



EE 403

Law & Economics

Property Law 1

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One early, “classic” property law case

- ◆ Pierson v. Post (NY Supreme Court, 1805)
 - ◆ Lodowick Post organized a fox hunt, was chasing a fox
 - ◆ Jesse Pierson appeared “out of nowhere,” killed the fox and took it
 - ◆ Post sued to get the fox back
 - ◆ Lower court sided with Post; Pierson appealed to NY Supreme Court
- ◆ Question: when do you own an animal?



One early, “classic” property law case

- ◆ Court ruled for Pierson (the one who killed the fox)
 - ◆ “If the first seeing, starting, or pursuing such animals... should afford the basis of actions against others for intercepting and killing them, **it would prove a fertile source of quarrels and litigation**”

Economic theory of Property

- ♦ an economic theory tries to predict the effects of alternative forms of ownership, especially the effects on efficiency and distribution.

Example 1: “This morning in a remote meadow in Wyoming, a mule was born. To whom does that mule belong?”¹ Does the mule belong to (1) the owner of the mule’s mother, (2) the lumber company that has leased the land on which the mule was grazing, or (3) the federal government because the property is a national forest?

How does a person acquire ownership of something?
Rule of first procession

Example 2: Orbitcom, Inc., spent \$125 million designing, launching, and maintaining a satellite for the transmission of business data between Europe and the United States. The satellite is positioned in a geosynchronous orbit 25 miles above the Atlantic Ocean.² Recently a natural resource-monitoring satellite belonging to the Windsong Corporation has strayed so close to Orbitcom’s satellite that the company’s transmissions between Europe and the United States have become unreliable. As a result, Orbitcom has lost customers and has sued Windsong for trespassing on Orbitcom’s right to its geosynchronous satellite orbit.

What kinds of things may be privately owned?

Economic theory of Property

Example 3: Foster inspects a house under construction in a new subdivision on the north side of town and decides to buy it. The day after she moves in, the wind shifts and begins to blow from the north. She smells a powerful stench. On inquiring, she learns that a large cattle feedlot is located north of the subdivision, just over the ridge, and, to make matters worse, the owner of this old business plans to expand it. Foster joins other property owners in an action to shut down the feedlot.

Example 4: Bloggs inherits the remnant of a farm from his father, most of which has already been sold for a housing development. The remaining acreage, which his father called “The Swamp,” is currently used for fishing and duck hunting, but Bloggs decides to drain and develop it as a residential area. However, scientists at the local community college have determined that Bloggs’s property is part of the wetlands that nourish local streams and the fish in the town’s river. The town council, hearing of Bloggs’s plans, passes an ordinance forbidding the draining of wetlands. Bloggs sues for the right to develop his property, or, failing that, for an order compelling the town to buy the property from him at the price that would prevail if development were allowed.

- ♦ “incompatible uses” , “nuisance”
- ♦ Dispute between private owners
- ♦ What may owners legitimately do with their property?
- ♦ Dispute between private owner and government
- ♦ Can government take private property?
- ♦ Expropriate = เวนคืน

Economic theory of Property

Example 5: A county ordinance requires houses to be set back 5 feet from the property line. Joe Potatoes buys some heavily wooded land in an undeveloped area and builds a house on it. Ten years later Fred Parsley, who owns the adjoining lot, has his land surveyed and discovers that Potatoes's house extends 2 feet over the property line onto Parsley's property. Potatoes offers to compensate Parsley for the trespass, but Parsley rejects the offer and sues to have Potatoes relocate the house in conformity with the ordinance.

- ♦ one property owner has encroached on the land of another for a long time
- ♦ Should the owner be denied a remedy because the trespass has persisted for so long?
- ♦ Alternatively, should the court award compensatory damages to the owner.
- ♦ Economics predicts the effects of various remedies and thus provides a powerful tool for choosing the best one.

