

Interdependence and the Gains from Trade

Chapter 3

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Interdependence and Trade

Consider your typical day:

- You wake up to an alarm clock made in Korea.
- You pour yourself some orange juice made from oranges grown in Florida.
- You put on some clothes made of cotton grown in Georgia and sewn in factories in Thailand.
- You watch the morning news broadcast from New York on your TV made in Japan.
- You drive to class in a car made of parts manufactured in a half-dozen different countries.

...and you haven't been up for more than two hours yet!

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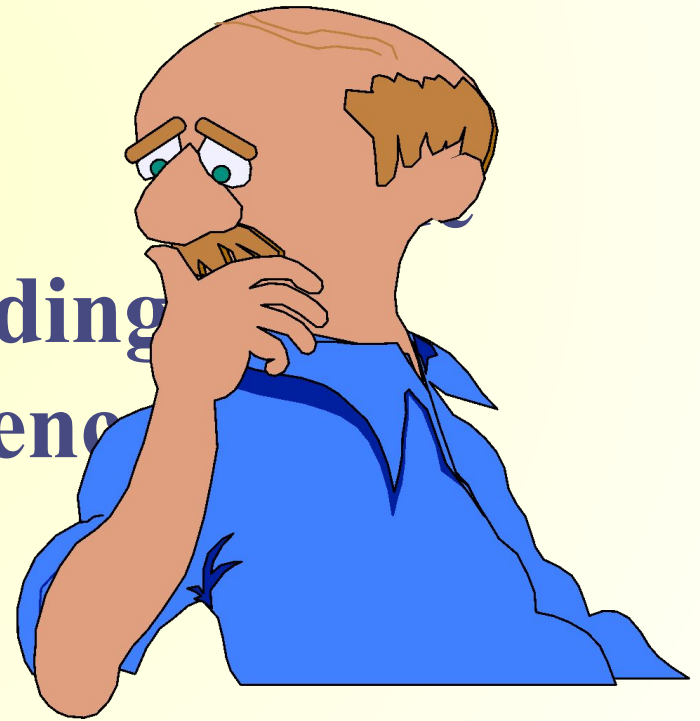
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Interdependence and Trade

Remember, economics is the study of how societies produce and distribute goods in an attempt to satisfy the wants and needs of its members.

How do we satisfy our wants and needs in a global economy?

- We can be economically self-sufficient.
- We can specialize and trade with others, leading to economic interdependence.



Interdependence and Trade

A general observation . . .

Individuals and nations rely on specialized production and exchange as a way to address problems caused by scarcity.

Interdependence and Trade

But, this gives rise to two questions:

- **Why is interdependence the norm?**
- **What determines production and trade?**

Why is interdependence the norm?

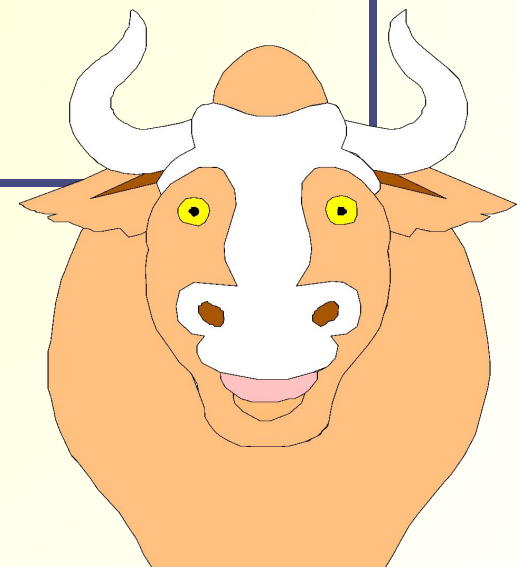
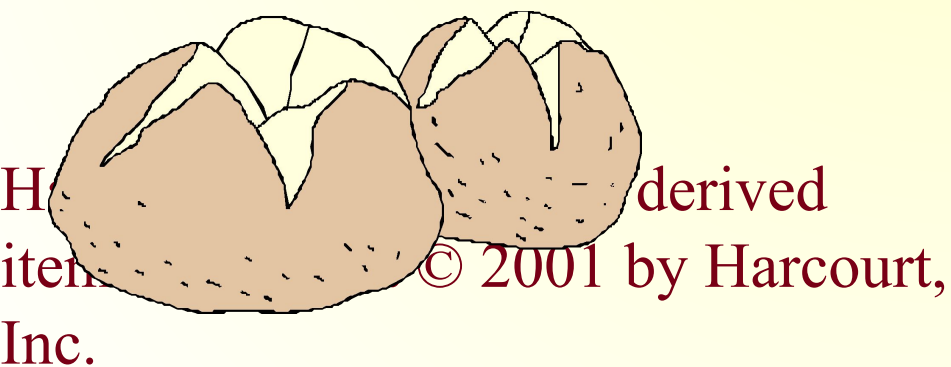
Interdependence occurs because people are better off when they specialize and trade with others.

