; best obj: 4.397e-02
```

```
#> It: 374; obj: 4.397e-02; abs: 7.351e-14; rel: 1.672e-12; norm: 9.227e-02; mom: 1.608e-06;
#> best it: 374; best obj: 4.397e-02
#> It: 375; obj: 4.397e-02; abs: 6.864e-14; rel: 1.561e-12; norm: 9.227e-02; mom: 1.551e-06;
#> best it: 375; best obj: 4.397e-02
```

## Iteration 375



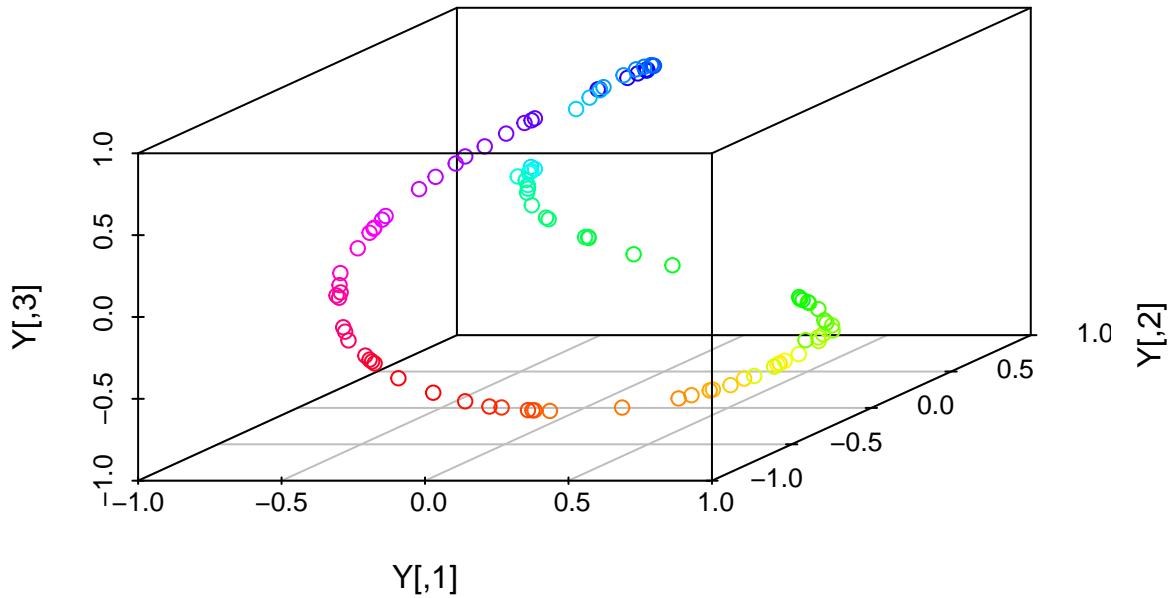
```
#> It: 376; obj: 4.397e-02; abs: 5.963e-14; rel: 1.356e-12; norm: 9.227e-02; mom: 1.492e-06;
#> best it: 376; best obj: 4.397e-02
#> It: 377; obj: 4.397e-02; abs: 5.770e-14; rel: 1.312e-12; norm: 9.227e-02; mom: 1.424e-06;
#> best it: 377; best obj: 4.397e-02
#> It: 378; obj: 4.397e-02; abs: 4.519e-14; rel: 1.028e-12; norm: 9.227e-02; mom: 1.347e-06;
#> best it: 378; best obj: 4.397e-02
#> It: 379; obj: 4.397e-02; abs: 4.489e-14; rel: 1.021e-12; norm: 9.227e-02; mom: 1.263e-06;
#> best it: 379; best obj: 4.397e-02
#> It: 380; obj: 4.397e-02; abs: 3.433e-14; rel: 7.809e-13; norm: 9.227e-02; mom: 1.178e-06;
#> best it: 380; best obj: 4.397e-02
#> It: 381; obj: 4.397e-02; abs: 3.200e-14; rel: 7.277e-13; norm: 9.227e-02; mom: 1.097e-06;
#> best it: 381; best obj: 4.397e-02
#> It: 382; obj: 4.397e-02; abs: 3.449e-14; rel: 7.845e-13; norm: 9.227e-02; mom: 1.028e-06;
#> best it: 382; best obj: 4.397e-02
#> It: 383; obj: 4.397e-02; abs: 2.637e-14; rel: 5.997e-13; norm: 9.227e-02; mom: 9.725e-07;
#> best it: 383; best obj: 4.397e-02
#> It: 384; obj: 4.397e-02; abs: 2.828e-14; rel: 6.433e-13; norm: 9.227e-02; mom: 9.285e-07;
#> best it: 384; best obj: 4.397e-02
#> It: 385; obj: 4.397e-02; abs: 2.131e-14; rel: 4.847e-13; norm: 9.227e-02; mom: 8.918e-07;
#> best it: 385; best obj: 4.397e-02
#> It: 386; obj: 4.397e-02; abs: 2.202e-14; rel: 5.009e-13; norm: 9.227e-02; mom: 8.572e-07;
#> best it: 386; best obj: 4.397e-02
#> It: 387; obj: 4.397e-02; abs: 1.812e-14; rel: 4.122e-13; norm: 9.227e-02; mom: 8.200e-07;
#> best it: 387; best obj: 4.397e-02
#> It: 388; obj: 4.397e-02; abs: 1.561e-14; rel: 3.549e-13; norm: 9.227e-02; mom: 7.777e-07;
#> best it: 388; best obj: 4.397e-02
#> It: 389; obj: 4.397e-02; abs: 1.022e-14; rel: 2.325e-13; norm: 9.227e-02; mom: 7.309e-07;
```

```

#> best it: 389; best obj: 4.397e-02
#> It: 390; obj: 4.397e-02; abs: 1.728e-14; rel: 3.930e-13; norm: 9.227e-02; mom: 6.824e-07;
#> best it: 390; best obj: 4.397e-02
#> It: 391; obj: 4.397e-02; abs: 4.323e-15; rel: 9.832e-14; norm: 9.227e-02; mom: 6.364e-07;
#> best it: 391; best obj: 4.397e-02
#> It: 392; obj: 4.397e-02; abs: 1.456e-14; rel: 3.313e-13; norm: 9.227e-02; mom: 5.968e-07;
#> best it: 392; best obj: 4.397e-02
#> It: 393; obj: 4.397e-02; abs: 9.583e-15; rel: 2.179e-13; norm: 9.227e-02; mom: 5.666e-07;
#> best it: 393; best obj: 4.397e-02
#> It: 394; obj: 4.397e-02; abs: 9.326e-15; rel: 2.121e-13; norm: 9.227e-02; mom: 5.458e-07;
#> best it: 394; best obj: 4.397e-02
#> It: 395; obj: 4.397e-02; abs: 1.069e-14; rel: 2.432e-13; norm: 9.227e-02; mom: 5.308e-07;
#> best it: 395; best obj: 4.397e-02
#> It: 396; obj: 4.397e-02; abs: 6.710e-15; rel: 1.526e-13; norm: 9.227e-02; mom: 5.170e-07;
#> best it: 396; best obj: 4.397e-02
#> It: 397; obj: 4.397e-02; abs: 5.045e-15; rel: 1.147e-13; norm: 9.227e-02; mom: 5.006e-07;
#> best it: 397; best obj: 4.397e-02
#> It: 398; obj: 4.397e-02; abs: 3.879e-15; rel: 8.822e-14; norm: 9.227e-02; mom: 4.788e-07;
#> best it: 398; best obj: 4.397e-02
#> It: 399; obj: 4.397e-02; abs: 8.910e-15; rel: 2.026e-13; norm: 9.227e-02; mom: 4.505e-07;
#> best it: 399; best obj: 4.397e-02
#> It: 400; obj: 4.397e-02; abs: 7.078e-16; rel: 1.610e-14; norm: 9.227e-02; mom: 4.172e-07;
#> best it: 400; best obj: 4.397e-02

```

## Iteration 400



```

#> It: 401; obj: 4.397e-02; abs: 4.503e-15; rel: 1.024e-13; norm: 9.227e-02; mom: 3.830e-07;
#> best it: 401; best obj: 4.397e-02
#> It: 402; obj: 4.397e-02; abs: 2.151e-15; rel: 4.892e-14; norm: 9.227e-02; mom: 3.527e-07;
#> best it: 402; best obj: 4.397e-02
#> It: 403; obj: 4.397e-02; abs: 3.206e-15; rel: 7.291e-14; norm: 9.227e-02; mom: 3.297e-07;
#> best it: 403; best obj: 4.397e-02
#> It: 404; obj: 4.397e-02; abs: 6.037e-15; rel: 1.373e-13; norm: 9.227e-02; mom: 3.155e-07;
#> best it: 404; best obj: 4.397e-02

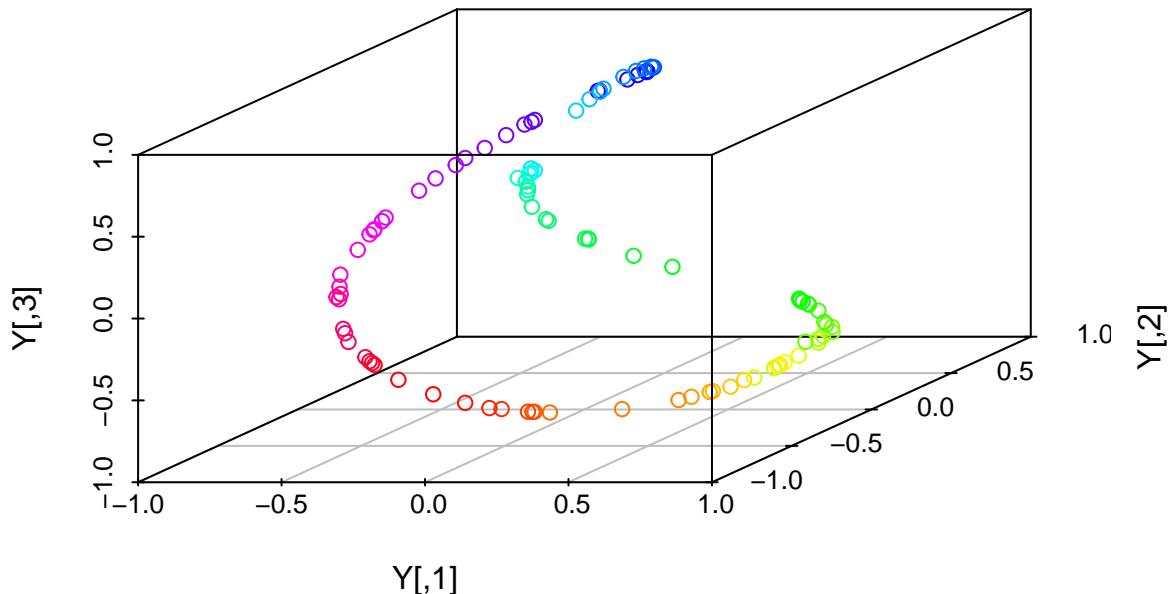
```

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#> It: 405; obj: 4.397e-02; abs: 9.992e-16; rel: 2.273e-14; norm: 9.227e-02; mom: 3.086e-07;
#> best it: 405; best obj: 4.397e-02
#> It: 406; obj: 4.397e-02; abs: 4.101e-15; rel: 9.327e-14; norm: 9.227e-02; mom: 3.051e-07;
#> best it: 406; best obj: 4.397e-02
#> It: 407; obj: 4.397e-02; abs: 2.220e-16; rel: 5.050e-15; norm: 9.227e-02; mom: 3.003e-07;
#> best it: 407; best obj: 4.397e-02
#> It: 408; obj: 4.397e-02; abs: 3.060e-15; rel: 6.960e-14; norm: 9.227e-02; mom: 2.905e-07;
#> best it: 408; best obj: 4.397e-02
#> It: 409; obj: 4.397e-02; abs: 7.355e-16; rel: 1.673e-14; norm: 9.227e-02; mom: 2.742e-07;
#> best it: 409; best obj: 4.397e-02
#> It: 410; obj: 4.397e-02; abs: 3.400e-16; rel: 7.733e-15; norm: 9.227e-02; mom: 2.526e-07;
#> best it: 409; best obj: 4.397e-02
#> It: 411; obj: 4.397e-02; abs: 6.037e-16; rel: 1.373e-14; norm: 9.227e-02; mom: 2.285e-07;
#> best it: 409; best obj: 4.397e-02
#> It: 412; obj: 4.397e-02; abs: 2.956e-15; rel: 6.723e-14; norm: 9.227e-02; mom: 2.062e-07;
#> best it: 412; best obj: 4.397e-02
#> It: 413; obj: 4.397e-02; abs: 3.858e-15; rel: 8.775e-14; norm: 9.227e-02; mom: 1.899e-07;
#> best it: 413; best obj: 4.397e-02
#> It: 414; obj: 4.397e-02; abs: 1.804e-16; rel: 4.103e-15; norm: 9.227e-02; mom: 1.820e-07;
#> best it: 413; best obj: 4.397e-02
#> It: 415; obj: 4.397e-02; abs: 2.248e-15; rel: 5.113e-14; norm: 9.227e-02; mom: 1.813e-07;
#> best it: 415; best obj: 4.397e-02
#> It: 416; obj: 4.397e-02; abs: 6.661e-16; rel: 1.515e-14; norm: 9.227e-02; mom: 1.837e-07;
#> best it: 416; best obj: 4.397e-02
#> It: 417; obj: 4.397e-02; abs: 2.290e-16; rel: 5.208e-15; norm: 9.227e-02; mom: 1.851e-07;
#> best it: 416; best obj: 4.397e-02
#> It: 418; obj: 4.397e-02; abs: 4.233e-16; rel: 9.627e-15; norm: 9.227e-02; mom: 1.823e-07;
#> best it: 416; best obj: 4.397e-02
#> It: 419; obj: 4.397e-02; abs: 2.429e-16; rel: 5.524e-15; norm: 9.227e-02; mom: 1.735e-07;
#> best it: 416; best obj: 4.397e-02
#> It: 420; obj: 4.397e-02; abs: 1.513e-15; rel: 3.440e-14; norm: 9.227e-02; mom: 1.595e-07;
#> best it: 420; best obj: 4.397e-02
#> It: 421; obj: 4.397e-02; abs: 7.772e-16; rel: 1.768e-14; norm: 9.227e-02; mom: 1.427e-07;
#> best it: 420; best obj: 4.397e-02
#> It: 422; obj: 4.397e-02; abs: 4.122e-15; rel: 9.374e-14; norm: 9.227e-02; mom: 1.266e-07;
#> best it: 422; best obj: 4.397e-02
#> It: 423; obj: 4.397e-02; abs: 7.029e-15; rel: 1.599e-13; norm: 9.227e-02; mom: 1.147e-07;
#> best it: 422; best obj: 4.397e-02
#> It: 424; obj: 4.397e-02; abs: 6.266e-15; rel: 1.425e-13; norm: 9.227e-02; mom: 1.091e-07;
#> best it: 422; best obj: 4.397e-02
#> It: 425; obj: 4.397e-02; abs: 1.908e-15; rel: 4.340e-14; norm: 9.227e-02; mom: 1.093e-07;
#> best it: 422; best obj: 4.397e-02

```

## Iteration 425



```

#> It: 426; obj: 4.397e-02; abs: 2.172e-15; rel: 4.940e-14; norm: 9.227e-02; mom: 1.123e-07;
#> best it: 422; best obj: 4.397e-02
#> It: 427; obj: 4.397e-02; abs: 8.327e-16; rel: 1.894e-14; norm: 9.227e-02; mom: 1.145e-07;
#> best it: 422; best obj: 4.397e-02
#> It: 428; obj: 4.397e-02; abs: 3.296e-15; rel: 7.496e-14; norm: 9.227e-02; mom: 1.133e-07;
#> best it: 428; best obj: 4.397e-02
#> It: 429; obj: 4.397e-02; abs: 2.207e-15; rel: 5.019e-14; norm: 9.227e-02; mom: 1.077e-07;
#> best it: 428; best obj: 4.397e-02
#> It: 430; obj: 4.397e-02; abs: 2.158e-15; rel: 4.908e-14; norm: 9.227e-02; mom: 9.813e-08;
#> best it: 428; best obj: 4.397e-02
#> It: 431; obj: 4.397e-02; abs: 4.580e-15; rel: 1.042e-13; norm: 9.227e-02; mom: 8.621e-08;
#> best it: 431; best obj: 4.397e-02
#> It: 432; obj: 4.397e-02; abs: 2.331e-15; rel: 5.303e-14; norm: 9.227e-02; mom: 7.449e-08;
#> best it: 431; best obj: 4.397e-02
#> It: 433; obj: 4.397e-02; abs: 1.235e-15; rel: 2.809e-14; norm: 9.227e-02; mom: 6.592e-08;
#> best it: 431; best obj: 4.397e-02
#> It: 434; obj: 4.397e-02; abs: 2.699e-15; rel: 6.139e-14; norm: 9.227e-02; mom: 6.263e-08;
#> best it: 431; best obj: 4.397e-02
#> It: 435; obj: 4.397e-02; abs: 2.325e-15; rel: 5.287e-14; norm: 9.227e-02; mom: 6.439e-08;
#> best it: 431; best obj: 4.397e-02
#> It: 436; obj: 4.397e-02; abs: 3.747e-15; rel: 8.522e-14; norm: 9.227e-02; mom: 6.870e-08;
#> best it: 436; best obj: 4.397e-02
#> It: 437; obj: 4.397e-02; abs: 3.289e-15; rel: 7.481e-14; norm: 9.227e-02; mom: 7.264e-08;
#> best it: 436; best obj: 4.397e-02
#> It: 438; obj: 4.397e-02; abs: 2.692e-15; rel: 6.123e-14; norm: 9.227e-02; mom: 7.412e-08;
#> best it: 436; best obj: 4.397e-02
#> It: 439; obj: 4.397e-02; abs: 3.678e-16; rel: 8.364e-15; norm: 9.227e-02; mom: 7.220e-08;
#> best it: 436; best obj: 4.397e-02
#> It: 440; obj: 4.397e-02; abs: 1.547e-15; rel: 3.519e-14; norm: 9.227e-02; mom: 6.699e-08;
#> best it: 436; best obj: 4.397e-02
#> It: 441; obj: 4.397e-02; abs: 2.005e-15; rel: 4.561e-14; norm: 9.227e-02; mom: 5.935e-08;

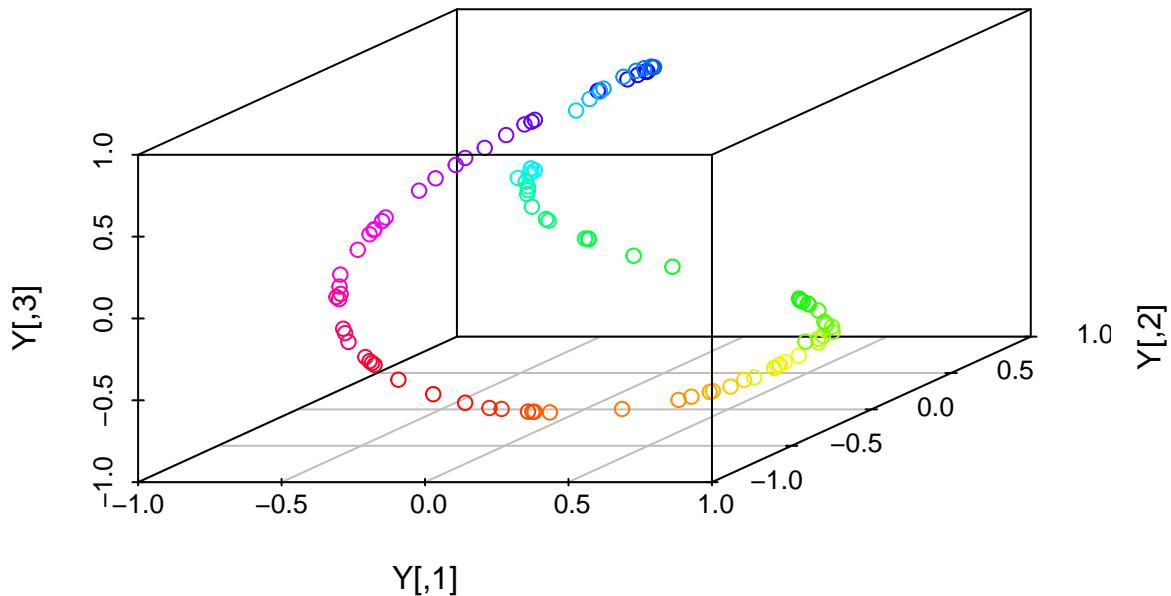
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#> best it: 436; best obj: 4.397e-02
#> It: 442; obj: 4.397e-02; abs: 9.576e-16; rel: 2.178e-14; norm: 9.227e-02; mom: 5.070e-08;
#> best it: 442; best obj: 4.397e-02
#> It: 443; obj: 4.397e-02; abs: 7.633e-16; rel: 1.736e-14; norm: 9.227e-02; mom: 4.294e-08;
#> best it: 443; best obj: 4.397e-02
#> It: 444; obj: 4.397e-02; abs: 5.003e-15; rel: 1.138e-13; norm: 9.227e-02; mom: 3.829e-08;
#> best it: 443; best obj: 4.397e-02
#> It: 445; obj: 4.397e-02; abs: 9.437e-16; rel: 2.146e-14; norm: 9.227e-02; mom: 3.779e-08;
#> best it: 443; best obj: 4.397e-02
#> It: 446; obj: 4.397e-02; abs: 1.270e-15; rel: 2.888e-14; norm: 9.227e-02; mom: 4.035e-08;
#> best it: 443; best obj: 4.397e-02
#> It: 447; obj: 4.397e-02; abs: 1.374e-15; rel: 3.125e-14; norm: 9.227e-02; mom: 4.372e-08;
#> best it: 443; best obj: 4.397e-02
#> It: 448; obj: 4.397e-02; abs: 2.283e-15; rel: 5.192e-14; norm: 9.227e-02; mom: 4.597e-08;
#> best it: 443; best obj: 4.397e-02
#> It: 449; obj: 4.397e-02; abs: 1.110e-15; rel: 2.525e-14; norm: 9.227e-02; mom: 4.605e-08;
#> best it: 443; best obj: 4.397e-02
#> It: 450; obj: 4.397e-02; abs: 2.900e-15; rel: 6.597e-14; norm: 9.227e-02; mom: 4.364e-08;
#> best it: 443; best obj: 4.397e-02

```

## Iteration 450



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#> It: 451; obj: 4.397e-02; abs: 1.193e-15; rel: 2.714e-14; norm: 9.227e-02; mom: 3.905e-08;
#> best it: 443; best obj: 4.397e-02
#> It: 452; obj: 4.397e-02; abs: 2.616e-15; rel: 5.950e-14; norm: 9.227e-02; mom: 3.304e-08;
#> best it: 452; best obj: 4.397e-02
#> It: 453; obj: 4.397e-02; abs: 4.712e-15; rel: 1.072e-13; norm: 9.227e-02; mom: 2.697e-08;
#> best it: 452; best obj: 4.397e-02
#> It: 454; obj: 4.397e-02; abs: 2.359e-16; rel: 5.366e-15; norm: 9.227e-02; mom: 2.273e-08;
#> best it: 452; best obj: 4.397e-02
#> It: 455; obj: 4.397e-02; abs: 3.740e-15; rel: 8.506e-14; norm: 9.227e-02; mom: 2.195e-08;
#> best it: 452; best obj: 4.397e-02
#> It: 456; obj: 4.397e-02; abs: 5.385e-15; rel: 1.225e-13; norm: 9.227e-02; mom: 2.431e-08;
#> best it: 452; best obj: 4.397e-02

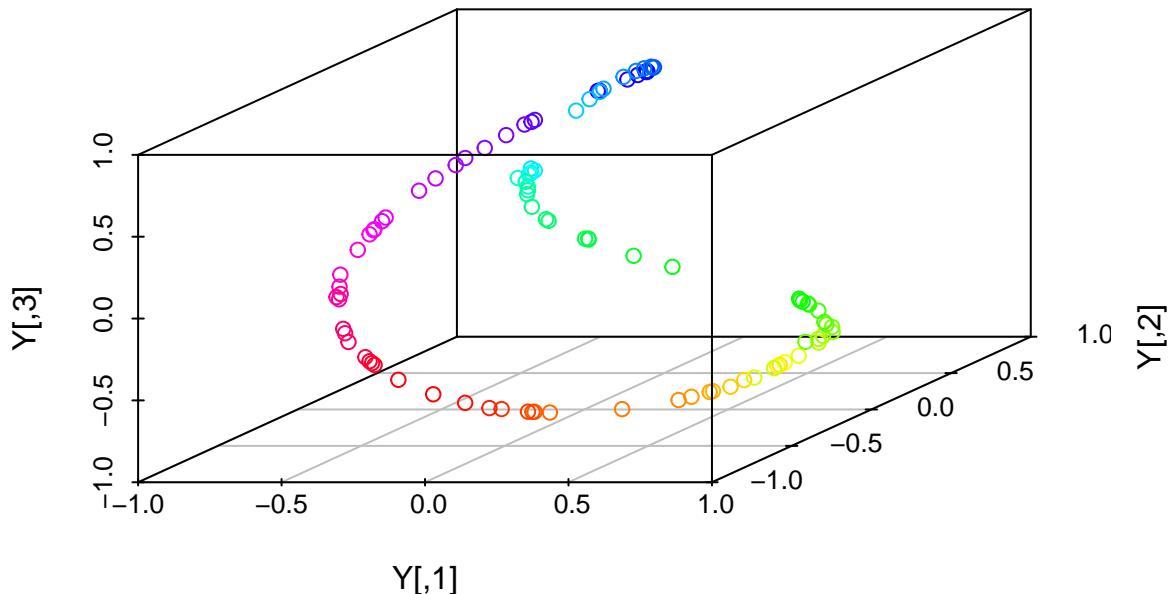
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#> It: 457; obj: 4.397e-02; abs: 8.812e-16; rel: 2.004e-14; norm: 9.227e-02; mom: 2.780e-08;
#> best it: 452; best obj: 4.397e-02
#> It: 458; obj: 4.397e-02; abs: 1.790e-15; rel: 4.072e-14; norm: 9.227e-02; mom: 3.054e-08;
#> best it: 452; best obj: 4.397e-02
#> It: 459; obj: 4.397e-02; abs: 1.596e-16; rel: 3.630e-15; norm: 9.227e-02; mom: 3.154e-08;
#> best it: 452; best obj: 4.397e-02
#> It: 460; obj: 4.397e-02; abs: 1.200e-15; rel: 2.730e-14; norm: 9.227e-02; mom: 3.047e-08;
#> best it: 452; best obj: 4.397e-02
#> It: 461; obj: 4.397e-02; abs: 2.887e-15; rel: 6.565e-14; norm: 9.227e-02; mom: 2.748e-08;
#> best it: 452; best obj: 4.397e-02
#> It: 462; obj: 4.397e-02; abs: 1.950e-15; rel: 4.435e-14; norm: 9.227e-02; mom: 2.302e-08;
#> best it: 452; best obj: 4.397e-02
#> It: 463; obj: 4.397e-02; abs: 2.505e-15; rel: 5.697e-14; norm: 9.227e-02; mom: 1.795e-08;
#> best it: 452; best obj: 4.397e-02
#> It: 464; obj: 4.397e-02; abs: 1.235e-15; rel: 2.809e-14; norm: 9.227e-02; mom: 1.379e-08;
#> best it: 452; best obj: 4.397e-02
#> It: 465; obj: 4.397e-02; abs: 4.372e-15; rel: 9.943e-14; norm: 9.227e-02; mom: 1.252e-08;
#> best it: 452; best obj: 4.397e-02
#> It: 466; obj: 4.397e-02; abs: 8.882e-16; rel: 2.020e-14; norm: 9.227e-02; mom: 1.445e-08;
#> best it: 452; best obj: 4.397e-02
#> It: 467; obj: 4.397e-02; abs: 2.748e-15; rel: 6.250e-14; norm: 9.227e-02; mom: 1.762e-08;
#> best it: 452; best obj: 4.397e-02
#> It: 468; obj: 4.397e-02; abs: 4.351e-15; rel: 9.895e-14; norm: 9.227e-02; mom: 2.025e-08;
#> best it: 452; best obj: 4.397e-02
#> It: 469; obj: 4.397e-02; abs: 4.025e-15; rel: 9.154e-14; norm: 9.227e-02; mom: 2.150e-08;
#> best it: 452; best obj: 4.397e-02
#> It: 470; obj: 4.397e-02; abs: 1.582e-15; rel: 3.598e-14; norm: 9.227e-02; mom: 2.111e-08;
#> best it: 452; best obj: 4.397e-02
#> It: 471; obj: 4.397e-02; abs: 2.769e-15; rel: 6.297e-14; norm: 9.227e-02; mom: 1.915e-08;
#> best it: 452; best obj: 4.397e-02
#> It: 472; obj: 4.397e-02; abs: 1.193e-15; rel: 2.714e-14; norm: 9.227e-02; mom: 1.592e-08;
#> best it: 452; best obj: 4.397e-02
#> It: 473; obj: 4.397e-02; abs: 2.186e-15; rel: 4.971e-14; norm: 9.227e-02; mom: 1.196e-08;
#> best it: 452; best obj: 4.397e-02
#> It: 474; obj: 4.397e-02; abs: 1.464e-15; rel: 3.330e-14; norm: 9.227e-02; mom: 8.301e-09;
#> best it: 452; best obj: 4.397e-02
#> It: 475; obj: 4.397e-02; abs: 5.551e-16; rel: 1.263e-14; norm: 9.227e-02; mom: 6.774e-09;
#> best it: 452; best obj: 4.397e-02

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## Iteration 475



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#> It: 476; obj: 4.397e-02; abs: 2.470e-15; rel: 5.618e-14; norm: 9.227e-02; mom: 8.265e-09;
#> best it: 452; best obj: 4.397e-02
#> It: 477; obj: 4.397e-02; abs: 3.886e-16; rel: 8.838e-15; norm: 9.227e-02; mom: 1.099e-08;
#> best it: 452; best obj: 4.397e-02
#> It: 478; obj: 4.397e-02; abs: 2.075e-15; rel: 4.719e-14; norm: 9.227e-02; mom: 1.331e-08;
#> best it: 452; best obj: 4.397e-02
#> It: 479; obj: 4.397e-02; abs: 3.615e-15; rel: 8.222e-14; norm: 9.227e-02; mom: 1.458e-08;
#> best it: 452; best obj: 4.397e-02
#> It: 480; obj: 4.397e-02; abs: 6.731e-16; rel: 1.531e-14; norm: 9.227e-02; mom: 1.466e-08;
#> best it: 480; best obj: 4.397e-02
#> It: 481; obj: 4.397e-02; abs: 3.192e-15; rel: 7.260e-14; norm: 9.227e-02; mom: 1.361e-08;
#> best it: 480; best obj: 4.397e-02
#> It: 482; obj: 4.397e-02; abs: 7.563e-16; rel: 1.720e-14; norm: 9.227e-02; mom: 1.162e-08;
#> best it: 480; best obj: 4.397e-02
#> It: 483; obj: 4.397e-02; abs: 1.589e-15; rel: 3.614e-14; norm: 9.227e-02; mom: 9.050e-09;
#> best it: 480; best obj: 4.397e-02
#> It: 484; obj: 4.397e-02; abs: 1.103e-15; rel: 2.509e-14; norm: 9.227e-02; mom: 6.487e-09;
#> best it: 480; best obj: 4.397e-02
#> It: 485; obj: 4.397e-02; abs: 1.110e-16; rel: 2.525e-15; norm: 9.227e-02; mom: 4.992e-09;
#> best it: 480; best obj: 4.397e-02
#> It: 486; obj: 4.397e-02; abs: 1.096e-15; rel: 2.494e-14; norm: 9.227e-02; mom: 5.494e-09;
#> best it: 480; best obj: 4.397e-02
#> It: 487; obj: 4.397e-02; abs: 1.041e-15; rel: 2.367e-14; norm: 9.227e-02; mom: 7.155e-09;
#> best it: 480; best obj: 4.397e-02
#> It: 488; obj: 4.397e-02; abs: 1.735e-15; rel: 3.945e-14; norm: 9.227e-02; mom: 8.747e-09;
#> best it: 480; best obj: 4.397e-02
#> It: 489; obj: 4.397e-02; abs: 3.532e-15; rel: 8.033e-14; norm: 9.227e-02; mom: 9.735e-09;
#> best it: 480; best obj: 4.397e-02
#> It: 490; obj: 4.397e-02; abs: 2.588e-15; rel: 5.887e-14; norm: 9.227e-02; mom: 9.951e-09;
#> best it: 480; best obj: 4.397e-02
#> It: 491; obj: 4.397e-02; abs: 1.381e-15; rel: 3.141e-14; norm: 9.227e-02; mom: 9.393e-09;

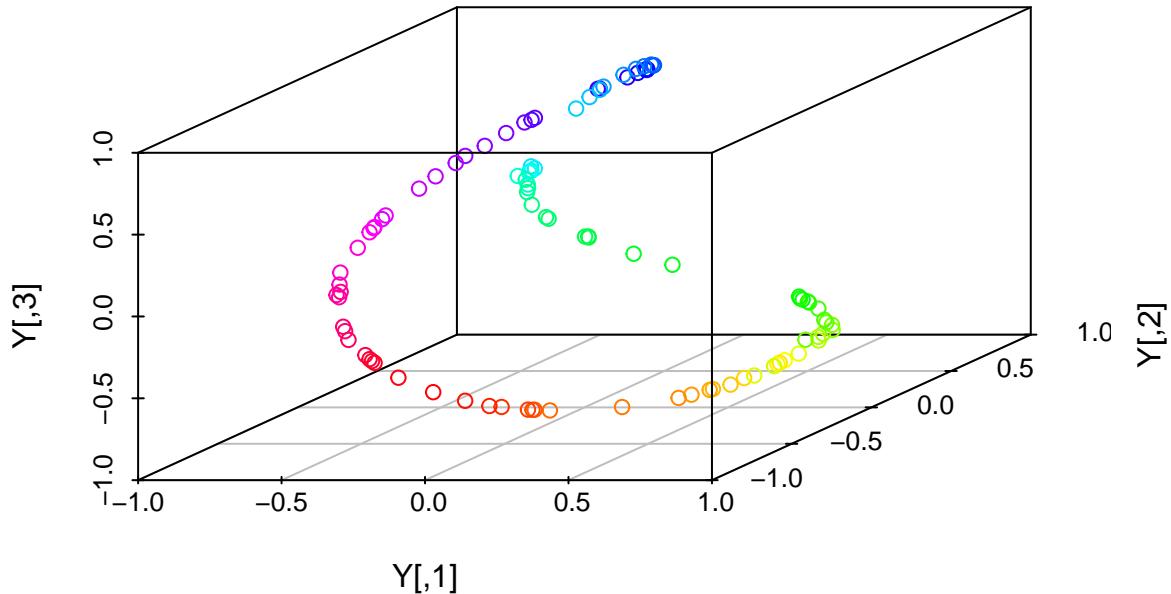
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#> best it: 480; best obj: 4.397e-02
#> It: 492; obj: 4.397e-02; abs: 1.651e-15; rel: 3.756e-14; norm: 9.227e-02; mom: 8.158e-09;
#> best it: 480; best obj: 4.397e-02
#> It: 493; obj: 4.397e-02; abs: 1.388e-17; rel: 3.156e-16; norm: 9.227e-02; mom: 6.439e-09;
#> best it: 480; best obj: 4.397e-02
#> It: 494; obj: 4.397e-02; abs: 1.860e-15; rel: 4.230e-14; norm: 9.227e-02; mom: 4.558e-09;
#> best it: 494; best obj: 4.397e-02
#> It: 495; obj: 4.397e-02; abs: 2.776e-17; rel: 6.313e-16; norm: 9.227e-02; mom: 3.148e-09;
#> best it: 494; best obj: 4.397e-02
#> It: 496; obj: 4.397e-02; abs: 2.963e-15; rel: 6.739e-14; norm: 9.227e-02; mom: 3.207e-09;
#> best it: 494; best obj: 4.397e-02
#> It: 497; obj: 4.397e-02; abs: 1.617e-15; rel: 3.677e-14; norm: 9.227e-02; mom: 4.428e-09;
#> best it: 494; best obj: 4.397e-02
#> It: 498; obj: 4.397e-02; abs: 1.922e-15; rel: 4.372e-14; norm: 9.227e-02; mom: 5.738e-09;
#> best it: 494; best obj: 4.397e-02
#> It: 499; obj: 4.397e-02; abs: 7.772e-16; rel: 1.768e-14; norm: 9.227e-02; mom: 6.675e-09;
#> best it: 494; best obj: 4.397e-02
#> It: 500; obj: 4.397e-02; abs: 1.152e-15; rel: 2.620e-14; norm: 9.227e-02; mom: 7.081e-09;
#> best it: 494; best obj: 4.397e-02

```

## Iteration 500



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#> It: 501; obj: 4.397e-02; abs: 5.183e-15; rel: 1.179e-13; norm: 9.227e-02; mom: 6.925e-09;
#> best it: 494; best obj: 4.397e-02
#> It: 502; obj: 4.397e-02; abs: 2.894e-15; rel: 6.581e-14; norm: 9.227e-02; mom: 6.243e-09;
#> best it: 494; best obj: 4.397e-02
#> It: 503; obj: 4.397e-02; abs: 3.469e-16; rel: 7.891e-15; norm: 9.227e-02; mom: 5.133e-09;
#> best it: 494; best obj: 4.397e-02
#> It: 504; obj: 4.397e-02; abs: 1.436e-15; rel: 3.267e-14; norm: 9.227e-02; mom: 3.766e-09;
#> best it: 494; best obj: 4.397e-02
#> It: 505; obj: 4.397e-02; abs: 6.939e-17; rel: 1.578e-15; norm: 9.227e-02; mom: 2.438e-09;
#> best it: 494; best obj: 4.397e-02
#> It: 506; obj: 4.397e-02; abs: 7.772e-16; rel: 1.768e-14; norm: 9.227e-02; mom: 1.846e-09;
#> best it: 494; best obj: 4.397e-02

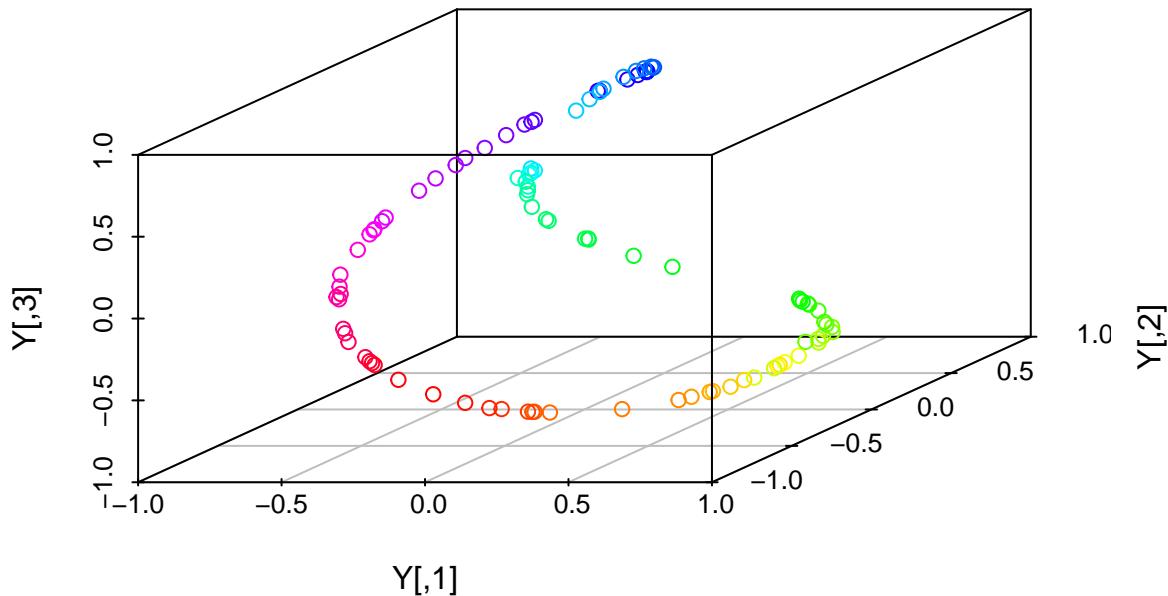
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#> It: 507; obj: 4.397e-02; abs: 2.116e-15; rel: 4.813e-14; norm: 9.227e-02; mom: 2.493e-09;
#> best it: 494; best obj: 4.397e-02
#> It: 508; obj: 4.397e-02; abs: 1.367e-15; rel: 3.109e-14; norm: 9.227e-02; mom: 3.518e-09;
#> best it: 494; best obj: 4.397e-02
#> It: 509; obj: 4.397e-02; abs: 1.901e-15; rel: 4.324e-14; norm: 9.227e-02; mom: 4.356e-09;
#> best it: 494; best obj: 4.397e-02
#> It: 510; obj: 4.397e-02; abs: 2.526e-15; rel: 5.745e-14; norm: 9.227e-02; mom: 4.829e-09;
#> best it: 494; best obj: 4.397e-02
#> It: 511; obj: 4.397e-02; abs: 1.860e-15; rel: 4.230e-14; norm: 9.227e-02; mom: 4.886e-09;
#> best it: 494; best obj: 4.397e-02
#> It: 512; obj: 4.397e-02; abs: 3.345e-15; rel: 7.607e-14; norm: 9.227e-02; mom: 4.532e-09;
#> best it: 494; best obj: 4.397e-02
#> It: 513; obj: 4.397e-02; abs: 3.289e-15; rel: 7.481e-14; norm: 9.227e-02; mom: 3.827e-09;
#> best it: 494; best obj: 4.397e-02
#> It: 514; obj: 4.397e-02; abs: 3.955e-15; rel: 8.996e-14; norm: 9.227e-02; mom: 2.876e-09;
#> best it: 494; best obj: 4.397e-02
#> It: 515; obj: 4.397e-02; abs: 5.641e-15; rel: 1.283e-13; norm: 9.227e-02; mom: 1.849e-09;
#> best it: 494; best obj: 4.397e-02
#> It: 516; obj: 4.397e-02; abs: 3.095e-15; rel: 7.039e-14; norm: 9.227e-02; mom: 1.168e-09;
#> best it: 494; best obj: 4.397e-02
#> It: 517; obj: 4.397e-02; abs: 9.090e-16; rel: 2.067e-14; norm: 9.227e-02; mom: 1.513e-09;
#> best it: 494; best obj: 4.397e-02
#> It: 518; obj: 4.397e-02; abs: 1.395e-15; rel: 3.172e-14; norm: 9.227e-02; mom: 2.298e-09;
#> best it: 494; best obj: 4.397e-02
#> It: 519; obj: 4.397e-02; abs: 9.229e-16; rel: 2.099e-14; norm: 9.227e-02; mom: 2.976e-09;
#> best it: 494; best obj: 4.397e-02
#> It: 520; obj: 4.397e-02; abs: 1.381e-15; rel: 3.141e-14; norm: 9.227e-02; mom: 3.394e-09;
#> best it: 494; best obj: 4.397e-02
#> It: 521; obj: 4.397e-02; abs: 4.031e-15; rel: 9.169e-14; norm: 9.227e-02; mom: 3.504e-09;
#> best it: 494; best obj: 4.397e-02
#> It: 522; obj: 4.397e-02; abs: 4.316e-15; rel: 9.816e-14; norm: 9.227e-02; mom: 3.305e-09;
#> best it: 494; best obj: 4.397e-02
#> It: 523; obj: 4.397e-02; abs: 1.402e-15; rel: 3.188e-14; norm: 9.227e-02; mom: 2.834e-09;
#> best it: 494; best obj: 4.397e-02
#> It: 524; obj: 4.397e-02; abs: 1.082e-15; rel: 2.462e-14; norm: 9.227e-02; mom: 2.162e-09;
#> best it: 494; best obj: 4.397e-02
#> It: 525; obj: 4.397e-02; abs: 2.345e-15; rel: 5.334e-14; norm: 9.227e-02; mom: 1.395e-09;
#> best it: 494; best obj: 4.397e-02

```

## Iteration 525



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#> It: 526; obj: 4.397e-02; abs: 2.907e-15; rel: 6.613e-14; norm: 9.227e-02; mom: 7.730e-10;
#> best it: 494; best obj: 4.397e-02
#> It: 527; obj: 4.397e-02; abs: 2.810e-15; rel: 6.392e-14; norm: 9.227e-02; mom: 9.001e-10;
#> best it: 494; best obj: 4.397e-02
#> It: 528; obj: 4.397e-02; abs: 1.943e-16; rel: 4.419e-15; norm: 9.227e-02; mom: 1.483e-09;
#> best it: 494; best obj: 4.397e-02
#> It: 529; obj: 4.397e-02; abs: 1.596e-16; rel: 3.630e-15; norm: 9.227e-02; mom: 2.010e-09;
#> best it: 494; best obj: 4.397e-02
#> It: 530; obj: 4.397e-02; abs: 1.013e-15; rel: 2.304e-14; norm: 9.227e-02; mom: 2.354e-09;
#> best it: 494; best obj: 4.397e-02
#> It: 531; obj: 4.397e-02; abs: 1.173e-15; rel: 2.667e-14; norm: 9.227e-02; mom: 2.478e-09;
#> best it: 494; best obj: 4.397e-02
#> It: 532; obj: 4.397e-02; abs: 3.525e-15; rel: 8.017e-14; norm: 9.227e-02; mom: 2.380e-09;
#> best it: 494; best obj: 4.397e-02
#> It: 533; obj: 4.397e-02; abs: 6.592e-16; rel: 1.499e-14; norm: 9.227e-02; mom: 2.083e-09;
#> best it: 494; best obj: 4.397e-02
#> It: 534; obj: 4.397e-02; abs: 1.388e-15; rel: 3.156e-14; norm: 9.227e-02; mom: 1.634e-09;
#> best it: 494; best obj: 4.397e-02
#> It: 535; obj: 4.397e-02; abs: 5.274e-16; rel: 1.199e-14; norm: 9.227e-02; mom: 1.099e-09;
#> best it: 494; best obj: 4.397e-02
#> It: 536; obj: 4.397e-02; abs: 1.547e-15; rel: 3.519e-14; norm: 9.227e-02; mom: 6.017e-10;
#> best it: 494; best obj: 4.397e-02
#> It: 537; obj: 4.397e-02; abs: 3.976e-15; rel: 9.043e-14; norm: 9.227e-02; mom: 5.332e-10;
#> best it: 494; best obj: 4.397e-02
#> It: 538; obj: 4.397e-02; abs: 3.539e-16; rel: 8.049e-15; norm: 9.227e-02; mom: 9.193e-10;
#> best it: 494; best obj: 4.397e-02
#> It: 539; obj: 4.397e-02; abs: 2.422e-15; rel: 5.508e-14; norm: 9.227e-02; mom: 1.311e-09;
#> best it: 539; best obj: 4.397e-02
#> It: 540; obj: 4.397e-02; abs: 7.015e-15; rel: 1.596e-13; norm: 9.227e-02; mom: 1.588e-09;
#> best it: 539; best obj: 4.397e-02
#> It: 541; obj: 4.397e-02; abs: 5.371e-15; rel: 1.222e-13; norm: 9.227e-02; mom: 1.719e-09;

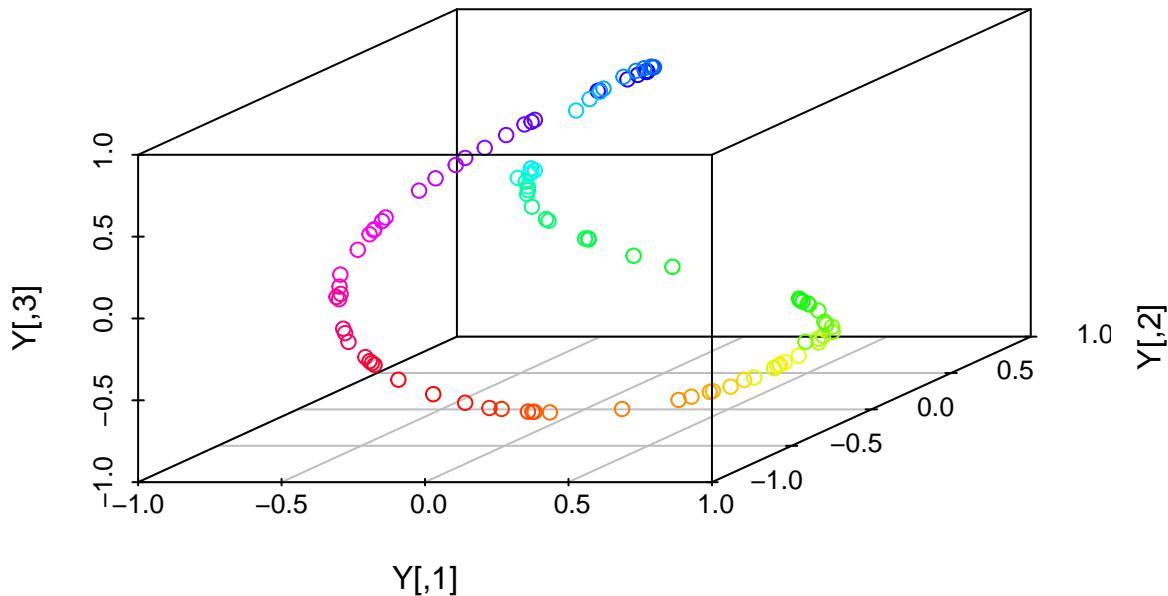
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#> best it: 539; best obj: 4.397e-02
#> It: 542; obj: 4.397e-02; abs: 4.281e-15; rel: 9.737e-14; norm: 9.227e-02; mom: 1.697e-09;
#> best it: 539; best obj: 4.397e-02
#> It: 543; obj: 4.397e-02; abs: 3.469e-15; rel: 7.891e-14; norm: 9.227e-02; mom: 1.535e-09;
#> best it: 539; best obj: 4.397e-02
#> It: 544; obj: 4.397e-02; abs: 1.582e-15; rel: 3.598e-14; norm: 9.227e-02; mom: 1.262e-09;
#> best it: 539; best obj: 4.397e-02
#> It: 545; obj: 4.397e-02; abs: 1.041e-16; rel: 2.367e-15; norm: 9.227e-02; mom: 9.194e-10;
#> best it: 539; best obj: 4.397e-02
#> It: 546; obj: 4.397e-02; abs: 2.220e-16; rel: 5.050e-15; norm: 9.227e-02; mom: 5.783e-10;
#> best it: 539; best obj: 4.397e-02
#> It: 547; obj: 4.397e-02; abs: 3.587e-15; rel: 8.159e-14; norm: 9.227e-02; mom: 4.169e-10;
#> best it: 539; best obj: 4.397e-02
#> It: 548; obj: 4.397e-02; abs: 1.311e-15; rel: 2.983e-14; norm: 9.227e-02; mom: 5.852e-10;
#> best it: 539; best obj: 4.397e-02
#> It: 549; obj: 4.397e-02; abs: 1.596e-15; rel: 3.630e-14; norm: 9.227e-02; mom: 8.467e-10;
#> best it: 539; best obj: 4.397e-02
#> It: 550; obj: 4.397e-02; abs: 1.110e-16; rel: 2.525e-15; norm: 9.227e-02; mom: 1.059e-09;
#> best it: 539; best obj: 4.397e-02

```

## Iteration 550



```

#> It: 551; obj: 4.397e-02; abs: 5.343e-16; rel: 1.215e-14; norm: 9.227e-02; mom: 1.180e-09;
#> best it: 539; best obj: 4.397e-02
#> It: 552; obj: 4.397e-02; abs: 3.747e-16; rel: 8.522e-15; norm: 9.227e-02; mom: 1.198e-09;
#> best it: 539; best obj: 4.397e-02
#> It: 553; obj: 4.397e-02; abs: 3.351e-15; rel: 7.623e-14; norm: 9.227e-02; mom: 1.115e-09;
#> best it: 539; best obj: 4.397e-02
#> It: 554; obj: 4.397e-02; abs: 4.455e-15; rel: 1.013e-13; norm: 9.227e-02; mom: 9.453e-10;
#> best it: 539; best obj: 4.397e-02
#> It: 555; obj: 4.397e-02; abs: 3.365e-15; rel: 7.654e-14; norm: 9.227e-02; mom: 7.138e-10;
#> best it: 539; best obj: 4.397e-02
#> It: 556; obj: 4.397e-02; abs: 2.776e-17; rel: 6.313e-16; norm: 9.227e-02; mom: 4.569e-10;
#> best it: 539; best obj: 4.397e-02

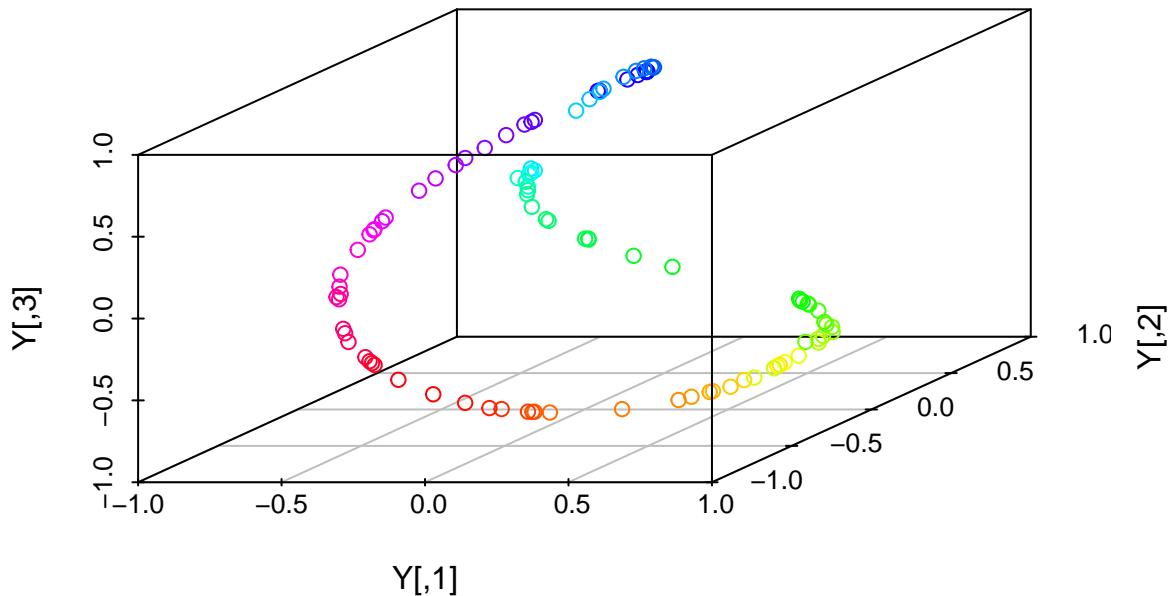
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#> It: 557; obj: 4.397e-02; abs: 1.547e-15; rel: 3.519e-14; norm: 9.227e-02; mom: 2.649e-10;
#> best it: 539; best obj: 4.397e-02
#> It: 558; obj: 4.397e-02; abs: 4.163e-17; rel: 9.469e-16; norm: 9.227e-02; mom: 3.299e-10;
#> best it: 539; best obj: 4.397e-02
#> It: 559; obj: 4.397e-02; abs: 2.540e-15; rel: 5.776e-14; norm: 9.227e-02; mom: 5.282e-10;
#> best it: 539; best obj: 4.397e-02
#> It: 560; obj: 4.397e-02; abs: 1.429e-15; rel: 3.251e-14; norm: 9.227e-02; mom: 7.046e-10;
#> best it: 539; best obj: 4.397e-02
#> It: 561; obj: 4.397e-02; abs: 3.816e-16; rel: 8.680e-15; norm: 9.227e-02; mom: 8.195e-10;
#> best it: 539; best obj: 4.397e-02
#> It: 562; obj: 4.397e-02; abs: 1.860e-15; rel: 4.230e-14; norm: 9.227e-02; mom: 8.598e-10;
#> best it: 539; best obj: 4.397e-02
#> It: 563; obj: 4.397e-02; abs: 2.581e-15; rel: 5.871e-14; norm: 9.227e-02; mom: 8.243e-10;
#> best it: 539; best obj: 4.397e-02
#> It: 564; obj: 4.397e-02; abs: 2.311e-15; rel: 5.255e-14; norm: 9.227e-02; mom: 7.205e-10;
#> best it: 539; best obj: 4.397e-02
#> It: 565; obj: 4.397e-02; abs: 2.512e-15; rel: 5.713e-14; norm: 9.227e-02; mom: 5.627e-10;
#> best it: 539; best obj: 4.397e-02
#> It: 566; obj: 4.397e-02; abs: 2.158e-15; rel: 4.908e-14; norm: 9.227e-02; mom: 3.717e-10;
#> best it: 539; best obj: 4.397e-02
#> It: 567; obj: 4.397e-02; abs: 1.707e-15; rel: 3.882e-14; norm: 9.227e-02; mom: 1.862e-10;
#> best it: 539; best obj: 4.397e-02
#> It: 568; obj: 4.397e-02; abs: 1.811e-15; rel: 4.119e-14; norm: 9.227e-02; mom: 1.615e-10;
#> best it: 539; best obj: 4.397e-02
#> It: 569; obj: 4.397e-02; abs: 2.373e-15; rel: 5.397e-14; norm: 9.227e-02; mom: 3.120e-10;
#> best it: 539; best obj: 4.397e-02
#> It: 570; obj: 4.397e-02; abs: 3.483e-15; rel: 7.923e-14; norm: 9.227e-02; mom: 4.566e-10;
#> best it: 539; best obj: 4.397e-02
#> It: 571; obj: 4.397e-02; abs: 1.825e-15; rel: 4.151e-14; norm: 9.227e-02; mom: 5.575e-10;
#> best it: 539; best obj: 4.397e-02
#> It: 572; obj: 4.397e-02; abs: 4.927e-15; rel: 1.121e-13; norm: 9.227e-02; mom: 6.041e-10;
#> best it: 539; best obj: 4.397e-02
#> It: 573; obj: 4.397e-02; abs: 3.365e-15; rel: 7.654e-14; norm: 9.227e-02; mom: 5.943e-10;
#> best it: 539; best obj: 4.397e-02
#> It: 574; obj: 4.397e-02; abs: 7.216e-16; rel: 1.641e-14; norm: 9.227e-02; mom: 5.325e-10;
#> best it: 539; best obj: 4.397e-02
#> It: 575; obj: 4.397e-02; abs: 2.998e-15; rel: 6.818e-14; norm: 9.227e-02; mom: 4.281e-10;
#> best it: 539; best obj: 4.397e-02

```

## Iteration 575