Legal concept of Property

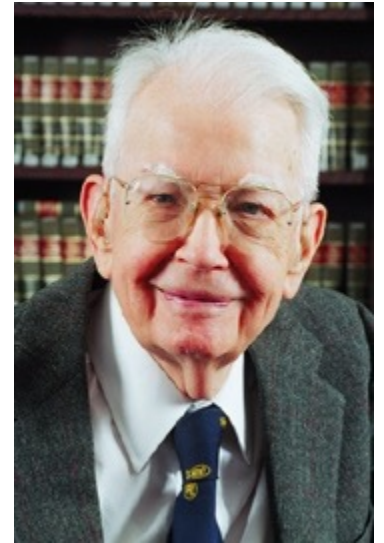
- ◆ Property is a bundle of rights describing what people may and may not do with the resources they own.
 - ◆ These rights are impersonal → attach to property, not persons. Any person who owns the property has the rights.
 - ◆ Owner is free to exercise the right over his property.
 - ◆ Others are forbidden to interfere with the owner's exercise of his rights.

The Coase Theorem

- ♦ approach the question as traditional lawyers → fairness requires the party who causes harm to pay for it.
- ♦ Professor Coase, however, answered in terms of *efficiency*
- ♦ “When transaction costs are zero, an efficient use of resources results from private bargaining, regardless of the legal assignment of property rights”

The Coase Theorem

- ♦ Ronald Coase (1960), *“The Problem of Social Cost”*
- ♦ **In the absence of transaction costs, if property rights are well-defined and tradable, voluntary negotiations will lead to efficiency.**
 - ♦ It doesn't matter how rights are allocated initially...
 - ♦ ...because if they're allocated inefficiently at first, they can always be sold/traded...
 - ♦ so the allocation will end up efficient anyway
- ♦ Initial allocation **does** matter for **distribution**, though
 - ♦ And if there are **transaction costs**, may matter for efficiency too



Ronald Coase
1910-2013

Example of Coase: you have a car worth \$3,000 to you, \$4,000 to me

- ◆ Efficient for me to own it...
- ◆ ...but we don't need the law to give me the car
 - ◆ If I start out owning the car:
no reason for you to buy it, I end up with it → efficient
 - ◆ If you start out owning the car:
I want to buy it, I end up with it → efficient
 - ◆ **Regardless of who owns the car at first, we get to the efficient outcome**
 - I'd rather start out with the car – so I don't have to pay you for it
 - You'd rather start out with it – so you end up with more money
 - Efficiency doesn't care about distribution – how much money we each end up with – just who ends up with the car at the end.
 - Efficiency doesn't depend on who starts with it.
- ◆ The key: **lack of transaction costs (eg. barriers to trade)**

Another example: you want to have a party in the house next door to mine

Case 1. it's efficient for you to have the party...

- ♦ Your benefit from having the party is greater than my benefit from a good night's sleep
- ♦ If you start out with the right to have the party, no problem
- ♦ If I start out with the right to quiet, you can pay me for the right to have the party

Case 2. If it's efficient for you not to have the party...

