



Universiteit Utrecht

BRMS Example

Multilevel Analysis

Techniques and Applications

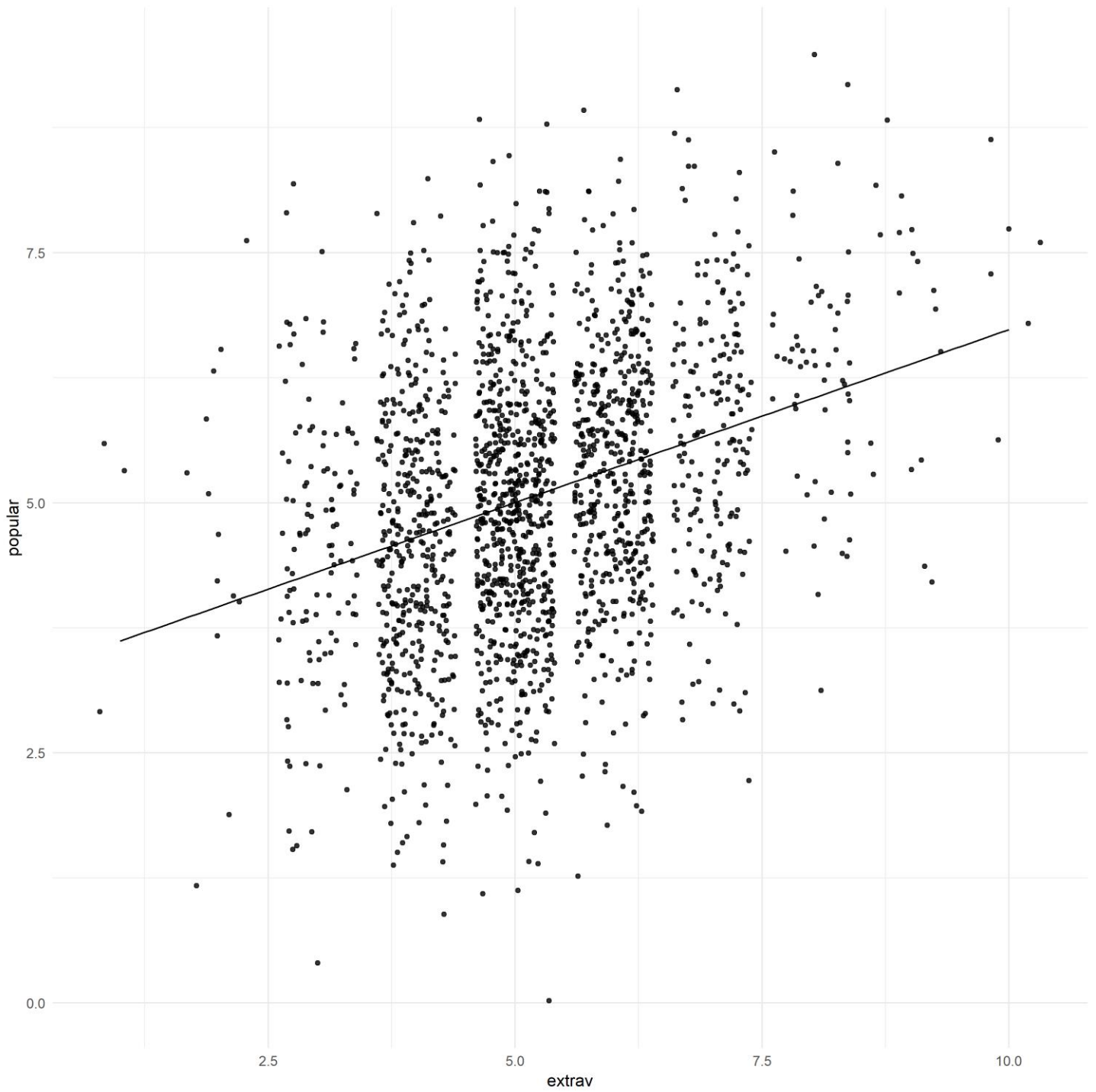
QUANTITATIVE METHODOLOGY SERIES

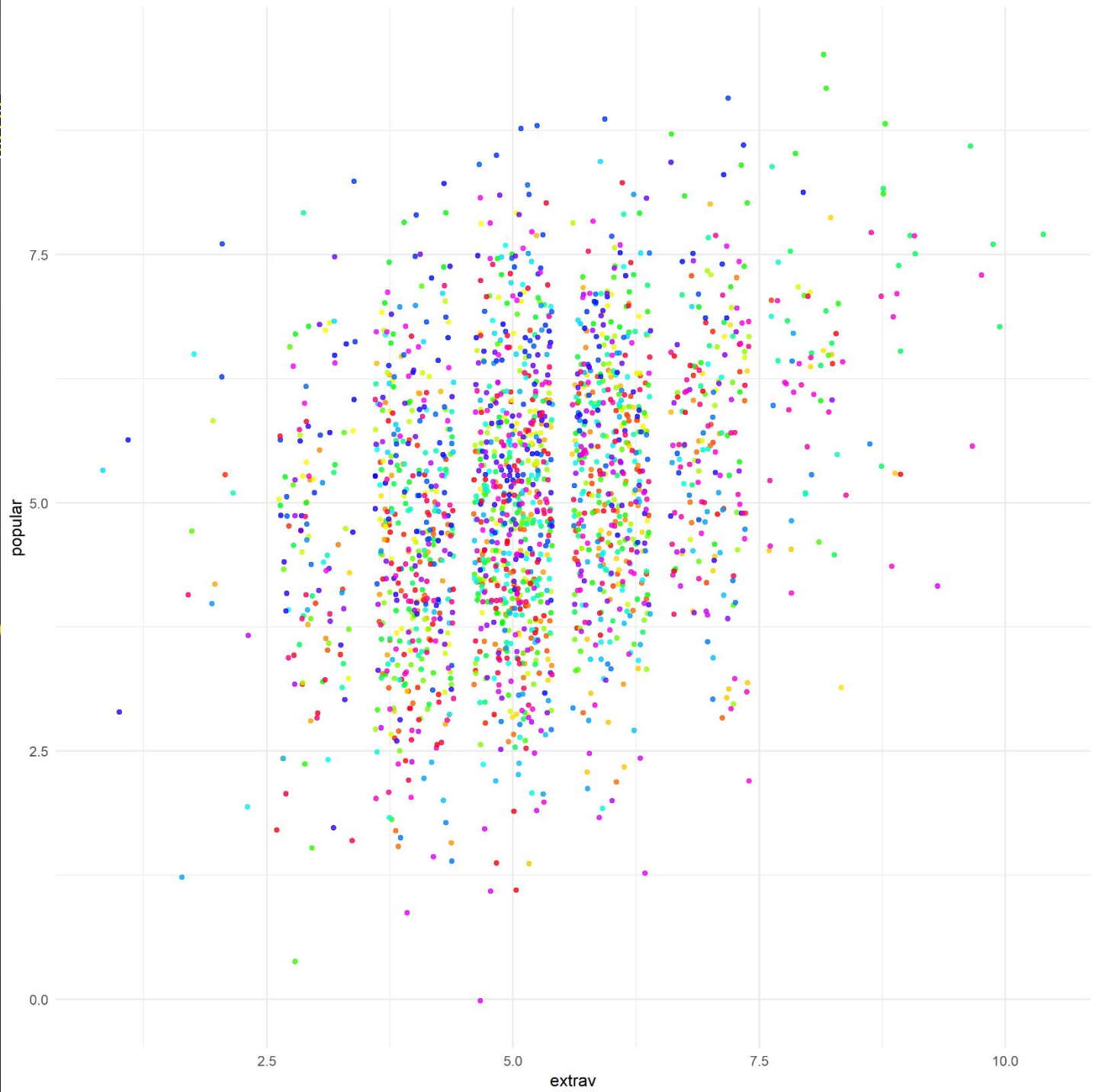