What determines the pattern of production and trade?

Patterns of production and trade are based upon differences in opportunity costs.

A Parable for the Modern Economy

- **Imagine . . .**
 - ... only two goods: potatoes and meat
 - ... only two people: a potato farmer and a cattle rancher
- **What should each produce?**
- **Why should they trade?**



The Production Opportunities of the Farmer and the Rancher

	<i>Hours Needed to Make 1 lb. of:</i>		<i>Amount Produced in 40 Hours</i>	
	Meat	Potatoes	Meat	Potatoes
Farmer	20 hours/lb	10 hours/lb	2 lbs.	4 lbs.
Rancher	1 hours/lb	8 hours/lb.	40 lbs.	5 lbs.

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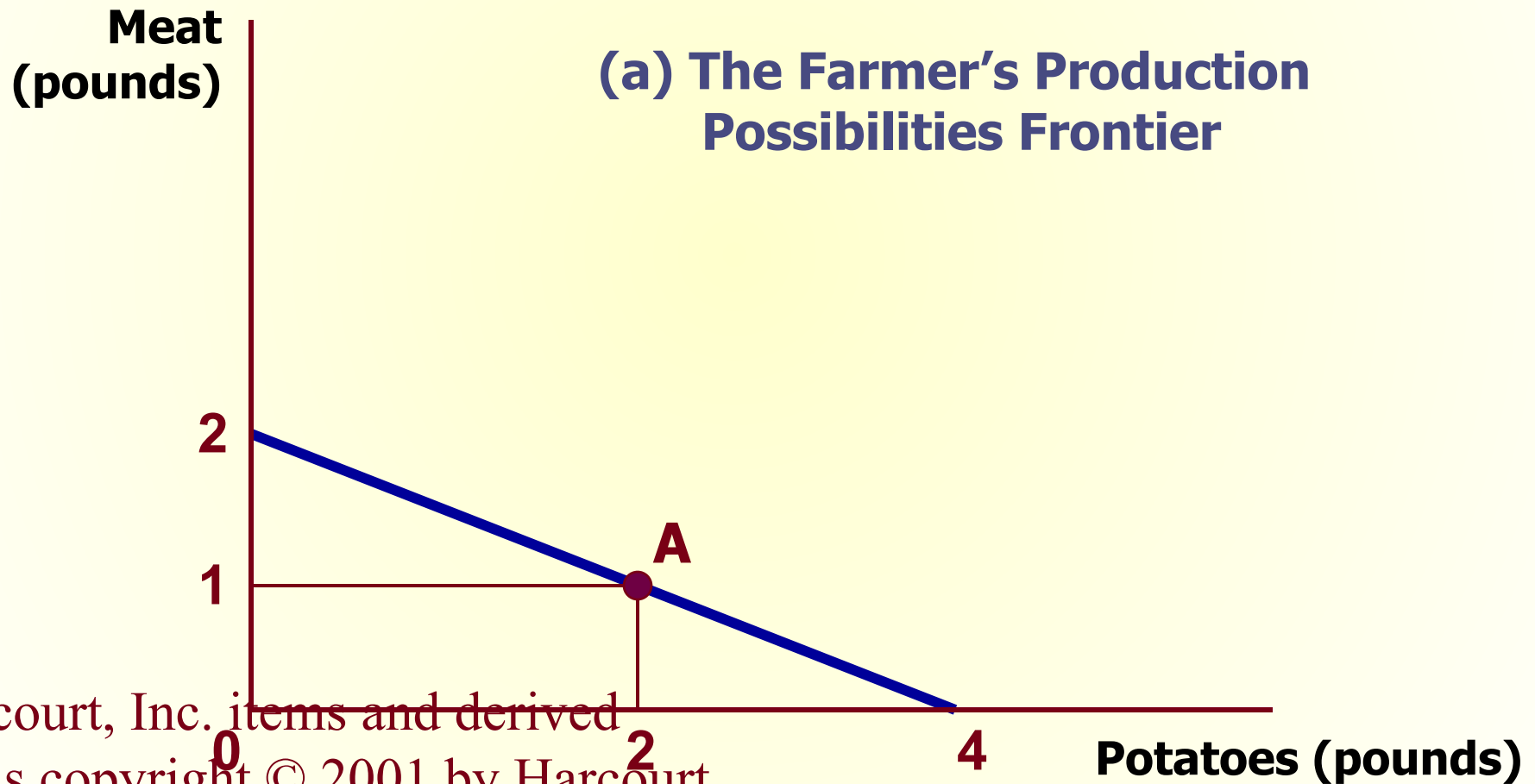
Self-Sufficiency

By ignoring each other:

- Each consumes what they each produce.
- The production possibilities frontier is also the consumption possibilities frontier.