```

#> It: 576; obj: 4.397e-02; abs: 2.699e-15; rel: 6.139e-14; norm: 9.227e-02; mom: 2.948e-10;
#> best it: 539; best obj: 4.397e-02
#> It: 577; obj: 4.397e-02; abs: 6.106e-16; rel: 1.389e-14; norm: 9.227e-02; mom: 1.548e-10;
#> best it: 539; best obj: 4.397e-02
#> It: 578; obj: 4.397e-02; abs: 2.304e-15; rel: 5.240e-14; norm: 9.227e-02; mom: 9.216e-11;
#> best it: 539; best obj: 4.397e-02
#> It: 579; obj: 4.397e-02; abs: 2.609e-15; rel: 5.934e-14; norm: 9.227e-02; mom: 1.917e-10;
#> best it: 539; best obj: 4.397e-02
#> It: 580; obj: 4.397e-02; abs: 1.180e-16; rel: 2.683e-15; norm: 9.227e-02; mom: 3.007e-10;
#> best it: 539; best obj: 4.397e-02
#> It: 581; obj: 4.397e-02; abs: 3.525e-15; rel: 8.017e-14; norm: 9.227e-02; mom: 3.805e-10;
#> best it: 539; best obj: 4.397e-02
#> It: 582; obj: 4.397e-02; abs: 2.602e-15; rel: 5.918e-14; norm: 9.227e-02; mom: 4.224e-10;
#> best it: 539; best obj: 4.397e-02
#> It: 583; obj: 4.397e-02; abs: 1.318e-16; rel: 2.999e-15; norm: 9.227e-02; mom: 4.242e-10;
#> best it: 539; best obj: 4.397e-02
#> It: 584; obj: 4.397e-02; abs: 5.135e-16; rel: 1.168e-14; norm: 9.227e-02; mom: 3.884e-10;
#> best it: 539; best obj: 4.397e-02
#> It: 585; obj: 4.397e-02; abs: 1.756e-15; rel: 3.993e-14; norm: 9.227e-02; mom: 3.210e-10;
#> best it: 539; best obj: 4.397e-02
#> It: 586; obj: 4.397e-02; abs: 1.693e-15; rel: 3.851e-14; norm: 9.227e-02; mom: 2.313e-10;
#> best it: 539; best obj: 4.397e-02
#> It: 587; obj: 4.397e-02; abs: 2.554e-15; rel: 5.808e-14; norm: 9.227e-02; mom: 1.333e-10;
#> best it: 539; best obj: 4.397e-02
#> It: 588; obj: 4.397e-02; abs: 1.263e-15; rel: 2.872e-14; norm: 9.227e-02; mom: 6.823e-11;
#> best it: 539; best obj: 4.397e-02
#> It: 589; obj: 4.397e-02; abs: 1.776e-15; rel: 4.040e-14; norm: 9.227e-02; mom: 1.184e-10;
#> best it: 539; best obj: 4.397e-02
#> It: 590; obj: 4.397e-02; abs: 2.665e-15; rel: 6.060e-14; norm: 9.227e-02; mom: 1.958e-10;
#> best it: 539; best obj: 4.397e-02
#> It: 591; obj: 4.397e-02; abs: 4.524e-15; rel: 1.029e-13; norm: 9.227e-02; mom: 2.567e-10;

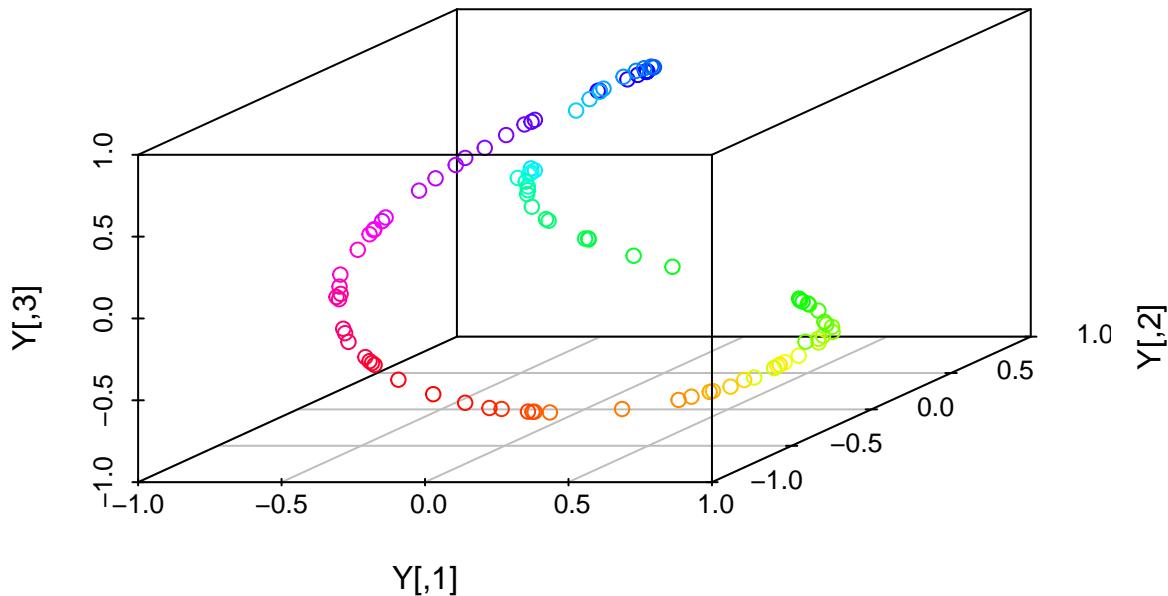
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#> best it: 539; best obj: 4.397e-02
#> It: 592; obj: 4.397e-02; abs: 2.692e-15; rel: 6.123e-14; norm: 9.227e-02; mom: 2.925e-10;
#> best it: 539; best obj: 4.397e-02
#> It: 593; obj: 4.397e-02; abs: 2.463e-15; rel: 5.603e-14; norm: 9.227e-02; mom: 3.007e-10;
#> best it: 539; best obj: 4.397e-02
#> It: 594; obj: 4.397e-02; abs: 1.471e-15; rel: 3.346e-14; norm: 9.227e-02; mom: 2.825e-10;
#> best it: 539; best obj: 4.397e-02
#> It: 595; obj: 4.397e-02; abs: 6.800e-16; rel: 1.547e-14; norm: 9.227e-02; mom: 2.412e-10;
#> best it: 539; best obj: 4.397e-02
#> It: 596; obj: 4.397e-02; abs: 1.547e-15; rel: 3.519e-14; norm: 9.227e-02; mom: 1.826e-10;
#> best it: 539; best obj: 4.397e-02
#> It: 597; obj: 4.397e-02; abs: 1.409e-15; rel: 3.204e-14; norm: 9.227e-02; mom: 1.153e-10;
#> best it: 539; best obj: 4.397e-02
#> It: 598; obj: 4.397e-02; abs: 9.159e-16; rel: 2.083e-14; norm: 9.227e-02; mom: 5.782e-11;
#> best it: 539; best obj: 4.397e-02
#> It: 599; obj: 4.397e-02; abs: 4.316e-15; rel: 9.816e-14; norm: 9.227e-02; mom: 6.861e-11;
#> best it: 539; best obj: 4.397e-02
#> It: 600; obj: 4.397e-02; abs: 5.225e-15; rel: 1.188e-13; norm: 9.227e-02; mom: 1.216e-10;
#> best it: 539; best obj: 4.397e-02

```

## Iteration 600



```

#> It: 601; obj: 4.397e-02; abs: 1.651e-15; rel: 3.756e-14; norm: 9.227e-02; mom: 1.685e-10;
#> best it: 539; best obj: 4.397e-02
#> It: 602; obj: 4.397e-02; abs: 2.262e-15; rel: 5.145e-14; norm: 9.227e-02; mom: 1.995e-10;
#> best it: 539; best obj: 4.397e-02
#> It: 603; obj: 4.397e-02; abs: 1.457e-16; rel: 3.314e-15; norm: 9.227e-02; mom: 2.118e-10;
#> best it: 539; best obj: 4.397e-02
#> It: 604; obj: 4.397e-02; abs: 5.274e-16; rel: 1.199e-14; norm: 9.227e-02; mom: 2.053e-10;
#> best it: 539; best obj: 4.397e-02
#> It: 605; obj: 4.397e-02; abs: 8.674e-16; rel: 1.973e-14; norm: 9.227e-02; mom: 1.819e-10;
#> best it: 539; best obj: 4.397e-02
#> It: 606; obj: 4.397e-02; abs: 2.220e-16; rel: 5.050e-15; norm: 9.227e-02; mom: 1.448e-10;
#> best it: 539; best obj: 4.397e-02

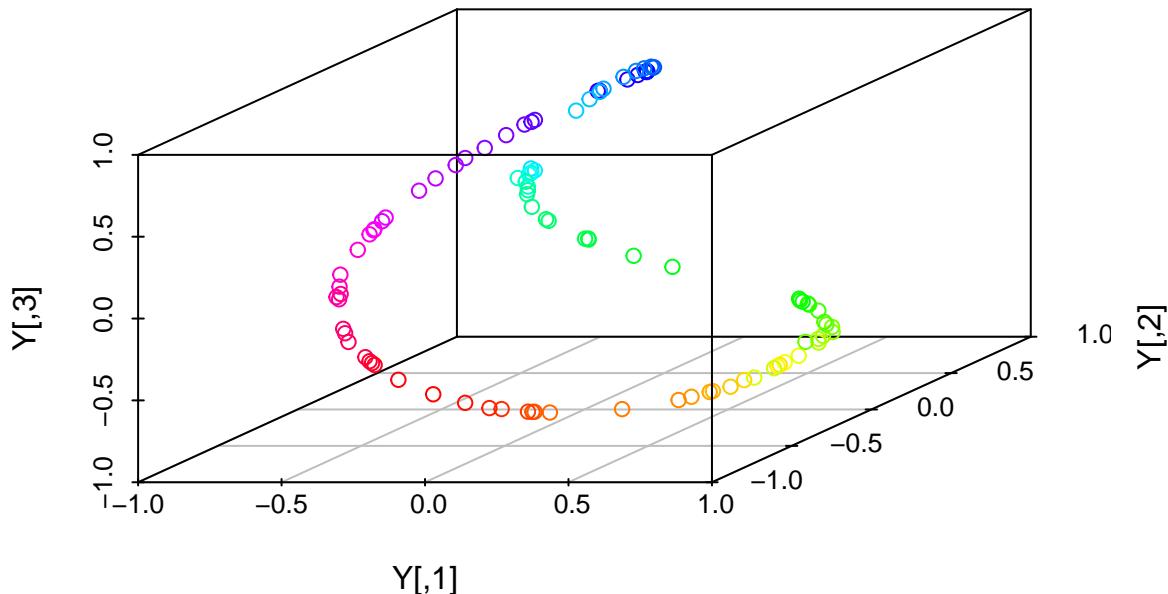
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#> It: 607; obj: 4.397e-02; abs: 2.054e-15; rel: 4.671e-14; norm: 9.227e-02; mom: 9.943e-11;
#> best it: 539; best obj: 4.397e-02
#> It: 608; obj: 4.397e-02; abs: 2.200e-15; rel: 5.003e-14; norm: 9.227e-02; mom: 5.512e-11;
#> best it: 539; best obj: 4.397e-02
#> It: 609; obj: 4.397e-02; abs: 1.957e-15; rel: 4.450e-14; norm: 9.227e-02; mom: 4.233e-11;
#> best it: 539; best obj: 4.397e-02
#> It: 610; obj: 4.397e-02; abs: 1.006e-15; rel: 2.288e-14; norm: 9.227e-02; mom: 7.426e-11;
#> best it: 539; best obj: 4.397e-02
#> It: 611; obj: 4.397e-02; abs: 9.437e-16; rel: 2.146e-14; norm: 9.227e-02; mom: 1.095e-10;
#> best it: 539; best obj: 4.397e-02
#> It: 612; obj: 4.397e-02; abs: 1.880e-15; rel: 4.277e-14; norm: 9.227e-02; mom: 1.353e-10;
#> best it: 539; best obj: 4.397e-02
#> It: 613; obj: 4.397e-02; abs: 3.261e-16; rel: 7.417e-15; norm: 9.227e-02; mom: 1.485e-10;
#> best it: 539; best obj: 4.397e-02
#> It: 614; obj: 4.397e-02; abs: 1.110e-15; rel: 2.525e-14; norm: 9.227e-02; mom: 1.481e-10;
#> best it: 539; best obj: 4.397e-02
#> It: 615; obj: 4.397e-02; abs: 4.191e-15; rel: 9.532e-14; norm: 9.227e-02; mom: 1.350e-10;
#> best it: 539; best obj: 4.397e-02
#> It: 616; obj: 4.397e-02; abs: 5.364e-15; rel: 1.220e-13; norm: 9.227e-02; mom: 1.111e-10;
#> best it: 539; best obj: 4.397e-02
#> It: 617; obj: 4.397e-02; abs: 4.947e-15; rel: 1.125e-13; norm: 9.227e-02; mom: 7.963e-11;
#> best it: 539; best obj: 4.397e-02
#> It: 618; obj: 4.397e-02; abs: 5.954e-15; rel: 1.354e-13; norm: 9.227e-02; mom: 4.564e-11;
#> best it: 539; best obj: 4.397e-02
#> It: 619; obj: 4.397e-02; abs: 1.762e-15; rel: 4.009e-14; norm: 9.227e-02; mom: 2.474e-11;
#> best it: 539; best obj: 4.397e-02
#> It: 620; obj: 4.397e-02; abs: 2.241e-15; rel: 5.098e-14; norm: 9.227e-02; mom: 4.370e-11;
#> best it: 539; best obj: 4.397e-02
#> It: 621; obj: 4.397e-02; abs: 9.714e-17; rel: 2.209e-15; norm: 9.227e-02; mom: 7.087e-11;
#> best it: 539; best obj: 4.397e-02
#> It: 622; obj: 4.397e-02; abs: 1.117e-15; rel: 2.541e-14; norm: 9.227e-02; mom: 9.214e-11;
#> best it: 539; best obj: 4.397e-02
#> It: 623; obj: 4.397e-02; abs: 1.485e-15; rel: 3.377e-14; norm: 9.227e-02; mom: 1.045e-10;
#> best it: 539; best obj: 4.397e-02
#> It: 624; obj: 4.397e-02; abs: 2.887e-15; rel: 6.565e-14; norm: 9.227e-02; mom: 1.070e-10;
#> best it: 539; best obj: 4.397e-02
#> It: 625; obj: 4.397e-02; abs: 4.358e-15; rel: 9.911e-14; norm: 9.227e-02; mom: 9.988e-11;
#> best it: 539; best obj: 4.397e-02

```

## Iteration 625



```

#> It: 626; obj: 4.397e-02; abs: 1.422e-15; rel: 3.235e-14; norm: 9.227e-02; mom: 8.448e-11;
#> best it: 539; best obj: 4.397e-02
#> It: 627; obj: 4.397e-02; abs: 1.429e-15; rel: 3.251e-14; norm: 9.227e-02; mom: 6.284e-11;
#> best it: 539; best obj: 4.397e-02
#> It: 628; obj: 4.397e-02; abs: 2.810e-15; rel: 6.392e-14; norm: 9.227e-02; mom: 3.794e-11;
#> best it: 539; best obj: 4.397e-02
#> It: 629; obj: 4.397e-02; abs: 1.943e-16; rel: 4.419e-15; norm: 9.227e-02; mom: 1.677e-11;
#> best it: 539; best obj: 4.397e-02
#> It: 630; obj: 4.397e-02; abs: 2.075e-15; rel: 4.719e-14; norm: 9.227e-02; mom: 2.457e-11;
#> best it: 539; best obj: 4.397e-02
#> It: 631; obj: 4.397e-02; abs: 1.013e-15; rel: 2.304e-14; norm: 9.227e-02; mom: 4.490e-11;
#> best it: 539; best obj: 4.397e-02
#> It: 632; obj: 4.397e-02; abs: 3.761e-15; rel: 8.554e-14; norm: 9.227e-02; mom: 6.170e-11;
#> best it: 539; best obj: 4.397e-02
#> It: 633; obj: 4.397e-02; abs: 3.435e-15; rel: 7.812e-14; norm: 9.227e-02; mom: 7.231e-11;
#> best it: 539; best obj: 4.397e-02
#> It: 634; obj: 4.397e-02; abs: 5.725e-15; rel: 1.302e-13; norm: 9.227e-02; mom: 7.592e-11;
#> best it: 539; best obj: 4.397e-02
#> It: 635; obj: 4.397e-02; abs: 6.189e-15; rel: 1.408e-13; norm: 9.227e-02; mom: 7.259e-11;
#> best it: 539; best obj: 4.397e-02
#> It: 636; obj: 4.397e-02; abs: 4.129e-15; rel: 9.390e-14; norm: 9.227e-02; mom: 6.310e-11;
#> best it: 539; best obj: 4.397e-02
#> It: 637; obj: 4.397e-02; abs: 2.012e-15; rel: 4.577e-14; norm: 9.227e-02; mom: 4.886e-11;
#> best it: 539; best obj: 4.397e-02
#> It: 638; obj: 4.397e-02; abs: 2.116e-15; rel: 4.813e-14; norm: 9.227e-02; mom: 3.183e-11;
#> best it: 539; best obj: 4.397e-02
#> It: 639; obj: 4.397e-02; abs: 3.400e-16; rel: 7.733e-15; norm: 9.227e-02; mom: 1.578e-11;
#> best it: 539; best obj: 4.397e-02
#> It: 640; obj: 4.397e-02; abs: 9.021e-17; rel: 2.052e-15; norm: 9.227e-02; mom: 1.507e-11;
#> best it: 539; best obj: 4.397e-02
#> It: 641; obj: 4.397e-02; abs: 5.135e-16; rel: 1.168e-14; norm: 9.227e-02; mom: 2.844e-11;

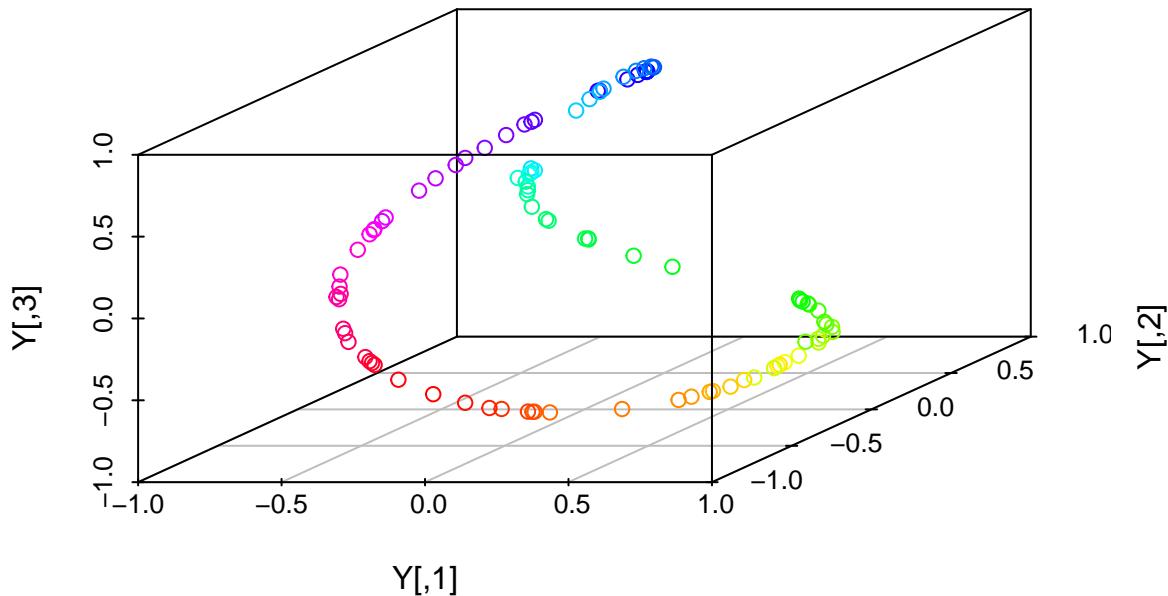
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#> best it: 539; best obj: 4.397e-02
#> It: 642; obj: 4.397e-02; abs: 5.967e-16; rel: 1.357e-14; norm: 9.227e-02; mom: 4.088e-11;
#> best it: 539; best obj: 4.397e-02
#> It: 643; obj: 4.397e-02; abs: 3.365e-15; rel: 7.654e-14; norm: 9.227e-02; mom: 4.941e-11;
#> best it: 539; best obj: 4.397e-02
#> It: 644; obj: 4.397e-02; abs: 3.823e-15; rel: 8.696e-14; norm: 9.227e-02; mom: 5.318e-11;
#> best it: 539; best obj: 4.397e-02
#> It: 645; obj: 4.397e-02; abs: 2.685e-15; rel: 6.108e-14; norm: 9.227e-02; mom: 5.209e-11;
#> best it: 539; best obj: 4.397e-02
#> It: 646; obj: 4.397e-02; abs: 2.817e-15; rel: 6.407e-14; norm: 9.227e-02; mom: 4.656e-11;
#> best it: 539; best obj: 4.397e-02
#> It: 647; obj: 4.397e-02; abs: 2.540e-15; rel: 5.776e-14; norm: 9.227e-02; mom: 3.747e-11;
#> best it: 539; best obj: 4.397e-02
#> It: 648; obj: 4.397e-02; abs: 4.372e-16; rel: 9.943e-15; norm: 9.227e-02; mom: 2.607e-11;
#> best it: 539; best obj: 4.397e-02
#> It: 649; obj: 4.397e-02; abs: 5.100e-15; rel: 1.160e-13; norm: 9.227e-02; mom: 1.449e-11;
#> best it: 539; best obj: 4.397e-02
#> It: 650; obj: 4.397e-02; abs: 2.054e-15; rel: 4.671e-14; norm: 9.227e-02; mom: 9.824e-12;
#> best it: 539; best obj: 4.397e-02

```

## Iteration 650



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#> It: 651; obj: 4.397e-02; abs: 2.782e-15; rel: 6.329e-14; norm: 9.227e-02; mom: 1.751e-11;
#> best it: 539; best obj: 4.397e-02
#> It: 652; obj: 4.397e-02; abs: 2.540e-15; rel: 5.776e-14; norm: 9.227e-02; mom: 2.656e-11;
#> best it: 539; best obj: 4.397e-02
#> It: 653; obj: 4.397e-02; abs: 2.519e-15; rel: 5.729e-14; norm: 9.227e-02; mom: 3.335e-11;
#> best it: 539; best obj: 4.397e-02
#> It: 654; obj: 4.397e-02; abs: 3.400e-16; rel: 7.733e-15; norm: 9.227e-02; mom: 3.699e-11;
#> best it: 539; best obj: 4.397e-02
#> It: 655; obj: 4.397e-02; abs: 3.018e-15; rel: 6.865e-14; norm: 9.227e-02; mom: 3.725e-11;
#> best it: 539; best obj: 4.397e-02
#> It: 656; obj: 4.397e-02; abs: 8.119e-16; rel: 1.846e-14; norm: 9.227e-02; mom: 3.428e-11;
#> best it: 539; best obj: 4.397e-02

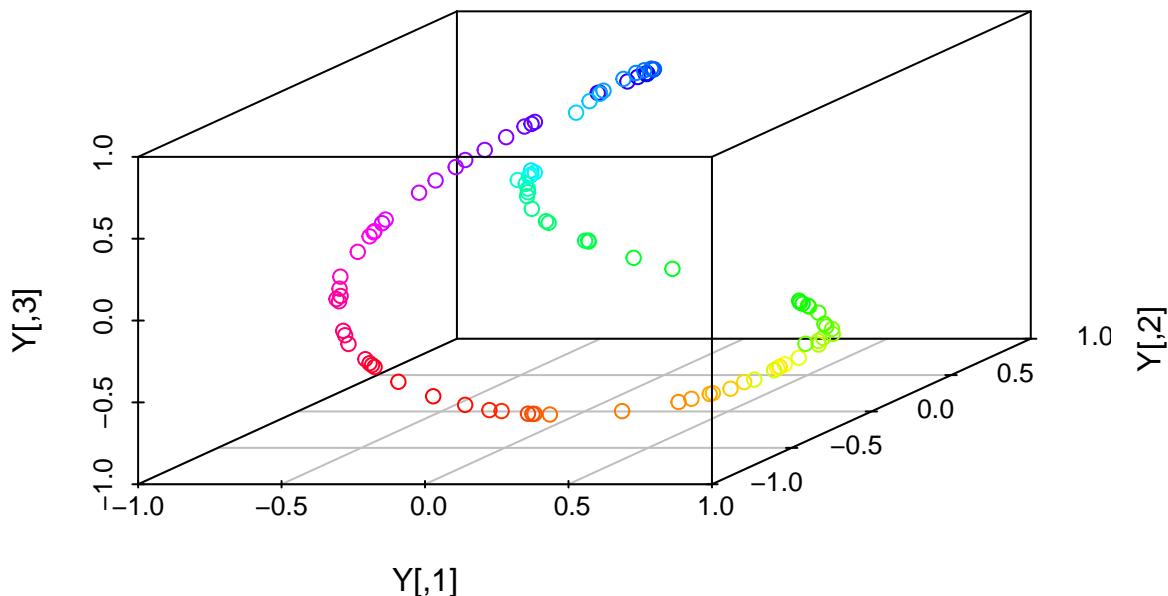
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#> It: 657; obj: 4.397e-02; abs: 3.157e-15; rel: 7.181e-14; norm: 9.227e-02; mom: 2.859e-11;
#> best it: 539; best obj: 4.397e-02
#> It: 658; obj: 4.397e-02; abs: 1.180e-15; rel: 2.683e-14; norm: 9.227e-02; mom: 2.095e-11;
#> best it: 539; best obj: 4.397e-02
#> It: 659; obj: 4.397e-02; abs: 1.714e-15; rel: 3.898e-14; norm: 9.227e-02; mom: 1.252e-11;
#> best it: 539; best obj: 4.397e-02
#> It: 660; obj: 4.397e-02; abs: 4.510e-16; rel: 1.026e-14; norm: 9.227e-02; mom: 6.451e-12;
#> best it: 539; best obj: 4.397e-02
#> It: 661; obj: 4.397e-02; abs: 5.482e-16; rel: 1.247e-14; norm: 9.227e-02; mom: 9.971e-12;
#> best it: 539; best obj: 4.397e-02
#> It: 662; obj: 4.397e-02; abs: 2.096e-15; rel: 4.766e-14; norm: 9.227e-02; mom: 1.667e-11;
#> best it: 539; best obj: 4.397e-02
#> It: 663; obj: 4.397e-02; abs: 1.152e-15; rel: 2.620e-14; norm: 9.227e-02; mom: 2.216e-11;
#> best it: 539; best obj: 4.397e-02
#> It: 664; obj: 4.397e-02; abs: 1.041e-16; rel: 2.367e-15; norm: 9.227e-02; mom: 2.553e-11;
#> best it: 539; best obj: 4.397e-02
#> It: 665; obj: 4.397e-02; abs: 2.040e-15; rel: 4.640e-14; norm: 9.227e-02; mom: 2.651e-11;
#> best it: 539; best obj: 4.397e-02
#> It: 666; obj: 4.397e-02; abs: 8.812e-16; rel: 2.004e-14; norm: 9.227e-02; mom: 2.513e-11;
#> best it: 539; best obj: 4.397e-02
#> It: 667; obj: 4.397e-02; abs: 1.700e-15; rel: 3.867e-14; norm: 9.227e-02; mom: 2.166e-11;
#> best it: 539; best obj: 4.397e-02
#> It: 668; obj: 4.397e-02; abs: 6.939e-18; rel: 1.578e-16; norm: 9.227e-02; mom: 1.658e-11;
#> best it: 539; best obj: 4.397e-02
#> It: 669; obj: 4.397e-02; abs: 5.412e-16; rel: 1.231e-14; norm: 9.227e-02; mom: 1.057e-11;
#> best it: 539; best obj: 4.397e-02
#> It: 670; obj: 4.397e-02; abs: 4.580e-16; rel: 1.042e-14; norm: 9.227e-02; mom: 5.010e-12;
#> best it: 539; best obj: 4.397e-02
#> It: 671; obj: 4.397e-02; abs: 1.686e-15; rel: 3.835e-14; norm: 9.227e-02; mom: 5.391e-12;
#> best it: 539; best obj: 4.397e-02
#> It: 672; obj: 4.397e-02; abs: 4.649e-16; rel: 1.057e-14; norm: 9.227e-02; mom: 1.026e-11;
#> best it: 539; best obj: 4.397e-02
#> It: 673; obj: 4.397e-02; abs: 6.939e-16; rel: 1.578e-14; norm: 9.227e-02; mom: 1.461e-11;
#> best it: 539; best obj: 4.397e-02
#> It: 674; obj: 4.397e-02; abs: 6.800e-16; rel: 1.547e-14; norm: 9.227e-02; mom: 1.752e-11;
#> best it: 539; best obj: 4.397e-02
#> It: 675; obj: 4.397e-02; abs: 2.776e-15; rel: 6.313e-14; norm: 9.227e-02; mom: 1.874e-11;
#> best it: 539; best obj: 4.397e-02

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## Iteration 675



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#> It: 676; obj: 4.397e-02; abs: 1.936e-15; rel: 4.403e-14; norm: 9.227e-02; mom: 1.823e-11;
#> best it: 539; best obj: 4.397e-02
#> It: 677; obj: 4.397e-02; abs: 3.095e-15; rel: 7.039e-14; norm: 9.227e-02; mom: 1.613e-11;
#> best it: 539; best obj: 4.397e-02
#> It: 678; obj: 4.397e-02; abs: 1.402e-15; rel: 3.188e-14; norm: 9.227e-02; mom: 1.276e-11;
#> best it: 539; best obj: 4.397e-02
#> It: 679; obj: 4.397e-02; abs: 1.388e-16; rel: 3.156e-15; norm: 9.227e-02; mom: 8.544e-12;
#> best it: 539; best obj: 4.397e-02
#> It: 680; obj: 4.397e-02; abs: 7.841e-16; rel: 1.783e-14; norm: 9.227e-02; mom: 4.174e-12;
#> best it: 539; best obj: 4.397e-02
#> It: 681; obj: 4.397e-02; abs: 7.633e-17; rel: 1.736e-15; norm: 9.227e-02; mom: 2.793e-12;
#> best it: 539; best obj: 4.397e-02
#> It: 682; obj: 4.397e-02; abs: 1.582e-15; rel: 3.598e-14; norm: 9.227e-02; mom: 6.230e-12;
#> best it: 539; best obj: 4.397e-02
#> It: 683; obj: 4.397e-02; abs: 2.207e-15; rel: 5.019e-14; norm: 9.227e-02; mom: 9.590e-12;
#> best it: 539; best obj: 4.397e-02
#> It: 684; obj: 4.397e-02; abs: 8.674e-16; rel: 1.973e-14; norm: 9.227e-02; mom: 1.198e-11;
#> best it: 539; best obj: 4.397e-02
#> It: 685; obj: 4.397e-02; abs: 2.658e-15; rel: 6.044e-14; norm: 9.227e-02; mom: 1.318e-11;
#> best it: 539; best obj: 4.397e-02
#> It: 686; obj: 4.397e-02; abs: 9.090e-16; rel: 2.067e-14; norm: 9.227e-02; mom: 1.313e-11;
#> best it: 539; best obj: 4.397e-02
#> It: 687; obj: 4.397e-02; abs: 8.604e-16; rel: 1.957e-14; norm: 9.227e-02; mom: 1.192e-11;
#> best it: 539; best obj: 4.397e-02
#> It: 688; obj: 4.397e-02; abs: 3.608e-16; rel: 8.207e-15; norm: 9.227e-02; mom: 9.730e-12;
#> best it: 539; best obj: 4.397e-02
#> It: 689; obj: 4.397e-02; abs: 1.596e-16; rel: 3.630e-15; norm: 9.227e-02; mom: 6.857e-12;
#> best it: 539; best obj: 4.397e-02
#> It: 690; obj: 4.397e-02; abs: 8.257e-16; rel: 1.878e-14; norm: 9.227e-02; mom: 3.706e-12;
#> best it: 539; best obj: 4.397e-02
#> It: 691; obj: 4.397e-02; abs: 1.533e-15; rel: 3.488e-14; norm: 9.227e-02; mom: 1.666e-12;

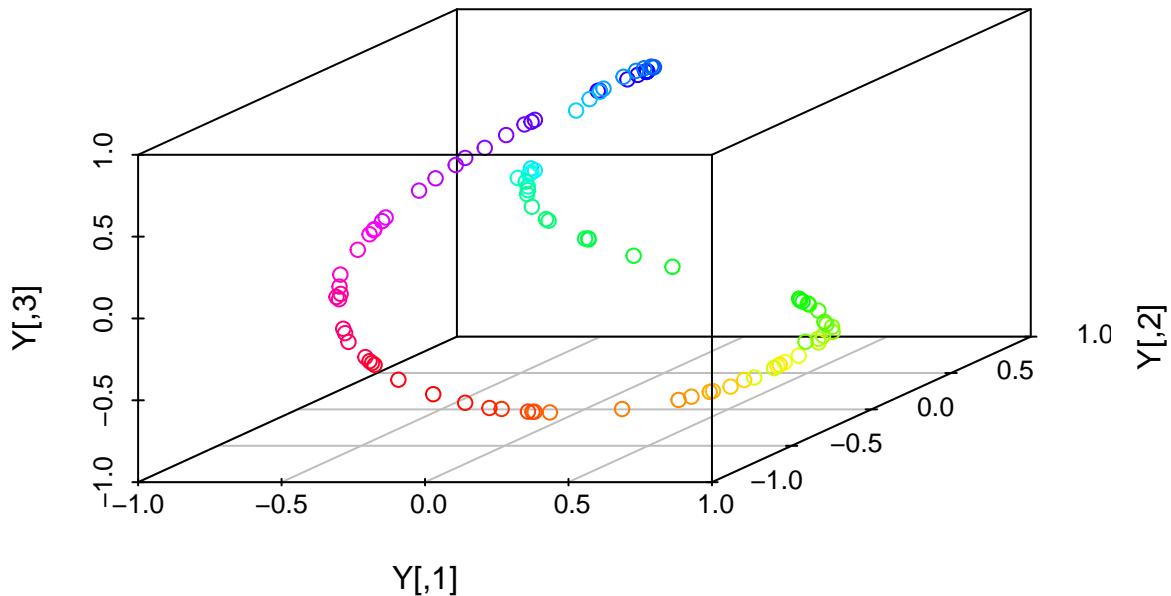
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#> best it: 539; best obj: 4.397e-02
#> It: 692; obj: 4.397e-02; abs: 2.214e-15; rel: 5.034e-14; norm: 9.227e-02; mom: 3.679e-12;
#> best it: 539; best obj: 4.397e-02
#> It: 693; obj: 4.397e-02; abs: 2.311e-15; rel: 5.255e-14; norm: 9.227e-02; mom: 6.179e-12;
#> best it: 539; best obj: 4.397e-02
#> It: 694; obj: 4.397e-02; abs: 2.776e-17; rel: 6.313e-16; norm: 9.227e-02; mom: 8.072e-12;
#> best it: 539; best obj: 4.397e-02
#> It: 695; obj: 4.397e-02; abs: 2.928e-15; rel: 6.660e-14; norm: 9.227e-02; mom: 9.150e-12;
#> best it: 539; best obj: 4.397e-02
#> It: 696; obj: 4.397e-02; abs: 7.841e-16; rel: 1.783e-14; norm: 9.227e-02; mom: 9.354e-12;
#> best it: 539; best obj: 4.397e-02
#> It: 697; obj: 4.397e-02; abs: 2.040e-15; rel: 4.640e-14; norm: 9.227e-02; mom: 8.721e-12;
#> best it: 539; best obj: 4.397e-02
#> It: 698; obj: 4.397e-02; abs: 4.025e-16; rel: 9.154e-15; norm: 9.227e-02; mom: 7.368e-12;
#> best it: 539; best obj: 4.397e-02
#> It: 699; obj: 4.397e-02; abs: 3.560e-15; rel: 8.096e-14; norm: 9.227e-02; mom: 5.479e-12;
#> best it: 539; best obj: 4.397e-02
#> It: 700; obj: 4.397e-02; abs: 1.783e-15; rel: 4.056e-14; norm: 9.227e-02; mom: 3.320e-12;
#> best it: 539; best obj: 4.397e-02

```

## Iteration 700



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#> It: 701; obj: 4.397e-02; abs: 1.048e-15; rel: 2.383e-14; norm: 9.227e-02; mom: 1.507e-12;
#> best it: 539; best obj: 4.397e-02
#> It: 702; obj: 4.397e-02; abs: 8.604e-16; rel: 1.957e-14; norm: 9.227e-02; mom: 2.157e-12;
#> best it: 539; best obj: 4.397e-02
#> It: 703; obj: 4.397e-02; abs: 3.123e-16; rel: 7.102e-15; norm: 9.227e-02; mom: 3.905e-12;
#> best it: 539; best obj: 4.397e-02
#> It: 704; obj: 4.397e-02; abs: 5.551e-17; rel: 1.263e-15; norm: 9.227e-02; mom: 5.359e-12;
#> best it: 539; best obj: 4.397e-02
#> It: 705; obj: 4.397e-02; abs: 5.621e-16; rel: 1.278e-14; norm: 9.227e-02; mom: 6.284e-12;
#> best it: 539; best obj: 4.397e-02
#> It: 706; obj: 4.397e-02; abs: 1.041e-16; rel: 2.367e-15; norm: 9.227e-02; mom: 6.608e-12;
#> best it: 539; best obj: 4.397e-02

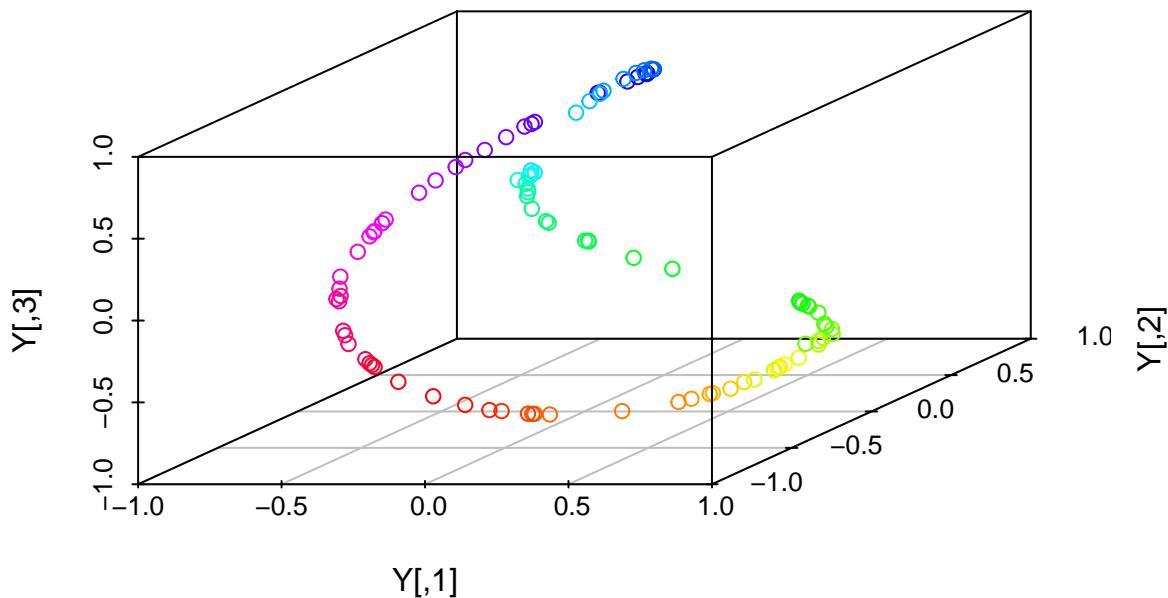
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#> It: 707; obj: 4.397e-02; abs: 2.054e-15; rel: 4.671e-14; norm: 9.227e-02; mom: 6.337e-12;
#> best it: 539; best obj: 4.397e-02
#> It: 708; obj: 4.397e-02; abs: 1.776e-15; rel: 4.040e-14; norm: 9.227e-02; mom: 5.533e-12;
#> best it: 539; best obj: 4.397e-02
#> It: 709; obj: 4.397e-02; abs: 8.119e-16; rel: 1.846e-14; norm: 9.227e-02; mom: 4.311e-12;
#> best it: 539; best obj: 4.397e-02
#> It: 710; obj: 4.397e-02; abs: 5.482e-16; rel: 1.247e-14; norm: 9.227e-02; mom: 2.837e-12;
#> best it: 539; best obj: 4.397e-02
#> It: 711; obj: 4.397e-02; abs: 7.147e-16; rel: 1.626e-14; norm: 9.227e-02; mom: 1.413e-12;
#> best it: 539; best obj: 4.397e-02
#> It: 712; obj: 4.397e-02; abs: 2.845e-16; rel: 6.471e-15; norm: 9.227e-02; mom: 1.239e-12;
#> best it: 539; best obj: 4.397e-02
#> It: 713; obj: 4.397e-02; abs: 3.331e-16; rel: 7.575e-15; norm: 9.227e-02; mom: 2.402e-12;
#> best it: 539; best obj: 4.397e-02
#> It: 714; obj: 4.397e-02; abs: 2.026e-15; rel: 4.608e-14; norm: 9.227e-02; mom: 3.513e-12;
#> best it: 539; best obj: 4.397e-02
#> It: 715; obj: 4.397e-02; abs: 6.106e-16; rel: 1.389e-14; norm: 9.227e-02; mom: 4.289e-12;
#> best it: 539; best obj: 4.397e-02
#> It: 716; obj: 4.397e-02; abs: 4.649e-16; rel: 1.057e-14; norm: 9.227e-02; mom: 4.652e-12;
#> best it: 539; best obj: 4.397e-02
#> It: 717; obj: 4.397e-02; abs: 1.374e-15; rel: 3.125e-14; norm: 9.227e-02; mom: 4.588e-12;
#> best it: 539; best obj: 4.397e-02
#> It: 718; obj: 4.397e-02; abs: 7.008e-16; rel: 1.594e-14; norm: 9.227e-02; mom: 4.127e-12;
#> best it: 539; best obj: 4.397e-02
#> It: 719; obj: 4.397e-02; abs: 1.575e-15; rel: 3.582e-14; norm: 9.227e-02; mom: 3.340e-12;
#> best it: 539; best obj: 4.397e-02
#> It: 720; obj: 4.397e-02; abs: 1.291e-15; rel: 2.935e-14; norm: 9.227e-02; mom: 2.328e-12;
#> best it: 539; best obj: 4.397e-02
#> It: 721; obj: 4.397e-02; abs: 5.343e-16; rel: 1.215e-14; norm: 9.227e-02; mom: 1.251e-12;
#> best it: 539; best obj: 4.397e-02
#> It: 722; obj: 4.397e-02; abs: 2.047e-15; rel: 4.656e-14; norm: 9.227e-02; mom: 6.919e-13;
#> best it: 539; best obj: 4.397e-02
#> It: 723; obj: 4.397e-02; abs: 6.453e-16; rel: 1.468e-14; norm: 9.227e-02; mom: 1.418e-12;
#> best it: 539; best obj: 4.397e-02
#> It: 724; obj: 4.397e-02; abs: 2.220e-16; rel: 5.050e-15; norm: 9.227e-02; mom: 2.268e-12;
#> best it: 539; best obj: 4.397e-02
#> It: 725; obj: 4.397e-02; abs: 8.257e-16; rel: 1.878e-14; norm: 9.227e-02; mom: 2.906e-12;
#> best it: 539; best obj: 4.397e-02

```

## Iteration 725



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#> It: 726; obj: 4.397e-02; abs: 1.839e-15; rel: 4.182e-14; norm: 9.227e-02; mom: 3.257e-12;
#> best it: 539; best obj: 4.397e-02
#> It: 727; obj: 4.397e-02; abs: 1.874e-15; rel: 4.261e-14; norm: 9.227e-02; mom: 3.301e-12;
#> best it: 539; best obj: 4.397e-02
#> It: 728; obj: 4.397e-02; abs: 1.117e-15; rel: 2.541e-14; norm: 9.227e-02; mom: 3.052e-12;
#> best it: 539; best obj: 4.397e-02
#> It: 729; obj: 4.397e-02; abs: 1.124e-15; rel: 2.557e-14; norm: 9.227e-02; mom: 2.550e-12;
#> best it: 539; best obj: 4.397e-02
#> It: 730; obj: 4.397e-02; abs: 1.804e-16; rel: 4.103e-15; norm: 9.227e-02; mom: 1.864e-12;
#> best it: 539; best obj: 4.397e-02
#> It: 731; obj: 4.397e-02; abs: 2.567e-16; rel: 5.839e-15; norm: 9.227e-02; mom: 1.088e-12;
#> best it: 539; best obj: 4.397e-02
#> It: 732; obj: 4.397e-02; abs: 5.967e-16; rel: 1.357e-14; norm: 9.227e-02; mom: 4.769e-13;
#> best it: 539; best obj: 4.397e-02
#> It: 733; obj: 4.397e-02; abs: 1.256e-15; rel: 2.857e-14; norm: 9.227e-02; mom: 8.181e-13;
#> best it: 539; best obj: 4.397e-02
#> It: 734; obj: 4.397e-02; abs: 2.512e-15; rel: 5.713e-14; norm: 9.227e-02; mom: 1.448e-12;
#> best it: 539; best obj: 4.397e-02
#> It: 735; obj: 4.397e-02; abs: 6.176e-16; rel: 1.405e-14; norm: 9.227e-02; mom: 1.953e-12;
#> best it: 539; best obj: 4.397e-02
#> It: 736; obj: 4.397e-02; abs: 2.408e-15; rel: 5.476e-14; norm: 9.227e-02; mom: 2.261e-12;
#> best it: 539; best obj: 4.397e-02
#> It: 737; obj: 4.397e-02; abs: 1.214e-15; rel: 2.762e-14; norm: 9.227e-02; mom: 2.352e-12;
#> best it: 539; best obj: 4.397e-02
#> It: 738; obj: 4.397e-02; abs: 1.020e-15; rel: 2.320e-14; norm: 9.227e-02; mom: 2.229e-12;
#> best it: 539; best obj: 4.397e-02
#> It: 739; obj: 4.397e-02; abs: 2.137e-15; rel: 4.861e-14; norm: 9.227e-02; mom: 1.917e-12;
#> best it: 539; best obj: 4.397e-02
#> It: 740; obj: 4.397e-02; abs: 1.402e-15; rel: 3.188e-14; norm: 9.227e-02; mom: 1.461e-12;
#> best it: 539; best obj: 4.397e-02
#> It: 741; obj: 4.397e-02; abs: 1.762e-15; rel: 4.009e-14; norm: 9.227e-02; mom: 9.209e-13;

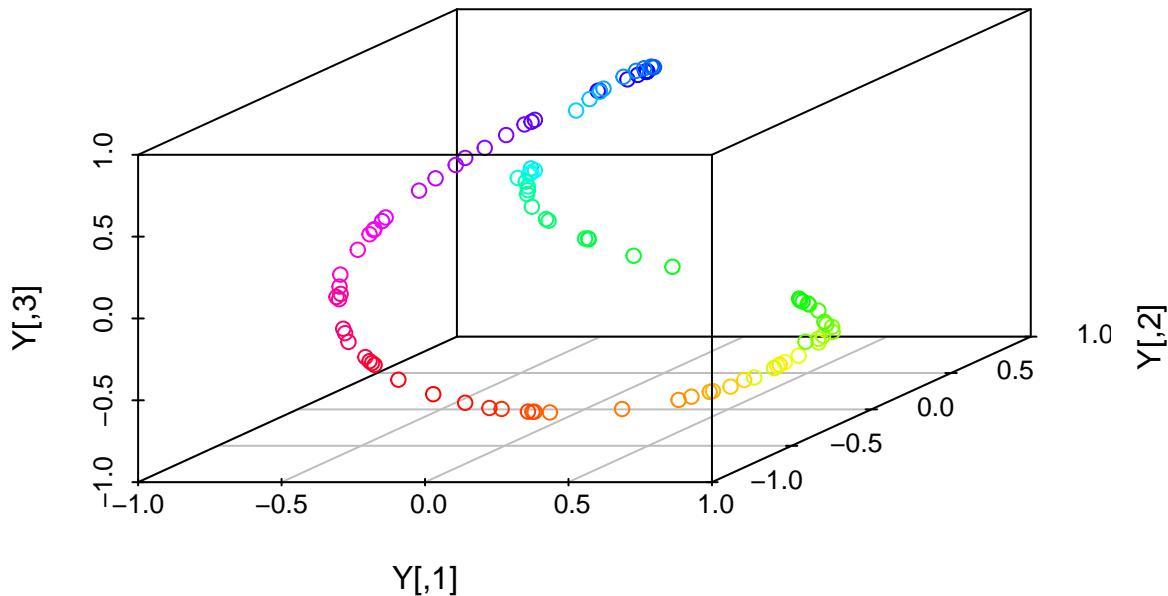
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#> best it: 539; best obj: 4.397e-02
#> It: 742; obj: 4.397e-02; abs: 8.465e-16; rel: 1.925e-14; norm: 9.227e-02; mom: 4.202e-13;
#> best it: 539; best obj: 4.397e-02
#> It: 743; obj: 4.397e-02; abs: 2.151e-16; rel: 4.892e-15; norm: 9.227e-02; mom: 4.721e-13;
#> best it: 539; best obj: 4.397e-02
#> It: 744; obj: 4.397e-02; abs: 1.943e-15; rel: 4.419e-14; norm: 9.227e-02; mom: 9.136e-13;
#> best it: 539; best obj: 4.397e-02
#> It: 745; obj: 4.397e-02; abs: 1.575e-15; rel: 3.582e-14; norm: 9.227e-02; mom: 1.299e-12;
#> best it: 539; best obj: 4.397e-02
#> It: 746; obj: 4.397e-02; abs: 1.180e-15; rel: 2.683e-14; norm: 9.227e-02; mom: 1.556e-12;
#> best it: 539; best obj: 4.397e-02
#> It: 747; obj: 4.397e-02; abs: 1.110e-16; rel: 2.525e-15; norm: 9.227e-02; mom: 1.661e-12;
#> best it: 539; best obj: 4.397e-02
#> It: 748; obj: 4.397e-02; abs: 1.173e-15; rel: 2.667e-14; norm: 9.227e-02; mom: 1.613e-12;
#> best it: 539; best obj: 4.397e-02
#> It: 749; obj: 4.397e-02; abs: 6.037e-16; rel: 1.373e-14; norm: 9.227e-02; mom: 1.427e-12;
#> best it: 539; best obj: 4.397e-02
#> It: 750; obj: 4.397e-02; abs: 2.248e-15; rel: 5.113e-14; norm: 9.227e-02; mom: 1.131e-12;
#> best it: 539; best obj: 4.397e-02

```

## Iteration 750



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#> It: 751; obj: 4.397e-02; abs: 4.025e-16; rel: 9.154e-15; norm: 9.227e-02; mom: 7.636e-13;
#> best it: 539; best obj: 4.397e-02
#> It: 752; obj: 4.397e-02; abs: 1.388e-17; rel: 3.156e-16; norm: 9.227e-02; mom: 3.907e-13;
#> best it: 539; best obj: 4.397e-02
#> It: 753; obj: 4.397e-02; abs: 1.166e-15; rel: 2.651e-14; norm: 9.227e-02; mom: 2.764e-13;
#> best it: 539; best obj: 4.397e-02
#> It: 754; obj: 4.397e-02; abs: 5.829e-16; rel: 1.326e-14; norm: 9.227e-02; mom: 5.583e-13;
#> best it: 539; best obj: 4.397e-02
#> It: 755; obj: 4.397e-02; abs: 3.192e-16; rel: 7.260e-15; norm: 9.227e-02; mom: 8.470e-13;
#> best it: 539; best obj: 4.397e-02
#> It: 756; obj: 4.397e-02; abs: 1.180e-15; rel: 2.683e-14; norm: 9.227e-02; mom: 1.055e-12;
#> best it: 539; best obj: 4.397e-02