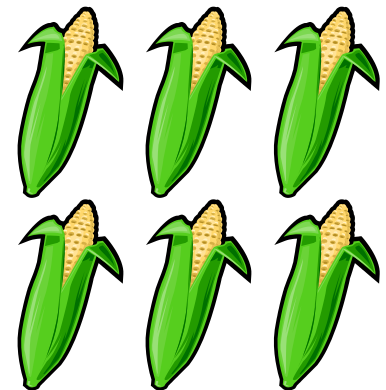
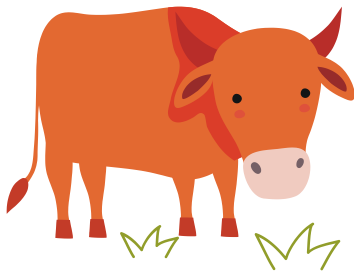
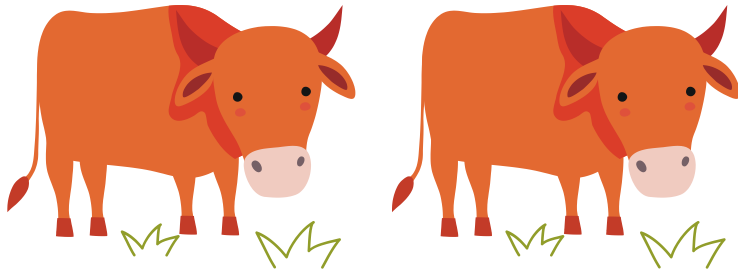
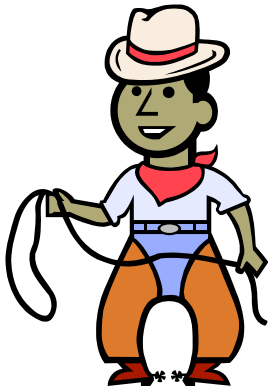
- ♦ Good night sleep is worth more to me
- ♦ If I have right to silence, no problem
- ♦ If you have right to party, I can pay you not to have it
- ♦ The point: either way, we achieve efficiency
 - ♦ If it's efficient to have the party, you have the party
 - ♦ If it's efficient not to, you don't
 - ♦ **Regardless** of who started off with the right

The conditions for this to hold

- ◆ Property rights have to be **well-defined**...
 - ◆ It must be clear on who has what rights to start with, so we know the starting point for negotiations
- ◆ ...and **tradable**...
 - ◆ We need to be **allowed** to sell/transfer/reallocate rights if we want
- ◆ ...and there can't be **transaction costs**
 - ◆ It can't be difficult or costly for us to buy/sell the right
- ◆ So, the Coase Theorem:

In the **absence of transaction costs**,
if property rights are **well-defined and tradable**,
voluntary negotiations will lead to **efficiency**.

