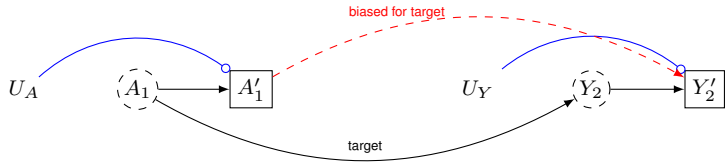
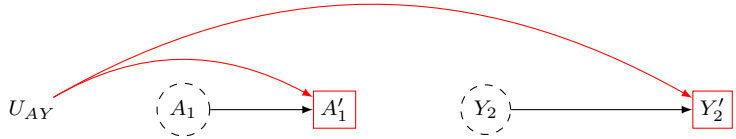
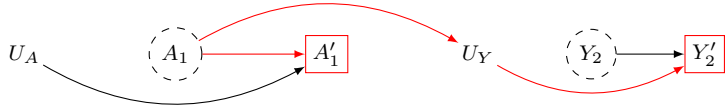
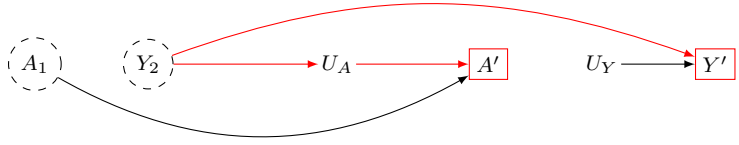
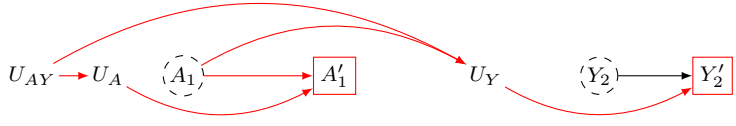
	Bias	Causal Diagram
1	**Uncorrelated errors under sharp null: no treatment effect**: Under sharp null, uncorrelated measurement errors do not lead to bias.	
2	**Uncorrelated errors except under sharp null**: Outside sharp null, uncorrelated measurement errors distort targeted effects.*	
3	**Correlated errors**: related, systematic errors in A and Y measurements that are related.	
4	**Directed error: exposure effects error of outcome**: A affects Y's measurement error.	
5	**Directed error: outcome affects error of exposure**: Y affects A's measurement error.	
6	**Correlated/directed error**: both systematic and correlated errors in A and Y measurements are from unmeasured source of dependency.	

Key:
A denotes the treatment;
Y denotes the outcome;
U denotes an unmeasured confounder;
L denotes a confounder;
→ asserts causality
X → X' denotes a latent variable X measured by proxy X'.
→ denotes a pathway for bias linking A to Y absent causation.
X indicates that conditioning on X introduces bias.
U_X —○ X' indicates that the error in a measured variable X' modifies the effect of $A \rightarrow Y$, such that the $ATE_{\text{target}} \neq \widehat{ATE}$