Give one example where sufficiency holds but not separation, and one where separation holds but not sufficiency.

Example 1: Sufficiency holds but not separation:

When A represents Central Obesity, C represents Hyperlipidemia and Y represents Vegetables, sufficiency holds but not separation:

P(Central Obesity | Hyperlipidemia = NO, Vegetables = >500g/d) = [0.583203690852557, 0.41679630914744303]

P(Central Obesity | Hyperlipidemia = NO) = [0.583203690852557, 0.41679630914744303]

Therefore, P(Central Obesity | Hyperlipidemia = NO, Vegetables = >500g/d) = P(Central Obesity | Hyperlipidemia = NO), sufficiency holds

However, P(Central Obesity | Vegetables = >500g/d) = [0.6224310263612428, 0.37756897363875713], separation does not hold

Example 2: Separation holds but not sufficiency:

When A represents Central Obesity, B represents Hyoerlipidemia and C represents Gender, Separation holds but not sufficiency:

P(Central Obesity | Hyperlipidemia = NO, Gender = Female) = [0.583203690852557, 0.41679630914744303]

P(Central Obesity | Gender = Female) = [0.583203690852557, 0.41679630914744303]

Therefore, P(Central Obesity | Hyperlipidemia = NO, Gender = Female) = P(Central Obesity | Gender = Female) and separation holds.

However, P(Central Obesity | Hyperlipidemia = NO) = [0.6580471889210673, 0.34195281107893266], sufficiency does not hold.