Third Edition

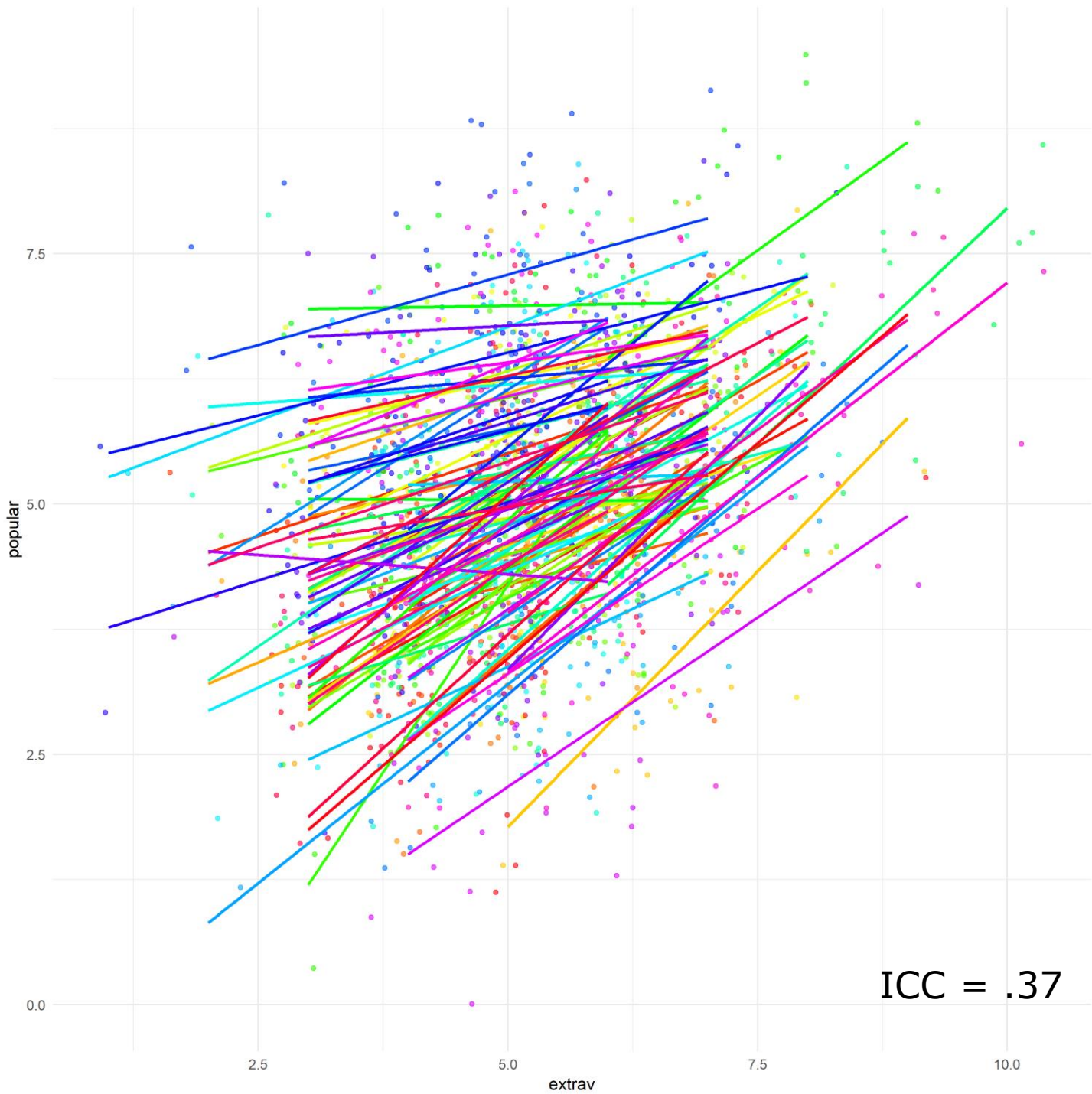
Joop J. Hox
Mirjam Moerbeek
Rens van de Schoot



The popularity dataset contains characteristics of pupils in 100 different classes
=> generated data!

