Normalization: P(A|B) = αP(A,B)

P(EatRight=true | Healthy=true) = αP(EatRight=true ^ Healthy=true) = α0.6

P(EatRight=true | Healthy=false) = αP(EatRight=true ^ Healthy=false)= α0.2

α0.6 + α0.2 = 1 => α0.8 = 1 => α = 1.25

P(EatRight=true | Healthy=true) = 0.75

P(EatRight=true | Healthy=false) = 0.25

P(Exercise=true | Healthy=true) = αP(Exercise=true | Healthy=true) = α0.8

P(Exercise=true | Healthy=false) = αP(Exercise=true | Healthy=false) = α0.3

α0.8 + α0.3 = 1 => α1.1 = 1 => α = 0.90909…

P(Exercise=true | Healthy=true) = 0.7272

P(Exercise=true | Healthy=false) = 0.2727

Since EatRight and Exercise are conditionally independent given Healthy,

P((EatRight|Healthy) | (Exercise|Healthy)) = P(EatRight|Healthy) \* P(Exercise|Healthy)

So:

P(EatRight=true | Healthy=true) = 0.75

P(EatRight=true | Healthy=false) = 0.25

P(Exercise=true | Healthy=true) = 0.7272

P(Exercise=true | Healthy=false) = 0.2727

=>

P(Healthy=true | EatRight=true ^ Exercise=true)

= [P(EatRight=true ^ Exercise=true | Healthy=true) P(Healthy=true)]

/ P(EatRight=true ^ Exercise=true)

= (0.75 \* 0.7272 \* 0.8) / (0.75 \* 0.7272) = 0.8

P(Healthy=false | EatRight=true ^ Exercise=true)

= [P(EatRight=true ^ Exercise=true | Healthy=false) P(Healthy=true)]

/ P(EatRight=true ^ Exercise=true)

= (0.75 \* 0.7272 \* 0.2) / (0.75 \* 0.7272) = 0.2

4.

breeze = ¬breeze1,1 ^ breeze2,1

known = ¬pit1,1 ^ ¬pit2,1 ^ ¬pit1,2

frontier = {pit1,3, pit2,2}