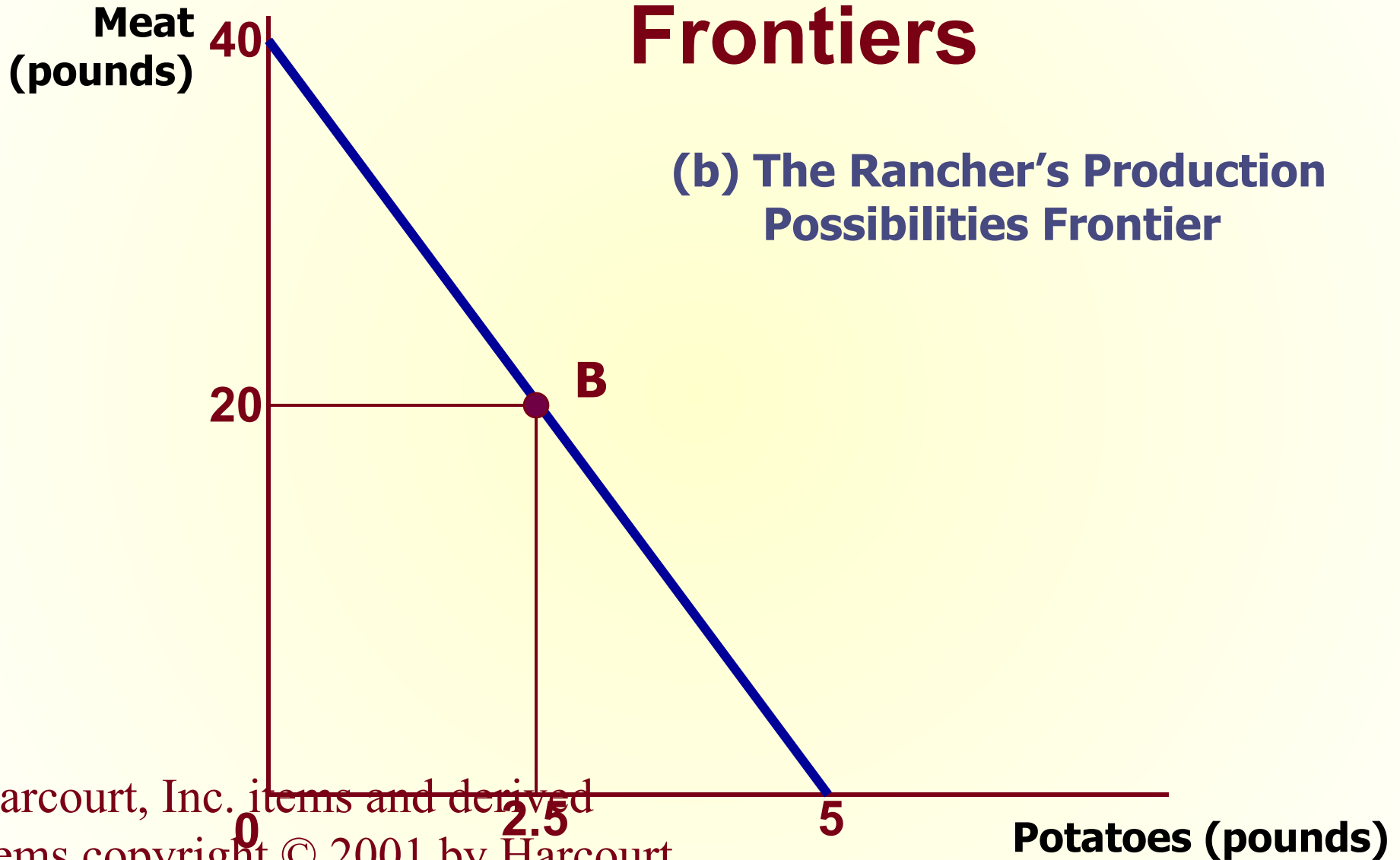
Without trade, economic gains are diminished.

Production Possibilities Frontiers



Production Possibilities Frontiers

(b) The Rancher's Production Possibilities Frontier



The Farmer and the Rancher Specialize and Trade

Each would be better off if they specialized in producing the product they are more suited to produce, and then trade with each other.

- The farmer should produce potatoes.
- The rancher should produce meat.

