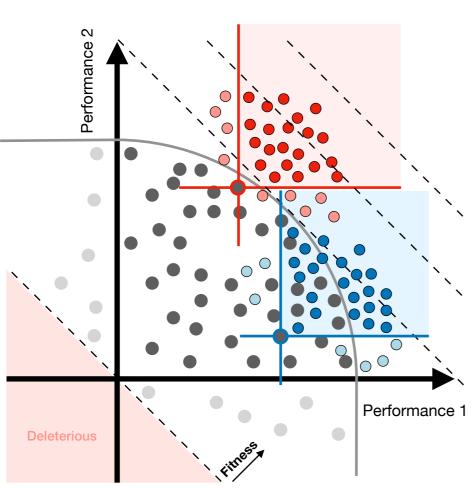
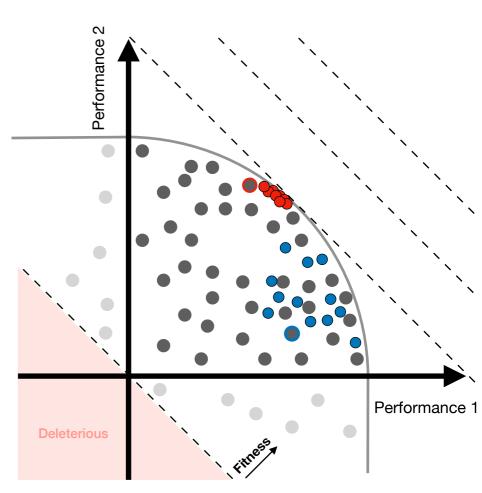


**First-step mutations** exhibit signs of adaptive pleiotropy and tradeoffs!

C



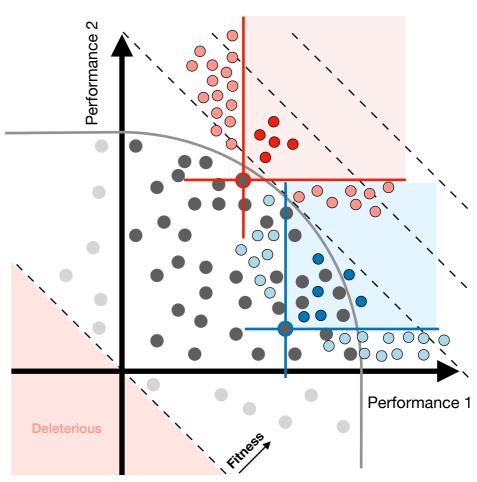
Only "constraint" is mutational distance: Second-step adaptive mutants continue to show a pattern of adaptive pleiotropy



В

D

Tradeoffs are driven by functional constraints: Second-step mutations cannot improve past these constraints



Accessibility of adaptive pleiotropic mutations is reduced:
Second-step mutations display new patterns of

trait improvement