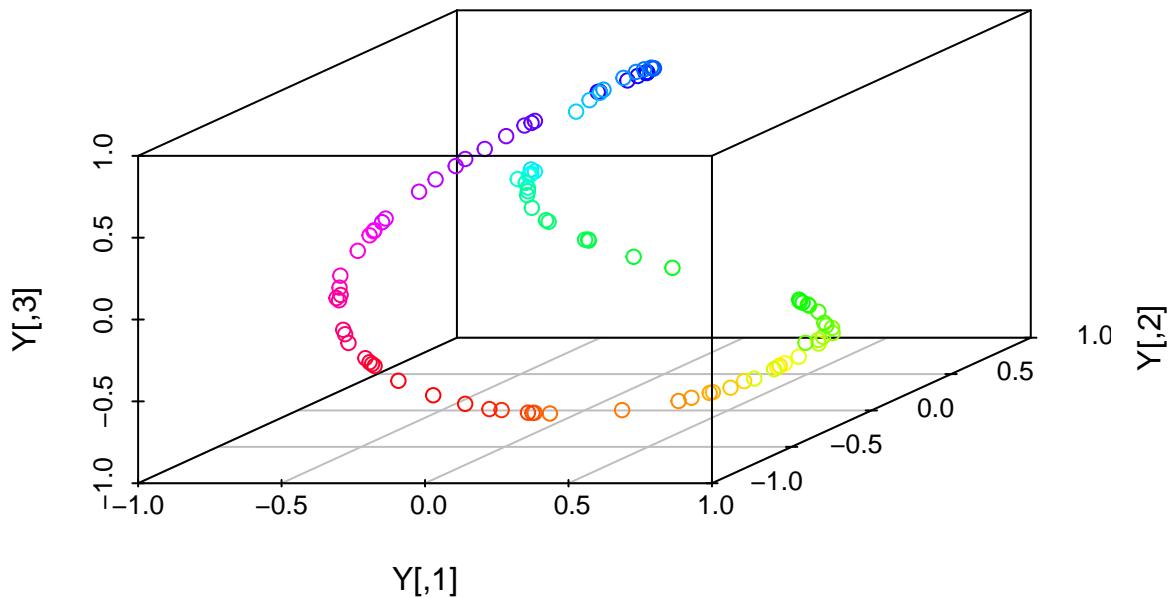
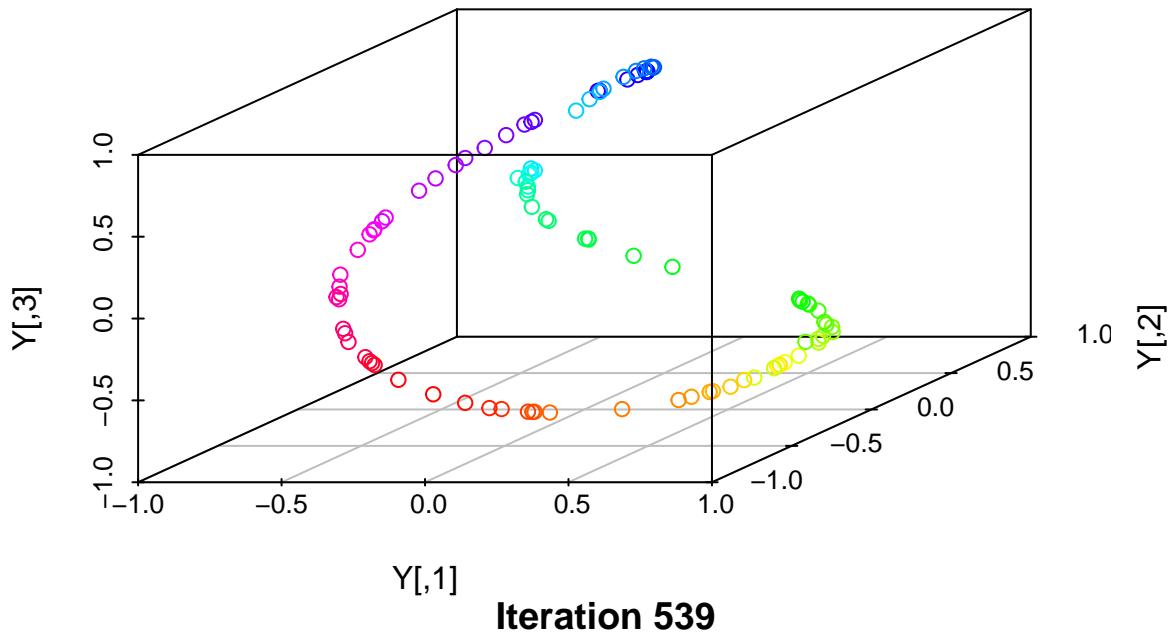
```

```

#> It: 757; obj: 4.397e-02; abs: 0.000e+00; rel: 0.000e+00; norm: 9.227e-02; mom: 1.161e-12;
#> best it: 539; best obj: 4.397e-02
#> It: 758; obj: 4.397e-02; abs: 2.012e-16; rel: 4.577e-15; norm: 9.227e-02; mom: 1.158e-12;
#> best it: 539; best obj: 4.397e-02
#> It: 759; obj: 4.397e-02; abs: 1.388e-17; rel: 3.156e-16; norm: 9.227e-02; mom: 1.055e-12;
#> best it: 539; best obj: 4.397e-02
#> It: 760; obj: 4.397e-02; abs: 1.672e-15; rel: 3.803e-14; norm: 9.227e-02; mom: 8.678e-13;
#> best it: 539; best obj: 4.397e-02
#> It: 761; obj: 4.397e-02; abs: 7.841e-16; rel: 1.783e-14; norm: 9.227e-02; mom: 6.214e-13;
#> best it: 539; best obj: 4.397e-02
#> It: 762; obj: 4.397e-02; abs: 5.412e-16; rel: 1.231e-14; norm: 9.227e-02; mom: 3.533e-13;
#> best it: 539; best obj: 4.397e-02
#> It: 763; obj: 4.397e-02; abs: 1.943e-16; rel: 4.419e-15; norm: 9.227e-02; mom: 1.802e-13;
#> best it: 539; best obj: 4.397e-02
#> It: 764; obj: 4.397e-02; abs: 6.384e-16; rel: 1.452e-14; norm: 9.227e-02; mom: 3.273e-13;
#> best it: 539; best obj: 4.397e-02
#> It: 765; obj: 4.397e-02; abs: 1.110e-16; rel: 2.525e-15; norm: 9.227e-02; mom: 5.398e-13;
#> best it: 539; best obj: 4.397e-02
#> It: 766; obj: 4.397e-02; abs: 9.923e-16; rel: 2.257e-14; norm: 9.227e-02; mom: 7.062e-13;
#> best it: 539; best obj: 4.397e-02
#> It: 767; obj: 4.397e-02; abs: 1.249e-16; rel: 2.841e-15; norm: 9.227e-02; mom: 8.036e-13;
#> best it: 539; best obj: 4.397e-02
#> It: 768; obj: 4.397e-02; abs: 1.055e-15; rel: 2.399e-14; norm: 9.227e-02; mom: 8.252e-13;
#> best it: 539; best obj: 4.397e-02
#> It: 769; obj: 4.397e-02; abs: 2.776e-16; rel: 6.313e-15; norm: 9.227e-02; mom: 7.734e-13;
#> best it: 539; best obj: 4.397e-02
#> It: 770; obj: 4.397e-02; abs: 9.021e-16; rel: 2.052e-14; norm: 9.227e-02; mom: 6.577e-13;
#> best it: 539; best obj: 4.397e-02
#> It: 771; obj: 4.397e-02; abs: 6.939e-16; rel: 1.578e-14; norm: 9.227e-02; mom: 4.936e-13;
#> best it: 539; best obj: 4.397e-02
#> It: 772; obj: 4.397e-02; abs: 1.180e-15; rel: 2.683e-14; norm: 9.227e-02; mom: 3.032e-13;
#> best it: 539; best obj: 4.397e-02
#> It: 773; obj: 4.397e-02; abs: 2.220e-16; rel: 5.050e-15; norm: 9.227e-02; mom: 1.361e-13;
#> best it: 539; best obj: 4.397e-02
#> It: 774; obj: 4.397e-02; abs: 2.706e-16; rel: 6.155e-15; norm: 9.227e-02; mom: 1.810e-13;
#> best it: 539; best obj: 4.397e-02
#> It: 775; obj: 4.397e-02; abs: 4.441e-16; rel: 1.010e-14; norm: 9.227e-02; mom: 3.367e-13;
#> best it: 539; best obj: 4.397e-02

```

### Iteration 775



In this case, results are well sorted along the sphere since the gradient of the rainbow colors are well defined. Let's visualize the results in the interactive sphere:

```
rgl::plot3d(0, 0, 0, xlim = c(-1, 1), ylim = c(-1, 1), zlim = c(-1, 1),
            radius = 1, type = "s", col = "lightblue", lit = FALSE)
rgl::points3d(psc_sne_res_42$best_Y, col = cols)
```

$(\mathbb{S}^2)^{100}$

Generate samples that are uniform and independent in all  $\mathbb{S}^2$  except in the first five, where there is a common time-indexed path given by

$$\begin{aligned}x_1(t) &= \text{equator}, \\x_2(t) &= \text{small-circle-rotated-1}, \\x_3(t) &= \text{small-circle-rotated-2}, \\x_4(t) &= \text{spherical-spiral-1}, \\x_5(t) &= \text{spherical-spiral-2}.\end{aligned}$$

Use spherical spirals.

```
n <- 100
r1 <- 1
r2 <- 2
r3 <- 2
r4 <- 95
# Calculate the north pole of the sphere
theta <- (90 * pi) / (180)
phi <- (0 * pi) / (180)
north_pole <- t(DirStats::to_sph(th = c(theta), ph = c(phi)))
# small circle in the equator (1 sample)
samp_1 <- r_path_s2r(n = n, r = r1, sigma = 0.1, Theta = north_pole)
# small circle rotated 1 and 2 (2 samples)
samp_2_3 <- r_path_s2r(n = n, r = r2, sigma = 0.1)
# spherical spiral 1 and 2 (2 samples)
samp_4_5 <- r_path_s2r(n = n, r = r3, c = 3, spiral = TRUE, sigma = 0.01)
# Data following an uniform distribution on the sphere (95 samples)
samp_95 <- r_unif_sph(n = n, p = 3, M = r4)
# Join the data by the third dimension
x_s2_100 <- abind(samp_1, samp_2_3, samp_4_5, samp_95, along = 3)
# Create rainbow colors, alpha is the level of opacity
cols <- rainbow(n, alpha = 1)
# Change the order of the data
indexes <- sample(1:n)
x_s2_100 <- x_s2_100[indexes, , ]
cols <- cols[indexes]
```

Now that we have created the artificial dataset, we can calculate the rho based on a fixed perplexity.

```
rho_30_s2_100 <- rho_optim_bst(x = x_s2_100, perp_fixed = 30,
                                    num_cores = num_cores_param)
#> Time difference of 37.93057 secs
```

First, let's reduce the dimension to the circumference:

```
psc_sne_res_51 <- psc_sne(X = x_s2_100, d = 1, rho_psc_list = rho_30_s2_100,
                             colors = cols, show_prog = TRUE, num_iteration = 775,
                             eta = 25, parallel_cores = num_cores_param)
#> It: 1; obj: 1.099e+01; abs: 0.000e+00; rel: 0.000e+00; norm: 2.389e-01; mom: 0.000e+00;
#> best it: 1; best obj: 1.099e+01
#> It: 2; obj: 1.066e+01; abs: 3.294e-01; rel: 2.997e-02; norm: 3.798e-01; mom: 1.097e+00;
#> best it: 2; best obj: 1.066e+01
#> It: 3; obj: 1.041e+01; abs: 2.467e-01; rel: 2.314e-02; norm: 4.848e-01; mom: 1.121e+00;
#> best it: 3; best obj: 1.041e+01
```

```

#> It: 4; obj: 1.030e+01; abs: 1.140e-01; rel: 1.094e-02; norm: 6.206e-01; mom: 9.585e-01;
#> best it: 4; best obj: 1.030e+01
#> It: 5; obj: 1.024e+01; abs: 5.655e-02; rel: 5.490e-03; norm: 7.328e-01; mom: 8.005e-01;
#> best it: 5; best obj: 1.024e+01
#> It: 6; obj: 1.020e+01; abs: 4.854e-02; rel: 4.738e-03; norm: 7.860e-01; mom: 6.066e-01;
#> best it: 6; best obj: 1.020e+01
#> It: 7; obj: 1.018e+01; abs: 2.011e-02; rel: 1.972e-03; norm: 8.208e-01; mom: 4.608e-01;
#> best it: 7; best obj: 1.018e+01
#> It: 8; obj: 1.016e+01; abs: 1.805e-02; rel: 1.774e-03; norm: 8.519e-01; mom: 3.838e-01;
#> best it: 8; best obj: 1.016e+01
#> It: 9; obj: 1.013e+01; abs: 2.266e-02; rel: 2.231e-03; norm: 8.769e-01; mom: 3.344e-01;
#> best it: 9; best obj: 1.013e+01
#> It: 10; obj: 1.011e+01; abs: 2.175e-02; rel: 2.146e-03; norm: 8.914e-01; mom: 3.039e-01;
#> best it: 10; best obj: 1.011e+01
#> It: 11; obj: 1.009e+01; abs: 2.153e-02; rel: 2.128e-03; norm: 8.948e-01; mom: 2.737e-01;
#> best it: 11; best obj: 1.009e+01
#> It: 12; obj: 1.007e+01; abs: 2.369e-02; rel: 2.347e-03; norm: 8.919e-01; mom: 2.767e-01;
#> best it: 12; best obj: 1.007e+01
#> It: 13; obj: 1.004e+01; abs: 2.836e-02; rel: 2.817e-03; norm: 8.857e-01; mom: 3.037e-01;
#> best it: 13; best obj: 1.004e+01
#> It: 14; obj: 1.000e+01; abs: 3.543e-02; rel: 3.529e-03; norm: 8.788e-01; mom: 3.371e-01;
#> best it: 14; best obj: 1.000e+01
#> It: 15; obj: 9.959e+00; abs: 4.540e-02; rel: 4.538e-03; norm: 8.764e-01; mom: 3.580e-01;
#> best it: 15; best obj: 9.959e+00
#> It: 16; obj: 9.912e+00; abs: 4.644e-02; rel: 4.663e-03; norm: 9.010e-01; mom: 3.766e-01;
#> best it: 16; best obj: 9.912e+00
#> It: 17; obj: 9.883e+00; abs: 2.936e-02; rel: 2.962e-03; norm: 9.763e-01; mom: 4.046e-01;
#> best it: 17; best obj: 9.883e+00
#> It: 18; obj: 9.879e+00; abs: 4.064e-03; rel: 4.112e-04; norm: 1.087e+00; mom: 4.421e-01;
#> best it: 18; best obj: 9.879e+00
#> It: 19; obj: 9.887e+00; abs: 8.432e-03; rel: 8.535e-04; norm: 1.219e+00; mom: 4.819e-01;
#> best it: 18; best obj: 9.879e+00
#> It: 20; obj: 9.888e+00; abs: 1.296e-04; rel: 1.311e-05; norm: 1.357e+00; mom: 5.103e-01;
#> best it: 18; best obj: 9.879e+00
#> It: 21; obj: 9.883e+00; abs: 4.135e-03; rel: 4.182e-04; norm: 1.498e+00; mom: 5.163e-01;
#> best it: 18; best obj: 9.879e+00
#> It: 22; obj: 9.888e+00; abs: 4.645e-03; rel: 4.699e-04; norm: 1.649e+00; mom: 5.075e-01;
#> best it: 18; best obj: 9.879e+00
#> It: 23; obj: 9.915e+00; abs: 2.683e-02; rel: 2.714e-03; norm: 1.818e+00; mom: 5.170e-01;
#> best it: 18; best obj: 9.879e+00
#> It: 24; obj: 9.975e+00; abs: 6.025e-02; rel: 6.077e-03; norm: 1.998e+00; mom: 5.261e-01;
#> best it: 18; best obj: 9.879e+00
#> It: 25; obj: 1.006e+01; abs: 8.161e-02; rel: 8.181e-03; norm: 2.163e+00; mom: 4.831e-01;
#> best it: 18; best obj: 9.879e+00
#> It: 26; obj: 1.013e+01; abs: 7.523e-02; rel: 7.481e-03; norm: 2.284e+00; mom: 3.959e-01;
#> best it: 18; best obj: 9.879e+00
#> It: 27; obj: 1.018e+01; abs: 5.134e-02; rel: 5.067e-03; norm: 2.354e+00; mom: 2.870e-01;
#> best it: 18; best obj: 9.879e+00
#> It: 28; obj: 1.021e+01; abs: 3.028e-02; rel: 2.974e-03; norm: 2.388e+00; mom: 1.940e-01;
#> best it: 18; best obj: 9.879e+00
#> It: 29; obj: 1.023e+01; abs: 1.723e-02; rel: 1.687e-03; norm: 2.404e+00; mom: 1.310e-01;
#> best it: 18; best obj: 9.879e+00
#> It: 30; obj: 1.024e+01; abs: 9.891e-03; rel: 9.668e-04; norm: 2.412e+00; mom: 9.052e-02;

```

```

#> best it: 18; best obj: 9.879e+00
#> It: 31; obj: 1.025e+01; abs: 5.807e-03; rel: 5.670e-04; norm: 2.417e+00; mom: 6.435e-02;
#> best it: 18; best obj: 9.879e+00
#> It: 32; obj: 1.025e+01; abs: 3.489e-03; rel: 3.405e-04; norm: 2.419e+00; mom: 4.692e-02;
#> best it: 18; best obj: 9.879e+00
#> It: 33; obj: 1.025e+01; abs: 2.141e-03; rel: 2.089e-04; norm: 2.420e+00; mom: 3.496e-02;
#> best it: 18; best obj: 9.879e+00
#> It: 34; obj: 1.025e+01; abs: 1.336e-03; rel: 1.304e-04; norm: 2.421e+00; mom: 2.653e-02;
#> best it: 18; best obj: 9.879e+00
#> It: 35; obj: 1.025e+01; abs: 8.457e-04; rel: 8.248e-05; norm: 2.422e+00; mom: 2.044e-02;
#> best it: 18; best obj: 9.879e+00
#> It: 36; obj: 1.025e+01; abs: 5.408e-04; rel: 5.274e-05; norm: 2.422e+00; mom: 1.594e-02;
#> best it: 18; best obj: 9.879e+00
#> It: 37; obj: 1.026e+01; abs: 3.486e-04; rel: 3.399e-05; norm: 2.422e+00; mom: 1.256e-02;
#> best it: 18; best obj: 9.879e+00
#> It: 38; obj: 1.026e+01; abs: 2.260e-04; rel: 2.204e-05; norm: 2.422e+00; mom: 9.969e-03;
#> best it: 18; best obj: 9.879e+00
#> It: 39; obj: 1.026e+01; abs: 1.472e-04; rel: 1.435e-05; norm: 2.422e+00; mom: 7.961e-03;
#> best it: 18; best obj: 9.879e+00
#> It: 40; obj: 1.026e+01; abs: 9.613e-05; rel: 9.374e-06; norm: 2.422e+00; mom: 6.386e-03;
#> best it: 18; best obj: 9.879e+00
#> It: 41; obj: 1.026e+01; abs: 6.293e-05; rel: 6.136e-06; norm: 2.422e+00; mom: 5.138e-03;
#> best it: 18; best obj: 9.879e+00
#> It: 42; obj: 1.026e+01; abs: 4.126e-05; rel: 4.024e-06; norm: 2.422e+00; mom: 4.145e-03;
#> best it: 18; best obj: 9.879e+00
#> It: 43; obj: 1.026e+01; abs: 2.709e-05; rel: 2.641e-06; norm: 2.422e+00; mom: 3.349e-03;
#> best it: 18; best obj: 9.879e+00
#> It: 44; obj: 1.026e+01; abs: 1.780e-05; rel: 1.735e-06; norm: 2.422e+00; mom: 2.709e-03;
#> best it: 18; best obj: 9.879e+00
#> It: 45; obj: 1.026e+01; abs: 1.170e-05; rel: 1.141e-06; norm: 2.422e+00; mom: 2.193e-03;
#> best it: 18; best obj: 9.879e+00
#> It: 46; obj: 1.026e+01; abs: 7.694e-06; rel: 7.502e-07; norm: 2.423e+00; mom: 1.777e-03;
#> best it: 18; best obj: 9.879e+00
#> It: 47; obj: 1.026e+01; abs: 5.061e-06; rel: 4.935e-07; norm: 2.423e+00; mom: 1.440e-03;
#> best it: 18; best obj: 9.879e+00
#> It: 48; obj: 1.026e+01; abs: 3.330e-06; rel: 3.247e-07; norm: 2.423e+00; mom: 1.168e-03;
#> best it: 18; best obj: 9.879e+00
#> It: 49; obj: 1.026e+01; abs: 2.192e-06; rel: 2.137e-07; norm: 2.423e+00; mom: 9.468e-04;
#> best it: 18; best obj: 9.879e+00
#> It: 50; obj: 1.026e+01; abs: 1.442e-06; rel: 1.406e-07; norm: 2.423e+00; mom: 7.679e-04;
#> best it: 18; best obj: 9.879e+00
#> It: 51; obj: 1.026e+01; abs: 9.494e-07; rel: 9.257e-08; norm: 2.423e+00; mom: 6.229e-04;
#> best it: 18; best obj: 9.879e+00
#> It: 52; obj: 1.026e+01; abs: 6.249e-07; rel: 6.094e-08; norm: 2.423e+00; mom: 5.053e-04;
#> best it: 18; best obj: 9.879e+00
#> It: 53; obj: 1.026e+01; abs: 4.114e-07; rel: 4.011e-08; norm: 2.423e+00; mom: 4.099e-04;
#> best it: 18; best obj: 9.879e+00
#> It: 54; obj: 1.026e+01; abs: 2.708e-07; rel: 2.641e-08; norm: 2.423e+00; mom: 3.326e-04;
#> best it: 18; best obj: 9.879e+00
#> It: 55; obj: 1.026e+01; abs: 1.783e-07; rel: 1.738e-08; norm: 2.423e+00; mom: 2.698e-04;
#> best it: 18; best obj: 9.879e+00
#> It: 56; obj: 1.026e+01; abs: 1.174e-07; rel: 1.144e-08; norm: 2.423e+00; mom: 2.189e-04;
#> best it: 18; best obj: 9.879e+00

```

```

#> It: 57; obj: 1.026e+01; abs: 7.727e-08; rel: 7.534e-09; norm: 2.423e+00; mom: 1.776e-04;
#> best it: 18; best obj: 9.879e+00
#> It: 58; obj: 1.026e+01; abs: 5.087e-08; rel: 4.960e-09; norm: 2.423e+00; mom: 1.441e-04;
#> best it: 18; best obj: 9.879e+00
#> It: 59; obj: 1.026e+01; abs: 3.349e-08; rel: 3.265e-09; norm: 2.423e+00; mom: 1.169e-04;
#> best it: 18; best obj: 9.879e+00
#> It: 60; obj: 1.026e+01; abs: 2.205e-08; rel: 2.150e-09; norm: 2.423e+00; mom: 9.488e-05;
#> best it: 18; best obj: 9.879e+00
#> It: 61; obj: 1.026e+01; abs: 1.452e-08; rel: 1.415e-09; norm: 2.423e+00; mom: 7.699e-05;
#> best it: 18; best obj: 9.879e+00
#> It: 62; obj: 1.026e+01; abs: 9.556e-09; rel: 9.318e-10; norm: 2.423e+00; mom: 6.247e-05;
#> best it: 18; best obj: 9.879e+00
#> It: 63; obj: 1.026e+01; abs: 6.291e-09; rel: 6.134e-10; norm: 2.423e+00; mom: 5.068e-05;
#> best it: 18; best obj: 9.879e+00
#> It: 64; obj: 1.026e+01; abs: 4.142e-09; rel: 4.039e-10; norm: 2.423e+00; mom: 4.113e-05;
#> best it: 18; best obj: 9.879e+00
#> It: 65; obj: 1.026e+01; abs: 2.727e-09; rel: 2.659e-10; norm: 2.423e+00; mom: 3.337e-05;
#> best it: 18; best obj: 9.879e+00
#> It: 66; obj: 1.026e+01; abs: 1.795e-09; rel: 1.751e-10; norm: 2.423e+00; mom: 2.707e-05;
#> best it: 18; best obj: 9.879e+00
#> It: 67; obj: 1.026e+01; abs: 1.182e-09; rel: 1.152e-10; norm: 2.423e+00; mom: 2.197e-05;
#> best it: 18; best obj: 9.879e+00
#> It: 68; obj: 1.026e+01; abs: 7.782e-10; rel: 7.588e-11; norm: 2.423e+00; mom: 1.783e-05;
#> best it: 18; best obj: 9.879e+00
#> It: 69; obj: 1.026e+01; abs: 5.124e-10; rel: 4.996e-11; norm: 2.423e+00; mom: 1.446e-05;
#> best it: 18; best obj: 9.879e+00
#> It: 70; obj: 1.026e+01; abs: 3.373e-10; rel: 3.288e-11; norm: 2.423e+00; mom: 1.174e-05;
#> best it: 18; best obj: 9.879e+00
#> It: 71; obj: 1.026e+01; abs: 2.220e-10; rel: 2.165e-11; norm: 2.423e+00; mom: 9.522e-06;
#> best it: 18; best obj: 9.879e+00
#> It: 72; obj: 1.026e+01; abs: 1.462e-10; rel: 1.425e-11; norm: 2.423e+00; mom: 7.726e-06;
#> best it: 18; best obj: 9.879e+00
#> It: 73; obj: 1.026e+01; abs: 9.629e-11; rel: 9.388e-12; norm: 2.423e+00; mom: 6.269e-06;
#> best it: 18; best obj: 9.879e+00
#> It: 74; obj: 1.026e+01; abs: 6.336e-11; rel: 6.178e-12; norm: 2.423e+00; mom: 5.087e-06;
#> best it: 18; best obj: 9.879e+00
#> It: 75; obj: 1.026e+01; abs: 4.173e-11; rel: 4.069e-12; norm: 2.423e+00; mom: 4.127e-06;
#> best it: 18; best obj: 9.879e+00
#> It: 76; obj: 1.026e+01; abs: 2.744e-11; rel: 2.675e-12; norm: 2.423e+00; mom: 3.349e-06;
#> best it: 18; best obj: 9.879e+00
#> It: 77; obj: 1.026e+01; abs: 1.810e-11; rel: 1.765e-12; norm: 2.423e+00; mom: 2.717e-06;
#> best it: 18; best obj: 9.879e+00
#> It: 78; obj: 1.026e+01; abs: 1.194e-11; rel: 1.164e-12; norm: 2.423e+00; mom: 2.205e-06;
#> best it: 18; best obj: 9.879e+00
#> It: 79; obj: 1.026e+01; abs: 7.812e-12; rel: 7.618e-13; norm: 2.423e+00; mom: 1.789e-06;
#> best it: 18; best obj: 9.879e+00
#> It: 80; obj: 1.026e+01; abs: 5.175e-12; rel: 5.045e-13; norm: 2.423e+00; mom: 1.452e-06;
#> best it: 18; best obj: 9.879e+00
#> It: 81; obj: 1.026e+01; abs: 3.391e-12; rel: 3.306e-13; norm: 2.423e+00; mom: 1.178e-06;
#> best it: 18; best obj: 9.879e+00
#> It: 82; obj: 1.026e+01; abs: 2.281e-12; rel: 2.224e-13; norm: 2.423e+00; mom: 9.556e-07;
#> best it: 18; best obj: 9.879e+00
#> It: 83; obj: 1.026e+01; abs: 1.432e-12; rel: 1.396e-13; norm: 2.423e+00; mom: 7.754e-07;

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#> best it: 18; best obj: 9.879e+00
#> It: 84; obj: 1.026e+01; abs: 9.841e-13; rel: 9.595e-14; norm: 2.423e+00; mom: 6.292e-07;
#> best it: 18; best obj: 9.879e+00
#> It: 85; obj: 1.026e+01; abs: 6.484e-13; rel: 6.322e-14; norm: 2.423e+00; mom: 5.105e-07;
#> best it: 18; best obj: 9.879e+00
#> It: 86; obj: 1.026e+01; abs: 3.837e-13; rel: 3.741e-14; norm: 2.423e+00; mom: 4.142e-07;
#> best it: 18; best obj: 9.879e+00
#> It: 87; obj: 1.026e+01; abs: 3.109e-13; rel: 3.031e-14; norm: 2.423e+00; mom: 3.361e-07;
#> best it: 18; best obj: 9.879e+00
#> It: 88; obj: 1.026e+01; abs: 1.901e-13; rel: 1.853e-14; norm: 2.423e+00; mom: 2.727e-07;
#> best it: 18; best obj: 9.879e+00
#> It: 89; obj: 1.026e+01; abs: 1.474e-13; rel: 1.438e-14; norm: 2.423e+00; mom: 2.213e-07;
#> best it: 18; best obj: 9.879e+00
#> It: 90; obj: 1.026e+01; abs: 6.573e-14; rel: 6.409e-15; norm: 2.423e+00; mom: 1.795e-07;
#> best it: 18; best obj: 9.879e+00
#> It: 91; obj: 1.026e+01; abs: 1.599e-14; rel: 1.559e-15; norm: 2.423e+00; mom: 1.457e-07;
#> best it: 18; best obj: 9.879e+00
#> It: 92; obj: 1.026e+01; abs: 1.776e-14; rel: 1.732e-15; norm: 2.423e+00; mom: 1.182e-07;
#> best it: 18; best obj: 9.879e+00
#> It: 93; obj: 1.026e+01; abs: 3.553e-15; rel: 3.464e-16; norm: 2.423e+00; mom: 9.591e-08;
#> best it: 18; best obj: 9.879e+00
#> It: 94; obj: 1.026e+01; abs: 0.000e+00; rel: 0.000e+00; norm: 2.423e+00; mom: 7.782e-08;
#> best it: 18; best obj: 9.879e+00
#> It: 95; obj: 1.026e+01; abs: 0.000e+00; rel: 0.000e+00; norm: 2.423e+00; mom: 6.314e-08;
#> best it: 18; best obj: 9.879e+00
#> It: 96; obj: 1.026e+01; abs: 5.329e-15; rel: 5.196e-16; norm: 2.423e+00; mom: 5.123e-08;
#> best it: 18; best obj: 9.879e+00
#> It: 97; obj: 1.026e+01; abs: 1.776e-15; rel: 1.732e-16; norm: 2.423e+00; mom: 4.157e-08;
#> best it: 18; best obj: 9.879e+00
#> It: 98; obj: 1.026e+01; abs: 1.776e-15; rel: 1.732e-16; norm: 2.423e+00; mom: 3.373e-08;
#> best it: 18; best obj: 9.879e+00
#> It: 99; obj: 1.026e+01; abs: 1.776e-15; rel: 1.732e-16; norm: 2.423e+00; mom: 2.737e-08;
#> best it: 18; best obj: 9.879e+00
#> It: 100; obj: 1.026e+01; abs: 1.776e-15; rel: 1.732e-16; norm: 2.423e+00; mom: 2.221e-08;
#> best it: 18; best obj: 9.879e+00
#> It: 101; obj: 1.178e+00; abs: 9.078e+00; rel: 8.852e-01; norm: 8.237e-02; mom: 1.802e-08;
#> best it: 101; best obj: 1.178e+00
#> It: 102; obj: 1.178e+00; abs: 4.441e-15; rel: 3.771e-15; norm: 8.237e-02; mom: 9.097e-08;
#> best it: 101; best obj: 1.178e+00
#> It: 103; obj: 1.178e+00; abs: 1.086e-13; rel: 9.220e-14; norm: 8.237e-02; mom: 2.726e-07;
#> best it: 103; best obj: 1.178e+00
#> It: 104; obj: 1.178e+00; abs: 7.900e-13; rel: 6.708e-13; norm: 8.237e-02; mom: 7.464e-07;
#> best it: 104; best obj: 1.178e+00
#> It: 105; obj: 1.178e+00; abs: 5.759e-12; rel: 4.890e-12; norm: 8.237e-02; mom: 2.053e-06;
#> best it: 105; best obj: 1.178e+00
#> It: 106; obj: 1.178e+00; abs: 4.326e-11; rel: 3.673e-11; norm: 8.237e-02; mom: 5.698e-06;
#> best it: 106; best obj: 1.178e+00
#> It: 107; obj: 1.178e+00; abs: 3.299e-10; rel: 2.801e-10; norm: 8.237e-02; mom: 1.594e-05;
#> best it: 107; best obj: 1.178e+00
#> It: 108; obj: 1.178e+00; abs: 2.549e-09; rel: 2.164e-09; norm: 8.237e-02; mom: 4.490e-05;
#> best it: 108; best obj: 1.178e+00
#> It: 109; obj: 1.178e+00; abs: 1.991e-08; rel: 1.691e-08; norm: 8.237e-02; mom: 1.271e-04;
#> best it: 109; best obj: 1.178e+00

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#> It: 110; obj: 1.178e+00; abs: 1.570e-07; rel: 1.333e-07; norm: 8.237e-02; mom: 3.611e-04;
#> best it: 110; best obj: 1.178e+00
#> It: 111; obj: 1.178e+00; abs: 1.248e-06; rel: 1.060e-06; norm: 8.237e-02; mom: 1.029e-03;
#> best it: 111; best obj: 1.178e+00
#> It: 112; obj: 1.178e+00; abs: 9.972e-06; rel: 8.468e-06; norm: 8.236e-02; mom: 2.941e-03;
#> best it: 112; best obj: 1.178e+00
#> It: 113; obj: 1.178e+00; abs: 7.918e-05; rel: 6.723e-05; norm: 8.234e-02; mom: 8.414e-03;
#> best it: 113; best obj: 1.178e+00
#> It: 114; obj: 1.177e+00; abs: 5.744e-04; rel: 4.878e-04; norm: 8.214e-02; mom: 2.400e-02;
#> best it: 114; best obj: 1.177e+00
#> It: 115; obj: 1.174e+00; abs: 2.904e-03; rel: 2.467e-03; norm: 8.085e-02; mom: 6.596e-02;
#> best it: 115; best obj: 1.174e+00
#> It: 116; obj: 1.161e+00; abs: 1.337e-02; rel: 1.139e-02; norm: 7.747e-02; mom: 1.470e-01;
#> best it: 116; best obj: 1.161e+00
#> It: 117; obj: 1.114e+00; abs: 4.720e-02; rel: 4.066e-02; norm: 7.099e-02; mom: 2.793e-01;
#> best it: 117; best obj: 1.114e+00
#> It: 118; obj: 1.043e+00; abs: 7.005e-02; rel: 6.290e-02; norm: 7.410e-02; mom: 5.459e-01;
#> best it: 118; best obj: 1.043e+00
#> It: 119; obj: 1.002e+00; abs: 4.118e-02; rel: 3.946e-02; norm: 8.436e-02; mom: 7.396e-01;
#> best it: 119; best obj: 1.002e+00
#> It: 120; obj: 9.825e-01; abs: 1.984e-02; rel: 1.979e-02; norm: 7.817e-02; mom: 6.377e-01;
#> best it: 120; best obj: 9.825e-01
#> It: 121; obj: 9.681e-01; abs: 1.437e-02; rel: 1.463e-02; norm: 7.404e-02; mom: 4.378e-01;
#> best it: 121; best obj: 9.681e-01
#> It: 122; obj: 9.549e-01; abs: 1.321e-02; rel: 1.365e-02; norm: 7.504e-02; mom: 3.151e-01;
#> best it: 122; best obj: 9.549e-01
#> It: 123; obj: 9.432e-01; abs: 1.164e-02; rel: 1.219e-02; norm: 7.782e-02; mom: 2.842e-01;
#> best it: 123; best obj: 9.432e-01
#> It: 124; obj: 9.327e-01; abs: 1.059e-02; rel: 1.123e-02; norm: 8.100e-02; mom: 3.028e-01;
#> best it: 124; best obj: 9.327e-01
#> It: 125; obj: 9.231e-01; abs: 9.505e-03; rel: 1.019e-02; norm: 8.360e-02; mom: 3.200e-01;
#> best it: 125; best obj: 9.231e-01
#> It: 126; obj: 9.172e-01; abs: 5.912e-03; rel: 6.404e-03; norm: 8.483e-02; mom: 3.468e-01;
#> best it: 126; best obj: 9.172e-01
#> It: 127; obj: 9.100e-01; abs: 7.254e-03; rel: 7.909e-03; norm: 8.550e-02; mom: 2.231e-01;
#> best it: 127; best obj: 9.100e-01
#> It: 128; obj: 9.034e-01; abs: 6.558e-03; rel: 7.207e-03; norm: 8.391e-02; mom: 2.319e-01;
#> best it: 128; best obj: 9.034e-01
#> It: 129; obj: 8.984e-01; abs: 4.993e-03; rel: 5.527e-03; norm: 8.229e-02; mom: 2.393e-01;
#> best it: 129; best obj: 8.984e-01
#> It: 130; obj: 8.941e-01; abs: 4.343e-03; rel: 4.834e-03; norm: 8.120e-02; mom: 2.238e-01;
#> best it: 130; best obj: 8.941e-01
#> It: 131; obj: 8.900e-01; abs: 4.073e-03; rel: 4.556e-03; norm: 8.029e-02; mom: 2.067e-01;
#> best it: 131; best obj: 8.900e-01
#> It: 132; obj: 8.862e-01; abs: 3.813e-03; rel: 4.285e-03; norm: 7.951e-02; mom: 1.940e-01;
#> best it: 132; best obj: 8.862e-01
#> It: 133; obj: 8.826e-01; abs: 3.605e-03; rel: 4.068e-03; norm: 7.898e-02; mom: 1.862e-01;
#> best it: 133; best obj: 8.826e-01
#> It: 134; obj: 8.791e-01; abs: 3.497e-03; rel: 3.962e-03; norm: 7.889e-02; mom: 1.811e-01;
#> best it: 134; best obj: 8.791e-01
#> It: 135; obj: 8.759e-01; abs: 3.181e-03; rel: 3.618e-03; norm: 7.951e-02; mom: 1.867e-01;
#> best it: 135; best obj: 8.759e-01
#> It: 136; obj: 8.731e-01; abs: 2.862e-03; rel: 3.268e-03; norm: 8.091e-02; mom: 2.046e-01;

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#> best it: 136; best obj: 8.731e-01
#> It: 137; obj: 8.698e-01; abs: 3.261e-03; rel: 3.735e-03; norm: 8.210e-02; mom: 1.955e-01;
#> best it: 137; best obj: 8.698e-01
#> It: 138; obj: 8.664e-01; abs: 3.437e-03; rel: 3.952e-03; norm: 8.161e-02; mom: 1.767e-01;
#> best it: 138; best obj: 8.664e-01
#> It: 139; obj: 8.635e-01; abs: 2.833e-03; rel: 3.270e-03; norm: 7.982e-02; mom: 1.792e-01;
#> best it: 139; best obj: 8.635e-01
#> It: 140; obj: 8.610e-01; abs: 2.475e-03; rel: 2.866e-03; norm: 7.855e-02; mom: 1.741e-01;
#> best it: 140; best obj: 8.610e-01
#> It: 141; obj: 8.586e-01; abs: 2.465e-03; rel: 2.863e-03; norm: 7.787e-02; mom: 1.575e-01;
#> best it: 141; best obj: 8.586e-01
#> It: 142; obj: 8.560e-01; abs: 2.588e-03; rel: 3.015e-03; norm: 7.732e-02; mom: 1.496e-01;
#> best it: 142; best obj: 8.560e-01
#> It: 143; obj: 8.534e-01; abs: 2.574e-03; rel: 3.008e-03; norm: 7.685e-02; mom: 1.524e-01;
#> best it: 143; best obj: 8.534e-01
#> It: 144; obj: 8.513e-01; abs: 2.137e-03; rel: 2.505e-03; norm: 7.678e-02; mom: 1.625e-01;
#> best it: 144; best obj: 8.513e-01
#> It: 145; obj: 8.496e-01; abs: 1.681e-03; rel: 1.975e-03; norm: 7.703e-02; mom: 1.715e-01;
#> best it: 145; best obj: 8.496e-01
#> It: 146; obj: 8.480e-01; abs: 1.650e-03; rel: 1.942e-03; norm: 7.689e-02; mom: 1.581e-01;
#> best it: 146; best obj: 8.480e-01
#> It: 147; obj: 8.464e-01; abs: 1.590e-03; rel: 1.876e-03; norm: 7.610e-02; mom: 1.327e-01;
#> best it: 147; best obj: 8.464e-01
#> It: 148; obj: 8.451e-01; abs: 1.221e-03; rel: 1.442e-03; norm: 7.505e-02; mom: 1.162e-01;
#> best it: 148; best obj: 8.451e-01
#> It: 149; obj: 8.443e-01; abs: 8.317e-04; rel: 9.842e-04; norm: 7.416e-02; mom: 1.098e-01;
#> best it: 149; best obj: 8.443e-01
#> It: 150; obj: 8.437e-01; abs: 5.987e-04; rel: 7.092e-04; norm: 7.348e-02; mom: 9.691e-02;
#> best it: 150; best obj: 8.437e-01
#> It: 151; obj: 8.433e-01; abs: 4.393e-04; rel: 5.206e-04; norm: 7.291e-02; mom: 7.912e-02;
#> best it: 151; best obj: 8.433e-01
#> It: 152; obj: 8.429e-01; abs: 3.332e-04; rel: 3.952e-04; norm: 7.257e-02; mom: 6.262e-02;
#> best it: 152; best obj: 8.429e-01
#> It: 153; obj: 8.427e-01; abs: 2.336e-04; rel: 2.772e-04; norm: 7.246e-02; mom: 5.619e-02;
#> best it: 153; best obj: 8.427e-01
#> It: 154; obj: 8.426e-01; abs: 1.283e-04; rel: 1.522e-04; norm: 7.248e-02; mom: 6.131e-02;
#> best it: 154; best obj: 8.426e-01
#> It: 155; obj: 8.425e-01; abs: 5.742e-05; rel: 6.815e-05; norm: 7.246e-02; mom: 6.291e-02;
#> best it: 155; best obj: 8.425e-01
#> It: 156; obj: 8.425e-01; abs: 4.422e-05; rel: 5.249e-05; norm: 7.234e-02; mom: 5.461e-02;
#> best it: 156; best obj: 8.425e-01
#> It: 157; obj: 8.424e-01; abs: 6.003e-05; rel: 7.126e-05; norm: 7.217e-02; mom: 3.879e-02;
#> best it: 157; best obj: 8.424e-01
#> It: 158; obj: 8.424e-01; abs: 5.495e-05; rel: 6.523e-05; norm: 7.198e-02; mom: 2.692e-02;
#> best it: 158; best obj: 8.424e-01
#> It: 159; obj: 8.423e-01; abs: 2.487e-05; rel: 2.952e-05; norm: 7.180e-02; mom: 3.101e-02;
#> best it: 159; best obj: 8.423e-01
#> It: 160; obj: 8.423e-01; abs: 1.937e-06; rel: 2.300e-06; norm: 7.162e-02; mom: 3.538e-02;
#> best it: 160; best obj: 8.423e-01
#> It: 161; obj: 8.423e-01; abs: 7.952e-07; rel: 9.441e-07; norm: 7.144e-02; mom: 3.130e-02;
#> best it: 160; best obj: 8.423e-01
#> It: 162; obj: 8.423e-01; abs: 8.136e-06; rel: 9.658e-06; norm: 7.133e-02; mom: 2.135e-02;
#> best it: 162; best obj: 8.423e-01

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#> It: 163; obj: 8.423e-01; abs: 1.375e-05; rel: 1.632e-05; norm: 7.132e-02; mom: 1.283e-02;
#> best it: 163; best obj: 8.423e-01
#> It: 164; obj: 8.423e-01; abs: 9.143e-06; rel: 1.085e-05; norm: 7.138e-02; mom: 1.527e-02;
#> best it: 164; best obj: 8.423e-01
#> It: 165; obj: 8.423e-01; abs: 2.661e-07; rel: 3.160e-07; norm: 7.146e-02; mom: 2.049e-02;
#> best it: 165; best obj: 8.423e-01
#> It: 166; obj: 8.423e-01; abs: 3.405e-06; rel: 4.042e-06; norm: 7.151e-02; mom: 2.109e-02;
#> best it: 165; best obj: 8.423e-01
#> It: 167; obj: 8.423e-01; abs: 2.785e-07; rel: 3.306e-07; norm: 7.153e-02; mom: 1.662e-02;
#> best it: 165; best obj: 8.423e-01
#> It: 168; obj: 8.423e-01; abs: 4.759e-06; rel: 5.650e-06; norm: 7.152e-02; mom: 9.875e-03;
#> best it: 168; best obj: 8.423e-01
#> It: 169; obj: 8.423e-01; abs: 4.339e-06; rel: 5.152e-06; norm: 7.149e-02; mom: 8.253e-03;
#> best it: 169; best obj: 8.423e-01
#> It: 170; obj: 8.423e-01; abs: 8.315e-07; rel: 9.872e-07; norm: 7.144e-02; mom: 1.198e-02;
#> best it: 170; best obj: 8.423e-01
#> It: 171; obj: 8.423e-01; abs: 1.221e-06; rel: 1.449e-06; norm: 7.139e-02; mom: 1.335e-02;
#> best it: 170; best obj: 8.423e-01
#> It: 172; obj: 8.423e-01; abs: 4.542e-07; rel: 5.393e-07; norm: 7.135e-02; mom: 1.118e-02;
#> best it: 170; best obj: 8.423e-01
#> It: 173; obj: 8.423e-01; abs: 1.289e-06; rel: 1.530e-06; norm: 7.133e-02; mom: 7.055e-03;
#> best it: 170; best obj: 8.423e-01
#> It: 174; obj: 8.423e-01; abs: 1.825e-06; rel: 2.166e-06; norm: 7.135e-02; mom: 4.608e-03;
#> best it: 174; best obj: 8.423e-01
#> It: 175; obj: 8.423e-01; abs: 8.427e-07; rel: 1.001e-06; norm: 7.138e-02; mom: 6.455e-03;
#> best it: 175; best obj: 8.423e-01
#> It: 176; obj: 8.423e-01; abs: 2.964e-07; rel: 3.519e-07; norm: 7.141e-02; mom: 8.078e-03;
#> best it: 175; best obj: 8.423e-01
#> It: 177; obj: 8.423e-01; abs: 4.147e-07; rel: 4.924e-07; norm: 7.144e-02; mom: 7.630e-03;
#> best it: 175; best obj: 8.423e-01
#> It: 178; obj: 8.423e-01; abs: 2.635e-07; rel: 3.128e-07; norm: 7.145e-02; mom: 5.451e-03;
#> best it: 175; best obj: 8.423e-01
#> It: 179; obj: 8.423e-01; abs: 7.205e-07; rel: 8.554e-07; norm: 7.145e-02; mom: 3.159e-03;
#> best it: 179; best obj: 8.423e-01
#> It: 180; obj: 8.423e-01; abs: 4.937e-07; rel: 5.862e-07; norm: 7.144e-02; mom: 3.488e-03;
#> best it: 180; best obj: 8.423e-01
#> It: 181; obj: 8.423e-01; abs: 9.332e-09; rel: 1.108e-08; norm: 7.142e-02; mom: 4.775e-03;
#> best it: 181; best obj: 8.423e-01
#> It: 182; obj: 8.423e-01; abs: 1.726e-07; rel: 2.049e-07; norm: 7.141e-02; mom: 4.919e-03;
#> best it: 181; best obj: 8.423e-01
#> It: 183; obj: 8.423e-01; abs: 1.360e-08; rel: 1.614e-08; norm: 7.140e-02; mom: 3.841e-03;
#> best it: 181; best obj: 8.423e-01
#> It: 184; obj: 8.423e-01; abs: 2.396e-07; rel: 2.845e-07; norm: 7.140e-02; mom: 2.293e-03;
#> best it: 184; best obj: 8.423e-01
#> It: 185; obj: 8.423e-01; abs: 2.419e-07; rel: 2.872e-07; norm: 7.140e-02; mom: 1.864e-03;
#> best it: 185; best obj: 8.423e-01
#> It: 186; obj: 8.423e-01; abs: 7.005e-08; rel: 8.317e-08; norm: 7.142e-02; mom: 2.680e-03;
#> best it: 186; best obj: 8.423e-01
#> It: 187; obj: 8.423e-01; abs: 5.662e-08; rel: 6.722e-08; norm: 7.143e-02; mom: 3.071e-03;
#> best it: 186; best obj: 8.423e-01
#> It: 188; obj: 8.423e-01; abs: 2.847e-08; rel: 3.380e-08; norm: 7.144e-02; mom: 2.672e-03;
#> best it: 186; best obj: 8.423e-01
#> It: 189; obj: 8.423e-01; abs: 6.931e-08; rel: 8.228e-08; norm: 7.145e-02; mom: 1.761e-03;

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#> best it: 186; best obj: 8.423e-01
#> It: 190; obj: 8.423e-01; abs: 1.046e-07; rel: 1.241e-07; norm: 7.144e-02; mom: 1.121e-03;
#> best it: 190; best obj: 8.423e-01
#> It: 191; obj: 8.423e-01; abs: 5.344e-08; rel: 6.344e-08; norm: 7.144e-02; mom: 1.476e-03;
#> best it: 191; best obj: 8.423e-01
#> It: 192; obj: 8.423e-01; abs: 8.429e-09; rel: 1.001e-08; norm: 7.143e-02; mom: 1.858e-03;
#> best it: 191; best obj: 8.423e-01
#> It: 193; obj: 8.423e-01; abs: 1.744e-08; rel: 2.070e-08; norm: 7.143e-02; mom: 1.771e-03;
#> best it: 191; best obj: 8.423e-01
#> It: 194; obj: 8.423e-01; abs: 1.546e-08; rel: 1.836e-08; norm: 7.143e-02; mom: 1.284e-03;
#> best it: 191; best obj: 8.423e-01
#> It: 195; obj: 8.423e-01; abs: 3.979e-08; rel: 4.724e-08; norm: 7.143e-02; mom: 7.585e-04;
#> best it: 195; best obj: 8.423e-01
#> It: 196; obj: 8.423e-01; abs: 3.008e-08; rel: 3.571e-08; norm: 7.143e-02; mom: 7.902e-04;
#> best it: 196; best obj: 8.423e-01
#> It: 197; obj: 8.423e-01; abs: 4.557e-09; rel: 5.410e-09; norm: 7.144e-02; mom: 1.083e-03;
#> best it: 197; best obj: 8.423e-01
#> It: 198; obj: 8.423e-01; abs: 7.116e-09; rel: 8.448e-09; norm: 7.144e-02; mom: 1.140e-03;
#> best it: 197; best obj: 8.423e-01
#> It: 199; obj: 8.423e-01; abs: 1.502e-09; rel: 1.783e-09; norm: 7.144e-02; mom: 9.180e-04;
#> best it: 197; best obj: 8.423e-01
#> It: 200; obj: 8.423e-01; abs: 1.378e-08; rel: 1.636e-08; norm: 7.145e-02; mom: 5.716e-04;
#> best it: 200; best obj: 8.423e-01
#> It: 201; obj: 8.423e-01; abs: 1.453e-08; rel: 1.726e-08; norm: 7.145e-02; mom: 4.446e-04;
#> best it: 201; best obj: 8.423e-01
#> It: 202; obj: 8.423e-01; abs: 5.572e-09; rel: 6.616e-09; norm: 7.144e-02; mom: 6.149e-04;
#> best it: 202; best obj: 8.423e-01
#> It: 203; obj: 8.423e-01; abs: 1.530e-09; rel: 1.816e-09; norm: 7.144e-02; mom: 7.093e-04;
#> best it: 202; best obj: 8.423e-01
#> It: 204; obj: 8.423e-01; abs: 6.396e-10; rel: 7.594e-10; norm: 7.144e-02; mom: 6.262e-04;
#> best it: 202; best obj: 8.423e-01
#> It: 205; obj: 8.423e-01; abs: 4.215e-09; rel: 5.004e-09; norm: 7.144e-02; mom: 4.242e-04;
#> best it: 205; best obj: 8.423e-01
#> It: 206; obj: 8.423e-01; abs: 6.203e-09; rel: 7.365e-09; norm: 7.144e-02; mom: 2.731e-04;
#> best it: 206; best obj: 8.423e-01
#> It: 207; obj: 8.423e-01; abs: 3.678e-09; rel: 4.366e-09; norm: 7.144e-02; mom: 3.390e-04;
#> best it: 207; best obj: 8.423e-01
#> It: 208; obj: 8.423e-01; abs: 2.922e-10; rel: 3.469e-10; norm: 7.144e-02; mom: 4.283e-04;
#> best it: 208; best obj: 8.423e-01
#> It: 209; obj: 8.423e-01; abs: 4.555e-10; rel: 5.407e-10; norm: 7.145e-02; mom: 4.162e-04;
#> best it: 208; best obj: 8.423e-01
#> It: 210; obj: 8.423e-01; abs: 1.143e-09; rel: 1.357e-09; norm: 7.145e-02; mom: 3.124e-04;
#> best it: 210; best obj: 8.423e-01
#> It: 211; obj: 8.423e-01; abs: 2.461e-09; rel: 2.921e-09; norm: 7.145e-02; mom: 1.947e-04;
#> best it: 211; best obj: 8.423e-01
#> It: 212; obj: 8.423e-01; abs: 2.008e-09; rel: 2.384e-09; norm: 7.145e-02; mom: 1.897e-04;
#> best it: 212; best obj: 8.423e-01
#> It: 213; obj: 8.423e-01; abs: 6.383e-10; rel: 7.578e-10; norm: 7.145e-02; mom: 2.516e-04;
#> best it: 213; best obj: 8.423e-01
#> It: 214; obj: 8.423e-01; abs: 7.528e-11; rel: 8.937e-11; norm: 7.145e-02; mom: 2.667e-04;
#> best it: 213; best obj: 8.423e-01
#> It: 215; obj: 8.423e-01; abs: 2.844e-10; rel: 3.377e-10; norm: 7.145e-02; mom: 2.193e-04;
#> best it: 215; best obj: 8.423e-01