The Gains from Trade: A Summary

	The Outcome Without Trade:
	What They Produce and Consume
Farmer	1 lb meat (A) 2 lbs potatoes
Rancher	20 lbs meat (B) 2.5 lbs potatoes

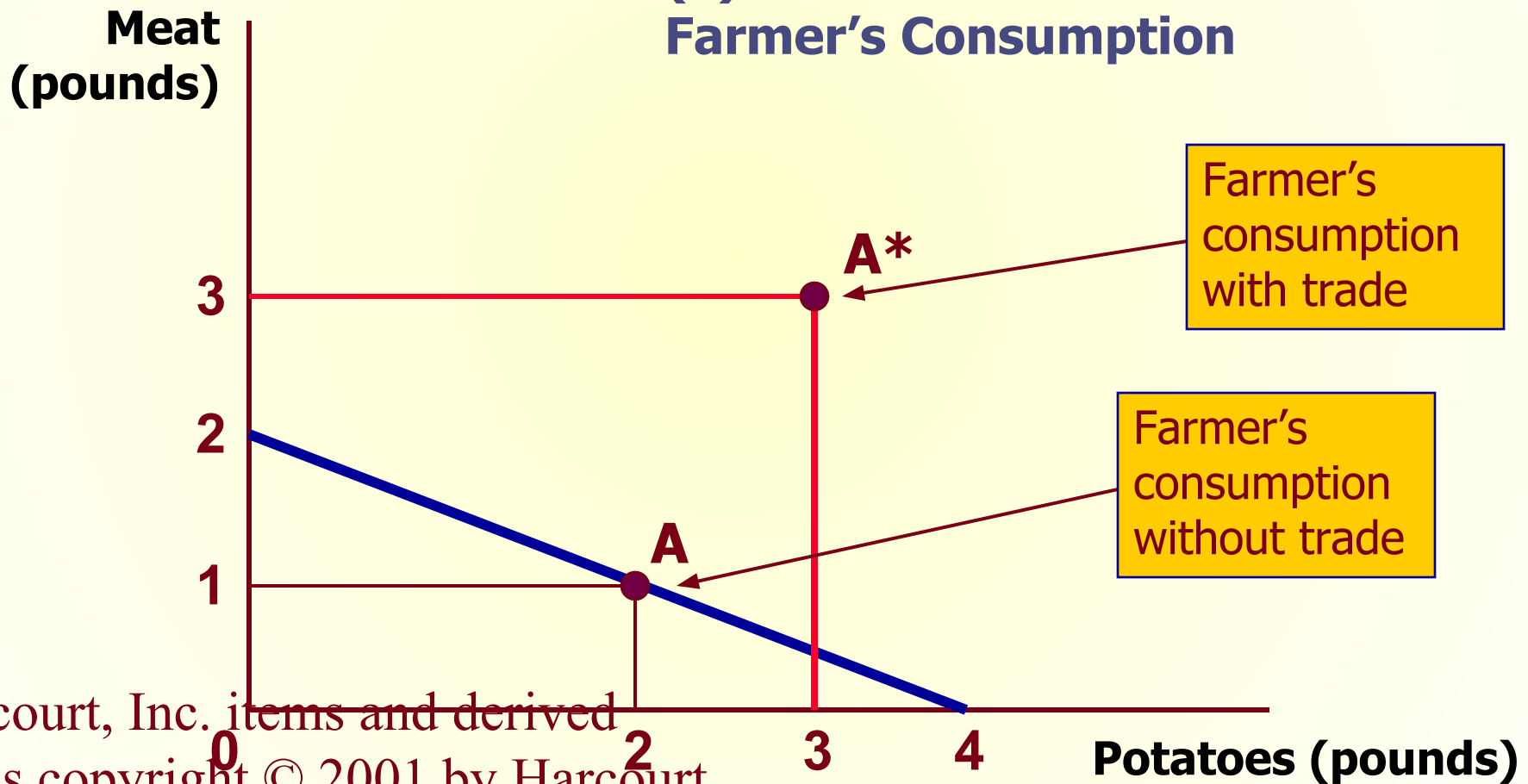
The Gains from Trade: A Summary

	The Outcome With Trade:		
	What They Produce	What They Trade	What They Consume
Farmer	0 lbs meat 4 lbs potatoes	Gets 3 lbs meat for 1 lb potatoes	3 lbs meat (A*) 3 lbs potatoes
Rancher	24 lbs meat 2 lbs potatoes	Gives 3 lbs meat for 1 lb potatoes	21 lbs meat (B*) 3 lbs potatoes