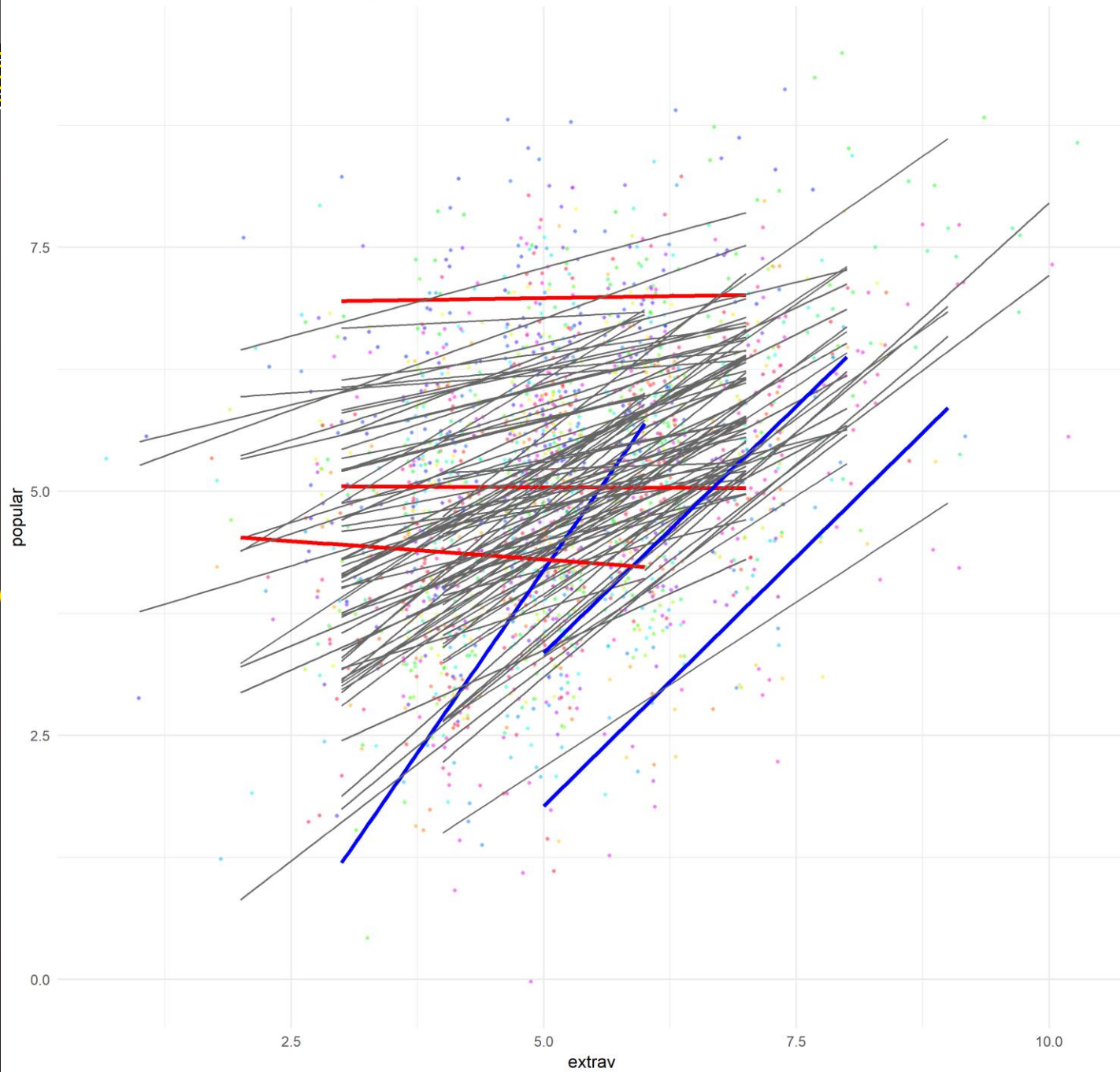




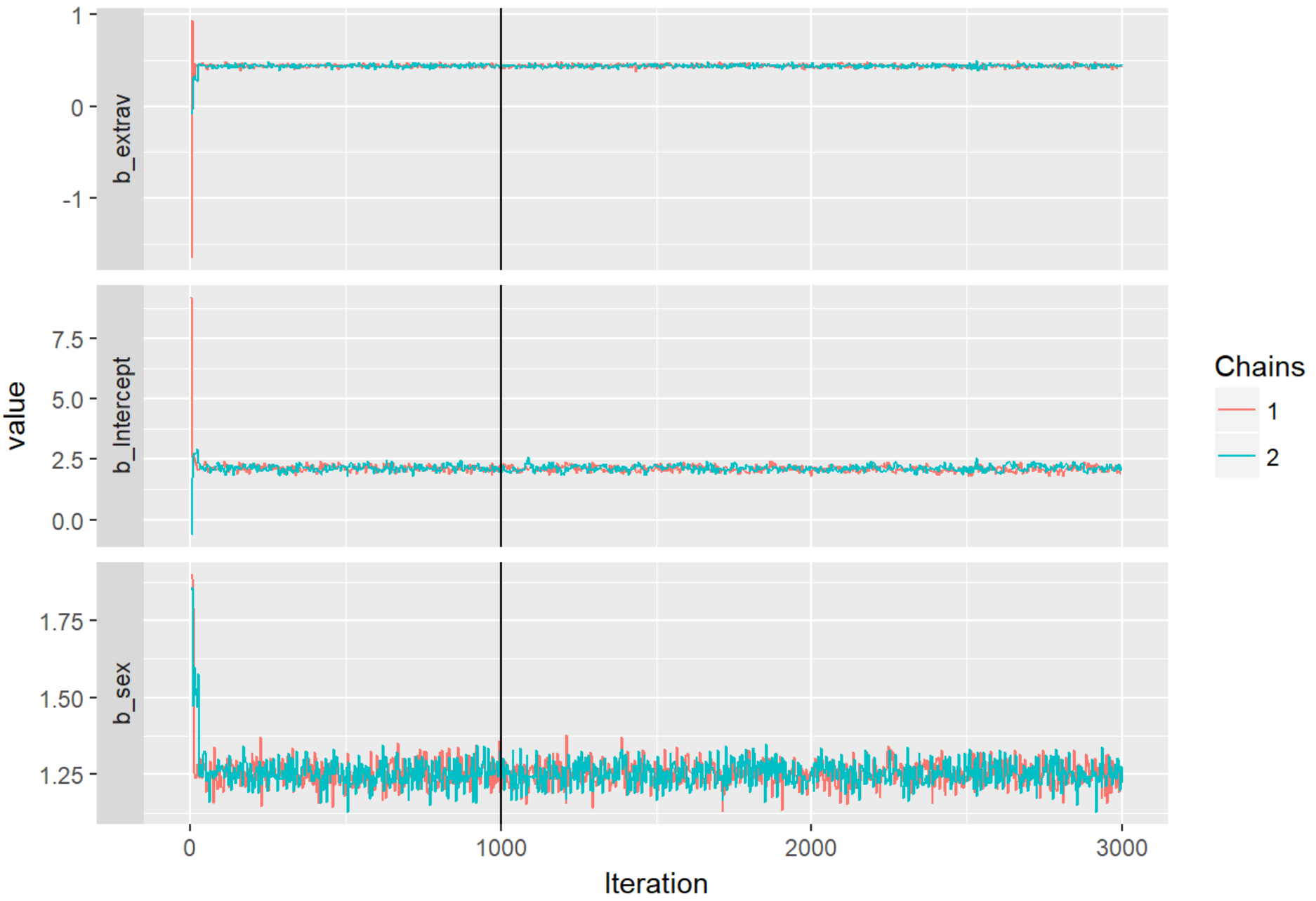


Linear Relationship Between Popularity and Extraversion for 100 Classes