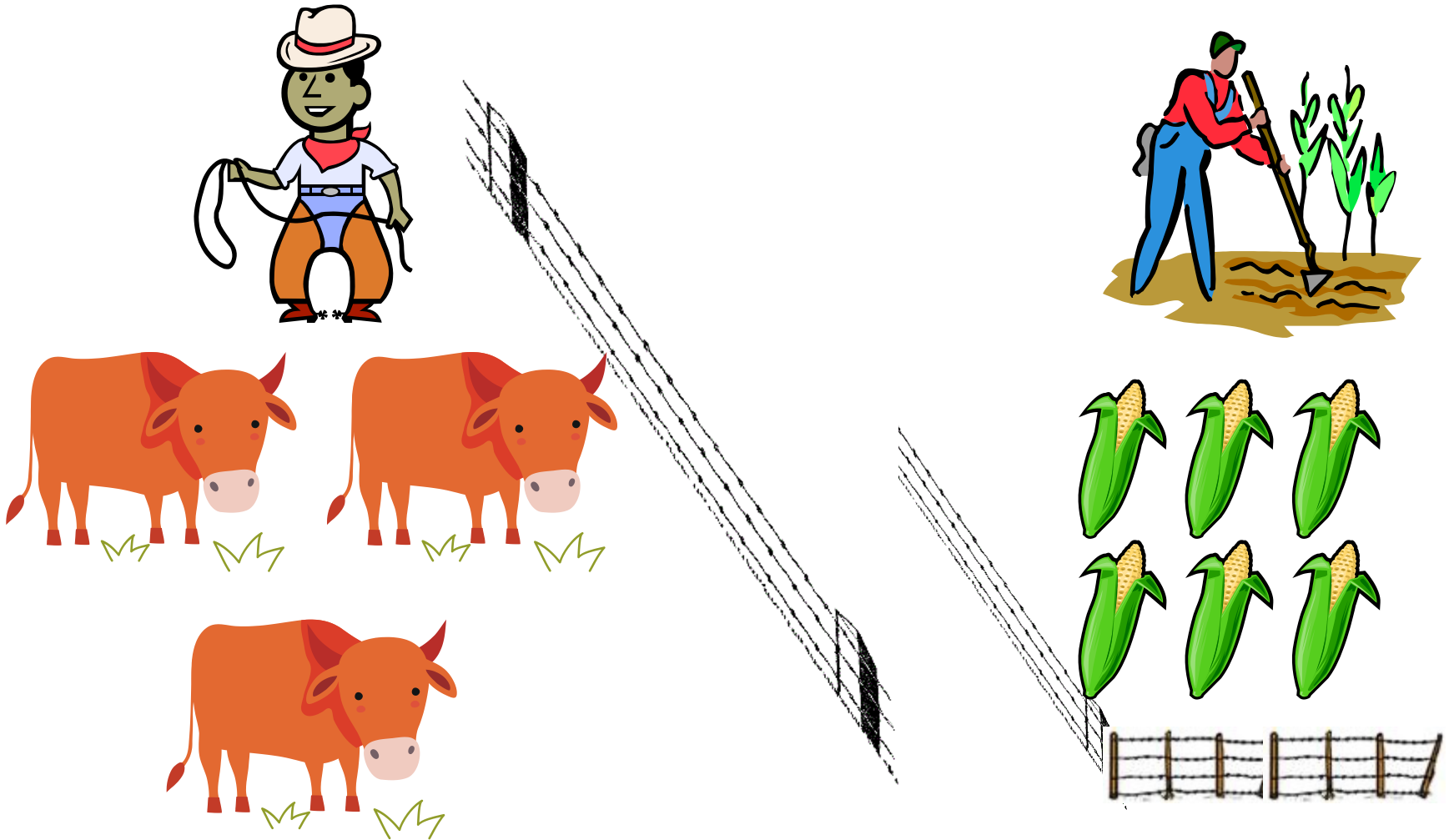
Coase's example: a rancher and a farmer



Rancher's versus farmer's rights

- ♦ English common law: “**closed range**” or “**fencing-in**” (or “**farmer's rights**”)
 - ♦ Ranchers have responsibility to control their cattle
 - ♦ Rancher must pay for any damage done by his herd
- ♦ Much of the U.S. at various times: “**open range**” or “**fencing-out**” (or “**rancher's rights**”)
 - ♦ Rancher can let his cattle roam free
 - ♦ Not liable for damage they do to farmer's crops
- ♦ **Which rule is more efficient?**

Open range versus closed range



Coase: either law will lead to efficiency

- ♦ If it's cheaper for the farmer to protect his crops than for the rancher to control his herd...
 - ♦ Under open range law, that's what he'll do
 - ♦ Under closed range law, rancher can pay farmer to build fence
- ♦ If it's cheaper for the rancher to control his herd, farmer can pay rancher to keep fewer cattle
 - ♦ Under open range law, farmer can pay rancher to keep fewer cattle
 - ♦ Under closed range law, rancher will control his heard.

Coase: either law will lead to efficiency

♦ Coase:

- ♦ Whatever is the efficient combination of cattle, crops, fences, etc....
- ♦ ...the rancher and farmer will negotiate to that efficient outcome, **regardless** of which law is in place...
- ♦ ...as long as the rights are well-defined and tradable and there are no transaction costs

Rancher and farmer: numerical example

- ♦ Three possibilities:
 - ♦ Rancher builds fence around herd... costs \$400
 - ♦ Farmer builds fence around crops... costs \$200
 - ♦ Do nothing, costs nothing
- ♦ If **expected crop damage = \$100**
 - ♦ Open range: farmer lives with damage rather than building fence
 - ♦ Closed range: rancher pays for damage rather than fence
- ♦ If **expected crop damage = \$500**
 - ♦ Open range: farmer builds fence – efficient
 - ♦ Closed range (with Coase): rancher pays farmer to build fence
 - ♦ So efficient outcome under either rule