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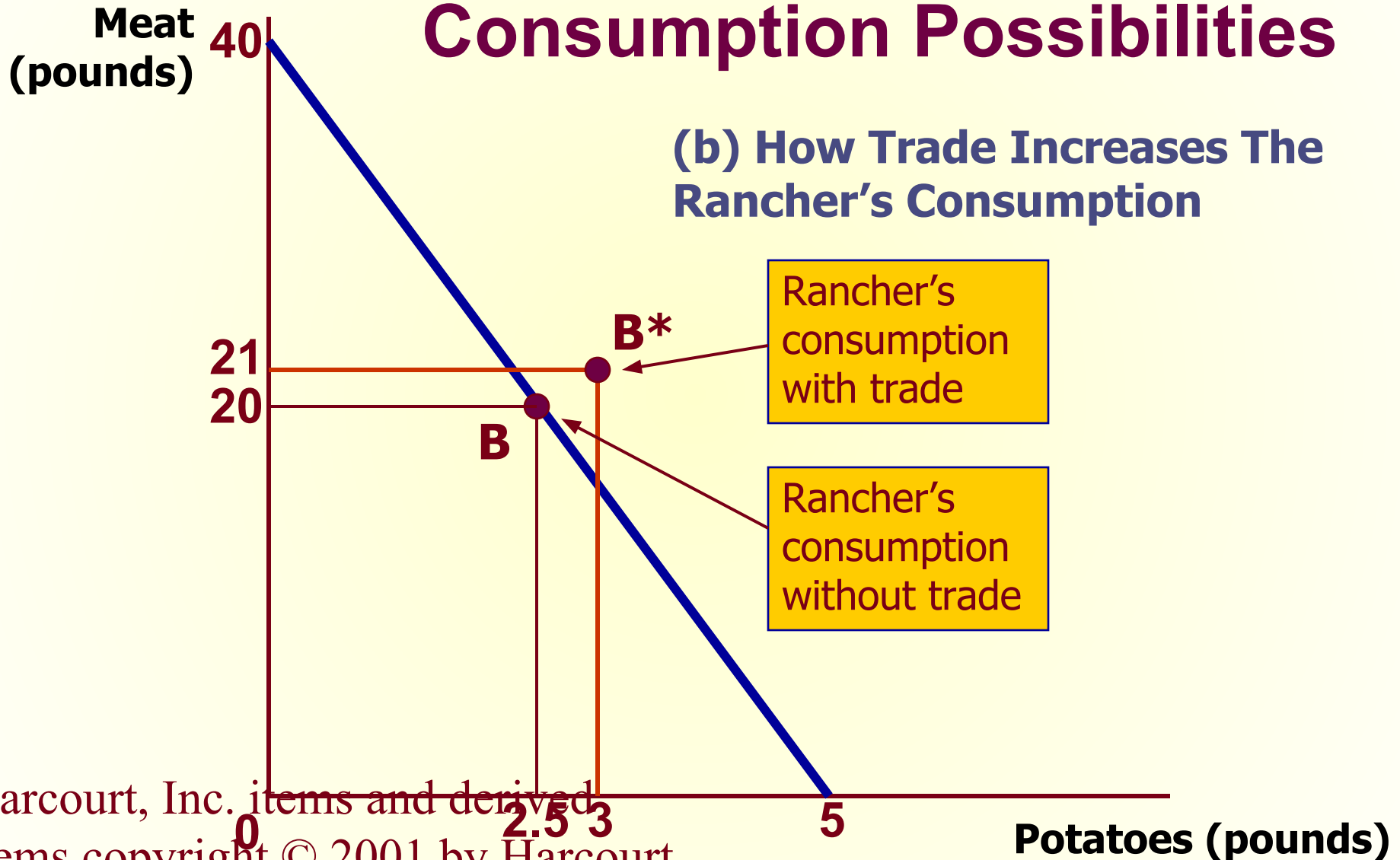
Trade Expands the Set of Consumption Possibilities

(a) How Trade Increases the Farmer's Consumption



Trade Expands the Set of Consumption Possibilities

(b) How Trade Increases The Rancher's Consumption



The Gains from Trade: A Summary

	The Gains From Trade:
	The Increase in Consumption
Farmer	2 lbs meat ($A^* - A$) 1 lb potatoes
Rancher	1 lb meat ($B^* - B$) 1/2 lb potatoes

The Principle of Comparative Advantage

Differences in the costs of production determine the following:

- Who should produce what?
- How much should be traded for each product?

Who can produce potatoes at a lower cost--the farmer or the rancher?

Differences in Costs of Production

Two ways to measure differences in costs of production:

- The number of hours required to produce a unit of output. (for example, one pound of potatoes)
- The opportunity cost of sacrificing one good for another.

Absolute Advantage

- Describes the productivity of one person, firm, or nation compared to that of another.
- The producer that requires a smaller quantity of inputs to produce a good is said to have an absolute advantage in producing that good.

Comparative Advantage

- Compares producers of a good according to their *opportunity cost*.
- The producer who has the smaller opportunity cost of producing a good is said to have a **comparative advantage** in producing that good.