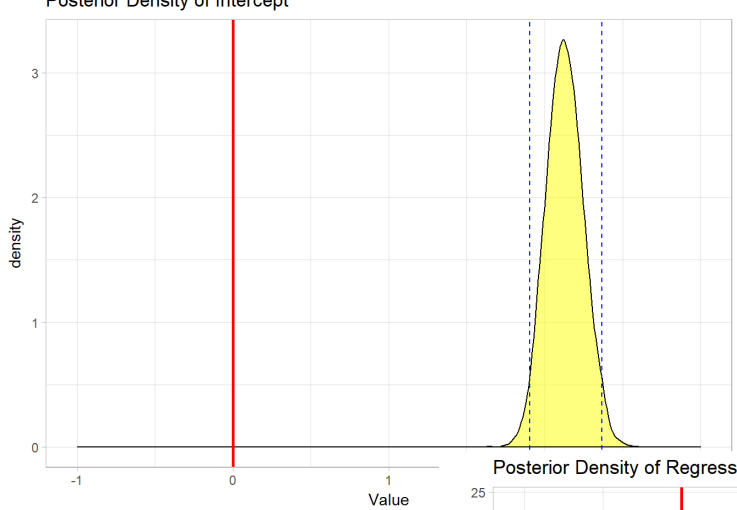
The 6 with the most extreme relationship have been highlighted red and blue



