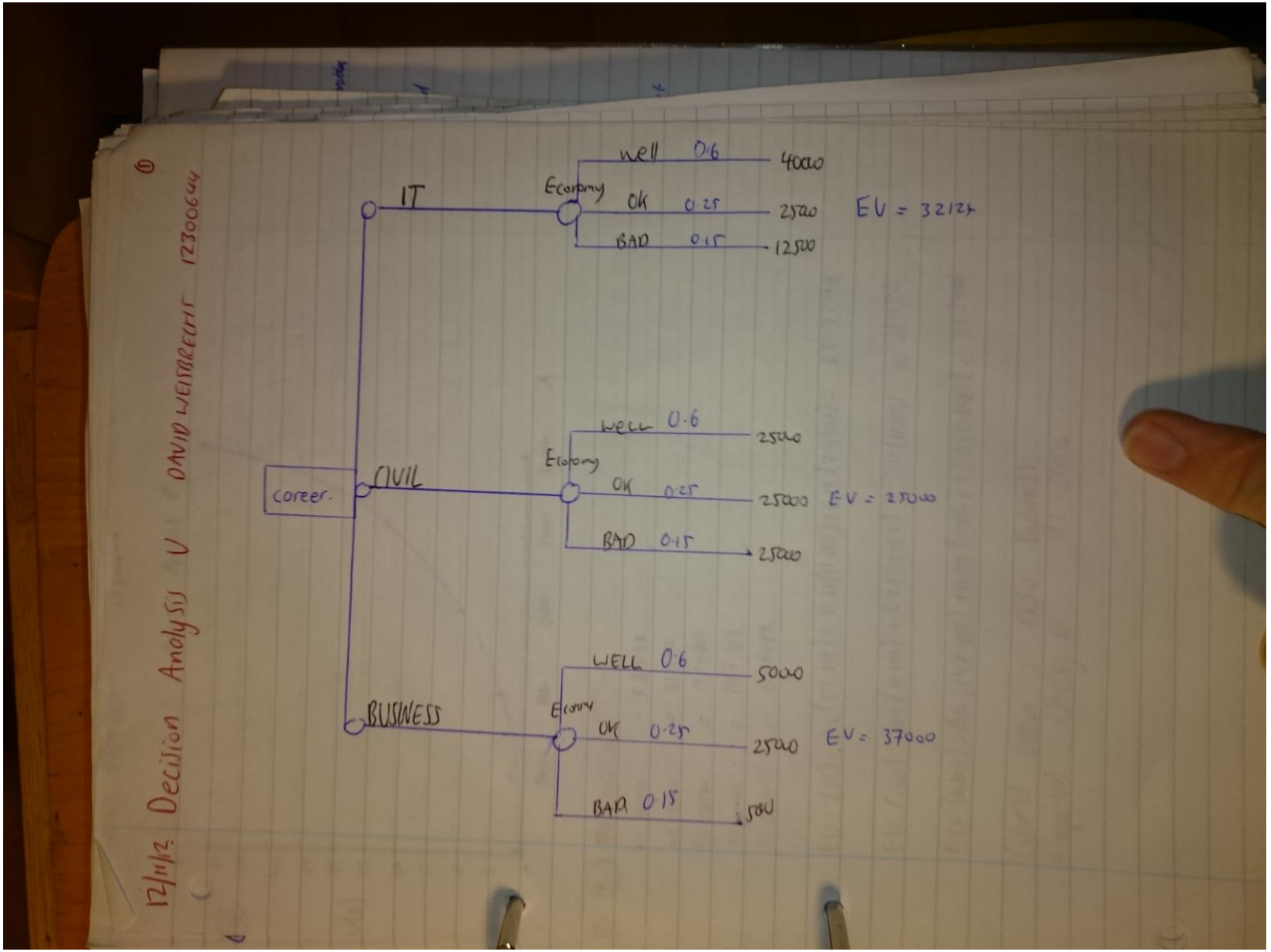
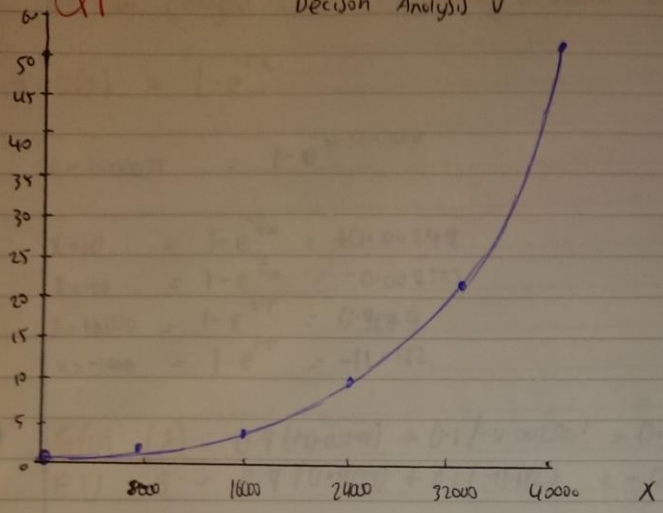

