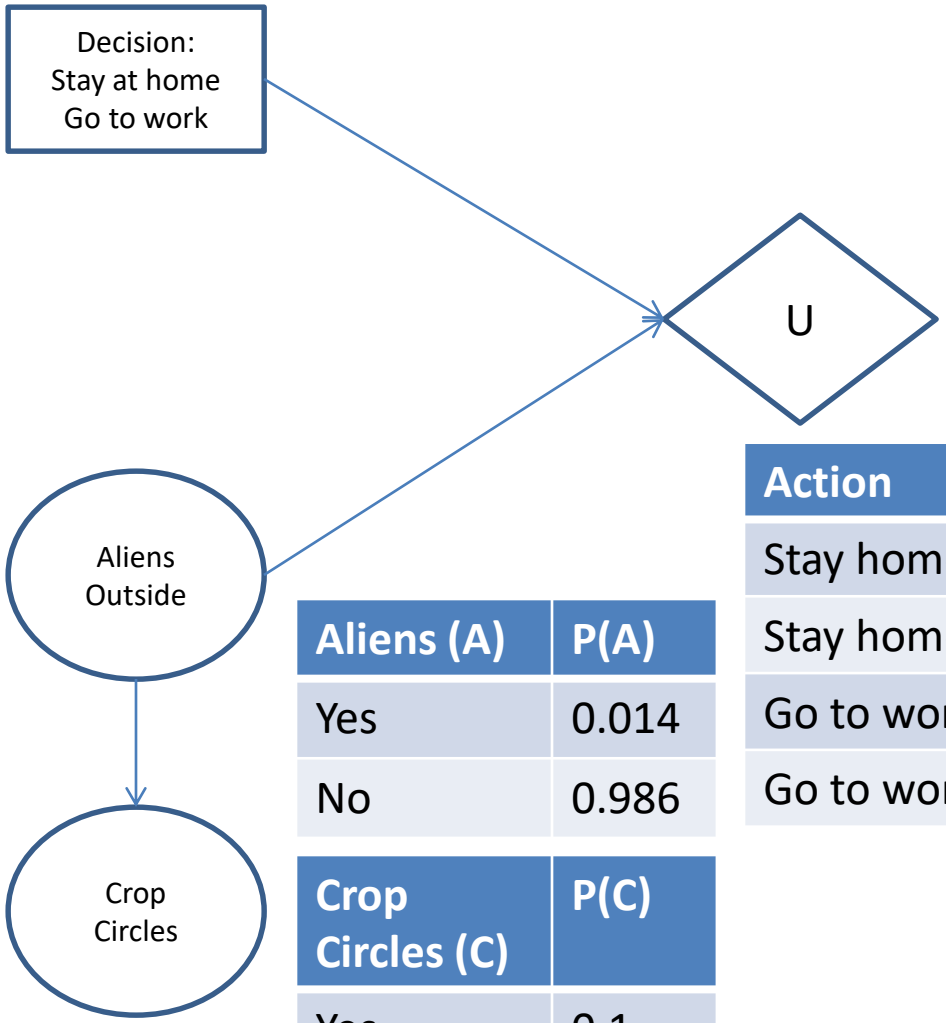

C	A	P(A|C)
Yes	Yes	0.05
Yes	No	0.95
No	Yes	0.01
No	No	0.99

Aliens (A)	P(A)
Yes	0.014
No	0.986

Crop Circles (C)	P(C)
Yes	0.1
No	0.9

Action	Aliens	Utility
Stay home	Yes	-100
Stay home	No	-5
Go to work	Yes	-1000
Go to work	No	-50

Let's say we know nothing at this point:

- EU(Stay) $= \sum_{aliens} P(aliens)U(Stay, aliens)$
  $= 0.014*-100 + 0.986*-5$
  $= -1.4 + -4.93$
  $= -6.33$
- EU(Go) $= \sum_{aliens} P(aliens)U(Go, aliens)$
  $= 0.014*-1000 + 0.986*-50$
  $= -14 + -49.3$
  $= -63.3$
- MEU(ϕ) $= \max_{actions} EU(action)$
  $= -6.33$ (Stay)

We can get evidence by opening the curtains and checking for crop circles:

- EU(Stay|+crop) $= \sum_{aliens} P(aliens|+crop)U(Stay, aliens)$
  $= 0.05*-100 + 0.95*-5$
  $= -5 + -4.75$
  $= -9.75$
- EU(Go|+crop)$= \sum_{aliens} P(aliens|+crop)U(Go, aliens)$
  $= 0.05*-1000 + 0.95*-50$
  $= -50 + -47.5$
  $= -97.5$
- MEU(+crop) = -9.75 (Stay)

We can get evidence by opening the curtains and checking for crop circles:

- $EU(Stay|\text{-crop}) = \sum_{aliens} P(aliens|\text{-crop})U(Stay, aliens)$
  $= 0.01*\text{-}100 + 0.99*\text{-}5$
  $= \text{-}1 + \text{-}4.95$
  $= \text{-}5.95$
- $EU(Go|\text{-crop}) = \sum_{aliens} P(aliens|\text{-crop})U(Go, aliens)$
  $= 0.01*\text{-}1000 + 0.99*\text{-}50$
  $= \text{-}10 + \text{-}49.5$
  $= \text{-}59.5$
- MEU(-crop) = -5.95 (Stay)

We can get evidence by opening the curtains and checking for crop circles:

- $VPI(E'|e) = \sum_{e'} P(e'|e)MEU(e,e') - MEU(e)$

  $= (-0.1*-9.75 + 0.9*-5.95) - -6.33$

  $= -0.975 + -5.355 - -6.33$

  $= -6.33 - -6.33$

  $= 0.0$