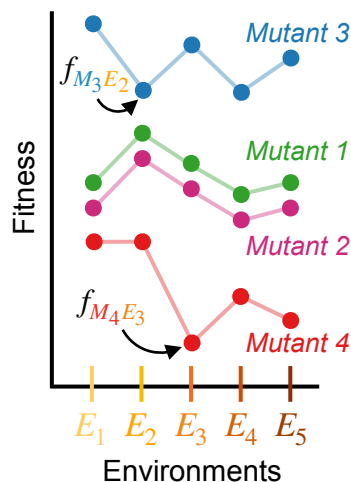


A

Measure fitness profiles of mutants across environments



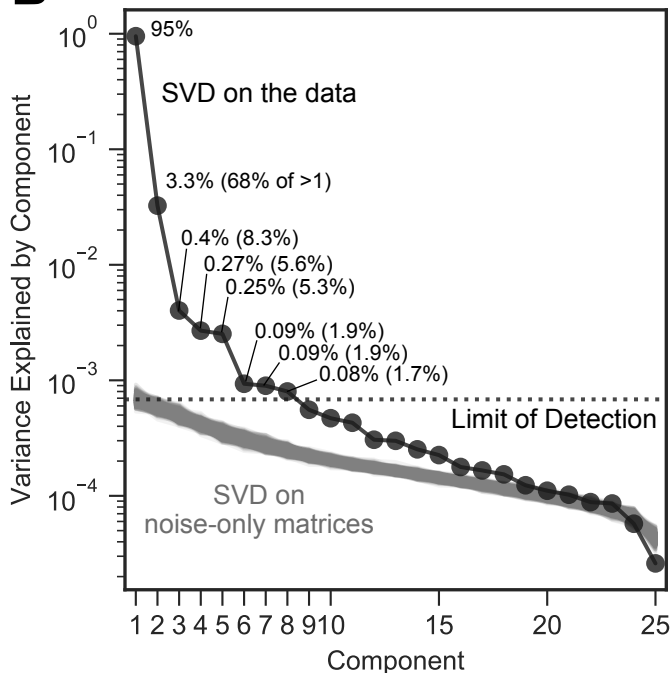
Infer mutant phenotypes and environment weights from fitness profiles using SVD

Mutant phenotypes (P)					Environment weights (E)				
p_{11}	p_{12}	\dots	p_{1k}	e_{11}	e_{12}	e_{13}	e_{14}	e_{15}	
p_{21}	p_{22}	\dots	p_{2k}	e_{21}	e_{22}	e_{23}	e_{24}	e_{25}	
p_{31}	p_{32}	\dots	p_{3k}	\vdots	\vdots	\vdots	\vdots	\vdots	
p_{41}	p_{42}	\dots	p_{4k}	e_{k1}	e_{k2}	e_{k3}	e_{k4}	e_{k5}	

$$f_{M_3E_2} = p_{31}e_{12} + p_{32}e_{22} + \dots + p_{3k}e_{k2}$$

$$f_{M_4E_3} = p_{41}e_{13} + p_{42}e_{23} + \dots + p_{4k}e_{k3}$$

Linear model of phenotype to fitness

B**C**