Solution to Exercise 8

(a) Initially, $P_a$ produced, $C_a$ consumed, thus import of $a$ is $C_a - P_a$.

(b) $P_b$ produced, $C_b$ consumed, thus export of $b$ is $C_b - P_b$.

(c) The biased technological progress shifts the production possibility frontier out.

Production of $b$ must decrease while product of $a$ must increase.
Since there is no substitution effect and only a positive income effect because the terms of trade did not change, consumption of $a + b$ must both increase.

Since production of $b$ decreases but consumption increases, export of $b$ must decrease.

Since the production of $a$ increases and consumption also increases, it is not clear what would happen to import of $a$. Can increase, decrease, or remain the same.

Note: TOT $\text{ab}$ shift out parallelly.

good a
Suppose that the economy starts out as in the figure below. The economy produces \( a_1 \) units of good \( a \) and \( b_1 \) units of good \( b \). Consumers consume \( a_2 \) units of good \( a \) and \( b_2 \) units of good \( b \). The economy therefore exports good \( b \) and imports good \( a \). Now assume that a quota is placed on imports of good \( a \), and that this quota is, in fact, a binding constraint. Denote the size of the quota as \( b_3 < b_2 \).

The budget line now becomes vertical at \( b_3 \). The new budget line is depicted in the figure below. The economy continues to produce at point \((a_4, b_4)\). Consumption is at point \((a_5, b_5)\). Therefore, less of good \( a \) is imported and less of good \( b \) is exported. Consumers are definitely worse off. They are no longer able to consume at a point on indifference curve, \( I_1 \). They are forced to the less desirable indifference curve, \( I_2 \).
A temporary increase in government spending shifts both the goods demand curve and the goods supply curve to the right. Absorption increases. In the absence of a change in the current account surplus, the demand curve shifts by more than the supply curve. Therefore, the current account surplus must decrease. The increase in real income rotates the money demand curve to the right. Under flexible exchange rates, the nominal exchange rate and the domestic price level both decrease. Under fixed exchange rates, the nominal money supply increases, and both the nominal exchange rate and the domestic price level are unchanged.

Thus, current account surplus decreases to maintain equilibrium at $r^*$.

For the flexible exchange rate economy:

- $Y_1$ increases from $Y_0$ to $Y_1$.
- Domestic consumption increases because of the increase in income.
- Domestic investment is unchanged since there is no change in $r^*$.
- Money demand increases because of the increase in $Y_1$.
- Exchange rate appreciates from $e_0$ to $e_1$. Since $P = eP^*$, domestic price level also decreases.

For fixed exchange rate:

change in $Y, c, i, l$ and $t$ are the same as flexible exchange rate.
But $M_s$ increases to $M_s^*$

To prevent currency appreciation, $e$ stays at $e_0$, and $r$ stays the same.