## Model

No GxSex

Weakly or negatively correlated genetic effects

Highly correlated effects, difference in magnitude ("amplification")

Mixture of covariance relationships

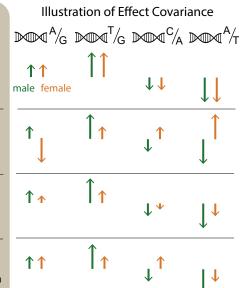
## Motivation

Little previous evidence for GxSex

Sexual dimorphism is pervasive and heritable contribution is expected to lie primarily in autosomes

Response to cues such as testosterone; evidence for GxE in non-human organisms

Heritability analysis often incompatible with either model or cannot distinguish between models



## Expectation from Heritability Analysis

- (a)  $h_m^2$  can only differ from  $h_{\hat{f}}^2$  through environmental variance differences
- (b)  $h_m^2 < h^2$  or  $h_f^2 < h^2$
- (a) Low or negative genetic correlation
- (b) h<sub>m</sub><sup>2</sup>, h<sub>f</sub><sup>2</sup> > h<sup>2</sup>, and the larger the difference, the lower the genetic correlation
- (a) High genetic correlation
- (b)  $h_m^2$  or  $h_f^2 < h^2$

Compatible with all observations; motivates:

- (a) Direct estimation of genetic effect covariance, rather than sole reliance on heritability estimates
- (b) Modelling mixture components