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#> It: 216; obj: 8.423e-01; abs: 8.993e-10; rel: 1.068e-09; norm: 7.145e-02; mom: 1.430e-04;
#> best it: 216; best obj: 8.423e-01
#> It: 217; obj: 8.423e-01; abs: 9.525e-10; rel: 1.131e-09; norm: 7.145e-02; mom: 1.105e-04;
#> best it: 217; best obj: 8.423e-01
#> It: 218; obj: 8.423e-01; abs: 4.813e-10; rel: 5.714e-10; norm: 7.145e-02; mom: 1.443e-04;
#> best it: 218; best obj: 8.423e-01
#> It: 219; obj: 8.423e-01; abs: 7.338e-11; rel: 8.712e-11; norm: 7.145e-02; mom: 1.668e-04;
#> best it: 219; best obj: 8.423e-01
#> It: 220; obj: 8.423e-01; abs: 7.991e-11; rel: 9.487e-11; norm: 7.145e-02; mom: 1.507e-04;
#> best it: 220; best obj: 8.423e-01
#> It: 221; obj: 8.423e-01; abs: 3.178e-10; rel: 3.772e-10; norm: 7.145e-02; mom: 1.075e-04;
#> best it: 221; best obj: 8.423e-01
#> It: 222; obj: 8.423e-01; abs: 4.244e-10; rel: 5.039e-10; norm: 7.145e-02; mom: 7.358e-05;
#> best it: 222; best obj: 8.423e-01
#> It: 223; obj: 8.423e-01; abs: 2.922e-10; rel: 3.470e-10; norm: 7.145e-02; mom: 8.292e-05;
#> best it: 223; best obj: 8.423e-01
#> It: 224; obj: 8.423e-01; abs: 1.018e-10; rel: 1.208e-10; norm: 7.145e-02; mom: 1.016e-04;
#> best it: 224; best obj: 8.423e-01
#> It: 225; obj: 8.423e-01; abs: 4.280e-11; rel: 5.082e-11; norm: 7.145e-02; mom: 9.953e-05;
#> best it: 225; best obj: 8.423e-01
#> It: 226; obj: 8.423e-01; abs: 1.122e-10; rel: 1.332e-10; norm: 7.145e-02; mom: 7.731e-05;
#> best it: 226; best obj: 8.423e-01
#> It: 227; obj: 8.423e-01; abs: 1.765e-10; rel: 2.096e-10; norm: 7.145e-02; mom: 5.191e-05;
#> best it: 227; best obj: 8.423e-01
#> It: 228; obj: 8.423e-01; abs: 1.517e-10; rel: 1.802e-10; norm: 7.145e-02; mom: 4.852e-05;
#> best it: 228; best obj: 8.423e-01
#> It: 229; obj: 8.423e-01; abs: 7.582e-11; rel: 9.001e-11; norm: 7.145e-02; mom: 6.076e-05;
#> best it: 229; best obj: 8.423e-01
#> It: 230; obj: 8.423e-01; abs: 3.089e-11; rel: 3.667e-11; norm: 7.145e-02; mom: 6.456e-05;
#> best it: 230; best obj: 8.423e-01
#> It: 231; obj: 8.423e-01; abs: 4.323e-11; rel: 5.133e-11; norm: 7.145e-02; mom: 5.490e-05;
#> best it: 231; best obj: 8.423e-01
#> It: 232; obj: 8.423e-01; abs: 7.258e-11; rel: 8.617e-11; norm: 7.145e-02; mom: 3.895e-05;
#> best it: 232; best obj: 8.423e-01
#> It: 233; obj: 8.423e-01; abs: 7.450e-11; rel: 8.845e-11; norm: 7.145e-02; mom: 3.117e-05;
#> best it: 233; best obj: 8.423e-01
#> It: 234; obj: 8.423e-01; abs: 4.807e-11; rel: 5.706e-11; norm: 7.145e-02; mom: 3.634e-05;
#> best it: 234; best obj: 8.423e-01
#> It: 235; obj: 8.423e-01; abs: 2.327e-11; rel: 2.762e-11; norm: 7.145e-02; mom: 4.077e-05;
#> best it: 235; best obj: 8.423e-01
#> It: 236; obj: 8.423e-01; abs: 1.986e-11; rel: 2.358e-11; norm: 7.145e-02; mom: 3.739e-05;
#> best it: 236; best obj: 8.423e-01
#> It: 237; obj: 8.423e-01; abs: 2.981e-11; rel: 3.539e-11; norm: 7.145e-02; mom: 2.834e-05;
#> best it: 237; best obj: 8.423e-01
#> It: 238; obj: 8.423e-01; abs: 3.422e-11; rel: 4.063e-11; norm: 7.145e-02; mom: 2.115e-05;
#> best it: 238; best obj: 8.423e-01
#> It: 239; obj: 8.423e-01; abs: 2.640e-11; rel: 3.134e-11; norm: 7.145e-02; mom: 2.199e-05;
#> best it: 239; best obj: 8.423e-01
#> It: 240; obj: 8.423e-01; abs: 1.510e-11; rel: 1.793e-11; norm: 7.145e-02; mom: 2.550e-05;
#> best it: 240; best obj: 8.423e-01
#> It: 241; obj: 8.423e-01; abs: 1.046e-11; rel: 1.241e-11; norm: 7.145e-02; mom: 2.517e-05;
#> best it: 241; best obj: 8.423e-01
#> It: 242; obj: 8.423e-01; abs: 1.291e-11; rel: 1.533e-11; norm: 7.145e-02; mom: 2.066e-05;

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#> best it: 242; best obj: 8.423e-01
#> It: 243; obj: 8.423e-01; abs: 1.562e-11; rel: 1.855e-11; norm: 7.145e-02; mom: 1.550e-05;
#> best it: 243; best obj: 8.423e-01
#> It: 244; obj: 8.423e-01; abs: 1.386e-11; rel: 1.646e-11; norm: 7.145e-02; mom: 1.417e-05;
#> best it: 244; best obj: 8.423e-01
#> It: 245; obj: 8.423e-01; abs: 9.266e-12; rel: 1.100e-11; norm: 7.145e-02; mom: 1.592e-05;
#> best it: 245; best obj: 8.423e-01
#> It: 246; obj: 8.423e-01; abs: 6.109e-12; rel: 7.253e-12; norm: 7.145e-02; mom: 1.650e-05;
#> best it: 246; best obj: 8.423e-01
#> It: 247; obj: 8.423e-01; abs: 6.015e-12; rel: 7.142e-12; norm: 7.145e-02; mom: 1.447e-05;
#> best it: 247; best obj: 8.423e-01
#> It: 248; obj: 8.423e-01; abs: 7.435e-12; rel: 8.827e-12; norm: 7.145e-02; mom: 1.797e-05;
#> best it: 248; best obj: 8.423e-01
#> It: 249; obj: 8.423e-01; abs: 8.021e-12; rel: 9.523e-12; norm: 7.145e-02; mom: 2.043e-05;
#> best it: 249; best obj: 8.423e-01
#> It: 250; obj: 8.423e-01; abs: 7.556e-12; rel: 8.971e-12; norm: 7.145e-02; mom: 2.246e-05;
#> best it: 250; best obj: 8.423e-01
#> It: 251; obj: 8.423e-01; abs: 5.246e-12; rel: 6.228e-12; norm: 7.145e-02; mom: 2.497e-05;
#> best it: 251; best obj: 8.423e-01
#> It: 252; obj: 8.423e-01; abs: 7.477e-13; rel: 8.877e-13; norm: 7.145e-02; mom: 2.824e-05;
#> best it: 252; best obj: 8.423e-01
#> It: 253; obj: 8.423e-01; abs: 4.749e-12; rel: 5.638e-12; norm: 7.145e-02; mom: 3.172e-05;
#> best it: 252; best obj: 8.423e-01
#> It: 254; obj: 8.423e-01; abs: 8.289e-12; rel: 9.841e-12; norm: 7.145e-02; mom: 3.436e-05;
#> best it: 252; best obj: 8.423e-01
#> It: 255; obj: 8.423e-01; abs: 6.403e-12; rel: 7.602e-12; norm: 7.145e-02; mom: 3.509e-05;
#> best it: 252; best obj: 8.423e-01
#> It: 256; obj: 8.423e-01; abs: 1.298e-12; rel: 1.541e-12; norm: 7.145e-02; mom: 3.351e-05;
#> best it: 252; best obj: 8.423e-01
#> It: 257; obj: 8.423e-01; abs: 8.215e-12; rel: 9.753e-12; norm: 7.145e-02; mom: 3.182e-05;
#> best it: 252; best obj: 8.423e-01
#> It: 258; obj: 8.423e-01; abs: 2.037e-12; rel: 2.419e-12; norm: 7.145e-02; mom: 3.608e-05;
#> best it: 252; best obj: 8.423e-01
#> It: 259; obj: 8.423e-01; abs: 2.605e-11; rel: 3.093e-11; norm: 7.145e-02; mom: 4.938e-05;
#> best it: 252; best obj: 8.423e-01
#> It: 260; obj: 8.423e-01; abs: 6.954e-11; rel: 8.256e-11; norm: 7.145e-02; mom: 6.701e-05;
#> best it: 252; best obj: 8.423e-01
#> It: 261; obj: 8.423e-01; abs: 1.023e-10; rel: 1.215e-10; norm: 7.145e-02; mom: 8.247e-05;
#> best it: 252; best obj: 8.423e-01
#> It: 262; obj: 8.423e-01; abs: 9.138e-11; rel: 1.085e-10; norm: 7.145e-02; mom: 9.036e-05;
#> best it: 252; best obj: 8.423e-01
#> It: 263; obj: 8.423e-01; abs: 2.552e-11; rel: 3.029e-11; norm: 7.145e-02; mom: 8.817e-05;
#> best it: 252; best obj: 8.423e-01
#> It: 264; obj: 8.423e-01; abs: 5.501e-11; rel: 6.531e-11; norm: 7.145e-02; mom: 8.076e-05;
#> best it: 252; best obj: 8.423e-01
#> It: 265; obj: 8.423e-01; abs: 5.674e-11; rel: 6.736e-11; norm: 7.145e-02; mom: 8.713e-05;
#> best it: 252; best obj: 8.423e-01
#> It: 266; obj: 8.423e-01; abs: 1.168e-10; rel: 1.387e-10; norm: 7.145e-02; mom: 1.232e-04;
#> best it: 252; best obj: 8.423e-01
#> It: 267; obj: 8.423e-01; abs: 4.708e-10; rel: 5.589e-10; norm: 7.145e-02; mom: 1.771e-04;
#> best it: 252; best obj: 8.423e-01
#> It: 268; obj: 8.423e-01; abs: 8.416e-10; rel: 9.991e-10; norm: 7.145e-02; mom: 2.291e-04;
#> best it: 252; best obj: 8.423e-01

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#> It: 269; obj: 8.423e-01; abs: 9.311e-10; rel: 1.105e-09; norm: 7.145e-02; mom: 2.627e-04;
#> best it: 252; best obj: 8.423e-01
#> It: 270; obj: 8.423e-01; abs: 5.142e-10; rel: 6.104e-10; norm: 7.145e-02; mom: 2.669e-04;
#> best it: 252; best obj: 8.423e-01
#> It: 271; obj: 8.423e-01; abs: 2.548e-10; rel: 3.025e-10; norm: 7.145e-02; mom: 2.458e-04;
#> best it: 252; best obj: 8.423e-01
#> It: 272; obj: 8.423e-01; abs: 6.733e-10; rel: 7.994e-10; norm: 7.145e-02; mom: 2.406e-04;
#> best it: 252; best obj: 8.423e-01
#> It: 273; obj: 8.423e-01; abs: 2.429e-10; rel: 2.884e-10; norm: 7.145e-02; mom: 3.183e-04;
#> best it: 252; best obj: 8.423e-01
#> It: 274; obj: 8.423e-01; abs: 2.982e-09; rel: 3.540e-09; norm: 7.145e-02; mom: 4.706e-04;
#> best it: 252; best obj: 8.423e-01
#> It: 275; obj: 8.423e-01; abs: 6.647e-09; rel: 7.892e-09; norm: 7.145e-02; mom: 6.386e-04;
#> best it: 252; best obj: 8.423e-01
#> It: 276; obj: 8.423e-01; abs: 8.802e-09; rel: 1.045e-08; norm: 7.145e-02; mom: 7.679e-04;
#> best it: 252; best obj: 8.423e-01
#> It: 277; obj: 8.423e-01; abs: 6.811e-09; rel: 8.086e-09; norm: 7.144e-02; mom: 8.172e-04;
#> best it: 252; best obj: 8.423e-01
#> It: 278; obj: 8.423e-01; abs: 4.800e-10; rel: 5.698e-10; norm: 7.145e-02; mom: 7.760e-04;
#> best it: 252; best obj: 8.423e-01
#> It: 279; obj: 8.423e-01; abs: 5.650e-09; rel: 6.708e-09; norm: 7.145e-02; mom: 7.172e-04;
#> best it: 252; best obj: 8.423e-01
#> It: 280; obj: 8.423e-01; abs: 2.982e-09; rel: 3.540e-09; norm: 7.145e-02; mom: 8.408e-04;
#> best it: 252; best obj: 8.423e-01
#> It: 281; obj: 8.423e-01; abs: 1.579e-08; rel: 1.875e-08; norm: 7.145e-02; mom: 1.233e-03;
#> best it: 252; best obj: 8.423e-01
#> It: 282; obj: 8.423e-01; abs: 4.829e-08; rel: 5.733e-08; norm: 7.146e-02; mom: 1.746e-03;
#> best it: 252; best obj: 8.423e-01
#> It: 283; obj: 8.423e-01; abs: 7.707e-08; rel: 9.150e-08; norm: 7.146e-02; mom: 2.203e-03;
#> best it: 252; best obj: 8.423e-01
#> It: 284; obj: 8.423e-01; abs: 7.557e-08; rel: 8.972e-08; norm: 7.147e-02; mom: 2.459e-03;
#> best it: 252; best obj: 8.423e-01
#> It: 285; obj: 8.423e-01; abs: 2.926e-08; rel: 3.474e-08; norm: 7.147e-02; mom: 2.428e-03;
#> best it: 252; best obj: 8.423e-01
#> It: 286; obj: 8.423e-01; abs: 3.731e-08; rel: 4.429e-08; norm: 7.146e-02; mom: 2.209e-03;
#> best it: 252; best obj: 8.423e-01
#> It: 287; obj: 8.423e-01; abs: 5.210e-08; rel: 6.186e-08; norm: 7.146e-02; mom: 2.307e-03;
#> best it: 252; best obj: 8.423e-01
#> It: 288; obj: 8.423e-01; abs: 6.782e-08; rel: 8.052e-08; norm: 7.144e-02; mom: 3.262e-03;
#> best it: 252; best obj: 8.423e-01
#> It: 289; obj: 8.423e-01; abs: 3.381e-07; rel: 4.014e-07; norm: 7.143e-02; mom: 4.779e-03;
#> best it: 252; best obj: 8.423e-01
#> It: 290; obj: 8.423e-01; abs: 6.415e-07; rel: 7.616e-07; norm: 7.142e-02; mom: 6.291e-03;
#> best it: 252; best obj: 8.423e-01
#> It: 291; obj: 8.423e-01; abs: 7.529e-07; rel: 8.939e-07; norm: 7.140e-02; mom: 7.326e-03;
#> best it: 252; best obj: 8.423e-01
#> It: 292; obj: 8.423e-01; abs: 4.895e-07; rel: 5.812e-07; norm: 7.140e-02; mom: 7.577e-03;
#> best it: 252; best obj: 8.423e-01
#> It: 293; obj: 8.423e-01; abs: 7.969e-08; rel: 9.461e-08; norm: 7.140e-02; mom: 7.096e-03;
#> best it: 252; best obj: 8.423e-01
#> It: 294; obj: 8.423e-01; abs: 5.047e-07; rel: 5.992e-07; norm: 7.142e-02; mom: 6.767e-03;
#> best it: 252; best obj: 8.423e-01
#> It: 295; obj: 8.423e-01; abs: 7.074e-08; rel: 8.398e-08; norm: 7.145e-02; mom: 8.356e-03;

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#> best it: 252; best obj: 8.423e-01
#> It: 296; obj: 8.423e-01; abs: 1.748e-06; rel: 2.075e-06; norm: 7.149e-02; mom: 1.219e-02;
#> best it: 252; best obj: 8.423e-01
#> It: 297; obj: 8.423e-01; abs: 4.614e-06; rel: 5.477e-06; norm: 7.153e-02; mom: 1.688e-02;
#> best it: 252; best obj: 8.423e-01
#> It: 298; obj: 8.423e-01; abs: 6.868e-06; rel: 8.154e-06; norm: 7.157e-02; mom: 2.089e-02;
#> best it: 252; best obj: 8.423e-01
#> It: 299; obj: 8.423e-01; abs: 5.958e-06; rel: 7.074e-06; norm: 7.159e-02; mom: 2.278e-02;
#> best it: 252; best obj: 8.423e-01
#> It: 300; obj: 8.423e-01; abs: 6.113e-07; rel: 7.258e-07; norm: 7.158e-02; mom: 2.163e-02;
#> best it: 252; best obj: 8.423e-01
#> It: 301; obj: 8.423e-01; abs: 5.348e-06; rel: 6.349e-06; norm: 7.154e-02; mom: 1.927e-02;
#> best it: 252; best obj: 8.423e-01
#> It: 302; obj: 8.423e-01; abs: 2.337e-06; rel: 2.774e-06; norm: 7.146e-02; mom: 2.337e-02;
#> best it: 252; best obj: 8.423e-01
#> It: 303; obj: 8.423e-01; abs: 1.596e-05; rel: 1.895e-05; norm: 7.135e-02; mom: 3.665e-02;
#> best it: 252; best obj: 8.423e-01
#> It: 304; obj: 8.424e-01; abs: 4.291e-05; rel: 5.095e-05; norm: 7.120e-02; mom: 5.218e-02;
#> best it: 252; best obj: 8.423e-01
#> It: 305; obj: 8.424e-01; abs: 6.454e-05; rel: 7.662e-05; norm: 7.104e-02; mom: 6.467e-02;
#> best it: 252; best obj: 8.423e-01
#> It: 306; obj: 8.425e-01; abs: 6.849e-05; rel: 8.130e-05; norm: 7.090e-02; mom: 7.186e-02;
#> best it: 252; best obj: 8.423e-01
#> It: 307; obj: 8.425e-01; abs: 4.572e-05; rel: 5.426e-05; norm: 7.083e-02; mom: 7.295e-02;
#> best it: 252; best obj: 8.423e-01
#> It: 308; obj: 8.425e-01; abs: 2.975e-06; rel: 3.531e-06; norm: 7.087e-02; mom: 6.923e-02;
#> best it: 252; best obj: 8.423e-01
#> It: 309; obj: 8.425e-01; abs: 4.940e-05; rel: 5.863e-05; norm: 7.101e-02; mom: 6.786e-02;
#> best it: 252; best obj: 8.423e-01
#> It: 310; obj: 8.425e-01; abs: 1.250e-05; rel: 1.484e-05; norm: 7.127e-02; mom: 8.436e-02;
#> best it: 252; best obj: 8.423e-01
#> It: 311; obj: 8.427e-01; abs: 1.838e-04; rel: 2.182e-04; norm: 7.175e-02; mom: 1.258e-01;
#> best it: 252; best obj: 8.423e-01
#> It: 312; obj: 8.431e-01; abs: 4.853e-04; rel: 5.760e-04; norm: 7.234e-02; mom: 1.732e-01;
#> best it: 252; best obj: 8.423e-01
#> It: 313; obj: 8.438e-01; abs: 6.840e-04; rel: 8.112e-04; norm: 7.258e-02; mom: 2.178e-01;
#> best it: 252; best obj: 8.423e-01
#> It: 314; obj: 8.441e-01; abs: 2.946e-04; rel: 3.492e-04; norm: 7.169e-02; mom: 2.618e-01;
#> best it: 252; best obj: 8.423e-01
#> It: 315; obj: 8.427e-01; abs: 1.407e-03; rel: 1.667e-03; norm: 6.791e-02; mom: 4.196e-01;
#> best it: 252; best obj: 8.423e-01
#> It: 316; obj: 8.433e-01; abs: 6.150e-04; rel: 7.298e-04; norm: 6.749e-02; mom: 6.119e-01;
#> best it: 252; best obj: 8.423e-01
#> It: 317; obj: 8.437e-01; abs: 3.697e-04; rel: 4.384e-04; norm: 6.995e-02; mom: 4.625e-01;
#> best it: 252; best obj: 8.423e-01
#> It: 318; obj: 8.450e-01; abs: 1.260e-03; rel: 1.493e-03; norm: 7.253e-02; mom: 5.385e-01;
#> best it: 252; best obj: 8.423e-01
#> It: 319; obj: 8.452e-01; abs: 2.165e-04; rel: 2.563e-04; norm: 7.226e-02; mom: 5.672e-01;
#> best it: 252; best obj: 8.423e-01
#> It: 320; obj: 8.446e-01; abs: 6.284e-04; rel: 7.435e-04; norm: 6.957e-02; mom: 6.342e-01;
#> best it: 252; best obj: 8.423e-01
#> It: 321; obj: 8.436e-01; abs: 9.217e-04; rel: 1.091e-03; norm: 7.237e-02; mom: 6.358e-01;
#> best it: 252; best obj: 8.423e-01

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#> It: 322; obj: 8.425e-01; abs: 1.084e-03; rel: 1.285e-03; norm: 7.413e-02; mom: 6.665e-01;
#> best it: 252; best obj: 8.423e-01
#> It: 323; obj: 8.417e-01; abs: 8.867e-04; rel: 1.052e-03; norm: 7.008e-02; mom: 7.179e-01;
#> best it: 323; best obj: 8.417e-01
#> It: 324; obj: 8.410e-01; abs: 6.513e-04; rel: 7.739e-04; norm: 6.924e-02; mom: 6.702e-01;
#> best it: 324; best obj: 8.410e-01
#> It: 325; obj: 8.418e-01; abs: 7.564e-04; rel: 8.993e-04; norm: 6.874e-02; mom: 6.782e-01;
#> best it: 324; best obj: 8.410e-01
#> It: 326; obj: 8.423e-01; abs: 5.035e-04; rel: 5.982e-04; norm: 7.062e-02; mom: 5.478e-01;
#> best it: 324; best obj: 8.410e-01
#> It: 327; obj: 8.420e-01; abs: 3.002e-04; rel: 3.564e-04; norm: 7.296e-02; mom: 5.799e-01;
#> best it: 324; best obj: 8.410e-01
#> It: 328; obj: 8.422e-01; abs: 2.033e-04; rel: 2.415e-04; norm: 6.838e-02; mom: 6.942e-01;
#> best it: 324; best obj: 8.410e-01
#> It: 329; obj: 8.425e-01; abs: 3.609e-04; rel: 4.286e-04; norm: 6.934e-02; mom: 7.045e-01;
#> best it: 324; best obj: 8.410e-01
#> It: 330; obj: 8.423e-01; abs: 1.854e-04; rel: 2.201e-04; norm: 7.059e-02; mom: 6.012e-01;
#> best it: 324; best obj: 8.410e-01
#> It: 331; obj: 8.352e-01; abs: 7.145e-03; rel: 8.483e-03; norm: 7.115e-02; mom: 6.611e-01;
#> best it: 331; best obj: 8.352e-01
#> It: 332; obj: 8.338e-01; abs: 1.401e-03; rel: 1.677e-03; norm: 6.817e-02; mom: 9.039e-01;
#> best it: 332; best obj: 8.338e-01
#> It: 333; obj: 8.344e-01; abs: 6.442e-04; rel: 7.726e-04; norm: 6.759e-02; mom: 6.282e-01;
#> best it: 332; best obj: 8.338e-01
#> It: 334; obj: 8.353e-01; abs: 8.387e-04; rel: 1.005e-03; norm: 6.837e-02; mom: 5.395e-01;
#> best it: 332; best obj: 8.338e-01
#> It: 335; obj: 8.367e-01; abs: 1.405e-03; rel: 1.682e-03; norm: 6.899e-02; mom: 5.900e-01;
#> best it: 332; best obj: 8.338e-01
#> It: 336; obj: 8.381e-01; abs: 1.431e-03; rel: 1.710e-03; norm: 6.826e-02; mom: 6.430e-01;
#> best it: 332; best obj: 8.338e-01
#> It: 337; obj: 8.406e-01; abs: 2.432e-03; rel: 2.902e-03; norm: 6.659e-02; mom: 7.621e-01;
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#> It: 338; obj: 8.431e-01; abs: 2.587e-03; rel: 3.078e-03; norm: 6.860e-02; mom: 7.507e-01;
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#> It: 339; obj: 8.433e-01; abs: 2.115e-04; rel: 2.509e-04; norm: 7.063e-02; mom: 6.611e-01;
#> best it: 332; best obj: 8.338e-01
#> It: 340; obj: 8.330e-01; abs: 1.037e-02; rel: 1.230e-02; norm: 7.204e-02; mom: 6.533e-01;
#> best it: 340; best obj: 8.330e-01
#> It: 341; obj: 8.302e-01; abs: 2.752e-03; rel: 3.304e-03; norm: 6.453e-02; mom: 8.683e-01;
#> best it: 341; best obj: 8.302e-01
#> It: 342; obj: 8.322e-01; abs: 1.932e-03; rel: 2.327e-03; norm: 6.384e-02; mom: 6.430e-01;
#> best it: 341; best obj: 8.302e-01
#> It: 343; obj: 8.340e-01; abs: 1.851e-03; rel: 2.224e-03; norm: 6.546e-02; mom: 4.199e-01;
#> best it: 341; best obj: 8.302e-01
#> It: 344; obj: 8.357e-01; abs: 1.666e-03; rel: 1.997e-03; norm: 6.697e-02; mom: 3.192e-01;
#> best it: 341; best obj: 8.302e-01
#> It: 345; obj: 8.372e-01; abs: 1.500e-03; rel: 1.796e-03; norm: 6.880e-02; mom: 4.321e-01;
#> best it: 341; best obj: 8.302e-01
#> It: 346; obj: 8.388e-01; abs: 1.596e-03; rel: 1.907e-03; norm: 6.736e-02; mom: 5.720e-01;
#> best it: 341; best obj: 8.302e-01
#> It: 347; obj: 8.391e-01; abs: 3.478e-04; rel: 4.146e-04; norm: 6.872e-02; mom: 5.679e-01;
#> best it: 341; best obj: 8.302e-01
#> It: 348; obj: 8.415e-01; abs: 2.397e-03; rel: 2.857e-03; norm: 7.123e-02; mom: 7.858e-01;

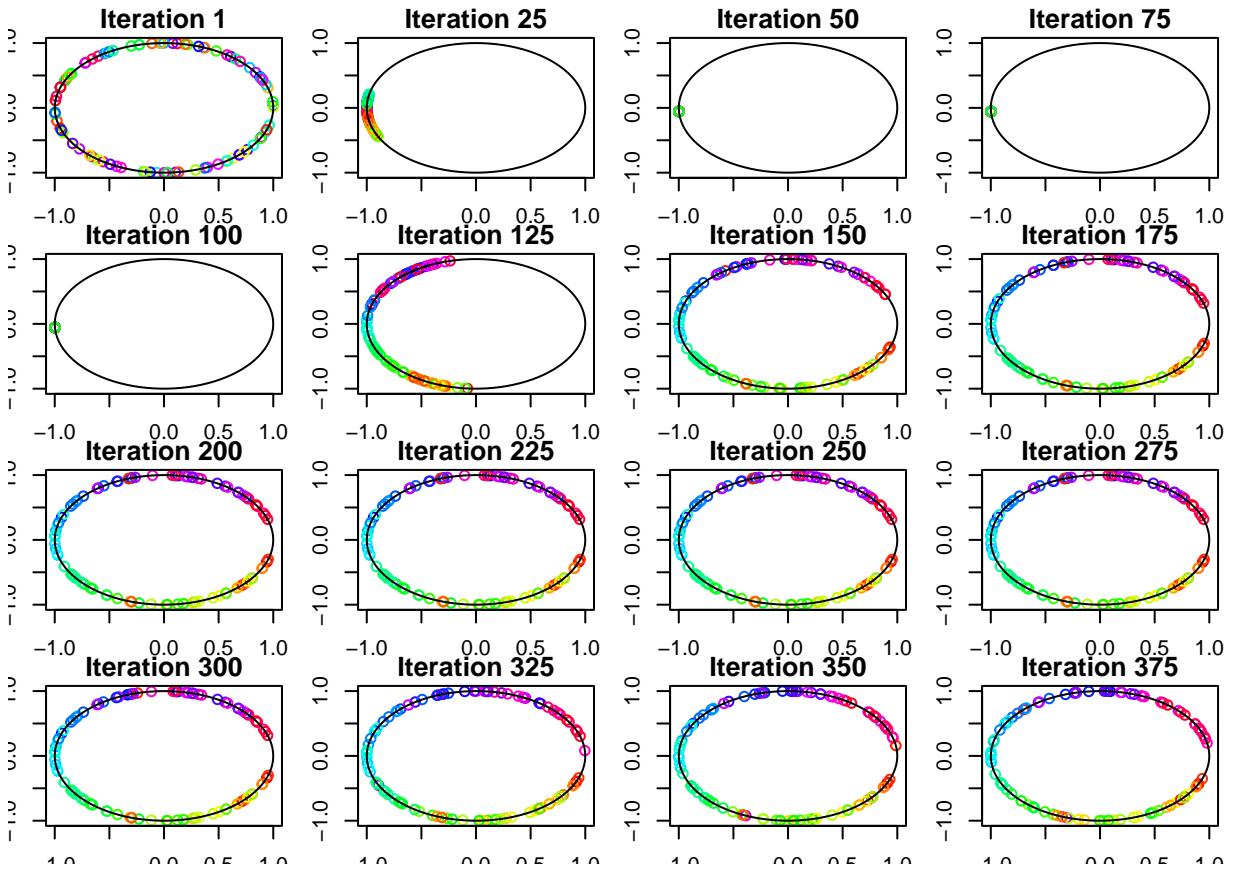
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#> best it: 341; best obj: 8.302e-01
#> It: 349; obj: 8.423e-01; abs: 7.673e-04; rel: 9.118e-04; norm: 6.979e-02; mom: 6.959e-01;
#> best it: 341; best obj: 8.302e-01
#> It: 350; obj: 8.361e-01; abs: 6.189e-03; rel: 7.348e-03; norm: 7.316e-02; mom: 7.026e-01;
#> best it: 341; best obj: 8.302e-01
#> It: 351; obj: 8.360e-01; abs: 9.693e-05; rel: 1.159e-04; norm: 6.636e-02; mom: 8.885e-01;
#> best it: 341; best obj: 8.302e-01
#> It: 352; obj: 8.358e-01; abs: 1.570e-04; rel: 1.878e-04; norm: 6.608e-02; mom: 4.656e-01;
#> best it: 341; best obj: 8.302e-01
#> It: 353; obj: 8.363e-01; abs: 4.224e-04; rel: 5.053e-04; norm: 6.768e-02; mom: 3.684e-01;
#> best it: 341; best obj: 8.302e-01
#> It: 354; obj: 8.372e-01; abs: 8.969e-04; rel: 1.072e-03; norm: 6.751e-02; mom: 4.566e-01;
#> best it: 341; best obj: 8.302e-01
#> It: 355; obj: 8.387e-01; abs: 1.523e-03; rel: 1.819e-03; norm: 6.715e-02; mom: 5.669e-01;
#> best it: 341; best obj: 8.302e-01
#> It: 356; obj: 8.395e-01; abs: 8.187e-04; rel: 9.762e-04; norm: 6.860e-02; mom: 6.222e-01;
#> best it: 341; best obj: 8.302e-01
#> It: 357; obj: 8.399e-01; abs: 4.065e-04; rel: 4.842e-04; norm: 7.022e-02; mom: 6.812e-01;
#> best it: 341; best obj: 8.302e-01
#> It: 358; obj: 8.386e-01; abs: 1.299e-03; rel: 1.546e-03; norm: 7.111e-02; mom: 7.172e-01;
#> best it: 341; best obj: 8.302e-01
#> It: 359; obj: 8.316e-01; abs: 7.017e-03; rel: 8.368e-03; norm: 7.138e-02; mom: 8.056e-01;
#> best it: 341; best obj: 8.302e-01
#> It: 360; obj: 8.329e-01; abs: 1.324e-03; rel: 1.592e-03; norm: 6.464e-02; mom: 9.939e-01;
#> best it: 341; best obj: 8.302e-01
#> It: 361; obj: 8.358e-01; abs: 2.891e-03; rel: 3.471e-03; norm: 6.466e-02; mom: 6.196e-01;
#> best it: 341; best obj: 8.302e-01
#> It: 362; obj: 8.372e-01; abs: 1.433e-03; rel: 1.715e-03; norm: 6.781e-02; mom: 4.173e-01;
#> best it: 341; best obj: 8.302e-01
#> It: 363; obj: 8.367e-01; abs: 5.531e-04; rel: 6.606e-04; norm: 6.867e-02; mom: 3.911e-01;
#> best it: 341; best obj: 8.302e-01
#> It: 364; obj: 8.373e-01; abs: 6.551e-04; rel: 7.830e-04; norm: 6.579e-02; mom: 4.383e-01;
#> best it: 341; best obj: 8.302e-01
#> It: 365; obj: 8.387e-01; abs: 1.327e-03; rel: 1.585e-03; norm: 6.735e-02; mom: 5.870e-01;
#> best it: 341; best obj: 8.302e-01
#> It: 366; obj: 8.395e-01; abs: 8.523e-04; rel: 1.016e-03; norm: 6.847e-02; mom: 6.935e-01;
#> best it: 341; best obj: 8.302e-01
#> It: 367; obj: 8.390e-01; abs: 5.112e-04; rel: 6.090e-04; norm: 6.881e-02; mom: 6.249e-01;
#> best it: 341; best obj: 8.302e-01
#> It: 368; obj: 8.323e-01; abs: 6.712e-03; rel: 8.000e-03; norm: 7.332e-02; mom: 7.314e-01;
#> best it: 341; best obj: 8.302e-01
#> It: 369; obj: 8.328e-01; abs: 5.489e-04; rel: 6.595e-04; norm: 6.605e-02; mom: 9.179e-01;
#> best it: 341; best obj: 8.302e-01
#> It: 370; obj: 8.340e-01; abs: 1.152e-03; rel: 1.383e-03; norm: 6.660e-02; mom: 6.281e-01;
#> best it: 341; best obj: 8.302e-01
#> It: 371; obj: 8.362e-01; abs: 2.212e-03; rel: 2.653e-03; norm: 6.690e-02; mom: 5.868e-01;
#> best it: 341; best obj: 8.302e-01
#> It: 372; obj: 8.383e-01; abs: 2.080e-03; rel: 2.488e-03; norm: 6.827e-02; mom: 4.517e-01;
#> best it: 341; best obj: 8.302e-01
#> It: 373; obj: 8.410e-01; abs: 2.746e-03; rel: 3.276e-03; norm: 6.964e-02; mom: 5.402e-01;
#> best it: 341; best obj: 8.302e-01
#> It: 374; obj: 8.433e-01; abs: 2.239e-03; rel: 2.662e-03; norm: 6.731e-02; mom: 5.832e-01;
#> best it: 341; best obj: 8.302e-01

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#> It: 375; obj: 8.434e-01; abs: 1.522e-04; rel: 1.805e-04; norm: 6.960e-02; mom: 5.933e-01;
#> best it: 341; best obj: 8.302e-01
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#> It: 376; obj: 8.420e-01; abs: 1.473e-03; rel: 1.746e-03; norm: 7.024e-02; mom: 5.918e-01;
#> best it: 341; best obj: 8.302e-01
#> It: 377; obj: 8.345e-01; abs: 7.477e-03; rel: 8.881e-03; norm: 7.127e-02; mom: 7.221e-01;
#> best it: 341; best obj: 8.302e-01
#> It: 378; obj: 8.330e-01; abs: 1.502e-03; rel: 1.799e-03; norm: 6.726e-02; mom: 9.454e-01;
#> best it: 341; best obj: 8.302e-01
#> It: 379; obj: 8.339e-01; abs: 8.996e-04; rel: 1.080e-03; norm: 6.666e-02; mom: 6.952e-01;
#> best it: 341; best obj: 8.302e-01
#> It: 380; obj: 8.353e-01; abs: 1.455e-03; rel: 1.744e-03; norm: 6.856e-02; mom: 6.031e-01;
#> best it: 341; best obj: 8.302e-01
#> It: 381; obj: 8.366e-01; abs: 1.278e-03; rel: 1.530e-03; norm: 6.978e-02; mom: 6.504e-01;
#> best it: 341; best obj: 8.302e-01
#> It: 382; obj: 8.379e-01; abs: 1.285e-03; rel: 1.536e-03; norm: 6.718e-02; mom: 6.926e-01;
#> best it: 341; best obj: 8.302e-01
#> It: 383; obj: 8.404e-01; abs: 2.515e-03; rel: 3.001e-03; norm: 6.640e-02; mom: 7.589e-01;
#> best it: 341; best obj: 8.302e-01
#> It: 384; obj: 8.428e-01; abs: 2.407e-03; rel: 2.864e-03; norm: 6.910e-02; mom: 7.518e-01;
#> best it: 341; best obj: 8.302e-01
#> It: 385; obj: 8.409e-01; abs: 1.871e-03; rel: 2.220e-03; norm: 7.165e-02; mom: 6.618e-01;
#> best it: 341; best obj: 8.302e-01
#> It: 386; obj: 8.308e-01; abs: 1.019e-02; rel: 1.212e-02; norm: 7.075e-02; mom: 6.846e-01;
#> best it: 341; best obj: 8.302e-01
#> It: 387; obj: 8.306e-01; abs: 1.177e-04; rel: 1.416e-04; norm: 6.372e-02; mom: 8.719e-01;
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#> best it: 341; best obj: 8.302e-01
#> It: 388; obj: 8.327e-01; abs: 2.094e-03; rel: 2.521e-03; norm: 6.363e-02; mom: 5.780e-01;
#> best it: 341; best obj: 8.302e-01
#> It: 389; obj: 8.344e-01; abs: 1.697e-03; rel: 2.038e-03; norm: 6.593e-02; mom: 3.687e-01;
#> best it: 341; best obj: 8.302e-01
#> It: 390; obj: 8.361e-01; abs: 1.680e-03; rel: 2.014e-03; norm: 6.771e-02; mom: 4.111e-01;
#> best it: 341; best obj: 8.302e-01
#> It: 391; obj: 8.377e-01; abs: 1.611e-03; rel: 1.926e-03; norm: 6.870e-02; mom: 5.398e-01;
#> best it: 341; best obj: 8.302e-01
#> It: 392; obj: 8.387e-01; abs: 9.926e-04; rel: 1.185e-03; norm: 6.685e-02; mom: 6.309e-01;
#> best it: 341; best obj: 8.302e-01
#> It: 393; obj: 8.397e-01; abs: 1.020e-03; rel: 1.216e-03; norm: 7.125e-02; mom: 6.881e-01;
#> best it: 341; best obj: 8.302e-01
#> It: 394; obj: 8.422e-01; abs: 2.450e-03; rel: 2.918e-03; norm: 6.956e-02; mom: 7.775e-01;
#> best it: 341; best obj: 8.302e-01
#> It: 395; obj: 8.363e-01; abs: 5.883e-03; rel: 6.986e-03; norm: 7.419e-02; mom: 6.499e-01;
#> best it: 341; best obj: 8.302e-01
#> It: 396; obj: 8.355e-01; abs: 7.888e-04; rel: 9.432e-04; norm: 6.593e-02; mom: 9.017e-01;
#> best it: 341; best obj: 8.302e-01
#> It: 397; obj: 8.361e-01; abs: 5.918e-04; rel: 7.083e-04; norm: 6.575e-02; mom: 5.453e-01;
#> best it: 341; best obj: 8.302e-01
#> It: 398; obj: 8.356e-01; abs: 4.511e-04; rel: 5.395e-04; norm: 6.695e-02; mom: 3.729e-01;
#> best it: 341; best obj: 8.302e-01
#> It: 399; obj: 8.363e-01; abs: 6.073e-04; rel: 7.267e-04; norm: 6.672e-02; mom: 4.300e-01;
#> best it: 341; best obj: 8.302e-01
#> It: 400; obj: 8.377e-01; abs: 1.440e-03; rel: 1.722e-03; norm: 6.651e-02; mom: 5.375e-01;
#> best it: 341; best obj: 8.302e-01
#> It: 401; obj: 8.389e-01; abs: 1.247e-03; rel: 1.488e-03; norm: 6.819e-02; mom: 5.970e-01;
#> best it: 341; best obj: 8.302e-01
#> It: 402; obj: 8.393e-01; abs: 4.095e-04; rel: 4.881e-04; norm: 7.010e-02; mom: 6.654e-01;
#> best it: 341; best obj: 8.302e-01
#> It: 403; obj: 8.396e-01; abs: 2.105e-04; rel: 2.508e-04; norm: 7.163e-02; mom: 7.138e-01;
#> best it: 341; best obj: 8.302e-01
#> It: 404; obj: 8.333e-01; abs: 6.236e-03; rel: 7.428e-03; norm: 7.470e-02; mom: 7.797e-01;
#> best it: 341; best obj: 8.302e-01
#> It: 405; obj: 8.312e-01; abs: 2.124e-03; rel: 2.549e-03; norm: 6.499e-02; mom: 9.557e-01;
#> best it: 341; best obj: 8.302e-01
#> It: 406; obj: 8.338e-01; abs: 2.555e-03; rel: 3.074e-03; norm: 6.389e-02; mom: 7.439e-01;
#> best it: 341; best obj: 8.302e-01
#> It: 407; obj: 8.361e-01; abs: 2.383e-03; rel: 2.859e-03; norm: 6.592e-02; mom: 5.233e-01;
#> best it: 341; best obj: 8.302e-01
#> It: 408; obj: 8.371e-01; abs: 9.719e-04; rel: 1.162e-03; norm: 6.842e-02; mom: 3.928e-01;
#> best it: 341; best obj: 8.302e-01
#> It: 409; obj: 8.367e-01; abs: 4.206e-04; rel: 5.025e-04; norm: 6.790e-02; mom: 4.162e-01;
#> best it: 341; best obj: 8.302e-01
#> It: 410; obj: 8.377e-01; abs: 9.779e-04; rel: 1.169e-03; norm: 6.590e-02; mom: 4.715e-01;
#> best it: 341; best obj: 8.302e-01
#> It: 411; obj: 8.389e-01; abs: 1.216e-03; rel: 1.451e-03; norm: 6.762e-02; mom: 6.333e-01;
#> best it: 341; best obj: 8.302e-01
#> It: 412; obj: 8.396e-01; abs: 7.110e-04; rel: 8.475e-04; norm: 6.848e-02; mom: 6.749e-01;
#> best it: 341; best obj: 8.302e-01
#> It: 413; obj: 8.368e-01; abs: 2.808e-03; rel: 3.345e-03; norm: 7.043e-02; mom: 6.414e-01;
#> best it: 341; best obj: 8.302e-01
#> It: 414; obj: 8.321e-01; abs: 4.722e-03; rel: 5.643e-03; norm: 6.958e-02; mom: 8.016e-01;

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#> best it: 341; best obj: 8.302e-01
#> It: 415; obj: 8.333e-01; abs: 1.258e-03; rel: 1.512e-03; norm: 6.612e-02; mom: 7.610e-01;
#> best it: 341; best obj: 8.302e-01
#> It: 416; obj: 8.345e-01; abs: 1.178e-03; rel: 1.413e-03; norm: 6.701e-02; mom: 6.222e-01;
#> best it: 341; best obj: 8.302e-01
#> It: 417; obj: 8.370e-01; abs: 2.508e-03; rel: 3.006e-03; norm: 6.670e-02; mom: 5.795e-01;
#> best it: 341; best obj: 8.302e-01
#> It: 418; obj: 8.393e-01; abs: 2.244e-03; rel: 2.681e-03; norm: 6.906e-02; mom: 4.712e-01;
#> best it: 341; best obj: 8.302e-01
#> It: 419; obj: 8.419e-01; abs: 2.645e-03; rel: 3.152e-03; norm: 6.934e-02; mom: 5.719e-01;
#> best it: 341; best obj: 8.302e-01
#> It: 420; obj: 8.437e-01; abs: 1.795e-03; rel: 2.132e-03; norm: 6.780e-02; mom: 5.909e-01;
#> best it: 341; best obj: 8.302e-01
#> It: 421; obj: 8.430e-01; abs: 7.145e-04; rel: 8.468e-04; norm: 7.032e-02; mom: 5.873e-01;
#> best it: 341; best obj: 8.302e-01
#> It: 422; obj: 8.401e-01; abs: 2.873e-03; rel: 3.409e-03; norm: 7.007e-02; mom: 6.194e-01;
#> best it: 341; best obj: 8.302e-01
#> It: 423; obj: 8.333e-01; abs: 6.801e-03; rel: 8.096e-03; norm: 6.936e-02; mom: 7.752e-01;
#> best it: 341; best obj: 8.302e-01
#> It: 424; obj: 8.335e-01; abs: 1.944e-04; rel: 2.333e-04; norm: 6.642e-02; mom: 9.126e-01;
#> best it: 341; best obj: 8.302e-01
#> It: 425; obj: 8.343e-01; abs: 8.505e-04; rel: 1.020e-03; norm: 6.747e-02; mom: 6.468e-01;
#> best it: 341; best obj: 8.302e-01
#> It: 426; obj: 8.363e-01; abs: 1.978e-03; rel: 2.370e-03; norm: 6.879e-02; mom: 6.260e-01;
#> best it: 341; best obj: 8.302e-01
#> It: 427; obj: 8.372e-01; abs: 8.796e-04; rel: 1.052e-03; norm: 7.008e-02; mom: 6.693e-01;
#> best it: 341; best obj: 8.302e-01
#> It: 428; obj: 8.386e-01; abs: 1.396e-03; rel: 1.668e-03; norm: 6.514e-02; mom: 7.564e-01;
#> best it: 341; best obj: 8.302e-01
#> It: 429; obj: 8.414e-01; abs: 2.752e-03; rel: 3.282e-03; norm: 6.728e-02; mom: 7.528e-01;
#> best it: 341; best obj: 8.302e-01
#> It: 430; obj: 8.430e-01; abs: 1.623e-03; rel: 1.930e-03; norm: 7.008e-02; mom: 6.997e-01;
#> best it: 341; best obj: 8.302e-01
#> It: 431; obj: 8.359e-01; abs: 7.099e-03; rel: 8.422e-03; norm: 7.276e-02; mom: 6.557e-01;
#> best it: 341; best obj: 8.302e-01
#> It: 432; obj: 8.299e-01; abs: 5.969e-03; rel: 7.141e-03; norm: 6.468e-02; mom: 7.829e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 433; obj: 8.313e-01; abs: 1.434e-03; rel: 1.728e-03; norm: 6.336e-02; mom: 7.317e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 434; obj: 8.333e-01; abs: 1.974e-03; rel: 2.375e-03; norm: 6.437e-02; mom: 4.942e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 435; obj: 8.350e-01; abs: 1.725e-03; rel: 2.070e-03; norm: 6.640e-02; mom: 3.312e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 436; obj: 8.366e-01; abs: 1.577e-03; rel: 1.889e-03; norm: 6.849e-02; mom: 4.545e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 437; obj: 8.382e-01; abs: 1.586e-03; rel: 1.895e-03; norm: 6.791e-02; mom: 5.795e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 438; obj: 8.390e-01; abs: 7.542e-04; rel: 8.998e-04; norm: 6.802e-02; mom: 5.899e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 439; obj: 8.407e-01; abs: 1.771e-03; rel: 2.111e-03; norm: 7.205e-02; mom: 7.705e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 440; obj: 8.414e-01; abs: 6.347e-04; rel: 7.549e-04; norm: 7.032e-02; mom: 7.416e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 441; obj: 8.356e-01; abs: 5.774e-03; rel: 6.862e-03; norm: 7.345e-02; mom: 7.139e-01;

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#> best it: 432; best obj: 8.299e-01
#> It: 442; obj: 8.364e-01; abs: 8.533e-04; rel: 1.021e-03; norm: 6.592e-02; mom: 8.824e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 443; obj: 8.366e-01; abs: 1.735e-04; rel: 2.074e-04; norm: 6.683e-02; mom: 4.617e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 444; obj: 8.362e-01; abs: 4.001e-04; rel: 4.783e-04; norm: 6.780e-02; mom: 3.818e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 445; obj: 8.373e-01; abs: 1.039e-03; rel: 1.242e-03; norm: 6.609e-02; mom: 5.189e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 446; obj: 8.386e-01; abs: 1.353e-03; rel: 1.616e-03; norm: 6.768e-02; mom: 5.950e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 447; obj: 8.395e-01; abs: 9.355e-04; rel: 1.116e-03; norm: 6.941e-02; mom: 6.399e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 448; obj: 8.396e-01; abs: 2.992e-05; rel: 3.563e-05; norm: 7.150e-02; mom: 7.089e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 449; obj: 8.376e-01; abs: 1.940e-03; rel: 2.311e-03; norm: 7.238e-02; mom: 7.599e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 450; obj: 8.317e-01; abs: 5.973e-03; rel: 7.131e-03; norm: 7.202e-02; mom: 8.289e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 451; obj: 8.323e-01; abs: 6.418e-04; rel: 7.717e-04; norm: 6.416e-02; mom: 9.181e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 452; obj: 8.351e-01; abs: 2.787e-03; rel: 3.349e-03; norm: 6.466e-02; mom: 6.354e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 453; obj: 8.372e-01; abs: 2.112e-03; rel: 2.529e-03; norm: 6.726e-02; mom: 4.591e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 454; obj: 8.378e-01; abs: 6.165e-04; rel: 7.364e-04; norm: 6.862e-02; mom: 4.261e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 455; obj: 8.375e-01; abs: 3.055e-04; rel: 3.646e-04; norm: 6.632e-02; mom: 4.568e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 456; obj: 8.385e-01; abs: 9.584e-04; rel: 1.144e-03; norm: 6.694e-02; mom: 5.735e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 457; obj: 8.393e-01; abs: 8.497e-04; rel: 1.013e-03; norm: 6.837e-02; mom: 7.009e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 458; obj: 8.387e-01; abs: 6.335e-04; rel: 7.548e-04; norm: 6.887e-02; mom: 6.328e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 459; obj: 8.320e-01; abs: 6.664e-03; rel: 7.946e-03; norm: 7.297e-02; mom: 7.264e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 460; obj: 8.329e-01; abs: 8.784e-04; rel: 1.056e-03; norm: 6.581e-02; mom: 9.140e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 461; obj: 8.341e-01; abs: 1.158e-03; rel: 1.390e-03; norm: 6.660e-02; mom: 6.049e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 462; obj: 8.358e-01; abs: 1.771e-03; rel: 2.124e-03; norm: 6.759e-02; mom: 5.845e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 463; obj: 8.383e-01; abs: 2.514e-03; rel: 3.007e-03; norm: 6.775e-02; mom: 5.087e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 464; obj: 8.409e-01; abs: 2.570e-03; rel: 3.065e-03; norm: 6.952e-02; mom: 5.430e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 465; obj: 8.433e-01; abs: 2.423e-03; rel: 2.881e-03; norm: 6.705e-02; mom: 5.990e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 466; obj: 8.439e-01; abs: 5.489e-04; rel: 6.509e-04; norm: 7.005e-02; mom: 6.076e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 467; obj: 8.418e-01; abs: 2.114e-03; rel: 2.505e-03; norm: 7.091e-02; mom: 5.983e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 468; obj: 8.341e-01; abs: 7.638e-03; rel: 9.074e-03; norm: 7.125e-02; mom: 7.321e-01;

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#> best it: 432; best obj: 8.299e-01
#> It: 469; obj: 8.333e-01; abs: 8.799e-04; rel: 1.055e-03; norm: 6.694e-02; mom: 9.555e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 470; obj: 8.341e-01; abs: 8.727e-04; rel: 1.047e-03; norm: 6.665e-02; mom: 6.642e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 471; obj: 8.354e-01; abs: 1.310e-03; rel: 1.571e-03; norm: 6.869e-02; mom: 5.914e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 472; obj: 8.372e-01; abs: 1.773e-03; rel: 2.122e-03; norm: 6.956e-02; mom: 6.644e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 473; obj: 8.381e-01; abs: 8.962e-04; rel: 1.070e-03; norm: 6.800e-02; mom: 6.846e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 474; obj: 8.401e-01; abs: 2.002e-03; rel: 2.388e-03; norm: 6.687e-02; mom: 7.910e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 475; obj: 8.426e-01; abs: 2.502e-03; rel: 2.978e-03; norm: 6.928e-02; mom: 7.765e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 476; obj: 8.401e-01; abs: 2.498e-03; rel: 2.965e-03; norm: 7.170e-02; mom: 6.743e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 477; obj: 8.309e-01; abs: 9.178e-03; rel: 1.092e-02; norm: 6.929e-02; mom: 7.082e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 478; obj: 8.309e-01; abs: 7.878e-05; rel: 9.481e-05; norm: 6.353e-02; mom: 8.166e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 479; obj: 8.328e-01; abs: 1.941e-03; rel: 2.336e-03; norm: 6.389e-02; mom: 5.674e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 480; obj: 8.345e-01; abs: 1.754e-03; rel: 2.106e-03; norm: 6.613e-02; mom: 3.712e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 481; obj: 8.364e-01; abs: 1.895e-03; rel: 2.271e-03; norm: 6.758e-02; mom: 4.270e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 482; obj: 8.381e-01; abs: 1.629e-03; rel: 1.948e-03; norm: 6.828e-02; mom: 5.324e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 483; obj: 8.391e-01; abs: 9.931e-04; rel: 1.185e-03; norm: 6.695e-02; mom: 6.259e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 484; obj: 8.396e-01; abs: 5.122e-04; rel: 6.104e-04; norm: 7.182e-02; mom: 7.020e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 485; obj: 8.411e-01; abs: 1.530e-03; rel: 1.823e-03; norm: 7.007e-02; mom: 7.855e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 486; obj: 8.353e-01; abs: 5.773e-03; rel: 6.864e-03; norm: 7.347e-02; mom: 6.676e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 487; obj: 8.360e-01; abs: 6.542e-04; rel: 7.832e-04; norm: 6.543e-02; mom: 9.222e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 488; obj: 8.371e-01; abs: 1.133e-03; rel: 1.355e-03; norm: 6.643e-02; mom: 4.956e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 489; obj: 8.366e-01; abs: 5.428e-04; rel: 6.484e-04; norm: 6.858e-02; mom: 3.684e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 490; obj: 8.370e-01; abs: 4.106e-04; rel: 4.908e-04; norm: 6.735e-02; mom: 4.628e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 491; obj: 8.385e-01; abs: 1.482e-03; rel: 1.770e-03; norm: 6.725e-02; mom: 5.802e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 492; obj: 8.396e-01; abs: 1.117e-03; rel: 1.332e-03; norm: 6.948e-02; mom: 6.207e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 493; obj: 8.398e-01; abs: 2.317e-04; rel: 2.759e-04; norm: 7.122e-02; mom: 7.019e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 494; obj: 8.388e-01; abs: 9.712e-04; rel: 1.156e-03; norm: 7.193e-02; mom: 7.436e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 495; obj: 8.325e-01; abs: 6.396e-03; rel: 7.624e-03; norm: 7.351e-02; mom: 8.028e-01;

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#> best it: 432; best obj: 8.299e-01
#> It: 496; obj: 8.320e-01; abs: 4.499e-04; rel: 5.405e-04; norm: 6.508e-02; mom: 9.391e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 497; obj: 8.341e-01; abs: 2.060e-03; rel: 2.476e-03; norm: 6.432e-02; mom: 6.703e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 498; obj: 8.366e-01; abs: 2.530e-03; rel: 3.033e-03; norm: 6.646e-02; mom: 5.294e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 499; obj: 8.383e-01; abs: 1.696e-03; rel: 2.027e-03; norm: 6.841e-02; mom: 4.263e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 500; obj: 8.382e-01; abs: 1.193e-04; rel: 1.423e-04; norm: 6.783e-02; mom: 4.343e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 501; obj: 8.382e-01; abs: 7.880e-05; rel: 9.401e-05; norm: 6.630e-02; mom: 5.040e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 502; obj: 8.391e-01; abs: 8.124e-04; rel: 9.691e-04; norm: 6.816e-02; mom: 6.874e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 503; obj: 8.394e-01; abs: 3.708e-04; rel: 4.419e-04; norm: 6.870e-02; mom: 6.671e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 504; obj: 8.334e-01; abs: 6.052e-03; rel: 7.209e-03; norm: 7.209e-02; mom: 6.767e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 505; obj: 8.319e-01; abs: 1.441e-03; rel: 1.729e-03; norm: 6.560e-02; mom: 9.018e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 506; obj: 8.338e-01; abs: 1.818e-03; rel: 2.185e-03; norm: 6.573e-02; mom: 5.757e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 507; obj: 8.345e-01; abs: 6.942e-04; rel: 8.326e-04; norm: 6.784e-02; mom: 5.806e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 508; obj: 8.370e-01; abs: 2.591e-03; rel: 3.105e-03; norm: 6.690e-02; mom: 5.731e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 509; obj: 8.395e-01; abs: 2.448e-03; rel: 2.924e-03; norm: 6.893e-02; mom: 4.758e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 510; obj: 8.421e-01; abs: 2.644e-03; rel: 3.150e-03; norm: 6.884e-02; mom: 5.846e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 511; obj: 8.440e-01; abs: 1.854e-03; rel: 2.201e-03; norm: 6.823e-02; mom: 6.007e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 512; obj: 8.432e-01; abs: 7.684e-04; rel: 9.105e-04; norm: 7.089e-02; mom: 5.781e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 513; obj: 8.386e-01; abs: 4.668e-03; rel: 5.536e-03; norm: 7.103e-02; mom: 6.360e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 514; obj: 8.332e-01; abs: 5.329e-03; rel: 6.355e-03; norm: 6.821e-02; mom: 8.294e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 515; obj: 8.337e-01; abs: 4.879e-04; rel: 5.855e-04; norm: 6.611e-02; mom: 8.374e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 516; obj: 8.344e-01; abs: 7.157e-04; rel: 8.585e-04; norm: 6.781e-02; mom: 6.266e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 517; obj: 8.364e-01; abs: 2.021e-03; rel: 2.422e-03; norm: 6.883e-02; mom: 6.291e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 518; obj: 8.375e-01; abs: 1.088e-03; rel: 1.301e-03; norm: 7.005e-02; mom: 6.721e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 519; obj: 8.386e-01; abs: 1.098e-03; rel: 1.311e-03; norm: 6.561e-02; mom: 7.556e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 520; obj: 8.412e-01; abs: 2.534e-03; rel: 3.021e-03; norm: 6.786e-02; mom: 7.749e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 521; obj: 8.428e-01; abs: 1.643e-03; rel: 1.954e-03; norm: 6.996e-02; mom: 7.076e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 522; obj: 8.349e-01; abs: 7.950e-03; rel: 9.433e-03; norm: 7.301e-02; mom: 6.614e-01;