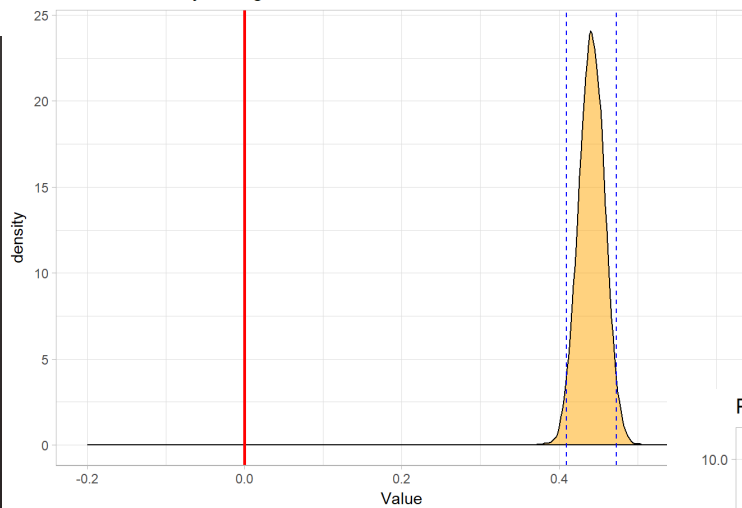
Caterpillar Plots



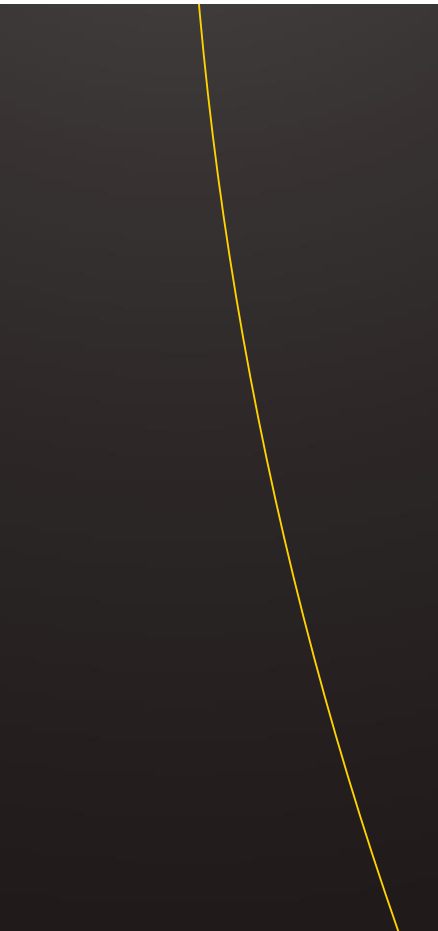
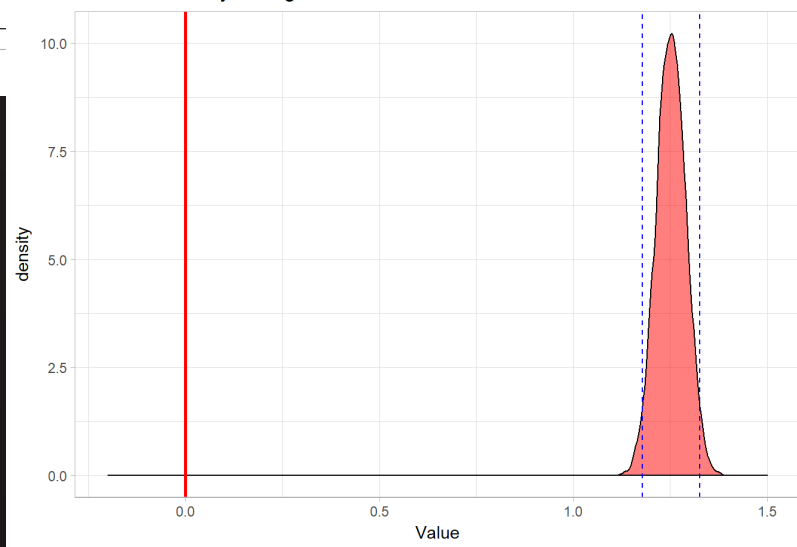
Posterior Density of Intercept



