SUPPLEMENT TO "SPATIAL BAYESIAN VARIABLE SELECTION AND GROUPING FOR HIGH-DIMENSIONAL SCALAR-ON-IMAGE REGRESSION"

By Fan Li^{*,†}, Tingting Zhang^{*,‡}, Quanli Wang[†], Marlen Z. Gonzalez[‡], Erin L. Maresh[‡], James A. Coan[‡]

Duke University[†] and University of Virginia [‡]

We provide the heatmaps of the voxels with top 10% highest posterior selection probabilities obtained resulted from Ising-DP, Ising-Gaussian and iid-Gaussian priors, respectively, in three regressions: the regression with the arousal measurement under alone condition as the response in dACC and in insula, respectively, and the regression with the valence measurement under hand-holding-with-partner condition as the response in insula. These plots show that the Bayesian model with the Ising-DP prior, among the three priors compared, has the most spatial clustering effect in voxel selection.

Fan Li and Quanli Wang Duke University Department of Statistical Science Durham, NC 27708-0251, U.S.A. E-mail: fli@stat.duke.edu quanli@stat.duke.edu TINGTING ZHANG UNIVERSITY OF VIRGINIA DEPARTMENT OF STATISTICS CHARLOTTESVILLE, VA 22904, U.S.A. E-mail: tz3b@virginia.edu

MARLEN Z. GONZALEZ, ERIN L. MARESH, AND JAMES A. COAN UNIVERSITY OF VIRGINIA DEPARTMENT OF PSYCHOLOGY CHARLOTTESVILLE, VA 22904, U.S.A. E-MAIL: mzg7uv@virginia.edu elm2cg@virginia.edu jcoan@virginia.edu

*Equally contributing authors

LI ET AL.

FIG 1. Heatmaps of top 10% selected voxels with highest posterior inclusion probabilities calculated using, respectively, Ising-DP, Ising-Gaussian and iid-Gaussian priors in the Bayesian regressing of subjects' arousal scores versus their magnitude estimates of brain response to threat of voxels in dACC and insula when subjects are alone.

Ising-DP



(b) Z=47 Ising-Gaussian



(c) Z=48





(e) Z=47 iid-Gaussian



(f) Z=48



(g) Z=46



(h) Z=47



(i) Z=48



Fig 2. Heatmaps of top 10% selected voxels with highest posterior inclusion probabilities calculated using, respectively, Ising-DP, Ising-Gaussian and iid-Gaussian priors in the Bayesian regressing of subjects' arousal scores versus their magnitude estimates of brain response to threat of voxels in insula and insula when subjects are alone.

Ising-DP



(b) Z=24

Ising-Gaussian



(c) Z=25



(d) Z=23



(e) Z=24 iid-Gaussian



(f) Z=25



(g) Z=23



(h) Z=24



(i) Z=25



LI ET AL.

FIG 3. Heatmaps of top 10% selected voxels with highest posterior inclusion probabilities calculated using, respectively, Ising-DP, Ising-Gaussian and iid-Gaussian priors in the Bayesian regressing of subjects' valence scores versus their magnitude estimates of brain response to threat of voxels in insula and insula when subjects are hand holding with their partners.

Ising-DP



Ising-Gaussian





(d) Z=23

(g) Z=23



(e) Z=24

iid-Gaussian

(h) Z=24



(f) Z=25

(i) Z=25