Sum Up

- ♦ Coase Theorem: **In the absence of transaction costs, if property rights are well-defined and tradeable, voluntary negotiations will lead to efficiency.**
 - ♦ The initial allocation of property rights therefore **does not matter** for achieving **efficiency**...
 - ♦ ...provided there are **no transaction costs**
 - ♦ (But if there are transaction costs, then the initial allocation can matter for efficiency...
 - ♦ ...and it will always matter for distribution)

Quoting Coase...

“If market transactions were costless, all that matters (questions of equity apart) is that the rights of the various parties should be well-defined and the results of legal actions easy to forecast.

But... **the situation is quite different when market transactions are so costly as to make it difficult to change the arrangement of rights** established by the law.

In such cases, the courts directly influence economic activity.

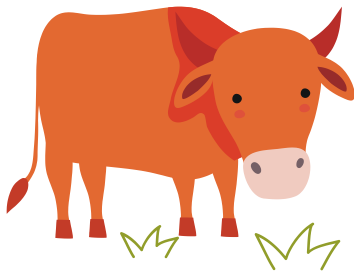
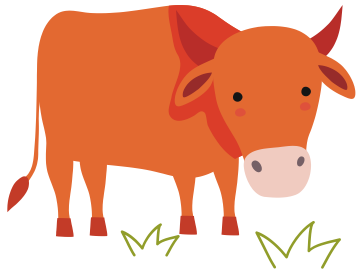
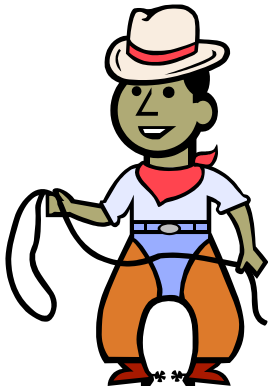
...Even when it is possible to change the legal delimitation of rights through market transactions, it is obviously desirable to reduce the need for such transactions and thus reduce the employment of resources in carrying them out.

Many externalities can be thought of as missing property rights

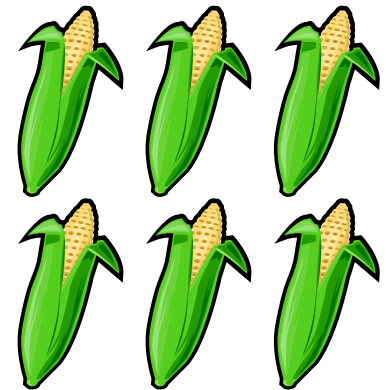
- ◆ Overfishing in communal lake?
 - ◆ It's because property rights over those fish aren't well-defined
- ◆ Firm polluting too much?
 - ◆ It's because property rights over clean air aren't well-defined
- ◆ So one solution...
 - ◆ Make property rights complete enough to cover “everything,” and tradable, and use the law to minimize transaction costs...

Bargaining

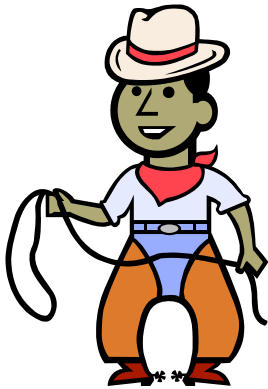
Let's go back to our rancher and farmer



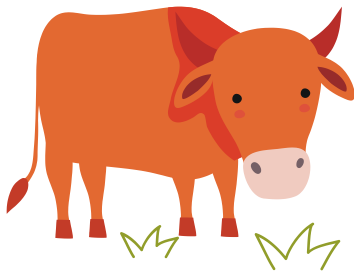
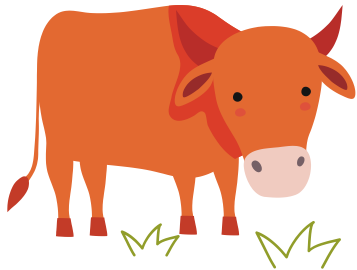
**Do
nothing:
\$500 in
crop
damage**