Posterior Density of Regression Coefficient for Extraversion

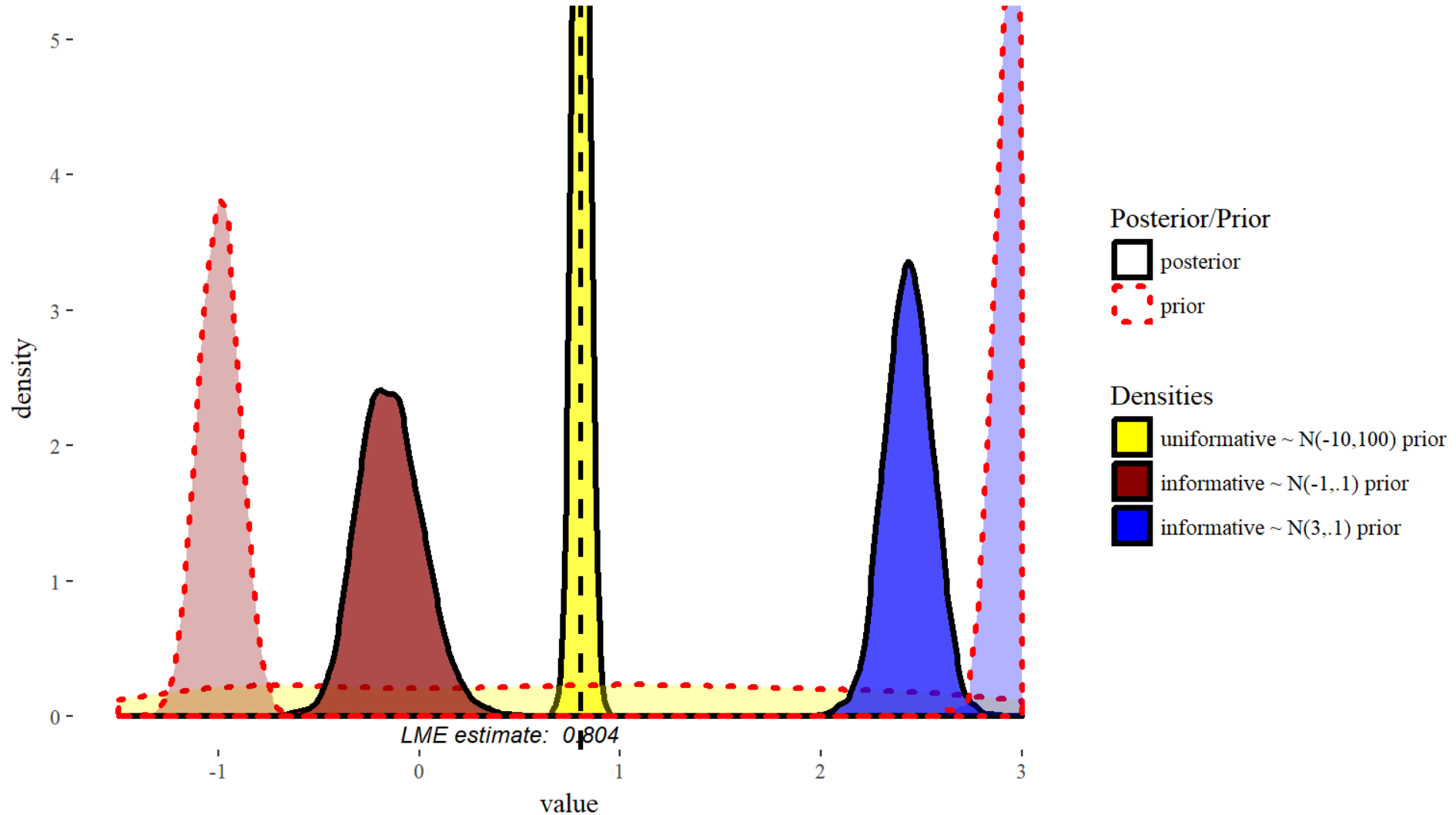


Posterior Density of Regression