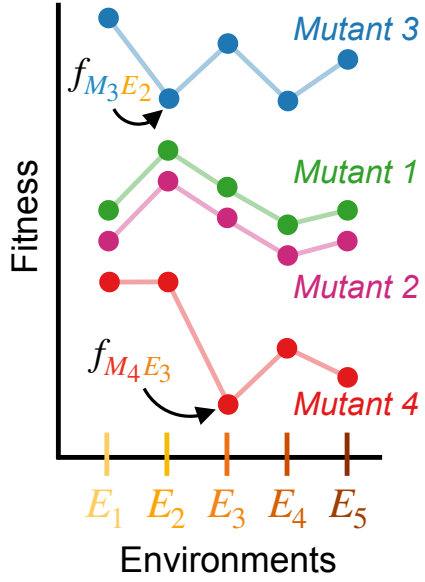
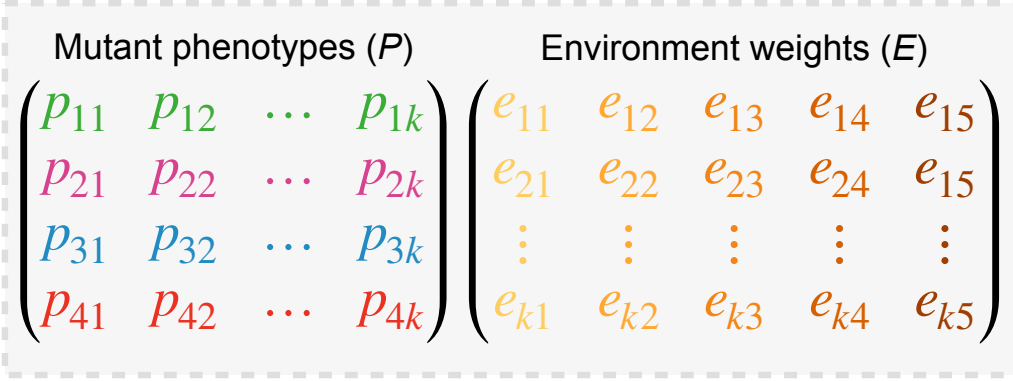


**A**

Measure fitness profiles of mutants across environments



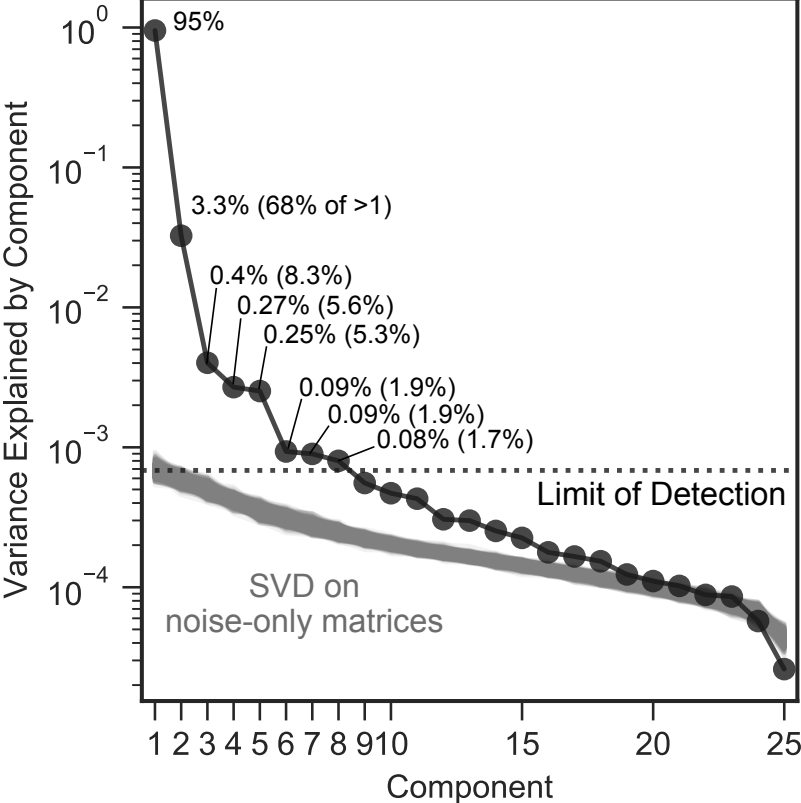
Infer mutant phenotypes and environment weights from fitness profiles using SVD



$$f_{M3E2} = p_{31}e_{12} + p_{32}e_{22} + \dots + p_{3k}e_{k2}$$

$$f_{M4E3} = p_{41}e_{13} + p_{42}e_{23} + \dots + p_{4k}e_{k3}$$

Linear model of phenotype to fitness

**B****C**