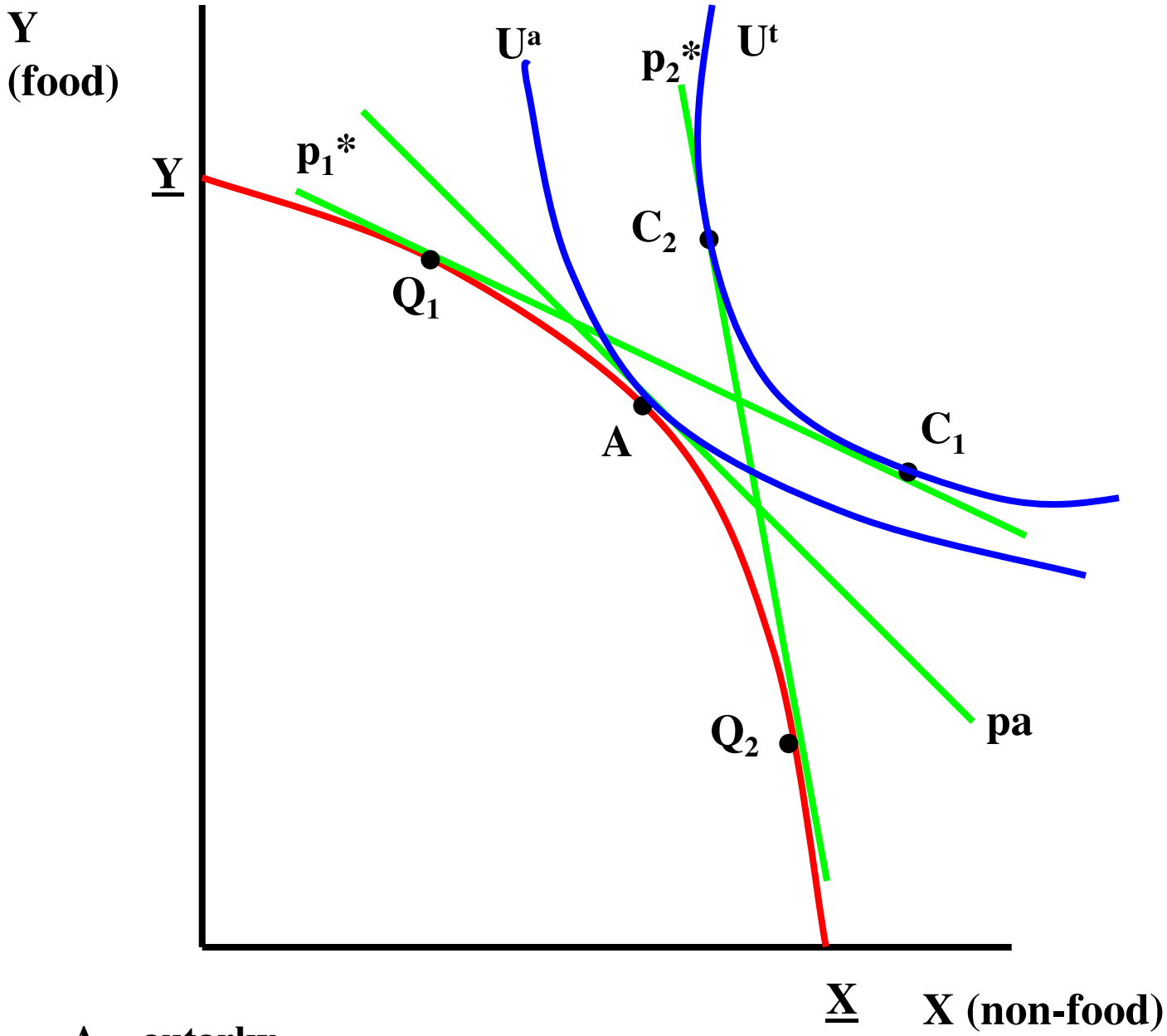
THE GAINS FROM TRADE

FIGURE 1: GAINS FROM TRADE



A = autarky

C_1Q_1 = trade equilibrium with p_1*

