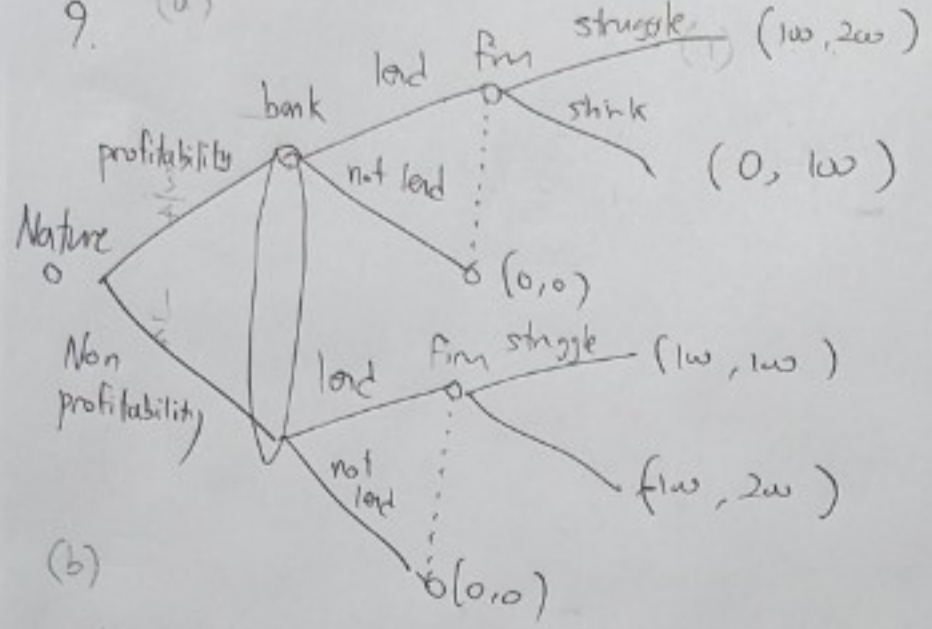
9. (a)



(b)

First Let's see bank case.

Bank's belief like this to firm's type.

$P(t_p \mid t_b) = \frac{3}{4}$, $P(t_{np} \mid t_b) = \frac{1}{4}$ and his type is only t_b

then let's see.

i) Picks 'L',

$$E(U_b(L, S_F^*) \mid t_b) = U_b(L, S_F^*(t_p) \mid t_b) \times P(t_p \mid t_b) + U_b(L, S_F^*(t_{np}) \mid t_b) \times p(t_{np} \mid t_b)$$

$$= 100 \times \frac{3}{4} + (-100) \times \frac{1}{4} \Rightarrow \frac{200}{4} \Rightarrow \boxed{50}$$

ii) Picks 'NL',

$$E(U_b(NL, S_F^*) \mid t_b) = U_b(NL, S_F^*(t_p) \mid t_b) \times p(t_p \mid t_b) + U_b(NL, S_F^*(t_{np}) \mid t_b) \times p(t_{np} \mid t_b)$$

$$= 0 \times \frac{3}{4} + 0 \times \frac{1}{4} \Rightarrow \boxed{0}$$

So, bank's best response is 'L'

How about Firms,

Firm's belief is like this, $P(t_b \mid t_p) = P(t_b \mid t_{np}) = 1$

And he has two type t_p, t_{np}.

i) type t_p,

① pick T

$$E(U_F(T, S_b^*) \mid t_p) = U_F(T, S^*(t_b) \mid t_p) \times 1 = 200$$ ✓

② pick S

$$E(U_F(S, S_b^*) \mid t_{np}) = U_F(T, S^*(t_b) \mid t_{np}) \times 1 = 100$$

ii) type t_{np}

★ ① pick T

$$E(U_F(T, S_b^*) \mid t_{np}) = U_F(T, S_b^*(t_b) \mid t_{np}) \times 1 = 100$$

$$E(U_F(S, S_b^*) \mid t_{np}) = U_F(S, S_b^*(t_b) \mid t_{np}) \times 1 = \overbrace{200}.$$