Specialization and Trade

- **Who has the absolute advantage?**
The farmer or the rancher?
- **Who has the comparative advantage?**
The farmer or the rancher?

Absolute Advantage

- The Rancher needs only 8 hours to produce a pound of potatoes, whereas the Farmer needs 10 hours.
- The Rancher needs only 1 hour to produce a pound of meat, whereas the Farmer needs 20 hours.

The Rancher has an absolute advantage in the production of both meat and potatoes.

The Opportunity Cost of Meat and Potatoes

	Opportunity Cost of:	
	1 lb of Meat	1 lb of Potatoes
Farmer	2 lb potatoes	$\frac{1}{2}$ lb meat
Rancher	$\frac{1}{8}$ lb potatoes	8 lb meat

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Comparative Advantage

- The Rancher's opportunity cost of a pound of potatoes is 8 pounds of meat, whereas the Farmer's opportunity cost of a pound of potatoes is $\frac{1}{2}$ pound of meat.
- The Rancher's opportunity cost of a pound of meat is only $\frac{1}{8}$ pound of potatoes, while the Farmer's opportunity cost of a pound of meat is 2 pounds of

Comparative Advantage

...so, the Rancher has a comparative advantage in the production of meat but the Farmer has a comparative advantage in the production of potatoes.

The Principle of Comparative Advantage

- **Comparative advantage and differences in opportunity costs are the basis for specialized production and trade.**
- **Whenever potential trading parties have differences in opportunity costs, they can each benefit from trade.**

Benefits of Trade

Trade can benefit everyone in a society because it allows people to specialize in activities in which they have a comparative advantage.

Adam Smith and Trade

In his 1776 book *An Inquiry into the Nature and Causes of the Wealth of Nations*, **Adam Smith** performed a detailed analysis of trade and economic interdependence, which economists still adhere to today.

David Ricardo and Trade

In his 1816 book *Principles of Political Economy and Taxation*, **David Ricardo** developed the principle of comparative advantage as we know it today.

Should Tiger Woods Mow His Own Lawn?



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Summary

- **Interdependence and trade allow people to enjoy a greater quantity and variety of goods and services.**

Summary

- **The person who can produce a good with a smaller quantity of inputs has an absolute advantage.**
- **The person with a smaller opportunity cost has a comparative advantage.**

Summary

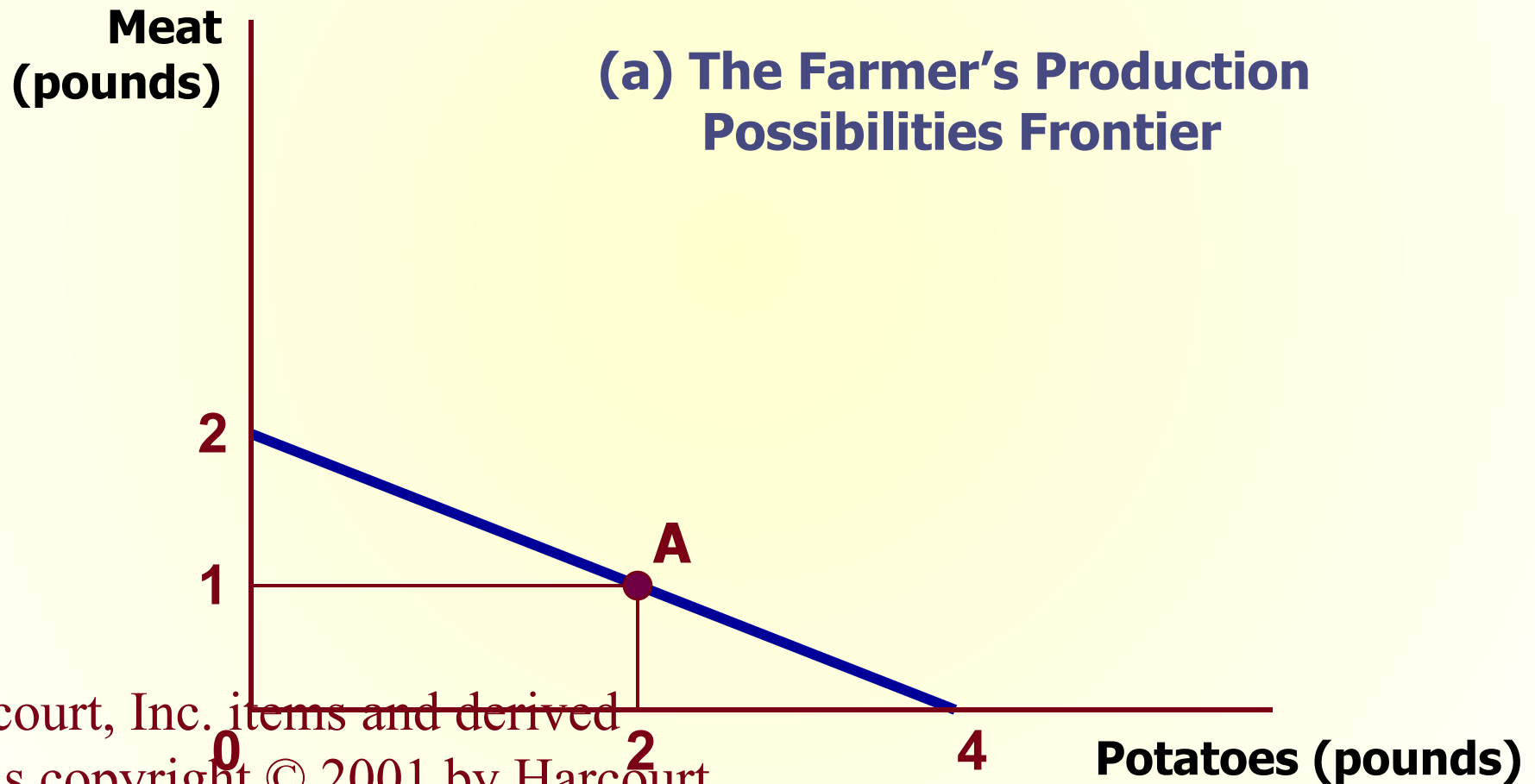
- **The gains from trade are based on comparative advantage, not absolute advantage.**
- **Comparative advantage applies to countries as well as to people.**

