

ALCOA vs United States

Model

Firm 1
 - In tech H
 - In tech L
 - Out

Firm 2
 - In tech H
 - In tech L
 - Out

IF 1 Firm, monopoly
 IF 2 firms, Cournot

1 \longrightarrow 2 \longrightarrow 3

$c = 1/4, f = L$ or $c = 0, f = H$

Low tech $L < H$ High tech

$$\text{monopoly} = u_i = (1 - c_i/2)^2$$

$$\text{Cournot} = u_i = [(1 - 2c_i - c_{-i})/3]^2$$

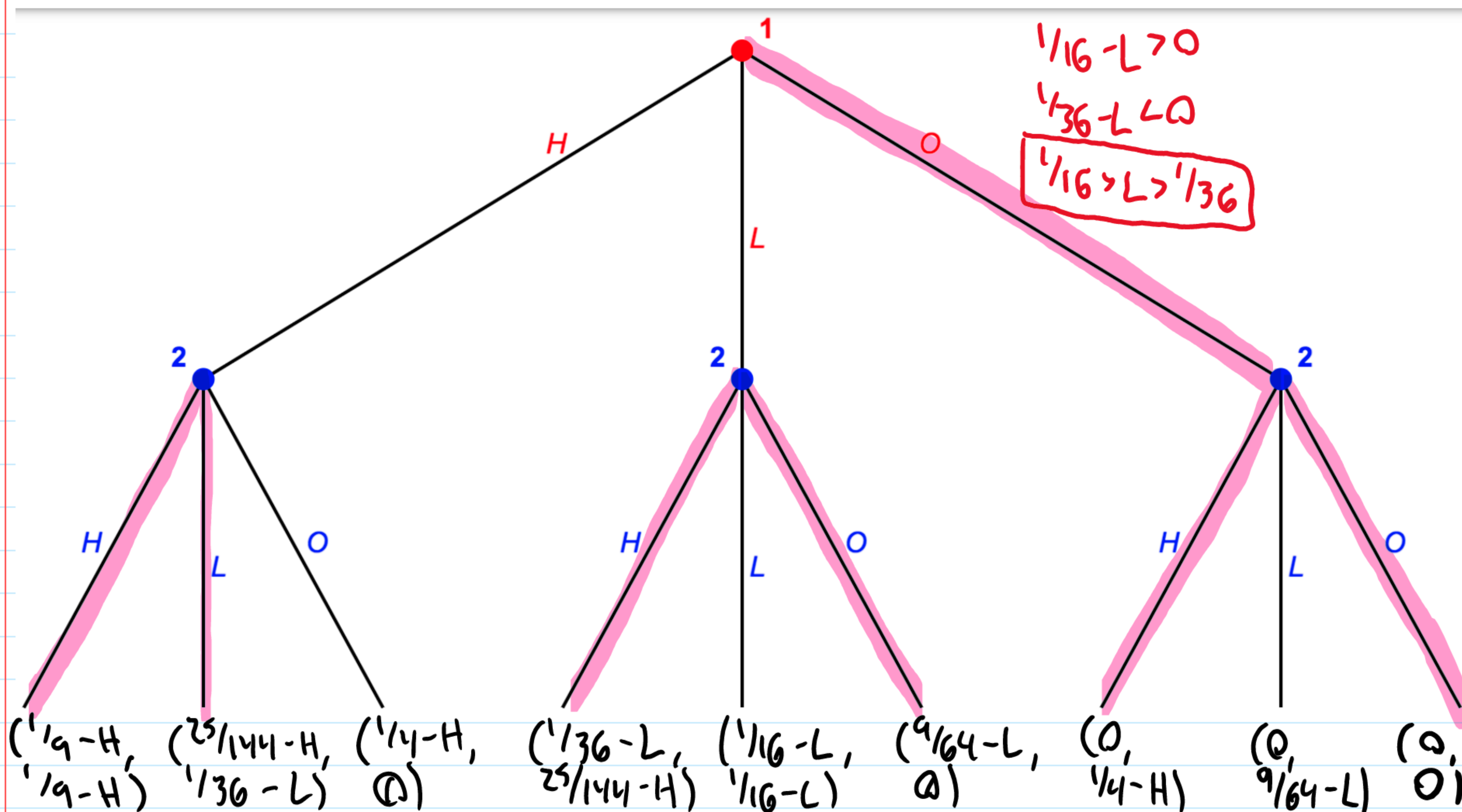
Assume monopolist prefers tech L

$$(1 - 25/2)^2 - L > (1/2)^2 - H$$

$$H - L > 1/4 - 9/64 = 7/64$$

Extensive Form

$$u_1 = (1/3)^2 - H = 1/9 - H \rightarrow 1/9 < H \quad 7/63$$



When does 1 choose H?

$$1/4 - H > 1/16 - L \rightarrow 3/16 > H - L$$