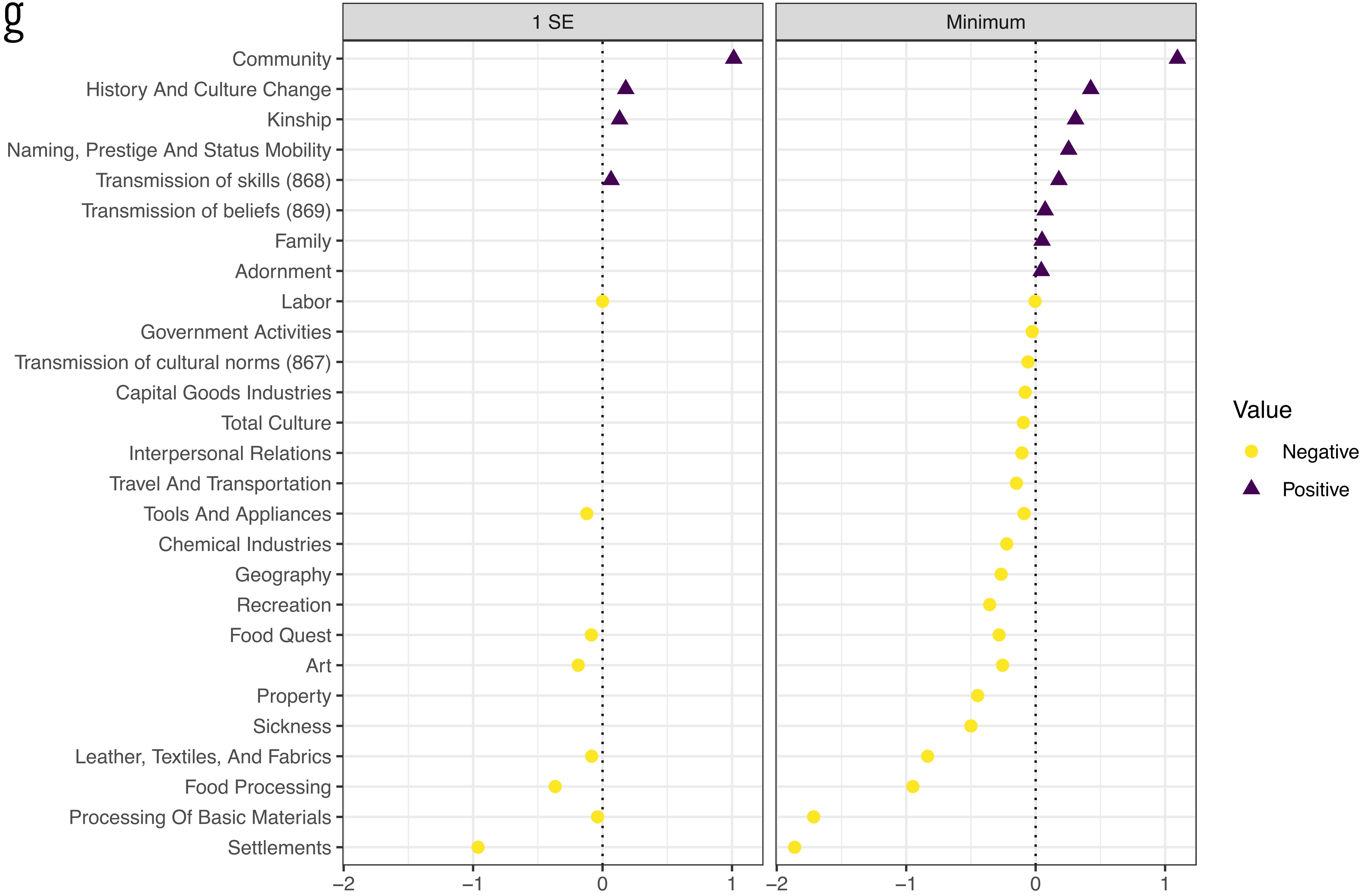
Predictors of evidence for teaching

Counts of evidence for teaching

Using subject codes to predict counts of evidence for teaching at the paragraph level $[0..7]$

43 unique subject code predictors

Poisson distributed elastic net lasso regression, λ minimum & λ 1SE via 20-fold CV



Predictors of evidence for teaching

Teaching vs. other processes

j	k
Cultural values	Domain
Religious	
Ecology	
Misc. skills	
Manufacturing	
Subsistence	
Female	Gender
Male	
Neutral	
Middle childhood	Age
Adolescence	
General	
Childhood	
Infancy	
Early childhood	
Oblique	Mode
Vertical	
Uknown	
Horizontal	

Using other coded variables to predict teaching vs. non-teaching social learning at the instance level

Multi-level logistic regression, index variable approach

Random effects for paragraph, document

Model

$$E(logit[P(y_i = 1)]) = \alpha_{j[i]} + \epsilon_i, for\ i = 1, \ldots, n,$$

Where $y_i = 1$ is evidence for teaching in a given instance i and $\alpha_j = \alpha + \sum_1^k r_{k,j} \sim N(\alpha, \sigma^2_{\alpha_j})$ is an "adjusted" mean for group j of categorical predictor k. Here, $r_{k,j}$ is a group-level effect of the k predictor.

The random effect for each index variable k is, $\alpha_j = \alpha + r_j \sim N(\alpha, \sigma^2_{\alpha_j})$ is interpreted as an "adjusted" mean for group j. Here, r_j is an group-level effect.

Priors

$$\alpha \sim Student - T(3, 0, 2.5)$$
$$sd_k \sim Student - T(3, 0, 2.5)$$
$$z_k \sim Normal(0, 1)$$

This model involves the use of non-centered parameterization for group-level coefficients, i.e., it defines the independent standard normal coefficient z_k as parameters and then scales them according to the standard deviations sd_k.