Coefficient for Sex



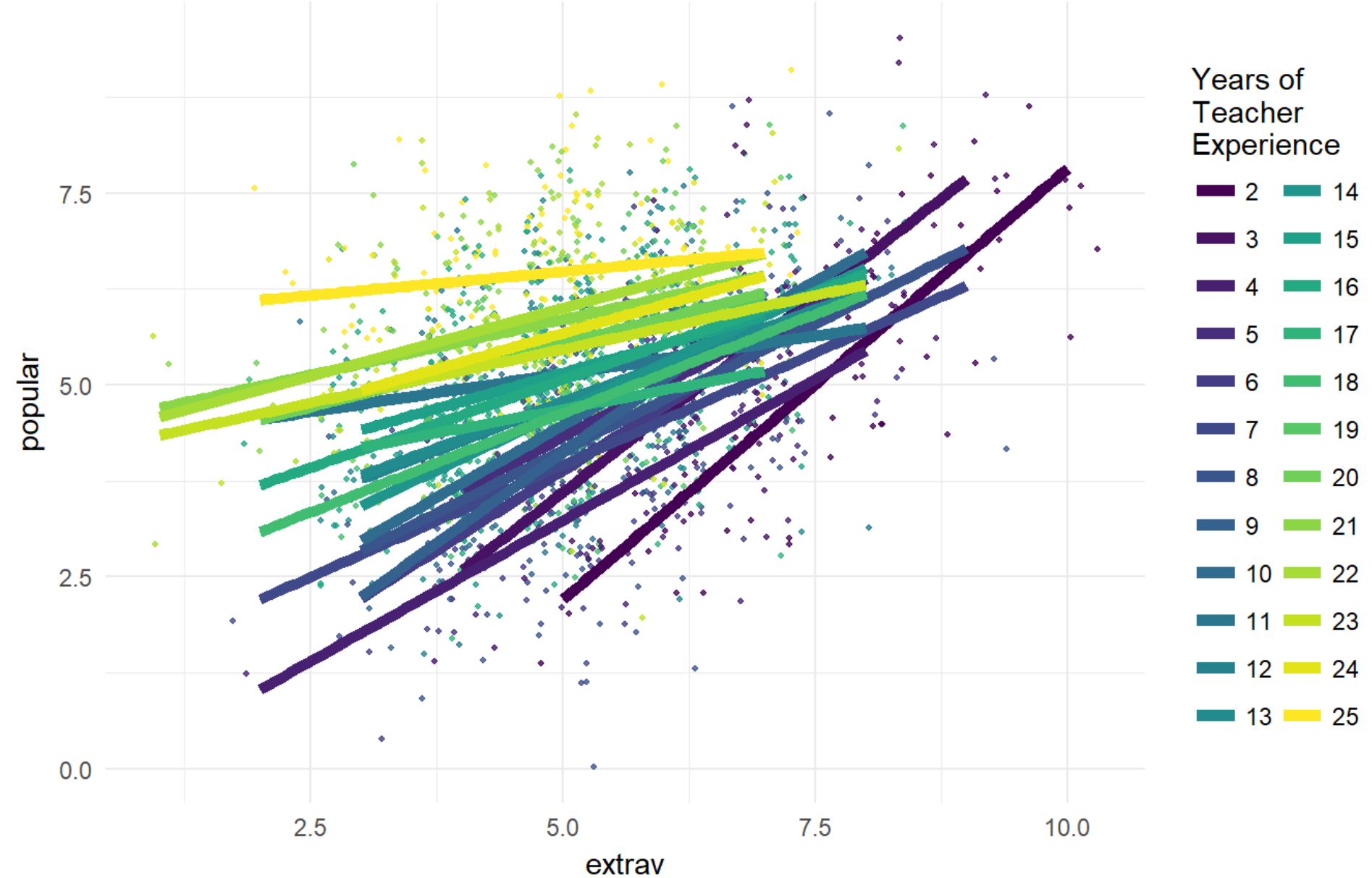
Influence of (Informative) Priors on $\gamma_{\text{Extraversion}}$