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#> best it: 432; best obj: 8.299e-01
#> It: 523; obj: 8.299e-01; abs: 4.949e-03; rel: 5.927e-03; norm: 6.439e-02; mom: 8.246e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 524; obj: 8.315e-01; abs: 1.541e-03; rel: 1.856e-03; norm: 6.322e-02; mom: 6.770e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 525; obj: 8.333e-01; abs: 1.854e-03; rel: 2.229e-03; norm: 6.468e-02; mom: 4.690e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 526; obj: 8.350e-01; abs: 1.697e-03; rel: 2.037e-03; norm: 6.637e-02; mom: 3.222e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 527; obj: 8.367e-01; abs: 1.708e-03; rel: 2.046e-03; norm: 6.819e-02; mom: 4.445e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 528; obj: 8.383e-01; abs: 1.573e-03; rel: 1.880e-03; norm: 6.790e-02; mom: 5.626e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 529; obj: 8.391e-01; abs: 8.050e-04; rel: 9.603e-04; norm: 6.790e-02; mom: 5.972e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 530; obj: 8.404e-01; abs: 1.287e-03; rel: 1.534e-03; norm: 7.235e-02; mom: 7.620e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 531; obj: 8.410e-01; abs: 5.970e-04; rel: 7.104e-04; norm: 7.021e-02; mom: 7.573e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 532; obj: 8.354e-01; abs: 5.541e-03; rel: 6.589e-03; norm: 7.309e-02; mom: 7.165e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 533; obj: 8.365e-01; abs: 1.018e-03; rel: 1.218e-03; norm: 6.578e-02; mom: 8.773e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 534; obj: 8.368e-01; abs: 3.344e-04; rel: 3.997e-04; norm: 6.690e-02; mom: 4.594e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 535; obj: 8.363e-01; abs: 4.920e-04; rel: 5.880e-04; norm: 6.807e-02; mom: 3.831e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 536; obj: 8.373e-01; abs: 1.043e-03; rel: 1.247e-03; norm: 6.625e-02; mom: 5.160e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 537; obj: 8.387e-01; abs: 1.376e-03; rel: 1.643e-03; norm: 6.787e-02; mom: 5.980e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 538; obj: 8.397e-01; abs: 9.420e-04; rel: 1.123e-03; norm: 6.964e-02; mom: 6.415e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 539; obj: 8.396e-01; abs: 2.275e-05; rel: 2.709e-05; norm: 7.162e-02; mom: 7.116e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 540; obj: 8.374e-01; abs: 2.188e-03; rel: 2.606e-03; norm: 7.235e-02; mom: 7.629e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 541; obj: 8.318e-01; abs: 5.678e-03; rel: 6.781e-03; norm: 7.161e-02; mom: 8.299e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 542; obj: 8.323e-01; abs: 5.192e-04; rel: 6.242e-04; norm: 6.419e-02; mom: 8.946e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 543; obj: 8.350e-01; abs: 2.672e-03; rel: 3.210e-03; norm: 6.471e-02; mom: 6.367e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 544; obj: 8.372e-01; abs: 2.288e-03; rel: 2.741e-03; norm: 6.713e-02; mom: 4.720e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 545; obj: 8.382e-01; abs: 9.311e-04; rel: 1.112e-03; norm: 6.864e-02; mom: 4.305e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 546; obj: 8.377e-01; abs: 4.782e-04; rel: 5.706e-04; norm: 6.643e-02; mom: 4.577e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 547; obj: 8.385e-01; abs: 7.904e-04; rel: 9.435e-04; norm: 6.693e-02; mom: 5.653e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 548; obj: 8.393e-01; abs: 8.011e-04; rel: 9.554e-04; norm: 6.838e-02; mom: 7.051e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 549; obj: 8.386e-01; abs: 6.508e-04; rel: 7.754e-04; norm: 6.884e-02; mom: 6.346e-01;

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#> best it: 432; best obj: 8.299e-01
#> It: 550; obj: 8.320e-01; abs: 6.640e-03; rel: 7.918e-03; norm: 7.283e-02; mom: 7.248e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 551; obj: 8.329e-01; abs: 8.677e-04; rel: 1.043e-03; norm: 6.574e-02; mom: 9.151e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 552; obj: 8.341e-01; abs: 1.250e-03; rel: 1.501e-03; norm: 6.649e-02; mom: 5.998e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 553; obj: 8.357e-01; abs: 1.538e-03; rel: 1.844e-03; norm: 6.780e-02; mom: 5.825e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 554; obj: 8.382e-01; abs: 2.594e-03; rel: 3.104e-03; norm: 6.755e-02; mom: 5.238e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 555; obj: 8.408e-01; abs: 2.553e-03; rel: 3.045e-03; norm: 6.940e-02; mom: 5.415e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 556; obj: 8.433e-01; abs: 2.460e-03; rel: 2.925e-03; norm: 6.700e-02; mom: 6.004e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 557; obj: 8.439e-01; abs: 6.418e-04; rel: 7.612e-04; norm: 7.001e-02; mom: 6.091e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 558; obj: 8.418e-01; abs: 2.114e-03; rel: 2.506e-03; norm: 7.098e-02; mom: 5.977e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 559; obj: 8.341e-01; abs: 7.650e-03; rel: 9.088e-03; norm: 7.130e-02; mom: 7.285e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 560; obj: 8.333e-01; abs: 8.821e-04; rel: 1.058e-03; norm: 6.691e-02; mom: 9.545e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 561; obj: 8.341e-01; abs: 8.899e-04; rel: 1.068e-03; norm: 6.659e-02; mom: 6.609e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 562; obj: 8.354e-01; abs: 1.230e-03; rel: 1.475e-03; norm: 6.871e-02; mom: 5.866e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 563; obj: 8.372e-01; abs: 1.860e-03; rel: 2.227e-03; norm: 6.947e-02; mom: 6.631e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 564; obj: 8.381e-01; abs: 8.792e-04; rel: 1.050e-03; norm: 6.824e-02; mom: 6.808e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 565; obj: 8.400e-01; abs: 1.870e-03; rel: 2.231e-03; norm: 6.690e-02; mom: 7.930e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 566; obj: 8.425e-01; abs: 2.506e-03; rel: 2.983e-03; norm: 6.924e-02; mom: 7.808e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 567; obj: 8.402e-01; abs: 2.311e-03; rel: 2.743e-03; norm: 7.156e-02; mom: 6.764e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 568; obj: 8.310e-01; abs: 9.132e-03; rel: 1.087e-02; norm: 6.939e-02; mom: 7.067e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 569; obj: 8.308e-01; abs: 2.078e-04; rel: 2.501e-04; norm: 6.352e-02; mom: 8.156e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 570; obj: 8.328e-01; abs: 1.913e-03; rel: 2.303e-03; norm: 6.386e-02; mom: 5.685e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 571; obj: 8.345e-01; abs: 1.729e-03; rel: 2.077e-03; norm: 6.612e-02; mom: 3.733e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 572; obj: 8.364e-01; abs: 1.924e-03; rel: 2.305e-03; norm: 6.747e-02; mom: 4.233e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 573; obj: 8.381e-01; abs: 1.670e-03; rel: 1.997e-03; norm: 6.823e-02; mom: 5.266e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 574; obj: 8.391e-01; abs: 9.921e-04; rel: 1.184e-03; norm: 6.684e-02; mom: 6.236e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 575; obj: 8.395e-01; abs: 4.584e-04; rel: 5.463e-04; norm: 7.165e-02; mom: 6.916e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 576; obj: 8.410e-01; abs: 1.451e-03; rel: 1.729e-03; norm: 7.023e-02; mom: 7.868e-01;

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#> best it: 432; best obj: 8.299e-01
#> It: 577; obj: 8.353e-01; abs: 5.666e-03; rel: 6.737e-03; norm: 7.333e-02; mom: 6.632e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 578; obj: 8.359e-01; abs: 6.279e-04; rel: 7.517e-04; norm: 6.537e-02; mom: 9.245e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 579; obj: 8.372e-01; abs: 1.261e-03; rel: 1.508e-03; norm: 6.640e-02; mom: 5.007e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 580; obj: 8.367e-01; abs: 4.559e-04; rel: 5.445e-04; norm: 6.872e-02; mom: 3.680e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 581; obj: 8.370e-01; abs: 2.576e-04; rel: 3.079e-04; norm: 6.765e-02; mom: 4.558e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 582; obj: 8.385e-01; abs: 1.509e-03; rel: 1.802e-03; norm: 6.718e-02; mom: 5.787e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 583; obj: 8.396e-01; abs: 1.113e-03; rel: 1.327e-03; norm: 6.956e-02; mom: 6.207e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 584; obj: 8.399e-01; abs: 2.512e-04; rel: 2.992e-04; norm: 7.120e-02; mom: 7.028e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 585; obj: 8.389e-01; abs: 9.285e-04; rel: 1.106e-03; norm: 7.187e-02; mom: 7.441e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 586; obj: 8.326e-01; abs: 6.387e-03; rel: 7.613e-03; norm: 7.350e-02; mom: 8.003e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 587; obj: 8.320e-01; abs: 5.580e-04; rel: 6.703e-04; norm: 6.526e-02; mom: 9.382e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 588; obj: 8.339e-01; abs: 1.923e-03; rel: 2.311e-03; norm: 6.427e-02; mom: 6.707e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 589; obj: 8.365e-01; abs: 2.536e-03; rel: 3.041e-03; norm: 6.638e-02; mom: 5.369e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 590; obj: 8.382e-01; abs: 1.773e-03; rel: 2.120e-03; norm: 6.830e-02; mom: 4.272e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 591; obj: 8.383e-01; abs: 1.768e-05; rel: 2.109e-05; norm: 6.793e-02; mom: 4.325e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 592; obj: 8.382e-01; abs: 2.919e-05; rel: 3.482e-05; norm: 6.621e-02; mom: 4.990e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 593; obj: 8.390e-01; abs: 8.062e-04; rel: 9.618e-04; norm: 6.808e-02; mom: 6.799e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 594; obj: 8.395e-01; abs: 4.317e-04; rel: 5.146e-04; norm: 6.869e-02; mom: 6.714e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 595; obj: 8.338e-01; abs: 5.696e-03; rel: 6.786e-03; norm: 7.175e-02; mom: 6.693e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 596; obj: 8.319e-01; abs: 1.903e-03; rel: 2.283e-03; norm: 6.575e-02; mom: 8.877e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 597; obj: 8.337e-01; abs: 1.823e-03; rel: 2.192e-03; norm: 6.569e-02; mom: 5.891e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 598; obj: 8.344e-01; abs: 6.724e-04; rel: 8.065e-04; norm: 6.774e-02; mom: 5.833e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 599; obj: 8.369e-01; abs: 2.548e-03; rel: 3.054e-03; norm: 6.695e-02; mom: 5.762e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 600; obj: 8.394e-01; abs: 2.451e-03; rel: 2.929e-03; norm: 6.881e-02; mom: 4.691e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 601; obj: 8.420e-01; abs: 2.656e-03; rel: 3.165e-03; norm: 6.901e-02; mom: 5.825e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 602; obj: 8.440e-01; abs: 1.973e-03; rel: 2.343e-03; norm: 6.807e-02; mom: 6.018e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 603; obj: 8.434e-01; abs: 6.092e-04; rel: 7.219e-04; norm: 7.088e-02; mom: 5.805e-01;

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#> best it: 432; best obj: 8.299e-01
#> It: 604; obj: 8.390e-01; abs: 4.360e-03; rel: 5.170e-03; norm: 7.106e-02; mom: 6.293e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 605; obj: 8.333e-01; abs: 5.702e-03; rel: 6.796e-03; norm: 6.847e-02; mom: 8.171e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 606; obj: 8.337e-01; abs: 3.908e-04; rel: 4.689e-04; norm: 6.613e-02; mom: 8.576e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 607; obj: 8.344e-01; abs: 7.017e-04; rel: 8.417e-04; norm: 6.771e-02; mom: 6.301e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 608; obj: 8.364e-01; abs: 1.972e-03; rel: 2.363e-03; norm: 6.881e-02; mom: 6.252e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 609; obj: 8.376e-01; abs: 1.191e-03; rel: 1.424e-03; norm: 7.002e-02; mom: 6.739e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 610; obj: 8.386e-01; abs: 9.852e-04; rel: 1.176e-03; norm: 6.572e-02; mom: 7.463e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 611; obj: 8.410e-01; abs: 2.452e-03; rel: 2.924e-03; norm: 6.782e-02; mom: 7.789e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 612; obj: 8.428e-01; abs: 1.821e-03; rel: 2.165e-03; norm: 6.986e-02; mom: 7.155e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 613; obj: 8.354e-01; abs: 7.468e-03; rel: 8.861e-03; norm: 7.298e-02; mom: 6.629e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 614; obj: 8.300e-01; abs: 5.374e-03; rel: 6.433e-03; norm: 6.460e-02; mom: 8.174e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 615; obj: 8.314e-01; abs: 1.405e-03; rel: 1.693e-03; norm: 6.324e-02; mom: 6.826e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 616; obj: 8.333e-01; abs: 1.867e-03; rel: 2.245e-03; norm: 6.463e-02; mom: 4.808e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 617; obj: 8.350e-01; abs: 1.721e-03; rel: 2.065e-03; norm: 6.635e-02; mom: 3.273e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 618; obj: 8.367e-01; abs: 1.747e-03; rel: 2.092e-03; norm: 6.811e-02; mom: 4.440e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 619; obj: 8.383e-01; abs: 1.563e-03; rel: 1.868e-03; norm: 6.793e-02; mom: 5.597e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 620; obj: 8.391e-01; abs: 8.382e-04; rel: 9.999e-04; norm: 6.782e-02; mom: 6.026e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 621; obj: 8.402e-01; abs: 1.121e-03; rel: 1.335e-03; norm: 7.242e-02; mom: 7.578e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 622; obj: 8.409e-01; abs: 6.341e-04; rel: 7.546e-04; norm: 7.015e-02; mom: 7.631e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 623; obj: 8.354e-01; abs: 5.499e-03; rel: 6.540e-03; norm: 7.300e-02; mom: 7.150e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 624; obj: 8.364e-01; abs: 1.048e-03; rel: 1.255e-03; norm: 6.571e-02; mom: 8.783e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 625; obj: 8.368e-01; abs: 4.216e-04; rel: 5.040e-04; norm: 6.690e-02; mom: 4.603e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 626; obj: 8.363e-01; abs: 5.186e-04; rel: 6.197e-04; norm: 6.818e-02; mom: 3.827e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 627; obj: 8.373e-01; abs: 1.015e-03; rel: 1.213e-03; norm: 6.635e-02; mom: 5.129e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 628; obj: 8.387e-01; abs: 1.385e-03; rel: 1.654e-03; norm: 6.790e-02; mom: 5.984e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 629; obj: 8.397e-01; abs: 9.550e-04; rel: 1.139e-03; norm: 6.970e-02; mom: 6.411e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 630; obj: 8.397e-01; abs: 2.707e-05; rel: 3.224e-05; norm: 7.164e-02; mom: 7.118e-01;

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#> best it: 432; best obj: 8.299e-01
#> It: 631; obj: 8.375e-01; abs: 2.206e-03; rel: 2.627e-03; norm: 7.230e-02; mom: 7.619e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 632; obj: 8.318e-01; abs: 5.620e-03; rel: 6.711e-03; norm: 7.157e-02; mom: 8.282e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 633; obj: 8.323e-01; abs: 4.434e-04; rel: 5.330e-04; norm: 6.423e-02; mom: 8.893e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 634; obj: 8.349e-01; abs: 2.610e-03; rel: 3.135e-03; norm: 6.472e-02; mom: 6.389e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 635; obj: 8.373e-01; abs: 2.368e-03; rel: 2.837e-03; norm: 6.707e-02; mom: 4.789e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 636; obj: 8.383e-01; abs: 1.081e-03; rel: 1.291e-03; norm: 6.865e-02; mom: 4.324e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 637; obj: 8.378e-01; abs: 5.372e-04; rel: 6.408e-04; norm: 6.652e-02; mom: 4.578e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 638; obj: 8.385e-01; abs: 6.908e-04; rel: 8.245e-04; norm: 6.690e-02; mom: 5.603e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 639; obj: 8.393e-01; abs: 7.808e-04; rel: 9.312e-04; norm: 6.838e-02; mom: 7.074e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 640; obj: 8.386e-01; abs: 6.268e-04; rel: 7.468e-04; norm: 6.883e-02; mom: 6.360e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 641; obj: 8.320e-01; abs: 6.641e-03; rel: 7.919e-03; norm: 7.278e-02; mom: 7.234e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 642; obj: 8.328e-01; abs: 8.320e-04; rel: 1.000e-03; norm: 6.571e-02; mom: 9.167e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 643; obj: 8.341e-01; abs: 1.304e-03; rel: 1.566e-03; norm: 6.643e-02; mom: 5.970e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 644; obj: 8.356e-01; abs: 1.415e-03; rel: 1.696e-03; norm: 6.791e-02; mom: 5.815e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 645; obj: 8.382e-01; abs: 2.634e-03; rel: 3.152e-03; norm: 6.745e-02; mom: 5.313e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 646; obj: 8.407e-01; abs: 2.547e-03; rel: 3.039e-03; norm: 6.935e-02; mom: 5.397e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 647; obj: 8.432e-01; abs: 2.475e-03; rel: 2.944e-03; norm: 6.702e-02; mom: 6.008e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 648; obj: 8.439e-01; abs: 7.068e-04; rel: 8.383e-04; norm: 6.997e-02; mom: 6.099e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 649; obj: 8.418e-01; abs: 2.082e-03; rel: 2.467e-03; norm: 7.101e-02; mom: 5.971e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 650; obj: 8.342e-01; abs: 7.659e-03; rel: 9.098e-03; norm: 7.136e-02; mom: 7.256e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 651; obj: 8.332e-01; abs: 9.319e-04; rel: 1.117e-03; norm: 6.693e-02; mom: 9.540e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 652; obj: 8.341e-01; abs: 9.014e-04; rel: 1.082e-03; norm: 6.654e-02; mom: 6.609e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 653; obj: 8.353e-01; abs: 1.180e-03; rel: 1.415e-03; norm: 6.871e-02; mom: 5.845e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 654; obj: 8.372e-01; abs: 1.903e-03; rel: 2.279e-03; norm: 6.942e-02; mom: 6.618e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 655; obj: 8.381e-01; abs: 8.783e-04; rel: 1.049e-03; norm: 6.839e-02; mom: 6.784e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 656; obj: 8.399e-01; abs: 1.803e-03; rel: 2.151e-03; norm: 6.689e-02; mom: 7.933e-01;
#> best it: 432; best obj: 8.299e-01
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#> It: 660; obj: 8.308e-01; abs: 3.122e-04; rel: 3.756e-04; norm: 6.352e-02; mom: 8.192e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 661; obj: 8.327e-01; abs: 1.905e-03; rel: 2.293e-03; norm: 6.383e-02; mom: 5.702e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 662; obj: 8.344e-01; abs: 1.712e-03; rel: 2.056e-03; norm: 6.610e-02; mom: 3.748e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 663; obj: 8.364e-01; abs: 1.934e-03; rel: 2.318e-03; norm: 6.740e-02; mom: 4.198e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 664; obj: 8.381e-01; abs: 1.697e-03; rel: 2.029e-03; norm: 6.822e-02; mom: 5.225e-01;
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#> It: 665; obj: 8.391e-01; abs: 9.911e-04; rel: 1.183e-03; norm: 6.675e-02; mom: 6.223e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 666; obj: 8.395e-01; abs: 4.442e-04; rel: 5.294e-04; norm: 7.150e-02; mom: 6.833e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 667; obj: 8.409e-01; abs: 1.445e-03; rel: 1.722e-03; norm: 7.033e-02; mom: 7.873e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 668; obj: 8.353e-01; abs: 5.611e-03; rel: 6.672e-03; norm: 7.329e-02; mom: 6.594e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 669; obj: 8.359e-01; abs: 5.503e-04; rel: 6.587e-04; norm: 6.534e-02; mom: 9.259e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 670; obj: 8.372e-01; abs: 1.330e-03; rel: 1.591e-03; norm: 6.634e-02; mom: 5.068e-01;
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#> It: 675; obj: 8.399e-01; abs: 2.803e-04; rel: 3.338e-04; norm: 7.116e-02; mom: 7.012e-01;
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#> It: 680; obj: 8.363e-01; abs: 2.529e-03; rel: 3.033e-03; norm: 6.628e-02; mom: 5.421e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 681; obj: 8.381e-01; abs: 1.800e-03; rel: 2.152e-03; norm: 6.822e-02; mom: 4.262e-01;
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#> best it: 432; best obj: 8.299e-01
#> It: 684; obj: 8.390e-01; abs: 8.208e-04; rel: 9.793e-04; norm: 6.797e-02; mom: 6.699e-01;

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#> It: 688; obj: 8.336e-01; abs: 1.781e-03; rel: 2.141e-03; norm: 6.569e-02; mom: 6.192e-01;
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#> It: 689; obj: 8.343e-01; abs: 6.939e-04; rel: 8.324e-04; norm: 6.760e-02; mom: 5.887e-01;
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#> It: 702; obj: 8.409e-01; abs: 2.404e-03; rel: 2.867e-03; norm: 6.777e-02; mom: 7.807e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 703; obj: 8.428e-01; abs: 1.928e-03; rel: 2.292e-03; norm: 6.981e-02; mom: 7.205e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 704; obj: 8.357e-01; abs: 7.102e-03; rel: 8.427e-03; norm: 7.293e-02; mom: 6.638e-01;
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#> It: 705; obj: 8.300e-01; abs: 5.696e-03; rel: 6.816e-03; norm: 6.477e-02; mom: 8.102e-01;
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#> It: 723; obj: 8.319e-01; abs: 5.600e-03; rel: 6.686e-03; norm: 7.157e-02; mom: 8.268e-01;
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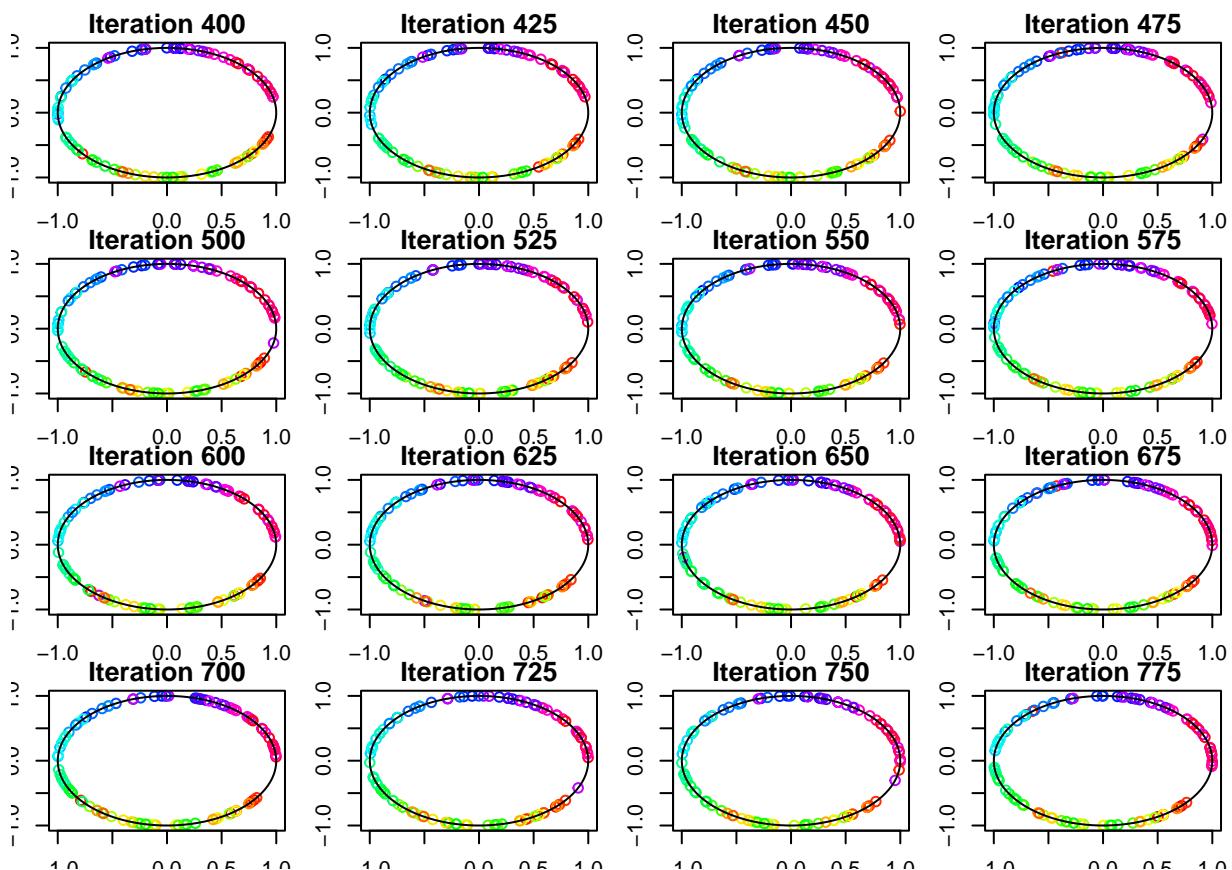
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#> It: 746; obj: 8.381e-01; abs: 8.802e-04; rel: 1.051e-03; norm: 6.848e-02; mom: 6.769e-01;
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#> It: 748; obj: 8.424e-01; abs: 2.511e-03; rel: 2.990e-03; norm: 6.919e-02; mom: 7.844e-01;
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#> It: 753; obj: 8.344e-01; abs: 1.701e-03; rel: 2.043e-03; norm: 6.609e-02; mom: 3.758e-01;
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#> It: 755; obj: 8.380e-01; abs: 1.715e-03; rel: 2.050e-03; norm: 6.821e-02; mom: 5.198e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 756; obj: 8.390e-01; abs: 9.905e-04; rel: 1.182e-03; norm: 6.670e-02; mom: 6.213e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 757; obj: 8.395e-01; abs: 4.399e-04; rel: 5.243e-04; norm: 7.139e-02; mom: 6.775e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 758; obj: 8.409e-01; abs: 1.447e-03; rel: 1.723e-03; norm: 7.039e-02; mom: 7.876e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 759; obj: 8.354e-01; abs: 5.572e-03; rel: 6.626e-03; norm: 7.326e-02; mom: 6.571e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 760; obj: 8.358e-01; abs: 4.839e-04; rel: 5.792e-04; norm: 6.533e-02; mom: 9.264e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 761; obj: 8.372e-01; abs: 1.370e-03; rel: 1.639e-03; norm: 6.630e-02; mom: 5.114e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 762; obj: 8.368e-01; abs: 3.732e-04; rel: 4.458e-04; norm: 6.871e-02; mom: 3.673e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 763; obj: 8.369e-01; abs: 1.022e-04; rel: 1.221e-04; norm: 6.789e-02; mom: 4.458e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 764; obj: 8.385e-01; abs: 1.525e-03; rel: 1.823e-03; norm: 6.701e-02; mom: 5.727e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 765; obj: 8.396e-01; abs: 1.138e-03; rel: 1.357e-03; norm: 6.952e-02; mom: 6.181e-01;

```

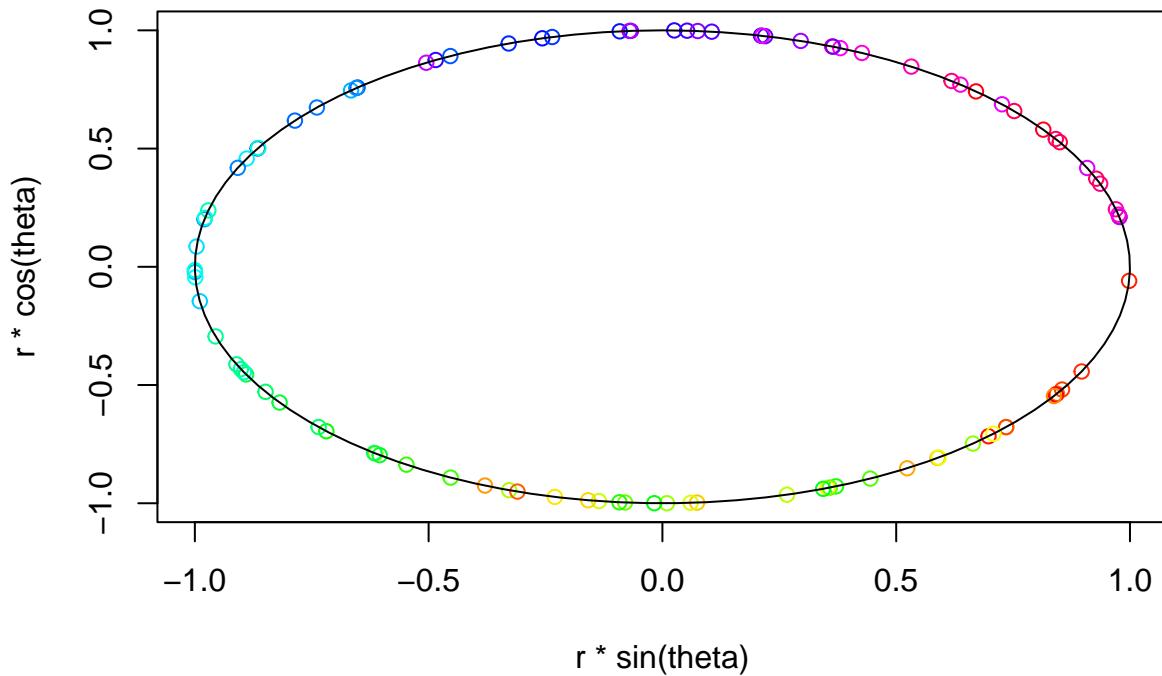
```

#> best it: 432; best obj: 8.299e-01
#> It: 766; obj: 8.399e-01; abs: 3.021e-04; rel: 3.598e-04; norm: 7.113e-02; mom: 6.996e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 767; obj: 8.391e-01; abs: 7.677e-04; rel: 9.140e-04; norm: 7.184e-02; mom: 7.428e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 768; obj: 8.328e-01; abs: 6.375e-03; rel: 7.597e-03; norm: 7.361e-02; mom: 7.973e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 769; obj: 8.319e-01; abs: 8.419e-04; rel: 1.011e-03; norm: 6.547e-02; mom: 9.383e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 770; obj: 8.337e-01; abs: 1.793e-03; rel: 2.156e-03; norm: 6.416e-02; mom: 6.767e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 771; obj: 8.362e-01; abs: 2.524e-03; rel: 3.028e-03; norm: 6.622e-02; mom: 5.457e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 772; obj: 8.380e-01; abs: 1.812e-03; rel: 2.167e-03; norm: 6.816e-02; mom: 4.256e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 773; obj: 8.382e-01; abs: 1.524e-04; rel: 1.818e-04; norm: 6.810e-02; mom: 4.277e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 774; obj: 8.381e-01; abs: 7.799e-05; rel: 9.304e-05; norm: 6.602e-02; mom: 4.894e-01;
#> best it: 432; best obj: 8.299e-01
#> It: 775; obj: 8.390e-01; abs: 8.336e-04; rel: 9.946e-04; norm: 6.789e-02; mom: 6.621e-01;
#> best it: 432; best obj: 8.299e-01

```



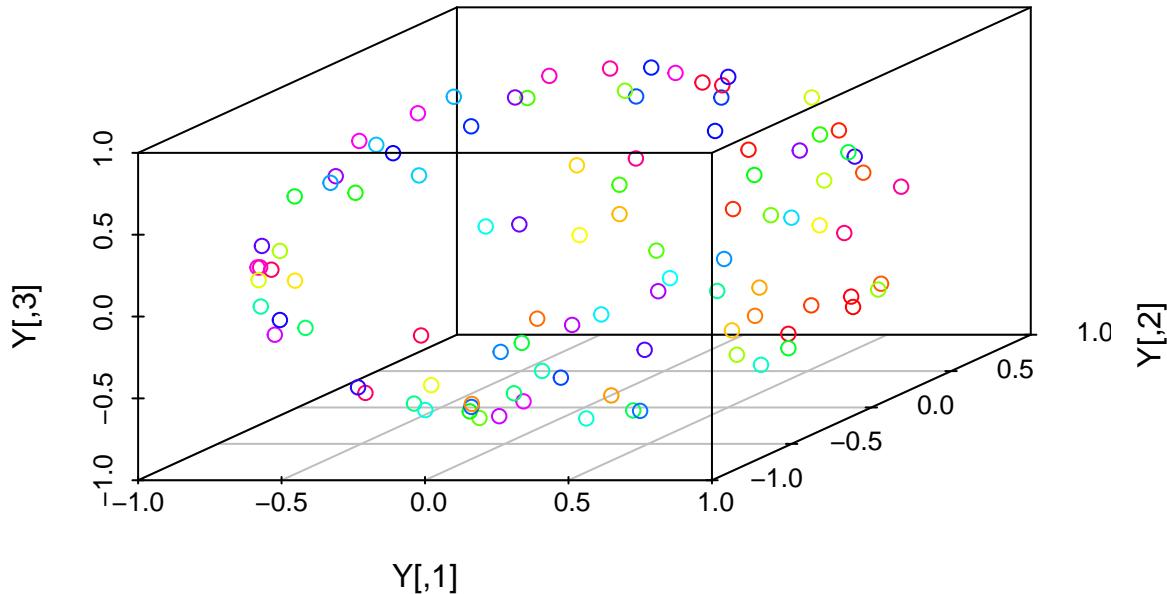
## Iteration 432



Results shows more or less the structure of the first 5 spheres even with the noise included with the remainder spheres. Afterwards, let's get the results on the sphere:

```
psc_sne_res_52 <- psc_sne(X = x_s2_100, d = 2, rho_psc_list = rho_30_s2_100,
                             colors = cols, show_prog = TRUE, num_iteration = 775,
                             eta = 25, parallel_cores = num_cores_param)
#> It: 1; obj: 1.186e+01; abs: 0.000e+00; rel: 0.000e+00; norm: 3.004e-01; mom: 0.000e+00;
#> best it: 1; best obj: 1.186e+01
```

## Iteration 1



```

#> It: 2; obj: 1.089e+01; abs: 9.654e-01; rel: 8.141e-02; norm: 4.781e-01; mom: 3.393e+00;
#> best it: 2; best obj: 1.089e+01
#> It: 3; obj: 1.023e+01; abs: 6.624e-01; rel: 6.081e-02; norm: 6.624e-01; mom: 1.784e+00;
#> best it: 3; best obj: 1.023e+01
#> It: 4; obj: 9.698e+00; abs: 5.338e-01; rel: 5.218e-02; norm: 8.717e-01; mom: 1.363e+00;
#> best it: 4; best obj: 9.698e+00
#> It: 5; obj: 9.523e+00; abs: 1.745e-01; rel: 1.800e-02; norm: 1.108e+00; mom: 9.993e-01;
#> best it: 5; best obj: 9.523e+00
#> It: 6; obj: 9.440e+00; abs: 8.254e-02; rel: 8.667e-03; norm: 1.333e+00; mom: 6.489e-01;
#> best it: 6; best obj: 9.440e+00
#> It: 7; obj: 9.385e+00; abs: 5.512e-02; rel: 5.839e-03; norm: 1.573e+00; mom: 6.676e-01;
#> best it: 7; best obj: 9.385e+00
#> It: 8; obj: 9.366e+00; abs: 1.955e-02; rel: 2.083e-03; norm: 1.813e+00; mom: 6.602e-01;
#> best it: 8; best obj: 9.366e+00
#> It: 9; obj: 9.342e+00; abs: 2.332e-02; rel: 2.490e-03; norm: 2.065e+00; mom: 5.957e-01;
#> best it: 9; best obj: 9.342e+00
#> It: 10; obj: 9.318e+00; abs: 2.434e-02; rel: 2.606e-03; norm: 2.397e+00; mom: 5.263e-01;
#> best it: 10; best obj: 9.318e+00
#> It: 11; obj: 9.294e+00; abs: 2.439e-02; rel: 2.618e-03; norm: 2.794e+00; mom: 4.457e-01;
#> best it: 11; best obj: 9.294e+00
#> It: 12; obj: 9.298e+00; abs: 3.801e-03; rel: 4.090e-04; norm: 3.207e+00; mom: 4.137e-01;
#> best it: 11; best obj: 9.294e+00
#> It: 13; obj: 9.364e+00; abs: 6.682e-02; rel: 7.187e-03; norm: 3.608e+00; mom: 4.225e-01;
#> best it: 11; best obj: 9.294e+00
#> It: 14; obj: 9.502e+00; abs: 1.374e-01; rel: 1.467e-02; norm: 3.974e+00; mom: 4.116e-01;
#> best it: 11; best obj: 9.294e+00
#> It: 15; obj: 9.680e+00; abs: 1.779e-01; rel: 1.873e-02; norm: 4.278e+00; mom: 3.753e-01;
#> best it: 11; best obj: 9.294e+00
#> It: 16; obj: 9.851e+00; abs: 1.712e-01; rel: 1.769e-02; norm: 4.501e+00; mom: 3.176e-01;
#> best it: 11; best obj: 9.294e+00
#> It: 17; obj: 9.986e+00; abs: 1.348e-01; rel: 1.368e-02; norm: 4.644e+00; mom: 2.512e-01;

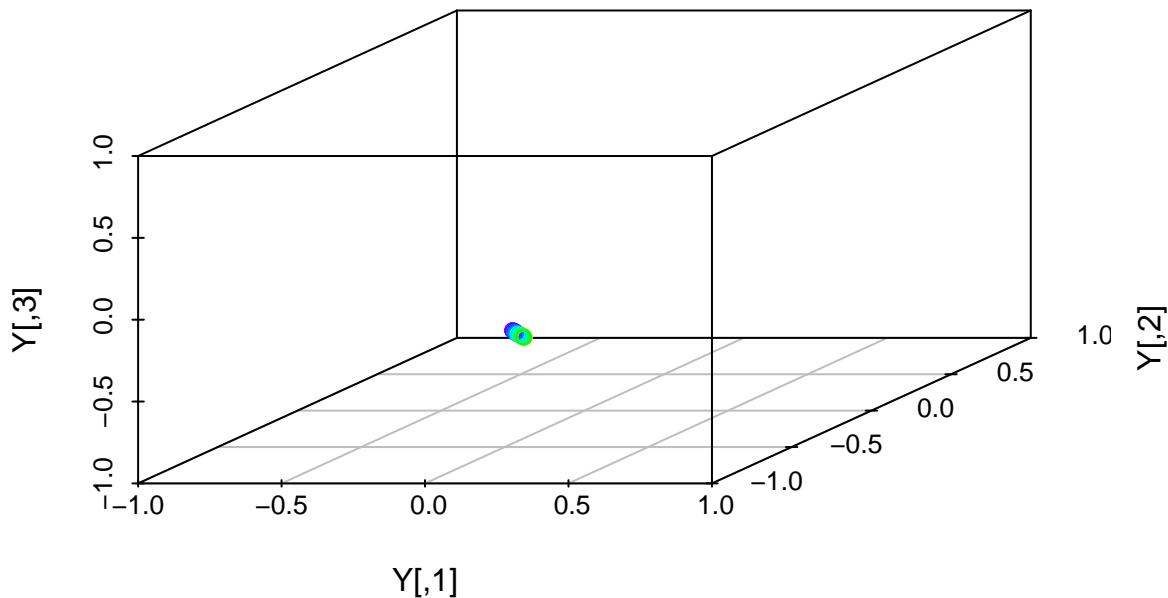
```

```

#> best it: 11; best obj: 9.294e+00
#> It: 18; obj: 1.008e+01; abs: 9.425e-02; rel: 9.438e-03; norm: 4.728e+00; mom: 1.902e-01;
#> best it: 11; best obj: 9.294e+00
#> It: 19; obj: 1.014e+01; abs: 6.233e-02; rel: 6.184e-03; norm: 4.776e+00; mom: 1.422e-01;
#> best it: 11; best obj: 9.294e+00
#> It: 20; obj: 1.018e+01; abs: 4.036e-02; rel: 3.979e-03; norm: 4.803e+00; mom: 1.072e-01;
#> best it: 11; best obj: 9.294e+00
#> It: 21; obj: 1.021e+01; abs: 2.598e-02; rel: 2.551e-03; norm: 4.819e+00; mom: 8.203e-02;
#> best it: 11; best obj: 9.294e+00
#> It: 22; obj: 1.023e+01; abs: 1.672e-02; rel: 1.638e-03; norm: 4.829e+00; mom: 6.371e-02;
#> best it: 11; best obj: 9.294e+00
#> It: 23; obj: 1.024e+01; abs: 1.078e-02; rel: 1.054e-03; norm: 4.835e+00; mom: 5.006e-02;
#> best it: 11; best obj: 9.294e+00
#> It: 24; obj: 1.024e+01; abs: 6.960e-03; rel: 6.800e-04; norm: 4.838e+00; mom: 3.965e-02;
#> best it: 11; best obj: 9.294e+00
#> It: 25; obj: 1.025e+01; abs: 4.501e-03; rel: 4.394e-04; norm: 4.841e+00; mom: 3.159e-02;
#> best it: 11; best obj: 9.294e+00

```

## Iteration 25



```

#> It: 26; obj: 1.025e+01; abs: 2.914e-03; rel: 2.843e-04; norm: 4.842e+00; mom: 2.526e-02;
#> best it: 11; best obj: 9.294e+00
#> It: 27; obj: 1.025e+01; abs: 1.888e-03; rel: 1.841e-04; norm: 4.843e+00; mom: 2.025e-02;
#> best it: 11; best obj: 9.294e+00
#> It: 28; obj: 1.025e+01; abs: 1.224e-03; rel: 1.193e-04; norm: 4.844e+00; mom: 1.627e-02;
#> best it: 11; best obj: 9.294e+00
#> It: 29; obj: 1.025e+01; abs: 7.934e-04; rel: 7.738e-05; norm: 4.844e+00; mom: 1.308e-02;
#> best it: 11; best obj: 9.294e+00
#> It: 30; obj: 1.025e+01; abs: 5.146e-04; rel: 5.018e-05; norm: 4.845e+00; mom: 1.052e-02;
#> best it: 11; best obj: 9.294e+00
#> It: 31; obj: 1.026e+01; abs: 3.338e-04; rel: 3.255e-05; norm: 4.845e+00; mom: 8.467e-03;
#> best it: 11; best obj: 9.294e+00
#> It: 32; obj: 1.026e+01; abs: 2.166e-04; rel: 2.112e-05; norm: 4.845e+00; mom: 6.817e-03;
#> best it: 11; best obj: 9.294e+00

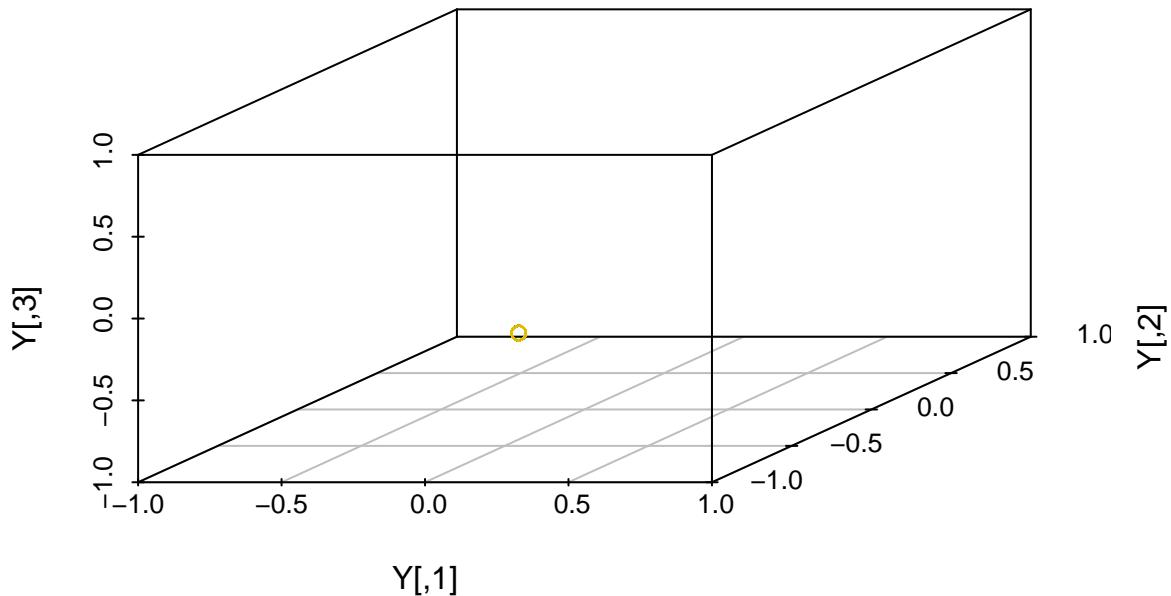
```

```

#> It: 33; obj: 1.026e+01; abs: 1.405e-04; rel: 1.370e-05; norm: 4.845e+00; mom: 5.490e-03;
#> best it: 11; best obj: 9.294e+00
#> It: 34; obj: 1.026e+01; abs: 9.117e-05; rel: 8.890e-06; norm: 4.845e+00; mom: 4.421e-03;
#> best it: 11; best obj: 9.294e+00
#> It: 35; obj: 1.026e+01; abs: 5.916e-05; rel: 5.768e-06; norm: 4.845e+00; mom: 3.561e-03;
#> best it: 11; best obj: 9.294e+00
#> It: 36; obj: 1.026e+01; abs: 3.839e-05; rel: 3.743e-06; norm: 4.845e+00; mom: 2.868e-03;
#> best it: 11; best obj: 9.294e+00
#> It: 37; obj: 1.026e+01; abs: 2.491e-05; rel: 2.429e-06; norm: 4.845e+00; mom: 2.310e-03;
#> best it: 11; best obj: 9.294e+00
#> It: 38; obj: 1.026e+01; abs: 1.616e-05; rel: 1.576e-06; norm: 4.845e+00; mom: 1.861e-03;
#> best it: 11; best obj: 9.294e+00
#> It: 39; obj: 1.026e+01; abs: 1.049e-05; rel: 1.023e-06; norm: 4.845e+00; mom: 1.499e-03;
#> best it: 11; best obj: 9.294e+00
#> It: 40; obj: 1.026e+01; abs: 6.807e-06; rel: 6.637e-07; norm: 4.845e+00; mom: 1.208e-03;
#> best it: 11; best obj: 9.294e+00
#> It: 41; obj: 1.026e+01; abs: 4.417e-06; rel: 4.307e-07; norm: 4.845e+00; mom: 9.728e-04;
#> best it: 11; best obj: 9.294e+00
#> It: 42; obj: 1.026e+01; abs: 2.866e-06; rel: 2.795e-07; norm: 4.845e+00; mom: 7.837e-04;
#> best it: 11; best obj: 9.294e+00
#> It: 43; obj: 1.026e+01; abs: 1.860e-06; rel: 1.814e-07; norm: 4.845e+00; mom: 6.313e-04;
#> best it: 11; best obj: 9.294e+00
#> It: 44; obj: 1.026e+01; abs: 1.207e-06; rel: 1.177e-07; norm: 4.845e+00; mom: 5.085e-04;
#> best it: 11; best obj: 9.294e+00
#> It: 45; obj: 1.026e+01; abs: 7.832e-07; rel: 7.637e-08; norm: 4.845e+00; mom: 4.096e-04;
#> best it: 11; best obj: 9.294e+00
#> It: 46; obj: 1.026e+01; abs: 5.083e-07; rel: 4.956e-08; norm: 4.845e+00; mom: 3.300e-04;
#> best it: 11; best obj: 9.294e+00
#> It: 47; obj: 1.026e+01; abs: 3.298e-07; rel: 3.216e-08; norm: 4.845e+00; mom: 2.658e-04;
#> best it: 11; best obj: 9.294e+00
#> It: 48; obj: 1.026e+01; abs: 2.140e-07; rel: 2.087e-08; norm: 4.845e+00; mom: 2.141e-04;
#> best it: 11; best obj: 9.294e+00
#> It: 49; obj: 1.026e+01; abs: 1.389e-07; rel: 1.354e-08; norm: 4.845e+00; mom: 1.725e-04;
#> best it: 11; best obj: 9.294e+00
#> It: 50; obj: 1.026e+01; abs: 9.013e-08; rel: 8.788e-09; norm: 4.845e+00; mom: 1.390e-04;
#> best it: 11; best obj: 9.294e+00

```

## Iteration 50



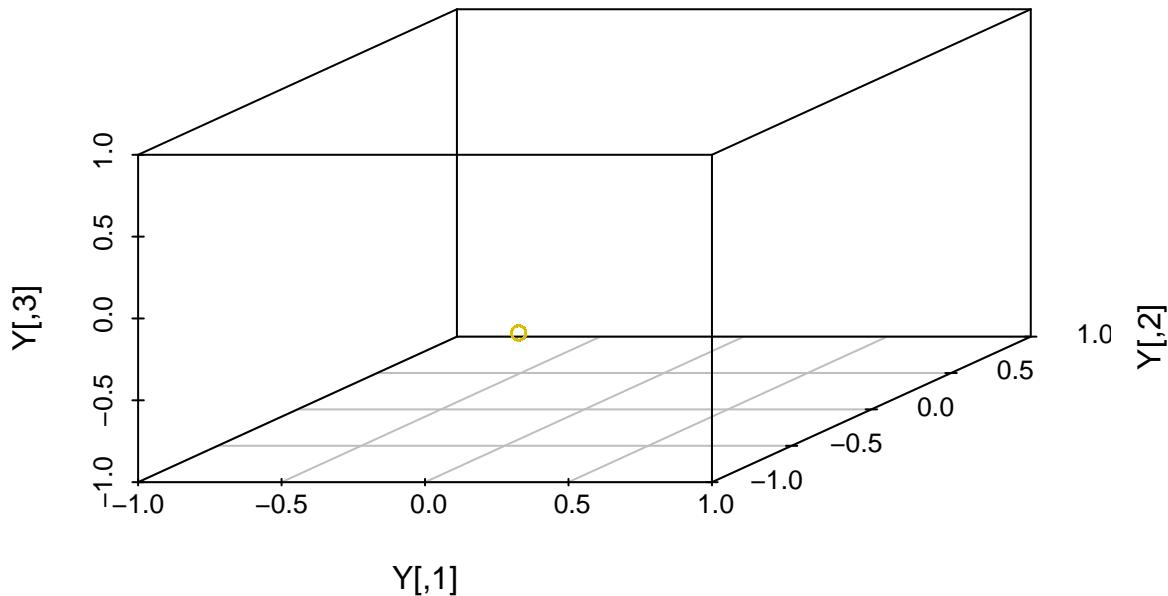
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#> It: 51; obj: 1.026e+01; abs: 5.849e-08; rel: 5.703e-09; norm: 4.845e+00; mom: 1.119e-04;
#> best it: 11; best obj: 9.294e+00
#> It: 52; obj: 1.026e+01; abs: 3.795e-08; rel: 3.701e-09; norm: 4.845e+00; mom: 9.017e-05;
#> best it: 11; best obj: 9.294e+00
#> It: 53; obj: 1.026e+01; abs: 2.463e-08; rel: 2.401e-09; norm: 4.845e+00; mom: 7.264e-05;
#> best it: 11; best obj: 9.294e+00
#> It: 54; obj: 1.026e+01; abs: 1.598e-08; rel: 1.558e-09; norm: 4.845e+00; mom: 5.852e-05;
#> best it: 11; best obj: 9.294e+00
#> It: 55; obj: 1.026e+01; abs: 1.037e-08; rel: 1.011e-09; norm: 4.845e+00; mom: 4.714e-05;
#> best it: 11; best obj: 9.294e+00
#> It: 56; obj: 1.026e+01; abs: 6.730e-09; rel: 6.562e-10; norm: 4.845e+00; mom: 3.797e-05;
#> best it: 11; best obj: 9.294e+00
#> It: 57; obj: 1.026e+01; abs: 4.367e-09; rel: 4.258e-10; norm: 4.845e+00; mom: 3.059e-05;
#> best it: 11; best obj: 9.294e+00
#> It: 58; obj: 1.026e+01; abs: 2.834e-09; rel: 2.763e-10; norm: 4.845e+00; mom: 2.464e-05;
#> best it: 11; best obj: 9.294e+00
#> It: 59; obj: 1.026e+01; abs: 1.839e-09; rel: 1.793e-10; norm: 4.845e+00; mom: 1.985e-05;
#> best it: 11; best obj: 9.294e+00
#> It: 60; obj: 1.026e+01; abs: 1.193e-09; rel: 1.164e-10; norm: 4.845e+00; mom: 1.599e-05;
#> best it: 11; best obj: 9.294e+00
#> It: 61; obj: 1.026e+01; abs: 7.744e-10; rel: 7.551e-11; norm: 4.845e+00; mom: 1.288e-05;
#> best it: 11; best obj: 9.294e+00
#> It: 62; obj: 1.026e+01; abs: 5.025e-10; rel: 4.900e-11; norm: 4.845e+00; mom: 1.038e-05;
#> best it: 11; best obj: 9.294e+00
#> It: 63; obj: 1.026e+01; abs: 3.261e-10; rel: 3.180e-11; norm: 4.845e+00; mom: 8.359e-06;
#> best it: 11; best obj: 9.294e+00
#> It: 64; obj: 1.026e+01; abs: 2.116e-10; rel: 2.063e-11; norm: 4.845e+00; mom: 6.733e-06;
#> best it: 11; best obj: 9.294e+00
#> It: 65; obj: 1.026e+01; abs: 1.373e-10; rel: 1.339e-11; norm: 4.845e+00; mom: 5.424e-06;
#> best it: 11; best obj: 9.294e+00
#> It: 66; obj: 1.026e+01; abs: 8.917e-11; rel: 8.695e-12; norm: 4.845e+00; mom: 4.369e-06;
```

```

#> best it: 11; best obj: 9.294e+00
#> It: 67; obj: 1.026e+01; abs: 5.781e-11; rel: 5.637e-12; norm: 4.845e+00; mom: 3.520e-06;
#> best it: 11; best obj: 9.294e+00
#> It: 68; obj: 1.026e+01; abs: 3.755e-11; rel: 3.661e-12; norm: 4.845e+00; mom: 2.835e-06;
#> best it: 11; best obj: 9.294e+00
#> It: 69; obj: 1.026e+01; abs: 2.434e-11; rel: 2.373e-12; norm: 4.845e+00; mom: 2.284e-06;
#> best it: 11; best obj: 9.294e+00
#> It: 70; obj: 1.026e+01; abs: 1.581e-11; rel: 1.542e-12; norm: 4.845e+00; mom: 1.840e-06;
#> best it: 11; best obj: 9.294e+00
#> It: 71; obj: 1.026e+01; abs: 1.030e-11; rel: 1.005e-12; norm: 4.845e+00; mom: 1.482e-06;
#> best it: 11; best obj: 9.294e+00
#> It: 72; obj: 1.026e+01; abs: 6.628e-12; rel: 6.462e-13; norm: 4.845e+00; mom: 1.194e-06;
#> best it: 11; best obj: 9.294e+00
#> It: 73; obj: 1.026e+01; abs: 4.288e-12; rel: 4.181e-13; norm: 4.845e+00; mom: 9.618e-07;
#> best it: 11; best obj: 9.294e+00
#> It: 74; obj: 1.026e+01; abs: 2.819e-12; rel: 2.749e-13; norm: 4.845e+00; mom: 7.748e-07;
#> best it: 11; best obj: 9.294e+00
#> It: 75; obj: 1.026e+01; abs: 1.869e-12; rel: 1.822e-13; norm: 4.845e+00; mom: 6.242e-07;
#> best it: 11; best obj: 9.294e+00

