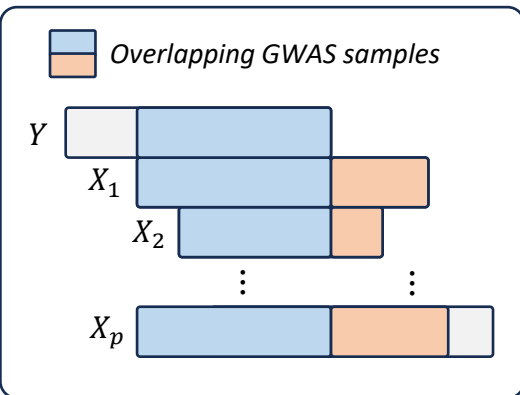
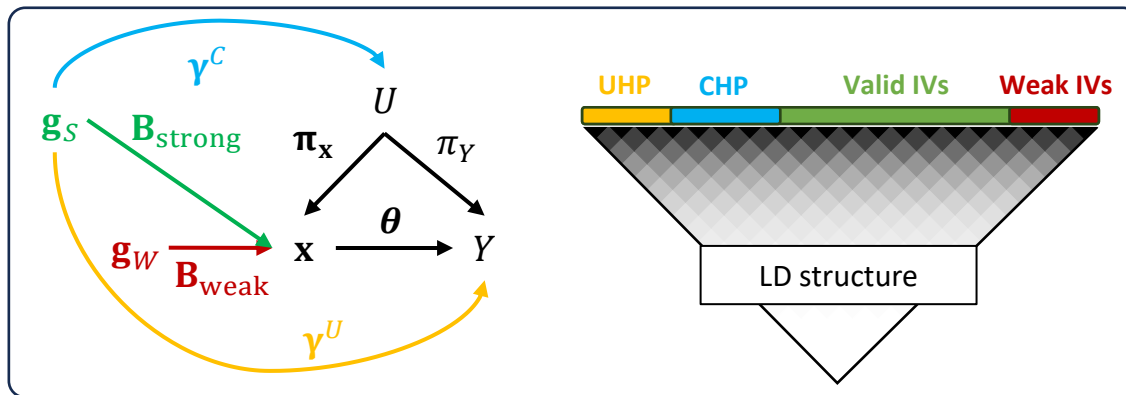


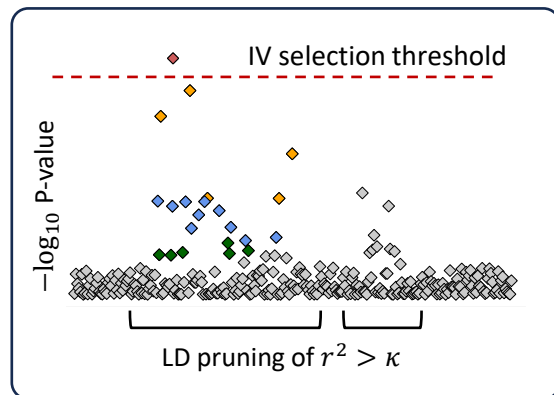
Exposure(s) and outcome GWAS



Causal model for exposure SNPs and outcome



Selection of IV Set



Users choose

- Number of exposures
- GWAS sample sizes
- Exposure(s) GWASs overlap
- Exposure & outcome GWAS overlap

- Variance in \mathbf{x} explained by U
- Variance in Y explained by (\mathbf{x}, U)
- Phenotypic correlation in \mathbf{x}
- Genetic correlation in \mathbf{x}
- Variance in (\mathbf{x}, Y, U) explained by $(\mathbf{g}_S, \mathbf{g}_W)$

- Number of causal SNPs (g_j 's)
- LD between SNPs in \mathbf{g}
- Number of weak, UHP, & CHP SNPs
- Variance in \mathbf{x} explained by:
Weak SNPs, UHP (γ^U), CHP (γ^C)

- Significance threshold for IV selection, based on test of:
 $H_{0j}: \beta_{j1} = \beta_{j2} = \dots = \beta_{jp} = 0$
- Joint test of association
- LD r^2 pruning threshold: κ