

Question 3:

Examples that I found with sufficient and separated can not be satisfied at the same time are as follows

Not separated but sufficient:

```
print("
print(" ##### --> ais not sep <-- #####
print("
for y in ['YES', 'NO']:
    for v in ['<400g/d', '400-500g/d', '>500g/d']:
        vg.set_evidence(v)
        co.set_evidence(y)
        q1 = VE(medical, hl, [co])
        q2 = VE(medical, hl, [co, vg])

        for i in [0, 1]:
            print("query1 value:{}".format(q1[i]), " query2 value:{}".format(q2[i]))
print("
print(" ##### --> ais SUFFICIENT <-- #####
print("
for y in ['YES', 'NO']:
    for v in ['<400g/d', '400-500g/d', '>500g/d']:
        vg.set_evidence(v)
        hl.set_evidence(y)
        q1 = VE(medical, co, [hl])
        q2 = VE(medical, co, [hl, vg])

        for i in [0, 1]:
            print("query1 value:{}".format(q1[i]), " query2 value:{}".format(q2[i]))
```

Separated but not sufficient

```
print("
print(" ##### --> ais SEPERATED <-- #####
print("
for y in ['YES', 'NO']:
    for v in ['<400g/d', '400-500g/d', '>500g/d']:
        vg.set_evidence(v)
        hl.set_evidence(y)
        q1 = VE(medical, co, [hl])
        q2 = VE(medical, co, [hl, vg])

        for i in [0, 1]:
            print("query1 value:{}".format(q1[i]), " query2 value:{}".format(q2[i]))
print("
print(" ##### --> ais not SUFFICIENT <-- #####
print("
for y in ['YES', 'NO']:
    for v in ['<400g/d', '400-500g/d', '>500g/d']:
        vg.set_evidence(v)
        co.set_evidence(y)
        q1 = VE(medical, hl, [co])
        q2 = VE(medical, hl, [co, vg])

        for i in [0, 1]:
            print("query1 value:{}".format(q1[i]), " query2 value:{}".format(q2[i]))
```

The generated result are as follows: (sufficient numbers are the same)

```
##### --> ais not sep <-- #####

query1 value:0.47907127960975254 query2 value:0.6529636101374299
query1 value:0.5209287203902474 query2 value:0.34703638986257007
query1 value:0.47907127960975254 query2 value:0.44632435363534884
query1 value:0.5209287203902474 query2 value:0.5536756463646513
query1 value:0.47907127960975254 query2 value:0.24276265325878008
query1 value:0.5209287203902474 query2 value:0.75723734674122
query1 value:0.25751820422145094 query2 value:0.41506821354627205
query1 value:0.742481795778549 query2 value:0.584931786453728
query1 value:0.25751820422145094 query2 value:0.2331378379426372
query1 value:0.742481795778549 query2 value:0.7668621620573627
query1 value:0.25751820422145094 query2 value:0.10786503809371742
query1 value:0.742481795778549 query2 value:0.8921349619062826

##### --> ais SUFFICIENT <-- #####

query1 value:0.7876943228020956 query2 value:0.7876943228020956
query1 value:0.2123056771979044 query2 value:0.2123056771979044
query1 value:0.7876943228020956 query2 value:0.7876943228020956
query1 value:0.2123056771979044 query2 value:0.21230567719790439
query1 value:0.7876943228020956 query2 value:0.7876943228020956
query1 value:0.2123056771979044 query2 value:0.21230567719790439
query1 value:0.5832036908525571 query2 value:0.583203690852557
query1 value:0.41679630914744303 query2 value:0.416796309147443
query1 value:0.5832036908525571 query2 value:0.583203690852557
query1 value:0.41679630914744303 query2 value:0.416796309147443
query1 value:0.5832036908525571 query2 value:0.583203690852557
query1 value:0.41679630914744303 query2 value:0.41679630914744303
```

The generated result are as follows: (separated numbers are the same)

```
##### --> ais SEPERATED <-- #####

query1 value:0.7876943228020956 query2 value:0.7876943228020956
query1 value:0.2123056771979044 query2 value:0.2123056771979044
query1 value:0.7876943228020956 query2 value:0.7876943228020956
query1 value:0.2123056771979044 query2 value:0.21230567719790439
query1 value:0.7876943228020956 query2 value:0.7876943228020956
query1 value:0.2123056771979044 query2 value:0.21230567719790439
query1 value:0.5832036908525571 query2 value:0.583203690852557
query1 value:0.41679630914744303 query2 value:0.416796309147443
query1 value:0.5832036908525571 query2 value:0.583203690852557
query1 value:0.41679630914744303 query2 value:0.416796309147443
query1 value:0.5832036908525571 query2 value:0.583203690852557
query1 value:0.41679630914744303 query2 value:0.41679630914744303

##### --> ais not SUFFICIENT <-- #####

query1 value:0.47907127960975254 query2 value:0.6529636101374299
query1 value:0.5209287203902474 query2 value:0.34703638986257007
query1 value:0.47907127960975254 query2 value:0.44632435363534884
query1 value:0.5209287203902474 query2 value:0.5536756463646513
query1 value:0.47907127960975254 query2 value:0.24276265325878008
query1 value:0.5209287203902474 query2 value:0.75723734674122
query1 value:0.25751820422145094 query2 value:0.41506821354627205
query1 value:0.742481795778549 query2 value:0.584931786453728
query1 value:0.25751820422145094 query2 value:0.2331378379426372
query1 value:0.742481795778549 query2 value:0.7668621620573627
query1 value:0.25751820422145094 query2 value:0.10786503809371742
query1 value:0.742481795778549 query2 value:0.8921349619062826
```