```

## Iteration 75



```

#> It: 76; obj: 1.026e+01; abs: 1.116e-12; rel: 1.088e-13; norm: 4.845e+00; mom: 5.028e-07;
#> best it: 11; best obj: 9.294e+00
#> It: 77; obj: 1.026e+01; abs: 7.869e-13; rel: 7.673e-14; norm: 4.845e+00; mom: 4.050e-07;
#> best it: 11; best obj: 9.294e+00
#> It: 78; obj: 1.026e+01; abs: 5.098e-13; rel: 4.971e-14; norm: 4.845e+00; mom: 3.263e-07;
#> best it: 11; best obj: 9.294e+00
#> It: 79; obj: 1.026e+01; abs: 3.038e-13; rel: 2.962e-14; norm: 4.845e+00; mom: 2.628e-07;
#> best it: 11; best obj: 9.294e+00
#> It: 80; obj: 1.026e+01; abs: 2.469e-13; rel: 2.408e-14; norm: 4.845e+00; mom: 2.117e-07;
#> best it: 11; best obj: 9.294e+00
#> It: 81; obj: 1.026e+01; abs: 1.581e-13; rel: 1.542e-14; norm: 4.845e+00; mom: 1.706e-07;
#> best it: 11; best obj: 9.294e+00

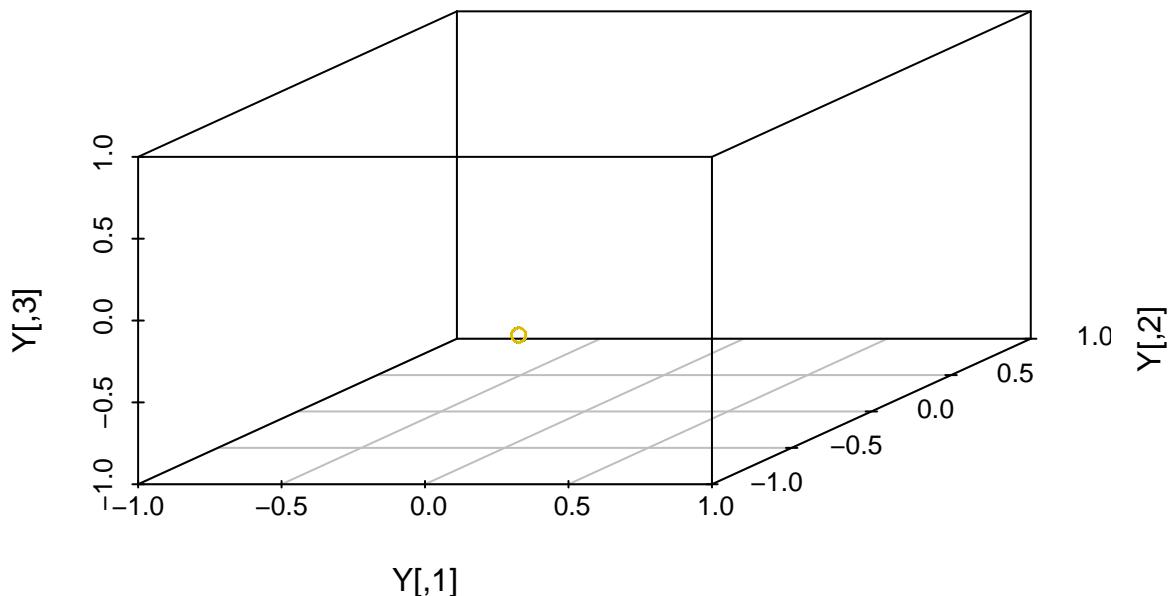
```

```

#> It: 82; obj: 1.026e+01; abs: 8.527e-14; rel: 8.314e-15; norm: 4.845e+00; mom: 1.374e-07;
#> best it: 11; best obj: 9.294e+00
#> It: 83; obj: 1.026e+01; abs: 1.599e-14; rel: 1.559e-15; norm: 4.845e+00; mom: 1.107e-07;
#> best it: 11; best obj: 9.294e+00
#> It: 84; obj: 1.026e+01; abs: 2.309e-14; rel: 2.252e-15; norm: 4.845e+00; mom: 8.916e-08;
#> best it: 11; best obj: 9.294e+00
#> It: 85; obj: 1.026e+01; abs: 5.329e-15; rel: 5.196e-16; norm: 4.845e+00; mom: 7.182e-08;
#> best it: 11; best obj: 9.294e+00
#> It: 86; obj: 1.026e+01; abs: 0.000e+00; rel: 0.000e+00; norm: 4.845e+00; mom: 5.786e-08;
#> best it: 11; best obj: 9.294e+00
#> It: 87; obj: 1.026e+01; abs: 0.000e+00; rel: 0.000e+00; norm: 4.845e+00; mom: 4.661e-08;
#> best it: 11; best obj: 9.294e+00
#> It: 88; obj: 1.026e+01; abs: 1.776e-15; rel: 1.732e-16; norm: 4.845e+00; mom: 3.754e-08;
#> best it: 11; best obj: 9.294e+00
#> It: 89; obj: 1.026e+01; abs: 1.776e-15; rel: 1.732e-16; norm: 4.845e+00; mom: 3.024e-08;
#> best it: 11; best obj: 9.294e+00
#> It: 90; obj: 1.026e+01; abs: 1.776e-15; rel: 1.732e-16; norm: 4.845e+00; mom: 2.436e-08;
#> best it: 11; best obj: 9.294e+00
#> It: 91; obj: 1.026e+01; abs: 3.553e-15; rel: 3.464e-16; norm: 4.845e+00; mom: 1.963e-08;
#> best it: 11; best obj: 9.294e+00
#> It: 92; obj: 1.026e+01; abs: 1.776e-15; rel: 1.732e-16; norm: 4.845e+00; mom: 1.581e-08;
#> best it: 11; best obj: 9.294e+00
#> It: 93; obj: 1.026e+01; abs: 3.553e-15; rel: 3.464e-16; norm: 4.845e+00; mom: 1.274e-08;
#> best it: 11; best obj: 9.294e+00
#> It: 94; obj: 1.026e+01; abs: 3.553e-15; rel: 3.464e-16; norm: 4.845e+00; mom: 1.026e-08;
#> best it: 11; best obj: 9.294e+00
#> It: 95; obj: 1.026e+01; abs: 1.776e-15; rel: 1.732e-16; norm: 4.845e+00; mom: 8.265e-09;
#> best it: 11; best obj: 9.294e+00
#> It: 96; obj: 1.026e+01; abs: 1.776e-15; rel: 1.732e-16; norm: 4.845e+00; mom: 6.658e-09;
#> best it: 11; best obj: 9.294e+00
#> It: 97; obj: 1.026e+01; abs: 1.776e-15; rel: 1.732e-16; norm: 4.845e+00; mom: 5.363e-09;
#> best it: 11; best obj: 9.294e+00
#> It: 98; obj: 1.026e+01; abs: 1.776e-15; rel: 1.732e-16; norm: 4.845e+00; mom: 4.320e-09;
#> best it: 11; best obj: 9.294e+00
#> It: 99; obj: 1.026e+01; abs: 0.000e+00; rel: 0.000e+00; norm: 4.845e+00; mom: 3.480e-09;
#> best it: 11; best obj: 9.294e+00
#> It: 100; obj: 1.026e+01; abs: 0.000e+00; rel: 0.000e+00; norm: 4.845e+00; mom: 2.804e-09;
#> best it: 11; best obj: 9.294e+00

```

## Iteration 100



```

#> It: 101; obj: 1.223e+00; abs: 9.033e+00; rel: 8.807e-01; norm: 1.647e-01; mom: 2.258e-09;
#> best it: 101; best obj: 1.223e+00
#> It: 102; obj: 1.223e+00; abs: 1.332e-15; rel: 1.089e-15; norm: 1.605e-01; mom: 1.000e+00;
#> best it: 102; best obj: 1.223e+00
#> It: 103; obj: 1.223e+00; abs: 7.232e-13; rel: 5.912e-13; norm: 1.605e-01; mom: 2.541e-07;
#> best it: 103; best obj: 1.223e+00
#> It: 104; obj: 1.223e+00; abs: 7.357e-11; rel: 6.014e-11; norm: 1.605e-01; mom: 2.446e-06;
#> best it: 104; best obj: 1.223e+00
#> It: 105; obj: 1.223e+00; abs: 8.641e-09; rel: 7.064e-09; norm: 1.605e-01; mom: 2.597e-05;
#> best it: 105; best obj: 1.223e+00
#> It: 106; obj: 1.223e+00; abs: 1.125e-06; rel: 9.200e-07; norm: 1.605e-01; mom: 2.900e-04;
#> best it: 106; best obj: 1.223e+00
#> It: 107; obj: 1.223e+00; abs: 1.534e-04; rel: 1.254e-04; norm: 1.605e-01; mom: 3.374e-03;
#> best it: 107; best obj: 1.223e+00
#> It: 108; obj: 1.222e+00; abs: 8.844e-04; rel: 7.231e-04; norm: 1.593e-01; mom: 4.063e-02;
#> best it: 108; best obj: 1.222e+00
#> It: 109; obj: 1.209e+00; abs: 1.324e-02; rel: 1.083e-02; norm: 1.516e-01; mom: 2.891e-01;
#> best it: 109; best obj: 1.209e+00
#> It: 110; obj: 1.144e+00; abs: 6.465e-02; rel: 5.348e-02; norm: 1.450e-01; mom: 3.537e-01;
#> best it: 110; best obj: 1.144e+00
#> It: 111; obj: 1.061e+00; abs: 8.306e-02; rel: 7.258e-02; norm: 1.550e-01; mom: 7.561e-01;
#> best it: 111; best obj: 1.061e+00
#> It: 112; obj: 1.095e+00; abs: 3.376e-02; rel: 3.181e-02; norm: 1.611e-01; mom: 1.186e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 113; obj: 1.317e+00; abs: 2.219e-01; rel: 2.027e-01; norm: 1.748e-01; mom: 1.360e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 114; obj: 1.790e+00; abs: 4.727e-01; rel: 3.589e-01; norm: 2.895e-01; mom: 1.957e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 115; obj: 1.916e+00; abs: 1.265e-01; rel: 7.070e-02; norm: 5.023e-01; mom: 3.861e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 116; obj: 2.148e+00; abs: 2.319e-01; rel: 1.210e-01; norm: 5.105e-01; mom: 5.760e+00;

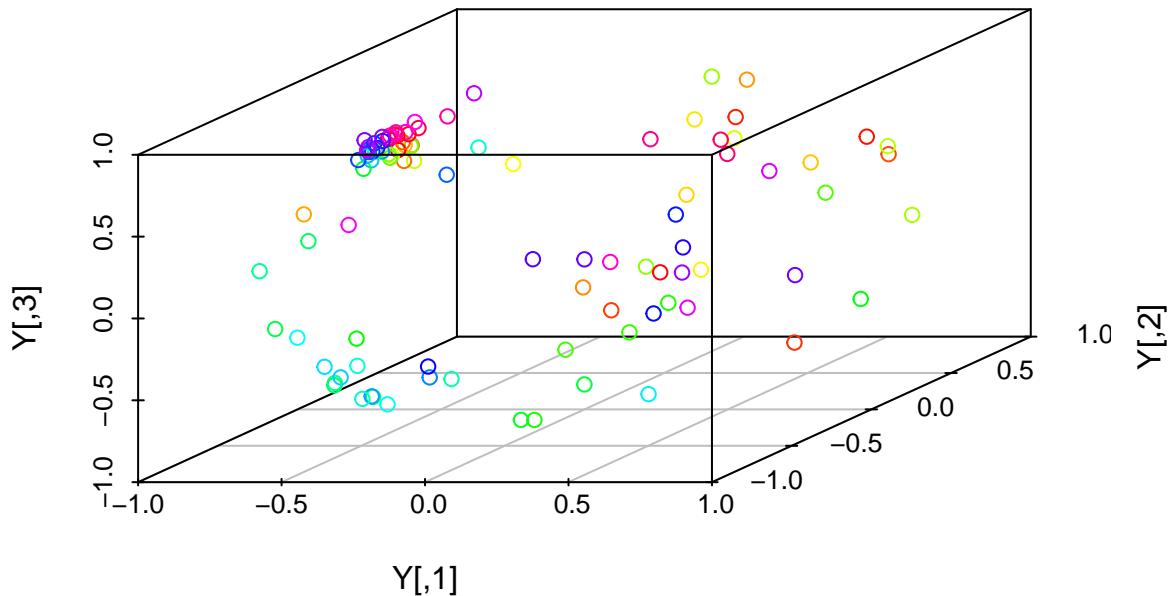
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#> best it: 111; best obj: 1.061e+00
#> It: 117; obj: 2.232e+00; abs: 8.399e-02; rel: 3.910e-02; norm: 7.807e-01; mom: 5.310e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 118; obj: 2.314e+00; abs: 8.172e-02; rel: 3.661e-02; norm: 8.209e-01; mom: 6.981e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 119; obj: 2.204e+00; abs: 1.099e-01; rel: 4.751e-02; norm: 9.440e-01; mom: 6.570e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 120; obj: 2.051e+00; abs: 1.528e-01; rel: 6.932e-02; norm: 9.508e-01; mom: 6.927e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 121; obj: 1.996e+00; abs: 5.468e-02; rel: 2.666e-02; norm: 9.379e-01; mom: 7.133e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 122; obj: 1.928e+00; abs: 6.813e-02; rel: 3.412e-02; norm: 9.454e-01; mom: 6.918e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 123; obj: 1.873e+00; abs: 5.568e-02; rel: 2.888e-02; norm: 1.094e+00; mom: 6.577e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 124; obj: 1.687e+00; abs: 1.851e-01; rel: 9.884e-02; norm: 1.159e+00; mom: 6.366e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 125; obj: 1.752e+00; abs: 6.475e-02; rel: 3.837e-02; norm: 1.190e+00; mom: 6.421e+00;
#> best it: 111; best obj: 1.061e+00

```

## Iteration 125



```

#> It: 126; obj: 1.599e+00; abs: 1.530e-01; rel: 8.731e-02; norm: 1.195e+00; mom: 6.227e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 127; obj: 1.683e+00; abs: 8.362e-02; rel: 5.229e-02; norm: 1.161e+00; mom: 6.164e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 128; obj: 1.544e+00; abs: 1.393e-01; rel: 8.278e-02; norm: 1.163e+00; mom: 6.059e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 129; obj: 1.614e+00; abs: 7.067e-02; rel: 4.579e-02; norm: 1.114e+00; mom: 5.902e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 130; obj: 1.472e+00; abs: 1.420e-01; rel: 8.799e-02; norm: 1.132e+00; mom: 5.689e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 131; obj: 1.592e+00; abs: 1.202e-01; rel: 8.166e-02; norm: 1.114e+00; mom: 5.517e+00;
#> best it: 111; best obj: 1.061e+00

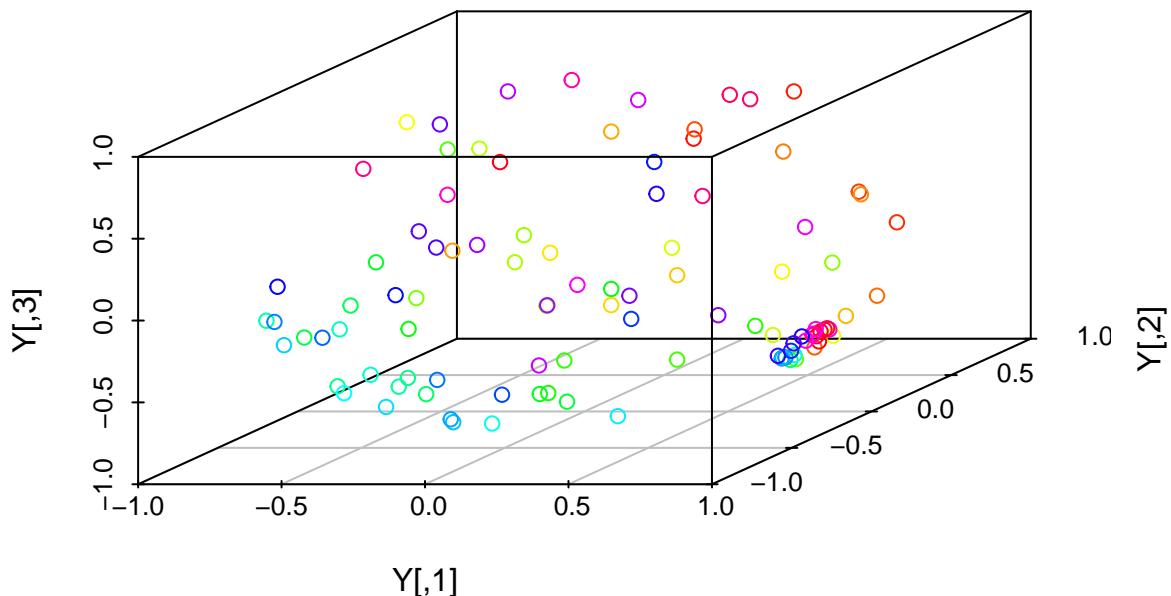
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#> It: 132; obj: 1.451e+00; abs: 1.410e-01; rel: 8.854e-02; norm: 1.142e+00; mom: 5.480e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 133; obj: 1.559e+00; abs: 1.073e-01; rel: 7.392e-02; norm: 1.100e+00; mom: 5.474e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 134; obj: 1.409e+00; abs: 1.496e-01; rel: 9.595e-02; norm: 1.108e+00; mom: 5.461e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 135; obj: 1.523e+00; abs: 1.139e-01; rel: 8.081e-02; norm: 1.055e+00; mom: 5.446e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 136; obj: 1.398e+00; abs: 1.253e-01; rel: 8.230e-02; norm: 1.070e+00; mom: 5.376e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 137; obj: 1.496e+00; abs: 9.810e-02; rel: 7.019e-02; norm: 1.038e+00; mom: 5.377e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 138; obj: 1.377e+00; abs: 1.188e-01; rel: 7.941e-02; norm: 1.048e+00; mom: 5.351e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 139; obj: 1.454e+00; abs: 7.731e-02; rel: 5.615e-02; norm: 1.015e+00; mom: 5.372e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 140; obj: 1.364e+00; abs: 9.067e-02; rel: 6.235e-02; norm: 1.021e+00; mom: 5.232e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 141; obj: 1.419e+00; abs: 5.512e-02; rel: 4.042e-02; norm: 9.996e-01; mom: 5.172e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 142; obj: 1.350e+00; abs: 6.834e-02; rel: 4.817e-02; norm: 9.932e-01; mom: 5.094e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 143; obj: 1.389e+00; abs: 3.849e-02; rel: 2.850e-02; norm: 9.670e-01; mom: 5.080e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 144; obj: 1.343e+00; abs: 4.548e-02; rel: 3.275e-02; norm: 9.663e-01; mom: 5.020e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 145; obj: 1.393e+00; abs: 5.001e-02; rel: 3.723e-02; norm: 9.718e-01; mom: 5.010e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 146; obj: 1.326e+00; abs: 6.773e-02; rel: 4.861e-02; norm: 9.929e-01; mom: 4.993e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 147; obj: 1.356e+00; abs: 3.072e-02; rel: 2.317e-02; norm: 1.003e+00; mom: 5.149e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 148; obj: 1.296e+00; abs: 6.072e-02; rel: 4.476e-02; norm: 9.786e-01; mom: 5.073e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 149; obj: 1.307e+00; abs: 1.123e-02; rel: 8.668e-03; norm: 9.275e-01; mom: 5.037e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 150; obj: 1.297e+00; abs: 9.644e-03; rel: 7.379e-03; norm: 9.026e-01; mom: 4.915e+00;
#> best it: 111; best obj: 1.061e+00

```

## Iteration 150



```

#> It: 151; obj: 1.344e+00; abs: 4.658e-02; rel: 3.591e-02; norm: 8.987e-01; mom: 4.876e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 152; obj: 1.284e+00; abs: 5.954e-02; rel: 4.431e-02; norm: 9.092e-01; mom: 4.801e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 153; obj: 1.317e+00; abs: 3.303e-02; rel: 2.572e-02; norm: 9.440e-01; mom: 4.819e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 154; obj: 1.266e+00; abs: 5.130e-02; rel: 3.894e-02; norm: 9.099e-01; mom: 4.845e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 155; obj: 1.290e+00; abs: 2.395e-02; rel: 1.892e-02; norm: 9.052e-01; mom: 4.860e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 156; obj: 1.239e+00; abs: 5.069e-02; rel: 3.929e-02; norm: 8.797e-01; mom: 4.822e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 157; obj: 1.256e+00; abs: 1.671e-02; rel: 1.348e-02; norm: 8.688e-01; mom: 4.737e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 158; obj: 1.243e+00; abs: 1.342e-02; rel: 1.069e-02; norm: 8.389e-01; mom: 4.656e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 159; obj: 1.249e+00; abs: 6.508e-03; rel: 5.238e-03; norm: 8.599e-01; mom: 4.655e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 160; obj: 1.224e+00; abs: 2.533e-02; rel: 2.028e-02; norm: 8.318e-01; mom: 4.650e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 161; obj: 1.226e+00; abs: 2.256e-03; rel: 1.843e-03; norm: 8.282e-01; mom: 4.743e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 162; obj: 1.264e+00; abs: 3.757e-02; rel: 3.065e-02; norm: 7.877e-01; mom: 4.571e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 163; obj: 1.349e+00; abs: 8.580e-02; rel: 6.790e-02; norm: 8.323e-01; mom: 4.573e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 164; obj: 1.353e+00; abs: 4.054e-03; rel: 3.004e-03; norm: 8.985e-01; mom: 4.665e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 165; obj: 1.336e+00; abs: 1.725e-02; rel: 1.275e-02; norm: 9.626e-01; mom: 5.025e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 166; obj: 1.277e+00; abs: 5.881e-02; rel: 4.402e-02; norm: 9.585e-01; mom: 4.911e+00;

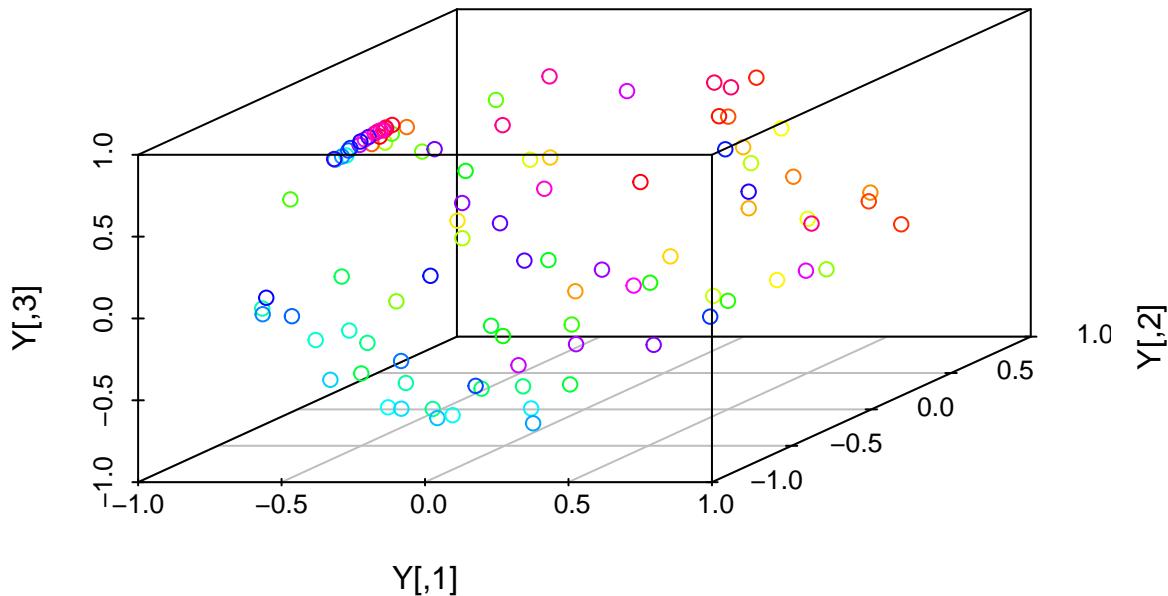
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#> best it: 111; best obj: 1.061e+00
#> It: 167; obj: 1.293e+00; abs: 1.587e-02; rel: 1.242e-02; norm: 9.341e-01; mom: 4.780e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 168; obj: 1.265e+00; abs: 2.827e-02; rel: 2.186e-02; norm: 9.214e-01; mom: 4.843e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 169; obj: 1.294e+00; abs: 2.945e-02; rel: 2.328e-02; norm: 9.236e-01; mom: 4.843e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 170; obj: 1.260e+00; abs: 3.458e-02; rel: 2.671e-02; norm: 9.288e-01; mom: 4.781e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 171; obj: 1.275e+00; abs: 1.526e-02; rel: 1.211e-02; norm: 9.248e-01; mom: 4.900e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 172; obj: 1.250e+00; abs: 2.500e-02; rel: 1.960e-02; norm: 9.045e-01; mom: 4.835e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 173; obj: 1.272e+00; abs: 2.174e-02; rel: 1.739e-02; norm: 9.069e-01; mom: 4.791e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 174; obj: 1.284e+00; abs: 1.176e-02; rel: 9.246e-03; norm: 9.140e-01; mom: 4.821e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 175; obj: 1.307e+00; abs: 2.358e-02; rel: 1.837e-02; norm: 9.451e-01; mom: 4.888e+00;
#> best it: 111; best obj: 1.061e+00

```

## Iteration 175



```

#> It: 176; obj: 1.299e+00; abs: 8.312e-03; rel: 6.358e-03; norm: 9.338e-01; mom: 4.876e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 177; obj: 1.299e+00; abs: 4.961e-04; rel: 3.820e-04; norm: 9.519e-01; mom: 4.955e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 178; obj: 1.270e+00; abs: 2.968e-02; rel: 2.284e-02; norm: 9.215e-01; mom: 4.945e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 179; obj: 1.285e+00; abs: 1.541e-02; rel: 1.214e-02; norm: 9.456e-01; mom: 4.859e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 180; obj: 1.283e+00; abs: 2.034e-03; rel: 1.583e-03; norm: 9.373e-01; mom: 4.909e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 181; obj: 1.265e+00; abs: 1.788e-02; rel: 1.393e-02; norm: 9.398e-01; mom: 4.895e+00;
#> best it: 111; best obj: 1.061e+00

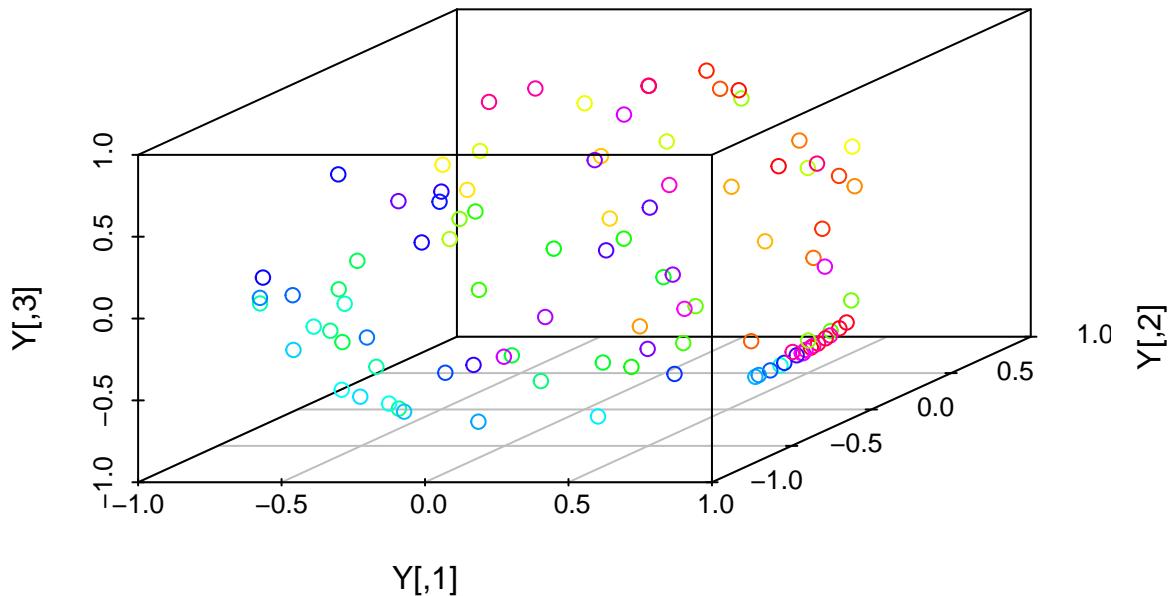
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#> It: 182; obj: 1.260e+00; abs: 5.029e-03; rel: 3.975e-03; norm: 8.970e-01; mom: 4.869e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 183; obj: 1.242e+00; abs: 1.819e-02; rel: 1.443e-02; norm: 9.303e-01; mom: 4.858e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 184; obj: 1.238e+00; abs: 4.198e-03; rel: 3.380e-03; norm: 8.833e-01; mom: 4.791e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 185; obj: 1.231e+00; abs: 6.466e-03; rel: 5.223e-03; norm: 8.826e-01; mom: 4.705e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 186; obj: 1.198e+00; abs: 3.307e-02; rel: 2.686e-02; norm: 8.317e-01; mom: 4.744e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 187; obj: 1.225e+00; abs: 2.710e-02; rel: 2.262e-02; norm: 8.205e-01; mom: 4.690e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 188; obj: 1.225e+00; abs: 6.142e-04; rel: 5.012e-04; norm: 7.771e-01; mom: 4.584e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 189; obj: 1.205e+00; abs: 1.943e-02; rel: 1.587e-02; norm: 7.861e-01; mom: 4.678e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 190; obj: 1.185e+00; abs: 2.071e-02; rel: 1.718e-02; norm: 7.316e-01; mom: 4.585e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 191; obj: 1.223e+00; abs: 3.845e-02; rel: 3.246e-02; norm: 7.560e-01; mom: 4.412e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 192; obj: 1.232e+00; abs: 9.343e-03; rel: 7.639e-03; norm: 7.454e-01; mom: 4.374e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 193; obj: 1.260e+00; abs: 2.714e-02; rel: 2.202e-02; norm: 7.925e-01; mom: 4.653e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 194; obj: 1.318e+00; abs: 5.888e-02; rel: 4.675e-02; norm: 7.675e-01; mom: 4.536e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 195; obj: 1.318e+00; abs: 4.098e-05; rel: 3.108e-05; norm: 8.671e-01; mom: 4.504e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 196; obj: 1.230e+00; abs: 8.819e-02; rel: 6.689e-02; norm: 9.171e-01; mom: 4.766e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 197; obj: 1.213e+00; abs: 1.699e-02; rel: 1.381e-02; norm: 8.555e-01; mom: 4.798e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 198; obj: 1.225e+00; abs: 1.195e-02; rel: 9.853e-03; norm: 7.992e-01; mom: 4.621e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 199; obj: 1.185e+00; abs: 3.989e-02; rel: 3.255e-02; norm: 7.698e-01; mom: 4.472e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 200; obj: 1.213e+00; abs: 2.735e-02; rel: 2.307e-02; norm: 7.390e-01; mom: 4.568e+00;
#> best it: 111; best obj: 1.061e+00

```

## Iteration 200



```

#> It: 201; obj: 1.232e+00; abs: 1.975e-02; rel: 1.629e-02; norm: 7.462e-01; mom: 4.524e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 202; obj: 1.336e+00; abs: 1.034e-01; rel: 8.390e-02; norm: 7.105e-01; mom: 4.417e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 203; obj: 1.427e+00; abs: 9.125e-02; rel: 6.831e-02; norm: 6.977e-01; mom: 4.539e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 204; obj: 1.391e+00; abs: 3.568e-02; rel: 2.500e-02; norm: 7.229e-01; mom: 4.476e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 205; obj: 1.399e+00; abs: 7.165e-03; rel: 5.149e-03; norm: 8.449e-01; mom: 4.630e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 206; obj: 1.366e+00; abs: 3.238e-02; rel: 2.315e-02; norm: 9.096e-01; mom: 4.902e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 207; obj: 1.331e+00; abs: 3.548e-02; rel: 2.597e-02; norm: 9.716e-01; mom: 4.812e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 208; obj: 1.317e+00; abs: 1.327e-02; rel: 9.974e-03; norm: 9.518e-01; mom: 5.022e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 209; obj: 1.313e+00; abs: 4.658e-03; rel: 3.535e-03; norm: 9.397e-01; mom: 5.019e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 210; obj: 1.287e+00; abs: 2.560e-02; rel: 1.950e-02; norm: 9.413e-01; mom: 4.960e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 211; obj: 1.339e+00; abs: 5.142e-02; rel: 3.995e-02; norm: 9.521e-01; mom: 4.891e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 212; obj: 1.258e+00; abs: 8.095e-02; rel: 6.047e-02; norm: 1.013e+00; mom: 5.021e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 213; obj: 1.280e+00; abs: 2.211e-02; rel: 1.758e-02; norm: 9.856e-01; mom: 5.038e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 214; obj: 1.290e+00; abs: 1.062e-02; rel: 8.295e-03; norm: 9.662e-01; mom: 4.991e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 215; obj: 1.273e+00; abs: 1.752e-02; rel: 1.358e-02; norm: 9.725e-01; mom: 4.964e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 216; obj: 1.234e+00; abs: 3.855e-02; rel: 3.029e-02; norm: 9.480e-01; mom: 4.921e+00;

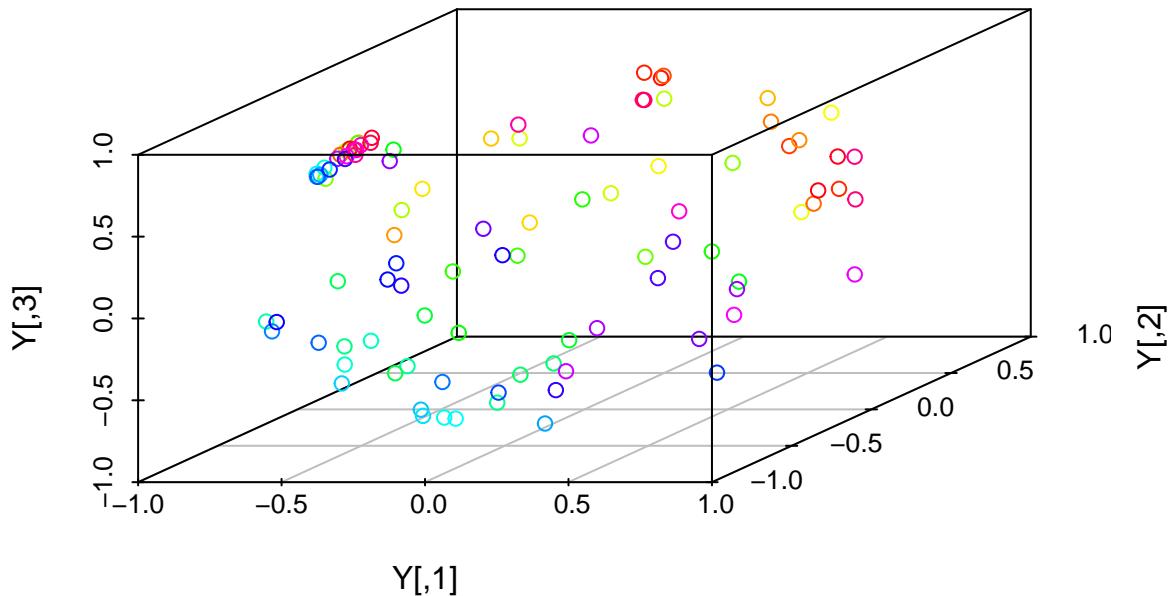
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#> best it: 111; best obj: 1.061e+00
#> It: 217; obj: 1.292e+00; abs: 5.803e-02; rel: 4.702e-02; norm: 9.301e-01; mom: 4.926e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 218; obj: 1.280e+00; abs: 1.188e-02; rel: 9.190e-03; norm: 9.571e-01; mom: 4.815e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 219; obj: 1.291e+00; abs: 1.028e-02; rel: 8.030e-03; norm: 1.019e+00; mom: 4.976e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 220; obj: 1.278e+00; abs: 1.250e-02; rel: 9.684e-03; norm: 1.021e+00; mom: 5.088e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 221; obj: 1.264e+00; abs: 1.415e-02; rel: 1.107e-02; norm: 1.013e+00; mom: 5.107e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 222; obj: 1.241e+00; abs: 2.348e-02; rel: 1.858e-02; norm: 9.846e-01; mom: 5.065e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 223; obj: 1.261e+00; abs: 2.053e-02; rel: 1.655e-02; norm: 9.810e-01; mom: 4.998e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 224; obj: 1.223e+00; abs: 3.807e-02; rel: 3.019e-02; norm: 9.579e-01; mom: 4.994e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 225; obj: 1.221e+00; abs: 2.094e-03; rel: 1.712e-03; norm: 9.546e-01; mom: 4.974e+00;
#> best it: 111; best obj: 1.061e+00

```

## Iteration 225



```

#> It: 226; obj: 1.216e+00; abs: 4.617e-03; rel: 3.782e-03; norm: 9.027e-01; mom: 4.937e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 227; obj: 1.246e+00; abs: 2.961e-02; rel: 2.435e-02; norm: 8.971e-01; mom: 4.766e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 228; obj: 1.215e+00; abs: 3.095e-02; rel: 2.484e-02; norm: 8.939e-01; mom: 4.736e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 229; obj: 1.245e+00; abs: 3.034e-02; rel: 2.497e-02; norm: 9.232e-01; mom: 4.809e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 230; obj: 1.218e+00; abs: 2.769e-02; rel: 2.224e-02; norm: 9.187e-01; mom: 4.790e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 231; obj: 1.226e+00; abs: 8.404e-03; rel: 6.901e-03; norm: 9.119e-01; mom: 4.797e+00;
#> best it: 111; best obj: 1.061e+00

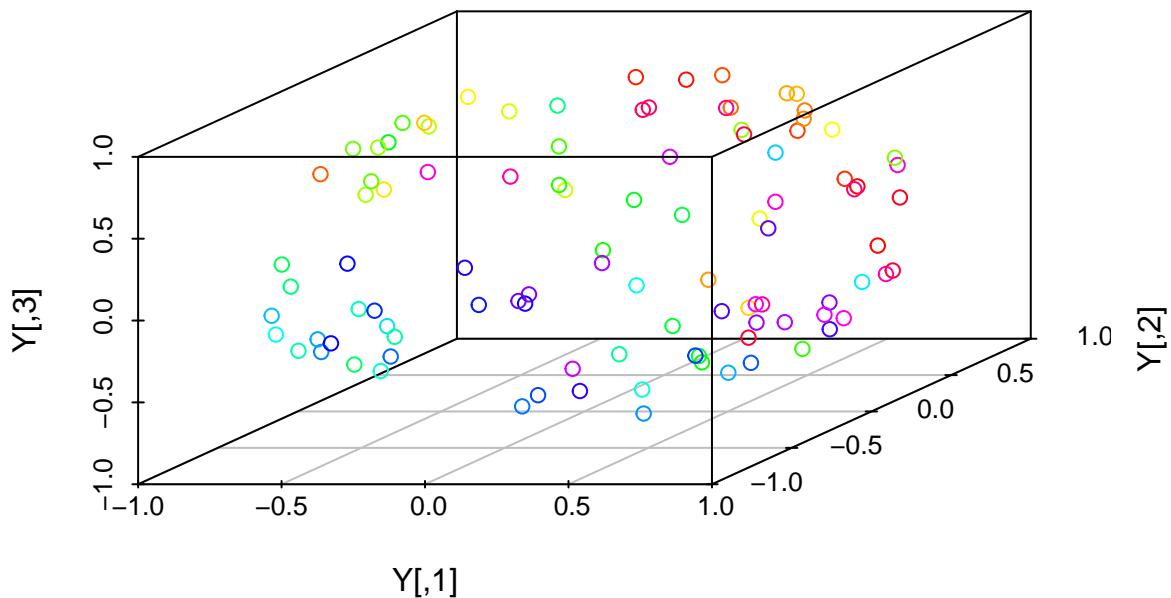
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#> It: 232; obj: 1.226e+00; abs: 1.647e-05; rel: 1.344e-05; norm: 8.982e-01; mom: 4.775e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 233; obj: 1.211e+00; abs: 1.499e-02; rel: 1.222e-02; norm: 8.877e-01; mom: 4.808e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 234; obj: 1.201e+00; abs: 1.012e-02; rel: 8.356e-03; norm: 8.552e-01; mom: 4.802e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 235; obj: 1.199e+00; abs: 2.362e-03; rel: 1.967e-03; norm: 8.578e-01; mom: 4.706e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 236; obj: 1.196e+00; abs: 2.293e-03; rel: 1.913e-03; norm: 8.274e-01; mom: 4.618e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 237; obj: 1.194e+00; abs: 2.102e-03; rel: 1.757e-03; norm: 8.279e-01; mom: 4.613e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 238; obj: 1.169e+00; abs: 2.560e-02; rel: 2.144e-02; norm: 8.057e-01; mom: 4.712e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 239; obj: 1.167e+00; abs: 1.754e-03; rel: 1.501e-03; norm: 7.940e-01; mom: 4.552e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 240; obj: 1.128e+00; abs: 3.897e-02; rel: 3.340e-02; norm: 7.536e-01; mom: 4.467e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 241; obj: 1.129e+00; abs: 1.094e-03; rel: 9.700e-04; norm: 7.312e-01; mom: 4.454e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 242; obj: 1.165e+00; abs: 3.557e-02; rel: 3.151e-02; norm: 6.845e-01; mom: 4.365e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 243; obj: 1.169e+00; abs: 4.591e-03; rel: 3.942e-03; norm: 6.555e-01; mom: 4.399e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 244; obj: 1.166e+00; abs: 3.567e-03; rel: 3.051e-03; norm: 6.851e-01; mom: 4.288e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 245; obj: 1.165e+00; abs: 1.758e-04; rel: 1.508e-04; norm: 7.107e-01; mom: 4.306e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 246; obj: 1.246e+00; abs: 8.064e-02; rel: 6.920e-02; norm: 6.730e-01; mom: 4.299e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 247; obj: 1.248e+00; abs: 2.089e-03; rel: 1.677e-03; norm: 6.971e-01; mom: 4.420e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 248; obj: 1.190e+00; abs: 5.833e-02; rel: 4.673e-02; norm: 7.023e-01; mom: 7.277e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 249; obj: 1.135e+00; abs: 5.485e-02; rel: 4.610e-02; norm: 6.307e-01; mom: 6.944e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 250; obj: 1.256e+00; abs: 1.213e-01; rel: 1.068e-01; norm: 4.892e-01; mom: 6.845e+00;
#> best it: 111; best obj: 1.061e+00

```

## Iteration 250



```

#> It: 251; obj: 1.476e+00; abs: 2.200e-01; rel: 1.752e-01; norm: 3.155e-01; mom: 5.781e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 252; obj: 1.654e+00; abs: 1.774e-01; rel: 1.202e-01; norm: 3.376e-01; mom: 4.807e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 253; obj: 1.789e+00; abs: 1.358e-01; rel: 8.212e-02; norm: 3.991e-01; mom: 6.405e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 254; obj: 1.784e+00; abs: 4.971e-03; rel: 2.778e-03; norm: 4.813e-01; mom: 6.451e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 255; obj: 1.767e+00; abs: 1.781e-02; rel: 9.982e-03; norm: 5.075e-01; mom: 7.220e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 256; obj: 1.838e+00; abs: 7.127e-02; rel: 4.034e-02; norm: 4.245e-01; mom: 6.598e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 257; obj: 1.899e+00; abs: 6.144e-02; rel: 3.343e-02; norm: 5.170e-01; mom: 6.757e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 258; obj: 1.900e+00; abs: 2.860e-04; rel: 1.506e-04; norm: 5.822e-01; mom: 7.396e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 259; obj: 1.809e+00; abs: 9.011e-02; rel: 4.743e-02; norm: 4.476e-01; mom: 7.705e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 260; obj: 1.924e+00; abs: 1.142e-01; rel: 6.309e-02; norm: 4.052e-01; mom: 6.442e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 261; obj: 1.901e+00; abs: 2.310e-02; rel: 1.201e-02; norm: 4.516e-01; mom: 7.167e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 262; obj: 1.907e+00; abs: 6.427e-03; rel: 3.382e-03; norm: 4.248e-01; mom: 7.568e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 263; obj: 1.928e+00; abs: 2.114e-02; rel: 1.108e-02; norm: 4.998e-01; mom: 6.352e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 264; obj: 1.950e+00; abs: 2.231e-02; rel: 1.157e-02; norm: 5.132e-01; mom: 7.936e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 265; obj: 1.898e+00; abs: 5.241e-02; rel: 2.687e-02; norm: 5.130e-01; mom: 7.028e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 266; obj: 1.934e+00; abs: 3.637e-02; rel: 1.916e-02; norm: 4.800e-01; mom: 8.110e+00;

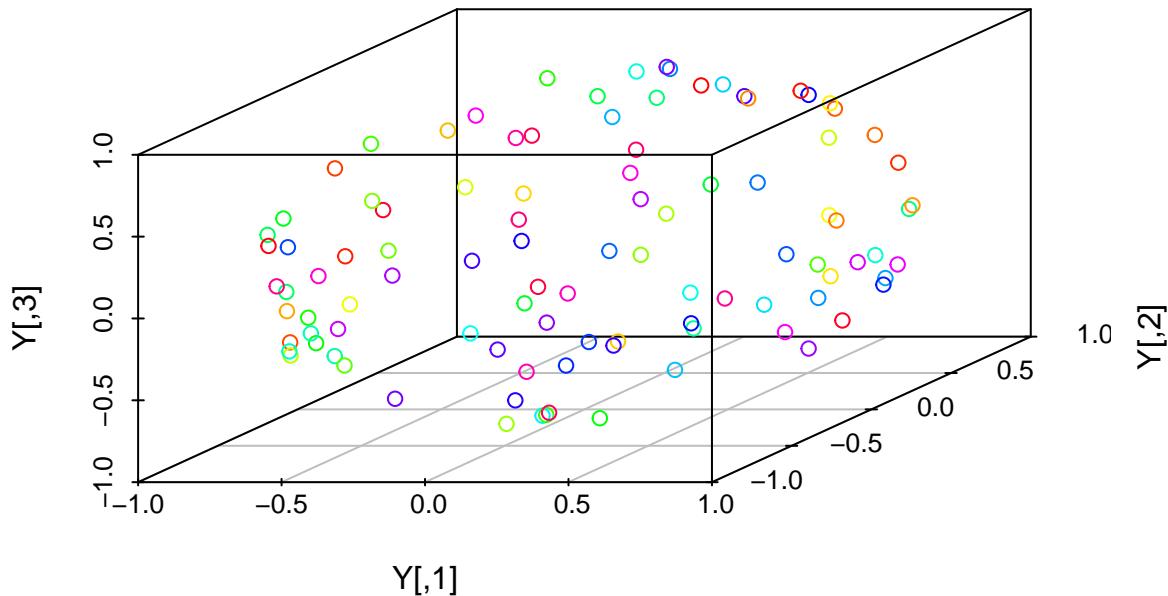
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#> best it: 111; best obj: 1.061e+00
#> It: 267; obj: 1.909e+00; abs: 2.580e-02; rel: 1.334e-02; norm: 5.087e-01; mom: 7.261e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 268; obj: 1.919e+00; abs: 1.052e-02; rel: 5.510e-03; norm: 4.329e-01; mom: 7.989e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 269; obj: 2.029e+00; abs: 1.099e-01; rel: 5.724e-02; norm: 4.801e-01; mom: 6.637e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 270; obj: 1.963e+00; abs: 6.548e-02; rel: 3.227e-02; norm: 5.875e-01; mom: 7.616e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 271; obj: 1.866e+00; abs: 9.793e-02; rel: 4.987e-02; norm: 5.084e-01; mom: 7.788e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 272; obj: 1.923e+00; abs: 5.763e-02; rel: 3.089e-02; norm: 4.114e-01; mom: 6.938e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 273; obj: 1.926e+00; abs: 3.296e-03; rel: 1.714e-03; norm: 4.752e-01; mom: 6.705e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 274; obj: 1.964e+00; abs: 3.736e-02; rel: 1.939e-02; norm: 3.724e-01; mom: 7.899e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 275; obj: 1.945e+00; abs: 1.896e-02; rel: 9.657e-03; norm: 4.374e-01; mom: 6.661e+00;
#> best it: 111; best obj: 1.061e+00

```

## Iteration 275



```

#> It: 276; obj: 1.942e+00; abs: 2.964e-03; rel: 1.524e-03; norm: 4.017e-01; mom: 7.938e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 277; obj: 1.992e+00; abs: 5.013e-02; rel: 2.582e-02; norm: 3.947e-01; mom: 6.722e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 278; obj: 1.965e+00; abs: 2.746e-02; rel: 1.378e-02; norm: 4.064e-01; mom: 7.152e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 279; obj: 2.033e+00; abs: 6.806e-02; rel: 3.464e-02; norm: 4.161e-01; mom: 6.937e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 280; obj: 1.990e+00; abs: 4.255e-02; rel: 2.093e-02; norm: 4.688e-01; mom: 7.212e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 281; obj: 1.999e+00; abs: 8.715e-03; rel: 4.379e-03; norm: 4.709e-01; mom: 7.484e+00;
#> best it: 111; best obj: 1.061e+00

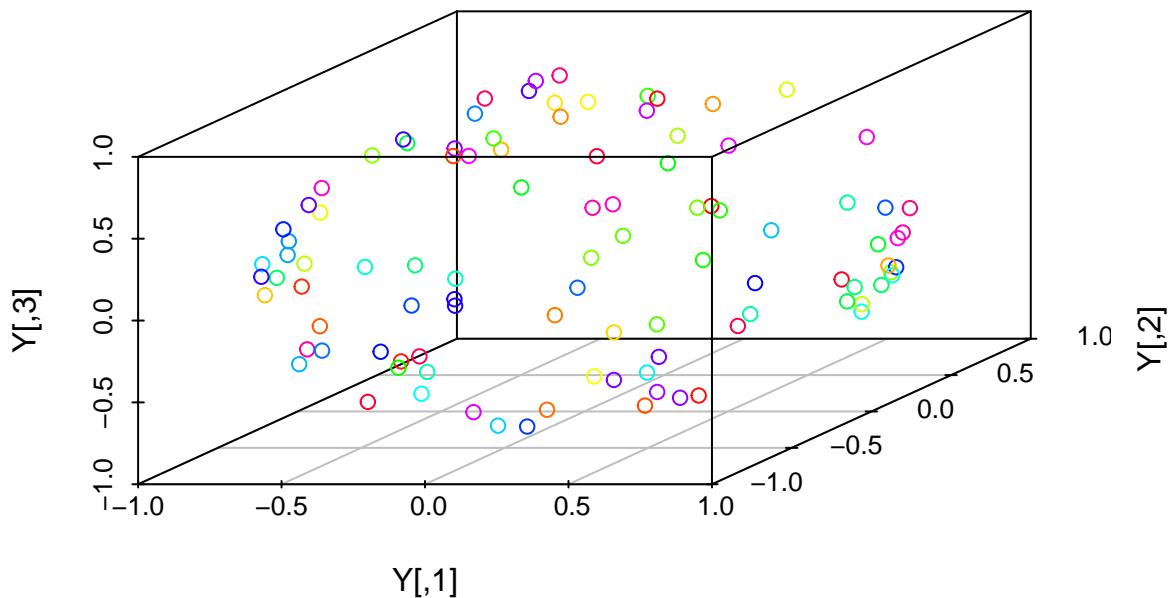
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#> It: 282; obj: 2.018e+00; abs: 1.963e-02; rel: 9.823e-03; norm: 4.533e-01; mom: 7.978e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 283; obj: 1.990e+00; abs: 2.829e-02; rel: 1.402e-02; norm: 4.981e-01; mom: 7.889e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 284; obj: 1.982e+00; abs: 7.983e-03; rel: 4.011e-03; norm: 3.928e-01; mom: 8.765e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 285; obj: 1.992e+00; abs: 9.896e-03; rel: 4.993e-03; norm: 4.443e-01; mom: 7.499e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 286; obj: 1.875e+00; abs: 1.170e-01; rel: 5.876e-02; norm: 4.705e-01; mom: 8.688e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 287; obj: 2.027e+00; abs: 1.515e-01; rel: 8.082e-02; norm: 3.738e-01; mom: 6.825e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 288; obj: 1.936e+00; abs: 9.039e-02; rel: 4.460e-02; norm: 4.850e-01; mom: 7.335e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 289; obj: 1.953e+00; abs: 1.723e-02; rel: 8.901e-03; norm: 4.509e-01; mom: 7.701e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 290; obj: 1.994e+00; abs: 4.090e-02; rel: 2.094e-02; norm: 4.511e-01; mom: 6.866e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 291; obj: 1.971e+00; abs: 2.330e-02; rel: 1.168e-02; norm: 4.816e-01; mom: 7.314e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 292; obj: 2.041e+00; abs: 7.004e-02; rel: 3.553e-02; norm: 4.675e-01; mom: 7.649e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 293; obj: 1.978e+00; abs: 6.280e-02; rel: 3.077e-02; norm: 6.202e-01; mom: 7.455e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 294; obj: 1.817e+00; abs: 1.609e-01; rel: 8.134e-02; norm: 5.048e-01; mom: 9.536e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 295; obj: 2.017e+00; abs: 1.997e-01; rel: 1.099e-01; norm: 4.269e-01; mom: 6.944e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 296; obj: 1.887e+00; abs: 1.299e-01; rel: 6.442e-02; norm: 4.963e-01; mom: 7.788e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 297; obj: 1.999e+00; abs: 1.119e-01; rel: 5.929e-02; norm: 4.138e-01; mom: 8.298e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 298; obj: 1.978e+00; abs: 2.136e-02; rel: 1.069e-02; norm: 5.200e-01; mom: 7.170e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 299; obj: 1.960e+00; abs: 1.750e-02; rel: 8.850e-03; norm: 4.432e-01; mom: 8.385e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 300; obj: 1.994e+00; abs: 3.360e-02; rel: 1.714e-02; norm: 4.765e-01; mom: 7.681e+00;
#> best it: 111; best obj: 1.061e+00