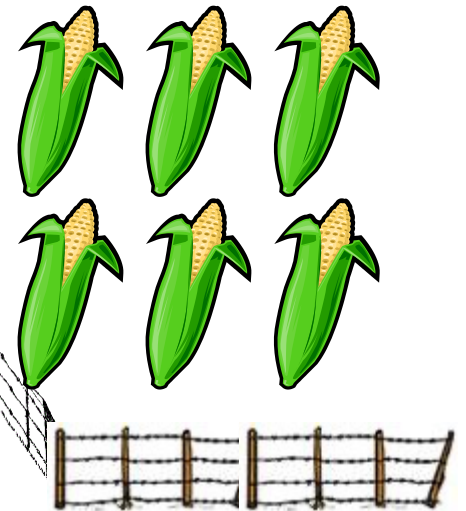
Let's go back to our rancher and farmer



**Farmer builds
fence: \$300**



**Rancher
builds fence:
\$400**



Let's go back to our rancher and farmer

No fence: \$500 in damages
Rancher builds fence: \$400
Farmer builds fence: \$300
Law: Farmer's Rights

- ♦ Three possibilities
 - ♦ Nobody builds a fence – \$500 in damage
 - ♦ Rancher builds fence – \$400 cost
 - ♦ Farmer builds fence – \$300 cost
- ♦ Suppose we're in a farmer's rights world
 - ♦ Rancher is liable for any damage done by his herd
- ♦ What does Coase predict will happen?
 - ♦ They'll bargain to efficient outcome
 - ♦ Meaning, the farmer will build a fence (and the rancher will pay him)
 - ♦ ***How much will he pay?***

Before bargaining: **threat points**

No fence: \$500 in harm
Rancher builds fence: \$400
Farmer builds fence: \$300
Law: Farmer's Rights

- ♦ Threat point – each side's anticipated outcome if bargaining fails
- ♦ Also called **outside option**, or **reservation utility**
- ♦ Deal has to make everyone better off than that!

Threat points

No fence: \$500 in harm
Rancher builds fence: \$400
Farmer builds fence: \$300
Law: Farmer's Rights

What happens to me if I don't reach a deal with the rancher? Well, he's liable for any crop damage...

...so there's no reason for me to build a fence...

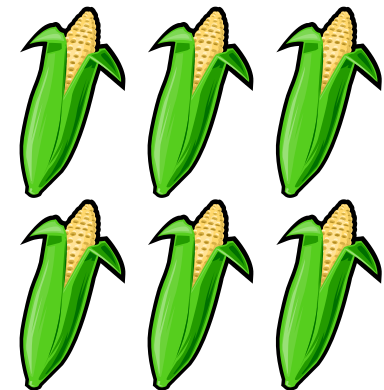
...and if there's any damage, he'll have to reimburse me...

...so if bargaining breaks down and I do nothing,

my payoff is 0.

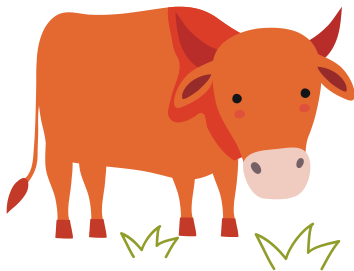
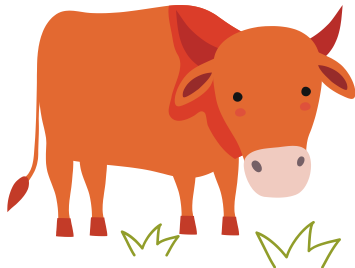
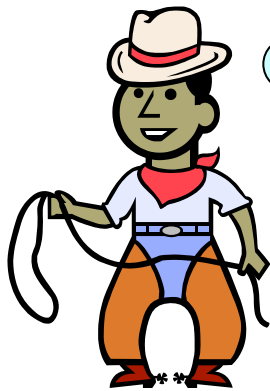
That's the best I can do on my own...

