1. **Provide two examples to show that we can't enforce Sufficiency and Separation at the same time.**

Example 1: Separation is enforced, but Sufficiency is not

A: Gender, C: Diabetes, Y: Hyperlipidemia

Separation:

P (Diabetes = YES | Hyperlipidemia = YES, Gender = Female) = P (Diabetes = YES | Hyperlipidemia = YES) = 0.6459421684394565

Sufficiency:

P (Hyperlipidemia = YES | Diabetes = YES, Gender = Female) = 0.49198555817121536

P (Hyperlipidemia = YES | Diabetes = YES) = 0.5332058613502546

Gender	Diabetes	Hyperlipidemia	P (Gender, Diabetes, Hyperlipidemia)
Female	YES	YES	0.11225172138199817
Female	YES	NO	0.09827057313618189
Female	NO	YES	0.0615281104150018
Female	NO	NO	0.15694959506681816
Male	YES	YES	0.14940730281846376
Male	YES	NO	0.13079836191319313
Male	NO	YES	0.08189405838453619
Male	NO	NO	0.2089002768838069

Example 2: Sufficiency is enforced, but Separation is not

A: Gender, C: Hyperlipidemia, Y: Central Obesity

Separation:

P (Hyperlipidemia = YES | Central Obesity = YES, Gender = Female) = 0.5152677192429572

P (Hyperlipidemia = YES | Central Obesity = YES) = 0.47907127960975254

Sufficiency:

P (Central Obesity = YES | Hyperlipidemia = YES, Gender = Female) = P (Central Obesity = YES | Hyperlipidemia = YES) = 0.7876943228020956

Gender	Hyperlipidemia	Central Obesity	P (Gender, Hyperlipidemia, Central Obesity)
Female	YES	YES	0.136885386924
Female	YES	NO	0.03689444487299999
Female	NO	YES	0.14884534407600003
Female	NO	NO	0.106374824127

Male	YES	YES	0.18219476907599996
Male	YES	NO	0.04910659212699998
Male	NO	YES	0.19811349992399999
Male	NO	NO	0.14158513887299998