

Danielle Johnsen
Intro to Scientific Computing
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Project Homework 0: Proposals

- Unpublished data from Ariane Thomas on Jamestown Dogs and ancient DNA - Kitchen Lab. This is part of the final dissertation for Thomas' research, and notably, the data for the Jamestown dogs' files are not publicly available yet, I can procure a file from Ariane as a FAST file. I seek to replicate Figure 2., Bayesian Phylogeny. In the case you find this too complex for my capabilities, please see the below articles as a backup!

Ariane E. Thomas, Matthew E. Hill, Jr., Leah Stricker, Michael Lavin, David Givens, Alida de Flamingh, Kelsey Witt, Ripan Malhi, and Andrew Kitchen

- “The genetic overlap between schizophrenia and height” discusses the multiple variables that go into comparative genetic studies, including the presence of genetic variants and their respective functions. They used GWAS to understand the genetic overlap of the phenotypes for both height and SCZ. Their initial estimate was made using normal distributions, meta-analyses, and H-meta analyses.

Bacanu SA, Chen X, Kendler KS. The genetic overlap between schizophrenia and height. *Schizophr Res.* 2013 Dec;151(1-3):226-8. doi: 10.1016/j.schres.2013.10.016. Epub 2013 Nov 12. PMID: 24239283; PMCID: PMC3939673

- This article investigates psychobiological factors contributing to schizophrenia, specifically utilizing a niche genetic approach known as Strategic endophenotyping. This neurophysiological approach adheres to characteristics of gene action, genes of which contribute to schizophrenic susceptibility. This approach is more adequate for the complexity of psychiatric disorders as opposed to direct pathological answers. Because an endophenotype has a smaller gene composition than the entirety of Schizophrenia as a genetic complexity: The figure I seek to recreate Figure 5 as it includes the entire summation of the results that were sought. However, I am admittedly very ignorant about data and research despite being a graduate student and can't seem to deduce what data needs to be accessed here and consequently how I use it.

Bruce I. Turetsky, Monica E. Calkins, Gregory A. Light, Ann Olincy, Allen D. Radant, Neal R. Swerdlow, Neurophysiological Endophenotypes of Schizophrenia: The Viability of Selected Candidate Measures, *Schizophrenia Bulletin*, Volume 33, Issue 1, January 2007, Pages 69–94, <https://doi.org/10.1093/schbul/sbl060>

Unami taste receptors, selection thru recreating phylogeny of selected lineages for the receptor

Raw fastq and map, or start from intermediate output (other data)