```

## Iteration 300



```

#> It: 301; obj: 1.940e+00; abs: 5.366e-02; rel: 2.691e-02; norm: 5.161e-01; mom: 8.379e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 302; obj: 2.039e+00; abs: 9.917e-02; rel: 5.111e-02; norm: 5.419e-01; mom: 8.078e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 303; obj: 1.917e+00; abs: 1.218e-01; rel: 5.973e-02; norm: 4.911e-01; mom: 8.784e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 304; obj: 2.014e+00; abs: 9.655e-02; rel: 5.035e-02; norm: 5.032e-01; mom: 8.019e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 305; obj: 1.945e+00; abs: 6.909e-02; rel: 3.431e-02; norm: 5.003e-01; mom: 7.295e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 306; obj: 1.949e+00; abs: 4.473e-03; rel: 2.300e-03; norm: 4.720e-01; mom: 8.376e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 307; obj: 1.936e+00; abs: 1.369e-02; rel: 7.024e-03; norm: 4.332e-01; mom: 5.968e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 308; obj: 1.944e+00; abs: 7.831e-03; rel: 4.046e-03; norm: 4.192e-01; mom: 7.370e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 309; obj: 2.002e+00; abs: 5.856e-02; rel: 3.013e-02; norm: 4.371e-01; mom: 6.279e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 310; obj: 2.006e+00; abs: 4.062e-03; rel: 2.029e-03; norm: 5.070e-01; mom: 7.537e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 311; obj: 1.953e+00; abs: 5.292e-02; rel: 2.638e-02; norm: 4.630e-01; mom: 7.474e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 312; obj: 1.956e+00; abs: 2.833e-03; rel: 1.450e-03; norm: 4.100e-01; mom: 7.064e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 313; obj: 1.963e+00; abs: 6.509e-03; rel: 3.328e-03; norm: 4.629e-01; mom: 7.040e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 314; obj: 1.927e+00; abs: 3.596e-02; rel: 1.832e-02; norm: 4.550e-01; mom: 7.346e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 315; obj: 2.026e+00; abs: 9.976e-02; rel: 5.178e-02; norm: 4.108e-01; mom: 7.098e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 316; obj: 1.902e+00; abs: 1.240e-01; rel: 6.117e-02; norm: 5.144e-01; mom: 7.426e+00;

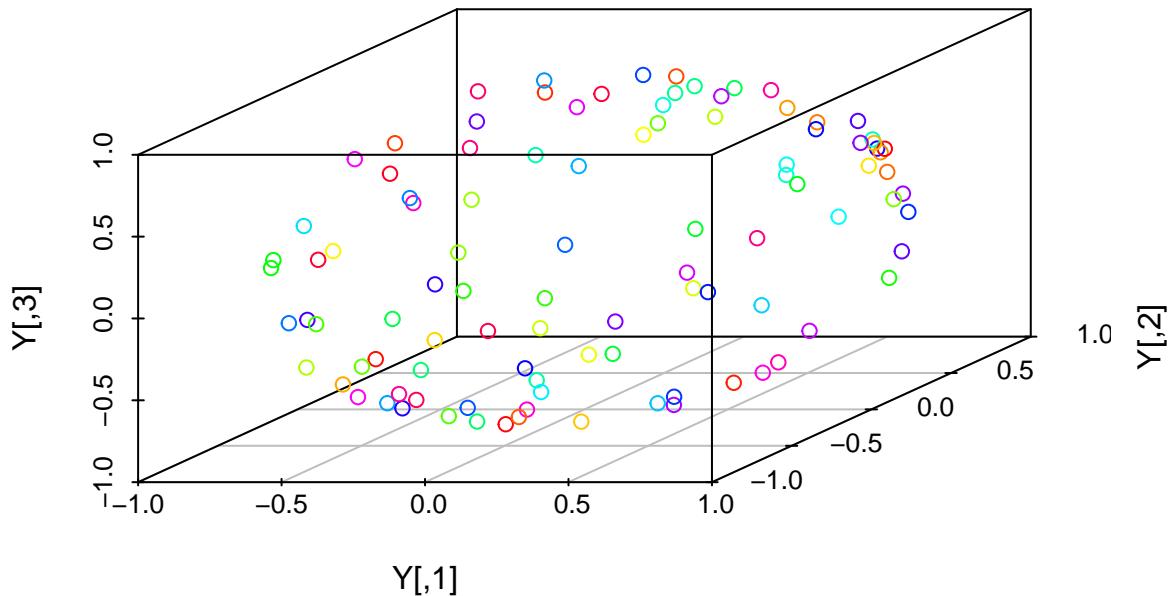
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#> best it: 111; best obj: 1.061e+00
#> It: 317; obj: 2.013e+00; abs: 1.106e-01; rel: 5.815e-02; norm: 4.576e-01; mom: 7.790e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 318; obj: 1.959e+00; abs: 5.439e-02; rel: 2.702e-02; norm: 5.798e-01; mom: 7.178e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 319; obj: 1.962e+00; abs: 3.171e-03; rel: 1.619e-03; norm: 4.487e-01; mom: 8.173e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 320; obj: 2.001e+00; abs: 3.952e-02; rel: 2.015e-02; norm: 4.527e-01; mom: 6.847e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 321; obj: 1.945e+00; abs: 5.623e-02; rel: 2.809e-02; norm: 4.338e-01; mom: 7.045e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 322; obj: 1.987e+00; abs: 4.235e-02; rel: 2.177e-02; norm: 4.316e-01; mom: 6.927e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 323; obj: 1.980e+00; abs: 7.797e-03; rel: 3.923e-03; norm: 4.699e-01; mom: 7.324e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 324; obj: 1.933e+00; abs: 4.686e-02; rel: 2.367e-02; norm: 4.884e-01; mom: 7.642e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 325; obj: 1.997e+00; abs: 6.428e-02; rel: 3.326e-02; norm: 4.224e-01; mom: 7.475e+00;
#> best it: 111; best obj: 1.061e+00

```

## Iteration 325



```

#> It: 326; obj: 1.918e+00; abs: 7.882e-02; rel: 3.947e-02; norm: 4.979e-01; mom: 7.081e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 327; obj: 1.939e+00; abs: 2.107e-02; rel: 1.098e-02; norm: 5.313e-01; mom: 8.685e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 328; obj: 1.984e+00; abs: 4.506e-02; rel: 2.323e-02; norm: 4.704e-01; mom: 7.952e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 329; obj: 2.005e+00; abs: 2.070e-02; rel: 1.043e-02; norm: 4.888e-01; mom: 8.643e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 330; obj: 1.963e+00; abs: 4.258e-02; rel: 2.123e-02; norm: 4.765e-01; mom: 8.172e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 331; obj: 2.012e+00; abs: 4.971e-02; rel: 2.533e-02; norm: 4.817e-01; mom: 8.632e+00;
#> best it: 111; best obj: 1.061e+00

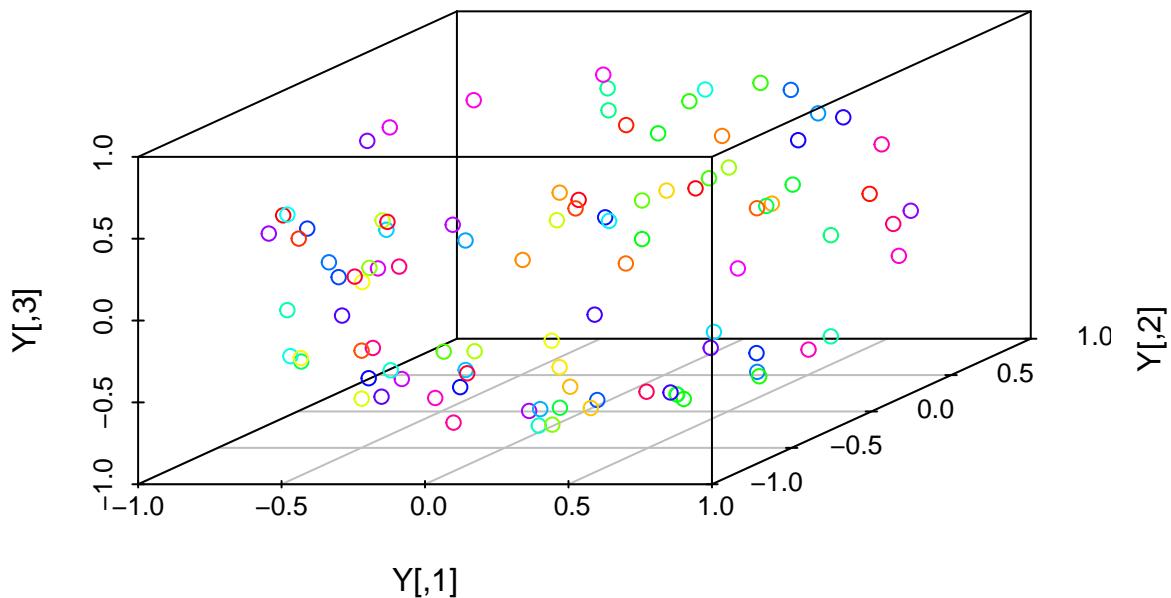
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#> It: 332; obj: 1.975e+00; abs: 3.706e-02; rel: 1.842e-02; norm: 5.280e-01; mom: 7.750e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 333; obj: 1.938e+00; abs: 3.672e-02; rel: 1.859e-02; norm: 4.650e-01; mom: 7.216e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 334; obj: 1.956e+00; abs: 1.717e-02; rel: 8.858e-03; norm: 4.326e-01; mom: 7.270e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 335; obj: 1.995e+00; abs: 3.949e-02; rel: 2.020e-02; norm: 4.755e-01; mom: 7.243e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 336; obj: 1.951e+00; abs: 4.457e-02; rel: 2.234e-02; norm: 4.402e-01; mom: 7.544e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 337; obj: 1.995e+00; abs: 4.451e-02; rel: 2.282e-02; norm: 3.958e-01; mom: 7.300e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 338; obj: 1.922e+00; abs: 7.324e-02; rel: 3.671e-02; norm: 4.469e-01; mom: 6.592e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 339; obj: 1.972e+00; abs: 5.052e-02; rel: 2.629e-02; norm: 4.294e-01; mom: 7.701e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 340; obj: 2.032e+00; abs: 5.956e-02; rel: 3.020e-02; norm: 4.628e-01; mom: 6.127e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 341; obj: 1.973e+00; abs: 5.914e-02; rel: 2.910e-02; norm: 4.797e-01; mom: 8.028e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 342; obj: 2.025e+00; abs: 5.207e-02; rel: 2.639e-02; norm: 4.603e-01; mom: 6.908e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 343; obj: 2.019e+00; abs: 5.591e-03; rel: 2.761e-03; norm: 5.591e-01; mom: 7.838e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 344; obj: 2.001e+00; abs: 1.783e-02; rel: 8.831e-03; norm: 4.988e-01; mom: 8.105e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 345; obj: 1.994e+00; abs: 6.945e-03; rel: 3.470e-03; norm: 4.967e-01; mom: 7.136e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 346; obj: 1.989e+00; abs: 5.353e-03; rel: 2.684e-03; norm: 4.804e-01; mom: 7.800e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 347; obj: 2.008e+00; abs: 1.896e-02; rel: 9.531e-03; norm: 4.697e-01; mom: 7.107e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 348; obj: 1.952e+00; abs: 5.562e-02; rel: 2.770e-02; norm: 4.465e-01; mom: 7.708e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 349; obj: 2.014e+00; abs: 6.169e-02; rel: 3.159e-02; norm: 4.595e-01; mom: 6.847e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 350; obj: 1.974e+00; abs: 4.011e-02; rel: 1.991e-02; norm: 4.586e-01; mom: 7.778e+00;
#> best it: 111; best obj: 1.061e+00

```

## Iteration 350



```

#> It: 351; obj: 2.025e+00; abs: 5.129e-02; rel: 2.598e-02; norm: 5.208e-01; mom: 7.365e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 352; obj: 1.957e+00; abs: 6.795e-02; rel: 3.355e-02; norm: 4.532e-01; mom: 8.244e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 353; obj: 1.949e+00; abs: 8.340e-03; rel: 4.261e-03; norm: 4.566e-01; mom: 8.391e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 354; obj: 1.967e+00; abs: 1.760e-02; rel: 9.028e-03; norm: 4.361e-01; mom: 7.882e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 355; obj: 1.919e+00; abs: 4.794e-02; rel: 2.438e-02; norm: 5.407e-01; mom: 6.654e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 356; obj: 1.914e+00; abs: 5.069e-03; rel: 2.642e-03; norm: 4.428e-01; mom: 7.741e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 357; obj: 1.931e+00; abs: 1.716e-02; rel: 8.965e-03; norm: 4.456e-01; mom: 6.874e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 358; obj: 1.917e+00; abs: 1.390e-02; rel: 7.199e-03; norm: 4.875e-01; mom: 7.330e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 359; obj: 1.934e+00; abs: 1.724e-02; rel: 8.992e-03; norm: 4.844e-01; mom: 7.715e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 360; obj: 1.902e+00; abs: 3.192e-02; rel: 1.650e-02; norm: 4.520e-01; mom: 6.810e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 361; obj: 1.976e+00; abs: 7.377e-02; rel: 3.878e-02; norm: 4.393e-01; mom: 6.979e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 362; obj: 1.956e+00; abs: 2.014e-02; rel: 1.019e-02; norm: 4.788e-01; mom: 7.001e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 363; obj: 1.890e+00; abs: 6.597e-02; rel: 3.373e-02; norm: 4.396e-01; mom: 7.825e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 364; obj: 1.943e+00; abs: 5.312e-02; rel: 2.811e-02; norm: 4.069e-01; mom: 7.077e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 365; obj: 1.963e+00; abs: 2.028e-02; rel: 1.044e-02; norm: 4.166e-01; mom: 7.557e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 366; obj: 1.896e+00; abs: 6.771e-02; rel: 3.449e-02; norm: 4.999e-01; mom: 7.020e+00;

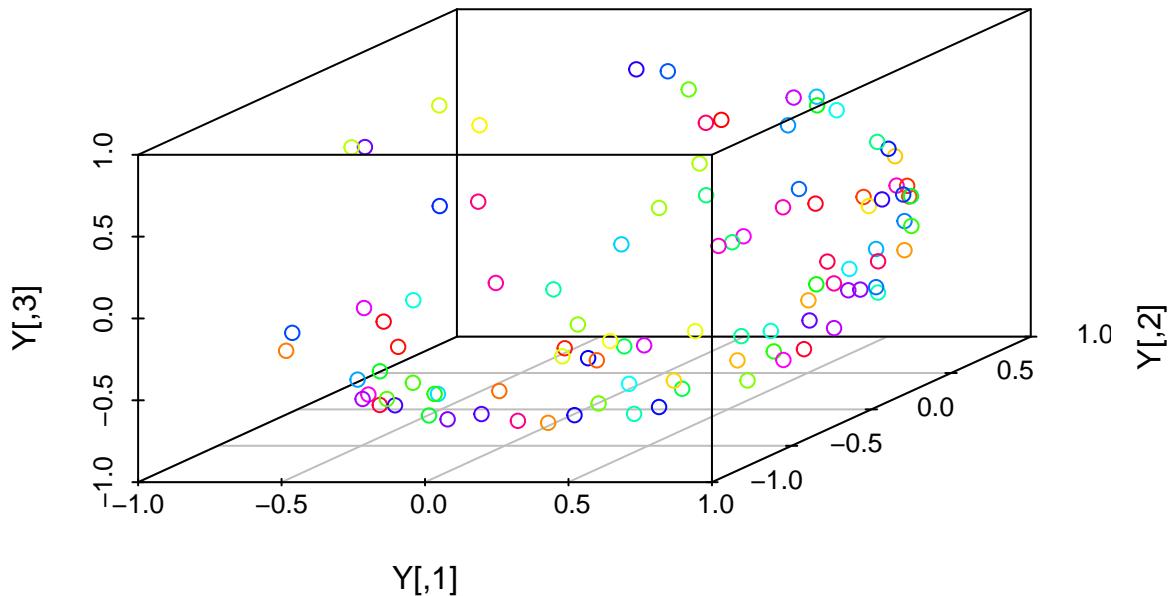
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#> best it: 111; best obj: 1.061e+00
#> It: 367; obj: 1.960e+00; abs: 6.482e-02; rel: 3.419e-02; norm: 3.800e-01; mom: 7.379e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 368; obj: 1.933e+00; abs: 2.762e-02; rel: 1.409e-02; norm: 4.637e-01; mom: 6.896e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 369; obj: 1.912e+00; abs: 2.055e-02; rel: 1.063e-02; norm: 4.187e-01; mom: 7.940e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 370; obj: 1.958e+00; abs: 4.597e-02; rel: 2.404e-02; norm: 4.320e-01; mom: 6.827e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 371; obj: 1.920e+00; abs: 3.816e-02; rel: 1.949e-02; norm: 4.602e-01; mom: 7.028e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 372; obj: 2.033e+00; abs: 1.130e-01; rel: 5.886e-02; norm: 4.687e-01; mom: 7.304e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 373; obj: 1.929e+00; abs: 1.035e-01; rel: 5.093e-02; norm: 5.262e-01; mom: 7.485e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 374; obj: 1.983e+00; abs: 5.365e-02; rel: 2.780e-02; norm: 5.010e-01; mom: 7.825e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 375; obj: 1.952e+00; abs: 3.142e-02; rel: 1.584e-02; norm: 4.611e-01; mom: 8.066e+00;
#> best it: 111; best obj: 1.061e+00

```

### Iteration 375



```

#> It: 376; obj: 1.937e+00; abs: 1.516e-02; rel: 7.767e-03; norm: 4.552e-01; mom: 6.904e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 377; obj: 1.939e+00; abs: 2.477e-03; rel: 1.279e-03; norm: 4.143e-01; mom: 7.690e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 378; obj: 1.933e+00; abs: 5.593e-03; rel: 2.885e-03; norm: 4.229e-01; mom: 7.018e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 379; obj: 1.923e+00; abs: 1.049e-02; rel: 5.426e-03; norm: 4.530e-01; mom: 7.422e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 380; obj: 2.011e+00; abs: 8.790e-02; rel: 4.571e-02; norm: 4.694e-01; mom: 7.489e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 381; obj: 1.941e+00; abs: 7.016e-02; rel: 3.489e-02; norm: 5.294e-01; mom: 7.501e+00;
#> best it: 111; best obj: 1.061e+00

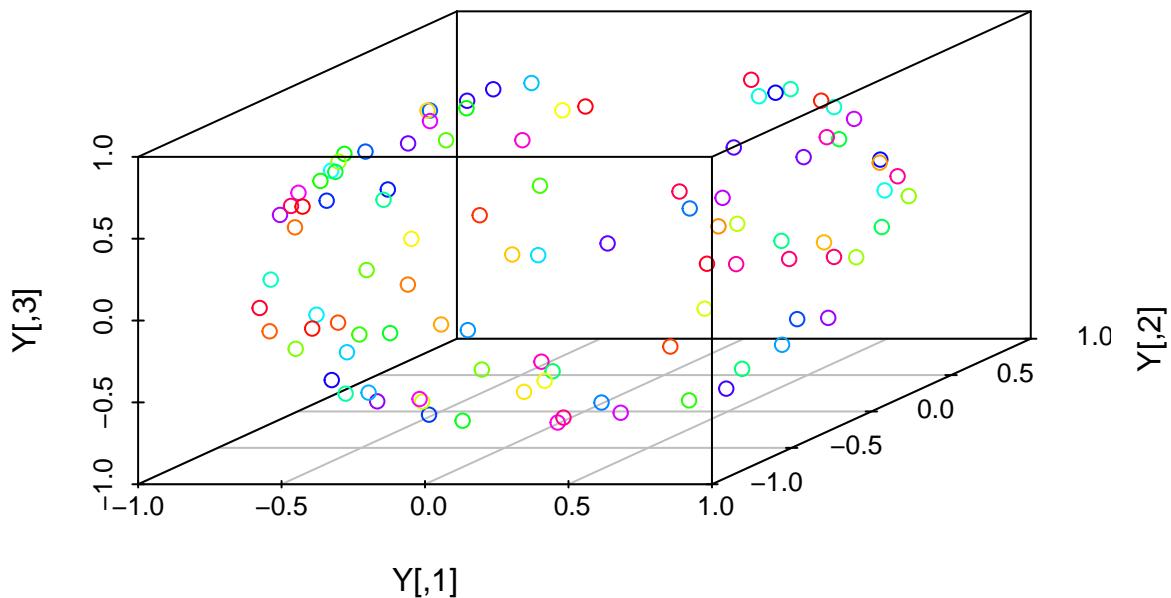
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#> It: 382; obj: 1.997e+00; abs: 5.616e-02; rel: 2.894e-02; norm: 4.641e-01; mom: 7.917e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 383; obj: 1.991e+00; abs: 5.952e-03; rel: 2.981e-03; norm: 4.974e-01; mom: 7.500e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 384; obj: 2.021e+00; abs: 2.966e-02; rel: 1.490e-02; norm: 5.316e-01; mom: 8.259e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 385; obj: 1.924e+00; abs: 9.654e-02; rel: 4.778e-02; norm: 4.941e-01; mom: 7.893e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 386; obj: 1.957e+00; abs: 3.291e-02; rel: 1.711e-02; norm: 5.189e-01; mom: 7.887e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 387; obj: 1.962e+00; abs: 5.456e-03; rel: 2.788e-03; norm: 4.474e-01; mom: 7.621e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 388; obj: 2.017e+00; abs: 5.438e-02; rel: 2.771e-02; norm: 5.183e-01; mom: 7.854e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 389; obj: 1.967e+00; abs: 5.024e-02; rel: 2.491e-02; norm: 5.693e-01; mom: 7.728e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 390; obj: 1.913e+00; abs: 5.399e-02; rel: 2.745e-02; norm: 4.898e-01; mom: 7.063e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 391; obj: 1.998e+00; abs: 8.588e-02; rel: 4.490e-02; norm: 3.874e-01; mom: 7.192e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 392; obj: 1.951e+00; abs: 4.781e-02; rel: 2.392e-02; norm: 4.679e-01; mom: 6.788e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 393; obj: 1.970e+00; abs: 1.902e-02; rel: 9.752e-03; norm: 4.059e-01; mom: 7.646e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 394; obj: 1.976e+00; abs: 6.508e-03; rel: 3.304e-03; norm: 4.940e-01; mom: 6.602e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 395; obj: 2.017e+00; abs: 4.063e-02; rel: 2.056e-02; norm: 4.476e-01; mom: 7.957e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 396; obj: 1.979e+00; abs: 3.764e-02; rel: 1.866e-02; norm: 4.497e-01; mom: 6.675e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 397; obj: 1.969e+00; abs: 1.048e-02; rel: 5.298e-03; norm: 4.414e-01; mom: 7.550e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 398; obj: 1.991e+00; abs: 2.261e-02; rel: 1.148e-02; norm: 5.065e-01; mom: 7.280e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 399; obj: 1.960e+00; abs: 3.173e-02; rel: 1.593e-02; norm: 4.390e-01; mom: 8.606e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 400; obj: 1.964e+00; abs: 4.951e-03; rel: 2.527e-03; norm: 5.398e-01; mom: 7.058e+00;
#> best it: 111; best obj: 1.061e+00

```

## Iteration 400



```

#> It: 401; obj: 1.946e+00; abs: 1.872e-02; rel: 9.528e-03; norm: 5.081e-01; mom: 8.387e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 402; obj: 1.865e+00; abs: 8.074e-02; rel: 4.150e-02; norm: 4.931e-01; mom: 6.498e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 403; obj: 1.912e+00; abs: 4.682e-02; rel: 2.510e-02; norm: 4.078e-01; mom: 7.449e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 404; obj: 1.971e+00; abs: 5.869e-02; rel: 3.070e-02; norm: 5.559e-01; mom: 6.638e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 405; obj: 1.915e+00; abs: 5.532e-02; rel: 2.808e-02; norm: 5.355e-01; mom: 8.289e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 406; obj: 1.974e+00; abs: 5.870e-02; rel: 3.065e-02; norm: 4.981e-01; mom: 7.738e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 407; obj: 2.026e+00; abs: 5.176e-02; rel: 2.622e-02; norm: 4.532e-01; mom: 6.827e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 408; obj: 1.939e+00; abs: 8.690e-02; rel: 4.290e-02; norm: 5.526e-01; mom: 7.864e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 409; obj: 2.028e+00; abs: 8.922e-02; rel: 4.602e-02; norm: 4.395e-01; mom: 7.510e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 410; obj: 2.048e+00; abs: 1.957e-02; rel: 9.652e-03; norm: 5.639e-01; mom: 7.363e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 411; obj: 1.993e+00; abs: 5.436e-02; rel: 2.655e-02; norm: 4.769e-01; mom: 8.794e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 412; obj: 1.981e+00; abs: 1.252e-02; rel: 6.282e-03; norm: 4.753e-01; mom: 8.057e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 413; obj: 1.963e+00; abs: 1.805e-02; rel: 9.113e-03; norm: 4.774e-01; mom: 8.176e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 414; obj: 1.941e+00; abs: 2.174e-02; rel: 1.108e-02; norm: 4.573e-01; mom: 7.665e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 415; obj: 1.999e+00; abs: 5.791e-02; rel: 2.984e-02; norm: 4.280e-01; mom: 6.848e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 416; obj: 1.943e+00; abs: 5.570e-02; rel: 2.786e-02; norm: 4.697e-01; mom: 6.831e+00;

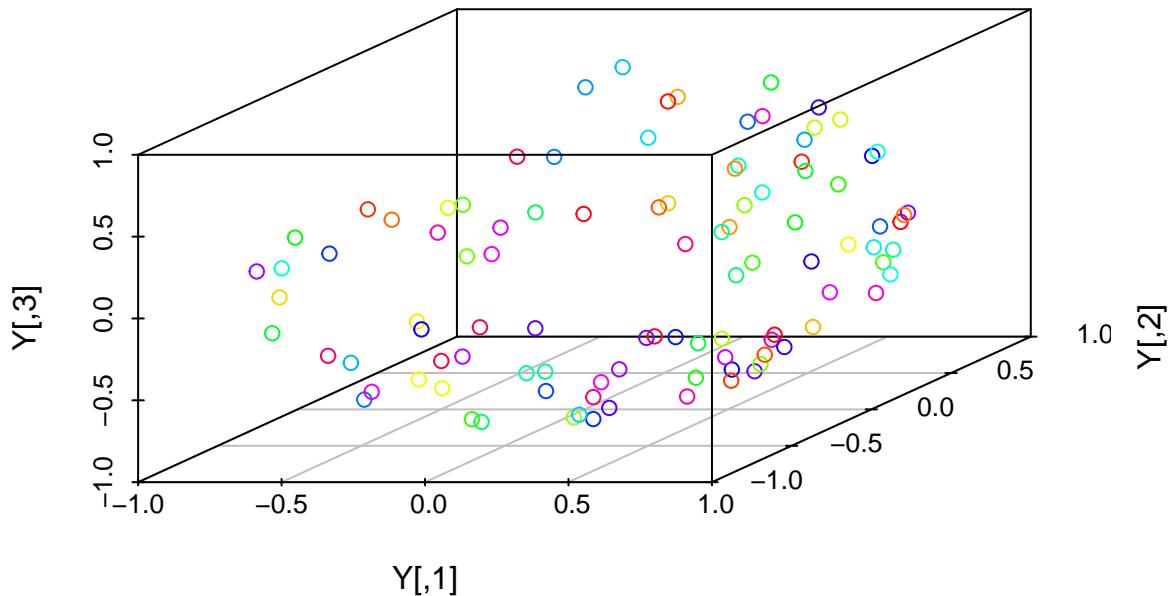
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#> best it: 111; best obj: 1.061e+00
#> It: 417; obj: 1.987e+00; abs: 4.393e-02; rel: 2.261e-02; norm: 4.160e-01; mom: 6.951e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 418; obj: 1.981e+00; abs: 5.693e-03; rel: 2.865e-03; norm: 4.444e-01; mom: 6.789e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 419; obj: 1.976e+00; abs: 4.968e-03; rel: 2.507e-03; norm: 4.414e-01; mom: 7.565e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 420; obj: 1.983e+00; abs: 6.664e-03; rel: 3.372e-03; norm: 4.423e-01; mom: 7.176e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 421; obj: 2.021e+00; abs: 3.776e-02; rel: 1.904e-02; norm: 4.672e-01; mom: 7.590e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 422; obj: 1.964e+00; abs: 5.695e-02; rel: 2.818e-02; norm: 4.799e-01; mom: 7.857e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 423; obj: 1.982e+00; abs: 1.809e-02; rel: 9.210e-03; norm: 4.410e-01; mom: 7.861e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 424; obj: 2.042e+00; abs: 6.041e-02; rel: 3.048e-02; norm: 4.903e-01; mom: 7.454e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 425; obj: 1.848e+00; abs: 1.948e-01; rel: 9.539e-02; norm: 5.406e-01; mom: 8.134e+00;
#> best it: 111; best obj: 1.061e+00

```

## Iteration 425



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#> It: 426; obj: 2.010e+00; abs: 1.621e-01; rel: 8.775e-02; norm: 4.070e-01; mom: 6.877e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 427; obj: 1.985e+00; abs: 2.471e-02; rel: 1.230e-02; norm: 4.570e-01; mom: 6.514e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 428; obj: 1.965e+00; abs: 2.034e-02; rel: 1.025e-02; norm: 4.675e-01; mom: 7.290e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 429; obj: 1.916e+00; abs: 4.842e-02; rel: 2.464e-02; norm: 4.331e-01; mom: 7.024e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 430; obj: 1.907e+00; abs: 9.142e-03; rel: 4.771e-03; norm: 3.934e-01; mom: 7.448e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 431; obj: 1.913e+00; abs: 5.942e-03; rel: 3.116e-03; norm: 4.608e-01; mom: 6.832e+00;
#> best it: 111; best obj: 1.061e+00

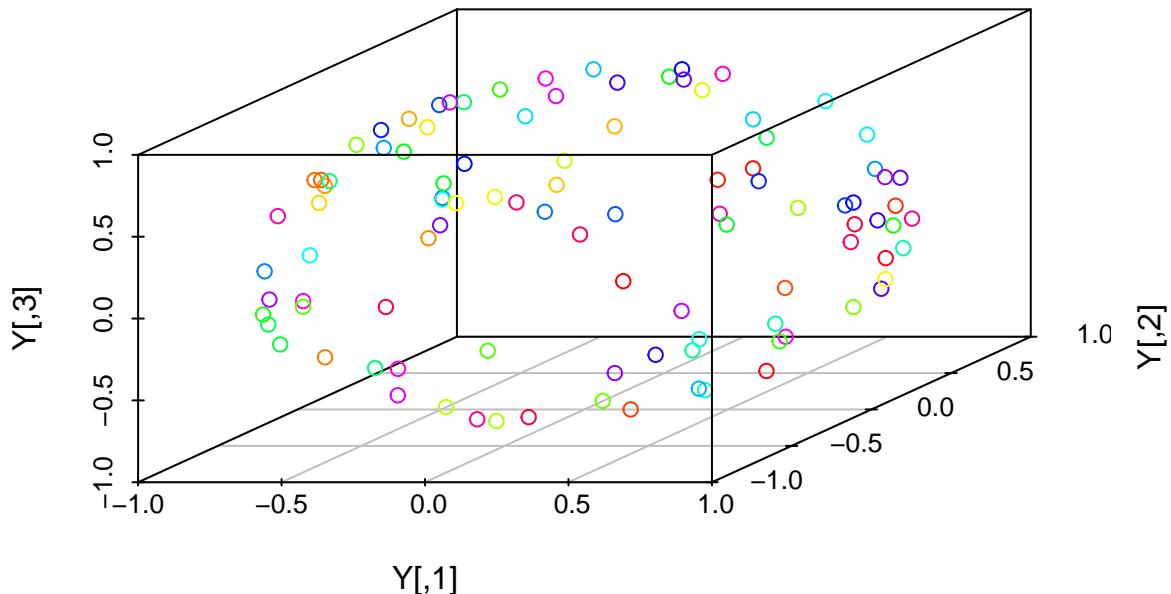
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#> It: 432; obj: 1.942e+00; abs: 2.871e-02; rel: 1.501e-02; norm: 3.976e-01; mom: 8.194e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 433; obj: 2.006e+00; abs: 6.403e-02; rel: 3.297e-02; norm: 4.976e-01; mom: 6.468e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 434; obj: 1.963e+00; abs: 4.288e-02; rel: 2.138e-02; norm: 5.019e-01; mom: 8.484e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 435; obj: 2.032e+00; abs: 6.939e-02; rel: 3.535e-02; norm: 5.309e-01; mom: 7.273e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 436; obj: 1.990e+00; abs: 4.194e-02; rel: 2.064e-02; norm: 4.909e-01; mom: 7.831e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 437; obj: 1.993e+00; abs: 2.261e-03; rel: 1.136e-03; norm: 4.604e-01; mom: 6.982e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 438; obj: 1.976e+00; abs: 1.631e-02; rel: 8.185e-03; norm: 4.198e-01; mom: 7.042e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 439; obj: 2.027e+00; abs: 5.093e-02; rel: 2.577e-02; norm: 4.141e-01; mom: 7.903e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 440; obj: 2.000e+00; abs: 2.742e-02; rel: 1.352e-02; norm: 4.643e-01; mom: 7.506e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 441; obj: 2.053e+00; abs: 5.361e-02; rel: 2.681e-02; norm: 4.672e-01; mom: 8.292e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 442; obj: 1.960e+00; abs: 9.299e-02; rel: 4.529e-02; norm: 4.297e-01; mom: 7.946e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 443; obj: 2.062e+00; abs: 1.015e-01; rel: 5.176e-02; norm: 4.516e-01; mom: 7.785e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 444; obj: 2.009e+00; abs: 5.313e-02; rel: 2.577e-02; norm: 4.239e-01; mom: 8.039e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 445; obj: 2.028e+00; abs: 1.949e-02; rel: 9.701e-03; norm: 5.077e-01; mom: 7.968e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 446; obj: 1.937e+00; abs: 9.139e-02; rel: 4.506e-02; norm: 4.616e-01; mom: 8.368e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 447; obj: 2.033e+00; abs: 9.572e-02; rel: 4.942e-02; norm: 4.862e-01; mom: 7.662e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 448; obj: 2.038e+00; abs: 5.467e-03; rel: 2.690e-03; norm: 4.893e-01; mom: 7.620e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 449; obj: 2.021e+00; abs: 1.726e-02; rel: 8.471e-03; norm: 4.560e-01; mom: 8.854e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 450; obj: 1.995e+00; abs: 2.538e-02; rel: 1.256e-02; norm: 4.584e-01; mom: 7.882e+00;
#> best it: 111; best obj: 1.061e+00

```

## Iteration 450



```

#> It: 451; obj: 2.019e+00; abs: 2.366e-02; rel: 1.186e-02; norm: 4.168e-01; mom: 8.158e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 452; obj: 2.044e+00; abs: 2.500e-02; rel: 1.238e-02; norm: 4.565e-01; mom: 7.021e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 453; obj: 1.929e+00; abs: 1.148e-01; rel: 5.618e-02; norm: 4.946e-01; mom: 8.313e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 454; obj: 1.997e+00; abs: 6.803e-02; rel: 3.527e-02; norm: 4.644e-01; mom: 6.705e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 455; obj: 1.964e+00; abs: 3.363e-02; rel: 1.684e-02; norm: 4.443e-01; mom: 7.403e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 456; obj: 1.995e+00; abs: 3.168e-02; rel: 1.613e-02; norm: 4.693e-01; mom: 6.866e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 457; obj: 2.012e+00; abs: 1.718e-02; rel: 8.608e-03; norm: 4.612e-01; mom: 7.366e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 458; obj: 1.993e+00; abs: 1.972e-02; rel: 9.800e-03; norm: 5.206e-01; mom: 7.478e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 459; obj: 2.020e+00; abs: 2.726e-02; rel: 1.368e-02; norm: 4.361e-01; mom: 7.842e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 460; obj: 1.939e+00; abs: 8.139e-02; rel: 4.029e-02; norm: 5.644e-01; mom: 7.487e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 461; obj: 1.980e+00; abs: 4.141e-02; rel: 2.136e-02; norm: 4.804e-01; mom: 8.447e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 462; obj: 2.068e+00; abs: 8.779e-02; rel: 4.434e-02; norm: 5.347e-01; mom: 6.073e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 463; obj: 2.016e+00; abs: 5.208e-02; rel: 2.519e-02; norm: 4.725e-01; mom: 8.297e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 464; obj: 2.024e+00; abs: 8.379e-03; rel: 4.157e-03; norm: 4.875e-01; mom: 7.439e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 465; obj: 2.021e+00; abs: 3.088e-03; rel: 1.526e-03; norm: 4.690e-01; mom: 7.676e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 466; obj: 1.985e+00; abs: 3.571e-02; rel: 1.767e-02; norm: 4.329e-01; mom: 7.712e+00;

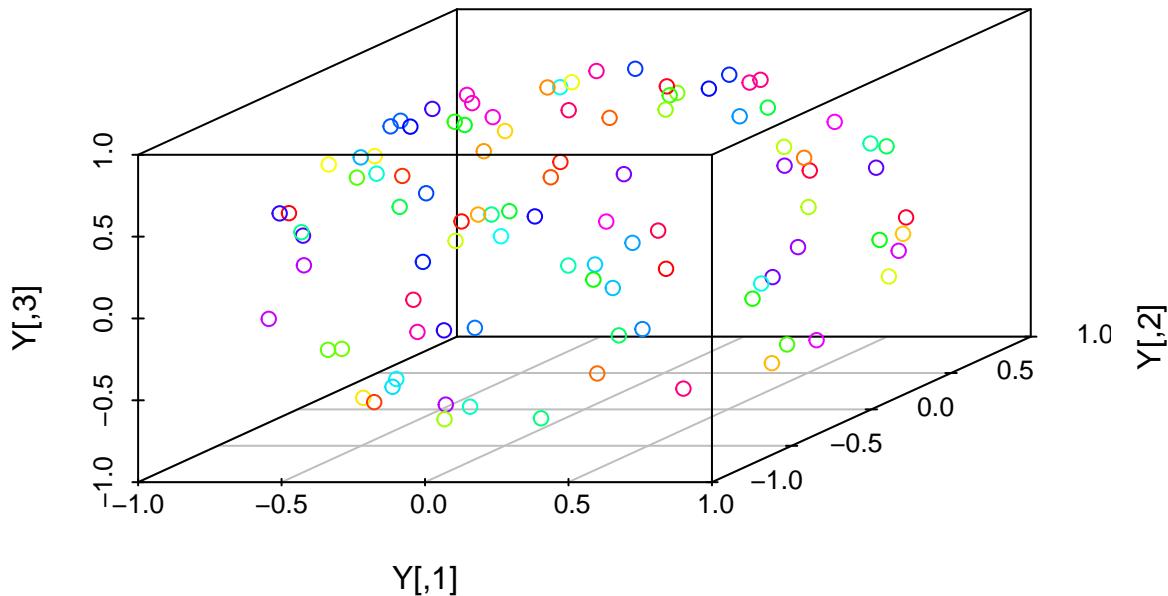
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#> best it: 111; best obj: 1.061e+00
#> It: 467; obj: 2.005e+00; abs: 1.948e-02; rel: 9.812e-03; norm: 5.190e-01; mom: 7.203e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 468; obj: 2.022e+00; abs: 1.769e-02; rel: 8.823e-03; norm: 5.078e-01; mom: 7.667e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 469; obj: 2.039e+00; abs: 1.674e-02; rel: 8.279e-03; norm: 5.336e-01; mom: 8.133e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 470; obj: 2.001e+00; abs: 3.807e-02; rel: 1.867e-02; norm: 4.761e-01; mom: 8.529e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 471; obj: 2.050e+00; abs: 4.859e-02; rel: 2.428e-02; norm: 5.178e-01; mom: 8.249e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 472; obj: 2.007e+00; abs: 4.236e-02; rel: 2.067e-02; norm: 5.132e-01; mom: 8.372e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 473; obj: 1.943e+00; abs: 6.479e-02; rel: 3.228e-02; norm: 5.166e-01; mom: 7.140e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 474; obj: 1.988e+00; abs: 4.536e-02; rel: 2.335e-02; norm: 4.287e-01; mom: 7.318e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 475; obj: 1.972e+00; abs: 1.581e-02; rel: 7.954e-03; norm: 5.260e-01; mom: 6.928e+00;
#> best it: 111; best obj: 1.061e+00

```

## Iteration 475



```

#> It: 476; obj: 1.924e+00; abs: 4.845e-02; rel: 2.457e-02; norm: 4.869e-01; mom: 7.857e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 477; obj: 1.989e+00; abs: 6.501e-02; rel: 3.380e-02; norm: 4.408e-01; mom: 6.619e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 478; obj: 1.950e+00; abs: 3.892e-02; rel: 1.957e-02; norm: 4.879e-01; mom: 7.355e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 479; obj: 2.024e+00; abs: 7.448e-02; rel: 3.820e-02; norm: 4.229e-01; mom: 7.805e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 480; obj: 1.978e+00; abs: 4.667e-02; rel: 2.306e-02; norm: 5.181e-01; mom: 7.018e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 481; obj: 2.062e+00; abs: 8.407e-02; rel: 4.251e-02; norm: 5.097e-01; mom: 8.270e+00;
#> best it: 111; best obj: 1.061e+00

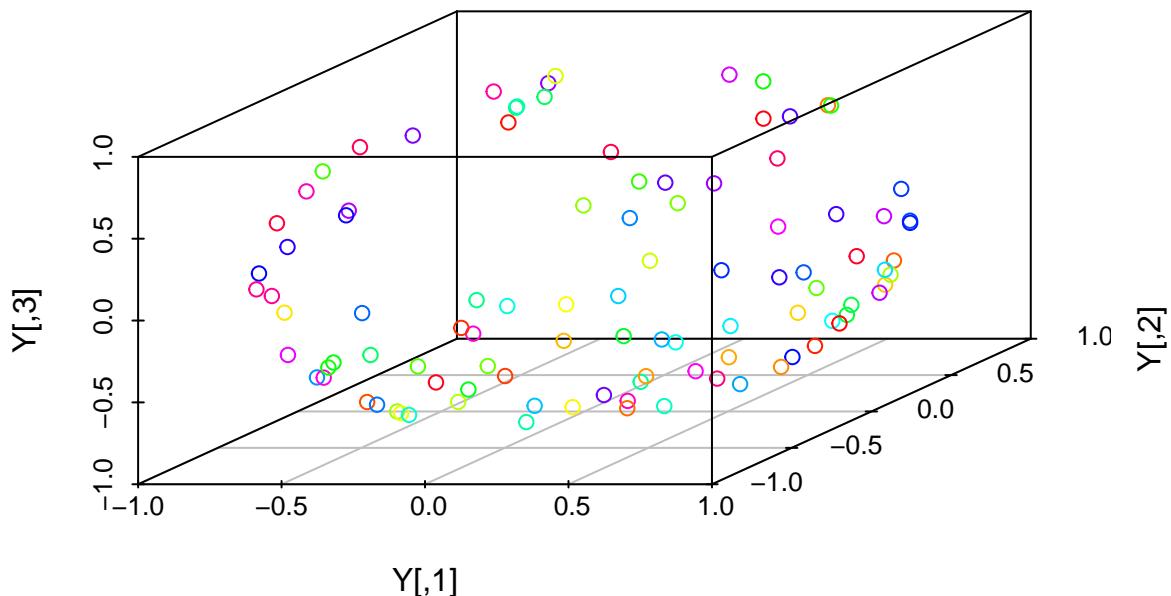
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#> It: 482; obj: 1.981e+00; abs: 8.101e-02; rel: 3.929e-02; norm: 6.167e-01; mom: 7.265e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 483; obj: 1.929e+00; abs: 5.146e-02; rel: 2.598e-02; norm: 4.368e-01; mom: 8.887e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 484; obj: 1.969e+00; abs: 4.027e-02; rel: 2.087e-02; norm: 4.951e-01; mom: 6.993e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 485; obj: 1.951e+00; abs: 1.836e-02; rel: 9.322e-03; norm: 4.267e-01; mom: 8.033e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 486; obj: 2.010e+00; abs: 5.913e-02; rel: 3.031e-02; norm: 4.297e-01; mom: 7.627e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 487; obj: 1.960e+00; abs: 5.006e-02; rel: 2.490e-02; norm: 4.869e-01; mom: 7.995e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 488; obj: 1.969e+00; abs: 9.278e-03; rel: 4.733e-03; norm: 4.272e-01; mom: 7.619e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 489; obj: 1.937e+00; abs: 3.204e-02; rel: 1.627e-02; norm: 4.379e-01; mom: 7.077e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 490; obj: 1.887e+00; abs: 5.046e-02; rel: 2.605e-02; norm: 4.056e-01; mom: 7.688e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 491; obj: 1.943e+00; abs: 5.643e-02; rel: 2.991e-02; norm: 4.065e-01; mom: 6.934e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 492; obj: 1.906e+00; abs: 3.684e-02; rel: 1.896e-02; norm: 4.087e-01; mom: 7.236e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 493; obj: 1.927e+00; abs: 2.002e-02; rel: 1.050e-02; norm: 4.256e-01; mom: 7.127e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 494; obj: 1.882e+00; abs: 4.418e-02; rel: 2.293e-02; norm: 4.307e-01; mom: 7.271e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 495; obj: 1.947e+00; abs: 6.445e-02; rel: 3.424e-02; norm: 4.345e-01; mom: 6.887e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 496; obj: 1.880e+00; abs: 6.648e-02; rel: 3.415e-02; norm: 4.295e-01; mom: 7.264e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 497; obj: 1.965e+00; abs: 8.513e-02; rel: 4.528e-02; norm: 4.249e-01; mom: 6.855e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 498; obj: 1.933e+00; abs: 3.217e-02; rel: 1.637e-02; norm: 4.611e-01; mom: 7.629e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 499; obj: 1.959e+00; abs: 2.600e-02; rel: 1.345e-02; norm: 4.916e-01; mom: 7.653e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 500; obj: 1.930e+00; abs: 2.905e-02; rel: 1.483e-02; norm: 5.347e-01; mom: 7.904e+00;
#> best it: 111; best obj: 1.061e+00

```

## Iteration 500



```

#> It: 501; obj: 1.926e+00; abs: 4.520e-03; rel: 2.342e-03; norm: 4.016e-01; mom: 7.337e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 502; obj: 1.917e+00; abs: 9.121e-03; rel: 4.737e-03; norm: 3.998e-01; mom: 6.642e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 503; obj: 1.993e+00; abs: 7.649e-02; rel: 3.991e-02; norm: 4.900e-01; mom: 7.249e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 504; obj: 1.981e+00; abs: 1.189e-02; rel: 5.967e-03; norm: 5.689e-01; mom: 7.151e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 505; obj: 1.961e+00; abs: 1.970e-02; rel: 9.943e-03; norm: 5.233e-01; mom: 7.998e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 506; obj: 1.977e+00; abs: 1.535e-02; rel: 7.827e-03; norm: 4.340e-01; mom: 7.097e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 507; obj: 1.996e+00; abs: 1.910e-02; rel: 9.662e-03; norm: 4.823e-01; mom: 7.723e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 508; obj: 1.888e+00; abs: 1.082e-01; rel: 5.419e-02; norm: 4.380e-01; mom: 7.887e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 509; obj: 1.959e+00; abs: 7.108e-02; rel: 3.765e-02; norm: 4.073e-01; mom: 8.120e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 510; obj: 1.935e+00; abs: 2.375e-02; rel: 1.213e-02; norm: 4.562e-01; mom: 6.674e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 511; obj: 1.936e+00; abs: 4.957e-04; rel: 2.562e-04; norm: 4.354e-01; mom: 8.444e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 512; obj: 1.942e+00; abs: 6.318e-03; rel: 3.264e-03; norm: 5.191e-01; mom: 6.927e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 513; obj: 1.935e+00; abs: 6.829e-03; rel: 3.516e-03; norm: 4.374e-01; mom: 8.487e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 514; obj: 1.920e+00; abs: 1.498e-02; rel: 7.743e-03; norm: 4.419e-01; mom: 6.640e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 515; obj: 1.947e+00; abs: 2.655e-02; rel: 1.383e-02; norm: 3.805e-01; mom: 8.157e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 516; obj: 1.960e+00; abs: 1.313e-02; rel: 6.744e-03; norm: 4.657e-01; mom: 6.770e+00;

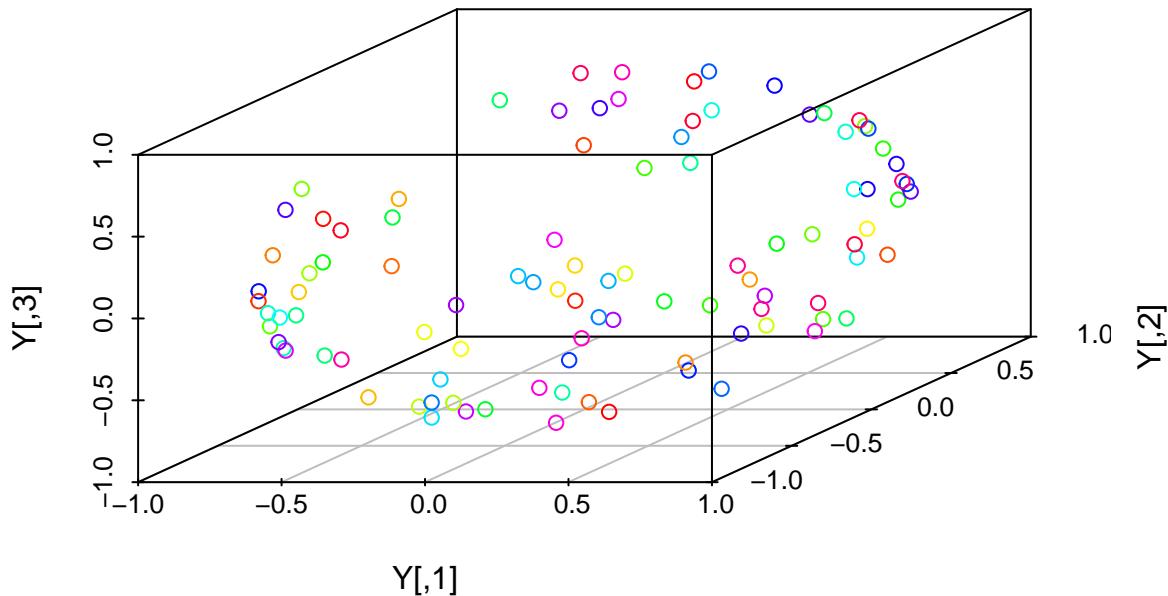
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#> best it: 111; best obj: 1.061e+00
#> It: 517; obj: 1.901e+00; abs: 5.921e-02; rel: 3.021e-02; norm: 4.150e-01; mom: 8.298e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 518; obj: 1.984e+00; abs: 8.331e-02; rel: 4.383e-02; norm: 4.259e-01; mom: 6.664e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 519; obj: 1.908e+00; abs: 7.635e-02; rel: 3.848e-02; norm: 4.738e-01; mom: 7.999e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 520; obj: 1.868e+00; abs: 3.974e-02; rel: 2.083e-02; norm: 4.630e-01; mom: 7.537e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 521; obj: 1.982e+00; abs: 1.139e-01; rel: 6.101e-02; norm: 4.254e-01; mom: 7.148e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 522; obj: 1.892e+00; abs: 8.928e-02; rel: 4.505e-02; norm: 5.034e-01; mom: 7.191e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 523; obj: 1.890e+00; abs: 2.574e-03; rel: 1.360e-03; norm: 4.738e-01; mom: 7.322e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 524; obj: 1.947e+00; abs: 5.721e-02; rel: 3.027e-02; norm: 4.078e-01; mom: 6.695e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 525; obj: 1.965e+00; abs: 1.813e-02; rel: 9.310e-03; norm: 4.591e-01; mom: 7.098e+00;
#> best it: 111; best obj: 1.061e+00

```

## Iteration 525



```

#> It: 526; obj: 1.931e+00; abs: 3.420e-02; rel: 1.740e-02; norm: 4.680e-01; mom: 6.567e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 527; obj: 1.982e+00; abs: 5.066e-02; rel: 2.623e-02; norm: 4.357e-01; mom: 7.118e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 528; obj: 2.016e+00; abs: 3.435e-02; rel: 1.733e-02; norm: 4.733e-01; mom: 6.682e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 529; obj: 2.001e+00; abs: 1.533e-02; rel: 7.602e-03; norm: 4.590e-01; mom: 7.191e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 530; obj: 2.009e+00; abs: 7.970e-03; rel: 3.984e-03; norm: 4.371e-01; mom: 7.285e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 531; obj: 2.068e+00; abs: 5.933e-02; rel: 2.954e-02; norm: 5.150e-01; mom: 7.286e+00;
#> best it: 111; best obj: 1.061e+00

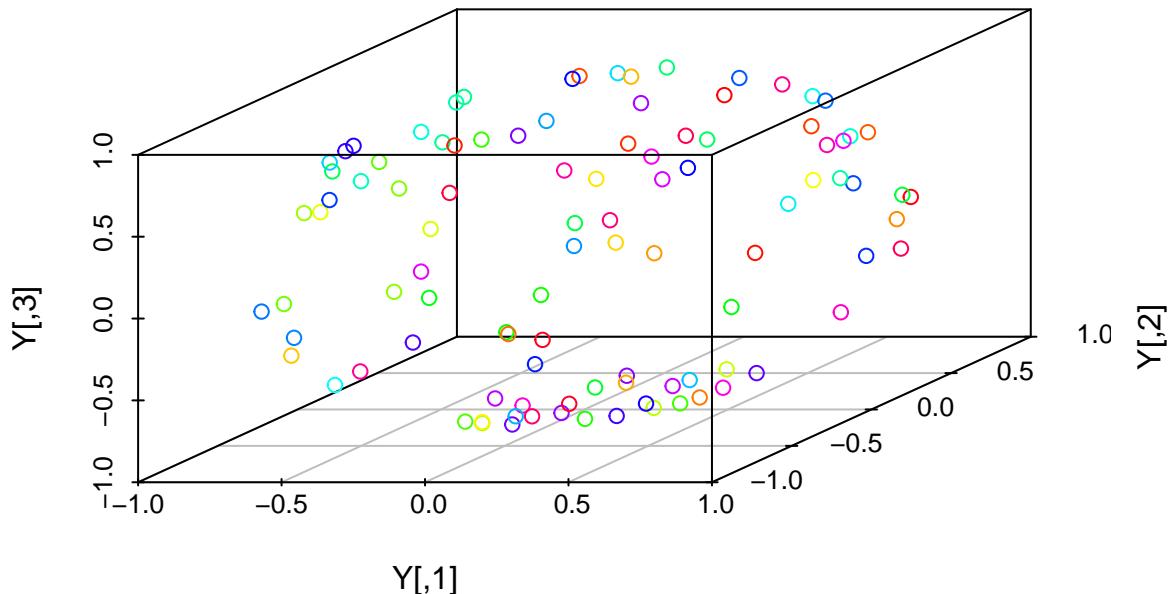
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#> It: 532; obj: 1.993e+00; abs: 7.545e-02; rel: 3.649e-02; norm: 5.204e-01; mom: 7.849e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 533; obj: 2.010e+00; abs: 1.795e-02; rel: 9.009e-03; norm: 4.397e-01; mom: 8.366e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 534; obj: 2.030e+00; abs: 1.936e-02; rel: 9.628e-03; norm: 4.599e-01; mom: 7.293e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 535; obj: 2.047e+00; abs: 1.688e-02; rel: 8.314e-03; norm: 4.361e-01; mom: 8.283e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 536; obj: 2.046e+00; abs: 6.943e-04; rel: 3.392e-04; norm: 4.423e-01; mom: 7.522e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 537; obj: 2.031e+00; abs: 1.490e-02; rel: 7.285e-03; norm: 4.876e-01; mom: 7.983e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 538; obj: 2.019e+00; abs: 1.177e-02; rel: 5.792e-03; norm: 4.745e-01; mom: 7.826e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 539; obj: 2.023e+00; abs: 3.918e-03; rel: 1.940e-03; norm: 4.006e-01; mom: 8.408e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 540; obj: 2.074e+00; abs: 5.054e-02; rel: 2.498e-02; norm: 4.774e-01; mom: 7.644e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 541; obj: 1.932e+00; abs: 1.418e-01; rel: 6.840e-02; norm: 5.328e-01; mom: 8.754e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 542; obj: 2.074e+00; abs: 1.421e-01; rel: 7.353e-02; norm: 4.255e-01; mom: 6.739e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 543; obj: 1.955e+00; abs: 1.188e-01; rel: 5.730e-02; norm: 5.173e-01; mom: 7.213e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 544; obj: 1.999e+00; abs: 4.399e-02; rel: 2.250e-02; norm: 4.597e-01; mom: 7.489e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 545; obj: 1.965e+00; abs: 3.433e-02; rel: 1.717e-02; norm: 4.380e-01; mom: 7.592e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 546; obj: 2.024e+00; abs: 5.906e-02; rel: 3.006e-02; norm: 5.054e-01; mom: 7.716e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 547; obj: 1.973e+00; abs: 5.042e-02; rel: 2.491e-02; norm: 4.347e-01; mom: 7.897e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 548; obj: 2.002e+00; abs: 2.885e-02; rel: 1.462e-02; norm: 4.440e-01; mom: 7.221e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 549; obj: 1.943e+00; abs: 5.949e-02; rel: 2.971e-02; norm: 4.177e-01; mom: 7.567e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 550; obj: 1.981e+00; abs: 3.774e-02; rel: 1.943e-02; norm: 4.595e-01; mom: 6.993e+00;
#> best it: 111; best obj: 1.061e+00

```

## Iteration 550