12/11/12 Decision Analysis V DAVID WEISBERGER 12300604
career.
IT
CIVIL
BUSINESS
Economy
well 0.6
OK 0.25
BAD 0.15
40000
2500
12500
EV = 32125
well 0.6
OK 0.25
BAD 0.15
25000
25000
25000
EV = 25000
WELL 0.6
OK 0.25
BAD 0.15
50000
25000
500
EV = 37000

DAVID WEITBRECHT 12300644

Q1 Decision Analysis V

(B i)



(B ii) $U(x) = e^{0.0001x} - 1$

$x = 40000 = 53.598$

$x = 25000 = 11.182$

$x = 12500 = 2.4903$

$x = 50000 = 147.413$

$x = 5000 = 0.6487$

EU (IT) $= 0.6(53.598) + 0.25(11.182) + 0.15(2.4903) = 35.3278$

EU (civil) $= 0.6(11.182) + 0.25(11.182) + 0.15(11.182) = 11.182$

EU (business) $= 0.6(147.413) + 0.25(11.182) + 0.15(0.6487) = 91.3406$

Optimal action is now Business.
Expected Utility of 91.3406

13/11/12

Decision Analysis U DAVID VEITBRECHT 12300644 (3)

Q2 a $U(x) = 1 - e^{-rx}$

$r = 0.00025 = 1 - e^{-0.00025x}$

$x = 10 = 1 - e^{-\frac{1}{400}} = +0.00249$
$x = -10 = 1 - e^{\frac{1}{400}} = -0.002503$
$x = +1000 = 1 - e^{-2.5} = 0.9179$
$x = -1000 = 1 - e^{2.5} = -11.182.$

$E(U)\ (A) = 0.9(+0.00249) + 0.1(-0.002503) = 0.0019907$
$EU\ B = 0.9(0.9179) + 0.1(-11.182) = -0.29209$

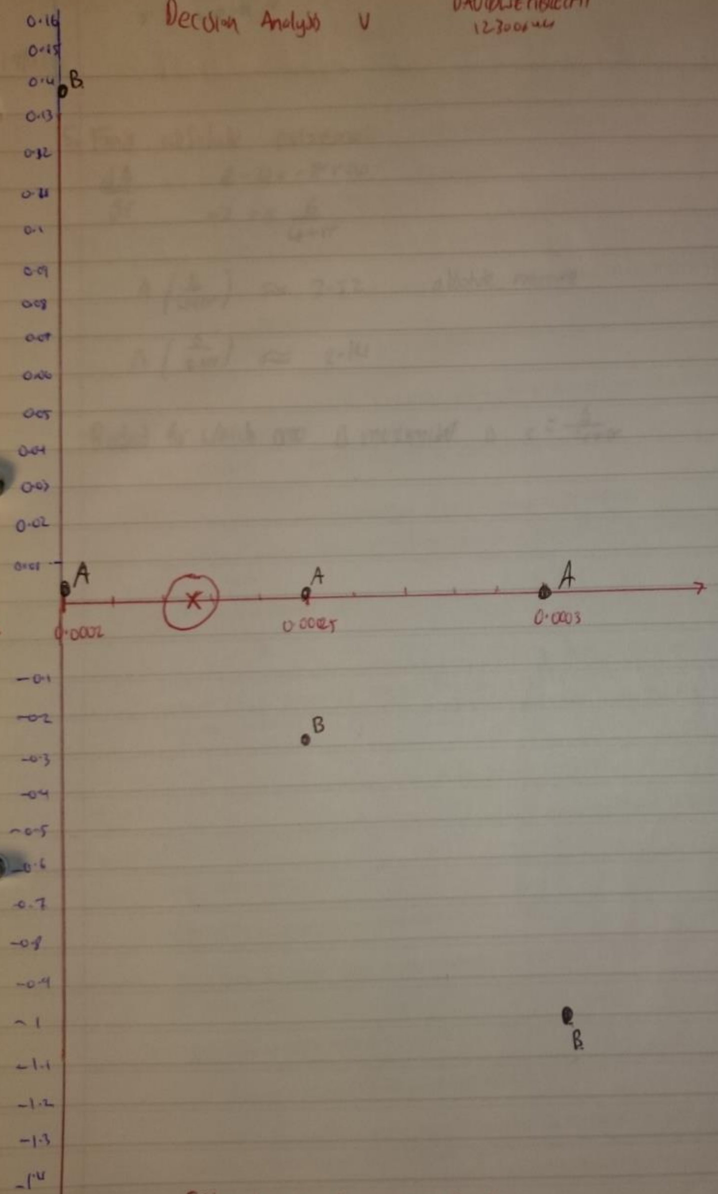
Optimal decision is A. Expected utility of 0.0019907.

2a $r = 0.0003 = 1 - e^{-0.0003x}$
$x = 10 = 1 - e^{-\frac{3}{1000}} = 0.002995$
$x = -10 = 1 - e^{\frac{3}{1000}} = -0.003004$
$x = 1000 = 1 - e^{-7} = 0.9502$
$x = -1000 = 1 - e^{7} = -19.0855$

$EU\ (A) = 0.9(0.002995) + 0.1(-0.003004) = 0.002395$
$EU\ (B) = 0.9(0.9502) + 0.1(-19.0855) = -1.05337$

Optimal decision is A. expected utility of 0.002395.

Q2h Decision Analysis V DAVID WEMBRECHT 12300644 (4)



Estimate = r = 0.000225