C_2Q_2 = trade equilibrium with p_2*

FIGURE 2: MUTUAL GAINS FROM TRADE

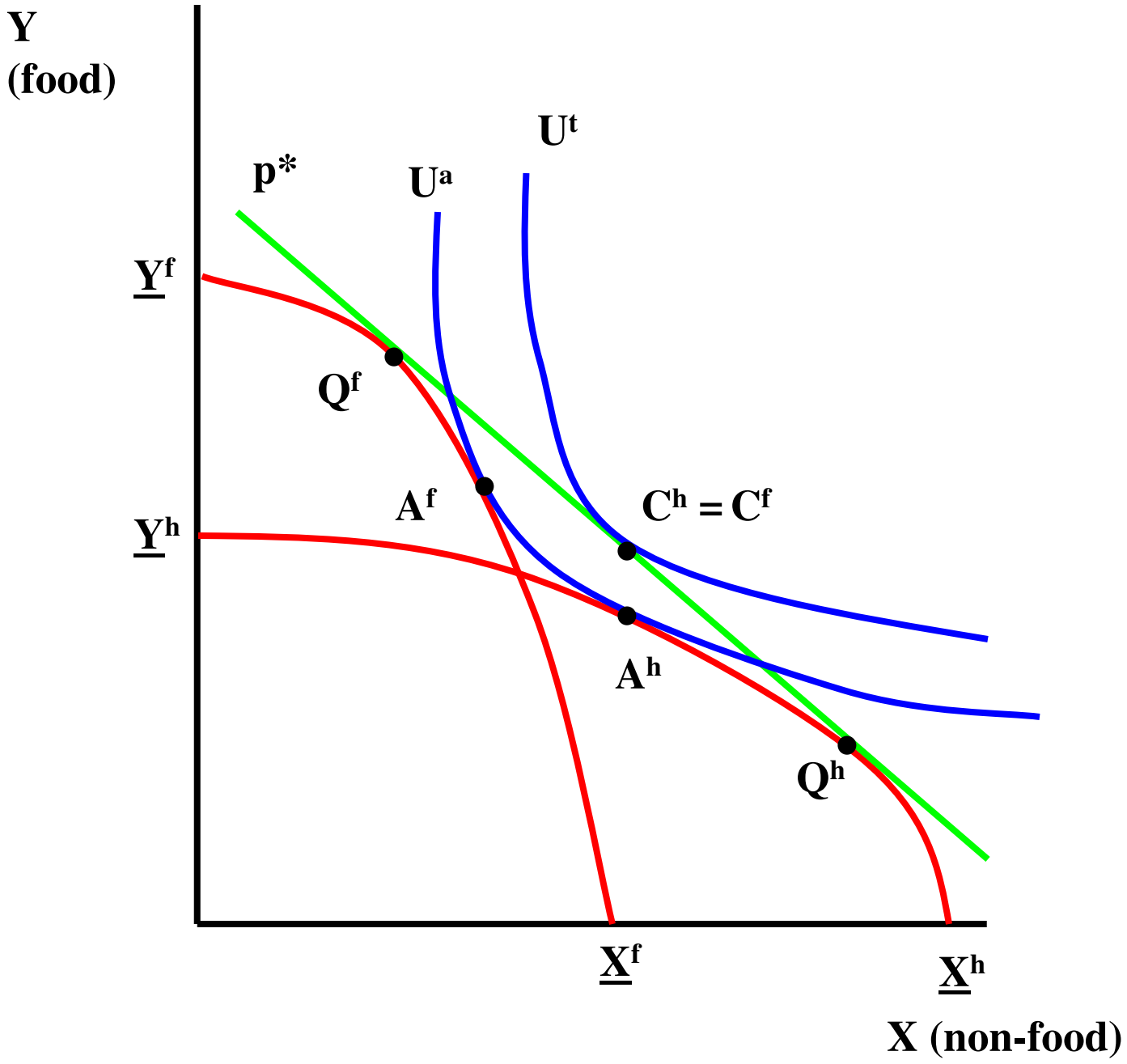
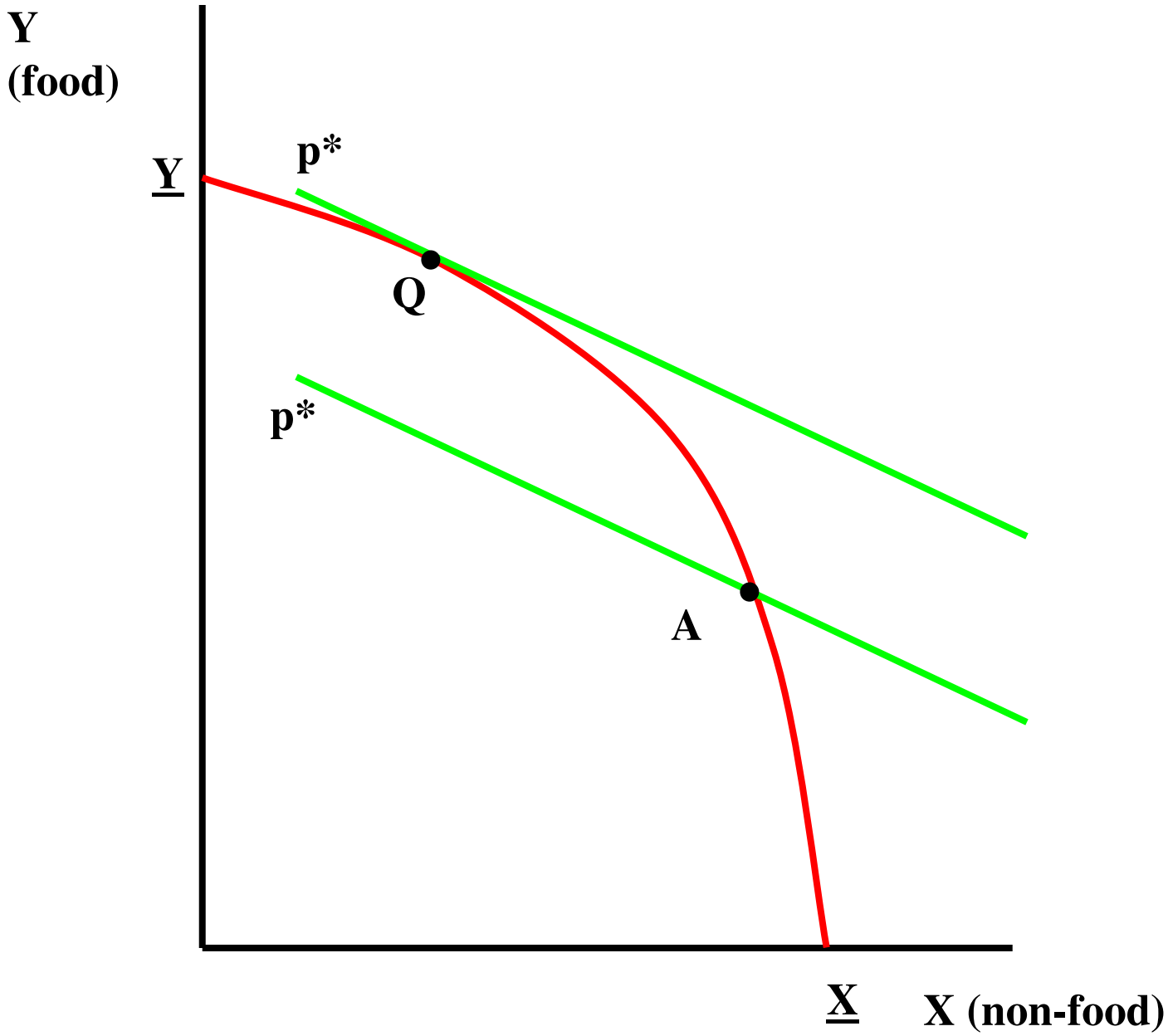