...so that's my threat point.



Threat points

No fence: \$500 in harm
Rancher builds fence: \$400
Farmer builds fence: \$300
Law: Farmer's Rights



What happens if I don't reach a deal with the farmer?
He has no reason to build a fence...
...and I'm liable for crop damage...
...so my choices are to pay for \$500 in damage...
...or to build a \$400 fence
So clearly, I'll build a fence
So my payoff if we don't make a deal is **-\$400**
So that's my threat point

Gains from cooperation

No fence: \$500 in harm
Rancher builds fence: \$400
Farmer builds fence: \$300
Law: Farmer's Rights

- ◆ So under a closed-range law...
- ◆ The farmer's threat point is 0, the rancher's is $-\$400$
- ◆ If a deal happens: (rancher's pay for farmer's fence)
total payoffs go up from **$-\$400$** to **$-\300**
 - ◆ Farmer will build a fence (efficient outcome), rancher will pay him some money
- ◆ Cooperation causes total payoffs to go up by \$100
- ◆ So \$100 is **gains from cooperation** (or gains from trade)
- ◆ **Gains from cooperation** – increase in **combined** payoffs if a deal is reached

So what will happen?

No fence: \$500 in harm
Rancher builds fence: \$400
Farmer builds fence: \$300
Law: Farmer's Rights

- ♦ Coase predicts negotiation will lead to efficiency
 - ♦ So the gains from cooperation will be realized
 - ♦ (The farmer will build a fence)
- ♦ Both sides have to do at least as well as their threat point
 - ♦ Otherwise, wouldn't agree to deal
- ♦ So rancher will pay farmer **somewhere between \$300 and \$400** to build the fence
 - ♦ But what if we want a more precise prediction?

So what will happen?

No fence: \$500 in harm

Rancher builds fence: \$400

Farmer builds fence: \$300

Law: Farmer's Rights

- ◆ **What if gains from cooperation were split evenly?**
- ◆ Threat points 0 and -400 , gains of 100
- ◆ Farmer's payoff: $0 + \frac{1}{2} (100) = 50$
- ◆ Rancher's payoff: $-400 + \frac{1}{2} (100) = -350$
- ◆ How is this achieved? Rancher pays farmer \$350 to build fence

If gains are split evenly.

No fence: \$500 in harm
 Rancher builds fence: \$400
 Farmer builds fence: \$300
 Law: Farmer's Rights

	Farmer's Rights
Rancher's Threat Point	-400
Farmer's Threat Point	0
Gains From Cooperation	100
Rancher's Payoff (IF...)	$-400 + \frac{1}{2} (100) = -350$
Farmer's Payoff	$0 + \frac{1}{2} (100) = 50$
Combined Payoffs	-300

If gains are split evenly...

No fence: \$500 in harm
Rancher builds fence: \$400
Farmer builds fence: \$300
Law: Farmer's Rights

	Rancher's Rights	Farmer's Rights
Rancher's Threat Point	0	-400
Farmer's Threat Point	-300	0
Gains From Cooperation	0	100
Rancher's Payoff (IF...)	0	-350
Farmer's Payoff	-300	50
Combined Payoffs	-300	= -300

Transaction costs

Three forms of transaction costs corresponding to these three steps of an exchange:

- (1) search costs : Search costs tend to be high for unique goods or services, and low for standardized goods or services.
- (2) bargaining costs: negotiations tend to be simple and easy when information about the threat values and the cooperative solution is public: Another obstacle to bargaining is hostility.
- (3) enforcement costs. arise when an agreement takes time to fulfill

What we know so far...

