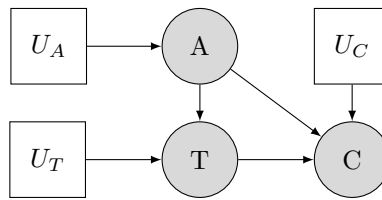# draft

Daniel Saggau

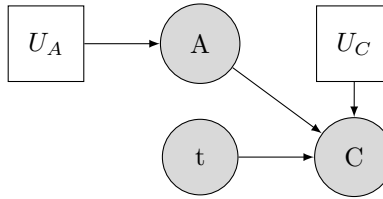### 4/19/2021

Figure 1: Structural Causal Model
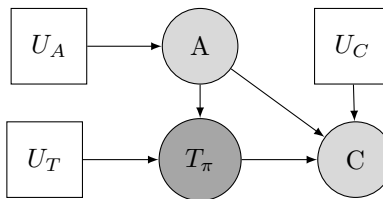

Figure 2: Atomic Intervention

Figure 3: Policy Intervention

Counterfactuals

Process is described as follows:

(a) Abduction: Cast probability $P(u)$ as conditional probability $P(u|\epsilon)$
(b) Action: Exchange $(X = x)$
(c) Prediction: Compute $(Y = y)$

Probabilistic Models vs SCMs

Method	CBN	SCM
Prediction	· Unstable · Volatile to parameter changes · Re-Estimate entire model	· Stable · More Natural Specification · Only estimate Δ CM
Intervention	· Costly for Non-Markovian Models · Unstable(Nature CP) · Only generic estimates(Δ CP)	· Pot. Cyclic Representation · Stable(Nature Eq.) · Context specific(Invariance of Eq.)
Counterfactuals	· **Impossible** · no information on latent factors(ϵ)	· Possible · Inclusion of latent factors