Make sure that pink doesn’t ignore people with an unassigned gender.

One could investigate the SNPs present on each chip, and see if the variety of chips can be identified.

Command line notes

Made a project map, only containing the files given through the google doc.

Checking sex

plink --bfile Project/eye\_color --check-sex --out Project/eye\_color

plink --bfile Project/eye\_color --missing --out Project/eye\_color

Pruning

plink --bfile Project/eye\_color --indep-pairwise 500kb 5 0.2 --out Project/eye\_color

Identifying related individuals.

plink --bfile Project/eye\_color --extract Project/eye\_color.prune.in --genome --min 0.185 --out Project/eye\_color\_ibd

Removing related individuals

plink --bfile Project/eye\_color --remove Project/related\_individuals.txt --make-bed --out Project/rd\_eye

Pruning for PCA

plink --bfile Project/rd\_eye --indep-pairwise 500kb 5 0.2 --maf 0.05 --geno 0.05 --out Project/rd\_eye

Calculating the relationship matrix

plink --bfile Project/rd\_eye --extract Project/rd\_eye.prune.in --pca 20 --out Project/rd\_eye\_pca

Running fishers exact test

plink --bfile Project/rd\_eye --pheno Project/eye\_color\_blue\_brown.txt --fisher --out Project/fisher --allow-no-sex

Running a logistic regression test, adjusting for PC 1 to 3. Probably a good idea to adjust for more PC´s.

plink --bfile Project/rd\_eye --logistic --covar Project/rd\_eye\_pca.eigenvec --covar-number 1-3 --pheno Project/eye\_color\_blue\_brown.txt --allow-no-sex --out Project/logistic\_3

PC 1 to 10

plink --bfile Project/rd\_eye --logistic --covar Project/rd\_eye\_pca.eigenvec --covar-number 1-10 --pheno Project/eye\_color\_blue\_brown.txt --allow-no-sex --out Project/logistic\_10

Finding SNPs around the most significant.

plink --bfile Project/rd\_eye --allow-no-sex --recode A --snp rs1667394 --window 20 --pheno Project/eye\_color\_blue\_brown.txt --out Project/snp\_recode

Condition for most significant SNP (and 1-10 PCs).

plink --bfile Project/rd\_eye --logistic --covar Project/rd\_eye\_pca.eigenvec --covar-number 1-10 --pheno Project/eye\_color\_blue\_brown.txt --allow-no-sex --out Project/logistic\_condition --condition rs1667394

Running a logistic regression, with PC 1 to 10 and green hazel.

plink --bfile Project/rd\_eye --logistic --covar Project/rd\_eye\_pca.eigenvec --covar-number 1-10 --pheno Project/eye\_color\_green\_hazel.txt --allow-no-sex --out Project/logistic\_10\_green\_hazel --all-pheno

Investigating only chr 15

plink --bfile Project/rd\_eye --logistic --covar Project/rd\_eye\_pca.eigenvec --covar-number 1-10 --pheno Project/eye\_color\_green\_hazel.txt --allow-no-sex --out Project/logistic\_10\_green\_hazel --all-pheno --chr 15

Conditioning

plink --bfile Project/rd\_eye --logistic --covar Project/rd\_eye\_pca.eigenvec --covar-number 1-10 --pheno Project/eye\_color\_green\_hazel.txt --allow-no-sex --out Project/logistic\_10\_green\_hazel --all-pheno --chr 15 –condition rs12913832

Make additional analysis, it is a part of the grading. Try to be curious and find something interesting.

Investigating epistasis, based on the found significant SNPs.

plink --bfile Project/rd\_eye --epistasis set-by-all --set Project/test\_set.txt --pheno Project/eye\_color\_all\_colors.txt --allow-no-sex --out Project/set\_epistasis --all-pheno –chr 15

From rs1470608 to rs1667394, against the most significant SNP.

plink --bfile Project/rd\_eye --epistasis set-by-all --set Project/significant\_set.txt --pheno Project/eye\_color\_all\_colors.txt --allow-no-sex --out Project/set\_restricted\_epistasis --all-pheno --from rs1470608 --to rs1667394 --epi1 0.5

Outputting phenotypes for the above pair:

plink --bfile Project/rd\_eye --allow-no-sex --recode A --snps rs1129038, rs11636232 --pheno Project/eye\_color\_all\_colors.txt --out Project/snp\_4\_pheno

Outputting phenotypes for the most significant combination in the wide search.

plink --bfile Project/rd\_eye --allow-no-sex --recode A --snps rs916977, rs8043146 --pheno Project/eye\_color\_all\_colors.txt --out Project/snp\_4\_pheno\_not\_significant