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Graphical Review

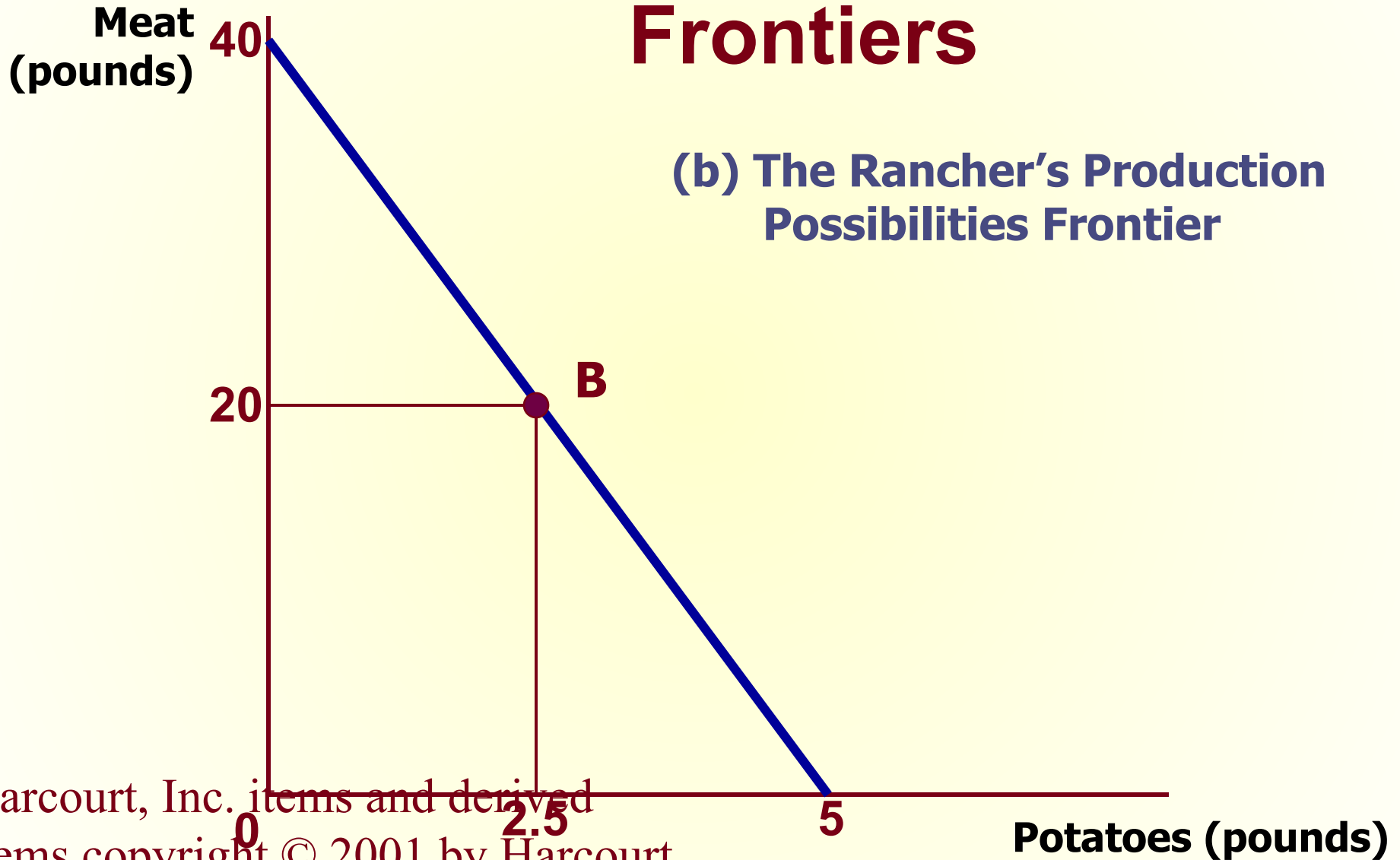
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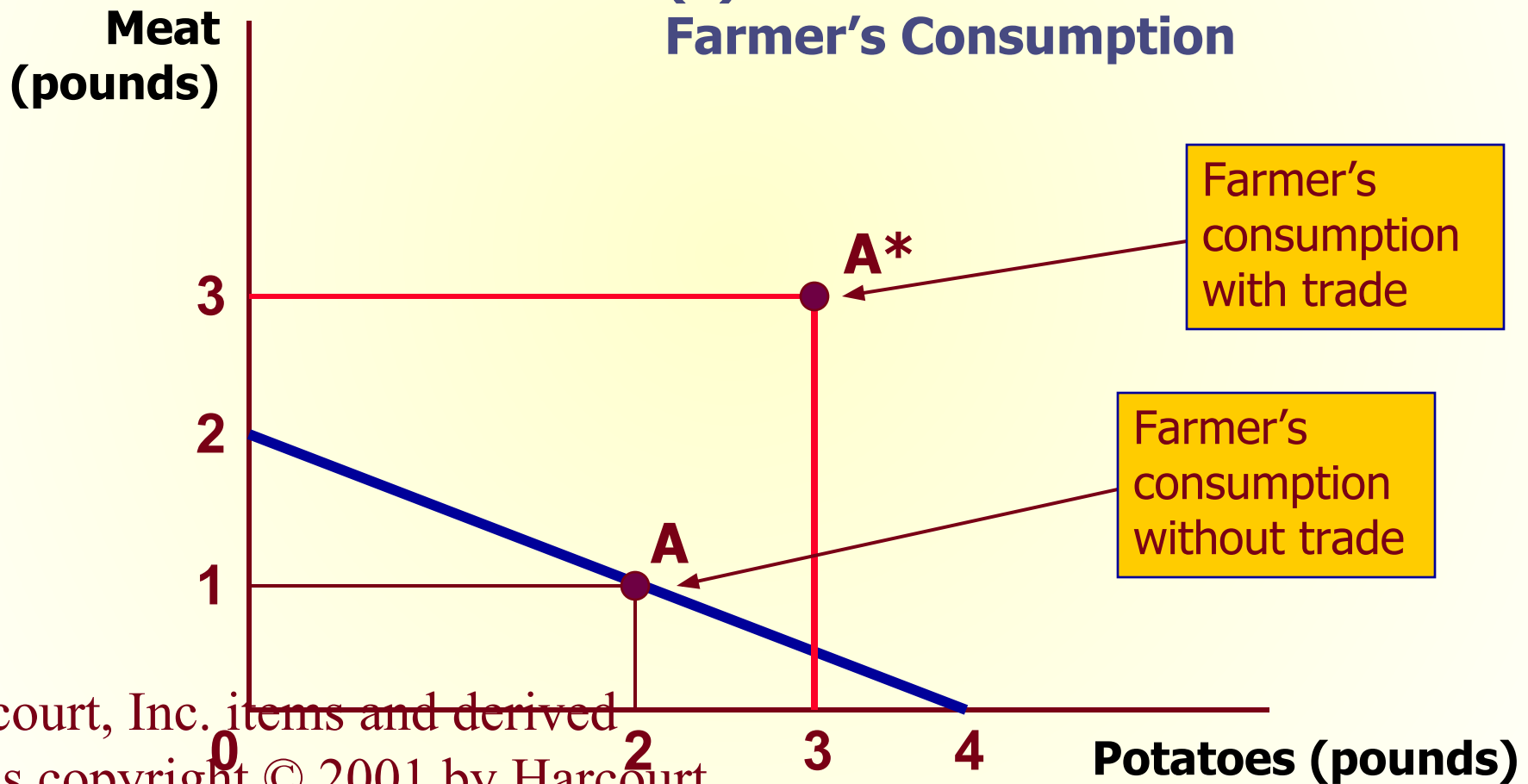
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(b) The Rancher's Production Possibilities Frontier



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