3 different densities of priors and posteriors and the LME estimate



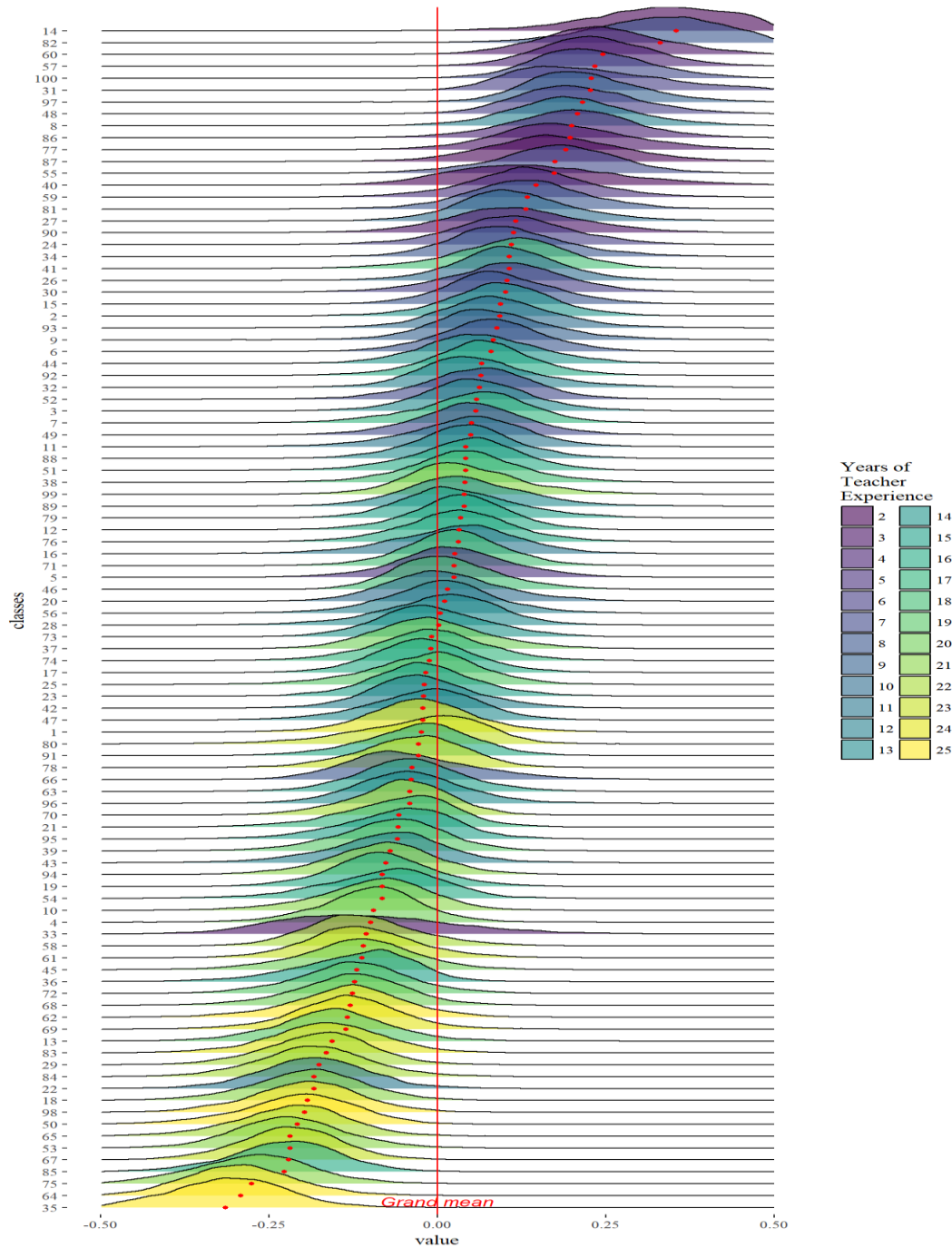
Linear Relationship for Different Years of Teacher Experience as Observed

The linear relationship between the two is not the same for all classes





Class Level Error of Regression Coefficient of Extraversion on Popularity (u_{2j})
posterior distribution of class level error of regression coefficient (u_{2j}) per class with the means in red





Mean CCI Distance of Posterior of (u_{2j}) for Different Years of Texp

In brackets the actual CCIs and in colour the parameter estimate

[0.0036; 0.4686]