```

#> It: 551; obj: 1.917e+00; abs: 6.408e-02; rel: 3.235e-02; norm: 5.019e-01; mom: 8.232e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 552; obj: 1.977e+00; abs: 6.060e-02; rel: 3.162e-02; norm: 4.393e-01; mom: 7.590e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 553; obj: 1.951e+00; abs: 2.633e-02; rel: 1.332e-02; norm: 4.674e-01; mom: 7.350e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 554; obj: 1.949e+00; abs: 2.012e-03; rel: 1.031e-03; norm: 4.562e-01; mom: 7.107e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 555; obj: 1.968e+00; abs: 1.898e-02; rel: 9.740e-03; norm: 5.010e-01; mom: 7.465e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 556; obj: 2.065e+00; abs: 9.754e-02; rel: 4.957e-02; norm: 5.365e-01; mom: 8.177e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 557; obj: 2.017e+00; abs: 4.875e-02; rel: 2.360e-02; norm: 5.412e-01; mom: 8.698e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 558; obj: 2.013e+00; abs: 3.187e-03; rel: 1.580e-03; norm: 4.857e-01; mom: 8.836e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 559; obj: 2.015e+00; abs: 1.553e-03; rel: 7.713e-04; norm: 4.887e-01; mom: 8.485e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 560; obj: 1.931e+00; abs: 8.349e-02; rel: 4.144e-02; norm: 5.286e-01; mom: 7.670e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 561; obj: 2.013e+00; abs: 8.158e-02; rel: 4.224e-02; norm: 3.979e-01; mom: 7.150e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 562; obj: 1.963e+00; abs: 5.012e-02; rel: 2.490e-02; norm: 4.724e-01; mom: 7.291e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 563; obj: 1.999e+00; abs: 3.607e-02; rel: 1.838e-02; norm: 4.570e-01; mom: 7.660e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 564; obj: 2.034e+00; abs: 3.552e-02; rel: 1.777e-02; norm: 4.880e-01; mom: 7.954e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 565; obj: 1.950e+00; abs: 8.475e-02; rel: 4.166e-02; norm: 5.043e-01; mom: 8.080e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 566; obj: 1.975e+00; abs: 2.540e-02; rel: 1.303e-02; norm: 4.544e-01; mom: 7.070e+00;

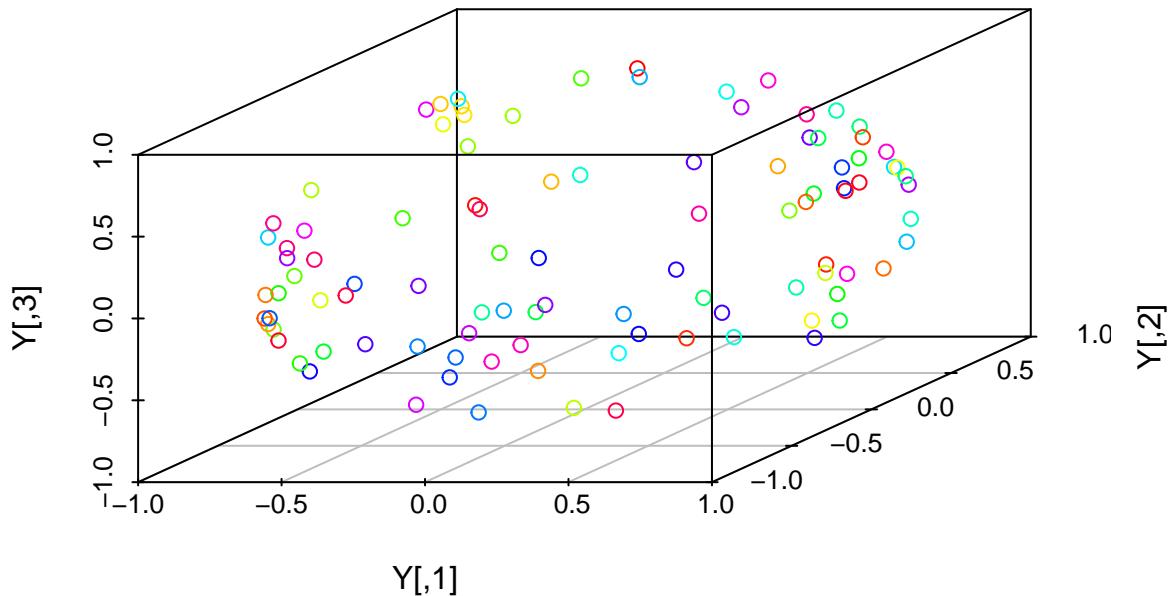
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#> best it: 111; best obj: 1.061e+00
#> It: 567; obj: 2.034e+00; abs: 5.895e-02; rel: 2.985e-02; norm: 4.108e-01; mom: 6.937e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 568; obj: 1.996e+00; abs: 3.809e-02; rel: 1.873e-02; norm: 5.369e-01; mom: 7.467e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 569; obj: 2.002e+00; abs: 6.031e-03; rel: 3.021e-03; norm: 4.406e-01; mom: 7.599e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 570; obj: 2.051e+00; abs: 4.943e-02; rel: 2.469e-02; norm: 4.540e-01; mom: 7.936e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 571; obj: 2.002e+00; abs: 4.902e-02; rel: 2.390e-02; norm: 4.548e-01; mom: 7.617e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 572; obj: 2.027e+00; abs: 2.467e-02; rel: 1.232e-02; norm: 4.262e-01; mom: 8.253e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 573; obj: 2.021e+00; abs: 6.337e-03; rel: 3.126e-03; norm: 4.771e-01; mom: 7.242e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 574; obj: 2.006e+00; abs: 1.445e-02; rel: 7.151e-03; norm: 4.090e-01; mom: 7.968e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 575; obj: 2.015e+00; abs: 9.136e-03; rel: 4.554e-03; norm: 4.658e-01; mom: 7.061e+00;
#> best it: 111; best obj: 1.061e+00

```

## Iteration 575



```

#> It: 576; obj: 2.007e+00; abs: 8.366e-03; rel: 4.151e-03; norm: 5.069e-01; mom: 8.040e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 577; obj: 2.039e+00; abs: 3.164e-02; rel: 1.577e-02; norm: 4.396e-01; mom: 7.978e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 578; obj: 1.997e+00; abs: 4.118e-02; rel: 2.020e-02; norm: 4.908e-01; mom: 7.913e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 579; obj: 2.018e+00; abs: 2.020e-02; rel: 1.011e-02; norm: 3.931e-01; mom: 8.459e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 580; obj: 2.025e+00; abs: 7.737e-03; rel: 3.835e-03; norm: 5.291e-01; mom: 7.003e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 581; obj: 1.916e+00; abs: 1.093e-01; rel: 5.395e-02; norm: 4.548e-01; mom: 9.038e+00;
#> best it: 111; best obj: 1.061e+00

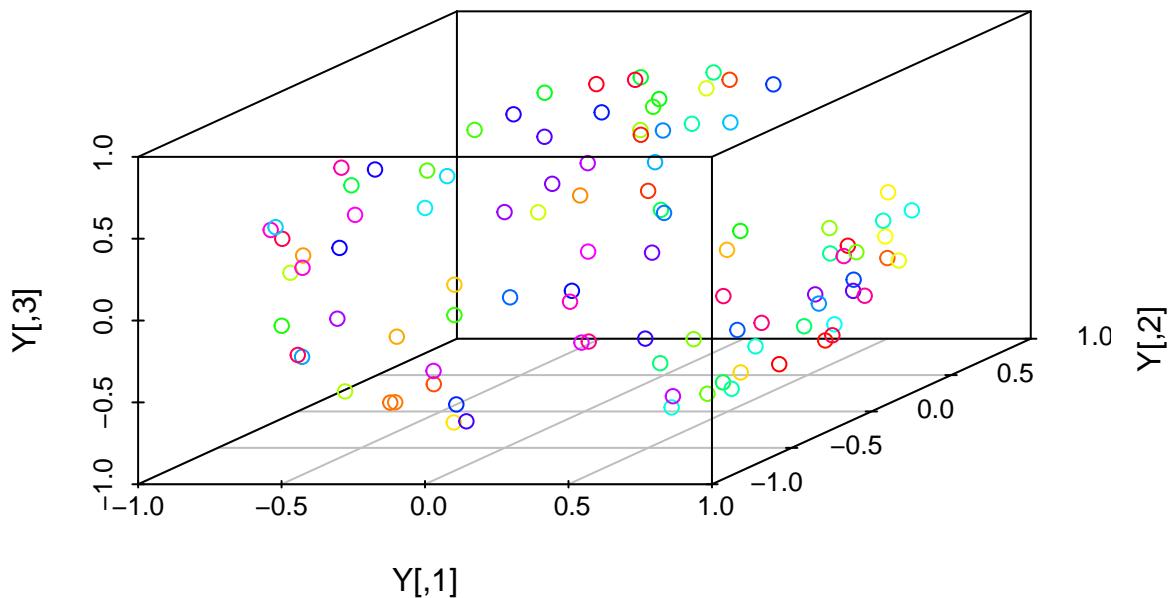
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#> It: 582; obj: 2.068e+00; abs: 1.516e-01; rel: 7.912e-02; norm: 5.493e-01; mom: 6.231e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 583; obj: 1.856e+00; abs: 2.120e-01; rel: 1.025e-01; norm: 5.025e-01; mom: 8.243e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 584; obj: 2.001e+00; abs: 1.453e-01; rel: 7.832e-02; norm: 4.737e-01; mom: 7.286e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 585; obj: 1.926e+00; abs: 7.553e-02; rel: 3.774e-02; norm: 4.076e-01; mom: 7.409e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 586; obj: 1.997e+00; abs: 7.126e-02; rel: 3.701e-02; norm: 4.609e-01; mom: 7.376e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 587; obj: 1.972e+00; abs: 2.525e-02; rel: 1.265e-02; norm: 4.715e-01; mom: 7.498e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 588; obj: 1.904e+00; abs: 6.779e-02; rel: 3.438e-02; norm: 4.691e-01; mom: 6.972e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 589; obj: 2.054e+00; abs: 1.499e-01; rel: 7.875e-02; norm: 3.872e-01; mom: 7.140e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 590; obj: 2.013e+00; abs: 4.083e-02; rel: 1.988e-02; norm: 5.348e-01; mom: 7.309e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 591; obj: 1.950e+00; abs: 6.257e-02; rel: 3.108e-02; norm: 4.812e-01; mom: 7.969e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 592; obj: 1.951e+00; abs: 3.325e-04; rel: 1.705e-04; norm: 4.119e-01; mom: 6.585e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 593; obj: 1.999e+00; abs: 4.845e-02; rel: 2.484e-02; norm: 4.078e-01; mom: 7.600e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 594; obj: 1.960e+00; abs: 3.913e-02; rel: 1.957e-02; norm: 4.706e-01; mom: 6.800e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 595; obj: 1.967e+00; abs: 6.855e-03; rel: 3.498e-03; norm: 4.711e-01; mom: 7.798e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 596; obj: 2.015e+00; abs: 4.780e-02; rel: 2.430e-02; norm: 4.404e-01; mom: 6.507e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 597; obj: 1.963e+00; abs: 5.156e-02; rel: 2.559e-02; norm: 4.802e-01; mom: 7.462e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 598; obj: 1.984e+00; abs: 2.058e-02; rel: 1.048e-02; norm: 4.658e-01; mom: 6.678e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 599; obj: 2.058e+00; abs: 7.469e-02; rel: 3.765e-02; norm: 4.559e-01; mom: 7.969e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 600; obj: 2.045e+00; abs: 1.365e-02; rel: 6.633e-03; norm: 5.171e-01; mom: 7.400e+00;
#> best it: 111; best obj: 1.061e+00

```

## Iteration 600



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#> It: 601; obj: 2.005e+00; abs: 3.938e-02; rel: 1.926e-02; norm: 4.925e-01; mom: 8.526e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 602; obj: 1.991e+00; abs: 1.445e-02; rel: 7.205e-03; norm: 4.524e-01; mom: 7.638e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 603; obj: 1.990e+00; abs: 1.090e-03; rel: 5.473e-04; norm: 5.194e-01; mom: 7.602e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 604; obj: 2.008e+00; abs: 1.831e-02; rel: 9.201e-03; norm: 4.560e-01; mom: 7.127e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 605; obj: 2.007e+00; abs: 8.867e-04; rel: 4.416e-04; norm: 5.340e-01; mom: 7.388e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 606; obj: 1.971e+00; abs: 3.619e-02; rel: 1.803e-02; norm: 4.893e-01; mom: 7.814e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 607; obj: 2.001e+00; abs: 2.960e-02; rel: 1.502e-02; norm: 5.110e-01; mom: 6.828e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 608; obj: 1.929e+00; abs: 7.179e-02; rel: 3.589e-02; norm: 4.685e-01; mom: 8.547e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 609; obj: 1.968e+00; abs: 3.971e-02; rel: 2.059e-02; norm: 4.397e-01; mom: 6.763e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 610; obj: 1.955e+00; abs: 1.308e-02; rel: 6.646e-03; norm: 4.298e-01; mom: 7.657e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 611; obj: 1.919e+00; abs: 3.659e-02; rel: 1.871e-02; norm: 4.977e-01; mom: 7.388e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 612; obj: 2.002e+00; abs: 8.291e-02; rel: 4.321e-02; norm: 4.127e-01; mom: 7.007e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 613; obj: 2.018e+00; abs: 1.624e-02; rel: 8.111e-03; norm: 4.660e-01; mom: 6.995e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 614; obj: 1.944e+00; abs: 7.361e-02; rel: 3.648e-02; norm: 5.169e-01; mom: 7.670e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 615; obj: 1.976e+00; abs: 3.147e-02; rel: 1.619e-02; norm: 4.229e-01; mom: 7.886e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 616; obj: 1.995e+00; abs: 1.930e-02; rel: 9.770e-03; norm: 5.086e-01; mom: 7.388e+00;

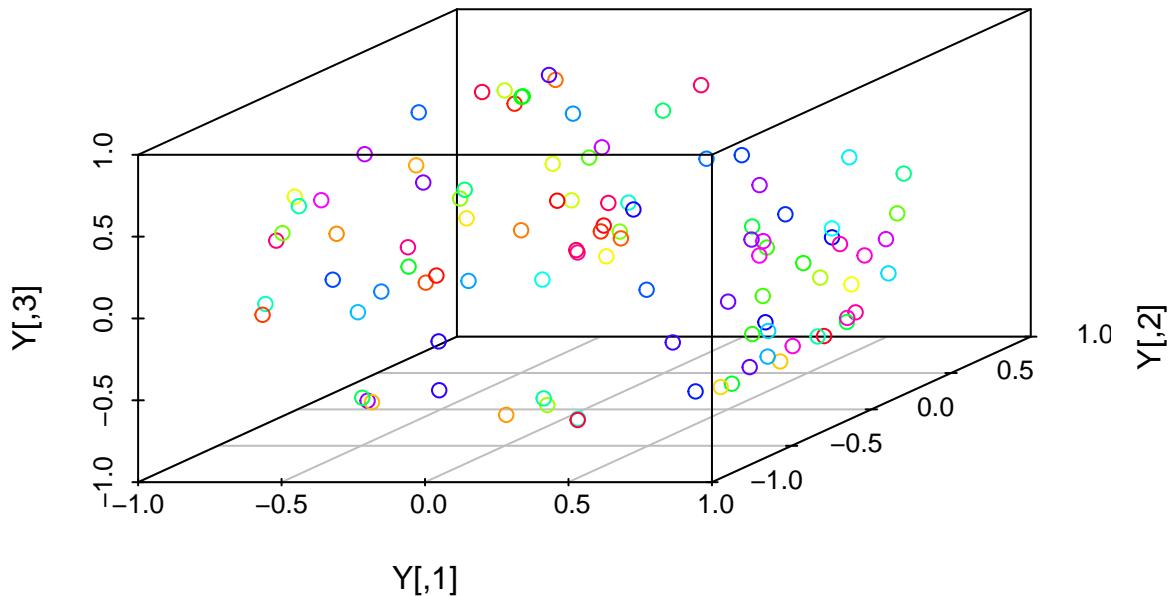
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#> best it: 111; best obj: 1.061e+00
#> It: 617; obj: 1.936e+00; abs: 5.925e-02; rel: 2.970e-02; norm: 4.593e-01; mom: 8.204e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 618; obj: 1.964e+00; abs: 2.843e-02; rel: 1.468e-02; norm: 4.382e-01; mom: 8.153e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 619; obj: 1.956e+00; abs: 8.054e-03; rel: 4.100e-03; norm: 4.977e-01; mom: 7.242e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 620; obj: 1.935e+00; abs: 2.151e-02; rel: 1.100e-02; norm: 4.455e-01; mom: 8.165e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 621; obj: 2.013e+00; abs: 7.797e-02; rel: 4.030e-02; norm: 4.639e-01; mom: 7.357e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 622; obj: 1.938e+00; abs: 7.432e-02; rel: 3.692e-02; norm: 4.723e-01; mom: 7.780e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 623; obj: 2.009e+00; abs: 7.096e-02; rel: 3.661e-02; norm: 4.906e-01; mom: 7.851e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 624; obj: 1.947e+00; abs: 6.258e-02; rel: 3.114e-02; norm: 4.378e-01; mom: 8.080e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 625; obj: 1.949e+00; abs: 2.426e-03; rel: 1.246e-03; norm: 4.886e-01; mom: 8.029e+00;
#> best it: 111; best obj: 1.061e+00

```

## Iteration 625



```

#> It: 626; obj: 1.951e+00; abs: 1.658e-03; rel: 8.506e-04; norm: 4.856e-01; mom: 7.761e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 627; obj: 1.989e+00; abs: 3.809e-02; rel: 1.952e-02; norm: 4.922e-01; mom: 8.425e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 628; obj: 1.953e+00; abs: 3.565e-02; rel: 1.793e-02; norm: 5.395e-01; mom: 7.641e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 629; obj: 1.940e+00; abs: 1.371e-02; rel: 7.020e-03; norm: 4.271e-01; mom: 8.601e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 630; obj: 1.992e+00; abs: 5.265e-02; rel: 2.715e-02; norm: 4.792e-01; mom: 6.594e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 631; obj: 1.905e+00; abs: 8.722e-02; rel: 4.378e-02; norm: 4.778e-01; mom: 8.147e+00;
#> best it: 111; best obj: 1.061e+00

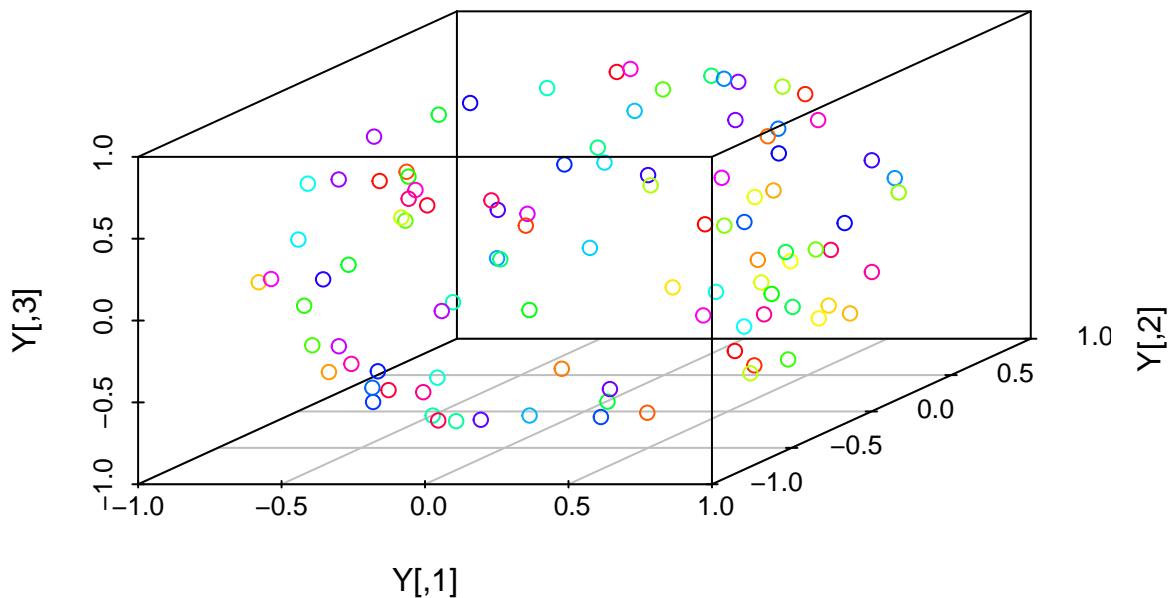
```

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#> It: 632; obj: 1.971e+00; abs: 6.639e-02; rel: 3.485e-02; norm: 4.440e-01; mom: 7.125e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 633; obj: 1.984e+00; abs: 1.302e-02; rel: 6.606e-03; norm: 4.306e-01; mom: 7.344e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 634; obj: 1.954e+00; abs: 3.056e-02; rel: 1.540e-02; norm: 4.400e-01; mom: 7.434e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 635; obj: 2.018e+00; abs: 6.368e-02; rel: 3.259e-02; norm: 4.257e-01; mom: 7.588e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 636; obj: 1.985e+00; abs: 3.231e-02; rel: 1.601e-02; norm: 4.713e-01; mom: 7.308e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 637; obj: 1.962e+00; abs: 2.367e-02; rel: 1.193e-02; norm: 5.078e-01; mom: 8.130e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 638; obj: 2.001e+00; abs: 3.912e-02; rel: 1.994e-02; norm: 4.964e-01; mom: 7.532e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 639; obj: 1.980e+00; abs: 2.065e-02; rel: 1.032e-02; norm: 5.920e-01; mom: 7.369e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 640; obj: 1.883e+00; abs: 9.733e-02; rel: 4.915e-02; norm: 4.703e-01; mom: 9.415e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 641; obj: 1.983e+00; abs: 1.004e-01; rel: 5.334e-02; norm: 4.092e-01; mom: 7.408e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 642; obj: 1.844e+00; abs: 1.393e-01; rel: 7.026e-02; norm: 4.570e-01; mom: 7.848e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 643; obj: 1.928e+00; abs: 8.393e-02; rel: 4.552e-02; norm: 4.737e-01; mom: 7.627e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 644; obj: 2.012e+00; abs: 8.440e-02; rel: 4.378e-02; norm: 4.574e-01; mom: 7.977e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 645; obj: 1.983e+00; abs: 2.941e-02; rel: 1.461e-02; norm: 5.301e-01; mom: 7.464e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 646; obj: 1.973e+00; abs: 9.335e-03; rel: 4.708e-03; norm: 4.618e-01; mom: 8.600e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 647; obj: 2.051e+00; abs: 7.712e-02; rel: 3.908e-02; norm: 4.822e-01; mom: 6.795e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 648; obj: 2.011e+00; abs: 3.905e-02; rel: 1.904e-02; norm: 4.498e-01; mom: 8.562e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 649; obj: 2.002e+00; abs: 8.997e-03; rel: 4.473e-03; norm: 4.814e-01; mom: 7.520e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 650; obj: 1.993e+00; abs: 9.617e-03; rel: 4.803e-03; norm: 5.079e-01; mom: 8.227e+00;
#> best it: 111; best obj: 1.061e+00

```

## Iteration 650



```

#> It: 651; obj: 1.961e+00; abs: 3.156e-02; rel: 1.584e-02; norm: 4.386e-01; mom: 8.113e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 652; obj: 1.979e+00; abs: 1.785e-02; rel: 9.102e-03; norm: 4.639e-01; mom: 8.204e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 653; obj: 1.957e+00; abs: 2.256e-02; rel: 1.140e-02; norm: 4.249e-01; mom: 7.870e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 654; obj: 1.993e+00; abs: 3.681e-02; rel: 1.881e-02; norm: 4.701e-01; mom: 7.870e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 655; obj: 1.964e+00; abs: 2.943e-02; rel: 1.476e-02; norm: 4.906e-01; mom: 7.746e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 656; obj: 2.003e+00; abs: 3.927e-02; rel: 1.999e-02; norm: 4.376e-01; mom: 7.220e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 657; obj: 1.994e+00; abs: 9.631e-03; rel: 4.808e-03; norm: 4.771e-01; mom: 7.090e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 658; obj: 1.966e+00; abs: 2.738e-02; rel: 1.373e-02; norm: 4.764e-01; mom: 7.344e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 659; obj: 1.977e+00; abs: 1.119e-02; rel: 5.690e-03; norm: 4.213e-01; mom: 7.360e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 660; obj: 1.975e+00; abs: 2.066e-03; rel: 1.045e-03; norm: 4.496e-01; mom: 7.268e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 661; obj: 2.066e+00; abs: 9.029e-02; rel: 4.571e-02; norm: 3.971e-01; mom: 6.893e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 662; obj: 2.026e+00; abs: 3.923e-02; rel: 1.899e-02; norm: 5.225e-01; mom: 7.134e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 663; obj: 2.023e+00; abs: 3.865e-03; rel: 1.907e-03; norm: 4.664e-01; mom: 7.973e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 664; obj: 2.063e+00; abs: 4.067e-02; rel: 2.011e-02; norm: 4.270e-01; mom: 7.223e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 665; obj: 1.969e+00; abs: 9.381e-02; rel: 4.547e-02; norm: 5.027e-01; mom: 7.731e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 666; obj: 2.080e+00; abs: 1.106e-01; rel: 5.615e-02; norm: 4.280e-01; mom: 7.415e+00;

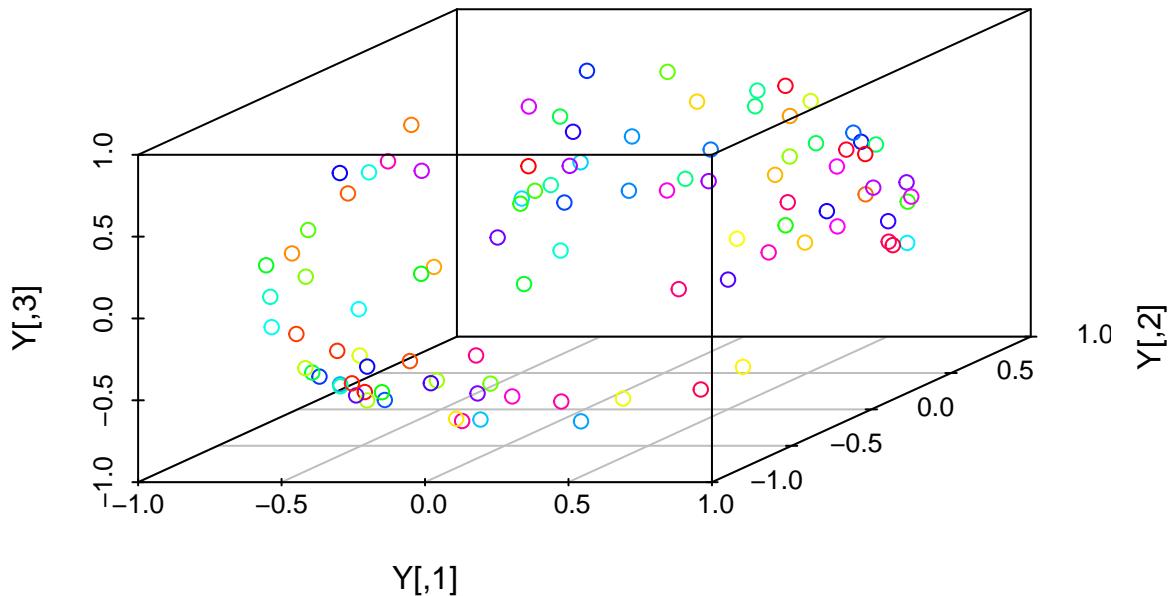
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#> best it: 111; best obj: 1.061e+00
#> It: 667; obj: 2.034e+00; abs: 4.627e-02; rel: 2.225e-02; norm: 5.559e-01; mom: 7.055e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 668; obj: 1.989e+00; abs: 4.421e-02; rel: 2.174e-02; norm: 4.915e-01; mom: 8.329e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 669; obj: 2.005e+00; abs: 1.539e-02; rel: 7.733e-03; norm: 4.826e-01; mom: 6.844e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 670; obj: 2.044e+00; abs: 3.963e-02; rel: 1.977e-02; norm: 4.760e-01; mom: 8.005e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 671; obj: 2.041e+00; abs: 3.930e-03; rel: 1.922e-03; norm: 5.407e-01; mom: 8.001e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 672; obj: 1.965e+00; abs: 7.509e-02; rel: 3.680e-02; norm: 5.108e-01; mom: 8.994e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 673; obj: 2.086e+00; abs: 1.203e-01; rel: 6.123e-02; norm: 5.077e-01; mom: 7.158e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 674; obj: 1.926e+00; abs: 1.602e-01; rel: 7.680e-02; norm: 5.234e-01; mom: 8.318e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 675; obj: 1.980e+00; abs: 5.435e-02; rel: 2.822e-02; norm: 4.286e-01; mom: 7.928e+00;
#> best it: 111; best obj: 1.061e+00

```

## Iteration 675



```

#> It: 676; obj: 2.008e+00; abs: 2.768e-02; rel: 1.398e-02; norm: 5.251e-01; mom: 7.143e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 677; obj: 1.992e+00; abs: 1.572e-02; rel: 7.829e-03; norm: 4.710e-01; mom: 7.826e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 678; obj: 2.046e+00; abs: 5.378e-02; rel: 2.700e-02; norm: 5.287e-01; mom: 7.257e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 679; obj: 1.970e+00; abs: 7.606e-02; rel: 3.718e-02; norm: 4.786e-01; mom: 8.147e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 680; obj: 2.039e+00; abs: 6.978e-02; rel: 3.543e-02; norm: 4.483e-01; mom: 7.465e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 681; obj: 1.986e+00; abs: 5.372e-02; rel: 2.634e-02; norm: 4.841e-01; mom: 7.653e+00;
#> best it: 111; best obj: 1.061e+00

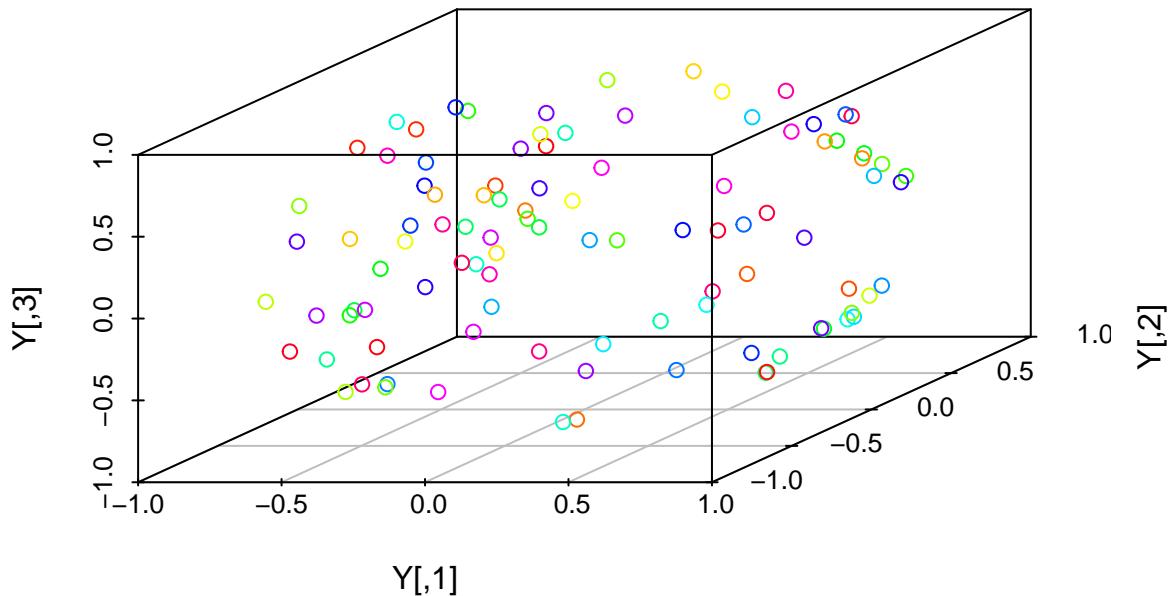
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#> It: 682; obj: 2.003e+00; abs: 1.762e-02; rel: 8.872e-03; norm: 4.477e-01; mom: 7.853e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 683; obj: 1.965e+00; abs: 3.796e-02; rel: 1.895e-02; norm: 5.240e-01; mom: 7.565e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 684; obj: 2.002e+00; abs: 3.613e-02; rel: 1.838e-02; norm: 5.366e-01; mom: 8.103e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 685; obj: 1.946e+00; abs: 5.556e-02; rel: 2.776e-02; norm: 5.194e-01; mom: 7.516e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 686; obj: 2.002e+00; abs: 5.634e-02; rel: 2.895e-02; norm: 4.772e-01; mom: 7.783e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 687; obj: 1.964e+00; abs: 3.782e-02; rel: 1.889e-02; norm: 4.978e-01; mom: 6.624e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 688; obj: 2.027e+00; abs: 6.267e-02; rel: 3.190e-02; norm: 4.776e-01; mom: 7.855e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 689; obj: 1.961e+00; abs: 6.576e-02; rel: 3.244e-02; norm: 4.760e-01; mom: 7.148e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 690; obj: 2.015e+00; abs: 5.402e-02; rel: 2.754e-02; norm: 4.415e-01; mom: 8.101e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 691; obj: 1.979e+00; abs: 3.603e-02; rel: 1.788e-02; norm: 4.816e-01; mom: 6.984e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 692; obj: 1.976e+00; abs: 3.297e-03; rel: 1.666e-03; norm: 4.594e-01; mom: 8.182e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 693; obj: 2.080e+00; abs: 1.043e-01; rel: 5.279e-02; norm: 4.792e-01; mom: 7.130e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 694; obj: 1.923e+00; abs: 1.576e-01; rel: 7.574e-02; norm: 4.834e-01; mom: 8.439e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 695; obj: 1.999e+00; abs: 7.608e-02; rel: 3.957e-02; norm: 4.679e-01; mom: 7.472e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 696; obj: 2.024e+00; abs: 2.521e-02; rel: 1.261e-02; norm: 4.399e-01; mom: 7.869e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 697; obj: 2.057e+00; abs: 3.312e-02; rel: 1.636e-02; norm: 5.280e-01; mom: 7.056e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 698; obj: 1.973e+00; abs: 8.426e-02; rel: 4.096e-02; norm: 6.046e-01; mom: 8.455e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 699; obj: 1.993e+00; abs: 2.050e-02; rel: 1.039e-02; norm: 5.608e-01; mom: 7.819e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 700; obj: 1.986e+00; abs: 7.801e-03; rel: 3.913e-03; norm: 4.992e-01; mom: 8.111e+00;
#> best it: 111; best obj: 1.061e+00

```

## Iteration 700



```

#> It: 701; obj: 1.972e+00; abs: 1.339e-02; rel: 6.741e-03; norm: 5.890e-01; mom: 6.777e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 702; obj: 2.003e+00; abs: 3.034e-02; rel: 1.538e-02; norm: 5.605e-01; mom: 8.018e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 703; obj: 1.944e+00; abs: 5.829e-02; rel: 2.910e-02; norm: 5.659e-01; mom: 7.648e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 704; obj: 1.910e+00; abs: 3.387e-02; rel: 1.742e-02; norm: 4.717e-01; mom: 7.996e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 705; obj: 1.946e+00; abs: 3.597e-02; rel: 1.883e-02; norm: 4.968e-01; mom: 6.756e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 706; obj: 1.911e+00; abs: 3.579e-02; rel: 1.839e-02; norm: 4.498e-01; mom: 8.106e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 707; obj: 1.928e+00; abs: 1.737e-02; rel: 9.090e-03; norm: 5.135e-01; mom: 7.572e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 708; obj: 1.984e+00; abs: 5.587e-02; rel: 2.898e-02; norm: 4.160e-01; mom: 8.162e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 709; obj: 1.960e+00; abs: 2.435e-02; rel: 1.227e-02; norm: 5.550e-01; mom: 7.593e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 710; obj: 1.949e+00; abs: 1.041e-02; rel: 5.314e-03; norm: 4.666e-01; mom: 8.701e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 711; obj: 1.997e+00; abs: 4.762e-02; rel: 2.443e-02; norm: 4.406e-01; mom: 7.835e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 712; obj: 1.887e+00; abs: 1.099e-01; rel: 5.503e-02; norm: 4.667e-01; mom: 7.364e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 713; obj: 1.968e+00; abs: 8.123e-02; rel: 4.305e-02; norm: 4.619e-01; mom: 8.106e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 714; obj: 2.026e+00; abs: 5.827e-02; rel: 2.961e-02; norm: 5.266e-01; mom: 5.977e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 715; obj: 1.862e+00; abs: 1.649e-01; rel: 8.136e-02; norm: 5.110e-01; mom: 8.001e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 716; obj: 1.956e+00; abs: 9.431e-02; rel: 5.066e-02; norm: 4.113e-01; mom: 6.544e+00;

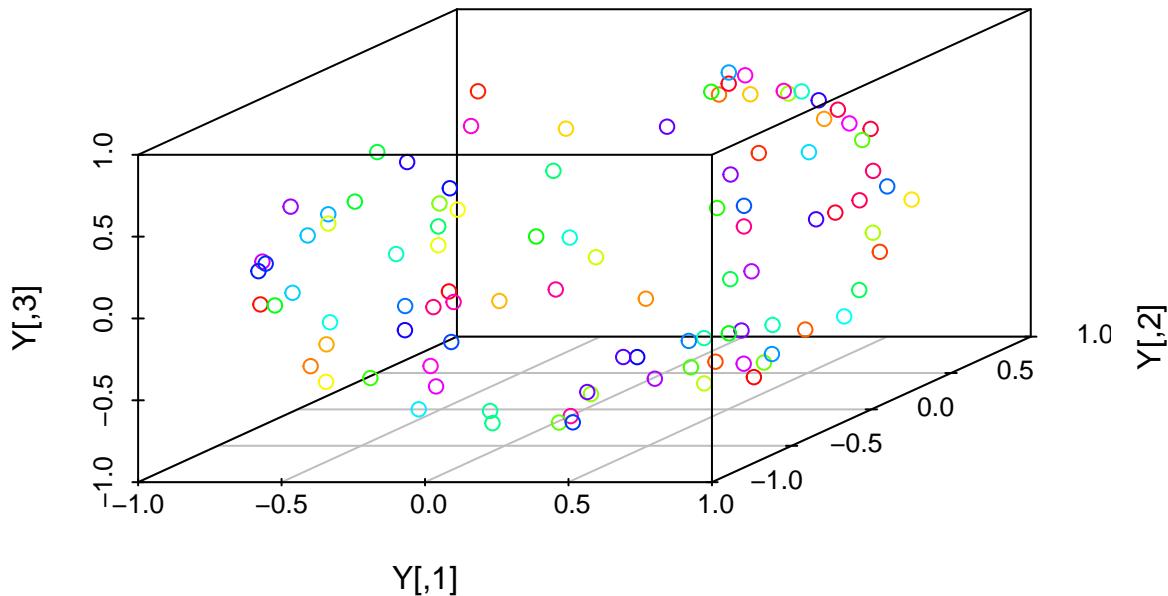
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#> best it: 111; best obj: 1.061e+00
#> It: 717; obj: 1.957e+00; abs: 1.293e-03; rel: 6.611e-04; norm: 4.822e-01; mom: 6.532e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 718; obj: 1.935e+00; abs: 2.248e-02; rel: 1.149e-02; norm: 4.479e-01; mom: 7.340e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 719; obj: 1.860e+00; abs: 7.466e-02; rel: 3.859e-02; norm: 4.264e-01; mom: 7.166e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 720; obj: 1.942e+00; abs: 8.238e-02; rel: 4.429e-02; norm: 4.280e-01; mom: 7.051e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 721; obj: 1.906e+00; abs: 3.684e-02; rel: 1.896e-02; norm: 4.179e-01; mom: 7.038e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 722; obj: 1.948e+00; abs: 4.256e-02; rel: 2.233e-02; norm: 4.314e-01; mom: 7.148e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 723; obj: 1.904e+00; abs: 4.396e-02; rel: 2.256e-02; norm: 4.342e-01; mom: 6.900e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 724; obj: 1.953e+00; abs: 4.855e-02; rel: 2.550e-02; norm: 4.461e-01; mom: 6.821e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 725; obj: 1.924e+00; abs: 2.901e-02; rel: 1.485e-02; norm: 4.215e-01; mom: 7.089e+00;
#> best it: 111; best obj: 1.061e+00

```

## Iteration 725



```

#> It: 726; obj: 1.933e+00; abs: 9.795e-03; rel: 5.092e-03; norm: 3.935e-01; mom: 7.452e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 727; obj: 1.985e+00; abs: 5.157e-02; rel: 2.667e-02; norm: 4.640e-01; mom: 6.503e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 728; obj: 1.980e+00; abs: 4.682e-03; rel: 2.359e-03; norm: 4.184e-01; mom: 8.075e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 729; obj: 2.049e+00; abs: 6.884e-02; rel: 3.476e-02; norm: 5.334e-01; mom: 7.083e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 730; obj: 1.992e+00; abs: 5.726e-02; rel: 2.794e-02; norm: 4.609e-01; mom: 8.507e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 731; obj: 2.068e+00; abs: 7.598e-02; rel: 3.814e-02; norm: 5.066e-01; mom: 7.566e+00;
#> best it: 111; best obj: 1.061e+00

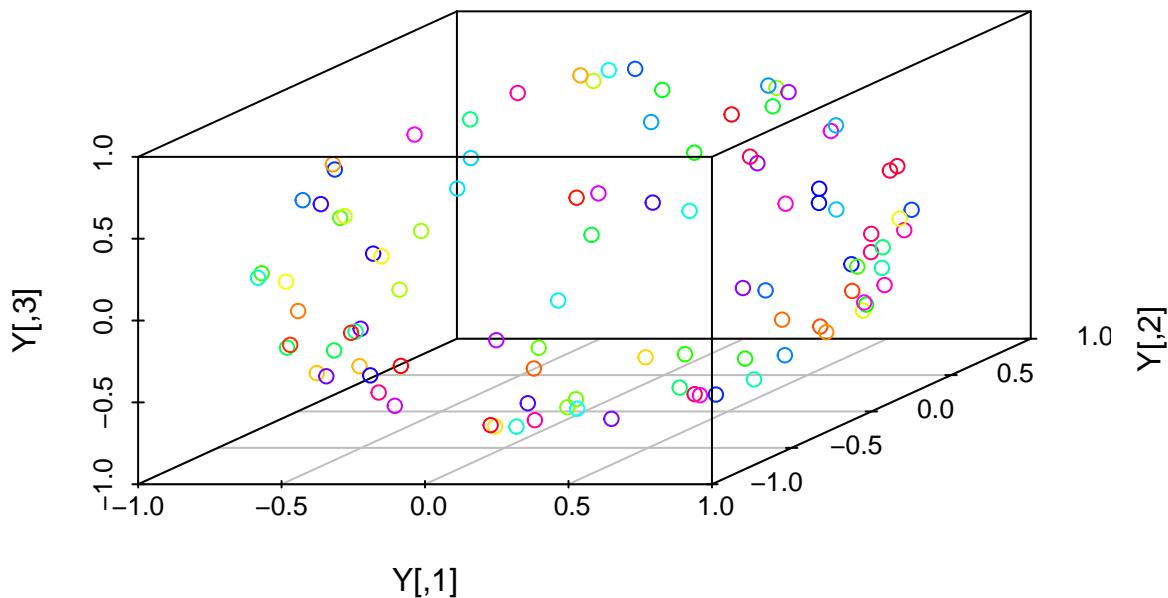
```

```

#> It: 732; obj: 2.027e+00; abs: 4.074e-02; rel: 1.970e-02; norm: 5.397e-01; mom: 8.601e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 733; obj: 1.962e+00; abs: 6.518e-02; rel: 3.216e-02; norm: 5.202e-01; mom: 8.585e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 734; obj: 2.059e+00; abs: 9.655e-02; rel: 4.921e-02; norm: 4.765e-01; mom: 8.072e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 735; obj: 1.987e+00; abs: 7.197e-02; rel: 3.496e-02; norm: 5.046e-01; mom: 7.331e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 736; obj: 2.023e+00; abs: 3.673e-02; rel: 1.849e-02; norm: 4.558e-01; mom: 7.963e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 737; obj: 1.974e+00; abs: 4.947e-02; rel: 2.445e-02; norm: 4.639e-01; mom: 7.454e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 738; obj: 2.039e+00; abs: 6.474e-02; rel: 3.280e-02; norm: 4.814e-01; mom: 8.159e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 739; obj: 1.986e+00; abs: 5.237e-02; rel: 2.569e-02; norm: 5.278e-01; mom: 7.844e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 740; obj: 2.022e+00; abs: 3.604e-02; rel: 1.815e-02; norm: 4.832e-01; mom: 7.325e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 741; obj: 1.974e+00; abs: 4.814e-02; rel: 2.381e-02; norm: 4.566e-01; mom: 7.213e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 742; obj: 1.989e+00; abs: 1.520e-02; rel: 7.698e-03; norm: 4.954e-01; mom: 7.593e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 743; obj: 2.013e+00; abs: 2.381e-02; rel: 1.197e-02; norm: 4.443e-01; mom: 7.417e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 744; obj: 1.993e+00; abs: 2.057e-02; rel: 1.022e-02; norm: 5.499e-01; mom: 7.498e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 745; obj: 1.955e+00; abs: 3.776e-02; rel: 1.895e-02; norm: 4.862e-01; mom: 8.495e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 746; obj: 1.966e+00; abs: 1.102e-02; rel: 5.635e-03; norm: 4.726e-01; mom: 6.730e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 747; obj: 2.005e+00; abs: 3.963e-02; rel: 2.016e-02; norm: 4.351e-01; mom: 7.653e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 748; obj: 1.996e+00; abs: 9.746e-03; rel: 4.860e-03; norm: 5.090e-01; mom: 7.289e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 749; obj: 2.042e+00; abs: 4.598e-02; rel: 2.304e-02; norm: 5.310e-01; mom: 8.195e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 750; obj: 1.962e+00; abs: 7.950e-02; rel: 3.894e-02; norm: 4.990e-01; mom: 8.492e+00;
#> best it: 111; best obj: 1.061e+00

```

## Iteration 750



```

#> It: 751; obj: 1.975e+00; abs: 1.332e-02; rel: 6.791e-03; norm: 4.521e-01; mom: 8.218e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 752; obj: 1.988e+00; abs: 1.270e-02; rel: 6.430e-03; norm: 5.428e-01; mom: 6.271e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 753; obj: 2.006e+00; abs: 1.802e-02; rel: 9.065e-03; norm: 5.055e-01; mom: 8.616e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 754; obj: 2.006e+00; abs: 4.443e-04; rel: 2.214e-04; norm: 4.730e-01; mom: 6.540e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 755; obj: 1.996e+00; abs: 9.771e-03; rel: 4.872e-03; norm: 4.510e-01; mom: 7.996e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 756; obj: 1.994e+00; abs: 2.267e-03; rel: 1.136e-03; norm: 4.645e-01; mom: 6.946e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 757; obj: 2.013e+00; abs: 1.924e-02; rel: 9.652e-03; norm: 4.423e-01; mom: 7.913e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 758; obj: 1.986e+00; abs: 2.651e-02; rel: 1.317e-02; norm: 4.852e-01; mom: 6.926e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 759; obj: 1.986e+00; abs: 2.538e-04; rel: 1.278e-04; norm: 4.539e-01; mom: 7.565e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 760; obj: 2.016e+00; abs: 2.982e-02; rel: 1.501e-02; norm: 4.653e-01; mom: 7.037e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 761; obj: 1.936e+00; abs: 7.984e-02; rel: 3.960e-02; norm: 5.052e-01; mom: 7.502e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 762; obj: 1.981e+00; abs: 4.449e-02; rel: 2.298e-02; norm: 5.019e-01; mom: 7.820e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 763; obj: 1.944e+00; abs: 3.665e-02; rel: 1.851e-02; norm: 5.283e-01; mom: 7.123e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 764; obj: 1.918e+00; abs: 2.590e-02; rel: 1.332e-02; norm: 4.696e-01; mom: 7.676e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 765; obj: 2.013e+00; abs: 9.485e-02; rel: 4.945e-02; norm: 4.092e-01; mom: 6.579e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 766; obj: 1.935e+00; abs: 7.761e-02; rel: 3.856e-02; norm: 5.154e-01; mom: 6.950e+00;

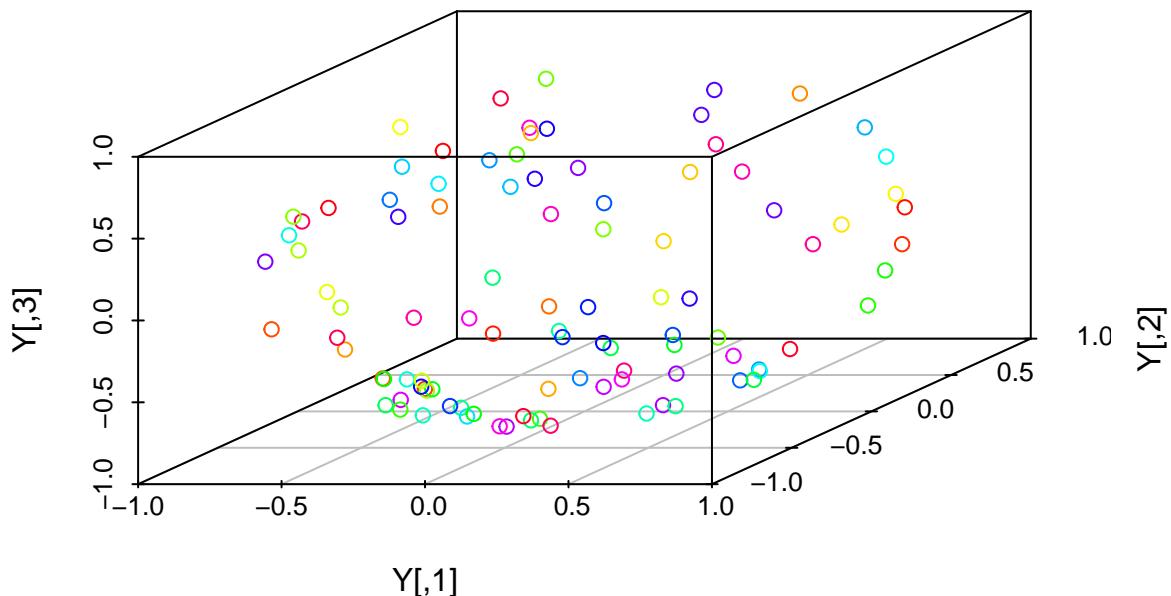
```

```

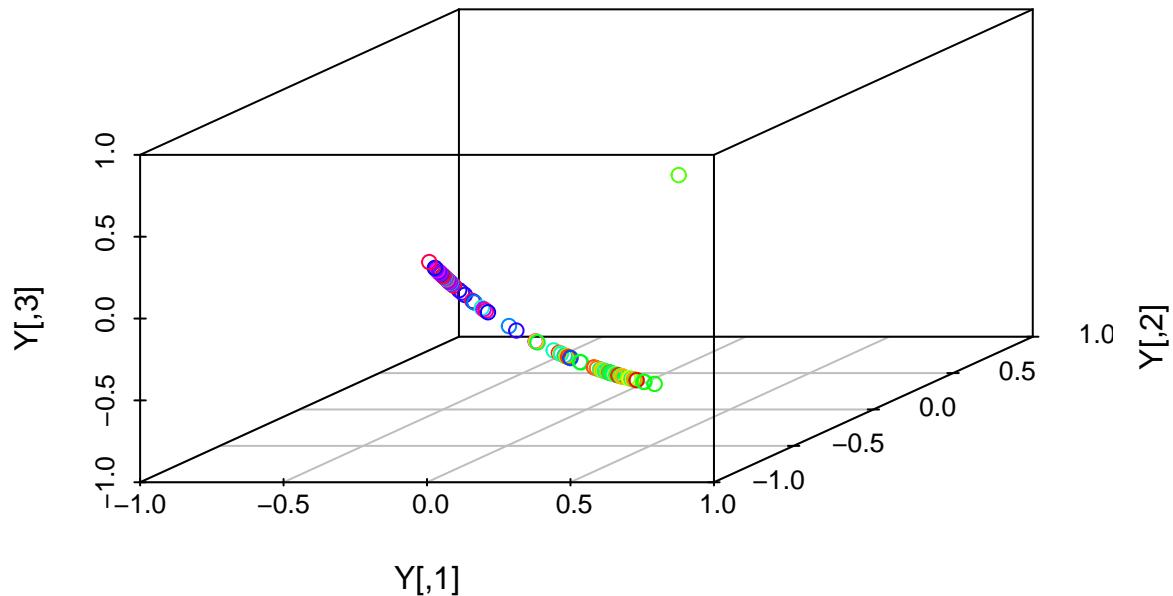
#> best it: 111; best obj: 1.061e+00
#> It: 767; obj: 1.951e+00; abs: 1.518e-02; rel: 7.842e-03; norm: 4.689e-01; mom: 7.758e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 768; obj: 2.006e+00; abs: 5.549e-02; rel: 2.845e-02; norm: 4.966e-01; mom: 7.320e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 769; obj: 1.920e+00; abs: 8.611e-02; rel: 4.293e-02; norm: 5.447e-01; mom: 8.030e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 770; obj: 2.033e+00; abs: 1.135e-01; rel: 5.911e-02; norm: 4.559e-01; mom: 7.671e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 771; obj: 2.016e+00; abs: 1.744e-02; rel: 8.576e-03; norm: 5.354e-01; mom: 7.819e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 772; obj: 1.987e+00; abs: 2.918e-02; rel: 1.447e-02; norm: 6.053e-01; mom: 8.365e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 773; obj: 1.903e+00; abs: 8.387e-02; rel: 4.222e-02; norm: 5.929e-01; mom: 7.940e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 774; obj: 1.962e+00; abs: 5.956e-02; rel: 3.130e-02; norm: 4.774e-01; mom: 7.758e+00;
#> best it: 111; best obj: 1.061e+00
#> It: 775; obj: 1.891e+00; abs: 7.159e-02; rel: 3.648e-02; norm: 5.058e-01; mom: 6.866e+00;
#> best it: 111; best obj: 1.061e+00

```

## Iteration 775



## Iteration 111



In this case results show again the insights obtained in the reduced dimension to the circumference. Let's visualize the results in the sphere:

```
rgl::plot3d(0, 0, 0, xlim = c(-1, 1), ylim = c(-1, 1), zlim = c(-1, 1),
            radius = 1, type = "s", col = "lightblue", lit = FALSE)
rgl::points3d(psc_sne_res_52$best_Y, col = cols)
```