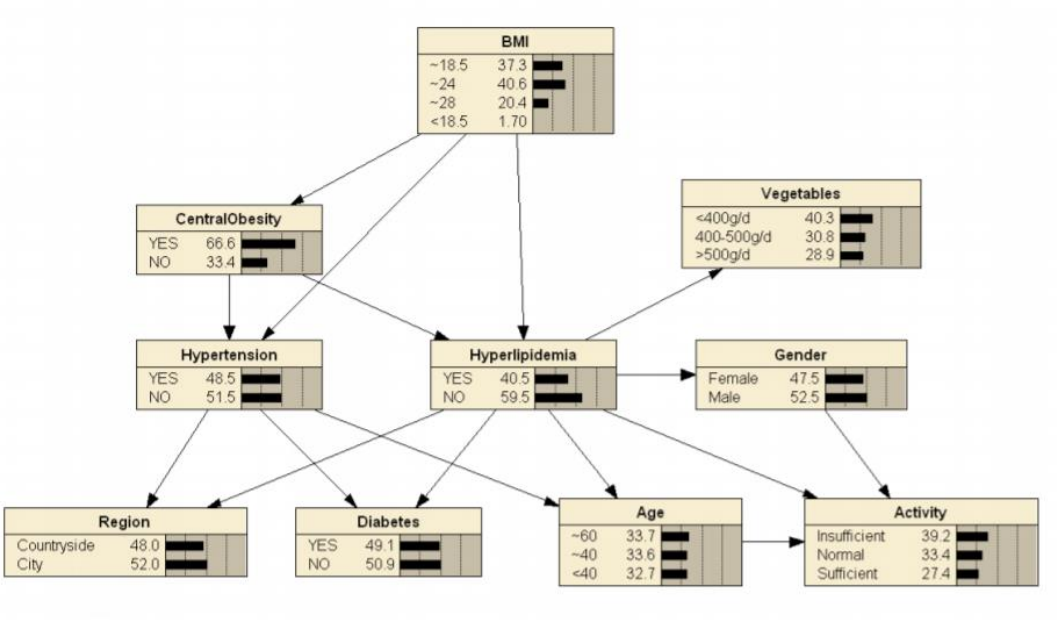

We consider Hyperlipidemia as the ground truth.

1) Proof when separation holds, sufficiency fails.

By calculation we can get:

P(vg = '<400g/d' | hl= 'YES', ht = 'YES') = P(vg = '<400g/d' | hl= 'YES') = 0.579

Where we can see separation holds.

Now we check if sufficiency holds:

P(hl= 'YES'| vg = '<400g/d' ,ht = 'YES') = 0.6390947454432463

P(hl= 'YES'| vg = '<400g/d') = 0.5821287241184987

The data above shows that sufficiency does not hold.

2) Proof when sufficiency holds, separation fails.

By calculation we can get:

P(hl= ‘YES'| co = 'YES', bmi = '~18.5', ht = 'NO')

= P(hl= ‘YES'| co = 'YES', bmi = '~18.5')

= 0.21850713898427612

Where we can see sufficiency holds.

Then we check if separation holds:

P(co = 'YES', bmi = '~18.5'|hl= ‘YES' ,ht = 'NO') = 0.1325567200235734

P(co = 'YES', bmi = '~18.5'|hl= ‘YES') = 0.09385561378061805

The data above shows that separation does not hold.

We can conclude that: when sufficiency holds, separation does not, and when separation holds, sufficiency does not.