FIGURE 3: MAXIMIZATION OF VALUE OF OUTPUT AT WORLD PRICES



In comparing Q with A, we can say:

$$P_x^* X^t_p + P_y^* Y^t_p \geq P_x^* X^a_p + P_y^* Y^a_p \qquad (1)$$

P_x^* = world price of X, P_y^* = world price of Y

X^t_p = free trade production of X
Y^t_p = free trade production of Y

X^a_p = autarky production of X
Y^a_p = autarky production of Y

Under *autarky*, there must be *market-clearing*:

$$X^a_p = X^a_c,\ Y^a_p = Y^a_c \qquad (2)$$

Under *trade*, there must be *balanced trade*:

$$P_x^* X^t_c + P_y^* Y^t_c = P_x^* X^t_p + P_y^* Y^t_p \qquad (3)$$

Substituting (2) into the right-hand side of (1), and (3) into the left-hand side of (1), we get:

$$P_x^* X^t_c + P_y^* Y^t_c \geq Px^* X^a_c + Py^* Y^a_c \qquad (4)$$

From (4), the *Gains From Trade Theorem* can be stated:

> **If the value of production is maximized at free trade prices, then the value of free trade consumption at free trade prices exceeds the value of autarky consumption at free trade prices. Hence, the free trade consumption bundle must be preferred, otherwise consumers would pick the cheaper autarky bundle**

Note, sufficient conditions for this to hold are:

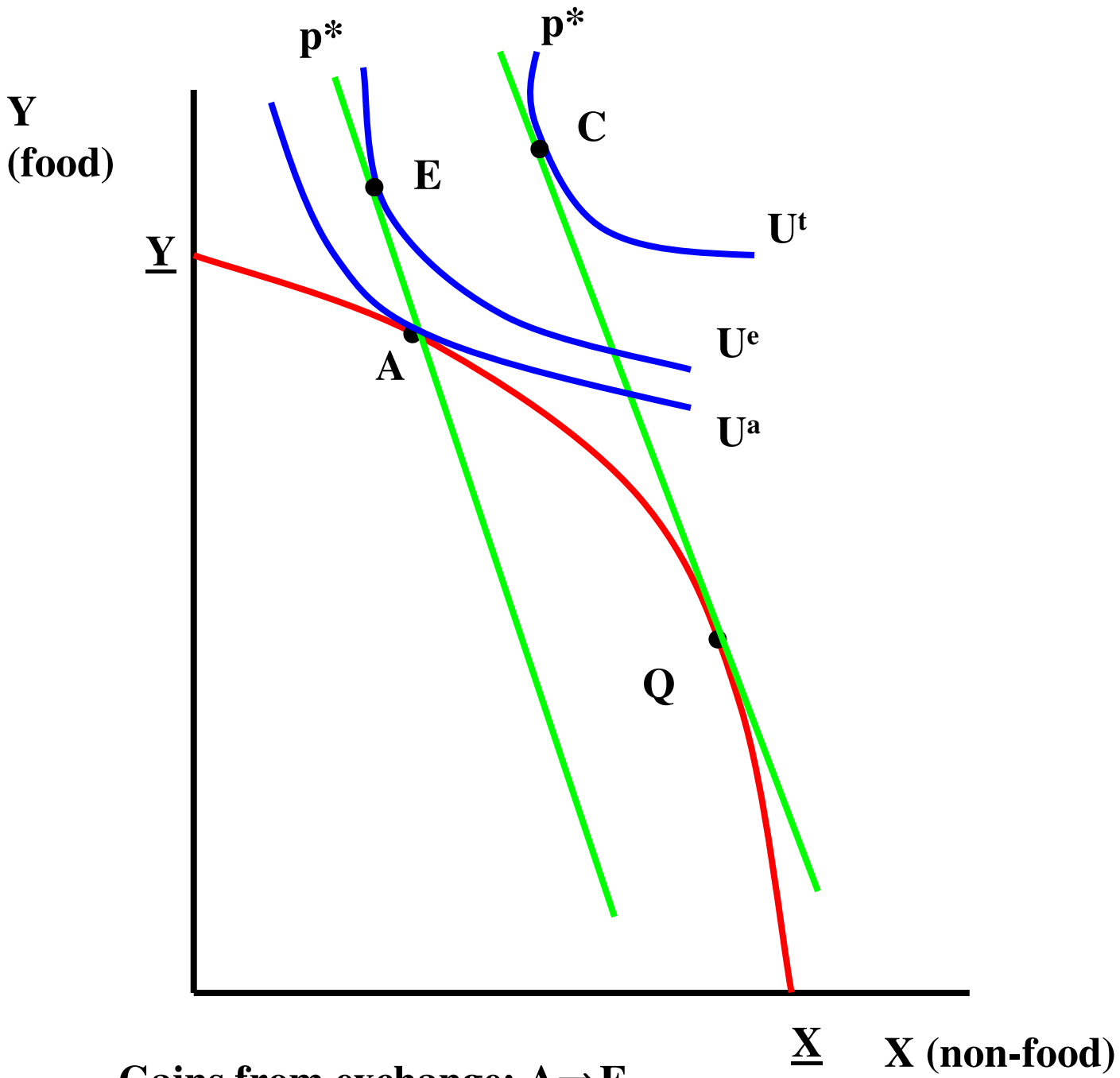
- **the *tangency condition*, i.e. world prices are tanget to the production frontier**

- **the *convexity condition*, i.e. production sets are convex - production frontier is concave**

These conditions generally hold if:

- **there are constant returns to scale**
- **perfect competition exists**
- **there are no distortions such as production taxes**

FIGURE 4: EXCHANGE/SPECIALIZATION



Gains from exchange: A⇒E
Gains from specialization: E⇒C

Table 1: OUTPUT/WORKER/YEAR

	US	JAPAN
Wheat	**30**	**20**
Steel	**10**	**20**

Table 2: RE -ALLOCATION OF A WORKER

	US	JAPAN	TOTAL
Wheat	**+30**	**-20**	**+10**
Steel	**-10**	**+20**	**+10**

Table 3: OUTPUT/WORKER/YEAR

	US	JAPAN
Wheat	**30**	**40**
Steel	**10**	**40**

Table 4: RE -ALLOCATION OF 2 WORKERS IN US 1 WORKER IN JAPAN

	US	JAPAN	TOTAL
Wheat	**+60**	**-40**	**+20**
Steel	**-20**	**+40**	**+20**