- ♦ No transaction costs / bargaining is easy
 - initial allocation of rights doesn't matter for efficiency
 - ♦ wherever they start, people will trade until efficiency is achieved
- ♦ Significant transaction costs / bargaining is hard
 - initial allocation does matter, since trade may not occur
- ♦ This leads to two normative approaches we could take
 - ♦ Minimize the **cost of** bargaining
 - ♦ Minimize the **need for** bargaining

The Normative Coase Theorem

- ♦ It is easier to bargain when legal rights are simple and clear than when they are complicated and uncertain.
- ♦ Eg. the rule “first in time, first in right” is a simple and clear way to determine ownership claims.
- ♦ Eg. requiring public recording of property claims makes determining ownership easier. Further, making those records searchable on the Internet may lower transaction costs even more

“Structure the law so as to remove the impediments to private agreements.”

(Minimize the cost of bargaining)

Normative Hobbes Theorem

- ◆ Besides encouraging bargaining, a legal system tries to minimize disagreements and failures to cooperate, which are costly to society.
- ◆ Hobbes thought that people would seldom be rational enough to agree on a division of the cooperative surplus, even when there were no impediments to bargaining.
- ◆ Their natural cupidity (greed) would lead them to quarrel unless a third, stronger party forced them to agree.

“Structure the law so as to minimize the harm caused by failures in private agreements.”

(Minimize the need for bargaining)

Normative Hobbes Theorem

- ♦ To minimize the resulting harm, the law should *allocate property rights to the party who values them the most.*
- ♦ the law makes exchange of rights unnecessary and thus saves the cost of a transaction.
- ♦ To illustrate, the Normative Hobbes Theorem requires the law to create “open range” (ranchers’ rights), rather than “closed range” (farmers’ rights) in situations corresponding to our previous example.

The Coase and Hobbes Theorems

- ◆ The Coase and Hobbes Theorems characterize two ways that law can increase efficiency when transaction costs are positive.
- ◆ First, law can *lubricate* private exchange by lowering transaction costs.
- ◆ Second, law can *allocate* rights to the party who values them the most.

The Coase and Hobbes Theorems

- ◆ Now we consider how a lawmaker might choose between lubricating and allocating.
- ◆ Return to example of the farmer and the rancher, where fencing costs the rancher \$75 and the farmer \$50.
- ◆ Assume that law assigns the obligation to fence to the rancher (farmers' rights). → a surplus of \$25 could be achieved by transferring the obligation to fence from the rancher to the farmer (ranchers' rights).
- ◆ Assume, however, that transaction costs of private exchange equal \$35, so the transfer is blocked.
- ◆ If law can lower the transaction costs of exchange from \$35 to \$10, transaction costs will no longer block private exchange.
- ◆ When private exchange is not blocked, the obligation of the rancher to build the fence can be transferred to the farmer, thus creating a net benefit of \$15.

The Coase and Hobbes Theorems

- ♦ Alternatively, assume that the law cannot lower the transaction costs of exchange.
- ♦ The other possible remedy is to change the law and assign the obligation to fence to the farmer (ranchers' rights), not the rancher (farmers' rights)
- ♦ Unfortunately, however, lawmakers often do not know who values rights the most, and finding out can be difficult.
- ♦ Lawmakers with limited information face a trade-off between transaction costs and information costs.
- ♦ let IC denote the information costs to a court of determining who values a legal right the most. Let TC indicate the transaction costs of trading legal rights. Efficient courts would follow this rule:

$IC < TC \Rightarrow$ allocate the legal right initially to the person who values it the most;
 $TC < IC \Rightarrow$ strictly follow precedent.

The Coase and Hobbes Theorems

- ♦ When transaction costs are low (TC) and information costs (IC) are high, structure the law so as to minimize transaction costs. Strictly follow precedent and let them negotiate.
- ♦ When transaction costs are high (TC) and information costs (IC) are low, structure the law to allocate property rights to whoever values them the most